

POPULATION AND HOUSING CENSUS 2011 DISSEMINATION SEMINAR

**9th - 12th DECEMBER 2013
GABORONE BOTSWANA**



POPULATION AND HOUSING CENSUS 2011 DISSEMINATION SEMINAR

9th -12th December 2013
Gaborone, Botswana

Published by

Statistics Botswana
P/BAG 0024
Gaborone

Tel: 3952200
Fax: 3952201

Email: csobots@gov.bw
Website: www.cso.gov.bw/cso

Printed and obtainable from
Statistics Botswana

2014

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ISBN 978-99968-428-1-8

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Preface

This report highlights the proceedings of a dissemination seminar of the 2011 Population and Housing census which was held on 9th– 12th December 2013 at Boipuso Hall, Fairground Holdings. The Seminar was held under the theme: ‘Population and Housing Census, a key to national development’. This report forms part of a series of publications which have been released following the completion of the 2011 Population and Housing Census. The following publications have been released;

- i. Preliminary Results
- ii. Population of Towns, Villages and Associated Localities
- iii. District Census Officers' and Technical Report
- iv. Stats Brief on Comparison of 2011 Census count with Population Projections and Post Censal population estimates for districts.

The seminar covered a wide range of thematic areas of interest which included among others; population structure, household wealth and income, agricultural land use and food security, mortality, fertility and children, urbanisation, migration, orphans, religion, youth, gender, water supply, waste management, information and communication Technology, and energy, labour, employment and economic activity.

The report presents the papers as presented by the authors at the seminar and edited papers will be published in the 2011 Census Analytical report.



Anna Majelantle
Statistician General
November 2014

Date: 9th December, 2013

PROGRAM	Day 1
Director of Ceremony	Mr. Brian Dioka
0730-0800 0800-1000	Registration Opening Plenary
Prayer Introduction of Guests Welcome Remarks Video Show UNFPA Head Representative Entertainment	Pastor Kabelo Kemoabe Mr Kevin Masupe Statistician General, Ms Anna Majelantle 2011 Census Mini Documentary Ms Aisha Camara -Drameh Statistics Botswana Choir
Keynote Address	Hon Vincent.T. Seretse (Assistant Minister of Finance and Development Planning) Mr Lefsema G. Motsemme (Statistics Botswana Board Chairperson)
Vote of Thanks	
Entertainment	Statistics Botswana Choir TEA BREAK TEA BREAK TEA BREAK
SECOND SESSION Director of Proceedings	T. Marualetona, Statistics Botswana
Entertainment	Shumba Ratshega
Sub-Theme Chairperson 1030-1055	Population Structure, Household Wealth and Income Prof. G. Letamo -Department of Population Studies, UB Presentation 1.1 2011 Population and Housing Census Highlights - D. Buthali
1055-1120	Presentation 1.2 Population Distribution, Structure & Density Prof Gwebu & T. Baakile & G. Mphetholang
1120-1145	Presentation 1.3 Assesing Household Wealth Status: An Asset Based Approach D. Mmopelwa and K. R. Lekobane
1145-1210	Presentation 1.4 Sources of Household Income In Botswana - Prof R. Arnab, Dr V. K Dwivedi, Prof D.K Shabodoyin, Dr Gabaitire & Prof S. Ramasay
1210-1245	Discussion
1245 -1400	LUNCH LUNCH LUNCH
THIRD SESSION Sub-Theme Chairperson: 1400-1425	Agricultural Land Use and Food Security Mr O. Masilo, Ag DPS Ministry of Agriculture Presentation 1.5 Analysis of Livestock Ownership and Crops Planted by households in Botswana - Prof N. O Ama, Dr V.K. Dwivedi, Dr S.T.R Moeng, K. Kebotsamang & B.P.G Mabotho
1425 -1450	Presentation 1.6 Analysis of Land Acquisition for Planting by Households in Botswana Prof N. O Ama, Dr V.K. Dwivedi, Dr S.T.R Moeng, K. Kebotsamang & B.P.G Mabotho
1450-1515	Presentation 1.7 Household Perspectives - Dr G. N. Lesetedi & K. Busang-Chilume
1515-1540	TEA BREAK TEA BREAK TEA BREAK
1540-1605	Presentation 1.8 Housing Conditions in Botswana – Dr R. Singh & Dr V. K. Dwivedi
1605 -1630	Discussion

PROGRAM		Day 2
Director of Proceedings		K. Mokgwathi, Statistics Botswana
FIRST SESSION		
Sub-Theme		Mortality, Fertility and Children
Chairperson		Ms S. El- Halabi – DPS, Ministry of Health
0800-0825		Presentation 2.1 Adult Mortality Levels and Trends – R. Majelantle
0825-0850		Presentation 2.2 Fertility Levels and Trends – Prof. G. Letamo and K. Bainame
0850-0915		Presentation 2.3 Infant and Childhood Mortality Levels and Trends in Botswana – R. Majelantle
0915-0935		Presentation 2.4 Child Indicators and Policy Implications – B. Semommung
0935- 1005		Discussion
1005-1025		TEA BREAK TEA BREAK TEA BREAK
SECOND SESSION		
Sub-Theme		Urbanisation, Migration, Disability and Nuptiality
Chairperson		Mr K. Ndobano - DPS, Ministry of Finance and Development Planning
1025-1050		Presentation 2.5 Recent Urbanisation Patterns and Processes and their Policy Implications in Botswana – Prof. T.D. Gwebu
1050-1115		Presentation 2.6 Migration Patterns – Prof K. Navaneetham
1115-1140		Presentation 2.7 Profile of the Disabled – Dr M. Mmatli
1140 - 1215		Presentation 2.8 Nuptiality Patterns and Trends in Botswana – R. Kubanzi
1215-1245		Discussions
1245-1400		LUNCH LUNCH LUNCH
THIRD SESSION		
Sub-Theme		Education, Training and Language
Chairperson		Mr D. Ratsatsi – DPS, Ministry of Education and Skills Development
1400-1425		Presentation 2.9 Policy Implications of Congruence Between Chronological Age and Grade Placement Among Students in Compulsory Phase of Education in Botswana Prof N. Forcheh & Dr B. Brown
1425- 1450		Presentation 2.10 Access to Education and Educational Attainment in Botswana 1991 – 2011 Dr S. D. Rakgoasi
1450-1515		Presentation 2.11 The Impact of Selected Policies on Educational Attainment in Botswana – Prof N. Forcheh & Dr B. Brown
1515-1530		Discussions
1530-1550		TEA BREAK TEA BREAK TEA BREAK
1550- 1615		Presentation 2.12 Language Perspectives in Botswana – J. Dick
1615 -1630		Discussion

Date: 10th December, 2013

Date: 11th December, 2013

PROGRAM	Day 3
Directors of Proceedings	G. Mphetolang, Statistics Botswana
FIRST SESSION Sub-Theme Chairperson	Elderly, Orphans and Religion Ms B.M. Radibe Department of Social Services, MLG
0800-0825	Presentation 3.1 Demographic and Social Correlates of Living Arrangements Among the Elderly – K. Bainame, Dr D. Bunne & Dr S. Shaibu
0825-0845	Presentation 3.2 Profile of the elderly - Dr. R.S.T Moeng
0845-0905	Presentation 3.3 The Profile of Orphans in Botswana – E. Mukamaambo & Dr G. Lesetedi
0905-0925	Presentation 3.4 Religious Perspectives in Botswana – Dr M. Kgosimore, Dr B. Sebolai, B.J. Macheng & M.M. Mabote
0925-1010	Discussion
1010-1030	TEA BREAK TEA BREAK TEA BREAK
SECOND SESSION Sub-Theme Chairperson	Youth and Gender Ms T. Ndzinge, Director, Department of Youth
1030-1055	Presentation 3.5 Socio-Economic Situation of Youth in Botswana: Problems, Prospects and Options – M. Keetile
1055-1120	Presentation 3.6 Profile of the Youth – R. Molebatsi
1120-1145	Presentation 3.7 Gender Profile – Dr R. Rakgoasi
1145-1200	Presentation 3.8 Gender Dimensions of the 2011 Population Census – S. Monyeki
1200-1245	Discussion
1245-1400	LUNCH LUNCH LUNCH
THIRD SESSION Sub-Theme Chairperson	Water Supply, Waste, ICT & Energy Mr N. Mbai, Deputy CEO - Water Utilities Corporation
1400-1425	Presentation 3.9 Principal Sources of Water Supply in Housing Units W. M. Thupeng, Dr L. Mokgatle and Prof N. Forcheh
1425-1450	Presentation 3.10 Waste Management and Sanitation – B. Modukanele
1450-1515	Presentation 3.11 Prevalence and Patterns of ICT-Especially Internet and Mobile Phones in Botswana – Dr S. D. Rakgoasi & M. Bowelo
1515-1530	Discussion
1530-1550	TEA BREAK
1550-1615	Presentation 3.12 Household Energy Use for Lighting, Cooking & Heating in Botswana Dr R. Singh
1615-1630	Discussion

Date: 12th December, 2013

PROGRAM	Day 4
Directors of Proceedings	S. Dambuza, Statistics Botswana
Sub-Theme Chairperson	Labour, Employment and Economic Activity Mr C. Mojafi - Deputy PS, Ministry of Labour and Home Affairs
0800-0825	Presentation 4.1 Determinants of Child Labour in Botswana – G. Kgosidintsi & Dr S. D. Rakgoasi
0825-0850	Presentation 4.2 Unemployment and the Attributes of the Unemployed Prof B. W. Malema
0850- 0915	Presentation 4.3 Economic Activity in Botswana - B. Komane & M. Malepa
0915- 1000	Discussion
1000-1030	TEA BREAK TEA BREAK TEA BREAK TEA BREAK
1030-1230	Closing Plenary
Director of Ceremony	Mr Temba Sibanda
Overview of the National Strategy for the Development of Statistics (NSDS) Ms Malebogo Kerekang, Acting Deputy Statistician General	
Statement on the Implication of Census Results on Vision 2016 and Beyond Mr Edwin Ramothlwa, Vision 2016 Coordinator	
Video Show	Highlights of Census Dissemination Conference
Key Note Speaker: Implications of Census Results on the Population Policy Rev Rupert Hambira, Chairperson Population Council	
Entertainment	Makwakwa a Setso
Recommendations & Way forward Mr Tapologo Baakile, Director, Socio Demographic Statistics	
Vote of Thanks & Closing Professor Keoagile Thaga, Vice Chair-Statistics Botswana Board	
Entertainment	Statistics Botswana Choir
LUNCH LUNCH LUNCH	



Annah Majelantle Statistician General [Statistics Botswana]

2011 POPULATION AND HOUSING CENSUS DISSEMINATION SEMINAR
WELCOME REMARKS

Anoch Majelantle
Statistician General
Statistics Botswana

Director of Ceremonies,
Honorable Assistant Minister of Finance and Development Planning
Cabinet Ministers,
Your Excellency's, Members of the Diplomatic Corps,
Honourable Members of Parliament,
Members of Ntlo Ya Dikgosi,
Your Worship, the Mayor of the City of Gaborone,
Chief Executive Officers from the public and private sector,
Representatives of NGOs, CBO and other organisations,
Media Practitioners,
Distinguished Guests,
Ladies and Gentlemen,

1. It is a great pleasure and honor to welcome you to the 2011 Population and Housing Census Dissemination Seminar. Your attendance is a reflective of the importance of census information to all segments of the economy and society at large.

2. Population and housing censuses play a pivotal role as a catalyst in evidence based decision making, both at programme and policy level. Major objectives of population and housing census are:

- Provision of data for constituency delimitation as stated on Section 64 of Botswana's Constitution,
- Provision of information on demographic, social and economic status for local, district and national planning purposes, and
- Provision of baseline data for surveys, research and projections.

3. Director of Ceremonies, to achieve these objectives, strategic census planning was necessary, which included establishment of census functional structures across the country, with needed capacity built at various stages for effective and efficient implementation of the census project. Other critical preparatory activities included a pilot census which was conducted in 2010 to test our preparedness for conducting the actual census. The population census is therefore the largest statistical operation which requires huge resources covering human, infrastructure, financial and logistical services.

4. Ladies and Gentlemen, the credibility of statistics remains imperative to any statistical organization. Therefore in conducting the 2011 Population and Housing Census, we adhered to international standards and principles. In this connection I wish to mention that issues of quality assurance and information confidentiality were given the utmost attention. The selection of topics was guided by user needs, following wide stakeholder consultations and fruitful dialogue to ensure relevance of census data. I must mention that this seminar is also meant to evaluate the results and come up with recommendations that will enable further data quality assurance and relevance.

5. Conducting the census was not plain sailing. The major challenge was that the project was launched at the time of the global economic recession which we all experienced. The other was that the Central Statistics Office was undergoing transformation to Statistics Botswana which had effects on staff anxiety. There were some areas where inhabitants demanded some locality resolutions before enumeration and through appropriate communication and education on purpose of census, enumerations was conducted. Notwithstanding challenges, we are here today to witness release and dissemination of 2011 census results. There is therefore no better testimony to the fact that the census project was a success.

6. Director of Ceremonies, in an effort to be responsive to user needs, we have been strategic in the periodic release of results when they were ready. For instance, the preliminary results were released in November 2011, while the basic counts were published in June 2012. More detailed results shall be shared during this seminar and beyond.

7. To all stakeholders in the production and use of official statistics, the census is not complete until the information collected is made available to potential users in a form suited to their needs. Census data will continue to be made available to users, either as printed publications, computer – readable magnetic, optical media and on-line dissemination through appropriate media.

8. I would like to appeal and encourage all users to effectively and objectively use these population and housing census results for evidence based decisions. We should remember that, through these results, work done in the last ten years can be assessed and work to be completed in the next ten years can be planned.

9. This census dissemination seminar is an opportunity to increase access to statistical information and encourage maximum use of the same. I want to remind you of the motto, "Botswana First" I therefore request you to use Botswana official statistics first.

10. Director of Ceremonies, I would like to express my profound and sincere gratitude to all who participated and contributed to the success of undertaking the 2011 population and housing census, from Local authorities, district census officers, field personnel, development partners especially UNFPA and off course Statistics Botswana and MFDP.

11. In preparing for this dissemination seminar, Statistics Botswana constituted a team comprising experts and professionals from many disciplines to undertake analysis of various thematic areas with intention to assess performance of relevant policies. I therefore wish to acknowledge, with appreciation, the dedication and commitment rendered by these analysts.

12. Director of Ceremonies, Assistant Minister of Finance and Development Planning, all protocol observed, I welcome you all to the 2011 population and housing dissemination seminar and call upon you to receive the 2011 census results.

I Thank you All.



Ms Aisha Camara-Drammeh UNFPA Country Representative

2011 POPULATION AND HOUSING CENSUS DISSEMINATION SEMINAR

REMARKS

By

Ms Aisha Camara-Drammeh
UNFPA Country Representative

Salutations

- Directors of Ceremonies
- Minister of Finance and Development Planning — Hon. Kenneth Matambo,
- Honourable Members of Parliament, here present
- Honourable Members of Ntlo Ya Dikgosi,
- Your Excellency's Members of the Diplomatic Corps,
- His Worship the Mayor of Gaborone, -
- Honourable Councillors, here present
- The Government Statistician — Ms Anna Majelantle,
- The District Commissioner,
- City Clerk,
- Senior Government Officials and Heads of Departments,
- Representatives from NGOs and the Private Sector here present,
- Members of the Press,
- Distinguished Guests, Ladies and Gentlemen

Dumelang bagaetsho!

I am honoured and delighted to be here today on this important occasion of the dissemination of the 2011 Population and Housing Census. Censuses are central to our mandate and mission at UNFPA. At the International Conference on Population and Development (ICPD) in Cairo in 1994, an agreement was reached on the need to strengthen national capacity to carry out sustained and comprehensive programmes on collection, analysis, dissemination and utilization of population and development data. The Cairo Conference acknowledged that Governments need to be able to gather information, track, analyse and disseminate population trends in order to create and manage sound policies and generate the political will to address current and future needs. As such, UNFPA actively supports countries in the conduct of censuses to ensure that programme countries receive support to mobilize the funds and the technical capacity they need to complete a population census during the 2010 round (2005-2014). Here in Botswana, we were substantially involved in the 2011 census process and have provided technical assistance and material support to the census office at an estimated cost of \$ 1,325,000 (equivalent to P 10,600,000) for the period between 2009 and 2013.

Distinguished Guests, we gather here today because we've reached the critical and intriguing milestone of the census conduct — the dissemination of results. Experts and academicians will be revealing results of the analysed 2011 census population data on but not limited to the following thematic areas: Population structure & distribution, Fertility, Population density, Migration, Marital status and Nuptiality, Youth, Elderly, Gender — to mention some. Planners need data, information and analysis on the different population and development issues for purposes of designing and implementing evidence-based policies, strategies and programmes and monitoring & evaluating the effectiveness of policies and programmes and progress towards national and international development goals.

On the other hand, population data helps leaders and policy-makers to make informed decisions about policies and programmes to reduce poverty and hunger, and advance education, health and gender equality. Decision makers look to data for answers — are we making progress, where is unmet need, can we predict trends? Population Data is a critical planning tool which guides investment decision on for instance, the number of schools required, clinics, roads, etc. It helps to uncover gender disparities in employment, education, etc. It establishes the number of people with disabilities, orphans, and other vulnerable groups. It gives us data at a district level which can help us advocate for quality services.

Advocacy based on data can be a powerful tool in lobbying. Strong data makes a strong case for arguments that can change mind-sets and inform policy decisions. The value of data is in its impact on policies and programmes that improve peoples' lives. The challenge is making the leap from data collection to its use by decision makers. Clearly advocacy and data are intricately related.

Director of Ceremonies, I wish to applaud the Government of Botswana for its commitment to the successful conduct of five decennial censuses in accordance with international practice. A number of countries have

failed to achieve this due to financial, political and other considerations. With global attention now focused on reviewing the ICPD and the MDGs and in framing the post-2015 development agenda, and us here in Botswana gearing up to 2016 as per our national Vision, the availability of valid, reliable, and timely data has become even more crucial. Such data will be critical for monitoring, assessing and realigning plans and strategies and for effective advocacy.

The next challenge will be to ensure that the data is used to make evidence-based plans and policies that will improve opportunities for current and future generations.

Director of Ceremonies, On this day, I call on decision-makers everywhere to make each and every person count. Only by considering the needs of all women and men, girls and boys, can we achieve the MDGs and advance the shared values of the United Nations. Data that is sorted by gender and age can foster increased responsiveness by national decision-makers to the rights and needs of women and youth and help build a more equitable and prosperous society. There is therefore need to conduct in-depth analysis of the census data particularly to provide poverty mapping for better targeting interventions and resources, district profiles, population projections and other variables. Moreover, access to quality data for development through web-based Integrated Management Information System (IMIS) is critical. For this, I further pledge UNFPA's support for maximum utility on the investment made on the census project.

Distinguished Guests, Ladies and Gentlemen - Let me end my remarks by quoting the UN Secretary-General Ban-Kin Moon who once said, "access to good data is a component of good governance, transparency and accountability". There can be no accountability without information on population groups for which few data are available, and which tend to be forgotten in policies and programmes. Data, and public access to it, can help people to dialogue and hold their governments accountable to keeping their promises. It contributes to transparency. Good (quality) data is essential for making good decisions.

I thank you for your kind attention. Ke a leboga bagaetsho!!!



Dr Taufila Nyamadzabo opening the conference on behalf the
Assistant Minister of Finance & Development Planning, Honourable Vincent T. Seretse

2011 POPULATION AND HOUSING CENSUS DISSEMINATION SEMINAR OPENING SPEECH

Honourable Vincent T. Seretse
Assistant Minister of Finance and Development Planning

- Director of Ceremonies
- Cabinet Ministers,
- Your Excellency's, Members of the Diplomatic Corps,
- Honourable Members of Parliament,
- Members of Ntlo Ya Dikgosi,
- Your Worship, the Mayor of the City of Gaborone,
- Chief Executive Officers from the Public and Private Sector,
- Representatives of NGOs, CBO and other Organisations,
- Members of the Media
- Distinguished Delegates, Ladies and Gentlemen,

Good morning.

1. It is with pleasure that I formally launch the dissemination of the 2011 Population and Housing Census results today. Tracing back to where the whole census project began, some of you may recall that my Ministry officially launched the project in November 2009, exactly four years ago. One must admit that it has been a long and arduous journey to complete the census data analysis, and no doubt, a prolonged waiting period for the main results by data users and stakeholders. It must also be acknowledged that censuses processes had to be allowed to take their course, lest the quality of the outputs is compromised.

2. Director of Ceremonies, census results underpin developments in all spheres of life since statistics reflects our image as country, district, region, village or even a settlement. Suffice to say, the usual anxiety associated with the release of census results is largely due to the fact that, whatever image is revealed will spiral a chain of decisions to orient and re-position programmes and initiatives towards desired destinations. The fact that census results provide a critical macro level performance scorecard is not an issue for debate.

3. Information on the population size, composition, growth, spatial distribution, economic and socio-demographics, all derived from a population and housing census are important in informing the course, direction, and pace of development efforts. At the international level, there are important development goals (e.g. Millennium Development Goals) which we have committed to achieve as a nation, whilst at a national level we have important goals to track, such as those in our Vision 2016. With at most three years left before reaching the MDGs and V2016 timelines, it is important that we gain speed especially on those goals and pillars where we might be lagging behind. Therefore, indicators reflecting our current situation are an imperative.

4. The theme of the dissemination seminar, "Population and Housing Census, a key to national development", sums up the importance and urgency with which census results are required. I believe therefore, that the moment we have all been waiting for has finally arrived.

5. Director of Ceremonies, censuses are major undertakings, consequently they do not come cheap. When the 2011 census is closed at the end of the 2013/14 financial year, at least P116 million would have been spent on the project. This is just direct costs, with close to half that figure as indirect costs. In the midst of current budgetary challenges, this is a large amount of money hence the return on this investment must be made visible for all stakeholders to see. Statistics generally gain value through extensive usage hence I call upon all of you to ensure optimal use of census results for evidence-based decisions.

6. The importance of this dissemination seminar must be viewed in the light of the issues I just alluded to. This is just the beginning, as further research and data mining shall be prompted by the emerging realities as revealed by the census indicators. Census data are rich and like a mineral it has to be mined and exploited optimally. I am informed that Statistics Botswana will work on appropriate packaging to suit the needs of various user clienteles, especially at the district level. Hard copy reports may have served a purpose in the past but more innovative ways must be devised to suit the information age that now characterizes the global village. My request to you is to double your efforts in the use of information communication technology in accessing these results.

7. Director of Ceremonies, a glimpse of the census results shows some positive trends on a number of socio-economic spheres. I am encouraged and indeed gratified to observe that the life expectancy at birth has increased from 56 to 68 years between 2001 and 2011. To the extent that life expectancy is marginally

higher (by 3 years) than the 1991 level, it is evident that all the gains in the area of health up to the early 1990s were eroded during the decade that followed. This will go down in history as a 'dark decade' on our health front, if I could use that term.

8. On mortality, it is pleasing to note that infant mortality rate declined from 56 to 27 deaths per 1000 live births during the period 2001 and 2011. Judging by our performance against 'the best in class', we still have a long way to go to match developed country levels of around 2 deaths per 1000 live births. Crude death rate dropped from 12.4 to 6.6 deaths per 1000 population. My guess is that my colleague at the Ministry of Health would probably be excited about these results and the implications of such trends.

9. I observe that fertility trends have also declined over time. Total fertility rate (TFR), the average number of children that would be born to a woman during her reproductive life if she were to experience the prevailing age-specific fertility rates, declined from 3.2 to 2.7 children per woman between the two censuses. Tracking the trend over the past three decades shows TFRs of 6.6, 5.2, 3.2 and 2.7 children per woman, respectively for the last four censuses. Whilst one can derive comfort in Botswana's TFR approaching developed country levels, generally of below 2 children per woman, I would like to call upon experts to shed more light on the implications of this trend. For now, I draw comfort in that we are not down to replacement fertility levels yet.

10. Director of Ceremonies, based on Statistics Botswana's functional definition of an urban area, i.e., a locality with a minimum population of 5000 and at least 75 percent of the workforce being engaged in non-agricultural activities, there are now 47 urban villages in Botswana, an increase of 20 villages over the 2001 list. In essence more and more areas of Botswana are becoming urbanised. Overall, 64 percent of the population now live in urban areas (cities, towns or urban villages), up from 54.2 percent observed in the 2001 Population and Housing Census. This trend certainly says something about Botswana's reduced participation in agricultural activities' and, more fundamentally, the resultant lower contribution of the sector to the economy. This calls for further investigations to shed more light on the situation.

11. Whilst considering the spatial population distribution, the phenomenal growths of villages within the periphery of the two cities deserve some mention. Of particular concern, in this connection, is whether such growth is matched by the rate of provision of services and other essential amenities. I obviously do not have answers to these but leave this to economic planners to reflect upon.

12. On the economic activity front, the census results yielded an unemployment rate of 19.6 percent for the population aged 18 years and above. To the extent that census results corroborate high levels of unemployment among the youth, these figures add to those calling for concerted efforts at employment creation.

13. Director of Ceremonies, Botswana's middle income status, based on the country's per capita income has profound implications on funding eligibility by development partners. Notwithstanding the middle income status, there still exist gaps in technical capacity in a few areas, and conducting and analysing a population and housing census is one such area. In this connection, I wish to acknowledge with appreciation the generosity rendered by the United Nations Population Fund (UNFPA) in providing financial and technical support for the 2011 Population and Housing Census. By funding the services of the Census Technical Advisor and the National Census Coordinator as well as procuring some critical equipment, the UNFPA demonstrated beyond any doubt that they are indeed an important partner on the global census agenda. Once again, I express my appreciation to the UN Family, through the UNDP Coordinator, and the UNFPA Representative in particular, for that generous support.

14. Director of Ceremonies, the census needs the support of various stakeholders in order for it to succeed. Therefore, it would be inappropriate not to mention the support rendered by local structures and institutions. The 2011 Population and Housing Census succeeded largely due to a very good inter-ministerial collaboration, especially between my Ministry and that of Ministry of Local Government & Rural Development.

15. Director of Ceremonies, in conclusion, I wish all participants a fruitful dialogue over the next four days. However, my expectation is that at the end of such dialogue there must be clear guidance to various development programmes that the Government is implementing, especially within the National Development Plan 10 (NDP10), the Vision 2016, Millennium Development Goals and Poverty Eradication Strategies, and the Sustainable Development Goals (SDGs). Your constructive engagement will enable us to plan better for the development of this country.

16. Distinguished Guests, Ladies and Gentlemen, it is now my pleasure to declare the 2011 Population and Housing Census Dissemination Seminar officially launched.

**I THANK YOU ALL
PULA**



Prof Keoagile Thaga Statistics Board Vice Chairperson giving **Vote of Thanks**

2011 POPULATION AND HOUSING CENSUS DISSEMINATION SEMINAR
VOTE OF THANKS

Prof Keoagile Thaga
Statistics Board Vice Chairperson

Director of Ceremonies,
Cabinet Ministers,
Your Excellency's, Members of the Diplomatic Corps,
Honourable Members of Parliament,
Members of Ntlo Ya Dikgosi,
Your Worship, the Mayor of the City of Gaborone,
Chief Executive Officers from the public and private sector,
Representatives of NGOs, CBO and other organisations,
Media Practitioners,
Distinguished Guests,
Ladies and Gentlemen,

1. Today marks an important watershed in the short history of Statistics Botswana, especially from the viewpoint of the Board of Directors. When the Board was established in November 2011, census enumeration had been completed some three months earlier. So, we came straight into the project hence the anxiety over the past two years to see it completed successfully. Although the quarterly updates on the census data cleaning provided some assurance and hope, the completion dates kept shifting thus impinging on our performance and delivery. Therefore, as Statistics Botswana Board, we are happy that the 2011 Population and Housing Census results are finally being disseminated.

2. With the passing of the Statistics Act of 2009, the shareholder in particular had a lot of expectations since the Act provided the necessary framework to improve efficiency and effectiveness within the national statistical system (NSS). My team and I undertake to rise to the expectation, especially improving on the turnaround time between the conduct of surveys and release of results. Within the limited resources at our disposal, we undertake to do our best. The launching of the National Statistics Strategy, currently being developed, will not only allow pooling of limited resources in the compilation and production of statistics but ensure harmonization of concepts, standards, methods, classifications and above all mainstreaming of statistics in the sector planning processes. Full implementation of the strategy is expected during the 2015/16 financial year, to allow for alignment with the budgeting cycle.

3. Director of Ceremonies, Statistics Botswana continues to collaborate with data producers and other stakeholders with the view to improve the availability and integrity of official statistics. As part of this initiative guidance is being provided to data producers in designing their databases and computerization their processes. Memoranda of agreements are being entered into with stakeholders with the view to structure and formalize data sharing and collaborations protocols. Whilst it is not my intention to dwell on these issues, it is important that you have a glimpse of the strategic direction of the organisation.

4. Director of Ceremonies, the Honourable Assistant Minister highlighted very important points, which I have noted. The importance of census results or statistics in general, to monitoring and evaluation of development goals (MDGs, NDP10, and V2016) can never be overemphasized. Your message is loud and clear hence we shall rise to the challenge. The need for optimal use of census or statistics in general to demonstrate return on investment in data collection and compilation is noted. Similarly the call for appropriate packaging of census results to suit user needs is well received. Concerted efforts will be made to improve on current initiatives, especially those offered through ICT advancements.

5. In line with my role of passing a vote of thanks, I wish to take this opportunity to thank all stakeholders who have played a role in the census – from the pre-enumeration, through enumeration to the post-enumeration phase. I have been informed of the sterling job performed by the District Commissioners, Council Secretaries in steering the census activities in their district and, at operational level, the District Census Officers. Your role deserves special attention, otherwise we would not be disseminating the 2011 Population and Housing Census results today. Le ka moso bagaetsho.

6. Director of Ceremonies, with these remarks I wish to thank the Honourable Minister for the inspiring message. I would also like to thank you all for the valuable time you have accorded to be with us today and also thank those who will be staying behind for the deliberations during the next four days.

Thank You.



Dabilani Buthali Deputy Statistician General – Statistics Botswana
presenting on 2011 Population & Housing Census Highlights

2011 POPULATION AND HOUSING CENSUS HIGHLIGHTS

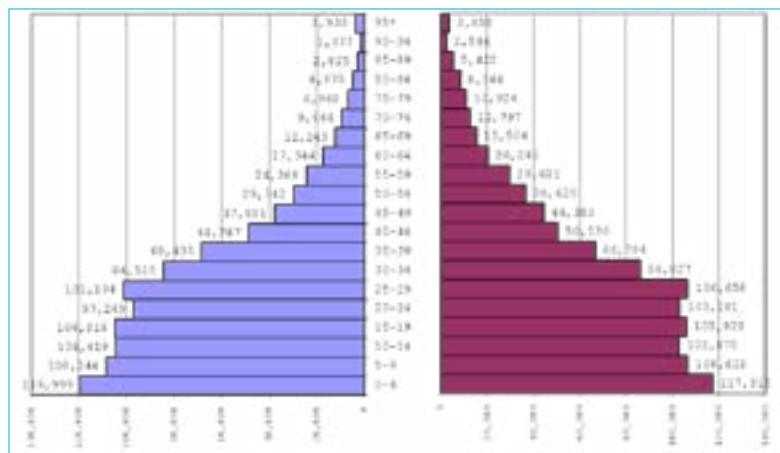
**By
Dabilani Buthali**

Deputy Statistician General – Statistics Botswana

Population by District:2001-2011

Districts	Households	2001 Census	Male	Female	Total	Population Growth	Average HH
Gaborone	74,957	186007	113,536	118,056	231,592	2.22	3.09
Franstown	31,297	83023	48,104	50,857	98,961	1.77	3.16
Lobatse	9,214	29689	14,144	14,863	29,007	-0.23	3.15
Selibe Phikwe	16,058	49849	24,732	24,679	49,411	-0.09	3.08
Orapa	3,292	9151	4,731	4,800	9,531	0.41	2.90
Jwaneng	5,940	15179	9,819	8,189	18,008	1.72	3.03
Sowa Town	1,191	2879	1,960	1,638	3,598	2.25	3.02
SOUTHERN	48,794	171652	95,811	101,956	197,767	1.43	4.05
Kanye/Moshupa	31,480	113704	62,256	66,991	129,247	1.29	4.11
Barolong	13,758	47477	26,680	28,151	54,831	1.45	3.99
Ngakwetse West	3,556	10471	6,875	6,814	13,689	2.72	3.85
SOUTH EAST	23,990	60623	40,697	44,317	85,014	3.44	3.54
KWENENG	80,548	230335	149,587	154,962	304,549	2.83	3.78
Kweneng East	68,317	189773	125,195	131,557	256,752	3.07	3.76
Kweneng West	12,231	40562	24,392	23,405	47,797	1.65	3.91
KGATLENG	24,915	73507	44,566	47,094	91,660	2.23	3.68
CENTRAL	147,599	501381	279,139	296,925	576,064	1.40	3.90
Central Serowe	46,187	153035	88,879	91,621	180,500	1.66	3.91
Central Mahalapye	29,795	109811	57,547	61,328	118,875	0.80	3.99
Central Bobonong	19,155	66964	34,247	37,689	71,936	0.72	3.76
Central Boteti	14,110	48057	28,143	29,233	57,376	1.79	4.07
Central Tutume	38,352	123514	70,323	77,054	147,377	1.78	3.84
NORTH EAST	15,865	49399	28,596	31,668	60,264	2.01	3.80
NORTH WEST	42,385	142970	85,615	90,016	175,631	2.08	4.14
Ngamiland East	21,736	72382	44,401	45,933	90,334	2.24	4.16
Ngamiland West	13,164	49642	27,913	31,508	59,421	1.81	4.51
Chobe	6,830	18258	12,023	11,324	23,347	2.49	3.42
Delta	655	2688	1,278	1,251	2,529	-0.61	3.86
GHANZI	11,375	33170	22,452	20,903	43,355	2.71	3.81
Ghanzi	11,354	32481	22,259	20,836	43,095	2.87	3.80
CKGR	21	689	193	67	260	-9.29	12.38
KGALAGADI	13,498	42049	25,469	25,023	50,492	1.85	3.74
Kgalagadi South	7,956	25938	15,119	14,897	30,016	1.47	3.77
Kgalagadi North	5,542	16111	10,350	10,126	20,476	2.43	3.69
Total	550,918	1,680,863	988,958	1,035,946	2,024,904	1.88	3.68

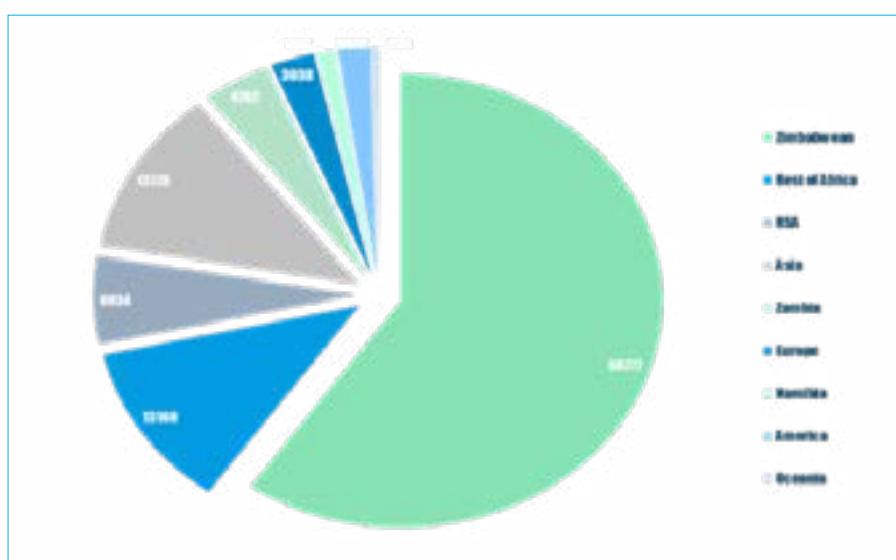
Population Age Structure



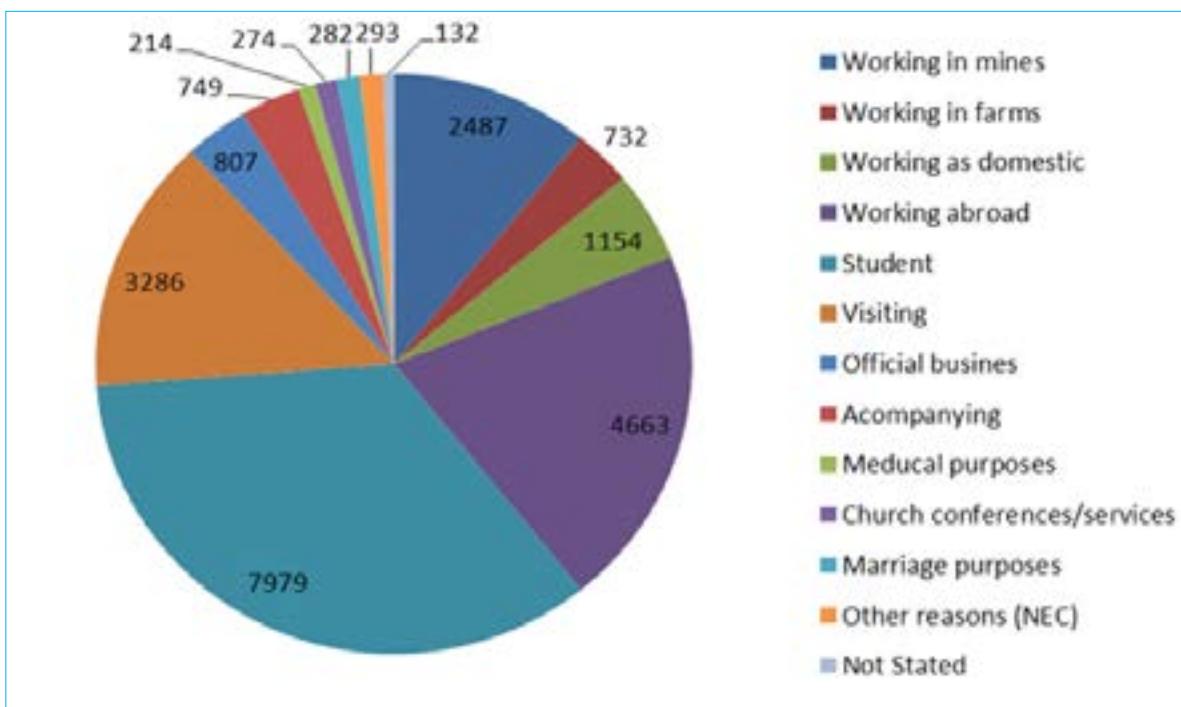
Demographic Indicators

Population Characteristics	1971	1981	1991	2001	2011
Enumerated Population	574,094	941,027	1,326,796	1,680,863	2,024,904
Male	262,121	443,104	634,400	813,583	989,128
Female	311,937	497,923	692,396	867,280	1,035,776
Non-Batswana	10,861	15,677	29,557	60,716	111,846
Botswana Nationals Abroad	45,735	42,069	38,606	28,210	23,032
Male (000's)	36.7	32.6	27.9	16.8	11.8
Female (000's)	9.1	9.4	10.7	11.4	11.2
Population Distribution (%)					
0-4	17.6	18.8	14.6	11.6	11.7
5-14	29.9	28.8	28.6	25	20.9
15-64	46.9	47.6	51.8	58.2	62.4
15-49	39.4	40.8	45.5	52	54.6
65+	5.6	5.1	4.9	5	5
Percentage of Females aged 15-49 (out of total females)	42.8	42.9	46.5	52.4	54.4
Dependency Ratio (per100)	113	110	93	72	60.2
Child-woman Ratio (per1000)	759	819	602	430.1	421.2

Non-Citizens by Country



Citizens Abroad by Reason for Absence



Demographic Indicators Continued

Population Characteristics	Census 1971	Census 1981	Census 1991	Census 2001	Census 2011
Sex Ratio (Males per 100 Females)	84	89	92	93.8	95.5
Percentage Urban	9	17.7	45.7	54.2	64.1
Population Density (per km)	1	1.6	2.3	2.9	3.5
Crude Birth Rate (per 1000)	45.3	47.7	39.3	28.9	25.7
Crude Death Rate (per 1000)	13.7	13.9	11.5	12.4	6.25
Natural Rate of Increase (% per annum)	3.1	3.4	2.7	1.7	1.9
General Fertility Rate (per 1000 women aged 15-49)	189	210	161	106.9	92.2
Mean age at childbearing	30.5	30.6	30	30.3	20
Total Fertility Rate(births per woman)	6.5	6.6	4.2	3.27	2.7
Infant Mortality Rate	97	71	48	56	17
Child Mortality Rate	56	35	16	19	11
Under 5 Mortality	152	105	63	74	28.1
Life Expectancy at Birth (years)	55.5	56.5	65.3	55.6	68
Males	52.5	52.3	63.3	52	66
Females	58.6	59.7	67.1	57.4	70
Mean Age (years)	23.4	22.7	23	24.8	26.2
Males	22.6	22	22.4	24.2	25.2
Females	24.1	23.4	23.5	25.3	26.8
Median Age (Years)	15	15.3	16.8	20.1	23
Males	13.5	15	16	19.4	22
Females	16.7	16.5	17.4	20.8	24
Population Growth Rate		4.7	3.5	2.4	1.9

Source: National Census 1971, 1981, 1991 and 2001

Economic Activity

	1991	2001	2011
Employee	2,755,750	370,456	521,781
Self Employed	28,647	54,661	71,121
Family Business	7,938	6,446	4,313
Lands & Cattlepost	67,613	17,630	43,698
Seeking Work	60,385	109,512	160,141
Total	440,333	558,705	801,054
Unemployment Rate	13.71	19.60	19.68



Grace Mphetolang Statistics Botswana presenting on Population Distribution,
Structure, Density and Policy Implications in Botswana

POPULATION DISTRIBUTION, STRUCTURE, DENSITY AND POLICY IMPLICATIONS IN BOTSWANA

By

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Department of Environmental Science

University of Botswana

Tapologo Baakile and Grace Mphetolang

Statistics Botswana

Abstract: This paper provides a snapshot of the country's population structure and concentration by sex and other variables. The paper draws comparison between the current findings and the findings of the 2001 census.

The paper notes that the country of 2 million people is dominated by females especially at the ages 15 and above. The population is generally youthful with 32.7 per cent of it aged below 15 years down from 36.6 per cent in 2001. The analysis reveals a steady growth of persons within the economically active group now estimated at 64.9 per cent compared to 58.2 per cent in 2001. On the other hand, the elderly population aged 65 years and above has declined from 5 per cent in 2001 to an estimated 4.4 per cent in 2011. Further, the paper notes that majority of the elderly population are found in the rural districts compared to urban areas.

The country continues to attract foreign nationals who participate in various sectors its economy. The proportion of non-Batswana has increased from only 3.6 per cent of the population in 2001 to an estimated 5.5 per cent in 2011, majority of those whom are within the economically active group, mainly 20 – 44 years.

The number of people for every square kilometer – population density- has increased from 2.9 persons per square kilometer to 3.5. The South Eastern region, which also houses the national capital, has the highest density of 13.8 persons per square kilometer followed by the Eastern region. The Western region is the least populous with a density of less than one person per square kilometer. The South Eastern region is also home to 47.3 per cent of the country's population.

In conclusion, the paper gives a summary of the policy implications of the youthful age structure of the population, declining rate of population growth, low sex ratio as well as regional imbalances in population distribution.

1.0 Introduction

Population distribution refers to either the way a national population is spread by sex across various age groups or the manner in which a population is spread over geographic space. Refined measures of this spread provide specific numerical expressions such as the arithmetic and other population densities.

The age-sex structure or composition of a population reflects a cumulative outcome of demographic and mobility events that have been operating for many decades. Today's population dynamics echo those vital and mobility events that occurred several decades ago. Similarly, today's population processes will be etched indelibly onto the demographic profile of years yet to come. The spatial distribution of a population may be due to the occurrence of natural resources such as reliable rainfall, good surface and groundwater supplies, fertile soils and exploitable mineral resources. The distribution of economic investments such as industries, services and transport has also attracted population concentrations. Repulsive factors such as the presence of diseases tend to discourage human settlement.

A correct understanding of population distribution patterns is central to sustainable national development planning. Age-sex structure provides an empirical basis for the provision of goods, information and service for the various age cohorts. It also forms an informed basis for deciding whether national income should be earmarked for productive or non-productive sectors. Furthermore, it assists in the assessment of the probable impacts of fertility, mortality and migration on population growth patterns and trends. The spatial distribution and re-distribution of population determine where people live and why they are found in those areas. This facilitates the planning for the rationale and equitable allocation of those goods, information and services that determine the quality of life of the national population. Unless Botswana takes advantage of available Census data to make informed decisions, that are evidence-based, the country will be confronted with these challenges that undermine sustainability.

The chapter examines and rationalizes the demographic and geographical distribution of the population from the 2011 Botswana Population and Housing Census data. Finally, the policy implications of population distribution are discussed and conclusions drawn.

2.0 Data and Methodology

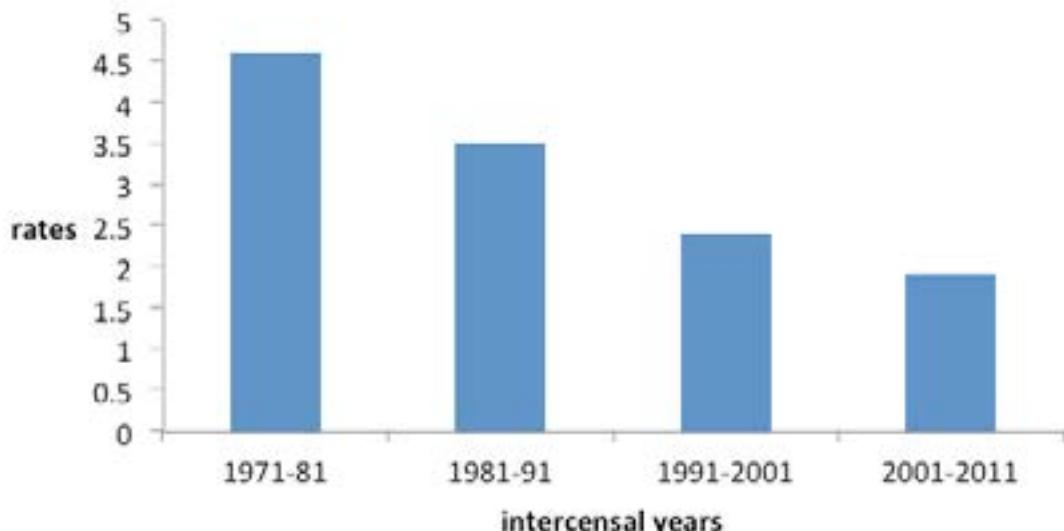
Data for this chapter is obtained from Statistics Botswana in SPSS format. It was then analysed using descriptive statistics method, then further summarized into tables and graphs. Descriptive statistics and socio-economic indices were obtained and interpreted. Edited data are not anticipated to change the reported findings fundamentally.

3.0 Analysis, Results and Discussion

3.1 Population size and demographic distribution

The total population is estimated at 2,024,904. This number represents an absolute increase of 344,041 from the population that stood at 1,680,863 during the 2001 census, but also shows the latest inter-censal annual growth rate of 1.9 percent, shown in Figure 1.

Figure 1: Intercensal population growth rates



The annual rate of increase, which is the surplus of births over deaths, has however, been declining over the decennial censuses that have been held since 1971. Inter-censal annual growth rates were 4.6, 3.5 and 2.4 percent, between 1971-81, 1981-91 and 1991-2001 respectively. The observed declining growth trends might reflect the interactive outcomes of; declining fertility rates associated with increasing economic development; Increasing female literacy and their participation in semi-professional and professional occupations and successful family planning programme. The population will nonetheless continue growing in response to the population momentum attributed past high fertility and the youthful population structure of the 1980s and 1990s.

Table 1 shows the 2001 and 2011 population size and percent increase. Gaborone (45,585) had the largest population increase over the ten year period among cities and towns as compared to Kweneng East (66,979) which experienced the largest population increase among the rest of the districts. On another note, South East district grew by 40.2% between 2001 and 2011 while the Delta decreased by 5.9% over the same period.

Table 1: Population size and percent increase by Census year and district

Table 1: Population size and percent increase by Census year and district

Census District	2001 Population	2011 Population	Population Increase from 2001	Percent Increase from 2001
Gaborone	186007	231592	45585	24.5
Francistown	83023	98961	15938	19.2
Lobatse	29689	29007	-682	-2.3
Selibe-Phikwe	49849	49411	-438	-0.9
Orapa	9151	9531	380	4.2
Jwaneng	15179	18008	2829	18.6
Sowa	2879	3598	719	25.0
Southern	113704	129247	15543	13.7
Barolong	47477	54831	7354	15.5
Ngwaketse West	10471	13689	3218	30.7
South East	60623	85014	24391	40.2
Kweneng East	189773	256752	66979	35.3
Kweneng West	40562	47797	7235	17.8
Kgatleng	73507	91660	18153	24.7
Central Serowe/Palapye	153035	180500	27465	17.9
Central Mahalapye	109811	118875	9064	8.3
Central Bobonong	66964	71936	4972	7.4
Central Boteti	48057	57376	9319	19.4
Central Tutume	123514	147377	23863	19.3
North East	49399	60264	10865	22.0
Ngamiland East	72382	90334	17952	24.8
Ngamiland West	49642	59421	9779	19.7
Chobe	18258	23347	5089	27.9
Delta	2688	2529	-159	-5.9
Ghanzi	32481	43095	10614	32.7
CKGR	689	260	-429	-62.3
Kgalagadi South	25938	30016	4078	15.7
Kgalagadi North	16111	20476	4365	27.1
BOTSWANA	1,680,863	2,024,904	344,041	20.5

Table 2 shows the percentage share of population for 2001 and 2011 for Kweneng East accommodates over 12.7% of the total population followed by Gaborone with 11% and Serowe/Palapye with 8.9% of all persons in 2011. Less than 6% of the population lived in Orapa, Jwaneng, Sowa, Delta, CKGR and Ngwaketse West combined. The percentage share of population has declined in the mining town of Selibe Phikwe and Lobatse.

Table 2: Percentage share of population by Census year and District

District	Percent	
	2001	2011
Gaborone	11.1	11.4
Francistown	4.9	4.9
Lobatse	1.8	1.4
Selibe-Phikwe	3.0	2.4
Orapa	0.5	0.5
Jwaneng	0.9	0.9
Sowa	0.2	0.2
Southern	6.8	6.4
Barolong	2.8	2.7
Ngwaketse West	0.6	0.7
South East	3.6	4.2
Kweneng East	11.3	12.7
Kweneng West	2.4	2.4
Kgatleng	4.4	4.5
Central Serowe/Palapye	9.1	8.9
Central Mahalapye	6.5	5.9
Central Bobonong	4.0	3.6
Central Boteti	2.9	2.8
Central Tutume	7.3	7.3
North East	2.9	3.0
Ngamiland East	4.3	4.5
Ngamiland West	3.0	2.9
Chobe	1.1	1.2
Delta	0.2	0.1
Ghanzi	1.9	2.1
CKGR	0.0	0.0
Kgalagadi South	1.5	1.5

3.2 Population Structure and composition

3.2.1 Age and Sex Composition

Table 3 shows the distribution of the population by age and sex. The population is dominated by women who constitute 51 percent of the population. The sex ratio of 95.5 also reflects the predominance of females in the population. This could be due to the general tendency of women to outlive men. In fact, female dominance starts at the ages above 14 while the data shows that there are more males at birth until the age group 10 – 14.

Table 3: Population and Percentage Distribution by Age and Sex

Age	Male	Percent	Female	Percent	Total
0-4	120046	50.6	117341	49.4	237387
5-9	108561	50.5	106622	49.5	215183
10-14	104468	50.4	102976	49.6	207444
15 -19	104847	49.7	105956	50.3	210803
20-24	97270	48.6	103045	51.4	200315
25-29	101193	48.7	106576	51.3	207769
30-34	84507	49.6	85989	50.4	170496
35-39	68438	50.6	66765	49.4	135203
40-44	48757	49.1	50494	50.9	99251
45-49	37879	46.1	44358	53.9	82237
50-54	29737	44.8	36616	55.2	66353
55-59	24363	45.1	29685	54.9	54048
60-64	17343	46.2	20235	53.8	37578
65-69	12237	44.1	15504	55.9	27741
70-74	9461	42.5	12788	57.5	22249
75-79	6963	38.9	10915	61.1	17878
80-84	4868	36.8	8344	63.2	13212
85 and above	8133	41.2	11624	58.8	19757
Total	989,071	48.8	1,035,833	51.2	2,024,904

Male sub-population dominates the 0 -14 age groups due,naturally to excess male births. Thereafter, almost all the cohorts are dominated by females due to excess male deaths that are normally attributed to biological, socio-cultural and socio-economic factors. The only exception is the 35-39 cohorts, where excess female deaths could be due to maternal deaths and HIV/AIDS related mortality that is more prevalent among women.

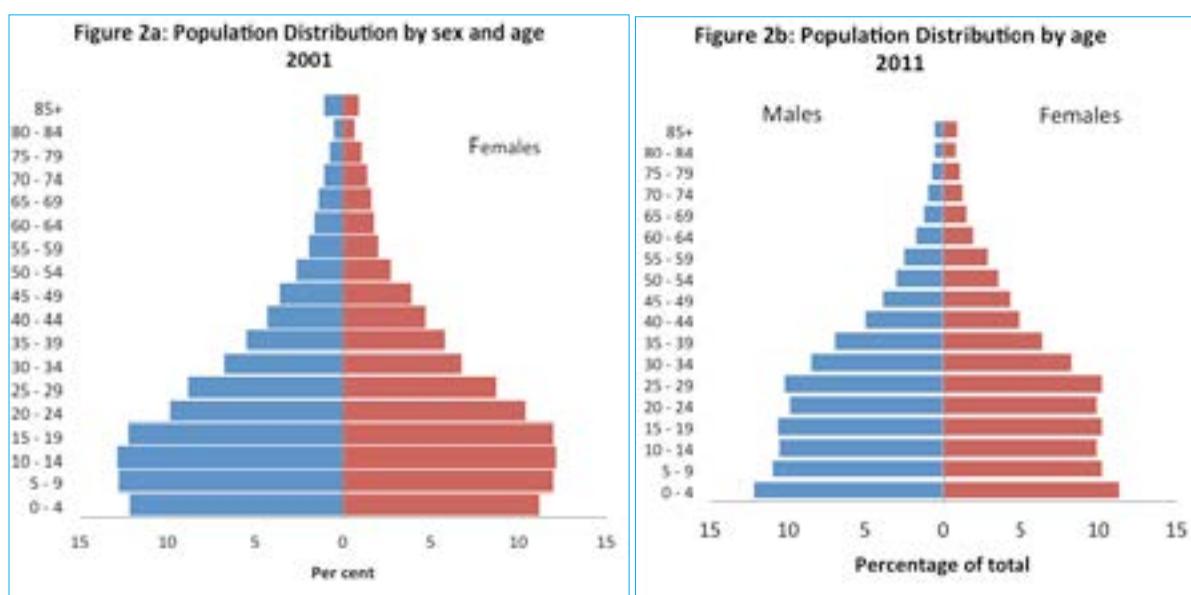
Only 5.1 percent of the population can be classified as being elderly. This is a decline from 5.5 percent estimated in 1998, probably reflecting a slow or stagnating life expectancy as well as rapid growth at the lower ages possibility persistent high mortality within this age group. This figure is below the 7 percent figure for Mauritius but slightly above those for the Republic of South Africa, Zimbabwe and Lesotho at 4.5, 4.2 and 4.2 percent respectively (<http://www.sadc.int/about-sadc/overview/sadc-facts-figures>).It is nonetheless relatively high when compared to the rest of the African continent's figure of about 3.6 percent.

Table 4: Population and Percentage distribution by sex and district

Area	Total	2011			
		Male	Percent	Female	Percent
Gaborone	231592	113536	49.0	118056	51.0
Francistown	98961	48104	48.6	50857	51.4
Lobatse	29007	14144	48.8	14863	51.2
Selibe-Phikwe	49411	24732	50.1	24679	49.9
Orapa	9531	4731	49.6	4800	50.4
Jwaneng	18008	9819	54.5	8189	45.5
Sowa	3598	1960	54.5	1638	45.5
Southern	129247	62256	48.2	66991	51.8
Barolong	54831	26680	48.7	28151	51.3
Ngwaketse West	13689	6875	50.2	6814	49.8
South East	85014	40697	47.9	44317	52.1
Kweneng East	256752	125195	48.8	131557	51.2
Kweneng West	47797	24392	51.0	23405	49.0
Kgatleng	91660	44565	48.6	47095	51.4
Central Serowe/Palapye	180500	88879	49.2	91621	50.8
Central Mahalapye	118875	57547	48.4	61328	51.6
Central Bobonong	71936	34247	47.6	37689	52.4
Central Boteti	57376	28143	49.1	29233	50.9
Central Tutume	147377	70323	47.7	77054	52.3
North East	60264	28596	47.5	31668	52.5
Ngamiland East	90334	44401	49.2	45933	50.8
Ngamiland West	59421	27913	47.0	31508	53.0
Chobe	23347	12023	51.5	11324	48.5
Delta	2529	1278	50.5	1251	49.5
Ghanzi	43095	22259	51.7	20836	48.3
CKGR	260	193	74.2	67	25.8
Kgalagadi South	30016	15119	50.4	14897	49.6
Kgalagadi North	20476	10350	50.5	10126	49.5
BOTSWANA	2,024,904	988,957	48.8	1,035,947	51.2

Table 4 show the population size by sex and district. In most of the districts, males are fewer than females.

A comparison of the 2011 population structure with the 2001 distribution shows a resurgence of the age group 0 – 4 years. While the 2001 showed the loss of dominance by this group, probably due to high deaths among infants and reduced births due to the risk of contracting HIV at the time. However, the 2011 shows return to dominance of this group probably owing the introduction of the ARVs and the Prevention of Mother to Child Transmission programme which ensured survival of infants and children as most them are born without the virus.



The age sex profile, as depicted in Figure 2b, has a tapering apex typical of the expansive population structure genre characterized by a relatively improving life expectancy.

Table 5 shows that the population is youthful with 32.7 percent of it below the age of 15.

	Population	Percent	Cumulative Percent
0-4	237387	11.7	11.7
4-9	215183	10.6	22.4
10-14	207444	10.2	32.6
15-19	210803	10.4	43.0
20-24	200315	9.9	52.9
25-29	207769	10.3	63.2
30-34	170496	8.4	71.6
35-39	135203	6.7	78.3
40-44	99251	4.9	83.2
45-49	82237	4.1	87.2
50-54	66353	3.3	90.5
55-59	54048	2.7	93.2
60-64	37578	1.9	95.0
65-69	27741	1.4	96.4
70-74	22249	1.1	97.5
75-79	17878	0.9	98.4
80-84	13212	0.7	99.0
85+	19757	1.0	100.0
Total	2,024,904	100.0	

3.2.2 Median age of the population

The median age of the population has been increasing steadily over the years. The median age increased from 23 years in 1991 to 24.8 years in 2001, and to the current 26 years. The increase shows that even though the population is still youthful, it is steadily getting older.

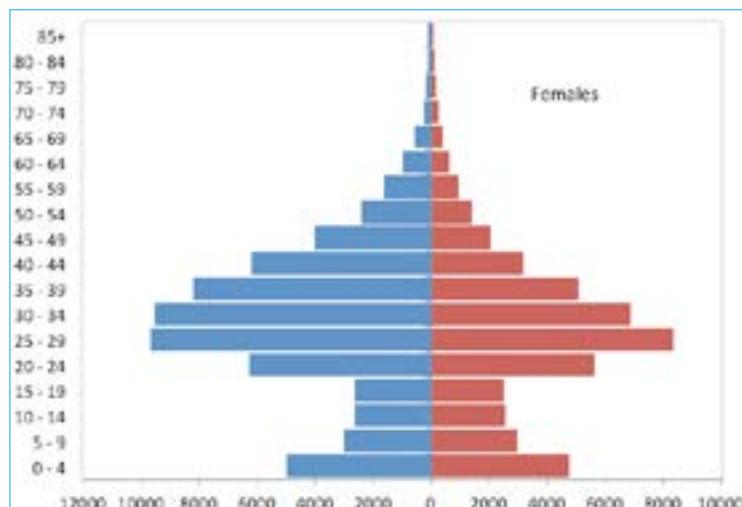
3.2.3 The economically active population

The working age population has increased from 58.2 percent in 2001 to 64.9 percent in 2011. The dependency ratio on the other hand decreased from 71.5 experienced an 8 percent decline from the 71.5 percent figure of 2001 to 56.7 in 2011. The decline reflects an increase in the size of the economically active cohort and the decline in the children-infant category as well as the population of the elderly.

3.2.4 Population by Nationality

Botswana continues to attract a sizeable number of foreign nationals. In 2001, there were 60,716 foreign nationals in the country, making up 3.6 per cent of the total population. This number increased to 111,485 in 2011, representing 5.5 per cent of the total population. As shown in figure 4 below, majority of this group is within the working age group of 20 – 44 years with an almost equal representation for both males and females. However, there are slightly more males than females across all age groups.

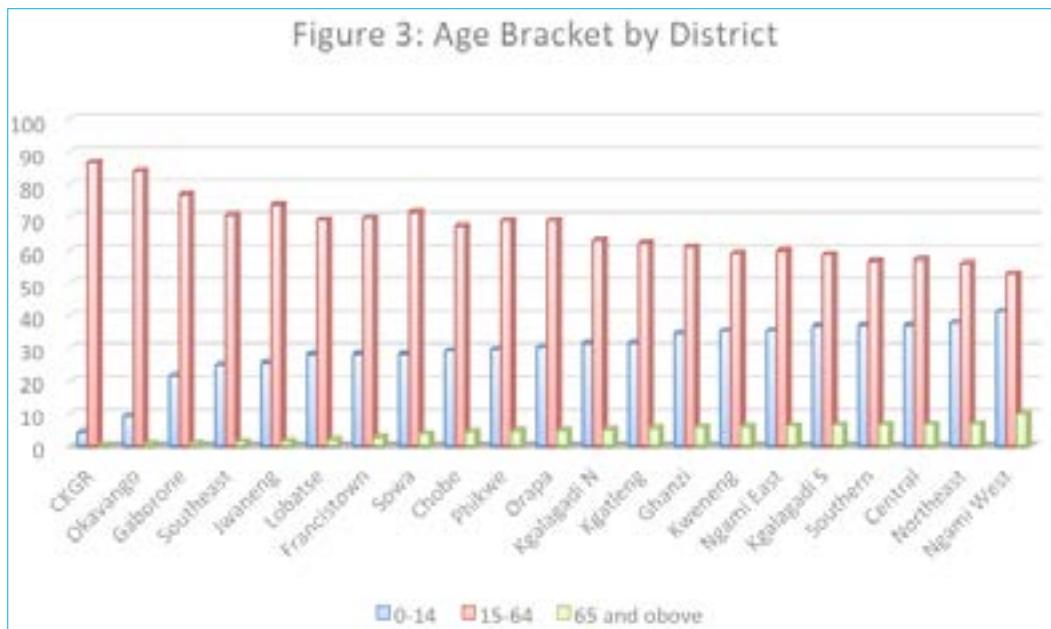
Figure 2c: Age Distribution of Foreign Nationals 2011



3.3 The Geographical Distribution of the Population

3.3.1 District Population Distribution by Age

Figure 3 shows the age distribution of the population by district. Elderly population aged 65 years and above constitutes a relatively small proportion of the population residing in districts predominantly urban districts



Elderly population aged 65 years and above constitutes a relatively small proportion of the population residing in districts predominantly urban districts. Their percentage ranges from about 0.5 percent to approximately 3 percent. They are least found in the mining towns of Orapa, Sowa, Jwaneng but are better represented in Lobatse, Francistown and Selibe Phikwe. Children aged 0-14 years constitute less than a third of the population of towns and cities. They are least represented in Gaborone. The working age group constitutes the largest proportion of the residents of towns and cities, ranging from about 70 percent to 77 percent.

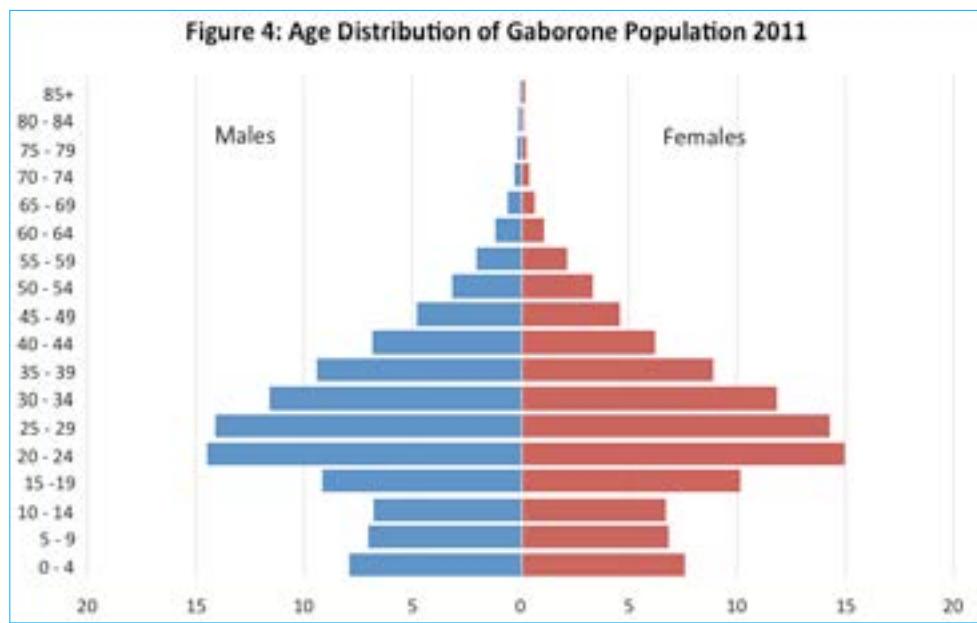
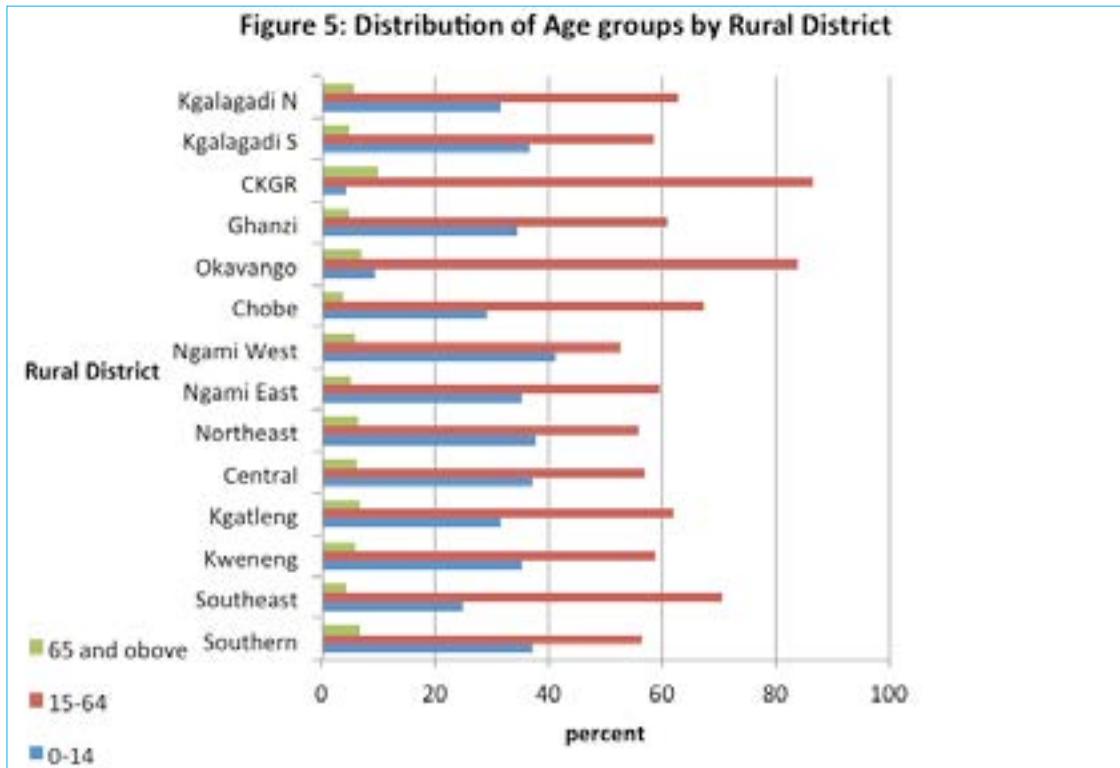


Figure 4 shows the distribution of the population of the national capital, Gaborone. The population is dominated by the youth aged 15 – 39 who also constitute the working age group. As already alluded to in the preceding arguments, the elderly along with children are least represented in the capital.

This population distribution patterns reflect selective migration to towns and cities by the economically active age cohort. It also reflects associational migration of dependent children.

The age patterns for the rural districts, depicted in Figure 5, show a higher representation of the dependent population compared with the urban pattern.



Children and infants represent 4 percent to about 40 percent of the population, whereas the elderly cohort makes up about 4 percent to 10 percent of the population. This sub-population is often referred to as a residual component that remains once the economically active group has relocated to towns and cities and certain rural areas such as urban villages, where employment opportunities avail themselves. The economically active population forms the dominant cohort in the Rural Districts, ranging from about 50 percent to approximately 90 percent of the rural population. It is to be found in the Southeast District where there is the highest concentration of job opportunities within the South Eastern Planning Region, and the tourist related areas such as the Central Kalahari Game Reserve and Chobe.

3.3.2 Districts Sex ratios

Table 6: Population and Sex Ratio by District

	Sex			
	Male	Female	Total	Sex ratio
Gaborone	113544	118048	231592	96.2
Francistown	48106	50855	98961	94.6
Lobatse	14145	14862	29007	95.2
Selebi-Phikwe	24733	24678	49411	100.2
Orapa	4730	4801	9531	98.5
Jwaneng	9820	8188	18008	119.9
Sowa Town	1960	1638	3598	119.7
Ngakwetse	62262	66985	129247	92.9
Barolong	26681	28150	54831	94.8
Ngakwetse West	6874	6815	13689	100.9
South East	40699	44315	85014	91.8
Kweneng East	125214	131538	256752	95.2
Kweneng West	24402	23395	47797	104.3
Kgatleng	44572	47088	91660	94.7
Central Serowe/Palapye	88889	91611	180500	97
Central Mahalapye	57548	61327	118875	93.8
Central Bobonong	34249	37687	71936	90.9
Central Boteti	28147	29229	57376	96.3
Central Tutume	70340	77037	147377	91.3
North East	28595	31669	60264	90.3
Ngamiland East	44410	45924	90334	96.7
Ngamiland West	27924	31497	59421	88.7
Chobe	12023	11324	23347	106.2
Okavango Delta	1277	1252	2529	102
Ghanzi	22268	20827	43095	106.9
CKGR)	193	67	260	288.1
Kgalagadi South	15119	14897	30016	101.5
Kgalagadi North	10347	10129	20476	102.2
Total	989,071	1,035,833	2,024,904	95.5

Apart from Orapa, which is a closed town and has a comparatively diverse functional structure, the dominance of males over females in the mining towns is evident. This reflects a gender stereotyping that governs the traditional division of labour; society has come to believe that most mining jobs can mostly be done by men. Rural districts show the effects of selective male migration. In cities, Lobatse town and highly urbanized districts such as the Southeast, Kgatleng, Kweneng and Central Serowe/Palapye East there is a predominance of females over males, generally. This could be due to the types of employment and the stereotypes that promote the gendered division of labour. Women are mostly employed in primary school education, nursing, secretarial and clerical work in both the public and private sector. They also dominate the retail sector as till operators and banks as tellers. Furthermore, they constitute the majority of domestic workers and the self-employed.

About 90 percent of the national population lives either in urban villages, rural villages or towns and cities while the rest live in lands areas, cattle posts, freehold farms and caps, as shown in Table 7. Some 64 percent of the population is urban. The Table sheds further light on the differential distribution of sex by sub-locality.

Table 7: Distribution of the Population by Locality

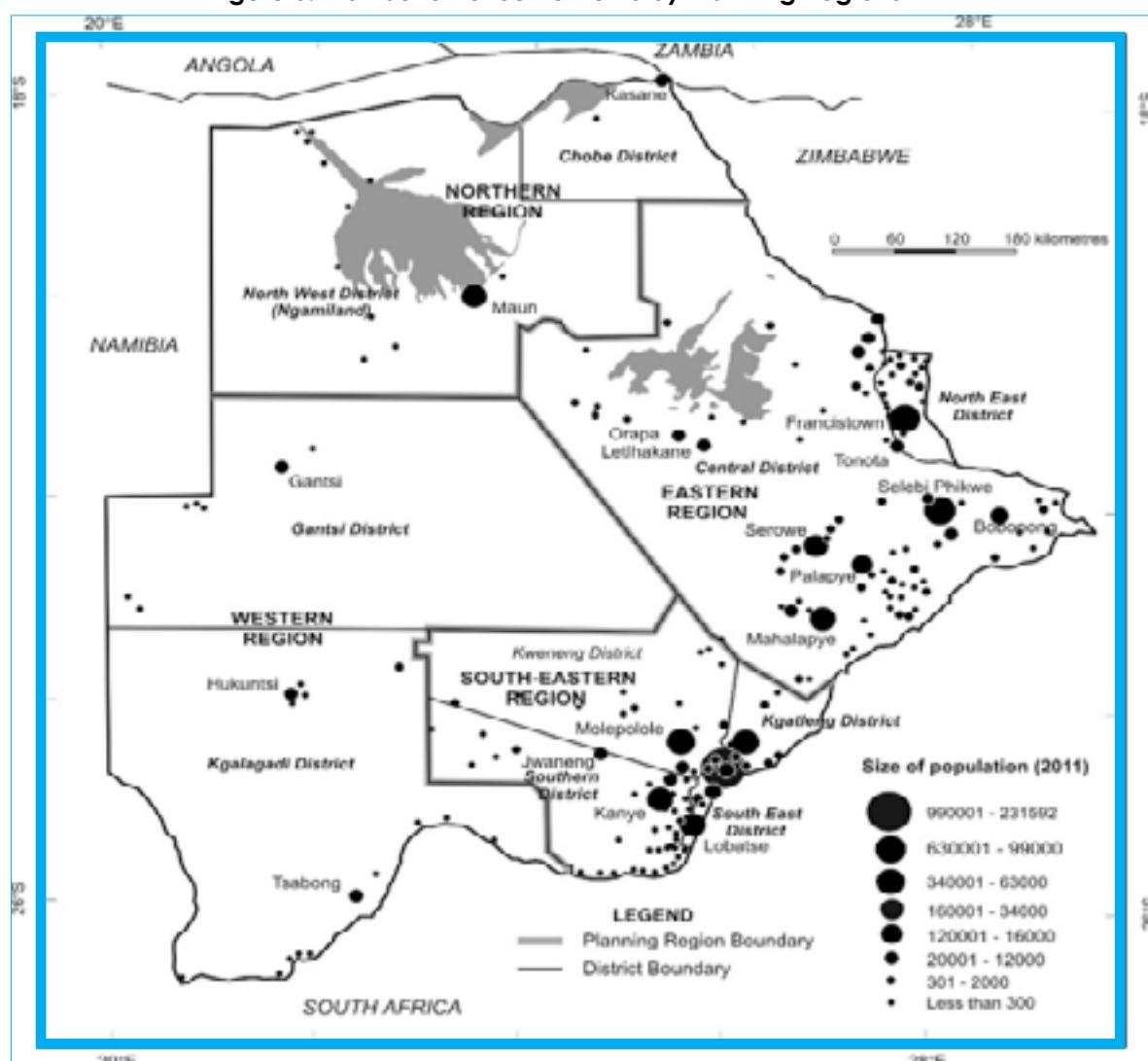
Locality	Frequency	Percent	Sex ratio
City/Town	440,108	21.7	92.1
Urban Villages	857,179	42.3	88.2
Rural Village	523,687	25.9	87.4
Lands area	92,776	4.6	136.8
Cattle Post	52,849	2.6	189.1
Freehold Farm	15,170	0.7	146.2
Mixture of lands and Cattle Post	20,203	1.0	155.8
Camp or Other Locality Type	22,932	1.1	186.2
Total	2,024,904	100.0	95.5

Cities, Towns, Urban Villages and even rural villages offer the gendered employment alluded to above. For the rural localities, such as cattle posts, freehold farms, camps and lands areas, the emerging pattern is very clear. The influence of gender roles and responsibilities on the location of men and women is highlighted in the agricultural sector. Other rural employment activities include leather work, wood carving and borehole maintenance. In the rural districts, the male population is thus predominant in the lands, cattle posts and freehold farms. They also feature highly in districts with abundant tourism activities where game operators, rangers and tourist guides are in demand, such as Camps and Game Reserves.

3.3.3 Population Distribution by Planning Region

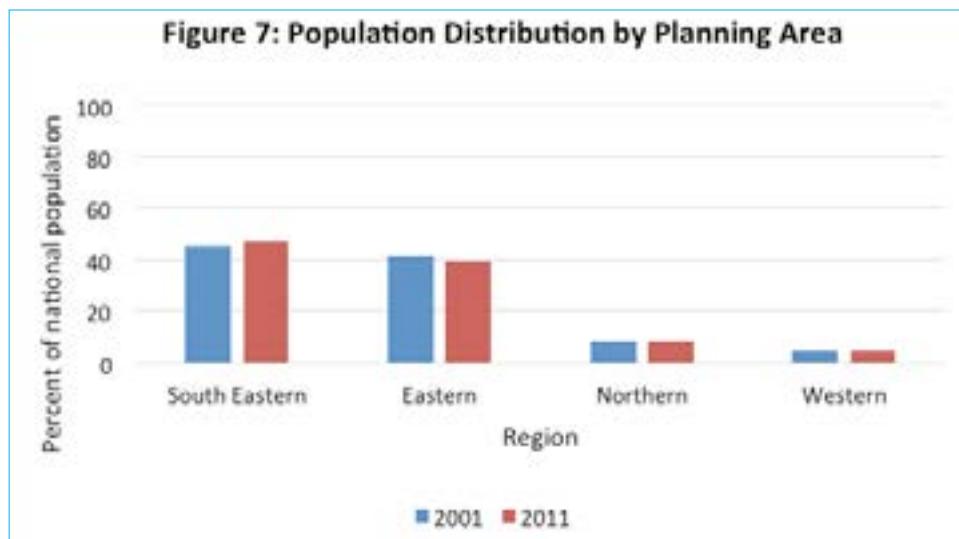
Figure 6 shows the distribution of human settlements by Planning Regions.

Figure 6: Distribution of Settlements by Planning Regions



Human settlements are concentrated on the hard veld Planning Regions, reflecting ecological and spatial investment differentials in the country. The remote Planning Region of the sandveld and the resource frontier region are characterized by the paucity of human settlements.

Figure 7 shows the distribution of the national population by Planning Regions over the last ten years. The percentage of population residing in each Region increased except for the Eastern Region. This could have been due to net migration from the latter Region to the South-Eastern Region which recorded the highest net increase. Selibe Phikwe and Francistown have been facing serious economic challenges over the interim period. Similarly, the down-sizing of labour in the "closed" diamond-mining town of Orapa, in response to the economic recession, might have been responsible for its negative population growth. The population of the Northern and Western Planning Regions increased marginally, probably due to the growth of the tourism sector.



3.4 Population Density

Overall the national population experienced a rate of change of 20.5 percent and a density increase from 2.9/km² to 3.5/km², over the 2001 to 2011 intercensal period as depicted by Figure 8. Population density increased among all the Regions, especially the South-Eastern Regions. Even if the Eastern Region recorded net population loss, its density increased by 0.9 per square kilometer. The density of Northern Region increased marginally whilst that of the Western Planning Region remained stagnant.

The South-Eastern Planning Region recorded the highest proportion of the national population, at 47.3 percent. This marks an increase from the 45.6 percent recorded in the last census. The Region has also the highest population density at 13.8/km², compared with 11/km² in 2001. These figures reflect the presence of the national capital, two towns and the large satellite dormitory urban villages to Gaborone. Next, the Eastern Region has 39.4 percent of the national population, a 2 percent decline since 2001, and a density of 5.4/km², a marginal increase from a figure of 4.5/km², in 2001. This reflects the presence of the second largest city, the gold copper/nickel, soda ash, diamond and coal mining towns and large population concentrations in the major villages of Serowe, Palapye, Mahalapye, Shoshong, Tonota, Tutume and Tati Siding. The Region's share of the national population has decreased from 39.4 percent probably due to outmigration from Selebi-Phikwe.

The Northern Planning Region ranks third with 8.7 percent of the national population and a density of 1.4/km². This is a remote region that was recently prone to water-related diseases. For example Okavango, Chobe and Ngamiland are designated as malaria endemic areas. However with the improved health situation, tourism is becoming an important economic sector attracting population to the urban district of Kasane. Also public sector investment in administrative and social services and private sector investment in commercial agriculture are creating employment opportunities. Subsistence farming is constrained by destruction of crops by human-wildlife conflicts, floods, but also endemic diseases such as foot and mouth which inhibit the sale of livestock to the BMC.

The Western Region is bottom of the list, both in terms of population size and density. This is because of its harsh arid climate, remoteness and a weak economic base. The challenge will be the provision of infrastructure and services to remote area dweller settlements with a minimum population of 250.

There are regional imbalances in the population distribution pattern. The higher concentration of population in the South Eastern and Eastern Planning regions is responsive to the relative availability of services and infrastructure in this area.

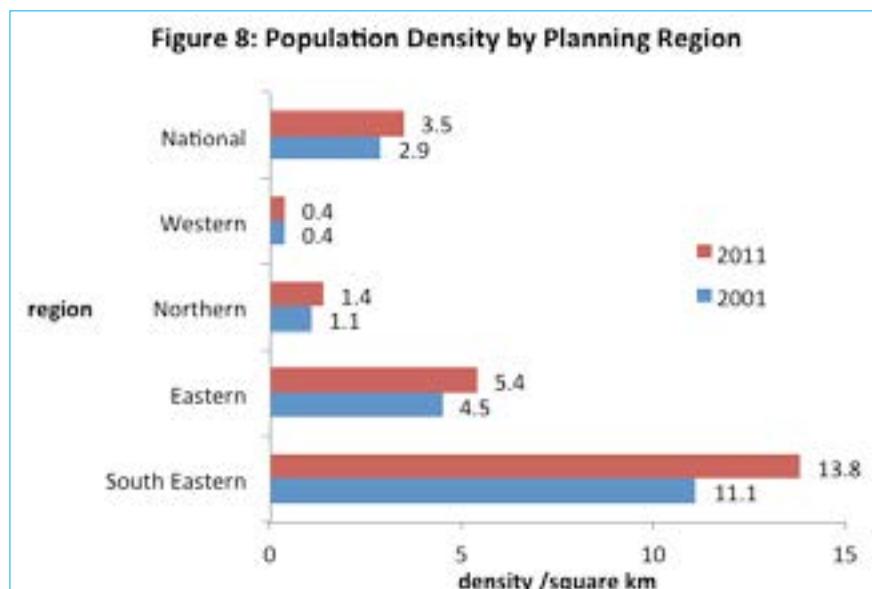


Table 8: Population Distribution by Planning Region

REGION	AREA	POPULATION [2001] 2011	Density/Km2 [2001] 2011	% Population [2001] 2011
EASTERN				
	147 501	[695 682] 797 829	[4.5] 5.4	[41.4] 39.4
Northeast	5 120	60 264	[9.7]-----11.8	
Central	142 076	576 064	[4.0]-----4.6	
Sowa	159	3 598	[18.8]----22.6	
Orapa	17	9 531	[543.8]---560.1	
Francistown	79	98 961	[1068.4]-1 252.7	
Selebi Phikwe	50	49 411	[996.9]----988.2	
SOUTH EASTERN	69 621	[766 992] 957 597	[11.1]-----13.8	[45.6] 47.3
South East	1 780	85 014	[34.3]-----48.8	
Gaborone	169	231 592	[1099.9] 1 370.4	
Kweneng	31 100	304 549	[7.4]-----9.8	
Southern	28 470	197 767	[6.0]-----6.9	
Lobatse	42	29 007	[708.3]----690.6	
Jwaneng	100	18 008	[151.8]----180.1	
Kgatleng	7 960	91 660	[9.2]-----11.5	
WESTERN REGION	223 110	[75 219] 93 847	[0.4]-----0.4	[4.5] 4.6
Kgalagadi	105 200	50 752	[0.5]-----0.5	
Ghanzi	117 910	43 095	[0.3]-----0.4	
NORTHERN	129 930	[142 970] 175 631	[1.1] -----1.4	[8.5] 8.7
Ngamiland	109 130	152 284	[1.5]-----1.4	
Chobe	20 800	23 347	[1.0]-----1.1	
TOTAL	581 730	[1 680 863] 2 024 904	[2.9]-----3.5	

4.0 Policy Implications and Issues

The preceding discussion has shown the complexity of patterns, processes and outcomes of population distribution in Botswana. The following paragraphs will highlight specific challenges and broadly suggest how they could be dealt with to achieve sustainable development.

4.1 The demographic profile

The demographic distribution of the population has highlighted the following trends, namely; overall, there is a low sex ratio, declining annual rate of population growth and an increasing working age population.

4.2 Low sex ratio

The low sex ratio suggests that women are the dominant sex group. Therefore those policies that discriminate against their empowerment to access the means of production do not promote equity but also frustrate national development. Household Income and Expenditure Surveys have consistently portrayed women as either doing unpaid household work, unemployed or over-represented in the marginal employment sectors. Within the domestic sphere, they bear the burden of triple gender roles. Women are a latent human capital force that needs to be activated and harnessed to achieve cardinal principles of democracy, development, self-reliance, unity and botho. Both men and women should therefore be accorded self-realization space and empowered to equitably access social, economic and fixed capital in order to contribute meaningfully to national development. In this way, the Vision 2016 goal of a prosperous, productive and innovative nation will be accomplished.

4.3 Declining rate of population growth

The annual growth rate has also been declining probably due to a slowdown in natural increase and net migration. One of the threats to industrialization and economic diversification is the country's small population size. Decreasing fertility and low life expectancy are a threat to the realization of a critical population mass for sustained industrialization and economic growth. Pro-natalist population policies, encouragement of the return of Batswana who have emigrated and selective migration policies should be encouraged.

4.4 Increase in the working age group

The increase in the working age population could either be a curse or blessing. Training the human resource in this cohort could boost economic production, consumption and sustain economic growth. Conversely, it could be a liability by nurturing the unemployed, the under-employed and the misemployed.

The orphans, youth, elderly and women are the most vulnerable in terms of poverty and having access to sustainable livelihoods. New and ongoing programmes such as the Brigades and the Local Entrepreneurship Programme designed to create skills, employment and social safety nets need to be sensitive to the needs of these groups. This is the essence of not only creating a prosperous, productive and innovative nation but also that of a compassionate, just and caring one. The National Strategy for Poverty Reduction that addresses lack of incomes, human capabilities and participation is also critical for dealing with these issues.

4.5 The geographical distribution of population

4.5.1 Regional imbalances

The population is concentrated in the South-Eastern and Eastern Planning Regions. This reflects the combined effect of primary/ ecological factors and secondary/ responsive factors. The first relate to favourable climate and soils while the second relates to investment in physical, social and economic infrastructure. Regional disparities in the economic development have created imbalances in which the Northern and Western Planning Regions are disadvantaged.

4.5.2 Promotion of equitable regional development

The aim of the National Settlement Policy (NSP) (1998, 2004) to create equitable development, achieve spatially balanced development across the country should guide development.

The increasing proportion of the national population that is being attracted to the South Eastern Planning Region implies additional demands on land, social services, physical infrastructure and employment. Over-

concentration of the national population is being accompanied by serious unregulated development and environmental problems. Negative social externalities associated with population pressure on the environment need to be anticipated and planned for on the basis of sustainable environmental management strategies under the Environmental Impact Assessment Act, the National Settlement Policy and the National Conservation Strategy.

The comparative advantage of the Eastern Planning Region in terms of easier access to water, latent and prospective employment opportunities and geographical centrality, needs to be exploited in terms of future investment. This would facilitate an equitable distribution of employment opportunities in the country. The development of the natural resources in the Northern Region needs to be strongly supported in order to divert population from moving to the congested regions.

The NSP emphasizes that there should be creation in the least developed areas, especially rural ones in the Western Region. Thus the importance of the improvement of existing and initiation of new productive activities, exploration and development of potential renewable and non-renewable natural resources as well as the identification and development of the necessary infrastructure, which facilitates the development of settlements. This will ensure the realization of the Vision of a socially-just, united and proud nation by 2016.

5.0 Conclusion

The country's population has gone through a demographic transformation over the last decade. The population is experiencing an increase in both the median and average age. On a related note, the economically active population is growing at a faster pace, which put pressure on the already limited capacity of the country to provide decent jobs and the accompanying social amenities.

The country is also experiencing a decline in the proportion of persons below the age of 15, increase in the youth population and decline in the elderly population. However, the decline in the elderly population may be reversed as the health and survival probability of the population increased. Regarding the distribution of the population, the density of the country has increased meaning that there are more people per square kilometer. The increase in the density will in the long run imply that land reserved for agricultural purposes is limited. The south eastern part of the country is the most populous region and close to half of the population lives in the regions. The region houses the national capital and other industrial centers where job opportunities are favourable compared to other parts of the country.

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David Mmopelwa presenting on BIDPA Assessing Household Wealth Status: An Asset Based Approach

ASSESSING HOUSEHOLD WEALTH STATUS: AN ASSET BASED APPROACH

by

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I. Introduction

Wealth has traditionally and commonly been measured using monetary indicators such as income and consumption (Hargreaves et al. 2007). Income is "the amount of money received during a period of time in exchange for labour or services, from the sale of goods or property, or as a profit from financial investments" (O' Donnell et al., 2008; 70). On the other hand consumption is "the final use of goods and services, excluding the intermediate use of some goods and services in the production of others" (pp, 70). While there could be some differences in defining these two concepts, the approach to use them as welfare indicators has resulted in the production of social protection policies in various countries including Botswana. However, some researchers have debated the adequacy of the two monetary indicators in capturing status of welfare; hence alternative approaches have been proposed to serve this purpose. It has been observed that despite the findings of assets being the underlying determinants of poverty in the developing world, little attention (safe for human capital proxied by education) is given to them, resulting in the objectives to address only income (and/or expenditure) poverty (Sahn and Stifel, 2003).

The use of assets as welfare indicator has however not escaped criticism. Some argue that ownership does not capture the issue of assets quality (Falkingham and Namazie, 2002). Thus, the process of collecting data on assets may not differentiate households that own new or old assets, cheap or expensive ones etc. Notwithstanding that, the authors argue that in a number of countries such traits would not change the overall picture of wealth. Filmer and Scott (2008) make references to the extensive use of asset indices in previous studies. The authors indicate that this index has been used for analysis of poverty change, inequality (in health and education outcomes), and for program targeting and evaluation. While this pattern is observed in the literature, little (or no) evidence exists in Botswana for utilizing assets to inform welfare status. This is despite that the surveys conducted and the previous census collected data on assets. This paper therefore fills this gap. This paper intends to compliment efforts done so far for poverty analysis as it extends understanding of multi-dimensions of poverty. Results of this paper are important as they will assist policy makers to identify areas of concern to uplift household wealth, which should facilitate not only the attainment of MDGs but also the Vision 2016 aspirations. The rest of the paper is organised as follows; Section II discusses the methodology used while section III discusses data sources and descriptives, in sections IV and V we present results and conclude respectively.

II. Methodology

Computation of an Index

The use of asset/welfare index is common in situations where data on either income or consumption was not collected. This approach is therefore relevant for this paper, with the 2011 population and housing census data, which only asked about the source of income. Moreover, "the index captures a dimension of economic status" (Filmer and Scott, 2008; 4) and gives more reflection on long run household wealth (Filmer and Pritchett, 2001). Some of the issues to be considered in computing the index include choice of assets and their weights. Several approaches to computing the index exist. One of them is the simple total sum of assets from a dummy variable of whether a particular household owns assets (Case et al., 2004; Montgomery et al., 2000). This approach has been termed an "arbitrary approach" as it assumes equal weights for the different assets (O' Donnell et al., 2008; Vyas and Kumaranayake, 2006). Another approach is the use of statistical techniques which address the issues of weights in the index. The two commonly used techniques are the factor analysis and principal component analysis. In this paper we computed the wealth index from a technique of principal component analysis (PCA), which is a tool used to reduce a number of variables into a one. It is mathematically specified as follows:

$$R_1 = b_1 Y_1 + b_2 Y_2 + b_3 Y_3 + \dots + b_{1n} Y_n$$

$$PCm = b_{m1} Y_1 + b_{m2} Y_2 + b_{m3} Y_3 + \dots + b_{mn} Y_n$$

In the above, $w_{m,n}$ is the weight for the m th principal component (PC) and the n th variable Y . In the output the weights of the PCs are represented by the eigenvectors of the correlation matrix. However, if the data is standardized the eigenvectors would be of the co-variance matrix. On the other hand, the variance of the PCs is given by the eigenvalues (Vyas and Kumaranayake, 2006). In the output, components are ordered according to their proportion of variation that they explain in the original data; with those in the top positions explaining larger amounts of variation. The index was computed from ownership of durable assets (Television, radio, watch etc), housing conditions (type of houses, floor and roof materials) as well as living conditions (water source, toilet facility and energy sources of cooking and lighting). While there is no defined criteria for the choice of assets (Montgomery et al., 2000); ours was influenced by the bearing that the variables might have on the Millennium Development Goals. For instance, source of water, sanitation and flooring material affects hygiene. Source of energy for cooking may affect the environment and respiratory diseases that cause deaths. We used SPSS (Version 18) for analysis. Some of the variables were in categorical form, which is not suitable for the PCA technique and were therefore converted to binary variables. After computing the wealth index, households were then classified into quintiles. The decision to choose five groups (quintiles) was among others informed by previous empirical work. According to literature, the commonly used cut-off points are classification into quintiles (Gwatkin et al. 2000; Filmer and Pritchett 2001). This is done to differentiate households into socio economic categories; to show wealth status within a population.

I. Data source and Descriptives

The paper uses data from the 2011 population and housing census, which has 550944 households. Table A1 in the annex presents descriptive statistics. The pattern for type of housing unit is dominated by detached houses (43%) followed by rooms and town house with 23 percent and 19 percent respectively. Other types (traditional, mixed, flat, shacks) accounted for a share of less than 20 percent. Majority (82 percent) of households had their walls made out of conventional bricks/blocks while the remained shares are distributed amongst corrugated iron, asbestos, wood, stones and poles and reeds. A larger proportion (64%) had cement as a floor material, 22 percent with floor tiles and 0.7 percent with brick/stone. Roof material is dominated by corrugated iron (74 percent), while the least share is for concrete (0.3%).

Regarding water supply majority of households had piped outdoors (39%) while 30 percent had piped indoors. This pattern was also observed by previous studies (Statistics Botswana, 2011). About 15 percent sourced water from communal taps. Other water sources including bouser/tanker, well, borehole, dam/pan had a share of less than 5 percent. Those who owned flush toilet accounted for a share of about 25 percent followed by those who owned pit latrines with 24 percent. However, 18 percent of households shared pit latrines while 9 percent shared flush toilet. The shares for those who used communal toilet facilities were less than a percent. A higher proportion (46%) used their neighbors' pit latrines. These present a hopeful trend towards the achievement of the Millennium Development Goal 7 of ensuring environmental sustainability. Thus, majority appear to be accessing water from improved sources. This is however not to suggest that the water sourced are safe as per the target of this MDG. Moreover, while this is dominance of use of pit latrines it is promising that the use of flush toilets (whether owned or shared) is also visible.

More than half of households used electricity as a principal energy for lighting with 30 percent using paraffin and 11 percent using candles. About 41 percent of households used wood as energy for cooking followed by 38 percent who used gas. The use of wood also dominated sources of energy for heating (48%).

About 15 percent owned van/bakkie; 2% owned tractors and 20 percent owned cars. On the other hand majority (89) owned cell phones while 11 percent had fixed telephone lines. About 61% owned radio sets and 54% owned television sets. This pattern presents a positive outcome towards an informed nation as these assets represent the primary sources of information.

The fourth column of Table A1 shows the factor score, which is basically the first principal component (weight), used to create a household score (Houweling et al., 2003). A positive score suggests that a variable is associated with a higher economic status (wealth) while the opposite is true for a negative score. Thus, from Table A1 with regard to the type of housing unit traditional, mixed, movable, shacks and rooms will be associated with higher economic status.

II. Results and Discussions

We begin by presenting the welfare status by census district (Table 1). The numbers in brackets are proportions. As can be seen in the table, Gaborone, Francistown, and Orapa districts have larger proportions of households with better status of wealth. The proportions of households increase as we move from the lower (poorest) wealth status to the higher (richest) status. For instance, 0.6 (1.2) percent of households are in the

poorest wealth status in Gaborone whereas in Francistown 45 and 29 percent of households are in the richest status respectively. This pattern is also observed in Lobatse, Selebi Phikwe, Sowa Town and Jwaneng, with some minor variations. These results corroborate findings from previous studies, that these districts had lower poverty incidence compared to others (CSO, 2008; Statistics Botswana, 2013). For instance in 2002/03 poverty incidence stood at 0.076, 0.159, and 0.018 for Gaborone, Francistown and Orapa respectively.

The districts of Ngamiland West, Kweneng West, Ngwaketse West, CKGR, Ghanzi, had the highest proportions of households in the poorest status (all over 40%). These results are consistent with those of previous survey by Statistics Botswana (2013) where poverty rates were found to be higher in such districts. Ngwaketse, Ngwaketse West, Mahalapye, Bobonong, Tutume, Ngamiland and Kgalagadi are generally characterized by larger proportions of households in the lower status of wealth than those in the higher status. For instance, about 49 percent of households in Ngwaketse West are in the poorest status compared to 7 percent of those in the richest state; while 29 percent of households in Kgalagadi North are in the lower wealth status compared to 13 percent for those in a richer state.

Table 1: Wealth Status by Census District

District	Poorest	Second	Middle	Fourth	Richest
Gaborone	448 (0.6)	8692 (11.6)	15049(20.1)	17019 (22.7)	33749(45.0)
Francistown	384(1.2)	5153(16.5)	7333(23.4)	9501(30.4)	8926(28.5)
Lobatse	200(2.2)	1898(20.6)	2438(26.5)	2012(21.8)	2666(28.9)
Selebi Phikwe	281(1.7)	2851(17.8)	3347(20.8)	5097(31.7)	4483(27.9)
Orapa	0(0)	1(0)	62(1.9)	732(22.2)	2497(75.9)
Jwaneng	449(7.6)	281(4.7)	1063(17.9)	1400(23.6)	2747(46.2)
Sowa Town	28(2.4)	44(3.7)	42(3.5)	534(44.8)	543(45.6)
Ngwaketse	7551(24.0)	8503 (27)	5947(18.9)	5841(18.6)	3639(11.6)
Barolong	3300(24.0)	5146(37.4)	2389(17.4)	1614(11.7)	1309(9.5)
Ngwaketse West	1725(48.5)	999(28.1)	328(9.2)	264(7.4)	240(6.7)
South East	952(4.0)	2894(12.1)	5689(23.7)	7519(31.3)	6936(28.9)
Kweneng East	8488(12.4)	14158(20.7)	17961(26.3)	17128(25.2)	10504(15.4)
Kweneng West	6948(56.8)	2524(20.6)	907(7.4)	751(6.1)	11012(9.0)
Kgatleng	3427(13.8)	5866(23.5)	5474(22.0)	5622(22.6)	4528(18.2)
Serowe/Palapye	12508(27.1)	9953(21.5)	8974(19.4)	8234(17.8)	6519(14.1)
Mahalapye	8731(29.3)	8227(27.6)	5217(17.5)	4265(14.3)	3359(11.3)
Bobonong	6186(32.3)	5025(26.2)	3607(18.8)	2544(13.3)	1794(9.4)
Boteti	5879(41.7)	2309(16.4)	2527(17.9)	2114(15.0)	1281(9.1)
Tutume	14764(38.5)	9064(23.6)	6658(17.4)	4621(12.0)	3246(8.5)
North East	3001(18.9)	4476(28.2)	3446(21.7)	2800(17.6)	2142(13.5)
Ngamiland East	6262(28.8)	3806(17.5)	4648(21.4)	4263(19.6)	2758(12.7)
Ngamiland West	8413(63.9)	1888(14.3)	1299(9.9)	900(6.8)	664(5.0)
Chobe	1142(16.7)	1030(15.1)	1675(24.5)	1817(26.6)	1166(17.1)
Okavango Delta	191(29.2)	242(36.9)	200(30.5)	21(3.2)	1(0.2)
Ghanzi	4636(40.8)	1731(15.2)	1626(14.3)	1920(16.9)	1442(12.7)
CKGR	10(47.6)	0(0)	1(4.8)	2(9.5)	8(38.1)
Kgalagadi South	2682(33.7)	1967(24.7)	1221(15.3)	1076(13.5)	1010(12.7)
Kgalagadi North	1607(29.0)	1444(26.1)	1073(19.4)	682(12.3)	736(13.3)

Source: Author computed from data set

Figure 1 presents wealth status by gender of the household head. Comparatively, the overall picture presented in Figure 1 suggests that female headed households are in a better wealth status. About 22 percent of male headed households are in the lower status of wealth compared to 18 percent for female headed households. This pattern is observed up to the fourth status of welfare. However, in the richest category we observe higher proportion of male headed households than for female headed households. While this is the case, it is also evident that from the second to the richest status of wealth the proportions of female headed households declined while that for male headed households increased.

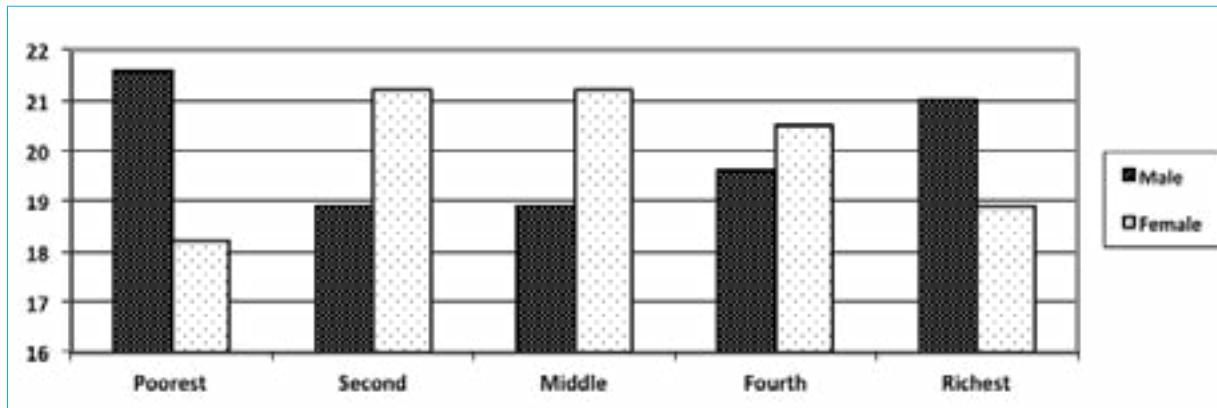


Figure 1: Share of Wealth Status by Gender of household head

Table 2 presents the share of wealth status by marital status. It shows a higher proportion of married head of household in the richest category followed by those in the fourth category. The least share is accounted for by those in the lowest status of wealth. This suggests that being married is likely to improve the household status of wealth. Heads of households who were never married are more concentrated in the richest category than in the poorest category. This may not be surprising given that previous studies found a comparable poverty incidence of about 28 percent for married and never married head of households (BIDPA, 2010). However, the proportion of heads who were never married in the richest category is lower than that for married head of households in the same category. There is a higher proportion (in the poorest category) of households whose heads are living together, separated and widowed. As seen in the Table, 24 percent of households whose couples are living together are in the lowest category of wealth compared to 16 percent in the richest category. About 30 percent of separated heads are in the poorest category compared to 14 percent in the richest category. As for widowed heads of households the proportions are 24 and 12 for poorest and richest categories respectively. The pattern for divorced household heads is similar to that of never married, save for the third category of wealth.

Table 2: Share of Wealth Status by Marital Status

Marital Status	Poorest	Second	Third	Fourth	Richest
Married	17.1	18.4	18.2	20.7	25.6
Never Married	18.3	19.5	21	21	20.1
Living Together	24.3	20.8	20.4	18.8	15.7
Separated	29.8	21.9	18.7	15.4	14.3
Divorced	17.1	19	18	19.8	26.1
Widowed	23.7	24.9	21.1	17.9	12.4

Source: Author Computed

I. Conclusions

This paper assessed welfare status using the index computed from the technique of principal component analysis. To our knowledge this approach has not been done in Botswana. Therefore, it may not be easy to conclusively note whether there has been an improvement or not, in addition to what has been done so far. Therefore the paper may be seen to be a baseline against which future progress will be tracked. Results from our analysis suggest that from a policy point of view, there is need to broaden issues of consideration in designing programmes of poverty eradication. Although some reports suggest that Botswana is on track of meeting MDG 1 of halving extreme poverty and hunger, such needs to be supplemented by consideration of assets with the view to try to address the multidimensionality of poverty, especially that the target may be seen to have been narrowed to "income" or expenditure as welfare measures.

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Annex

Table A1: Descriptive Statistics and Results of the Principal Component Analysis

Variable	Mean	Standard Deviation	Score
Type of Housing Unit			
Traditional	0.132	0.338	-0.618
Mixed	0.1	0.300	-0.175
Detached	0.434	0.496	0.463
Semi Detached	0.046	0.209	0.176
Townhouse/terraced	0.019	0.138	0.13
Flats/apartments	0.015	0.123	0.168
Part of commercial building	0.001	0.379	0.003
Movable	0.007	0.835	-0.071
Shack	0.017	0.128	-0.163
Rooms	0.229	0.420	-0.039
Wall Material			
Conventional Bricks/Blocks	0.815	0.388	0.677
Mud bricks/blocks	0.087	0.282	-0.442
Mud and Poles/Cow dung/thatch reeds	0.055	0.228	-0.392
Poles and reeds	0.01	0.996	-0.152
Corrugated Iron/zinc	0.022	0.146	-0.171
Asbestos	0.003	0.053	0.004
Wood	0.004	0.064	-0.08
Stone	0.001	0.022	-0.019
Floor Material			
Cement	0.647	0.478	-0.097
Floor tiles	0.220	0.414	0.613
Mud	0.054	0.225	-0.382
Mud/dung	0.050	0.218	-0.379
Wood	0.002	0.044	-0.007
Brick/stone	0.001	0.026	-0.016
None	0.024	0.152	-0.239
Roof Material			
Slate	0.007	0.082	0.012
Thatch	0.111	0.315	-0.56
Roof Tiles	0.129	0.335	0.429
Corrugated Iron	0.735	0.441	0.06
Asbestos	0.009	0.095	0.09
Concrete	0.003	0.053	0.039
Other	0.006	0.076	-0.077
Water Supply			
Piped indoors	0.302	0.459	0.695
Piped outdoors	0.399	0.490	-0.004
Neighbour's tap	0.056	0.231	-0.19
Communal tap	0.148	0.355	-0.417
Bouser/tanker	0.011	0.106	-0.1
Well	0.009	0.096	-0.143
Borehole	0.049	0.216	-0.314
River/stream	0.014	0.117	-0.172
Dam/pan	0.007	0.084	-0.121
Rain water tank	0.001	0.032	-0.021
Spring Water	0.001	0.023	0
Toilet Facility			
Own Flush	0.252	0.435	0.657
Own VIP	0.018	0.134	-0.008
Own pit latrine	0.237	0.425	-0.141
Own dry compost	0.003	0.053	-0.063
Shared Flush	0.086	0.280	0.197
Shared VIP	0.014	0.119	0.005
Shared pit latrine	0.182	0.386	-0.039

Table A1: Descriptive Statistics and Results of the Principal Component Analysis cont...

Variable	Mean	Standard Deviation	Score
Shared dry compost	0.001	0.032	-0.032
Communal Flush	0.001	0.034	0.007
Communal VIP	0.000	0.021	-0.017
Communal pit latrine	0.006	0.077	-0.06
Communal dry compost	0.001	0.025	-0.034
Neighbours` Flush	0.001	0.036	-0.014
Neighbours`VIP	0.002	0.446	-0.037
Neighbours pit latrine	0.046	0.21	-0.212
Neighbour`s compost	0.000	0.016	-0.016
Energy for Lighting			
Electricity	0.532	0.499	0.808
Petrol	0.002	0.039	0
Diesel	0.008	0.087	-0.108
Solar power	0.005	0.071	-0.015
Gas	0.003	0.053	0.007
Bio Gas	0.000	0.015	-0.003
Wood	0.036	0.185	-0.311
Paraffin	0.300	0.458	-0.522
Candle	0.110	0.313	-0.296
Energy for Cooking			
Electricity	0.178	0.382	0.457
Petrol	0.001	0.025	0.001
Diesel	0.001	0.03	0.011
Solar Power	0.001	0.028	0.01
Gas	0.379	0.485	0.427
Bio Gas	0.009	0.095	0.036
Wood	0.412	0.492	-0.768
Paraffin	0.017	0.128	-0.062
Cow dung	0.001	0.027	-0.013
Coal	0.000	0.019	0.004
Crop Waste	0.000	0.013	0.01
Charcoal	0.001	0.036	0.005
Energy for Heating			
Electricity	0.168	0.374	0.533
Petrol	0.001	0.030	0.004
Diesel	0.000	0.017	0.001
Solar Power	0.001	0.037	0.016
Gas	0.010	0.101	0.071
Bio Gas	0.001	0.024	0.01
Wood	0.477	0.500	-0.68
Paraffin	0.003	0.051	-0.023
Cow dung	0.001	0.022	-0.008
Coal	0.001	0.037	0.008
Charcoal	0.002	0.039	0.021
Other Assets (durables)			
Van/bakkie	0.151	0.358	0.298
Tractor	0.020	0.139	0.073
Car	0.198	0.399	0.482
Donkey Cart	0.117	0.321	-0.246
Bicycle	0.099	0.299	-0.007
Wheel barrow	0.331	0.471	-0.014
Mokoro/Boat	0.007	0.080	-0.014
Sewing Machine	0.046	0.210	0.12
Refrigerator	0.435	0.496	0.708
Motor Bike	0.006	0.079	0.057

Table A1: Descriptive Statistics and Results of the Principal Component Analysis cont...

Variable	Mean	Standard Deviation	Score
Desktop	0.096	0.295	0.393
Laptop	0.112	0.316	0.421
Radio	0.615	0.487	0.323
Television	0.541	0.498	0.723
Telephone	0.108	0.311	0.326
Cell phone	0.897	0.304	0.406

Source: Author Computed from Census Data



Prof R. Arnab University of Botswana presenting on
Sources of Household Income in Botswana: The 2011 Population & Housing Census Perspectives

SOURCES OF HOUSEHOLD INCOME IN BOTSWANA: THE 2011 POPULATION AND HOUSING CENSUS PERSPECTIVES

By

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Abstract: The 2011 Population and Housing Census under Section E [E05-E07] of Botswana was comprehensive which provides statistics on the number of households (study variable) received income from (i) agriculture activities, (ii) household activities, and (iii) other cash/inkind receipt. This paper presents key findings from each of the three activities. Data analysis on the above study variable and with respect to classificatory variables via (a) type of residence, (b) district, (c) current economic status, and (d) marital status, has been carried out using descriptive statistical methods and the outcomes have been presented in the form of Tables, diagrams and Charts. Overall findings indicate that source of income was highest (90%) from cash/inkind receipts followed by agricultural activity (30%) and household activity (10%).

1.0 Introduction

Botswana is a landlocked country located in Southern Africa. It is bordered and shares the longest border to the north by Namibia and Zambia, Zimbabwe to the east and the Republic of South Africa (RSA) to the south. The country is sparsely populated with a population of a little over 2 million people (Statistics Botswana, 2012). Forty-six (46) percent of the population live in rural areas and depend on agriculture for sustenance.

The primary aim of this paper is to analyse the data collected under Section E [E05-E07] from the 2011 Population and Housing Census of Botswana on three cash activities of 'Households' i.e. (i) agriculture activities, (ii) household activities, and (iii) other cash/inkind receipts and thus to determine Percentage distribution of households and association between attributes(Qualitative characters) in each of the three activities using the 2xn contingency table information of the following attributes:

Sex and type of residence viz. (a) cities towns (b) urban villages and (c) rural;

Sex and district(s);

Sex and current economic status, and

Sex and marital status.

Background and literature review

In 1993/94 and 2002/3 Household Income and Expenditure Survey (HIES), conducted by CSO, Botswana, tried to establish the source of household income in the past 30 days (reference being the first day of the survey round) and the past twelve months. A depth analysis was not carried out however this information was used to check against related data from other sections. The sources of income during the 30 days proceeding the first day of the survey round may not necessarily be the same as those during the survey period.

The 1991 National Policy on Agricultural Development focused on agrarian reform, which included replacing the food self-sufficiency goal with the concept of food security, promoting diversification of agricultural production. Subsidies such as the Financial Assistance Policy (FAP) to encourage people to engage in agricultural activities have also been promoted. With this reform, Botswana has exceeded the 1995 target for this programme area. According to Government Implementation Coordination Office (2009), the Botswana Government's main objectives were to create a livestock sector which would significantly contribute to economic activity in a substantially liberalized environment, give highest priority to intensive farming projects and support agro-industry projects. This led to the Government introducing some programs such as Integrated Support Programme for Arable Agricultural Development (ISPAAD) in 2008 to address challenges in the arable sub-sector.

The Botswana Government had attempted to alleviate social and economic challenges of rural areas through a number of policies over the years, this include interlaid, the rural development policy (1973, revised in 2002) and the national settlement policy (1998).

The broad thrust of these policies is to address rural poverty and under development through the provision of social and economic infrastructure, and modernizing and enhancing the viability of agriculture.

According to Bank of International Settlements (2013), in Botswana the population is served by cash as part of the formal payment system. A fraction of the population mainly on farms and cattle posts and in the informal sector is served by non-cash payment services such as cheques, Cash in form of notes and coins is the most widely used medium of payment for goods and services (<http://www.bis.org/cps0/paysys/Botswanana.pdf>).

2.0 Methodology

The methodology utilized in the analysis is exactly that was also used in the 2011 Census data collection and specified in the Census Report.

This paper uses the 2011 Botswana Population and Housing Census data to answer some pertinent questions on sources of income (cash receipt) as laid down above in the objectives within the census period 2011. The statistical tabular and graphical analysis is carried out using SPSS package for multiple response analysis.

3.0 Sources of income

This section gives an account of items which are called sources of income from: (I) agriculture activities, (ii) household activities, and (iii) other cash receipt with respect to gender by (a) type of residence, (b) district, (c) current economic status, and (d) marital status.

The respondents replied the multiple response questions at household level in the above three categories of sources of income. The questions asked were as follows:

Since independence day 2009 did household member(s) received cash from:

Agricultural Activities Sale of...?	Household Activities Sale of homemade produce?	Other Cash/Inkind receipt Remittances from
Cattle	Traditional beer	Inside Botswana
Goats/Sheep	Other beverages	Outside Botswana
Poultry	Craftwork	OTHER RECEIPTS
Maize	Clothes	
Sorghum/Millet	Cooked food	Pension
Melons/Sweet reeds	Others	Rent
Fruits & vegetables		Maintenance
Phane		Employment
Fish		Destitute Allowance
Thatch/Poles/Reeds		Govt Rations
Firewood		Others
None		
Legumes		
E05	E06	E07

Figures in Table 3.0.1, show that about 30 percent household received their income from one and more than one agricultural activities. About 70 percent households did not receive any income from agricultural activities. Seventeen (17) percent households received income from livestock while from agriculture these were close to 13 percent.

Table 3.0.1: Percent distribution of household received income from agricultural activities-2011 Census

Agricultural Activity	Response Number	Percent of cases***	Relative Percent
Cattle	52649	9.6	8.5
Goats/Sheep	29670	5.4	4.8
Poultry	21684	4.0	3.5
Maize	15261	2.8	2.5
Sorghum/Millet	7156	1.3	1.2
Melons/Sweet reeds	15252	2.8	2.5
Fruits & vegetables	11209	2.0	1.8
Phane	15440	2.8	2.5
Fish	2627	0.5	0.4
Thatch/Poles/Reeds	6528	1.2	1.1
Firewood	8348	1.5	1.4
Legumes	1514	0.3	0.2
None	430308	78.6	69.7
Total	617646	112.8	100.0

***Number of cases: 547679

Figures in Table 3.0.2 show that about 12 percent households received their income from one and more than one household activity and out of these 6.3 percent from sale of beverages. About 88 percent household did not receive any income from household activities. Percent households received the Income from sale of cloths and foods were almost same i.e 2%.

Table 3.0.2: Percent distribution of household received income from household activities-2011 Census

Household Activity	Response Number	Percent of cases***	Relative Percent
Traditional beer	25937	4.7	4.7
Other beverages	8934	1.6	1.6
Craftwork	8399	1.5	1.5
Clothes	10959	2.0	2.0
Cooked food	11200	2.0	2.0
Other (NEC)	1268	0.2	0.2
None	490701	89.6	88.0
Total	557398	101.8	100.0

***Number of valid cases: 547542

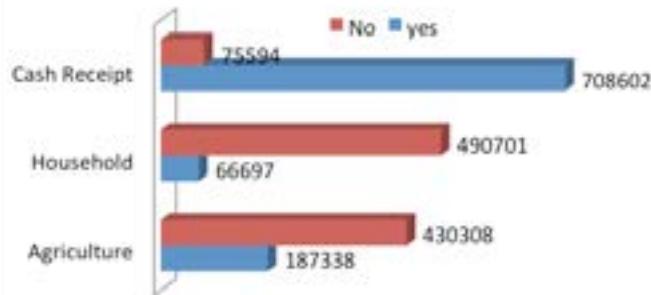
Numbers in Table 3.0.3 show that about 90.4 percent household received the income from one and more than one cash/inkind receipts. About 9.6 percent household did not receive any income from cash/inkind receipts. Percent households received the Income from employment was highest (69%) followed by inside Botswana remittance (30%) and pension (13%).

Table 3.0.3: Percent distribution of household received income from other cash/inkind receipts-2011 Census

Other Cash/Inkind Receipts	Response Number	Percent of cases***	Relative Percent
Inside Botswana	163747	29.9	20.9
Outside Botswana	12907	2.4	1.6
Pension	69282	12.6	8.8
Rent	28388	5.2	3.6
Maintenance	12403	2.3	1.6
Employment	379012	69.2	48.3
Destitute allowance	14621	2.7	1.9
Government Rations	25424	4.6	3.2
Student Allowances	2668	0.5	0.3
Other (NEC)	150	0.0	0.0
None	75594	13.8	9.6
Total	784196	143.2	100.0

***Number of cases: 547623

Figure 1: Income Response versus Income Sources



Data on income response versus income sources contained in Tables 3.0.1 – 3.0.3, have been represented in Fig 1 above for easy comparisons and thus we can conclude that ‘No income number of households from the Government/Private sector employment and allowances from Government’ is significantly less in the Cash Receipt source as compared with Household and Agriculture sources.

The following sub-sections deals with the sources of income with respect to gender by (3.1) type of residence, (3.2) district, (3.3) current economic status, and (3.4) marital status.

3.1 Cash receipt details about type of residence and sex

Percent of household who received income from either of the sources of income out of total households enumerated by type of residence and sex is depicted in Table and Figure 3.1.1.

Table 3.1.1 Percent of household who received income from either of the sources of income by type of residence and sex-2011 Census

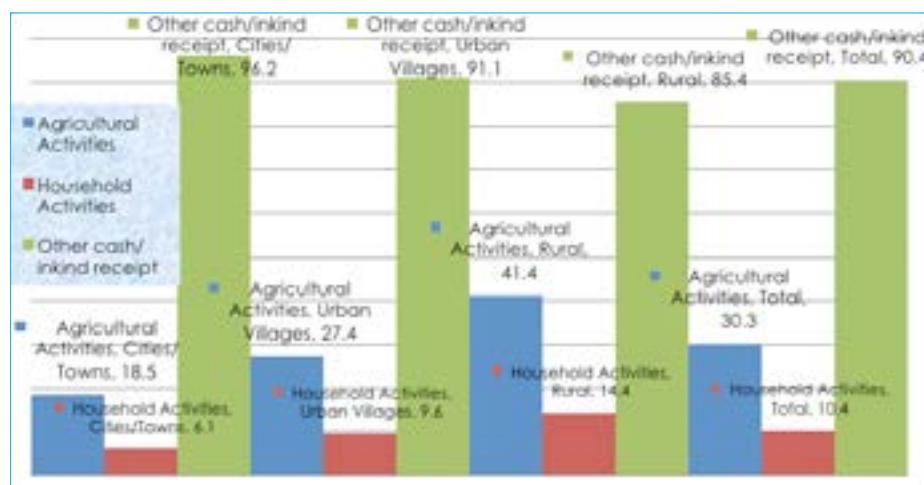
Residence Type	Income from:								
	Agricultural Activities			Household Activities			Other cash/inkind receipt		
Male	Female	Both Sex	Male	Female	Both Sex	Male	Female	Both Sex	
Cities/Towns	19.7	16.8	18.5	5	7.7	6.1	96.5	95.7	96.2
Urban Villages	28.7	26.2	27.4	7.3	11.7	9.6	91.5	90.8	91.1
Rural	44.9	37.2	41.4	11.3	18.1	14.4	85.9	84.9	85.4
Total	32.4	28	30.3	8.1	12.9	10.4	90.8	89.9	90.4

The figures for agricultural activities show that percent household who received income was highest (41.4%) in rural settlements followed by urban villages (27.4%) and cities and towns (18.5%). The 2011 census reveals that these policies have materialized; it is evident from the amount of income accrued from rural residence households which is significantly greater than the income generated from households in cities / towns and urban villages. The percent of male heads were more than female heads in all the three categories of residence, the difference between the male and female headed households was highest (about 8 percentage point) in rural settlements while the same differences in urban villages and cities & towns were almost same (close of 3 percentage points).

The figures for household activities show that percent household who received income followed the same trend as in for agricultural activities except that here percent of male heads were less than female heads in all the three categories of residence.

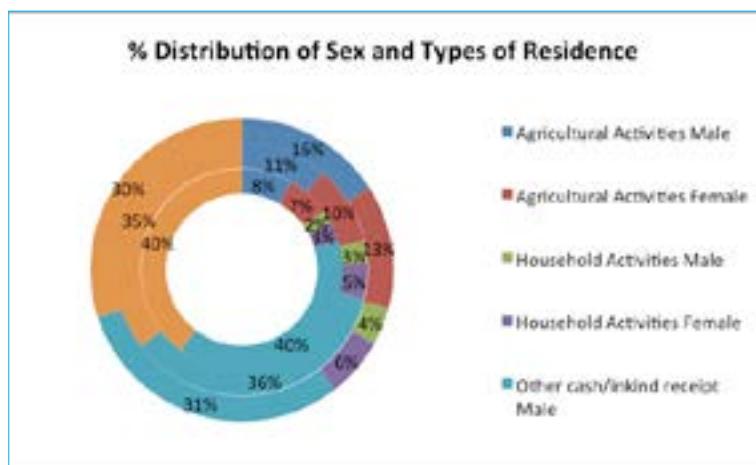
The percent household who received cash/in-kind receipts was highest (96%) in cities & towns followed by urban villages (91%) and rural settlements (85%). The percent of male heads were more than female heads, and the difference between the male and female headed households were almost the same (1 percentage point) in all the three categories of residence.

Figure 3.1.1 Percent of household who received income from either of the sources of income by type of residence and sex-2011 Census



The above graph shows that percent household heads received other cash/inkind receipts recorded highest peak followed by agricultural and household activities.

The details are given in Tables 1-3 in Appendix.



The above figure shows the percent distribution households who received the income from three sources of income by sex and residence type. The female percent who receive income from 'other cash/inkind receipt' was highest (40%) in cities & towns followed by urban villages (35%) and rural (30%), the same trend was also observed for male recipients.

3.2 Cash receipt by district and sex

Percent of household who received income from either of the sources of income out of total households enumerated by district and sex is depicted in Table and Figure 3.2.1.

Table 3.2.1 Percent of household who received income from either of the sources of income by district and sex-2011 Census

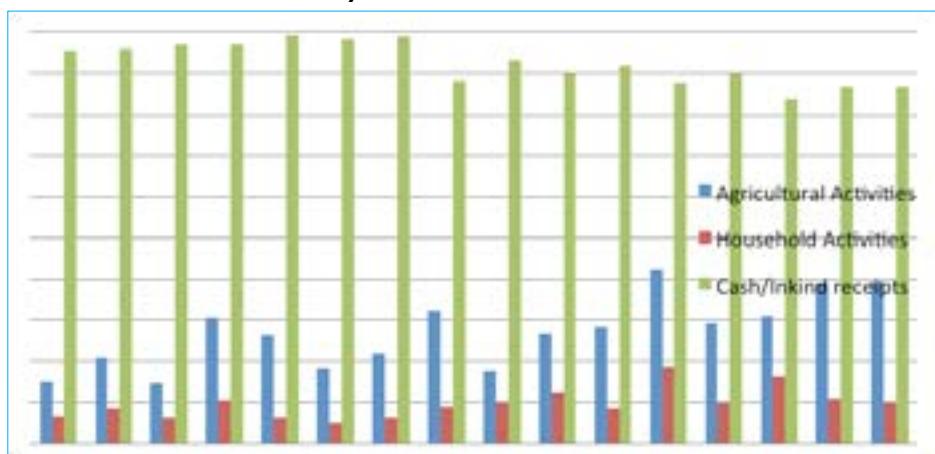
District	Income from:								
	Agricultural Activities			Household Activities			Cash/Inkind receipts		
	Male	Female	Both Sex	Male	Female	Both Sex	Male	Female	Both Sex
Gaborone	16.5	12.5	14.8	5.4	7.8	6.4	95.7	95.3	95.5
Francistown	20.8	20.6	20.7	6.7	10.5	8.4	96.5	95.6	96.1
Lobatse	16.3	12.5	14.6	4.9	7.4	6.0	97.6	96.2	96.9
Selebi_Pikwe	30.1	31.2	30.5	8.3	13.8	10.4	97.8	96.0	97.1
Orapa	27.9	24.2	26.4	5.5	7.0	6.1	99.5	99.3	99.4
Jwaneng	21.4	13.3	18.3	3.7	6.4	4.8	98.6	98.1	98.4
Sowa Town	25.6	12.8	21.8	6.2	6.1	6.2	99.3	98.5	99.0
Southern	38.2	25.7	32.2	7.5	10.2	8.8	88.0	88.0	88.0
South East	20.4	14.4	17.6	7.9	11.9	9.8	93.0	93.6	93.3
Kweneng	29.1	23.8	26.7	9.8	15.3	12.3	90.2	89.4	89.8
Kgatleng	32.2	23.6	28.2	7.0	10.0	8.4	91.2	92.2	91.7
Central	45.1	40.1	42.5	11.1	20.6	18.8	88.0	87.8	87.9
North East	30.5	27.9	29.1	8.4	11.3	10.0	90.9	89.3	90.0
North West	33.5	28.6	31.0	12.2	20.0	16.2	85.0	82.4	83.6
Ghanzi	43.4	32.7	39.0	8.2	14.8	11.0	86.0	87.6	86.7
Kgalagadi	44.7	32.3	39.3	7.7	12.6	9.9	86.2	87.8	86.9
Total	32.4	28.0	30.3	9.4	14.8	12.0	90.8	89.9	90.4

The figures for agricultural activities show that percent household who received income was highest (42%) in Central district followed by Kgalagadi/Ghanzi (39%) and Southern (32%). The percent of male heads were more than female heads in all districts; the difference between the male and female headed households was highest (about 12 percentage point) in Southern district while in other districts it ranged between 0 and 9 percentage points.

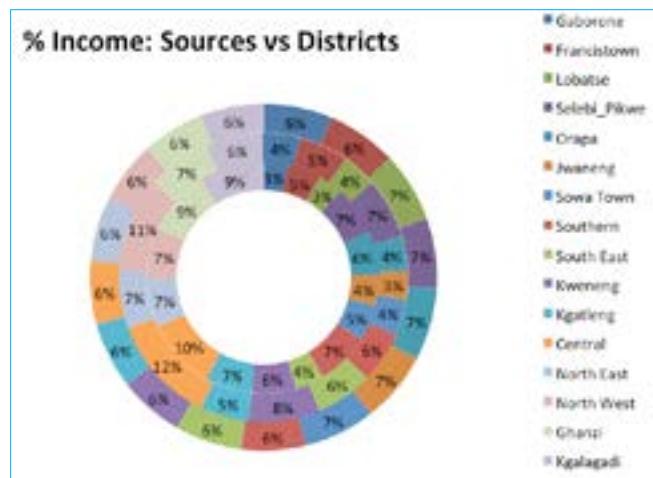
The households' activities figures show that percent household who received income was highest (19%) in Central district followed by North-West (16%) and Kweneng (12%). The percent of male heads were less than female heads in most of the districts; the difference between the male and female headed households ranged between 1 and 8 percentage points.

The household's income from cash/inkind receipt figures show that percent household who received income was highest (99%) in Small towns (Orapa, Jwanneg and Sowa) and minimum (84%) in North-West district. No significant difference was observed between male and female heads in all districts.

Figure 3.2.1 Percent of household who received income from either of the sources of income by district and sex-2011 Census



The above graph shows that percent household heads received other cash/inkind receipts was highest followed by agricultural and household activities in all the districts.



The details are given in Tables 4-6 in Appendix.

3.3 Cash receipt by current economic status

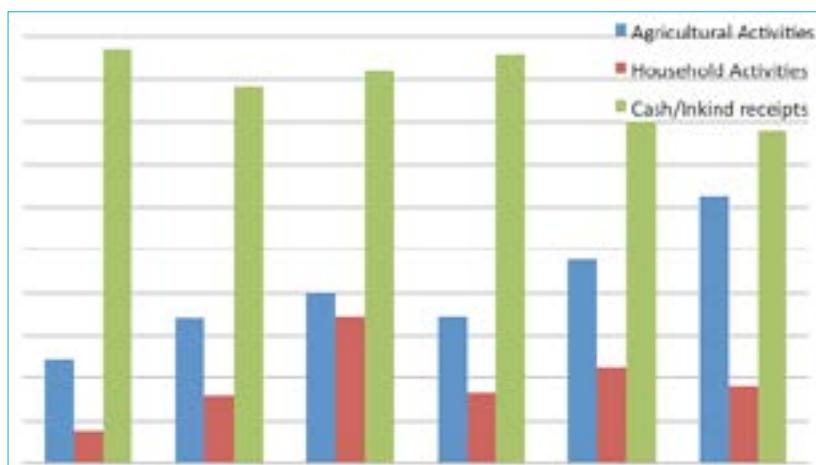
Percent of household who received income from either of the sources of income out of total households enumerated by current economic status and sex is presented in Table and Figure 3.3.1.

The figures for other cash/in-kind receipts show that percent household who received income from working at Own Lands/ Cattle Post was highest (62%) while under household activities, selfemployed with no employee recorded highest (34%) and as usual percent number of households received income from cash/inkind receipt ranged between 77% (Cattlepost) and 97% (Employee paid cash). The household's activities figures show that the percent of male heads were more than female heads in all economic status categories.

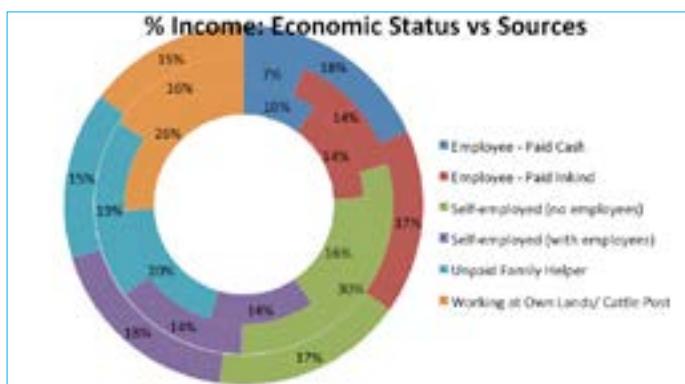
Table 3.3.1 Percent of household who received income from either of the sources of income by current economic status and sex-2011 Census

Current Economic Status	Income from:								
	Agricultural Activities			Household Activities			Cash/Inkind receipts		
	Male	Female	Both Sex	Male	Female	Both Sex	Male	Female	Both Sex
Employee - Paid Cash	26.7	20.6	24.3	7.1	8.6	7.7	97.0	97.2	97.1
Employee - Paid Inkind	36.3	31.1	34.1	14.1	18.6	16.1	88.0	88.4	88.2
Self-employed (no employees)	35.9	44.2	39.9	18.8	50.7	34.2	92.8	91.0	91.9
Self-employed (with employees)	32.0	44.1	34.4	11.6	36.9	16.7	96.1	94.9	95.9
Unpaid Family Helper	51.9	42.5	47.8	14.6	31.9	22.5	74.4	86.3	80.3
Working at Own Lands/ Cattle Post	65.0	56.5	62.5	16.2	22.9	18.2	76.8	80.4	77.9
Total	33.0	28.2	31.1	9.4	15.4	11.8	93.4	93.8	93.6

Figure 3.3.1 Percent of household who received income from either of the sources of income by current economic activity and sex-2011 Census



The graph shown below indicates that percent household heads received other activities in all the economic status categories. The details are given in Tables 7-9 in Appendix.



3.4 Cash receipt by marital status

Percent of household who received income from either of the sources of income out of total households enumerated by marital status and sex is given in Table and Figure 3.4.1.

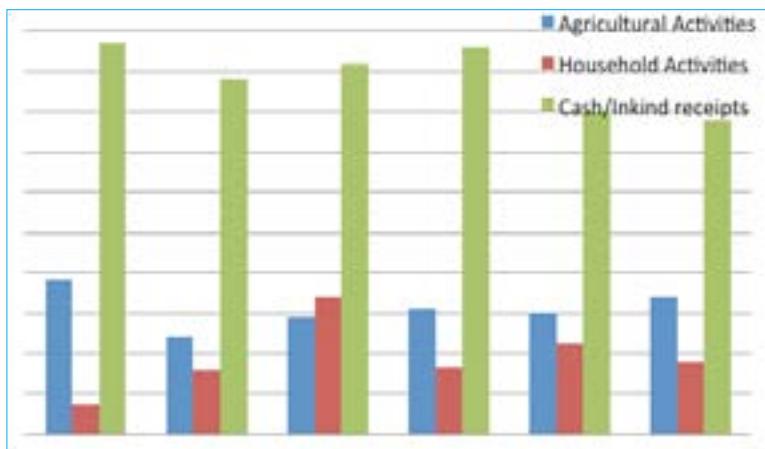
Table 3.4.1 Percent of household who received income from either of the sources of income by marital status and sex-2011 Census

Marital Status Status	Income from:								
	Agricultural Activities			Household Activities			Cash/Inkind receipts		
	Male	Female	Both Sex	Male	Female	Both Sex	Male	Female	Both Sex
Never married	38.8	37.3	38.4	11.5	14.8	12.5	93.7	91.2	92.9
Married	26.9	21.7	24.1	6.1	12.5	9.6	87.7	88.9	88.4
Living together	29.7	27.8	28.9	10.8	16.9	13.3	90.3	87.5	89.1
Separated	33.8	28.8	30.9	9.0	19.7	15.3	86.8	87.3	87.1
Divorced	32.8	28.2	29.9	6.8	15.5	12.4	90.6	92.3	91.7
Widowed	35.8	33.8	34.1	9.1	17.6	16.2	93.3	93.3	93.3
Total	32.4	28.0	30.3	9.4	14.8	12.0	90.8	89.9	90.4

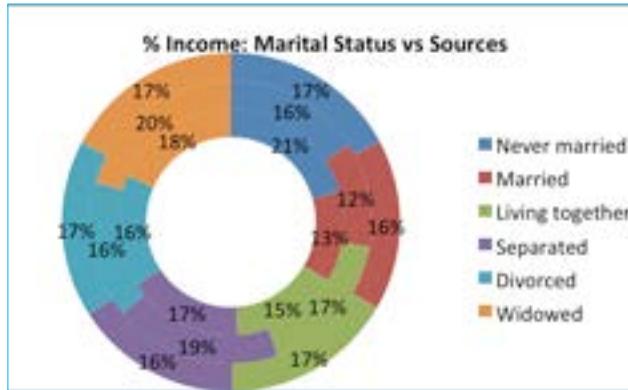
The figures for agricultural activities show that percent household that received income was highest (38%) in never married followed by widowed (34%) and separated (31%). The percent of male heads were more than female heads in most of the categories of marital status. Under household activities the percent household who received income followed almost same trend as observed in agricultural activities.

The percent household who received cash/inkind receipts was highest (93%) in widowed and never married (93%). No significant difference was observed male heads and female heads.

Figure 3.4.1 Percent of household who received income from either of the sources of income by marital status and sex-2011 Census



The graph shown above indicates that percent household heads received other cash/in-kind receipts were highest followed by agricultural and household activities in all marital status categories.



The details are given in Tables 10-12 in Appendix.

4.0 Conclusions and recommendations

About 34.2 percent household received the income from one and more than one agricultural activities. About 79 percent household did not receive any income from agricultural activities. Nineteen (19) percent households received income from livestock while from agriculture these were close to 16 percent.

About 12.2 percent household received the income from one and more than one household activities and out of these 6.3 percent from sale of beverages. About 90 percent household did not receive any income from household activities. Percent households received the Income from sale of cloths and foods were almost same i.e 2%.

About 14 percent household did not receive any income from cash/in-kind receipts. Percent households received the Income from employment was highest (69%) followed by inside Botswana remittance (30%) and pension (13%).

The analysis show that percent household heads was highest in other cash/inkind receipts study variable followed by agricultural activities and household activities in all categories viz. (a) type of residence, (b) district, (c) current economic status, and (d) marital status,

5.0 References

- 1993/4 HIES Report-CSO, Botswana
- 2003/4 HIES Report-CSO, Botswana
- Republic of Botswana (1991).National Policy on Agricultural Development.Government Printers, Gaborone.
- Bank of International settlements (2013): Payments systems in Botswana.
<http://www.bis.org/cpsu/paysys/Botswana.pdf>

Appendices

Statistical Tables

Table 1: The percentage of households that received income from agricultural activities by type of residence and sex-2011 Census

Agricultural Activity	Type of Residence					Total	Households
	Cities/Towns	Urban Villages	Sub-Total-Urban	Rural			
BOTH SEXES							
Cattle	13.82	37.24	51.05	48.95	100.00	52647	
Goats/Sheep	12.76	33.64	46.40	53.60	100.00	29669	
Poultry	11.25	34.26	45.51	54.49	100.00	21682	
Maize	16.39	39.53	55.92	44.08	100.00	15260	
Sorghum/Millet	18.24	38.03	56.27	43.73	100.00	7155	
Melons/Sweetreeds	17.43	37.32	54.74	45.26	100.00	15251	
Fruits & vegetables	24.55	38.40	62.96	37.04	100.00	11208	
Phane	20.25	28.39	48.64	51.36	100.00	15440	
Fish	17.43	39.78	57.21	42.79	100.00	2627	
Thatch/Poles/Reeds	5.420	19.87	25.29	74.71	100.00	6528	
Firewood	15.80	28.16	43.96	56.04	100.00	8348	
None	28.89	40.29	69.18	30.82	100.00	430285	
Legumes	13.28	40.78	54.06	45.94	100.00	1513	
% -BOTH SEXES	24.69	38.67	63.36	36.64	100.00	617613	
MALE							
Cattle	15.22	33.18	48.40	51.60	100.00	33586	
Goats/Sheep	14.50	30.35	44.85	55.15	100.00	18169	
Poultry	13.25	29.90	43.15	56.85	100.00	11725	
Maize	18.34	34.81	53.15	46.85	100.00	8497	
Sorghum/Millet	21.15	33.93	55.08	44.92	100.00	3920	
Melons/Sweetreeds	19.96	33.43	53.39	46.61	100.00	8325	
Fruits & vegetables	25.73	36.11	61.83	38.17	100.00	5337	
Phane	23.4	24.38	47.78	52.22	100.00	6107	
Fish	19.18	34.35	53.54	46.46	100.00	1470	
Thatch/Poles/Reeds	5.37	14.08	19.45	80.55	100.00	3331	
Firewood	14.56	22.93	37.49	62.51	100.00	5308	
None	32.15	36.94	69.09	30.91	100.00	222087	
Legumes	15.79	36.98	52.77	47.23	100.00	703	
%-MALE	27.05	35.05	62.10	37.90	100.00	328565	

Table 1: The percentage of households that received income from agricultural activities by type of residence and sex-2011 Census (Contd...)

Agricultural Activity	Type of Residence					
	Cities/Towns	Urban Villages	Sub-Total-Urban	Rural	Total	Households
FEMALE						
Cattle	11.34	44.38	55.72	44.28	100.00	19061
Goats/Sheep	10.03	38.83	48.86	51.14	100.00	11500
Poultry	8.910	39.39	48.30	51.70	100.00	9957
Maize	13.94	45.47	59.41	40.59	100.00	6763
Sorghum/Millet	14.71	43.00	57.71	42.29	100.00	3235
Melons/Sweettreeds	14.38	41.99	56.37	43.63	100.00	6926
Fruits & vegetables	23.49	40.49	63.98	36.02	100.00	5871
Phane	18.19	31.01	49.20	50.80	100.00	9333
Fish	15.21	46.67	61.88	38.12	100.00	1157
Thatch/Poles/Reeds	5.470	25.90	31.37	68.63	100.00	3197
Firewood	17.96	37.30	55.26	44.74	100.00	3040
None	25.41	43.87	69.28	30.72	100.00	208198
Legumes	11.11	44.07	55.19	44.81	100.00	810
%-Female	22.00	42.79	64.79	35.21	100.00	289048

Table 2: The percentage of households that received income from household activities by type of residence and sex-2011 Census

Household Activities	Cities/Towns	Type of residence			Total
		Urban Villages	Sub-Total: Urban	Rural	
BOTH SEX					
Traditional beer	4.87	30.77	35.64	64.36	100.0
Other beverages	16.66	37.03	53.68	46.32	100.0
Craftwork	11.93	31.72	43.65	56.35	100.0
Clothes	31.11	44.30	75.41	24.59	100.0
Cooked food	27.32	42.39	69.71	30.29	100.0
None	27.09	39.51	66.60	33.40	100.0
Other (NEC)	8.91	50.55	59.46	40.54	100.0
% BOTH SEX	25.70	39.12	64.83	35.17	100.0
Household	143270	218057	361327	196042	557369
MALE					
Traditional beer	6.16	25.47	31.63	68.37	100.0
Other beverages	18.30	33.41	51.72	48.28	100.0
Craftwork	12.93	27.89	40.82	59.18	100.0
Clothes	35.5	40.84	76.33	23.67	100.0
Cooked food	31.41	40.01	71.42	28.58	100.0
None	29.45	35.94	65.39	34.61	100.0
Other (NEC)	10.46	46.45	56.91	43.09	100.0
% MALE	28.36	35.59	63.95	36.05	100.0
Household	82875	104004	186879	105362	292241
FEMALE					
Traditional beer	4.13	33.82	37.95	62.05	100.0
Other beverages	15.41	39.76	55.17	44.83	100.0
Craftwork	10.58	36.92	47.50	52.50	100.0
Clothes	28.16	46.63	74.79	25.21	100.0
Cooked food	24.65	43.95	68.59	31.41	100.0
None	24.33	43.69	68.02	31.98	100.0
Other (NEC)	7.67	53.84	61.51	38.49	100.0
% FEMALE	22.78	43.02	65.80	34.20	100.0
Household	60395	114053	174448	90680	265128

Table 3: The percentage of households that received income from other cash receipts by type of residence and sex-2011 Census

Cash Receipts	Cities/Towns	Type of Residence			
		Urban Villages	Sub-Total Urban	Rural	% Total
BOTH SEX					
Inside Botswana	22.15	42.30	64.45	35.55	100.00
Outside Botswana	31.09	41.09	72.18	27.82	100.00
Pension	6.96	41.58	48.54	51.46	100.00
Rent	35.56	48.83	84.40	15.60	100.00
Maintenance	24.08	44.85	68.93	31.07	100.00
Employment	32.81	39.44	72.24	27.76	100.00
Destitute allowance	6.02	38.00	44.02	55.98	100.00
Government Rations	5.36	36.78	42.14	57.86	100.00
None	9.81	37.31	47.12	52.88	100.00
Student Allowances	39.43	56.86	96.29	3.71	100.00
Other (NEC)	2.00	44.00	46.00	54.00	100.00
% Both Sex	24.64	40.42	65.06	34.94	100.00
Household	193231	316950	510181	273972	784153
MALE					
Inside Botswana	24.79	38.77	63.56	36.44	100.00
Outside Botswana	35.50	37.85	73.35	26.65	100.00
Pension	8.25	35.66	43.91	56.09	100.00
Rent	38.71	44.55	83.26	16.74	100.00
Maintenance	27.52	40.25	67.77	32.23	100.00
Employment	34.59	35.98	70.58	29.42	100.00
Destitute allowance	7.26	34.57	41.83	58.17	100.00
Government Rations	6.20	31.85	38.05	61.95	100.00
None	10.54	34.05	44.59	55.41	100.00
Student Allowances	39.02	57.20	96.22	3.780	100.00
Other (NEC)	2.70	43.24	45.95	54.05	100.00
% Male	27.5	36.65	64.15	35.85	100.00
Household	110133	146781	256914	143557	400471
FEMALE					
Inside Botswana	19.56	45.77	65.33	34.67	100.00
Outside Botswana	26.92	44.16	71.07	28.93	100.00
Pension	5.97	46.14	52.10	47.90	100.00
Rent	32.90	52.47	85.37	14.63	100.00
Maintenance	22.47	47.01	69.48	30.52	100.00
Employment	30.50	43.89	74.39	25.61	100.00
Destitute allowance	5.36	39.83	45.19	54.81	100.00
Government Rations	4.88	39.64	44.52	55.48	100.00
None	9.12	40.38	49.50	50.50	100.00
Student Allowances	39.80	56.55	96.35	3.65	100.00
Other (NEC)	1.32	44.74	46.05	53.95	100.00
% Female	21.66	44.35	66.01	33.99	100.00
Household	83098	170169	253267	130415	383682

Table 4: The percentage of households that received income from agricultural activities by district and sex-2011 Census

District	Agricultural Activity													% Total
	Cattle	Goats/Sheep	Poultry	Maize	Sorghum/Millet	Melons/ Sweetpotato	Fruits & Vegetables	Phane	Fish	Thatch/Poles/ Reeds	Firewood	None	Legumes	
BOTH SEX														
Gaborone	7.12	6.33	5.08	8.50	8.98	7.52	8.86	3.44	7.01	1.97	3.96	16.52	7.46	15.02
Francistown	2.73	2.90	3.01	3.3	4.54	3.88	9.56	5.66	5.77	1.82	7.21	6.58	1.37	6.43
Lobatse	0.75	0.55	0.61	1.41	1.23	1.32	1.09	0.24	0.50	0.11	0.72	2.02	1.51	1.83
Selebi_Pikwe	1.95	1.85	1.86	1.99	2.54	3.63	4.66	10.3	2.79	1.25	3.73	3.06	2.12	3.42
Orapa	0.65	0.60	0.35	0.55	0.69	0.68	0.44	0.46	0.81	0.19	0.22	0.67	0.00	0.70
Jwaneng	0.72	0.69	0.53	1.24	0.68	0.74	0.61	0.18	0.58	0.06	0.23	1.27	1.23	1.21
Sowa Town	0.19	0.17	0.12	0.10	0.20	0.18	0.09	0.14	0.27	0.06	0.10	0.25	0.07	0.24
Cities/ Towns	14.11	13.09	11.56	17.1	18.87	17.95	25.32	20.41	17.75	5.46	16.18	30.38	13.76	16.82
Ngwaketse	6.34	6.41	7.79	12.02	5.33	6.41	4.26	0.57	1.70	6.40	6.31	5.88	7.53	6.73
Barolong	2.65	2.51	3.35	6.33	3.79	2.67	1.51	0.10	0.62	2.00	1.85	2.56	5.89	2.91
Ngwaketse West	1.06	0.91	0.63	0.89	0.46	0.43	0.22	0.05	0.31	0.40	0.42	0.66	0.55	0.76
Southern	10.05	9.83	11.77	19.24	9.59	9.51	5.99	0.73	2.63	8.80	8.58	9.10	13.96	10.4
South East	2.12	2.52	2.73	4.31	3.44	2.99	3.10	0.79	1.78	0.65	2.43	5.15	3.56	4.84
Kweneng East	9.93	10.37	11.84	13.76	9.79	11.05	10.8	2.10	6.78	7.91	11.41	13.8	15.33	14.14
Kweneng West	3.77	3.8	3.10	3.60	2.57	2.22	0.75	0.21	0.50	5.72	2.17	2.10	3.56	2.66
Kweneng	13.7	14.17	14.94	17.35	12.36	13.26	11.54	2.31	7.28	13.63	13.58	15.90	18.89	16.81
Kgatleng	4.85	4.16	5.94	4.32	2.72	4.35	4.56	0.67	2.63	2.78	3.99	4.78	6.71	5.15
Central Serowe														
Palapye	11.68	9.71	12.99	8.79	12.58	11.62	12.37	36.74	7.17	17.35	13.85	7.50	7.87	10.54
Central Mahalapye	8.08	7.63	9.12	6.47	9.43	11.44	7.51	5.97	2.79	12.81	10.40	4.99	8.15	6.74
Central Bobonong	4.61	6.23	6.28	3.40	6.26	7.47	4.87	19.6	3.80	4.52	6.40	2.90	4.11	4.53
Central Boteti	4.71	4.75	2.63	2.17	1.86	2.90	2.41	3.09	3.64	4.07	2.83	2.43	1.85	3.13
Central Tutume	7.14	8.68	11.35	5.36	12.09	7.24	12.60	6.89	11.55	14.48	12.7	6.92	8.49	8.40
Central	36.21	37.00	42.38	26.19	42.21	40.67	39.76	72.3	28.94	53.22	46.2	24.75	30.46	33.34
North East	2.38	2.68	4.38	1.91	3.86	2.10	5.17	1.80	2.13	1.97	3.34	3.04	1.85	3.32
Ngamiland East	5.38	5.16	2.22	5.95	3.60	6.03	2.88	0.65	16.54	3.31	3.64	4.03	4.38	4.66
Ngamiland West	2.14	1.83	1.67	2.43	2.73	2.65	1.65	0.22	9.14	4.67	1.23	2.35	5.00	2.55
Chobe	1.09	0.72	1.33	1.46	1.95	0.66	1.38	0.47	9.03	3.44	0.53	1.33	0.62	1.45
Okavango Delta	0.05	0.03	0.04	0.1	0.03	0.16	0.01	0.00	1.12	0.65	0.11	0.13	0.00	0.13
North West	8.66	7.74	5.26	9.94	8.31	9.50	5.91	1.34	35.84	12.07	5.51	7.84	9.99	8.80
Ghanzi	5.17	3.79	1.83	1.91	0.97	1.24	0.79	0.23	1.90	0.83	1.41	1.93	2.94	2.46
CKGR	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ghanzi	5.18	3.8	1.83	1.92	0.97	1.24	0.79	0.23	1.90	0.83	1.41	1.94	2.94	2.46
Kgalagadi South	2.59	4.81	1.05	1.13	0.64	0.76	0.51	0.14	0.58	0.83	0.74	1.36	0.68	1.71
Kgalagadi North	2.28	2.73	0.89	0.89	0.48	0.66	0.45	0.08	0.31	0.4	0.48	0.93	0.75	1.20
Kgalagadi	4.86	7.54	1.94	2.02	1.11	1.42	0.96	0.22	0.89	1.23	1.21	2.28	1.44	2.91
Total-BOTH SEX	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Households	51554	28941	21106	14630	6917	14808	10871	15319	2581	6486	8150	409207	1461	528443

Table 4: The percentage of households that received income from agricultural activities by district and sex-2011 Census (contd...)

District	Agricultural Activity													
	Cattle	Goats/Sheep	Poultry	Maize	Sorghum/Millet	Melons/Sweetreeds	Fruits & vegetables	Phane	Fish	Thatch/Poles/Reeds	Firewood	None	Legumes	% Total
MALE														
Gaborone	7.81	7.30	6.11	9.72	10.59	8.69	10.47	4.44	7.55	2.36	4.07	18.48	9.45	14.85
Francistown	2.73	3.03	3.21	3.13	4.78	3.88	9.07	5.80	5.89	1.51	6.04	6.90	1.33	5.84
Lobatse	0.79	0.62	0.65	1.57	1.32	1.51	1.17	0.35	0.69	0.15	0.66	2.13	1.03	1.71
Selebi_Pikwe	2.31	2.25	2.35	2.42	3.20	4.49	4.74	12.14	3.25	1.12	3.59	3.71	2.81	3.56
Orapa	0.76	0.64	0.44	0.60	0.74	0.82	0.35	0.48	1.04	0.12	0.17	0.78	0.00	0.72
Jwaneng	0.91	0.83	0.71	1.56	0.92	0.94	0.74	0.15	0.69	0.09	0.23	1.48	1.62	1.26
Sowa Town	0.25	0.24	0.18	0.16	0.34	0.27	0.14	0.25	0.42	0.06	0.15	0.32	0.15	0.29
Cities/ Towns	15.56	14.9	13.66	19.17	21.9	20.61	26.68	23.61	19.53	5.41	14.91	33.79	16.4	28.22
Ngwaketse	6.57	6.84	7.93	12.33	5.36	7.09	4.45	0.64	0.97	7.76	6.75	5.37	7.98	5.82
Barolong	2.66	2.51	3.69	7.04	4.65	3.14	1.73	0.18	0.90	3.32	2.10	2.36	6.06	2.57
Ngwaketse West	1.13	0.88	0.69	0.87	0.58	0.48	0.31	0.1	0.48	0.60	0.42	0.63	1.03	0.68
Southern	10.36	10.23	12.31	20.24	10.59	10.71	6.49	0.93	2.35	11.69	9.27	8.36	15.07	9.07
South East	2.22	2.75	3.15	4.54	3.57	3.21	3.69	0.91	1.80	0.60	2.35	5.12	3.84	4.32
Kweneng East	10.36	10.72	12.22	13.62	10.67	11.54	11.91	2.81	6.79	8.06	11.07	14.32	13.59	13.08
Kweneng West	3.97	3.65	3.00	3.74	2.77	2.44	0.80	0.23	0.62	6.13	2.26	2.11	3.84	2.46
Kweneng	14.32	14.36	15.22	17.36	13.45	13.98	12.71	3.04	7.41	14.2	13.32	16.43	17.43	15.54
Kgatleng	5.12	4.35	6.62	4.40	2.96	4.17	5.17	0.88	2.77	3.65	4.18	4.75	6.94	4.69
Central Serowe														
Palapye	11.23	9.31	12.73	8.07	11.36	10.74	11.07	34.24	5.19	15.58	14.52	7.03	8.27	8.77
Central Mahalapye	7.87	7.39	8.41	5.68	8.40	9.79	6.76	4.94	2.77	14.38	10.93	4.23	6.50	5.44
Central Bobonong	4.33	5.80	6.02	3.24	5.60	6.92	4.2	18.16	3.53	5.07	6.69	2.62	3.10	3.68
Central Boteti	4.33	4.28	2.46	1.83	1.74	2.48	2.33	3.09	3.32	4.59	2.51	2.32	1.77	2.67
Central Tutume	6.51	7.76	10.42	4.97	10.54	6.79	11.97	7.11	12.19	11.87	12.65	6.25	7.53	6.85
Central	34.26	34.54	40.05	23.79	37.65	36.72	36.33	67.53	27.01	51.5	47.3	22.45	27.18	27.42
North East	1.89	2.31	3.53	1.75	3.06	2.06	4.95	2.02	1.94	1.42	3.20	2.67	1.18	2.58
Ngamiland East	4.89	4.73	1.95	5.34	3.36	5.62	3.03	0.69	15.24	2.93	3.39	3.82	4.58	3.96
Ngamiland West	1.94	1.75	1.27	2.08	2.17	2.11	1.48	0.30	9.21	3.53	1.00	1.90	4.73	1.89
Chobe	1.10	0.68	1.28	1.61	2.25	0.74	1.30	0.36	10.39	2.36	0.54	1.39	1.03	1.33
Okavango Delta	0.05	0.03	0.05	0.1	0.00	0.14	0.00	0.00	1.32	0.57	0.10	0.13	0.00	0.11
North West	7.99	7.21	4.55	9.13	7.77	8.6	5.81	1.35	36.15	9.39	5.03	7.24	10.34	7.30
Ghanzi	5.43	4.22	2.03	1.99	1.29	1.40	0.85	0.30	1.80	1.09	1.54	2.04	3.69	2.42
CKGR	0.01	0.01	0.00	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01
Ghanzi	5.44	4.24	2.03	2.01	1.29	1.41	0.85	0.3	1.80	1.09	1.54	2.05	3.69	2.43
Kgalagadi South	2.67	5.13	1.20	1.18	0.79	0.87	0.58	0.25	0.76	1.15	0.81	1.33	1.18	1.61
Kgalagadi North	2.39	2.73	0.84	0.97	0.53	0.87	0.43	0.1	0.28	0.51	0.42	0.93	0.59	1.14
Kgalagadi	5.06	7.86	2.03	2.15	1.32	1.74	1.01	0.35	1.04	1.66	1.23	2.26	1.77	2.75
Total-Male	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Households	32855	17682	11367	8128	3785	8066	5147	6052	1444	3311	5186	211268	677	314968

Table 4: The percentage of households that received income from agricultural activities by district and sex-2011 Census (contd...)

District	Agricultural Activity													% Total
	Cattle	Goats/Sheep	Poultry	Maize	Sorghum/Millet	Melons/ Sweetreeds	Fruits & vegetables	Phane	Fish	Thatch/Poles/ Reeds	Firewood	None	Legumes	
FEMALE														
Gaborone	5.90	4.81	3.88	6.98	7.02	6.11	7.41	2.78	6.33	1.57	3.78	14.42	5.74	15.28
Francistown	2.72	2.71	2.77	3.52	4.25	3.89	9.99	5.57	5.63	2.14	9.28	6.24	1.40	7.29
Lobatse	0.68	0.44	0.55	1.20	1.12	1.10	1.03	0.16	0.26	0.06	0.84	1.90	1.91	2.02
Selebi_Pikwe	1.31	1.23	1.28	1.45	1.76	2.61	4.59	9.10	2.2	1.39	3.98	2.38	1.53	3.21
Orapa	0.46	0.53	0.25	0.49	0.64	0.50	0.52	0.44	0.53	0.25	0.30	0.55	0.00	0.68
Jwaneng	0.39	0.46	0.32	0.83	0.38	0.50	0.49	0.19	0.44	0.03	0.24	1.05	0.89	1.13
Sowa Town	0.10	0.05	0.05	0.03	0.03	0.06	0.05	0.08	0.09	0.06	0.00	0.17	0.00	0.18
Cities/ Towns	11.56	10.24	9.11	14.5	15.2	14.77	24.09	18.32	15.48	5.51	18.42	26.73	11.48	0.00
Ngwaketse	5.95	5.75	7.64	11.64	5.30	5.59	4.09	0.53	2.64	4.98	5.53	6.43	7.14	8.07
Barolong	2.63	2.50	2.94	5.44	2.75	2.11	1.31	0.05	0.26	0.63	1.42	2.77	5.74	3.43
Ngwaketse West	0.93	0.95	0.56	0.91	0.32	0.37	0.14	0.02	0.09	0.19	0.40	0.70	0.13	0.86
Southern	9.50	9.19	11.14	17.99	8.37	8.07	5.54	0.60	2.99	5.80	7.35	9.90	13.01	12.35
South East	1.94	2.14	2.24	4.01	3.29	2.73	2.57	0.71	1.76	0.69	2.56	5.18	3.32	5.61
Kweneng East	9.17	9.82	11.41	13.93	8.72	10.46	9.80	1.64	6.77	7.75	12.01	13.24	16.84	15.72
Kweneng West	3.44	4.04	3.21	3.41	2.33	1.94	0.70	0.19	0.35	5.29	2.02	2.10	3.32	2.95
Kweneng	12.6	13.86	14.62	17.35	11.05	12.4	10.5	1.83	7.12	13.04	14.04	15.34	20.15	18.67
Kgatleng	4.37	3.85	5.13	4.21	2.43	4.57	4.02	0.53	2.46	1.86	3.64	4.81	6.51	5.84
Central Serowe Palapye	12.48	10.34	13.3	9.69	14.05	12.67	13.54	38.37	9.67	19.18	12.69	8.00	7.53	13.14
Central Mahalapye	8.44	8.00	9.95	7.46	10.66	13.41	8.18	6.65	2.81	11.18	9.48	5.80	9.57	8.66
Central Bobonong	5.09	6.90	6.59	3.60	7.06	8.13	5.47	20.54	4.13	3.94	5.90	3.20	4.97	5.77
Central Boteti	5.38	5.49	2.83	2.60	2.01	3.41	2.48	3.10	4.05	3.53	3.41	2.56	1.91	3.81
Central Tutume	8.25	10.12	12.43	5.84	13.95	7.77	13.17	6.76	10.73	17.20	12.79	7.63	9.31	10.69
Central	39.63	40.85	45.11	29.19	47.73	45.39	42.84	75.41	31.4	55.02	44.26	27.19	33.29	42.06
North East	3.25	3.28	5.37	2.12	4.82	2.15	5.36	1.65	2.37	2.55	3.58	3.42	2.42	4.40
Ngamiland East	6.23	5.82	2.54	6.71	3.90	6.53	2.74	0.62	18.21	3.72	4.08	4.26	4.21	5.71
Ngamiland West	2.50	1.95	2.14	2.86	3.42	3.29	1.80	0.17	9.06	5.86	1.62	2.84	5.23	3.53
Chobe	1.06	0.78	1.40	1.28	1.60	0.56	1.45	0.54	7.30	4.57	0.51	1.26	0.26	1.62
Okavango Delta	0.05	0.04	0.03	0.11	0.06	0.19	0.02	0.00	0.88	0.72	0.13	0.14	0.00	0.16
North West	9.84	8.59	6.10	10.95	8.97	10.58	6.01	1.33	35.44	14.87	6.34	8.49	9.69	11.01
Ghanzi	4.72	3.12	1.59	1.81	0.57	1.04	0.73	0.18	2.02	0.57	1.18	1.82	2.3	2.5
CKGR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Ghanzi	4.72	3.12	1.59	1.81	0.57	1.04	0.73	0.18	2.02	0.57	1.18	1.82	2.30	2.51
Kgalagadi South	2.44	4.30	0.88	1.08	0.45	0.62	0.44	0.08	0.35	0.50	0.61	1.39	0.26	1.86
Kgalagadi North	2.08	2.73	0.94	0.78	0.42	0.42	0.47	0.06	0.35	0.28	0.57	0.92	0.89	1.30
Kgalagadi	4.52	7.03	1.83	1.86	0.86	1.04	0.91	0.14	0.70	0.79	1.18	2.30	1.15	3.15
Total-Female	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Households	18699	11259	9739	6502	3132	6742	5724	9267	1137	3175	2964	197939	784	213475

Table 5: The percentage of households that received income from household activities by district and sex-2011 Census

	Agricultural Activity							
	Traditional Beer	Other beverages	Craftwork	Clothes	Cooked food	None	Others (NEC)	% Total
BOTH SEX								
Gaborone	2.0	7.3	5.6	13.7	14.8	14.4	4.7	13.6
Francistown	1.1	3.8	3.2	8.2	7.5	5.9	2.6	5.7
Lobatse	0.4	1.2	0.7	1.8	0.9	1.8	0.3	1.7
Selebi_Pikwe	0.9	3.4	2.1	5.6	3.1	3.0	1.1	2.9
Orapa	0.2	0.3	0.2	0.7	0.3	0.6	0.2	0.6
Jwaneng	0.2	0.5	0.3	0.9	0.5	1.2	0.1	1.1
Sowa Town	0.1	0.1	0	0.2	0.1	0.2	0.0	0.2
Cities/ Towns	4.9	16.7	11.9	31.1	27.3	27.1	8.9	25.7
Ngwaketse	4.1	7.6	4.4	4.8	3.4	5.8	2.7	5.7
Barolong	1.3	2.5	1.2	1.6	1.0	2.6	0.6	2.5
Ngwaketse West	0.7	0.9	0.3	0.2	0.2	0.7	0.2	0.6
Southern	6	11.0	5.9	6.6	4.7	9.1	3.4	8.8
South East	3.8	3.0	2.4	4.4	3.6	4.5	2.0	4.3
Kweneng East	13.5	12.8	9.2	10.7	10.8	12.4	15.3	12.4
Kweneng West	4.5	3.4	2.0	1.2	1.9	2.1	3.5	2.2
Kweneng	18.0	16.2	11.2	11.9	12.7	14.6	18.8	14.6
Kgatleng	2.3	2.7	4.0	4.3	3.3	4.7	7.5	4.5
Central Serowe Palapye	20.1	14.3	9.3	9.7	9.4	7.7	15	8.5
Central Mahalapye	16.8	8.6	6.4	5.4	5.6	4.8	8.3	5.5
Central Bobonong	4.4	3.2	6.5	3.6	3.9	3.4	5.2	3.5
Central Boteti	2.7	2.9	4.3	2.6	2.6	2.5	3.8	2.6
Central Tutume	7.3	7.2	8.9	6.9	7.8	6.9	10.1	7.0
Central	35.7	24.6	19.5	21.2	22.1	16.1	30.2	17.4
North East	2.0	2.3	2.7	2.4	3.3	3.0	2.4	2.9
Ngamiland East	3.3	5.0	6.1	4.2	7.2	3.9	4.5	4.0
Ngamiland West	3.6	1.7	10.8	1.6	3.8	2.0	2.7	2.2
Chobe	1.2	1.3	1.2	2.0	1.6	1.2	2.1	1.3
Okavango Delta	0.1	0.0	1.4	0.0	0.1	0.1	0.0	0.1
North West	8.1	8.1	19.6	7.7	12.7	7.2	9.2	7.6
Ghanzi	1.5	1.7	3.4	1.6	1.9	2.1	3.2	2.1
CKGR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ghanzi	1.5	1.7	3.4	1.6	1.9	2.1	3.2	2.1
Kgalagadi South	1.3	1.4	1.3	0.7	0.6	1.5	1.3	1.4
Kgalagadi North	0.7	0.7	2.2	0.9	0.5	1.0	0.9	1.0
Kgalagadi	2.1	2.1	3.5	1.7	1.1	2.5	2.2	2.4
Total-BOTH SEX	100	100	100	100	100	100	100	100
Households	25934	8934	8398	10959	11198	490678	1268	557369

Table 5: The percentage of households that received income from household activities by district and sex-2011 Census (contd...)

District	Agricultural Activity							
	Traditional Beer	Other beverages	Craftwork	Clothes	Cooked food	None	Others (NEC)	% Total
MALE								
Gaborone	2.8	8.6	5.9	15.8	17.8	15.8	5.7	15.1
Francistown	1.2	3.6	3.3	8.7	7.5	6.0	2.3	5.8
Lobatse	0.4	1.1	0.8	1.9	1.0	1.8	0.7	1.7
Selebi_Pikwe	1.1	3.9	2.4	6.8	3.6	3.5	1.2	3.4
Orapa	0.3	0.4	0.2	1.0	0.4	0.7	0.4	0.7
Jwaneng	0.3	0.6	0.3	0.9	0.7	1.3	0.2	1.3
Sowa Town	0.2	0.1	0.1	0.3	0.3	0.3	0.0	0.3
Cities/ Towns	6.2	18.3	12.9	35.5	31.4	29.5	10.5	28.4
Ngwaketse	4.2	7.1	4.6	5.2	3.7	5.5	3.7	5.4
Barolong	1.2	2.7	1.5	1.6	1.2	2.5	0.4	2.4
Ngwaketse West	0.7	0.6	0.4	0.2	0.2	0.7	0.2	0.6
Southern	6.1	10.4	6.4	7.0	5.1	8.7	4.3	8.5
South East	4.2	2.8	2.3	4.4	4.0	4.4	2.5	4.3
Kweneng East	14.2	14.1	10.0	12.2	12	12.9	16.7	12.9
Kweneng West	4.4	3.2	2.2	1.4	2.1	2.2	4.3	2.3
Kweneng	18.6	17.3	12.2	13.6	14.1	15.1	20.9	15.2
Kgatleng	2.6	2.8	4.4	4.0	3.3	4.7	9.4	4.6
Central Serowe Palapye	19.7	13.7	9.8	7.8	7.9	7.3	13.1	7.9
Central Mahalapye	16.4	7.9	7.5	4.0	5.0	4.4	5.9	4.9
Central Bobonong	4.3	3.0	5.7	3.4	3.6	3.0	4.4	3.1
Central Boteti	2.3	2.4	4.5	2.4	2.0	2.4	3.9	2.5
Central Tutume	7.6	7.7	9.3	5.8	6.4	6.2	9.2	6.3
Central	7.6	7.7	9.3	5.8	6.4	6.2	9.2	6.3
North East	1.8	2.1	2.5	2.0	3.4	2.5	2.0	2.5
Ngamiland East	2.9	4.8	5.6	3.5	6.3	3.7	3.5	3.8
Ngamiland West	2.7	1.2	7.7	1.4	2.6	1.7	2.7	1.8
Chobe	1.1	1.5	1.2	1.9	1.7	1.3	2.7	1.3
Okavango Delta	0.1	0.1	1.0	0.0	0.1	0.1	0.0	0.1
North West	6.7	7.5	15.4	6.9	10.8	6.8	8.9	7.0
Ghanzi	1.4	1.9	3.5	1.5	1.7	2.3	3.4	2.3
CKGR	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Ghanzi	1.4	1.9	3.6	1.5	1.7	2.3	3.4	2.3
Kgalagadi South	1.4	1.4	1.6	0.7	0.6	1.5	0.9	1.5
Kgalagadi North	0.7	0.8	1.7	0.9	0.6	1.1	0.9	1.1
Kgalagadi	2	2.2	3.3	1.7	1.2	2.6	1.8	2.6
Total-Male	100	100	100	100	100	100	100	100
Households	9485	3846	4834	4403	4426	264683	564	292241

Table 5: The percentage of households that received income from household activities by district and sex-2011 Census (contd...)

District	Agricultural Activity							% Total
	Traditional Beer	Other beverages	Craftwork	Clothes	Cooked food	None	Others (NEC)	
FEMALE								
Gaborone	1.5	6.3	5.1	12.3	12.8	12.8	3.8	11.9
Francistown	1.0	4.0	3.0	7.9	7.5	5.8	2.8	5.5
Lobatse	0.3	1.3	0.5	1.7	0.9	1.7	0.0	1.6
Selebi_Pikwe	0.8	3.1	1.7	4.7	2.8	2.4	1.0	2.4
Orapa	0.2	0.3	0.2	0.5	0.2	0.5	0.0	0.5
Jwaneng	0.2	0.4	0.2	0.8	0.4	1.0	0.0	0.9
Sowa Town	0.0	0.1	0.0	0.2	0.1	0.2	0.0	0.1
Cities/ Towns	4.1	15.4	10.6	28.2	24.6	24.3	7.7	22.8
Ngwaketse	4.0	8.0	4.2	4.5	3.3	6.2	1.8	6.0
Barolong	1.3	2.4	0.8	1.6	0.9	2.8	0.7	2.6
Ngwaketse West	0.7	1.1	0.2	0.3	0.1	0.7	0.1	0.7
Southern	6.0	11.5	5.2	6.3	4.4	9.7	2.7	9.2
South East	3.6	3.1	2.5	4.4	3.4	4.5	1.6	4.3
Kweneng East	13.1	11.8	8.0	9.7	10.0	11.9	14.2	11.8
Kweneng West	4.6	3.6	1.8	1.1	1.8	2.0	3.0	2.2
Kweneng	17.7	15.3	9.8	10.8	11.8	13.9	17.2	14.0
Kgatleng	2.1	2.6	3.4	4.5	3.2	4.6	6.0	4.4
Central Serowe Palapye	20.3	14.9	8.6	10.9	10.4	8.2	16.5	9.2
Central Mahalapye	17.0	9.2	4.8	6.4	6.0	5.3	10.2	6.1
Central Bobonong	4.5	3.3	7.5	3.8	4.1	3.8	5.8	3.9
Central Boteti	2.9	3.2	4.0	2.7	3.0	2.6	3.7	2.7
Central Tutume	7.1	6.8	8.4	7.7	8.8	7.7	10.8	7.7
Central	51.8	37.4	33.4	31.6	32.3	27.6	47	29.6
North East	2.1	2.5	3.0	2.6	3.2	3.4	2.7	3.3
Ngamiland East	3.5	5.2	6.9	4.6	7.8	4.0	5.3	4.2
Ngamiland West	4.1	2.0	15	1.7	4.5	2.4	2.7	2.7
Chobe	1.2	1.2	1.3	2.0	1.5	1.2	1.6	1.2
Okavango Delta	0.1	0.0	2.0	0.1	0.1	0.1	0.0	0.1
North West	8.9	8.5	25.2	8.3	13.9	7.7	9.5	8.2
Ghanzi	1.6	1.6	3.3	1.6	2.1	1.8	3.1	1.8
CKGR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ghanzi	1.6	1.6	3.3	1.6	2.1	1.8	3.1	1.8
Kgalagadi South	1.3	1.4	0.8	0.7	0.5	1.4	1.7	1.4
Kgalagadi North	0.8	0.7	2.8	0.9	0.5	1.0	0.9	1.0
Kgalagadi	2.1	2.1	3.6	1.7	1.0	2.4	2.6	2.3
Total-Female	100	100	100	100	100	100	100	100
Households	16449	5088	3564	6556	6772	225995	704	265128

Table 6: The percentage of households that received income from other cash receipts by district and sex-2011 Census

District	Other Cash/Inkind Receipts											
	Inside Botswana	Outside Botswana	Pension	Rent	Maintenance	Employment	Destitute Allowance	Govt. Ration	None	Student Allowance	Other (NEC)	% Total
BOTH SEX												
Gaborone	17.32	2.22	2.22	5.07	1.31	65.69	0.36	0.52	4.47	0.82	0.00	100.00
Francistown	20.22	2.09	2.89	6.21	1.72	60.65	0.65	1.19	3.94	0.45	0.00	100.00
Lobatse	21.9	1.74	4.05	5.65	2.23	59.88	0.57	0.84	3.08	0.07	0.00	100.00
Selebi_Pikwe	20.1	1.73	2.80	5.30	1.87	63.92	0.54	0.81	2.90	0.04	0.00	100.00
Orapa	27.21	1.59	1.55	1.59	1.67	65.21	0.22	0.33	0.57	0.06	0.00	100.00
Jwaneng	15.51	1.93	1.29	3.74	1.69	73.69	0.28	0.21	1.60	0.05	0.00	100.00
Sowa Town	14.76	2.19	0.55	1.30	0.41	78.81	0.62	0.07	0.96	0.34	0.00	100.00
Cities/ Towns	18.77	2.08	2.50	5.22	1.55	64.34	0.46	0.71	3.84	0.54	0.00	100.00
Ngwaketse	20.47	1.67	14.35	2.74	1.44	40.37	3.01	4.34	11.55	0.06	0.01	100.00
Barolong	20.81	2.01	13.25	1.60	1.49	42.52	2.86	4.59	10.86	0.01	0.00	100.00
Ngwaketse West	11.16	0.38	12.73	1.28	1.28	39.38	4.97	7.53	21.29	0.00	0.00	100.00
Southern	19.95	1.68	13.93	2.32	1.44	40.91	3.10	4.63	12.00	0.04	0.00	100.00
South East	19.81	2.19	7.11	5.81	1.14	53.3	0.68	1.38	6.72	1.86	0.01	100.00
Kweneng East	21.53	1.73	8.53	4.42	1.48	49.32	1.25	2.04	8.99	0.69	0.02	100.00
Kweneng West	23.44	0.89	11.99	1.05	1.25	36.08	3.81	4.78	16.57	0.06	0.08	100.00
Kweneng	21.83	1.6	9.07	3.9	1.45	47.26	1.65	2.47	10.17	0.59	0.03	100.00
Kgatleng	23.55	2.03	12.07	3.95	1.81	44.85	1.29	1.95	8.32	0.13	0.03	100.00
Central Serowe Palapye	23.26	1.42	11.36	3.22	1.83	39.97	2.81	4.87	11.09	0.14	0.02	100.00
Central Mahalapye	22.18	1.44	12.5	2.20	1.84	37.86	2.78	5.78	13.35	0.02	0.04	100.00
Central Bobonong	24.17	1.12	12.21	1.99	1.69	38.82	2.13	5.29	12.42	0.03	0.14	100.00
Central Boteti	21.88	0.95	10.65	2.51	1.94	38.74	2.79	6.10	14.4	0.02	0.01	100.00
Central Tutume	23.43	1.35	12.04	2.37	1.67	39.45	2.71	5.58	11.35	0.05	0.01	100.00
Central	23.07	1.32	11.8	2.57	1.78	39.15	2.69	5.40	12.1	0.07	0.04	100.00
North East	24.98	1.47	11.29	2.65	1.43	42.55	1.54	4.01	9.96	0.10	0.01	100.00
Ngamiland East	17.57	1.26	9.82	3.60	1.91	43.61	2.16	3.56	16.46	0.04	0.01	100.00
Ngamiland West	15.43	0.93	14.49	1.56	1.79	30.92	4.01	6.58	24.26	0.02	0.01	100.00
Chobe	28.08	1.57	4.26	3.61	1.09	54.13	1.04	1.40	4.81	0.00	0.01	100.00
Okavango Delta	13.55	1.56	7.55	0.84	1.20	65.35	2.76	1.92	5.28	0.00	0.00	100.00
North West	18.83	1.22	10.11	2.97	1.71	42.21	2.5	4.01	16.4	0.03	0.01	100.00
Ghanzi	15.57	1.19	8.91	2.49	1.43	49.41	2.84	4.86	13.25	0.05	0.02	100.00
CKGR	8.33	4.17	0.00	4.17	0.00	45.83	0.00	8.33	29.17	0.00	0.00	100.00
Ghanzi	15.55	1.19	8.89	2.49	1.42	49.40	2.84	4.86	13.28	0.05	0.02	100.00
Kgalagadi South	18.34	1.35	7.66	1.53	1.55	43.97	4.84	5.83	14.9	0.04	0.00	100.00
Kgalagadi North	15.09	0.9	10.67	1.94	0.81	50.58	4.30	5.23	10.41	0.00	0.07	100.00
Kgalagadi	17.01	1.16	8.90	1.70	1.24	46.68	4.62	5.58	13.06	0.02	0.03	100.00
Total-BOTH SEX	20.88	1.65	8.83	3.62	1.58	48.33	1.86	3.24	9.64	0.34	0.02	100.00
Households	163737	12906	69277	28388	12402	378996	14620	25422	75587	2668	150	784153

Table 6: The percentage of households that received income from other cash receipts by district and sex-2011 Census (contd...)

District	Other Cash/Inkind Receipts											
	Inside Botswana	Outside Botswana	Pension	Rent	Maintenance	Employment	Destitute Allowance	Govt. Ration	None	Student Allowance	Other (NEC)	% Total
MALE												
Gaborone	17.04	2.17	2.08	4.60	0.91	67.49	0.30	0.42	4.31	0.68	0.00	100.00
Francistown	19.38	2.09	2.53	5.06	1.07	64.62	0.45	0.88	3.55	0.36	0.00	100.00
Lobatse	22.09	1.60	3.40	4.94	1.57	63.19	0.27	0.45	2.44	0.06	0.00	100.00
Selebi_Pikwe	18.58	1.66	2.59	4.65	0.90	68.39	0.40	0.59	2.19	0.04	0.00	100.00
Orapa	28.33	1.79	1.46	1.79	0.80	64.88	0.17	0.23	0.46	0.1	0.00	100.00
Jwaneng	15.22	1.64	1.38	3.76	1.22	74.98	0.15	0.22	1.38	0.07	0.00	100.00
Sowa Town	14.41	2.30	0.30	1.1	0.20	79.68	0.70	0.10	0.70	0.50	0.00	100.00
Cities/ Towns	18.26	2.02	2.26	4.58	0.99	67.07	0.34	0.52	3.51	0.45	0.00	100.00
Ngwaketse	20.24	1.39	13.25	2.5	0.87	44.59	2.13	3.77	11.17	0.07	0.01	100.00
Barolong	19.72	1.76	11.65	1.52	1.00	46.94	1.98	3.45	11.97	0.01	0.00	100.00
Ngwaketse West	12.23	0.29	11.81	1.34	1.01	45.39	3.18	4.52	20.23	0.00	0.00	100.00
Southern	19.53	1.42	12.7	2.14	0.92	45.31	2.16	3.73	12.03	0.05	0.01	100.00
South East	19.63	1.99	5.97	5.13	0.76	56.2	0.54	0.96	6.99	1.82	0.01	100.00
Kweneng East	21.17	1.63	7.11	3.73	0.94	53.67	0.87	1.47	8.74	0.63	0.02	100.00
Kweneng West	24.05	0.83	10.14	1.01	0.73	42.36	2.46	2.95	15.31	0.07	0.07	100.00
Kweneng	21.62	1.51	7.58	3.31	0.91	51.91	1.12	1.70	9.76	0.54	0.03	100.00
Kgatleng	23.84	1.83	10.09	3.45	1.20	48.16	1.02	1.47	8.80	0.13	0.03	100.00
Central Serowe Palapye	22.60	1.29	10.00	2.73	1.10	45.70	1.86	3.52	11.08	0.10	0.02	100.00
Central Mahalapye	21.67	1.17	11.40	1.96	1.04	43.39	1.78	4.13	13.39	0.02	0.04	100.00
Central Bobonong	22.20	1.11	11.13	1.68	0.88	44.79	1.42	4.27	12.33	0.05	0.14	100.00
Central Boteti	21.99	0.97	9.96	2.22	1.18	43.87	2.06	4.24	13.46	0.02	0.02	100.00
Central Tutume	21.58	1.31	10.56	2.10	1.01	45.62	2.03	4.48	11.25	0.05	0.00	100.00
Central	22.05	1.22	10.55	2.24	1.05	44.93	1.85	4.05	11.97	0.06	0.03	100.00
North East	23.83	1.39	9.97	2.62	1.03	47.85	1.19	2.95	9.11	0.07	0.01	100.00
Ngamiland East	17.56	1.28	8.67	3.14	1.30	47.34	1.58	2.73	16.32	0.06	0.01	100.00
Ngamiland West	14.99	0.92	14.40	1.56	1.03	36.49	3.21	5.45	21.90	0.01	0.03	100.00
Chobe	28.28	1.58	3.53	2.72	0.67	57.35	0.75	1.10	4.01	0.00	0.00	100.00
Okavango Delta	12.10	1.48	8.15	0.49	0.49	68.64	1.73	1.73	5.19	0.00	0.00	100.00
North West	19.03	1.25	9.07	2.61	1.09	46.95	1.83	3.07	15.05	0.03	0.01	100.00
Ghanzi	15.25	0.97	8.05	2.31	0.86	52.02	2.37	4.18	13.93	0.05	0.02	100.00
CKGR	9.52	4.76	0.00	4.76	0.00	42.86	0.00	9.52	28.57	0.00	0.00	100.00
Ghanzi	15.23	0.97	8.03	2.31	0.86	52.00	2.36	4.19	13.96	0.05	0.02	100.00
Kgalagadi South	17.28	1.35	6.68	1.56	1.00	50.04	2.97	3.69	15.42	0.02	0.00	100.00
Kgalagadi North	14.25	1.10	8.76	2.12	0.83	54.48	2.98	3.86	11.55	0.00	0.07	100.00
Kgalagadi	16.01	1.24	7.55	1.79	0.93	51.89	2.97	3.76	13.80	0.01	0.03	100.00
Total-Male	20.25	1.57	7.53	3.25	0.99	53.32	1.27	2.33	9.15	0.32	0.02	100.00
Households	81111	6282	30155	13025	3965	213525	5082	9322	36659	1271	74.00	400471

Table 6: The percentage of households that received income from other cash receipts by district and sex-2011 Census (contd...)

District	Other Cash/Inkind Receipts											
	Inside Botswana	Outside Botswana	Pension	Rent	Maintenance	Employment	Destitute Allowance	Govt. Ration	None	Student Allowance	Other (NEC)	% Total
FEMALE												
Gaborone	17.70	2.30	2.41	5.72	1.85	63.21	0.44	0.65	4.69	1.03	0.00	100.00
Francistown	21.15	2.09	3.29	7.48	2.44	56.23	0.87	1.52	4.38	0.55	0.00	100.00
Lobatse	21.67	1.91	4.81	6.49	3.02	55.95	0.93	1.31	3.83	0.08	0.00	100.00
Selebi_Pikwe	22.42	1.82	3.13	6.30	3.35	57.08	0.76	1.13	3.99	0.02	0.00	100.00
Orapa	25.44	1.27	1.69	1.27	3.06	65.75	0.32	0.47	0.74	0.00	0.00	100.00
Jwaneng	15.96	2.39	1.16	3.73	2.43	71.67	0.48	0.21	1.95	0.03	0.00	100.00
Sowa Town	15.52	1.94	1.08	1.72	0.86	76.94	0.43	0.00	1.51	0.00	0.00	100.00
Cities/ Towns	19.45	2.15	2.81	6.08	2.28	60.73	0.61	0.94	4.27	0.67	0.00	100.00
Ngwaketse	20.70	1.93	15.39	2.96	1.97	36.34	3.85	4.89	11.90	0.06	0.00	100.00
Barolong	21.84	2.25	14.75	1.68	1.95	38.34	3.69	5.67	9.81	0.01	0.00	100.00
Ngwaketse West	10.04	0.48	13.70	1.22	1.57	33.13	6.83	10.65	22.39	0.00	0.00	100.00
Southern	20.35	1.93	15.10	2.49	1.94	36.71	4.00	5.48	11.97	0.04	0.00	100.00
South East	19.99	2.39	8.29	6.52	1.54	50.29	0.83	1.81	6.44	1.90	0.01	100.00
Kweneng East	21.93	1.83	10.12	5.19	2.09	44.45	1.68	2.68	9.27	0.76	0.02	100.00
Kweneng West	22.76	0.95	14.05	1.10	1.83	29.04	5.32	6.82	17.99	0.05	0.09	100.00
Kweneng	22.05	1.70	10.73	4.55	2.05	42.05	2.25	3.32	10.63	0.65	0.03	100.00
Kgatleng	23.25	2.24	14.20	4.49	2.46	41.31	1.58	2.47	7.82	0.14	0.03	100.00
Central Serowe Palapye	23.84	1.54	12.56	3.65	2.48	34.9	3.65	6.06	11.10	0.18	0.03	100.00
Central Mahalapye	22.60	1.65	13.40	2.39	2.49	33.38	3.59	7.11	13.32	0.02	0.04	100.00
Central Bobonong	25.84	1.13	13.12	2.26	2.38	33.76	2.73	6.15	12.49	0.01	0.14	100.00
Central Boteti	21.77	0.94	11.33	2.79	2.68	33.67	3.51	7.93	15.34	0.03	0.01	100.00
Central Tutume	25.02	1.38	13.30	2.6	2.24	34.17	3.30	6.52	11.44	0.04	0.01	100.00
Central	23.95	1.42	12.89	2.86	2.42	34.14	3.42	6.58	12.21	0.08	0.04	100.00
North East	25.92	1.54	12.39	2.68	1.76	38.19	1.83	4.89	10.66	0.13	0.02	100.00
Ngamiland East	17.59	1.23	10.92	4.03	2.48	40.05	2.71	4.35	16.59	0.03	0.01	100.00
Ngamiland West	15.76	0.93	14.55	1.56	2.35	26.8	4.6	7.41	26.01	0.02	0.00	100.00
Chobe	27.85	1.57	5.09	4.64	1.57	50.39	1.38	1.75	5.73	0.00	0.02	100.00
Okavango Delta	14.92	1.63	6.99	1.17	1.86	62.24	3.73	2.10	5.36	0.00	0.00	100.00
North West	18.64	1.20	11.07	3.3	2.28	37.85	3.11	4.87	17.64	0.02	0.01	100.00
Ghanzi	15.97	1.47	9.99	2.72	2.14	46.09	3.44	5.72	12.4	0.04	0.01	100.00
CKGR	0.00	0.00	0.00	0.00	0.00	66.67	0.00	0.00	33.33	0.00	0.00	100.00
Ghanzi	15.96	1.47	9.98	2.72	2.14	46.10	3.44	5.71	12.41	0.04	0.01	100.00
Kgalagadi South	19.49	1.35	8.71	1.5	2.14	37.46	6.84	8.11	14.34	0.06	0.00	100.00
Kgalagadi North	16.05	0.67	12.86	1.73	0.78	46.11	5.82	6.80	9.12	0.00	0.06	100.00
Kgalagadi	18.11	1.08	10.38	1.59	1.59	40.93	6.43	7.59	12.24	0.03	0.02	100.00
Total-Female	21.54	1.73	10.20	4.00	2.20	43.13	2.49	4.20	10.15	0.36	0.02	100.00
Households	82626	6624	39122	15363	8437	165471	9538	16100	38928	1397	76.00	383682

Table 7: The percentage of households that received income from agricultural activities by current economic status and sex-2011 Census

Agricultural Activity	Current economic Activity								% Total
	Employee - Paid Cash	Employee - Paid Inkind	Self-employed (no employees)	Self-employed (with employees)	Unpaid Family Helper	Working at Own Lands/ Cattle Post	Unknown		
BOTH SEX									
Cattle	55.88	0.49	6.46	3.59	0.81	21.19	11.58	100.00	
Goats/Sheep	53.12	0.52	7.45	3.6	0.72	21.91	12.69	100.00	
Poultry	53.48	0.6	10.41	4.37	0.73	16.74	13.68	100.00	
Maize	53.29	0.6	9.89	4.53	0.77	17.23	13.69	100.00	
Sorghum/Millet	54.36	0.61	9.76	4.69	0.9	14.97	14.7	100.00	
Melons/Sweetreeds	54.94	0.53	9.92	4.01	0.69	16.29	13.63	100.00	
Fruits & vegetables	48.96	0.39	24.66	7.16	0.76	7.44	10.63	100.00	
Phane	56.79	0.53	10.68	1.94	0.53	11.2	18.32	100.00	
Fish	57.38	0.77	17.68	4.85	0.28	7.98	11.07	100.00	
Thatch/Poles/Reeds	51.8	1.31	11.39	1.54	0.75	15.84	17.38	100.00	
Firewood	54.83	0.93	10.85	2.08	1.15	16.09	14.07	100.00	
None	76.3	0.5	6.63	3.27	0.37	4.77	8.15	100.00	
Legumes	53.84	0.76	10.71	2.75	0.76	15.73	15.45	100.00	
%-BOTH SEX	69.45	0.53	7.6	3.43	0.49	8.76	9.74	100.00	
Households	275747	2086	30160	13627	1960	34799	38662	397041	
MALE									
Cattle	56.06	0.48	4.99	4.03	0.82	24.2	9.43	100.00	
Goats/Sheep	54.58	0.51	5.77	4.2	0.71	24.35	9.89	100.00	
Poultry	56.77	0.5	7.58	5.12	0.65	19.08	10.3	100.00	
Maize	55.2	0.58	8	5.38	0.69	18.97	11.18	100.00	
Sorghum/Millet	58.18	0.62	7.32	5.77	0.86	16.39	10.86	100.00	
Melons/Sweetreeds	58.52	0.58	7.35	4.64	0.58	18.2	10.12	100.00	
Fruits & vegetables	54.81	0.41	18.02	9.09	0.54	8.37	8.76	100.00	
Phane	63.83	0.49	6.37	2.31	0.35	13.17	13.47	100.00	
Fish	60.49	0.64	17.08	4.9	0.27	9.26	7.36	100.00	
Thatch/Poles/Reeds	60.93	1.05	8	1.31	0.71	17.13	10.86	100.00	
Firewood	57.55	0.88	9.07	2.25	1.22	18.22	10.81	100.00	
None	76.78	0.48	6.27	4.59	0.33	5.39	6.17	100.00	
Legumes	58.18	0.91	8.18	3.45	0.73	17.27	11.27	100.00	
% Male	70.17	0.5	6.55	4.52	0.46	10.32	7.48	100.00	
Households	168570	1201	15739	10869	1105	24785	17960	240229	
Cattle	55.44	0.51	10.06	2.52	0.79	13.81	16.87	100.00	
Goats/Sheep	49.96	0.52	11.07	2.32	0.75	16.63	18.75	100.00	
Poultry	48.14	0.77	14.99	3.14	0.86	12.94	19.16	100.00	
Maize	50.14	0.62	13.02	3.13	0.9	14.36	17.82	100.00	
Sorghum/Millet	48.35	0.6	13.6	2.98	0.98	12.74	20.76	100.00	
Melons/Sweetreeds	49.24	0.44	14.02	3	0.85	13.25	19.21	100.00	
Fruits & vegetables	42.31	0.38	32.19	4.96	1.02	6.38	12.76	100.00	
Phane	50.44	0.57	14.57	1.6	0.69	9.43	22.69	100.00	
Fish	52.59	0.98	18.6	4.76	0.28	6.01	16.78	100.00	
Thatch/Poles/Reeds	38	1.7	16.51	1.87	0.79	13.9	27.23	100.00	
Firewood	47.98	1.04	15.32	1.63	0.98	10.76	22.29	100.00	
None	75.63	0.54	7.15	1.37	0.44	3.87	11.00	100.00	
Legumes	49.11	0.59	13.47	1.98	0.79	14.06	20.00	100.00	
% Female	68.35	0.56	9.20	1.76	0.55	6.39	13.20	100.00	
Households	107177	885	14421	2758	855	10014	20702	156812	

Table 8: The percentage of households that received income from household activities by current economic status and sex-2011 Census

Household Activity	Current economic Activity							Unknown	% Total
	Employee - Paid Cash	Employee - Paid Inkind	Self-employed (no employees)	Self-employed (with employees)	Unpaid Family Helper	Working at Own Lands/ Cattle Post			
BOTH SEX									
Traditional beer	42.2	0.82	15.48	1.67	1.21	18.39	20.23	100.00	
Other beverages	48.08	0.65	21.77	5.38	1.03	10.26	12.82	100.00	
Craftwork	45.79	0.81	22.56	3.76	0.60	12.80	13.69	100.00	
Clothes	50.94	0.62	27.69	8.10	0.52	4.64	7.48	100.00	
Cooked food	48.8	0.59	28.22	7.51	0.79	5.22	8.87	100.00	
None	74.6	0.50	5.64	3.16	0.41	6.94	8.75	100.00	
Other (NEC)	56.23	0.35	20.26	4.89	0.70	8.03	9.55	100.00	
% BOTH SEX	71.28	0.52	7.56	3.35	0.47	7.48	9.35	100.00	
Household	254324	1861	26959	11938	1674	26678	33347	356781	
MALE									
Traditional beer	49.84	0.89	6.94	1.96	0.87	24.48	15.02	100.00	
Other beverages	55.47	0.63	11.78	6.77	0.95	13.58	10.83	100.00	
Craftwork	51.31	0.76	18.57	4.45	0.50	14.59	9.82	100.00	
Clothes	59.04	0.74	17.46	9.77	0.34	6.64	6.02	100.00	
Cooked food	61.34	0.52	15.08	8.45	0.49	7.33	6.81	100.00	
None	73.97	0.47	5.86	4.38	0.40	8.15	6.77	100.00	
Other (NEC)	59.82	0.46	14.16	6.85	0.46	11.19	7.08	100.00	
% MALE	72.13	0.49	6.53	4.49	0.43	8.81	7.12	100.00	
Household	153730	1048	13922	9567	907	18768	15182	213124	
FEMALE									
Traditional beer	36.05	0.76	22.35	1.43	1.48	13.5	24.42	100.00	
Other beverages	40.79	0.66	31.64	4.00	1.11	7.00	14.79	100.00	
Craftwork	35.96	0.89	29.66	2.52	0.79	9.61	20.57	100.00	
Clothes	44.72	0.52	35.54	6.82	0.67	3.11	8.61	100.00	
Cooked food	39.21	0.65	38.28	6.79	1.02	3.600	10.44	100.00	
None	75.61	0.54	5.28	1.23	0.43	5.02	11.89	100.00	
Other (NEC)	52.49	0.24	26.60	2.85	0.95	4.75	12.11	100.00	
% FEMALE	70.02	0.57	9.08	1.65	0.53	5.51	12.64	100.00	
Household	100594	813	13037	2371	767	7910	18165	143657	

Table 9: The percentage of households that received income from other cash receipts by current economic status and sex-2011 Census

Cash Receipt	Current economic Activity							% Total
	Employee - Paid Cash	Employee - Paid Inkind	Self-employed (no employees)	Self-employed (with employees)	Unpaid Family Helper	Working at Own Lands/ Cattle Post	Unknown	
BOTH SEX								
Inside Botswana	70.9	0.53	7.47	3.22	0.50	7.61	9.77	100.00
Outside Botswana	67.72	0.63	9.61	7.21	0.38	4.99	9.47	100.00
Pension	29.61	0.69	8.25	2.61	0.94	31.09	26.8	100.00
Rent	63.02	0.38	12.37	6.76	0.55	6.59	10.33	100.00
Maintenance	64.36	0.58	9.51	3.35	0.56	7.39	14.25	100.00
Employment	81.57	0.43	6.81	3.54	0.26	2.74	4.65	100.00
Destitute allowance	43.48	1.15	10.24	1.58	1.12	16.32	26.1	100.00
Government Rations	41.35	0.86	9.33	1.51	1.05	19.61	26.28	100.00
None	32.29	0.95	9.45	2.19	1.42	25.66	28.04	100.00
Student Allowances	79.37	0.37	6.13	2.97	0.19	1.86	9.11	100.00
Other (NEC)	15.05	0.00	25.81	6.45	0.00	31.18	21.51	100.00
% Both Sex	71.08	0.52	7.54	3.43	0.46	7.48	9.49	100.00
Household	352419	2578	37372	17005	2295	37111	47033	495813
MALE								
Inside Botswana	71.64	0.50	6.60	4.53	0.44	9.14	7.16	100.00
Outside Botswana	66.71	0.50	8.85	10.47	0.29	6.28	6.89	100.00
Pension	30.06	0.66	6.19	3.38	0.75	38.33	20.64	100.00
Rent	63.57	0.40	9.58	9.21	0.38	8.55	8.32	100.00
Maintenance	63.99	0.43	7.20	6.31	0.35	11.29	10.43	100.00
Employment	81.57	0.42	6.34	4.81	0.22	3.15	3.49	100.00
Destitute allowance	47.51	1.05	8.22	2.39	1.09	21.37	18.37	100.00
Government Rations	42.38	0.76	7.12	2.18	0.7	25.94	20.93	100.00
None	32.8	0.89	7.18	2.76	1.56	31.23	23.57	100.00
Student Allowances	78.47	0.00	7.66	4.01	0.00	2.92	6.93	100.00
Other (NEC)	16.00	0.00	14.00	12.00	0.00	44.00	14.00	100.00
% Male	71.81	0.49	6.6	4.7	0.4	8.87	7.12	100.00
Household	208627	1422	19187	13656	1166	25774	20694	290526
FEMALE								
Inside Botswana	69.93	0.58	8.63	1.47	0.58	5.58	13.24	100.00
Outside Botswana	69.00	0.81	10.57	3.03	0.49	3.34	12.76	100.00
Pension	29.03	0.74	10.96	1.61	1.2	21.57	34.89	100.00
Rent	62.39	0.37	15.57	3.95	0.74	4.33	12.65	100.00
Maintenance	64.59	0.67	10.99	1.47	0.7	4.90	16.69	100.00
Employment	81.56	0.45	7.54	1.60	0.33	2.10	6.42	100.00
Destitute allowance	40.26	1.23	11.86	0.94	1.13	12.29	32.29	100.00
Government Rations	40.43	0.95	11.3	0.93	1.37	14.00	31.03	100.00
None	31.53	1.05	12.84	1.34	1.21	17.33	34.7	100.00
Student Allowances	80.30	0.76	4.55	1.89	0.38	0.76	11.36	100.00
Other (NEC)	13.95	0.00	39.53	0.00	0.00	16.28	30.23	100.00
% Female	70.04	0.56	8.86	1.63	0.55	5.52	12.83	100.00
Household	143792	1156	18185	3349	1129	11337	26339	205287

Table 10: The percentage of households that received income from agricultural activities by marital status and sex-2011 Census

Agricultural Activity	Marital status of Head of Household						% Total
	Never married	Married	Living together	Separated	Divorced	Widowed	
BOTH SEX							
Cattle	42.7	26.4	19.0	0.7	1.8	9.3	100.00
Goats/Sheep	38.7	28.2	22.0	0.8	1.9	8.4	100.00
Poultry	33.8	28.3	25.4	0.9	2.0	9.7	100.00
Maize	39.0	27.7	22.4	0.7	2.0	8.2	100.00
Sorghum/Millet	36.8	29.2	22.8	0.7	2.0	8.6	100.00
Melons/Sweetreeds	36.0	28.7	24.0	0.7	2.0	8.6	100.00
Fruits & vegetables	34.8	28.9	23.9	0.9	2.4	9.2	100.00
Phane	23.7	32.8	30.5	0.9	1.9	10.1	100.00
Fish	27.9	31.6	31.2	0.9	1.9	6.4	100.00
Thatch/Poles/Reeds	19.8	30.5	37.5	1.2	1.7	9.4	100.00
Firewood	24.1	33.4	32.2	1.0	1.4	8.0	100.00
None	25.2	39.1	25.5	0.8	2.0	7.6	100.00
Legumes	31.1	29.9	25.6	0.9	1.3	11.2	100.00
% BOTH SEX	28.5	35.9	24.9	0.8	1.9	8.0	100.00
Household	175723	221613	153965	4778	12000	49454	617533
MALE							
Cattle	48.5	25.7	20.4	0.7	1.6	3.2	100.00
Goats/Sheep	45.2	27.0	22.9	0.7	1.4	2.9	100.00
Poultry	42.7	24.9	27.5	0.7	1.4	2.7	100.00
Maize	48.0	24.2	23.5	0.5	1.4	2.3	100.00
Sorghum/Millet	45.1	26.3	24.3	0.5	1.2	2.7	100.00
Melons/Sweetreeds	44.6	26.2	25.2	0.5	1.1	2.5	100.00
Fruits & vegetables	49.4	20.9	26.1	0.5	1.1	1.9	100.00
Phane	35.8	24.9	35.7	0.4	0.9	2.3	100.00
Fish	34.5	28.5	32.7	0.8	1.2	2.3	100.00
Thatch/Poles/Reeds	25.1	29.5	41.9	0.6	1.0	1.9	100.00
Firewood	27.4	34.2	33.8	0.9	0.9	2.9	100.00
None	33.3	33.9	28.5	0.6	1.3	2.4	100.00
Legumes	44.4	23.3	28.6	0.7	0.6	2.4	100.00
% MALE	36.8	31.3	27.4	0.6	1.3	2.5	100.00
Household	120960	102975	90045	1995	4344	8200	328519
FEMALE							
Cattle	32.5	27.8	16.6	0.7	2.3	20.1	100.00
Goats/Sheep	28.5	30.1	20.6	0.9	2.7	17.1	100.00
Poultry	23.3	32.2	22.9	1.1	2.8	17.8	100.00
Maize	27.7	32.1	20.9	0.9	2.7	15.7	100.00
Sorghum/Millet	26.7	32.9	20.9	0.9	2.9	15.7	100.00
Melons/Sweetreeds	25.7	31.9	22.5	0.9	3.1	16.0	100.00
Fruits & vegetables	21.4	36.1	22.0	1.2	3.5	15.80	100.00
Phane	15.8	38.0	27.1	1.2	2.7	15.20	100.00
Fish	19.6	35.6	29.3	1.0	2.9	11.60	100.00
Thatch/Poles/Reeds	14.3	31.6	32.8	1.7	2.4	17.20	100.00
Firewood	18.3	32.0	29.4	1.2	2.2	16.90	100.00
None	16.5	44.6	22.2	1.0	2.6	13.10	100.00
Legumes	19.6	35.6	23.0	1.1	2.0	18.8.	100.00
% FEMALE	18.9	41.0	22.1	1.0	2.6	14.30	100.00
Household	54763	118638	63920	2783	7656	41254	289014

Table 11: The percentage of households that received income from household activities by marital status and sex-2011 Census

Household Activity	Marital status of Head of Household						
	Never married	Married	Living together	Separated	Divorced	Widowed	% Total
BOTH SEX							
Traditional beer	24.52	28.75	30.37	1.07	1.50	13.8	100.00
Other beverages	27.23	29.45	30.69	0.73	1.79	10.11	100.00
Craftwork	27.38	29.23	30.56	1.19	2.23	9.41	100.00
Clothes	37.13	30.32	20.17	1.01	3.07	8.30	100.00
Cooked food	30.94	30.65	27.13	0.97	2.27	8.04	100.00
None	27.09	37.8	24.80	0.76	1.94	7.61	100.00
Other (NEC)	31.70	30.52	24.05	0.95	1.89	10.88	100.00
% BOTH SEX	27.26	36.81	25.19	0.79	1.95	8.00	100.00
Household	151928	205134	140383	4396	10891	44566	557298
MALE							
Traditional beer	40.10	21.10	35.03	0.53	0.69	2.56	100.00
Other beverages	40.46	20.85	34.71	0.34	1.04	2.60	100.00
Craftwork	32.87	27.43	33.66	1.12	1.72	3.21	100.00
Clothes	57.01	17.56	22.67	0.45	0.79	1.52	100.00
Cooked food	49.76	16.00	31.07	0.50	0.79	1.88	100.00
None	34.82	33.23	27.47	0.62	1.37	2.50	100.00
Other (NEC)	45.74	23.94	25.89	0.53	1.06	2.84	100.00
% MALE	35.61	32.06	27.89	0.61	1.33	2.49	100.00
Household	104063	93684	81492	1792	3889	7280	292200
FEMALE							
Traditional beer	15.53	33.16	27.68	1.38	1.98	20.27	100.00
Other beverages	17.24	35.95	27.65	1.02	2.36	15.78	100.00
Craftwork	19.93	31.67	26.36	1.29	2.92	17.83	100.00
Clothes	23.78	38.90	18.49	1.39	4.59	12.86	100.00
Cooked food	18.64	40.22	24.56	1.28	3.23	12.06	100.00
None	18.04	43.15	21.67	0.93	2.62	13.60	100.00
Other (NEC)	20.45	35.80	22.59	1.28	2.56	17.33	100.00
% FEMALE	18.06	42.04	22.21	0.98	2.64	14.06	100.00
Household	47865	111450	58891	2604	7002	37286	265098

Table 12: The percentage of households that received income from other cash receipts by marital status and sex-2011 Census

Cash Receipts	Marital status of Head of Household						% Total
	Never married	Married	Living together	Separated	Divorced	Widowed	
BOTH SEX							
Inside Botswana	27.66	36.54	23.62	0.77	2.04	9.38	100.00
Outside Botswana	37.32	31.61	18.57	0.84	2.80	8.85	100.00
Pension	36.8	20.94	10.61	1.07	2.82	27.76	100.00
Rent	37.92	30.24	14.63	0.79	3.08	13.33	100.00
Maintenance	23.15	38.05	24.64	1.10	3.01	10.06	100.00
Employment	28.36	36.75	27.06	0.64	1.83	5.35	100.00
Destitute allowance	19.15	33.85	22.22	1.31	2.35	21.11	100.00
Government Rations	22.62	31.89	20.17	1.13	2.18	22.01	100.00
None	20.78	42.73	27.04	1.06	1.76	6.63	100.00
Student Allowances	9.11	70.54	16.60	0.15	1.16	2.44	100.00
Other (NEC)	27.33	40.67	20.67	0.00	1.33	10.00	100.00
% Both Sex	28.22	35.49	23.91	0.79	2.05	9.54	100.00
Household	221224	278261	187468	6183	16106	74823	784065
MALE							
Inside Botswana	36.73	32.24	26.43	0.56	1.30	2.74	100.00
Outside Botswana	47.93	27.48	20.06	0.64	1.67	2.23	100.00
Pension	59.75	13.37	12.93	1.15	2.64	10.15	100.00
Rent	55.27	21.89	16.75	0.54	1.97	3.58	100.00
Maintenance	41.81	26.04	26.92	0.61	1.29	3.33	100.00
Employment	35.78	31.31	29.56	0.49	1.16	1.71	100.00
Destitute allowance	33.07	29.07	26.54	1.16	2.15	8.01	100.00
Government Rations	38.76	25.76	24.63	0.97	1.80	8.08	100.00
None	25.98	41.10	28.49	0.88	1.42	2.13	100.00
Student Allowances	11.09	70.02	17.62	0.24	0.63	0.39	100.00
Other (NEC)	36.49	35.14	25.68	0.00	0.00	2.70	100.00
% Male	37.72	30.59	26.79	0.61	1.38	2.90	100.00
Household	151055	122503	107274	2449	5532	11609	400422
FEMALE							
Inside Botswana	18.75	40.75	20.87	0.97	2.76	15.90	100.00
Outside Botswana	27.26	35.54	17.16	1.03	3.88	15.13	100.00
Pension	19.12	26.77	8.81	1.01	2.96	41.33	100.00
Rent	23.21	37.33	12.84	1.01	4.02	21.59	100.00
Maintenance	14.38	43.69	23.57	1.33	3.82	13.22	100.00
Employment	18.77	43.77	23.84	0.84	2.71	10.06	100.00
Destitute allowance	11.73	36.39	19.92	1.39	2.46	28.09	100.00
Government Rations	13.28	35.43	17.58	1.23	2.40	30.08	100.00
None	15.88	44.26	25.68	1.22	2.09	10.87	100.00
Student Allowances	7.30	71.01	15.68	0.07	1.65	4.29	100.00
Other (NEC)	18.42	46.05	15.79	0.00	2.63	17.11	100.00
% Female	18.29	40.60	20.9	0.97	2.76	16.48	100.00
Household	70169	155758	80194	3734	10574	63214	383643



Dr S.T. R. Moeng University of Botswana presenting on Analysis of Livestock Ownership & Crops Planted by Households in Botswana: The 2011 Population and Housing Census Perspectives

ANALYSIS OF LIVESTOCK OWNERSHIP AND CROPS PLANTED BY HOUSEHOLDS IN BOTSWANA: THE 2011 POPULATION AND HOUSING CENSUS PERSPECTIVES

By

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Abstract: This paper uses the 2011 Botswana Population and Housing Census data to answer some pertinent questions about ownership of livestock and crops planted by households in Botswana. Specifically the paper determined the distribution of household who owned different livestock and planted different crops by sex of head of households, locality and districts. The paper is organized into four sections, namely, the introduction, methodology, results and conclusions. At the end the policy implications with NDP-10 and other related documents with Botswana is also attempted.

1.0 Introduction

Botswana is a landlocked country located in Southern Africa. It is bordered to the north by Namibia and Zambia, Zimbabwe to the east and the Republic of South Africa (RSA) to the south. The area of Botswana is 582,000 square kilometres divided into three ecological zones viz. (i) Kalagadi Desert, (ii) the Okavango Swamps, and (iii) the hard-veld in the east of the country. The country is sparsely populated with a population of a little over 2 million people (CSO, 2012). Botswana is a semi-arid country with an erratic rainfall that supports all agricultural activities carried out to sustain livelihoods of many households. Forty-six (46) percent of the population live in rural areas and depend on agriculture for sustenance. There is a rapid urban migration with about 54% of the nation now living in towns (Op cit)

Agriculture no longer claims a significant portion of the Gross Domestic Product in Botswana. But it is still relied upon by the great majority of Botswana living in rural areas and who depend on agricultural activities for their livelihoods. The principal agricultural industry is livestock, and it earns substantial foreign exchange in the form of beef exports and raw materials from meat processing. The primary arable crop is sorghum, which is drought resilient. Agriculture and livestock production accounts for only 4% of the country's GDP, and employs about 25.7% of the country's labour force. A large part of the country has semi-desert and partly savannah conditions with erratic rainfall and poor soil conditions. This makes it more suitable for grazing than crop production. The livestock production is therefore the main agricultural sector. Livestock, namely, cattle, sheep and goats are the major income earner of the agricultural sector contributing on average 80% of agriculture's share of GDP. It is estimated that the animal population is close to being in excess of the land carrying capacity at 3.2 million beasts giving rise to concerns about overgrazing (MBendi, 2013; Adams, n.d.). Other agricultural sectors include forestry and fishing. Subsistence farming by peasant farmers is the predominant form of agricultural activity providing food, income, employment and capital for two thirds of the country's population. The fact that Botswana is essentially arid with frequent and extensive droughts has made irrigated crop farming very difficult to promote and caused the country to import up to 80% of its food requirements. The principal food crops are sorghum, maize, millet, pulses, groundnuts (peanuts), beans, and sunflower seed. Marketing of agricultural products is handled by the Botswana Agricultural Marketing Board which guarantees a minimum price to producers.

The government of Botswana has over the years worked tirelessly to diversify its diamond-dependent economy but to no avail. Agriculture has been identified as one of the sectors that can drive economic diversification and growth. However the greatest challenge facing Botswana is to improve food security and rural employment and incomes under semi-arid and marginal environments. Therefore, the government has targeted rural development in an effort to promote agricultural productivity, despite its poor performance which is mainly associated with the arable sub sector as compared to the livestock sub sector (Central Statistics Office, 2008). According to Government Implementation Coordination Office (2009), the Botswana government's main objectives were to create a livestock sector which would significantly contribute to economic activity in a substantially liberalised environment, give highest priority to intensive farming projects and support agro-industry projects. This led to the government introducing some programmes such as Integrated Support Programme for Arable Agricultural Development (ISPAAD) in 2008 to address challenges in the arable sub-sector. Statistics Botswana (2013) reported in their annual agricultural survey report that in 2011 more area was planted with assistance from ISPAAD and consequently production has since increased remarkably, particularly for maize. The number of farmers with land for planting (land holdings) showed a significant increase of 5.4 percent from 76,267 in 2010 to 80,415 in 2011 (Statistics Botswana, 2013). However, the same report also indicated that the commercial sector experienced a contraction from 1,217 to 718 farmers, and also indicated that traditional sector was still predominant in the livestock industry though the performance of the sector was poor as compared to the commercial sector.

The 1991 National Policy on Agricultural Development focused on agrarian reform, which included replacing the food self sufficiency goal with the concept of food security, promoting diversification of agricultural production, and incorporating the element of sustainable food production primarily through improved management of productive resources. Agriculture was diversified through the adoption of non-traditional production systems and products (Republic of Botswana, 1991). A number of measures have been adopted by Government to encourage and enhance farmer participation and engagement in horticulture production where conditions allow, and in harvesting and processing veld products. What seems to emerge clearly is that the transition to new forms of production has been slow. Subsidies such as the Financial Assistance Policy (FAP) to encourage people to participate have been promoted. With this reform, Botswana has exceeded the 1995 target for this programme area. The government of Botswana launched the Arable Land Development Programme (ALDEP) in 1980.

Integrated Pest Management is currently promoted through initiatives by the agricultural research system and others. These initiatives include breeding and selecting crops resistant to major pests and diseases. Capacity has been enhanced by the establishment of a Plant Protection Division within the Ministry of Agriculture. The Division is responsible for the control of migratory and economically important pests, development of procedures for safe handling and disposal of pesticides, and for promoting sustainable pest control technologies (Agenda 21, n.d.).

The 2004 Agricultural Census report (CSO, 2008) indicates that agricultural holdings increased significantly by 19.6 percent from 101,434 to 121,325 at national level between the 1993 and 2004 agricultural censuses. The commercial sector increased by 46.4 percent, from 507 to 742 agricultural holdings while the traditional sector increased by 19.5 percent, from 100,927 to 120,583 agricultural holdings. Particularly, the results show that Cattle holdings increased by 33.4 percent, from 54,349 to 72,521 at national level between 1993 and 2004 agricultural censuses. The commercial sector showed an increase of 53.8 percent as compared to the 33.3 percent increase in the traditional sector. The goat holdings decreased insignificantly by 0.5 percent, from 79,189 to 78,765 at national level between the two censuses. The commercial sector showed an increase of 33.6 percent while the traditional sector showed a decrease of 0.7 percent. Sheep holdings also decreased by 7.5 percent from 19,214 to 17,771 nationally during the same period (Table 2.2). It would be of interest to show from the 2011 Census data what changes have taken place in the crop and livestock productions between the period 2001 and 2011.

Various institutions wanting to invest in agricultural production or the agribusiness sector in the SADC region need information on the quality and location of agricultural resources (Kleynhans and Vink, 1998). Botswana is no exception, hence we hope that the following census analysis of agricultural activities enumerated during the past three censuses will be helpful in providing insights to policy-makers and legislators in coming up with turnaround strategies, programmes and projects that can improve the sector's performance.

2.0 Methodology

The methodology utilized in the analysis is exactly that already used in the 2011 Census data collection and specified in the Census Report. This paper uses the 2011 Botswana Population and Housing Census data to answer some pertinent questions on Agriculture in Botswana within the census period 2011. Specifically the paper determined the following:

1. Distribution of Number of Households by Districts and Type of Livestock owned;
2. Distribution of Number of Households by Type of locality
3. Distribution of Number of Households By Districts and Type of Crops Planted.
4. Distribution of Number of Households That Planted One or More Types of Crops by Type of Locality
5. The distribution of the number of livestock owned by the sex of the household head.
6. Distribution of Number of Households That Planted One or More Types of Crops by Type of Locality

3.0 Household Agriculture

This section of the report deals with household Agriculture, namely the types of crops planted and the types of livestock kept by the households studied. The analysis of crops planted and livestock kept were carried out by filtering those households who own one or more livestock or planted one or more crop within the inter-censal period. The analyses were performed on the heads of households using different criteria viz.

(i) district

(ii) locality

(iii) sex of head of households.

3.1 Livestock Ownership

The most common livestock owned in Botswana are poultry, cattle and goats. Livestock, especially cattle is often kept for socioeconomic and cultural reasons. Small livestock, e.g. goats, sheep and poultry are usually kept as a source of quick cash in times of need.

The households were asked to indicate which livestock they owned. The responses to this question have been summarized in Figure 1. The figure shows that nationally, 24.9% of the households in Botswana do not own any livestock. Poultry (20.6%) is the most commonly kept livestock, followed by cattle (19.7%), goats (18.8%), donkeys/mules (9.3%) and sheep (3.8%).

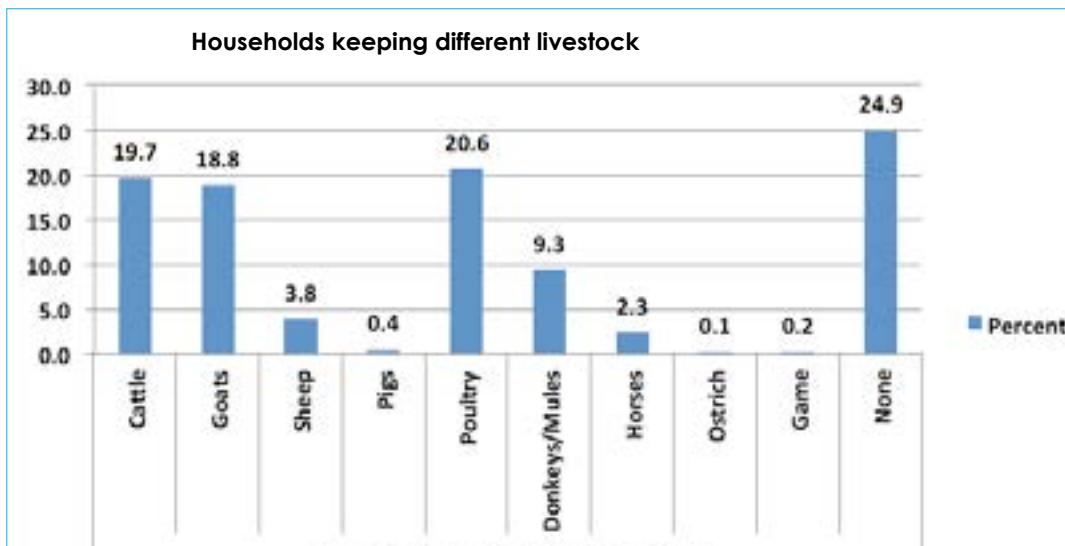


Figure 1: Percentage of households' different livestock

3.1.1 Livestock ownership by sex of household head

Gender differentials are observed in the ownership of livestock. For example, of the households that own cattle, 61% are male headed compared to 39% that are female headed. Poultry which does not require grazing land, and is usually kept in the villages and lands is owned more by male headed households (52%) compared with female headed households (48%). There are more female headed households (51%) than male headed households (49%) (Figure 2).

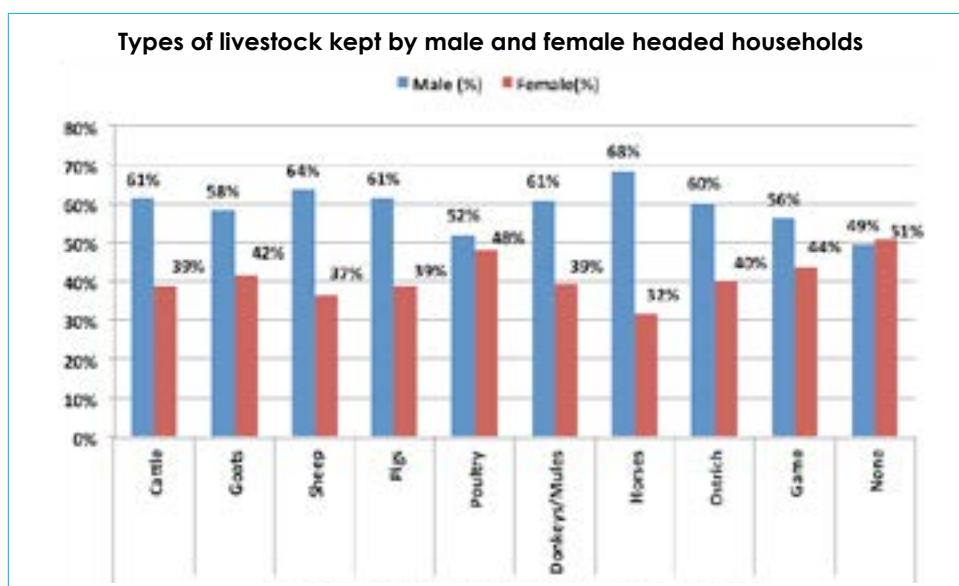


Figure 2: Percentage of male and female headed household owning different types of livestock

3.1.2 Livestock ownership by district

The household ownership of livestock was further classified by the type of livestock and district to examine the differentials between the districts. This is shown in Table 1. The table shows that North West (23%), Kgaleng (21.9%) and Ghanzi (21.8%) districts have the largest percentage of households owning cattle. Central (20.6%), North East (20.1%) and Southern (19.6%) were top in the ownership of goats. Poultry are mostly kept in the North East (29.5%), Kgaleng (25.5%), Southern (24.7%) and Central (24.7%). The cities/towns are the least involved in keeping of livestock (18.1%-cattle and 16%-goats).

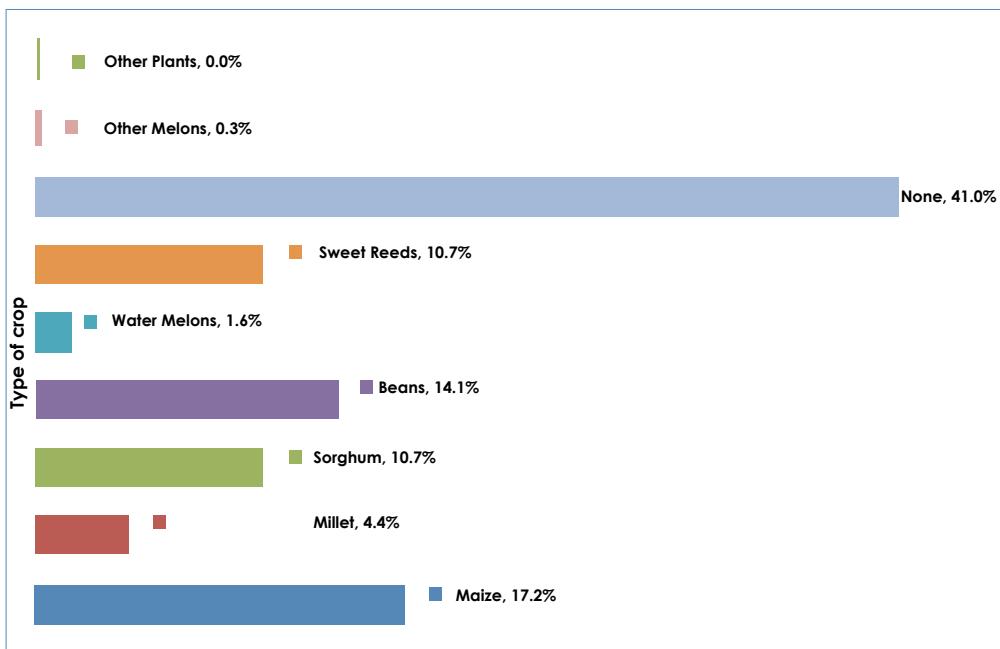
3.1.3 Livestock ownership by type of livestock and locality type

In Table 2, the numbers of households that own cattle are classified by the type of livestock ownership and locality type. The table reveals that cattle are mostly reared at the cattle posts (23.3%) while goats are kept mostly in the land areas (22.6%). Poultry is mostly kept by rural village households (26.7%). Between the two censal periods, there has been a substantial increase in the ownership of livestock. For instance, while 161,046 households owned cattle in 2001, the number has increased to 191,210 in 2011. Similar trends in the number of households that own goats (182,524 in 2011 and 168,993 in 2001) and poultry (200,244 in 2011 and 167,870 in 2001) can be observed.

3.2 Crop Planted

Figure 3 shows the percentage of households who planted one or more crops. The percentages were generated from responses to a multiple response question which required the households to indicate which of the crops they planted. The figure reveals that maize (17.2%), beans (14.1%), sorghum (10.7%), and sweet reeds (10.7%) were the most commonly planted crops by the households. A substantial percentage of the households (41%) planted no crops.

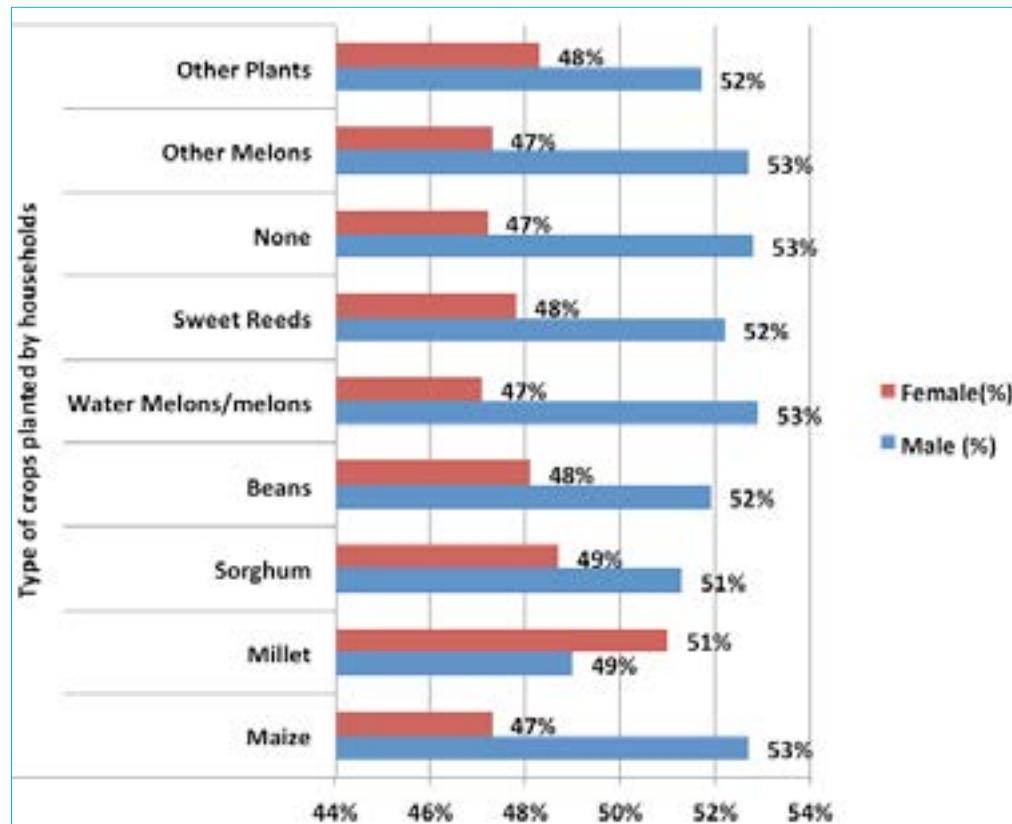
Figure 3: Percentage of households who planted one or more crops.



3.2.1 Cropping planting by sex of household heads

There are differentials in the percentage distribution of male and female headed households that planted the different crops. Male headed households are more involved in crop planting than female headed households. Except for millet, where the percentage of female headed households (51%) is slightly greater than the male headed households (49%), over half of all the households that planted other crops are male headed.

Figure 4: Percentage of male and female headed households that planted the different crops.



3.2.2 Crop planting by districts

A classification of the households by the type of crops planted and the district where the households are located is shown in Table 3. The table shows that maize is mostly grown in the Southern District (Ngwaketse, Barolong, and Ngwaketse West) at 22.52%, followed by Kgatleng (19.46%), North West (Ngamiland, Chobe and Okavango Delta) at 19.32% and Kweneng (19.18%). The planting of beans follows the same pattern with the Southern district topping other districts (16.96%), followed by Central district (15.95%), Kgatleng (15.81%) and Kweneng (15.78%). Sorghum is planted mostly in the North East (16.54%) and Central (15.78%). The South East, Ghanzi and Kgalagadi are not good crop planting areas as they are predominantly a desert.

There is a decrease in the number of households planting crops between 2001 and 2011. For example, while 192,316 households planted maize in 2001, the number reduced to 157,943 in 2011.

3.2.3 Crop planting by locality type

The classification of households that planted one or more crops by locality type and type of crops planted shows that areas classified as Mixture of lands and Cattle Post, Land area, Cattle Post and Rural Village are the topmost crop planting areas. For instance, maize is predominantly planted in Lands Area (25.43%), followed by the Mixture of Lands and Cattle Post (23.35%), Cattle Post (21.01%), and Rural Village (19.97%). Similar patterns of crop planting are observed for beans, sorghum and sweet reeds with Land areas being the highest planting areas (Table 4).

4.0 Conclusions

Poultry (20.6%) is the most commonly kept livestock, followed by cattle (19.7%), while 24.9% of the households in Botswana do not own any livestock. The data reveal that maize (17.2%), beans (14.1%), sorghum (10.7%), and sweet reeds (10.7%) are the most commonly planted crops by the households in Botswana.

There are differentials in the proportions of female and male headed households that own livestock or plant crops with generally over 50% of households owning livestock or planting a particular crop being male headed. The percentage of households owning livestock or planting crops in all the districts is still very low (below 30%). With so much emphasis being laid on Agriculture as can be seen from NDP-10, these results call for intensive approach to generation of interest in farming.

The Lands areas, Mixture of lands and Cattle posts, and the Cattle posts have been found to be areas of

great utility for the growing of crops and keeping of livestock. A further development of these areas could enhance agricultural productivity.

5.0 References

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Appendices

Statistical Tables

Table 1: Percentage of households owning one or more livestock, classified by type of livestock and district

Household ownership of one or more livestock											
Donkeys											
District	Cattle	Goats	Sheep	Pigs	Poultry	/Mules	Horses	Ostrich	Game	None	Total
Gaborone	17.5	15.0	3.1	0.5	10.7	3.1	1.1	0.1	0.4	48.7	100.0
Francistown	17.2	16.2	3.0	0.5	14.7	4.7	0.9	0.0	0.2	42.6	100.0
Lobatse	16.8	14.4	3.0	0.3	12.5	3.0	0.8	0.0	0.2	49.0	100.0
Selebi_Pikwe	20.2	18.3	3.2	0.4	16.3	6.6	0.7	0.0	0.3	33.9	100.0
Orapa	23.5	20.8	4.9	0.3	15.5	7.6	5.6	0.0	0.3	21.5	100.0
Jwaneng	20.9	17.8	4.6	0.4	16.0	4.9	2.6	0.0	0.2	32.8	100.0
Sowa Town	22.5	19.6	4.1	0.5	18.5	6.4	3.4	0.2	0.8	23.8	100.0
Cities/Towns	18.1	16.0	3.2	0.5	12.9	4.1	1.2	0.1	0.3	43.6	100.0
Ngwaketse	21.9	19.8	5.6	0.3	24	10.7	1.5	0.1	0.1	16.1	100.0
Barolong	20.3	19.7	4.8	0.3	27.9	11.9	0.9	0.1	0.1	14.0	100.0
Ngwaketse West	17.5	18.1	3.9	0.3	19.1	17.3	8.2	0.1	0.1	15.3	100.0
Southern	21.1	19.6	5.2	0.3	24.7	11.6	1.8	0.1	0.1	15.4	100.0
South East	15.9	15.0	2.7	1.0	17.0	3.6	0.7	0.1	0.3	43.6	100.0
Kweneng East	18.7	18.8	4.1	0.4	20.4	8.3	0.9	0.0	0.2	28.1	100.0
Kweneng West	19.6	20.4	3.4	0.4	25.0	15.1	5.2	0.1	0.1	10.7	100.0
Kweneng	18.3	18.4	3.7	0.6	20.5	8.5	1.6	0.1	0.2	28.2	100.0
Kgatleng	21.9	18.1	3.0	0.7	25.5	5.6	0.9	0.1	0.2	24.0	100.0
Central Serowe Palapye	20.9	19.4	3.4	0.5	24.6	10.3	0.9	0.1	0.3	19.7	100.0
Central Mahalapye	19.9	20.7	4.2	0.4	26.1	12.0	1.1	0.1	0.2	15.4	100.0
Central Bobonong	19.6	23	5.4	0.4	24.2	15.4	0.5	0.1	0.2	11.1	100.0
Central Boteti	21.9	20.3	3.7	0.3	17.6	13.2	7.6	0.1	0.3	15.0	100.0
Central Tutume	18.7	20.7	3.8	0.4	27.1	9.2	1.6	0.1	0.2	18.2	100.0
Central	20.1	20.6	4.0	0.4	24.7	11.4	1.8	0.1	0.2	16.6	100.0
North East	17.1	20.1	2.2	0.5	29.5	9.3	0.4	0.1	0.3	20.5	100.0
Ngamiland East	23.6	20.2	3.7	0.3	14.4	13.2	7.1	0.1	0.2	17.3	100.0
Ngamiland West	22.7	17.9	1.3	0.2	21.2	16.4	4.8	0.0	0.1	15.3	100.0
Chobe	21.1	13.7	1.4	0.3	19.6	3.1	0.8	0.1	0.3	39.6	100.0
Okavango Delta	23.6	20.5	0.7	0.2	12.6	9.4	3.0	0.0	0.0	30.1	100.0
North West	23.0	18.7	2.7	0.3	17.1	12.9	5.6	0.1	0.2	19.5	100.0
Ghanzi	21.8	16.6	3.7	0.3	16.8	13.1	11.2	0.1	0.3	16.2	100.0
Central Kgalagadi Game Reserve (CKGR)	21.2	25	5.8	0.0	19.2	15.4	11.5	0.0	0.0	1.9	100.0
Ghanzi	21.8	16.6	3.7	0.3	16.8	13.1	11.2	0.1	0.3	16.2	100.0
Kgalagadi South	16.1	21.2	8.6	0.3	17.4	13.4	6.5	0.1	0.2	16.1	100.0
Kgalagadi North	21.5	21.9	3.4	0.2	19.5	10.1	7.9	0.1	0.1	15.4	100.0
Kalagadi	18.3	21.4	6.6	0.3	18.2	12.1	7.1	0.1	0.1	15.8	100.0
Total (2011)	191211	182525	36696	4308	200244	89924	21960	676	2169	242054	971767
Total(2001)	161046	168993	36116	2517	167870	90,526		347	879	150,687	

Table 2: Percentage of households owning one or more livestock classified by types of livestock and locality type-2011 Census

Locality type	Households that own one or more livestock										
	Cattle	Goats	Sheep	Pigs	Poultry	Donkeys /Mules	Horses	Ostrich	Game	None	Total
City/Town	18.1	16.0	3.2	0.5	12.9	4.1	1.2	0.1	0.3	43.6	100.0
Urban Village	20.4	18.2	3.6	0.5	20.4	7.4	2	0.1	0.2	27.2	100.0
Rural Village	19.0	20.4	3.3	0.4	26.7	11.8	2.4	0.1	0.2	15.9	100.0
Lands area	20.4	22.6	5.8	0.5	23.6	17	2.3	0.1	0.1	7.5	100.0
Cattle Post	23.3	20.5	5.5	0.4	19.9	16.0	6.3	0.1	0.1	7.9	100.0
Freehold Farm	14.3	14.5	4.5	0.9	20.3	12.6	6.2	0.5	0.9	25.4	100.0
Mixture of lands and Cattle Post	20.2	21.5	5.8	0.6	23.6	15.5	2.6	0.1	0.2	10.1	100.0
Camp or Other Locality Type n.e.s	22.1	18.9	3.6	0.4	16.7	6.5	2.9	0.1	0.3	28.5	100.0
Total (%)	19.7	18.8	3.8	0.4	20.6	9.3	2.3	0.1	0.2	24.9	100.0
Census_2011	191,210	182,524	36,696	4,308	200,244	89,924	21,960	676	2,169	242,054	
Census_2001	161,046	168,993	36,116	2,517	167,870		90,526	347	879	150,687	

Table 3: The percentage of households that planted one or more crops classified by districts and type of crops-2011 Census

District	Type of crops									Total (%)
	Maize	Millet	Sorghum	Beans	Water Melons	Sweet Reeds	None	Other Melons	Other Plants	
%	%	%	%	%	%	%	%	%	%	%
Gaborone	10.27	2.54	6.44	7.96	0.65	5.82	66.23	0.08	0.01	100.00
Francistown	12.08	6.81	10.07	9.77	1.11	8.22	51.81	0.13	0.00	100.00
Lobatse	10.51	0.76	4.74	7.67	0.46	6.11	69.71	0.04	0.00	100.00
Selebi_Pikwe	12.73	4.42	9.78	10.72	1.79	9.38	50.94	0.19	0.06	100.00
Orapa	15.69	4.39	10.14	12.81	0.13	12.44	44.36	0.04	0.00	100.00
Jwaneng	12.00	0.93	4.67	9.00	3.02	7.49	62.88	0.01	0.00	100.00
Sowa Town	12.5	6.71	11.11	10.3	0.16	8.96	50.21	0.05	0.00	100.00
Cities/Towns	11.28	3.75	7.73	8.93	0.97	7.15	60.07	0.10	0.01	100.00
Ngwaketse	22.71	0.65	4.02	17.59	1.31	13.25	40.15	0.30	0.02	100.00
Barolong	21.42	0.71	5.43	14.42	0.67	8.17	49.10	0.06	0.02	100.00
Ngwaketse West	24.53	1.12	6.94	19.98	1.48	10.23	35.52	0.20	0.00	100.00
Southern	22.52	0.70	4.62	16.96	1.16	11.70	42.09	0.23	0.02	100.00
South East	13.78	1.10	5.23	10.90	0.40	8.01	60.47	0.08	0.03	100.00
Kweneng East	17.89	1.68	8.53	14.91	1.88	11.02	43.74	0.33	0.03	100.00
Kweneng West	24.98	1.14	13.6	19.69	0.87	14.84	24.64	0.22	0.02	100.00
Kweneng	19.18	1.58	9.46	15.78	1.69	11.71	40.26	0.31	0.03	100.00
Kgatleng	19.46	2.00	8.31	15.81	2.05	10.85	41.19	0.26	0.08	100.00
Central Serowe Palapye	18.27	3.45	15.96	15.73	2.44	12.68	31.02	0.40	0.03	100.00
Central Mahalapye	19.83	3.28	16.28	18.23	2.26	12.38	27.44	0.28	0.02	100.00
Central Bobonong	19.94	6.03	17.9	17.62	4.48	12.17	21.26	0.55	0.03	100.00
Central Boteti	22.1	4.82	9.78	16.55	2.42	14.47	29.51	0.35	0.01	100.00
Central Tutume	17.18	11.17	16.09	13.29	1.07	11.37	29.45	0.27	0.12	100.00
Central	18.89	5.92	15.78	15.95	2.35	12.37	28.33	0.36	0.05	100.00
North East	17.66	12.76	16.54	15.32	0.43	13.23	23.91	0.13	0.04	100.00
Ngamiland East	20.34	5.01	9.08	15.54	2.33	13.67	33.59	0.39	0.05	100.00
Ngamiland West	19.39	17.02	13.01	16.62	0.72	13.58	19.31	0.33	0.02	100.00
Chobe	14.83	3.02	8.71	6.92	1.04	7.21	57.93	0.22	0.12	100.00
Okavango Delta	18.27	4.95	7.71	13.58	6.12	11.99	35.12	2.26	0.00	100.00
North West	19.32	8.95	10.38	14.85	1.68	12.84	31.55	0.38	0.05	100.00
Ghanzi	13.72	1.63	3.49	12.03	1.57	5.42	62.03	0.09	0.01	100.00
CKGR	26.83	2.44	7.32	26.83	14.63	4.88	17.07	0.00	0.00	100.00
Ghanzi	13.76	1.63	3.50	12.07	1.60	5.42	61.91	0.09	0.01	100.00
Kgalagadi South	10.52	0.77	1.99	9.50	0.71	3.29	72.87	0.31	0.05	100.00
Kgalagadi North	15.36	1.24	4.82	14.89	1.18	5.27	57.01	0.20	0.03	100.00
Kalagadi	12.67	0.98	3.25	11.89	0.92	4.17	65.82	0.26	0.04	100.00
Total (2011)	157943	40603	97936	128924	14740	98017	375716	2363	317.00	916559
Total 2001	192316	65342	156658	157830	16714	16618	21248	11256		

Table 4: The percentage of households that planted one or more crops classified by locality type and type of crops-2011 Census

Locality type	Type of crops										Total (%)
	Maize	Millet	Sorghum	Beans	Water Melons /melons	Sweet Reeds	None	Other Melons	Other Plants		
	%	%	%	%	%	%	%	%	%	%	%
City/Town	11.28	3.75	7.73	8.93	0.97	7.15	60.07	0.10	0.01	100.00	
Urban Village	16.45	3.42	9.35	13.41	1.49	10.39	45.21	0.25	0.04	100.00	
Rural Village	19.97	6.38	13.82	16.62	1.75	12.39	28.73	0.29	0.04	100.00	
Lands area	25.43	5.27	14.1	21.26	2.70	15.69	14.96	0.56	0.04	100.00	
Cattle Post	21.01	3.93	11.44	16.55	2.75	11.79	32.14	0.38	0.01	100.00	
Freehold Farm	12.44	2.51	6.91	9.40	1.40	5.58	61.42	0.09	0.24	100.00	
Mixture of lands and Cattle Post	23.35	4.13	14.54	18.30	2.16	12.71	24.41	0.33	0.06	100.00	
Camp or Other Locality Type n.e.s	15.48	3.58	9.03	10.91	1.93	9.88	48.85	0.24	0.09	100.00	
Total	157943	40603	97936	128924	14740	98017	375715	2363	317	100.00	



Dr S.T. R. Moeng University of Botswana making a presentation on Analysis of Land Acquisition for Planting by Households in Botswana: The 2011 Population & Housing Census Perspectives

ANALYSIS OF LAND ACQUISITION FOR PLANTING BY HOUSEHOLDS IN BOTSWANA: THE 2011 POPULATION AND HOUSING CENSUS PERSPECTIVES

By

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Abstract: This paper uses the 2011 Botswana Population and Housing Census data to answer some pertinent issues on land acquisition for planting by households in Botswana. Of the total 550946 households, about 50% households acquired land by any means of land acquisition mode. The highest households response who acquired land for planting was from landboard (60%) followed by inheritance (17.4%) and employer/relatives (14.2%). The Central District had the largest share of the allocations, the largest (62%) allocation came from Land boards followed through employer/relative (14%) and inheritance (13%). The percentage distributions of households' response by usual economically active and inactive were 69.6% and 30.4% (both sexes), 80.3% and 19.7% (male) and 58% and 42 % (female). In 2001 Census, this distribution also followed the same trend such as the proportion of usual active and inactive were 60.6% and 39.4% (both sexes), 73.4% and 26.6% (male), 58.0% and 42.0% (female). Within the self allocation mode, 33.01% of the household heads response was from agriculture, hunting and forestry industry and 45.56% were from other industry. Most of households who responded that they acquired the land for farming through landboards were in the elementary occupations (23.49%). The households who stated that they allocated land for themselves, majority of them are in the elementary occupation and skilled agricultural and related workers with 36.95% and 36.78% respectively.

1.0 Introduction

Botswana is a landlocked country located in Southern Africa (shares border to north by Namibia and Zambia, to the east by Zimbabwe and to south by the Republic of South Africa). The area of Botswana is divided into three ecological zones viz. (i) Kalagadi Desert, (ii) the Okavango Swamps, and (iii) the hard-veld in the east of the country. The country is sparsely populated with a population of a little over 2 million people (Statistics Botswana, 2012). Botswana is a semi-arid country with harsh climatic conditions and a fragile ecosystem. Arable land is extremely limited, and livestock is the primary source of subsistence and income for two-thirds of rural households. Forty-six (46%) percent of the population live in rural areas and depend on agriculture for sustenance.

Most of Botswana is flat, arid land with unreliable, low rainfall. Roughly 46% of the total land area is classified as agricultural land, although only 5% is suitable for cultivation and only 1% was cultivated in 2002. The Kalahari Desert, much of which is savanna grassland and sparse woodland, covers two-thirds of the land area and supports large herds of cattle, goats, and wildlife. Twenty-one percent (21%) of total land area is forest land and 31% designated as nationally-protected areas. Deforestation is occurring at a rate of 1% per year (World Bank 2009; FAO 2005).

Various institutions wanting to invest in agricultural production or the agribusiness sector in the SADC region need information on the quality and location of agricultural resources (Kleynhans and Vink, 1998). Botswana is no exception, hence it is hoped that the following census analysis on agricultural activities enumerated during 2011 census will be helpful in providing insights to policy-makers and legislators in coming up with turn-around strategies, programmes and projects that can improve the sector's performance.

The analysis of agriculture and land acquisition activities will also form the basis of the sampling frame and bench mark information for forth coming agriculture census and subsequent agricultural surveys.

The paper is structured with introduction, review of literature, methodology, results and discussions and conclusions. At the end, the policy implications with NDP-10 of Botswana are also attempted.

2.0 Review of Literature

There are three categories of land tenure in Botswana, namely tribal land, state land (crown land before independence) and freehold land. Tribal land is a misnomer, as it is no longer held by tribes but by statutory land boards. More appropriately it should be called customary land as it is administered in terms of customary law. The freehold land should be correctly described as land in private ownership (Adams, 2003)

Agriculture has been identified as one of the sectors that can drive economic diversification and growth. For instance, the introduction of programmes such as Integrated Support Programme for Arable Agricultural Development (ISPAAD) by Government in 2008 to address challenges in the arable sub-sector. The number of farmers with land for planting (land holdings) showed a significant increase of 5.4 percent from 76,267 in 2010 to 80,415 in 2011 (Statistics Botswana, 2013). However, the same report also indicated that the commercial sector experienced a contraction from 1,217 to 718 farmers, and also indicated that traditional sector was still predominant in the livestock industry though the performance of the sector was poor as compared to the commercial sector.

The 2004 Agricultural Census report (CSO, 2008) indicates that agricultural holdings increased significantly by 19.6 percent from 101,434 to 121,325 at national level between the 1993 and 2004 agricultural censuses. The commercial sector increased by 46.4 percent, from 507 to 742 agricultural holdings while the traditional sector increased by 19.5 percent, from 100,927 to 120,583 agricultural holdings.

Most of Botswana's farms (about 63,000) average roughly 5 hectares and are devoted to rainfed farming. The country has about 112 farms larger than 150 hectares. Commercial farms represent less than 1% of all farms in the country and use 8% of the total land area. The number of landless and land-poor households in Botswana is unknown (ROB 2010a; Taylor 2007; FAO 2005).

The legal framework governing Botswana's land is a mixture of formal and customary laws, with much of the formal law reflecting longstanding principles of customary law. The six major pieces of formal legislation include: (1) The State Land Act, 1966; (2) The Tribal Land Act, 1968; (3) The Tribal Grazing Lands Policy, 1975; (4) The Town and Country Planning Act, 1977; (5) The National Agricultural Development Policy, 1991; and (6) The Sectional Titles Act, 1999 (Adamset al. 2003; Taylor 2007; ROB 2008a; ROB 2010b).

The Tribal Grazing Lands Policy, 1975, allows for the privatization of grazing land by vesting the Land Boards with the authority to grant private individuals and entities exclusive leasehold rights to tracts of formerly unfenced, communal land regardless of tribal affiliation. The Town and Country Planning Act, 1977, govern the development of rural and urban land (Adams et al. 2003; Taylor 2007).

The Ministry of Lands and Housing has begun a drive in which they encourage people to maximise the use of agricultural land they own. This follows a Presidential Directive of February 2013 to approve the introduction of integrated farming on land allocated for agricultural use. Integrated farming is practising the various agricultural enterprises including arable, small stock and beef, which are compatible and support each other in an enclosed parcel of land.

3.0 Methodology

The methodology utilized in the analysis is exactly that already used in the 2011 Census data collection and specified in the Census documents. This paper analyses the 2011 Census data to answer questions on land acquisition for planting by households in Botswana. Specifically the paper determined the distribution of household who acquired the land for planting by one or more land acquisition mode (viz. Land-board, Tribal/commercial, Inheritance, Freehold, Lease, TGLP, Syndicate, Employer/Relative, and Self-allocation) and gender by (i) district (ii) marital status (iii) usual economic activity, (iv) current economic activity, (v) industry, and (v) occupation.

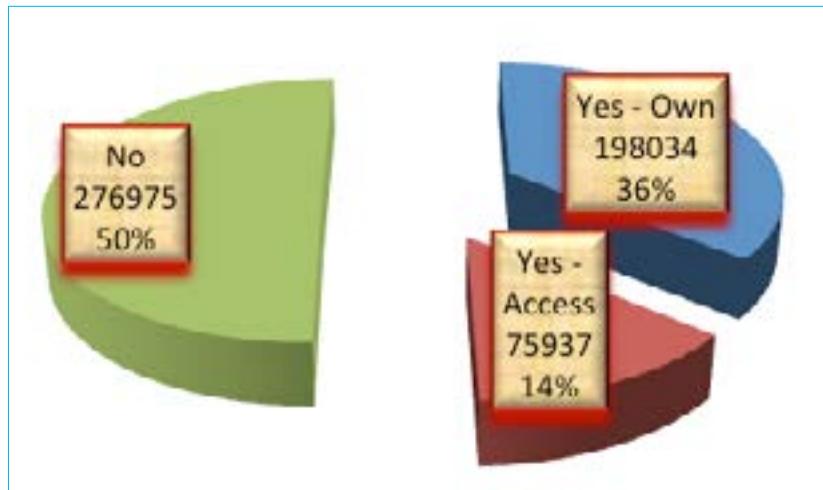
The statistical analysis has been carried out using descriptive statistical methods and the outcomes have been presented in the form of Tables, and Charts.

4.0 Acquisition of planting land

Of the total 550946 households, about 50% households acquired land by any means of land acquisition mode (Table 4.1 & Figure 4.1).

Table 4.1 Percent distribution of households by land acquisition status

Land acquisition status	Number	Percent
Yes - Own	198034	35.9
Yes - Access	75937	13.8
No	276975	50.3
Total	550946	100.0

**Figure 4.1 Percent distribution of households by land acquisition status****Table 1: The percentages distribution of heads of households by land acquisition mode and sex-2011 Census**

Mod of Land acquisition	Response		
	Number	Percent	Percent response to cases**
Landbord	166108	59.9	61.2
Tribal/commercial	6920	2.5	2.6
Inheritance	48367	17.4	17.8
Freehold	3193	1.2	1.2
Lease	3788	1.4	1.4
TGLP	830	0.3	0.3
Syndicate	1234	0.4	0.5
Employer/Relative	39264	14.1	14.5
Self allocation	7781	2.8	2.9
Total	277485	100.0	102.3

**Number of cases (Households): 271309

The above Table 1 show that the highest (60%) responses of households acquired land for planting was from landbord followed by inheritance (17.4%) and employer/relatives (14.1%). Besides these about 9% households acquired planting lands from other means of land acquisition mode.

Figure 1: The percentages distribution of heads of households by major land acquisition mode during 1991, 2001 and 2011 Censuses



The above Figure 1 show the percentages distribution of heads of household's response by major land acquisition mode during 1991, 2001 and 2011 Censuses. There is a marginal decease in percent number of households for landboard, tribal and communal and self allocated land acquisition mode from 2001 to 2011 census.

The land acquisition analysis (E4) is performed on the heads of households using different criteria viz. (i) district (ii) marital status (iii) usual economic activity, (iv) current economic activity, (v) industry, and (v) occupation. The respective results are discussed below.

4.1 Acquisition of planting land by gender and district

A total of 277472 responses from the households indicated that they acquired land through at least one of the planting land acquisition mode. Cities/towns got the second largest share of the total allocations (50059 responses), the largest allocation coming from land boards (49%) followed by inheritance (23%) and employer/relative (20%). In all districts the highest number of allocations was obtained through Land boards, followed by inheritance and employer/relative. (Table 2)

A total of 144, 632 responses from male headed households acquired land through at least one of the planting land acquisition mode. About half (49.4%) of the responses in the Cities/Towns acquired land through Land board allocation. The Central District appears to have had the largest share of the allocations.(42, 962 male headed households) with highest allocation (62%) from Land boards followed through employer/relative (14%) and inheritance (13%) (Table 3).

A total of 132, 840 responses from female headed households were allocated planting land through at least one of the land acquisition modes. Most of the allocations were done by land boards (61.5%) followed by Inheritance (17.2%) and employer/relative (13.3%). Central district had the highest number female headed households response (49, 577), who were allocated planting land using at least one of the allocation methods. Kweneng district had the second largest share of all allocations (19, 435 responses) followed by cities/towns (18, 555 households), Southern district (13, 785 responses) and North West district (12, 114 households) (Table 4).

4.2 Acquisition of planting land by gender and marital status of heads of households

The proportion of heads of households in Botswana by marital status in each land acquisition mode and sex is given in Table 5

In 2011 Census, the number of responses from heads of households was maximum (32%) with never married followed by married (31%) and living together (23%). The same trend was also observed in 2001 Census. The figures of both censuses show that married landowner have decreased by 6 percentage points from (31%) 2001 to (37%) 2011 Census period, while both never married and living together had increased by 3 percentage point. It is interesting to know that married male land owners decreased by 20 percentage points from (47%) 2001 census to (27%) 2011 census period, while female married landowners increased by 11 percentage points during the same period. Never married male and female landowners increased by 16 and 11 percentage points respectively from 2001 to 2011 census.

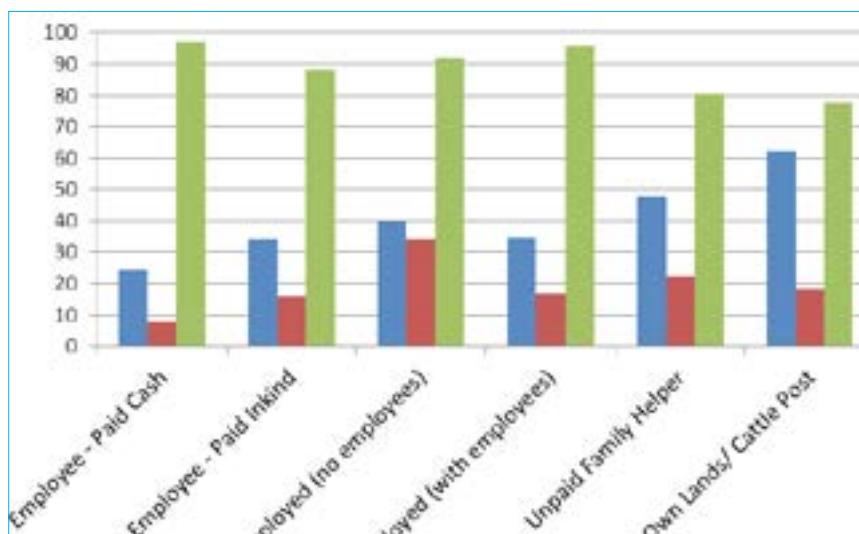
Overall pictures of both censuses indicate that marriage has increase in female landowners while decreased in male landowners; however living together remained same during both censuses. Figures indicate that the difference in widowed percent landowners remains almost same in both the censuses. The percent of divorced male and female landowner's responses have also remained at the same level during both censuses.

4.3 Acquisition of planting land by gender and usual economic status of heads of households

The term economic activity is termed as the usual economic activity that a person has been doing work mainly (i.e. since the last one year). They include (a) Seasonal work (paid, or unpaid) (b) Non-seasonal work (paid, or Unpaid), and (c) Jobseeker.

Percentage distribution of responses from households by usual economic activity (economically active and economically inactive) within land acquisition mode by sex is depicted in Table 6 and Figure 3.

Figure 3: The percentage distribution of heads of households responses in Botswana by economically active and inactive categories in each land acquisition mode-2011 Census



The percentage distributions of responses from heads of households by economically active and inactive were 69.6% and 30.4% (both sexes), 80.3% and 19.7% (male) and 58% and 42 % (female). In 2001 Census, this distribution also followed the same trend such as the proportion of usual active and inactive were 60.6% and 39.4% (both sexes), 73.4% and 26.6% (male), 46.0% and 54.0% (female). The percentage points increase from 2001 census to 2011 census period in the usual active population were 9 (both sexes, 60 to 69%), 7 (male, 73 to 80%) and 12 (female, 46 to 58%).

In 2011 census, the percent responses from landowners were highest (40.8%) as non-seasonal paid worker, while the percent seasonal paid and unpaid, non-seasonal unpaid and jobseekers ranged between 5.9 and 8.1. However in 2001 census, the percentages responses from landowners were also highest (39.6%) as non-seasonal paid worker, while the percent seasonal paid and unpaid, non-seasonal unpaid and jobseekers ranged between 4.6 and 5.5. The highest percentages point increase (3.4) is observed in seasonal paid landowners from (4.6%) 2001 to (8%) 2011 Census. In contrary, the landowners under home maker category decreased by 8.7 percentage points from (28.7) 2001 census to (20%) 2011 census. The seasonal paid and unpaid landowners increased (about 3 percentage points) for male, female and both sexes during two census periods.

4.4 Acquisition of planting land by gender and current economic status of heads of households

The current economic activity is that a person did any type of work for pay, profit or home use for at least one hour in the past 7 days. These were 1. Employee-paid cash, 2. Employee-paid in kind, 3. Self-employed (no employees), 4. Self-employed (with employees), 5. Unpaid family helper, 6. Working at own land /cattle post (Question A23 in census questionnaire).

The percentage distribution of responses from heads of households by current economic activity in each land acquisition mode and sex is given in Table 7. Within each mode of land acquisition and sex, the percent of households heads under employee-paid cash category were highest followed by working at own land/cattle post. Overall it was 71.18% under paid cash category followed by working at own land/cattle post (15.45%) while in 2001 Census 75.55% were paid in cash followed by 9.9% self employed with no employee. It is to note that for paid cash category the percent of heads households was almost same (around 71%) for male, female and both sexes in 2011 census and 73 to 76% in 2001 census (off course showing a marginal decrease of 2-5 percentage points).

The percent of male and female landowners under working at own lands/cattle post during 2011 were 16.78% and 13.18% respectively while in 2001 census these figures for male and female landowners were 10.06% and 5.9% respectively. This shows that male landowners recorded one and half time increase from 2001 to 2011 and while in female this increase was almost double.

4.5 Acquisition of planting land by gender and industry of heads of households

The industry identifies the main product or services provided by the establishment or the work unit in which a person is employed.

Table 8 presents percentage distribution of responses by industry of household heads by gender within each land acquisition mode. Households whose head's industry was classified under other industries dominated all land acquisition modes. It ranged between 32.42% and 47.31% within each land acquisition mode. Within the self allocation mode, 33.01% of the household heads were from agriculture, hunting and forestry industry and 45.56% were from other industry, and any other industries accounted for less than 6% of the households.

Comparing for male and female household heads responses, other industry still accounts for the majority of households for each land acquisition mode except for the self allocation mode for male household heads. Between male and female headed households responses, landboard was still the main mode for acquiring land for farming, accounting for a total of 84 270 (58.38%) and 81 493 (61.46%) for male and female headed households respectively. Inheritance and employer/relative were the other two mostly used modes for acquiring farm land for both male and female headed households. Within the landboard mode, majority of male headed households (32.35%) were from other industry followed by 20.84% and 12.54% for agriculture, hunting and forestry industry and public administration industry respectively. In comparison, majority of female headed households were from other industry (58.50%), followed by public administration (8.42%) and agriculture, hunting and forestry industry (7.86%). Within the self allocation mode, majority of male headed households (45.86%) were from the agriculture, hunting and forestry industry followed by other industry which accounted for 31.92% of the households. In contrast, within the female headed households, the majority (62.27%) were from other industry followed by the agriculture, hunting and forestry industry which only accounted for 16.63% of the households. Other industries accounted for less than 5% for both male and female headed households.

Table 9 presents percentage distribution of responses from household heads industry within each land acquisition mode comparing 2001 and 2011 census results. Within each land acquisition modes, there was a huge increase in proportion of households whose heads were classified under other industries as compared to 2001. Within land boards, in 2001, 0.43 % of households head were under other industries compared to 45.21% of the same category in 2011. Within tribal/commercial mode, the proportion increased from 0.66% in 2001 to 47.31% in 2011, this trend is common to all other land acquisition modes.

4.6 Acquisition of planting land by gender and occupation of heads of households

Question on occupation capture information on the type of economic activities taking place and professions. Table 10 presents percentage distribution of occupation of household heads by gender within each land acquisition mode. Most of households responses indicated that they acquired the land for farming through

landboards were in the elementary occupations (23.49%) and the least were the legislators, administrators and managers with 5.18%. Households who stated that they allocated land for themselves, majority of them are in the elementary occupation and skilled agricultural and related workers with 36.95% and 36.78% respectively. The least method of acquiring land by household is through TGLP with less than 1%.

Comparing between male and female headed households responses, landboard, inheritance and employer were still the main modes used to acquire land for farming for respective households. Within landboard mode, majority of male households heads (21.01%) were skilled agricultural and related workers compared to the majority (31.39%) of female household heads who held elementary occupations. Within the inheritance land acquisition mode, majority of male household heads (19.41%) were craft and related workers, followed by those on elementary occupations (17.76%) and skilled agricultural and related workers (13.22%). In contrast, majority of female households heads (35.36%) who acquired land for farming through inheritance held elementary occupations, followed by those who were service, shop and market sale workers (17.27%) and technicians and associate professionals (11.36%). For male household heads who acquired land through employer/relative, majority were those holding elementary occupations (25.21%) followed by craft and related workers (19.34%) and service, shop and market sales workers (13.60%). Similarly majority of female household heads (38.78%) held elementary occupations acquired land for farming through employer/relatives. Unlike with the male household heads, these were followed by service, shop and markets sales workers (19.28%) and technicians and associate professionals (10.02%).

5.0 Conclusions/Recommendations

The highest number of households responses who acquired land for planting was from landboard (60%) followed by inheritance (17.4%) and employer/relatives (14.2%). Besides these about 9% households acquired planting lands from other means of land acquisition mode.

A total of 277,472 responses from households indicated that they acquired land through at least one of the planting land acquisition mode. Cities/towns got the second largest share of the total allocations (50,059 households responses), the largest allocation coming from land boards (49%) followed by inheritance (23%) and employer/relative (20%). In all districts the highest number of allocations was obtained through Land boards, followed by inheritance and employer/relative. The Central District appears to have had the largest share of the allocations, the largest allocation came from Land boards (62%) followed through employer/relative (14%) and inheritance (13%).

Overall pictures of both censuses indicate that marriage has increase in female landowners while decreased in male landowners; however living together remained same during both censuses 2001 and 2011. The difference in widowed percent landowners remains almost same in both the censuses. The percent of divorced male and female landowners have also remained at the same level during both censuses.

The percentage distributions of responses from heads of households by usual economically active and inactive were 69.6% and 30.4% (both sexes), 80.3% and 19.7% (male) and 58% and 42 % (female). In 2001 Census, this distribution also followed the same trend such as the proportion of usual active and inactive were 60.6% and 39.4% (both sexes), 73.4% and 26.6% (male), 58.0% and 42.0% (female).

With respect to current economic activity, within each mode of land acquisition and sex, the percentage response from households heads under paid cash category were highest (71.8%) followed by working at own land/cattle post (15.45%).

Households whose head's industry was classified under other industries dominated all land acquisition modes. The proportions ranged from 32.42% to 47.31% within each land acquisition mode. Within the self allocation mode, 33.01% of the household heads were from agriculture, hunting and forestry industry and 45.56% were from other industry, and any other industries accounted for less than 6% of the households.

Most of households' responses indicated that they acquired the land for farming through landboards was in the elementary occupations (23.49%). The households who stated that they allocated land for themselves, majority of them are in the elementary occupation and skilled agricultural and related workers with 36.95% and 36.78% respectively.

Overall it is concluded that the number of households who acquired land for planting was highest from landboard followed by inheritance and employer/relative.

The following paragraphs in section 5.1 state the Government concern about land sector strategies. It is recommended that the attention should be given on completion of objectives of the strategies.

5.1 NDP-10 and Agriculture Sector

The Government manages the country with the aid of six-year plans known as National Development Plans (NDPs).

In preparing the NDP 10 (2010–2016) land sector strategy, the government identified as its primary concern in the land sector the limited availability of land for development. Barriers to making land available for development include limited private-sector involvement due to lack of basic infrastructure, a shortage of funds for the provision of services to available land, an increase in development costs, encroachment of agricultural land, lengthy land-acquisition processes for freehold land, and land speculation.

In the agriculture sector, NDP 10 recognizes that the sector is primarily based on traditional communal and subsistence rainfed farming systems with low input. Commercial farming is limited and productivity is low. Barriers to increased productivity include farm fragmentation, inadequate resources, recurring drought, pests and diseases, non-affordability of critical inputs, and low adoption of improved technologies.

The country's objectives in the 2010–2016 period, are:

- to facilitate the growth and competitiveness of the agricultural sector in the economy;
- enhance farmers' capability and willingness to use resources in a sustainable manner and ensure prudent use and management of rangeland resources; and
- provide for human resource needs in agricultural and related sectors.

The government plans to develop programs for arable agricultural development to improve small farmers' production through increased access to technology-transfer and treated wastewater for irrigation and application, livestock development through improved infrastructure and supply of inputs, and agricultural business development, which will focus on supply chains and production standards (USAID/SA 2010).

Appendices
Statistical Tables

Table 2: Percentage distribution of households (male & female headed) that acquired planting land by land acquisition mode and sex- 2011 Census

District	Land Acquisition									%Total	Total Household responses
	Land bord	Tribal/commercial	Inheritance	Freehold	Lease	TGLP	Syndicate	Employer/ Relative	Self allocation		
Both Sexes											
Gaborone	46.54	2.72	26.02	1.86	2.34	0.36	0.41	19.16	0.59	100.00	24390
Francistown	52.56	2.17	19.47	1.02	1.29	0.29	0.32	21.53	1.35	100.00	11066
Lobatse	43.10	5.22	28.36	1.23	3.01	0.28	0.46	17.58	0.77	100.00	2856
Selebi_Pikwe	51.30	1.61	19.46	0.78	1.28	0.27	0.25	22.45	2.59	100.00	7286
Orapa	66.75	1.55	16.21	1.13	1.19	0.18	0.54	11.92	0.54	100.00	1678
Jwaneng	51.11	2.04	15.72	1.06	2.26	0.27	0.40	26.31	0.84	100.00	2258
Sowa Town	53.14	0.95	15.62	2.10	1.14	0.19	0.00	25.71	1.14	100.00	525
Cities/Towns	49.32	2.49	22.85	1.42	1.94	0.31	0.37	20.22	1.08	100.00	50059
Ngwaketse	56.56	5.12	22.97	1.07	1.74	0.35	0.41	9.20	2.58	100.00	19176
Barolong	56.84	4.83	23.96	0.68	1.79	0.21	0.34	10.74	0.61	100.00	7927
Ngwaketse West	76.68	1.57	10.04	0.48	1.52	0.05	0.67	8.66	0.33	100.00	2101
Southern	58.08	4.79	22.31	0.92	1.74	0.29	0.41	9.58	1.88	100.00	29204
South East	46.96	4.15	33.14	1.51	2.26	0.42	0.46	10.72	0.40	100.00	8902
Kweneng East	57.57	3.48	21.08	1.33	1.68	0.28	0.69	13.16	0.74	100.00	33690
Kweneng West	75.38	2.13	7.09	0.76	1.05	0.18	0.26	12.78	0.37	100.00	8437
Kweneng	61.13	3.21	18.28	1.22	1.55	0.26	0.60	13.09	0.66	100.00	42127
Kgatleng	55.72	1.65	27.28	0.96	1.73	0.39	0.51	11.12	0.63	100.00	13788
Central Serowe Palapye	63.21	2.00	16.21	1.01	1.04	0.23	0.40	13.71	2.20	100.00	27611
Central Mahalapye	60.40	2.69	15.62	1.09	1.11	0.30	0.41	14.71	3.67	100.00	19059
Central Bobonong	64.65	1.75	9.01	1.26	0.67	0.34	0.35	12.2	9.76	100.00	13529
Central Boteti	66.88	1.13	10.23	1.44	0.59	0.33	0.55	10.81	8.04	100.00	8142
Central Tutume	65.08	1.27	11.07	0.93	1.07	0.29	0.45	14.51	5.34	100.00	24198
Central	63.65	1.84	13.17	1.08	0.97	0.29	0.42	13.65	4.94	100.00	92539
North East	73.55	1.04	9.56	0.80	1.00	0.34	0.41	12.4	0.89	100.00	9321
Ngamiland East	65.27	1.71	6.99	1.07	0.69	0.18	0.42	16.94	6.73	100.00	11354
Ngamiland West	72.42	0.81	7.67	0.85	0.47	0.20	0.28	14.55	2.75	100.00	8717
Chobe	50.70	1.18	27.19	1.71	1.39	0.38	0.45	16.26	0.73	100.00	2872
Okavango Delta	40.63	3.46	12.68	1.15	1.73	3.46	0.29	19.88	16.71	100.00	347
North West	65.78	1.34	9.82	1.06	0.71	0.26	0.37	16.00	4.65	100.00	23290
Ghanzi	55.81	2.63	8.82	2.46	0.98	0.36	0.84	15.32	12.77	100.00	3571
CKGR	11.76	5.88	11.76	0.00	5.88	5.88	0.00	11.76	47.06	100.00	17
Ghanzi	55.60	2.65	8.84	2.45	1.00	0.39	0.84	15.30	12.93	100.00	3588
Kgalagadi South	81.9	2.01	7.39	0.45	0.57	0.41	0.57	5.29	1.40	100.00	2437
Kgalagadi North	79.25	3.34	6.45	0.59	0.68	0.27	0.23	6.81	2.39	100.00	2217
Kgalagadi	80.64	2.64	6.94	0.52	0.62	0.34	0.41	6.02	1.87	100.00	4654
Total	59.86	2.49	17.43	1.15	1.37	0.30	0.44	14.15	2.80	100.00	277472

Table 3: Percentage distribution of households (male headed) that acquired planting land by land acquisition mode and sex- 2011 Census

District	Land Acquisition										Total Household responses
	Land bond	Tribal/commercial	Inheritance	Freehold	Lease	TGIP	Syndicate	Employer/ Relative	Self allocation	%Total	
Male											
Gaborone	46.47	2.76	25.46	1.91	2.62	0.34	0.41	19.44	0.59	100.00	15424
Francistown	52.33	2.3	19.73	0.99	1.32	0.25	0.22	21.64	1.22	100.00	6381
Lobatse	41.29	5.16	29.38	1.30	3.23	0.40	0.57	17.92	0.74	100.00	1763
Selebi_Pikwe	52.14	1.52	19.52	0.79	1.38	0.26	0.18	21.69	2.5	100.00	4919
Orapa	67.03	1.74	16.80	1.64	1.10	0.18	0.73	10.23	0.55	100.00	1095
Jwaneng	53.63	2.2	15.87	0.97	2.40	0.26	0.26	23.83	0.58	100.00	1544
Sowa Town	51.85	0.79	17.99	1.85	0.53	0.26	0	25.66	1.06	100.00	378
Cities/Towns	49.38	2.52	22.73	1.46	2.11	0.30	0.34	20.12	1.03	100.00	31504
Ngwaketse	56.26	5.22	21.65	1.01	1.95	0.36	0.41	10.15	2.99	100.00	10030
Barolong	56.02	4.24	24.64	0.78	1.88	0.16	0.38	11.28	0.61	100.00	4245
Ngwaketse West	73.95	2.01	10.23	0.61	2.19	0.09	0.79	9.79	0.35	100.00	1144
Southern	57.51	4.71	21.62	0.91	1.95	0.29	0.43	10.44	2.14	100.00	15419
South East	44.57	3.88	33.12	1.84	2.58	0.54	0.58	12.48	0.41	100.00	4846
Kweneng East	56.43	3.35	20.74	1.34	1.80	0.27	0.67	14.80	0.60	100.00	18215
Kweneng West	75.05	2.14	6.81	0.56	1.21	0.13	0.16	13.63	0.31	100.00	4477
Kweneng	60.1	3.12	17.99	1.19	1.68	0.24	0.57	14.57	0.54	100.00	22692
Kgatleng	55.62	1.65	25.67	0.93	1.91	0.42	0.53	12.78	0.50	100.00	7208
Central Serowe Palapye	62.70	1.73	15.63	0.95	1.08	0.24	0.4	14.47	2.79	100.00	13170
Central Mahalapye	59.29	2.99	15.97	0.95	1.09	0.24	0.37	14.38	4.72	100.00	8659
Central Bobonong	62.85	2.11	8.86	1.27	0.60	0.39	0.33	12.09	11.51	100.00	6153
Central Boteti	65.01	1.04	10.29	1.71	0.60	0.35	0.57	10.98	9.44	100.00	4024
Central Tutume	62.34	1.19	11.08	1.03	1.32	0.32	0.48	15.43	6.80	100.00	10956
Central	62.16	1.84	13.07	1.09	1.03	0.29	0.42	14.03	6.08	100.00	42962
North East	71.05	1.23	10.12	1.18	1.18	0.45	0.50	13.3	1.00	100.00	3993
Ngamiland East	65.44	1.85	6.62	1.00	0.68	0.17	0.45	16.99	6.79	100.00	5727
Ngamiland West	74.73	0.95	7.52	0.89	0.38	0.22	0.30	12.07	2.95	100.00	3696
Chobe	49.39	1.21	26.2	1.47	1.66	0.38	0.38	18.4	0.89	100.00	1565
Okavango Delta	47.87	4.26	12.23	1.06	1.06	2.66	0.00	18.09	12.77	100.00	188
North West	65.97	1.50	9.75	1.03	0.72	0.26	0.38	15.58	4.80	100.00	11176
Ghanzi	54.05	2.65	8.99	2.6	1.28	0.47	0.71	16.04	13.2	100.00	2113
CKGR	6.67	6.67	13.33	0.00	6.67	6.67	0.00	13.33	46.67	100.00	15
Ghanzi	53.71	2.68	9.02	2.58	1.32	0.52	0.70	16.02	13.44	100.00	2128
Kgalagadi South	80.54	2.15	7.06	0.42	0.48	0.28	0.48	6.86	1.73	100.00	1444
Kgalagadi North	79.37	2.86	6.19	0.63	0.71	0.16	0.16	7.62	2.30	100.00	1260
Kgalagadi	79.99	2.48	6.66	0.52	0.59	0.22	0.33	7.21	2.00	100.00	2704
Total	58.39	2.53	17.64	1.19	1.54	0.30	0.44	14.95	3.01	100.00	144632
Total Households	84454	3665	25514	1724	2223	439	637	21617	4359		

Table 4: Percentage distribution of households (female headed) that acquired planting land by land acquisition mode and sex- 2011 Census

District	Land Acquisition	Land Acquisition										Total Household responses
		%Total	Total Household responses	Freehold	Lease	TGIP	Syndicate	Employer/ Relative	Self allocation	%Total	Total Household responses	
Female												
Gaborone	46.64	2.65	26.98	1.77	1.85	0.39	0.42	18.68	0.60	100.00	8966	
Francistown	52.87	1.99	19.12	1.07	1.26	0.34	0.45	21.39	1.52	100.00	4685	
Lobatse	46.02	5.31	26.72	1.10	2.65	0.09	0.27	17.02	0.82	100.00	1093	
Selebi_Pikwe	49.56	1.77	19.35	0.76	1.06	0.30	0.38	24.04	2.79	100.00	2367	
Orapa	66.21	1.20	15.09	0.17	1.37	0.17	0.17	15.09	0.51	100.00	583	
Jwaneng	45.66	1.68	15.41	1.26	1.96	0.28	0.70	31.65	1.40	100.00	714	
Sowa Town	56.46	1.36	9.52	2.72	2.72	0.00	0.00	25.85	1.36	100.00	147	
Cities/Towns	49.21	2.44	23.05	1.36	1.64	0.33	0.41	20.39	1.16	100.00	18555	
Ngakaketse	56.88	5.01	24.43	1.14	1.50	0.34	0.42	8.17	2.13	100.00	9146	
Barolong	57.79	5.51	23.17	0.57	1.68	0.27	0.30	10.10	0.60	100.00	3682	
Ngakaketse West	79.94	1.04	9.82	0.31	0.73	0.00	0.52	7.31	0.31	100.00	957	
Southern	58.72	4.87	23.08	0.93	1.49	0.30	0.39	8.63	1.60	100.00	13785	
South East	49.80	4.46	33.16	1.11	1.87	0.27	0.32	8.60	0.39	100.00	4056	
Kweneng East	58.90	3.63	21.47	1.32	1.54	0.30	0.70	11.24	0.90	100.00	15475	
Kweneng West	75.76	2.12	7.40	0.98	0.88	0.23	0.38	11.82	0.43	100.00	3960	
Kweneng	62.34	3.32	18.61	1.25	1.40	0.29	0.64	11.36	0.80	100.00	19435	
Kgatleng	55.84	1.66	29.04	0.99	1.53	0.36	0.50	9.30	0.78	100.00	6580	
Central Serowe Palapye	63.67	2.24	16.74	1.06	1.00	0.23	0.39	13.01	1.66	100.00	14441	
Central Mahalapye	61.32	2.44	15.33	1.21	1.13	0.36	0.44	14.99	2.79	100.00	10400	
Central Bobonong	66.16	1.45	9.14	1.25	0.73	0.30	0.38	12.30	8.30	100.00	7376	
Central Boteti	68.70	1.21	10.17	1.17	0.58	0.32	0.53	10.64	6.68	100.00	4118	
Central Tutume	67.35	1.34	11.06	0.85	0.86	0.26	0.43	13.74	4.12	100.00	13242	
Central	64.95	1.84	13.25	1.07	0.91	0.28	0.42	13.32	3.96	100.00	49577	
North East	75.43	0.90	9.14	0.53	0.86	0.26	0.34	11.73	0.81	100.00	5328	
Ngamiland East	65.10	1.56	7.38	1.14	0.69	0.20	0.39	16.88	6.66	100.00	5627	
Ngamiland West	70.72	0.72	7.79	0.82	0.54	0.18	0.26	16.37	2.61	100.00	5021	
Chobe	52.26	1.15	28.39	1.99	1.07	0.38	0.54	13.70	0.54	100.00	1307	
Okavango Delta	32.08	2.52	13.21	1.26	2.52	4.40	0.63	22.01	21.38	100.00	159	
North West	65.61	1.18	9.89	1.10	0.69	0.26	0.35	16.39	4.52	100.00	12114	
Ghanzi	58.37	2.61	8.57	2.26	0.55	0.21	1.03	14.27	12.14	100.00	1458	
CKGR	50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.00	100.00	2	
Ghanzi	58.36	2.60	8.56	2.26	0.55	0.21	1.03	14.25	12.19	100.00	1460	
Kgalagadi South	83.89	1.81	7.85	0.50	0.70	0.60	0.70	3.02	0.91	100.00	993	
Kgalagadi North	79.10	3.97	6.79	0.52	0.63	0.42	0.31	5.75	2.51	100.00	957	
Kgalagadi	81.54	2.87	7.33	0.51	0.67	0.51	0.51	4.36	1.69	100.00	1950	
Total	61.46	2.45	17.20	1.11	1.18	0.30	0.45	13.29	2.58	100.00		
Total Households	81641	3254	22852	1469	1565	392	597	17648	3422		132840	

Table 5: Percentage distribution of households that acquired planting land by land acquisition mode and marital status- 2011 Census

	Marital status of Head of Household							Households responses
	Never married	Married	Living together	Separated	Divorced	Widowed	% Total	
BOTH SEXES								
Land-board	35.67	27.83	20.39	0.83	1.94	13.35	100.0	166079
Tribal/commercial	31.19	28.49	20.54	0.71	2.12	16.95	100.0	6919
Inheritance	28.44	35.50	23.65	1.05	2.33	9.03	100.0	48359
Freehold	34.09	30.36	22.84	0.94	2.60	9.18	100.0	3192
Lease	35.30	28.30	25.95	0.71	2.82	6.92	100.0	3788
TGLP	29.04	36.51	23.73	0.84	2.05	7.83	100.0	830
Syndicate	29.98	34.20	25.36	0.89	2.51	7.05	100.0	1234
Employer/Relative	20.98	39.29	31.45	0.83	1.79	5.66	100.0	39262
Self-allocation	27.01	28.68	30.15	0.84	1.86	11.47	100.0	7780
% BOTH SEXES-2011	31.91	30.92	22.93	0.86	2.01	11.36	100.0	277443
% BOTH SEXES-2001	28.46	37.26	19.55	1.18	2.05	11.50	100.0	214579
MALE								
Land-board	46.83	24.40	22.81	0.64	1.47	3.85	100.0	84443
Tribal/commercial	41.17	26.14	24.42	0.76	1.69	5.81	100.0	3665
Inheritance	37.27	30.09	27.08	0.92	1.74	2.90	100.0	25513
Freehold	44.81	25.25	24.09	0.99	2.21	2.67	100.0	1723
Lease	43.77	25.10	26.27	0.67	1.93	2.25	100.0	2223
TGLP	37.81	31.44	25.28	1.37	1.37	2.73	100.0	439
Syndicate	38.15	28.57	27.94	0.94	2.20	2.20	100.0	637
Employer/Relative	25.93	35.98	34.65	0.57	1.02	1.85	100.0	21615
Self-allocation	32.37	27.83	33.47	0.76	1.42	4.15	100.0	4359
% MALE-2011	41.30	27.34	25.79	0.70	1.47	3.39	100.0	144617
% MALE-2001	24.87	47.67	22.12	0.87	1.43	3.06	100.0	114035
FEMALE								
Land-board	24.13	31.37	17.88	1.02	2.42	23.18	100.0	81636
Tribal/commercial	19.94	31.13	16.16	0.65	2.61	29.50	100.0	3254
Inheritance	18.59	41.53	19.82	1.20	2.99	15.87	100.0	22846
Freehold	21.51	36.35	21.38	0.88	3.06	16.81	100.0	1469
Lease	23.26	32.84	25.50	0.77	4.09	13.55	100.0	1565
TGLP	19.18	42.20	21.99	0.26	2.81	13.55	100.0	391
Syndicate	21.27	40.20	22.61	0.84	2.85	12.23	100.0	597
Employer/Relative	14.93	43.34	27.52	1.13	2.74	10.33	100.0	17647
Self-allocation	20.17	29.76	25.93	0.94	2.43	20.78	100.0	3421
% FEMALE 2011	21.68	34.81	19.82	1.05	2.60	20.05	100.0	132826
% FEMALE 2001	32.51	25.46	16.64	1.53	2.78	21.09	100.0	100544

Table 6: Percentage distribution of households by land acquisition mode and usual economic activity and sex of heads of households -2011 Census

	Economically active population						Economically inactive						Households responses			
	Seasonal work		Non Seasonal work				Home maker		Student		Retired		Sick	Others	Sub Total	%Total
	Paid	Unpaid	Paid	Unpaid	Job seeker	Sub Total	Home maker	Student	Retired	Sick	Others	Sub Total	%Total			
BOTH SEXES																
Land-board	7.9	9.5	37.1	7.2	5.5	67.1	21.5	2.1	4.2	5.0	0.1	32.9				
Tribal/commercial	7.2	6.9	36.0	7.5	5.3	62.9	22.7	1.7	5.5	7.1	0.1	37.1	100.0	6919		
Inheritance	8.0	5.8	45.7	5.6	6.6	71.6	18.5	2.3	3.9	3.7	0.1	28.4	100.0	48357		
Freehold	8.6	6.0	44.3	6.5	6.2	71.6	18.5	2.0	4.1	3.7	0.1	28.4	100.0	3192		
Lease	8.3	5.4	52.9	5.3	6.9	78.8	13.4	2.2	3.3	2.2	0.1	21.2	100.0	3788		
TGLP	8.8	5.5	46.0	4.7	6.5	71.5	18.5	2.4	3.4	4.1	0.1	28.5	100.0	831		
Syndicate	9.8	5.4	45.8	5.8	7.4	74.2	18.6	2.3	2.4	2.4	0.2	25.8	100.0	1234		
Employer/Relative	9.0	5.5	52.4	4.8	6.9	78.7	14.9	2.6	1.6	2.1	0.1	21.3	100.0	39263		
Self-allocation	7.8	8.7	27.9	15.7	5.9	66.0	25.2	1.1	2.8	4.8	0.1	34.0	100.0	7780		
% LANDHOLDERS-2011	8.0	8.1	40.8	6.8	5.9	69.6	20.0	2.2	3.7	4.4	0.1	30.4	100.0	277446		
% LANDHOLDERS-2001	4.6	5.5	39.6	5.4	5.4	60.6	28.7	3.5	3.4	3.7	0.1	39.4	100.0	214579		
MALE																
Land-board	8.0	8.3	46.7	9.7	5.4	78.1	10.1	2.1	5.8	3.9	0.1	21.9	100.0	84446		
Tribal/commercial	7.7	6.4	45.7	10.1	5.5	75.4	11.4	1.8	6.4	5.0	0.1	24.6	100.0	3665		
Inheritance	8.2	5.1	54.8	7.3	6.4	81.7	8.3	2.3	4.8	2.9	0.1	18.3	100.0	25511		
Freehold	9.1	4.5	54.8	8.6	5.5	82.5	8.4	1.5	5.3	2.3	0.0	17.5	100.0	1723		
Lease	7.5	4.4	62.2	6.2	5.8	86.1	6.0	2.5	4.0	1.2	0.1	13.9	100.0	2223		
TGLP	8.7	3.4	55.6	6.2	5.7	79.5	10.0	2.5	5.9	2.1	0.0	20.5	100.0	439		
Syndicate	10.4	3.9	53.1	7.2	7.5	82.1	11.1	1.6	3.5	1.6	0.2	17.9	100.0	637		
Employer/Relative	8.9	3.6	62.6	5.8	6.8	87.7	6.2	2.6	2.0	1.5	0.1	12.3	100.0	21616		
Self allocation	7.8	6.8	37.5	19.4	6.0	77.6	13.6	1.3	3.6	3.7	0.2	22.4	100.0	4359		
% MALE-2011	8.1	6.8	50.6	8.9	5.8	80.3	9.3	2.2	4.9	3.3	0.1	19.7	100.0	144619		
% MALE-2001	5.1	4.9	50.5	7.6	5.3	73.4	14.9	3.9	4.3	3.3	0.05	26.6	100.0	114035		
FEMALE																
Land-board	7.7	10.7	27.1	4.5	5.6	55.7	33.3	2.1	2.5	6.3	0.1	44.3	100.0	81636		
Tribal/commercial	6.6	7.5	25.1	4.6	5.1	48.9	35.4	1.7	4.5	9.5	0.1	51.1	100.0	3254		
Inheritance	7.7	6.7	35.5	3.7	6.8	60.3	29.9	2.2	2.8	4.7	0.1	39.7	100.0	22846		
Freehold	8.0	7.8	32.1	4.0	7.0	59.0	30.4	2.5	2.7	5.2	0.1	41.0	100.0	1469		
Lease	9.5	6.9	39.7	4.1	8.3	68.4	23.9	1.9	2.2	3.5	0.1	31.6	100.0	1565		
TGLP	8.9	7.9	35.2	3.1	7.4	62.5	28.1	2.3	0.5	6.4	0.3	37.5	100.0	392		
Syndicate	9.2	7.0	38.0	4.4	7.2	65.8	26.6	3.0	1.2	3.2	0.2	34.2	100.0	597		
Employer/Relative	9.2	7.9	39.9	3.7	7.0	67.6	25.6	2.7	1.2	2.9	0.1	32.4	100.0	17647		
Self allocation	7.7	11.1	15.6	11.0	5.8	51.2	40.0	0.8	1.8	6.1	0.1	48.8	100.0	3421		
% FEMALE-2011	7.9	9.5	30.1	4.4	6.0	58.0	31.8	2.1	2.4	5.6	0.1	42.0	100.0	132827		
% FEMALE-2001	4.8	6.2	27.5	3.0	5.5	46.0	44.4	2.9	2.4	4.2	0.13	54.0	100.0	100544		

Table 7: Percentage distribution of households by current economic activity in each land acquisition mode and sex of household head-2011 Census

Land Acquisition	Current economic activity							Total %	Households responses
	Employee - Paid Cash	Employee - Paid Inkind	Self-employed (no employees)	Self-employed (with employees)	Unpaid Family Helper	Working at Own Lands/Cattle Post	Unknown		
BOTH SEXES									
Landboard	68.17	0.67	8.61	3.31	0.84	18.38	0.03	100.00	83915
Tribal/commercial	68.14	0.62	9.18	3.51	0.80	17.69	0.06	100.00	3387
Inheritance	74.86	0.59	8.94	3.59	0.69	11.30	0.03	100.00	26775
Freehold	72.70	0.39	8.26	6.91	0.56	11.07	0.11	100.00	1780
Lease	73.73	0.80	8.78	7.98	0.80	7.81	0.08	100.00	2368
TGLP	77.63	1.29	7.10	3.44	0.86	9.25	0.43	100.00	465
Syndicate	78.05	0.29	9.01	4.36	0.73	7.41	0.15	100.00	688
Employer/Relative	80.5	0.56	8.27	2.59	0.61	7.45	0.02	100.00	23441
Self-allocation	53.93	0.99	7.66	1.62	0.80	34.94	0.05	100.00	4124
% BOTH SEXES-2011	71.18	0.65	8.60	3.33	0.77	15.45	0.03	100.00	146943
% BOTH SEXES-2001	75.55	0.55	9.94	3.96	1.23	8.7	0.06	100.00	106019
MALE									
Landboard	68.11	0.59	6.46	4.05	0.73	20.04	0.02	100.00	52475
Tribal/commercial	67.78	0.41	7.48	4.19	0.77	19.33	0.05	100.00	2219
Inheritance	74.2	0.54	7.37	4.45	0.56	12.84	0.04	100.00	16685
Freehold	71.99	0.34	6.70	8.76	0.52	11.6	0.09	100.00	1164
Lease	73.12	0.75	7.46	10.09	0.69	7.83	0.06	100.00	1596
TGLP	78.38	0.68	6.08	3.72	0.68	10.14	0.34	100.00	296
Syndicate	78.15	0.24	6.89	5.46	0.71	8.55	0.00	100.00	421
Employer/Relative	81.75	0.47	6.29	3.15	0.50	7.83	0.02	100.00	15039
Self-allocation	57.09	1.11	5.34	1.49	0.97	33.96	0.03	100.00	2883
% MALE 2011	71.28	0.57	6.61	4.07	0.67	16.78	0.03	100.00	92778
% MALE 2001	76.68	0.59	7.11	4.44	1.07	10.06	0.05	100.00	71366
FEMALE									
Landboard	68.26	0.81	12.20	2.07	1.02	15.61	0.03	100.00	31440
Tribal/commercial	68.84	1.03	12.41	2.23	0.86	14.55	0.09	100.00	1168
Inheritance	75.96	0.66	11.56	2.16	0.91	8.74	0.01	100.00	10090
Freehold	74.03	0.49	11.20	3.41	0.65	10.06	0.16	100.00	616
Lease	75.00	0.91	11.53	3.63	1.04	7.77	0.13	100.00	772
TGLP	76.33	2.37	8.88	2.96	1.18	7.69	0.59	100.00	169
Syndicate	77.9	0.37	12.36	2.62	0.75	5.62	0.37	100.00	267
Employer/Relative	78.28	0.73	11.81	1.58	0.81	6.77	0.02	100.00	8402
Self-allocation	46.58	0.73	13.05	1.93	0.40	37.23	0.08	100.00	1241
% FEMALE 2011	71.00	0.78	12.01	2.06	0.95	13.18	0.03	100.00	54165
% FEMALE 2001	73.23	0.47	15.78	2.98	1.56	5.89	0.08	100.00	34653

Table 8: Percentage distribution of households by industry and sex of head of households within each mode of land acquisition-2011 Census

SEX & LAND ACQUISITION	INDUSTRY																		TOTAL RESPONSES	
	Agriculture Hunting and Forestry	Fishing	Mining and Quarrying	Manufacturing	Electricity, Gas & Water Supply	Construction	Wholesale & Retail Trade	Hotels and Restaurant	Transport, Storage & Communication	Financial Intermediaries	Real Estate, Renting & Business Activities	Public Administration	Education	Health & Social Work	Other Community, Social and Personal Services activities	Private Households with Employed Persons	Foreign Missions, International Organisations	Other Industry		
BOTH SEX																				
Landboard	14.46	0.03	2.21	2.19	0.59	3.76	5.48	0.87	1.50	0.57	3.41	10.51	4.79	2.12	0.88	1.38	0.04	45.21	100.00	165763
Tribal/commercial	13.98	0.06	1.45	2.84	0.45	4.17	4.87	1.09	1.83	0.56	3.77	8.49	3.98	2.32	1.19	1.64	0.03	47.31	100.00	6904
Inheritance	10.64	0.04	2.44	3.04	0.75	5.45	6.75	1.16	2.02	0.82	4.98	11.42	4.92	2.20	1.31	2.23	0.08	39.76	100.00	48252
Freehold	13.59	0.06	1.91	2.48	0.85	5.18	6.87	1.07	1.82	0.75	4.8	10.83	5.30	2.23	1.16	1.60	0.09	39.39	100.00	3186
Lease	13.26	0.00	3.02	2.91	0.53	6.27	7.36	1.03	2.49	1.16	5.45	12.04	6.11	2.57	1.48	1.75	0.16	32.42	100.00	3779
TGLP	10.98	0.00	2.29	2.65	0.72	4.83	7.60	0.97	2.65	0.60	4.34	11.58	5.07	1.69	1.33	2.90	0.24	39.57	100.00	829
Syndicate	9.44	0.00	2.03	2.44	1.38	5.37	8.71	1.22	2.12	0.73	3.91	10.66	6.27	2.36	1.46	1.95	0.08	39.87	100.00	1229
Employer/Relative	12.48	0.05	2.79	3.19	0.57	6.25	7.88	1.38	2.12	0.72	4.96	12.03	5.82	2.04	1.35	3.01	0.05	33.31	100.00	39205
Self allocation	33.01	0.08	1.13	1.56	0.28	2.36	3.41	0.46	0.93	0.05	1.75	5.27	1.49	1.13	0.51	1.29	0.03	45.26	100.00	7768
Total	13.96	0.04	2.29	2.49	0.61	4.44	6.03	1.00	1.69	0.63	3.91	10.72	4.88	2.11	1.03	1.78	0.05	42.35	100.00	276915
MALE																				
Landboard	20.84	0.06	4.03	2.29	0.96	6.74	4.56	0.6	2.41	0.54	4.94	12.54	3.83	1.95	1.01	0.32	0.04	32.35	100.00	84270
Tribal/commercial	20.09	0.08	2.41	3.44	0.79	7.22	4.76	0.79	2.84	0.41	5.41	9.84	3.33	2.13	1.20	0.93	0.03	34.3	100.00	3659
Inheritance	15.15	0.06	4.29	3.56	1.15	9.66	5.89	0.78	3.09	0.74	6.77	12.7	3.84	1.84	1.43	0.55	0.11	28.4	100.00	25454
Freehold	19.66	0.12	3.32	2.79	1.34	8.84	6.63	0.76	2.85	0.64	6.98	11.4	4.42	1.98	1.16	0.41	0.06	26.64	100.00	1719
Lease	17.71	0.00	4.51	3.42	0.77	10.09	6.62	0.72	3.79	0.95	7.21	12.53	5.05	1.98	1.58	0.41	0.18	22.49	100.00	2219
TGLP	16.21	0.00	3.88	2.74	0.91	8.45	6.85	0.68	4.34	0.23	5.71	13.7	5.48	1.14	1.14	1.14	0.23	27.17	100.00	438
Syndicate	14.85	0.00	3.48	2.53	2.05	9.64	6.95	1.11	3.32	0.79	5.69	11.22	4.74	1.58	1.58	0.95	0.16	29.38	100.00	633
Employer/Relative	18.2	0.08	4.71	3.5	0.81	10.6	6.57	0.93	3.18	0.61	6.63	13.36	4.63	1.70	1.43	0.59	0.06	22.4	100.00	21579
Self allocation	45.86	0.11	1.95	1.03	0.34	3.75	2.69	0.28	1.22	0.05	2.48	4.87	1.10	1.26	0.53	0.55	0.00	31.92	100.00	4352
Total	20.08	0.06	4.07	2.71	0.95	7.85	5.12	0.68	2.66	0.57	5.52	12.38	3.89	1.88	1.15	0.43	0.06	29.95	100.00	144323
FEMALE																				
Landboard	7.86	0.01	0.34	2.09	0.20	0.67	6.44	1.16	0.55	0.60	1.83	8.42	5.79	2.30	0.74	2.47	0.04	58.5	100.00	81493
Tribal/commercial	7.09	0.03	0.37	2.16	0.06	0.74	4.99	1.42	0.68	0.74	1.91	6.96	4.71	2.53	1.17	2.43	0.03	61.97	100.00	3245
Inheritance	5.59	0.03	0.37	2.47	0.30	0.75	7.71	1.59	0.82	0.90	2.98	9.98	6.13	2.59	1.18	4.11	0.06	52.43	100.00	22798
Freehold	6.48	0.00	0.27	2.11	0.27	0.89	7.16	1.43	0.61	0.89	2.25	10.16	6.34	2.52	1.16	3.00	0.14	54.33	100.00	1467
Lease	6.92	0.00	0.90	2.18	0.19	0.83	8.40	1.47	0.64	1.47	2.95	11.35	7.63	3.40	1.35	3.65	0.13	46.54	100.00	1560
TGLP	5.12	0.00	0.51	2.56	0.51	0.77	8.44	1.28	0.77	1.02	2.81	9.21	4.60	2.30	1.53	4.86	0.26	53.45	100.00	391
Syndicate	3.69	0.00	0.50	2.35	0.67	0.84	10.57	1.34	0.84	0.67	2.01	10.07	7.89	3.19	1.34	3.02	0.00	51.01	100.00	596
Employer/Relative	5.47	0.02	0.43	2.80	0.28	0.93	9.49	1.93	0.81	0.85	2.92	10.39	7.26	2.46	1.25	5.97	0.04	46.67	100.00	17626
Self allocation	16.63	0.03	0.09	2.22	0.20	0.59	4.33	0.70	0.56	0.06	0.82	5.77	1.99	0.97	0.50	2.22	0.06	62.27	100.00	3416
Total	7.31	0.01	0.36	2.26	0.23	0.72	7.03	1.34	0.64	0.69	2.17	8.91	5.95	2.36	0.91	3.24	0.04	55.83	100.00	132592

Table 9: Percentage distribution of households by industry of head of households within each mode of land acquisition comparing 2001 and 2011 censuses

SEX AND LAND ACQUISITION	Year	INDUSTRY																			
		Agriculture Hunting and Forestry	Fishing	Mining and Quarrying	Manufacturing	Electricity, Gas and Water Supply	Construction	Wholesale & Retail Trade	Hotels and Restaurant	Transport, Storage & Communication	Financial Intermediaries	Real Estate, Renting and Business Activities	Public Admin	Education	Health and Social Work	Other Community, Social and Personal Service activities	Private Households with Employed Persons	Foreign Missions, International Organisations	Other Industry	% Total	Total responses
BOTH SEX																					
Land board	2011	14.46	0.03	2.21	2.19	0.59	3.76	5.48	0.87	1.50	0.57	3.41	10.51	4.79	2.12	0.88	1.38	0.04	45.21	100.00	165763
	2001	8.44	0.03	3.78	8.41	1.04	11.22	13.02	2.66	3.76	1.42	6.62	17.29	8.81	3.68	2.66	6.52	0.22	0.43	100.00	63780
Tribal/commercial	2011	13.98	0.06	1.45	2.84	0.45	4.17	4.87	1.09	1.83	0.56	3.77	8.49	3.98	2.32	1.19	1.64	0.03	47.31	100.00	6904
	2001	19.93	0.00	2.62	7.72	1.03	12.08	11.92	2.64	3.04	0.58	5.31	15.12	6.79	2.27	3.01	5.15	0.11	0.66	100.00	3783
Inheritance	2011	10.64	0.04	2.44	3.04	0.75	5.45	6.75	1.16	2.02	0.82	4.98	11.42	4.92	2.2	1.31	2.23	0.08	39.76	100.00	48252
	2001	12.75	0.03	4.58	8.56	1.27	14.1	11.67	2.44	3.36	0.93	5.46	16.26	7.67	3.01	2.41	4.84	0.09	0.56	100.00	20886
Free-hold	2011	13.59	0.06	1.91	2.48	0.85	5.18	6.87	1.07	1.82	0.75	4.8	10.83	5.3	2.23	1.16	1.60	0.09	39.39	100.00	3186
	2001	27.03	0.16	2.07	6.20	0.95	9.06	13.51	2.54	2.38	0.64	9.54	11.61	5.56	2.7	2.23	3.02	0.00	0.79	100.00	629
Lease / TGLP	2011	12.85	0.00	2.89	2.86	0.56	6.01	7.40	1.02	2.52	1.06	5.25	11.96	5.92	2.41	1.45	1.95	0.17	33.7	100.00	4608
	2001	18.88	0.00	1.53	8.67	0.51	13.27	15.82	3.57	6.12	2.55	7.14	10.2	5.1	0.00	2.04	3.57	0.00	1.02	100.00	196
Syndicate	2011	9.44	0.00	2.03	2.44	1.38	5.37	8.71	1.22	2.12	0.73	3.91	10.66	6.27	2.36	1.46	1.95	0.08	39.87	100.00	1229
	2001	19.9	0.00	4.59	6.63	0.51	11.73	12.76	2.04	3.57	0.51	4.59	15.82	8.16	2.55	1.53	5.10	0.00	0.00	100.00	196
Employer/Relative	2011	12.48	0.05	2.79	3.19	0.57	6.25	7.88	1.38	2.12	0.72	4.96	12.03	5.82	2.04	1.35	3.01	0.05	33.31	100.00	39205
	2001	10.98	0.04	4.43	8.35	1.02	14.61	12.42	2.69	3.53	1.07	5.47	17.56	6.35	2.68	2.32	6.15	0.10	0.22	100.00	13371
Self allocation	2011	33.01	0.08	1.13	1.56	0.28	2.36	3.41	0.46	0.93	0.05	1.75	5.27	1.49	1.13	0.51	1.29	0.03	45.26	100.00	7768
	2001	51.22	0.20	2.58	5.75	0.36	8.23	8.81	2.19	1.21	0.16	1.89	6.99	4.21	1.63	2.12	2.02	0.00	0.42	100.00	3063

Table 10 Percentage distribution of households by occupation and sex of head of households within each mode of land acquisition-2011 Census

SEX & LAND ACQUISITION	OCCUPATION												
	Not Stated	Legislators, Administrators and Managers	Professionals	Technicians and Associate Professionals	Clerks	Service, Shop and Market Sales Workers	Skilled agricultural and related workers	Craft and related workers	Plant and Machine operators & assemblers	Elementary Occupations	BDF Personnel	Total (%)	Total responses
BOTH SEX													
Landboard	0.02	5.18	5.68	7.41	4.97	13.31	19.25	11.96	7.31	23.49	1.43	10.00	90692
Tribal/commercial	0.06	4.74	6.1	7.97	5.10	13.46	18.76	13.38	6.65	22.51	1.27	100.00	3625
Inheritance	0.03	4.90	6.11	8.37	5.99	14.66	11.81	14.35	7.79	24.32	1.67	100.00	29029
Freehold	0.21	8.39	7.76	8.90	4.50	12.89	13.15	13.04	5.54	24.84	0.78	100.00	1932
Lease	0.08	9.01	8.57	9.01	5.17	12.73	10.81	13.31	7.44	22.32	1.57	100.00	2554
TGLP	0.00	4.99	7.58	8.18	4.79	15.57	10.58	13.97	6.19	27.15	1.00	100.00	501
Syndicate	0.00	5.26	7.29	9.85	5.26	15.11	9.04	14.84	7.15	26.05	0.13	100.00	741
Employer/Relative	0.02	3.22	5.44	7.15	5.64	15.64	8.12	14.7	7.71	30.09	2.26	100.00	26123
Self allocation	0.05	1.63	1.39	2.36	1.63	7.59	36.78	8.09	3.3	36.95	0.24	100.00	4241
TOTAL	0.03	4.80	5.70	7.48	5.18	13.79	16.24	12.83	7.31	25.08	1.56	100.00	159438
MALE													
Landboard	0.02	6.31	5.79	5.59	2.97	11.20	21.01	15.15	10.9	18.8	2.25	100.00	56925
Tribal/commercial	0.08	5.64	6.35	6.44	3.18	11.49	20.02	16.59	9.65	18.68	1.88	100.00	2393
Inheritance	0.01	5.89	6.21	6.59	3.61	13.11	13.22	19.41	11.55	17.76	2.63	100.00	18210
Freehold	0.08	9.5	8.23	7.44	2.93	11.16	14.33	16.94	8.16	20.03	1.19	100.00	1263
Lease	0.06	11.58	7.56	7.62	2.97	10.94	10.88	17.1	10.53	18.5	2.27	100.00	1719
TGLP	0.00	6.90	8.78	6.27	3.13	15.05	10.97	16.3	9.4	21.63	1.57	100.00	319
Syndicate	0.00	6.46	8.24	6.90	4.68	12.03	11.14	18.93	11.36	20.04	0.22	100.00	449
Employer/Relative	0.01	3.76	5.49	5.54	3.68	13.6	8.63	19.34	11.23	25.21	3.50	100.00	16730
Self allocation	0.03	1.73	1.39	1.86	0.95	5.86	36.07	8.33	4.47	38.98	0.34	100.00	2953
TOTAL	0.02	5.79	5.78	5.74	3.16	11.81	17.64	16.53	10.81	20.29	2.44	100.00	100961
FEMALE													
Landboard	0.02	3.26	5.51	10.46	8.33	16.87	16.28	6.57	1.24	31.39	0.06	100.00	33767
Tribal/commercial	0.00	3.00	5.6	10.96	8.85	17.29	16.31	7.14	0.81	29.95	0.08	100.00	1232
Inheritance	0.06	3.23	5.95	11.36	10.00	17.27	9.43	5.83	1.44	35.36	0.06	100.00	10819
Freehold	0.45	6.28	6.88	11.66	7.47	16.14	10.91	5.68	0.6	33.93	0.00	100.00	669
Lease	0.12	3.71	10.66	11.86	9.7	16.41	10.66	5.51	1.08	30.18	0.12	100.00	835
TGLP	0.00	1.65	5.49	11.54	7.69	16.48	9.89	9.89	0.55	36.81	0.00	100.00	182
Syndicate	0.00	3.42	5.82	14.38	6.16	19.86	5.82	8.56	0.68	35.27	0.00	100.00	292
Employer/Relative	0.03	2.27	5.34	10.02	9.15	19.28	7.21	6.44	1.44	38.78	0.04	100.00	9393
Self allocation	0.08	1.40	1.40	3.49	3.18	11.57	38.43	7.53	0.62	32.3	0.00	100.00	1288
TOTAL	0.04	3.08	5.57	10.47	8.67	17.22	13.83	6.44	1.27	33.35	0.06	100.00	58477

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Gwen N. Lesetedi University of Botswana presenting on Household Perspectives

HOUSEHOLD PERSPECTIVES

By

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Abstract: The household has been used most frequently as a unit of analysis in the collection of census and survey data. It has become a standard unit of analysis for ecological and economic purposes because pooling and sharing of resources, processing of food, cooking, eating and sheltering from elements of weather, all tend to happen in the household. In addition, the household is a fundamental social unit and it is the next biggest thing on the social map after the individual. It is within the household that gender and social dynamics are socially constructed and manifested. The major objective of this study is to analyse dynamics prevailing in the household utilising the 2011 Population and Housing Census data. Data from the 1981 and 1991 censuses will also be utilized as a basis for comparison. The key demographic areas to be considered will be household size, household headship, economic activity and remittances. In addition the paper will also discuss issues of ownership of durables and ICT Equipment. Given variations among households and the flexibility characteristic of households, it is imperative to also interrogate the concept of household. The concept of family will also be interrogated within the context of this study.

1.0 Introduction

This paper profiles the household perspectives in Botswana utilising the 2011 Population and Housing Census data. The concept of household is an important unit of analysis and is utilised in the collection of information for statistical and planning purposes. The paper is organised into four sections. The first section is the introduction and also highlights the policies and programmes having an impact on households followed by a discussion on the methodological issues concerning the utilisation of the household and other related concepts like household headship and family in data collection in section two. Section three presents a discussion on the trends obtaining based on the data from the 1981, 1991 and 2001 censuses. The comparative analysis will provide a better understanding of the changes households have undergone. Section four also presents an analysis of household perspectives of the 2011 census. The perspectives are analysed in terms of household size, household headship, economic activity, ownership of land and of durables just to mention a few.

1.2 Policies and Programmes

Government policies and programmes are designed to benefit all members of the population equally and therefore access to economic opportunities for all Botswana citizens in all sectors of development is an overall goal clearly stated in the various National Development Plans, Vision 2016, and the National Population Policy. For instance the National Population Policy which, in recognition of the fact that female-headed households are more vulnerable to poverty, has come up with several strategies to improve women's status (Ministry of Finance, 1997). The strategies include targeting programmes to these vulnerable female-headed households to enhance their participation in the economy. Despite such policy efforts geared towards improving the status of women, unequal gender relations persist in the different sectors of the economy. Inequalities between women and men are pronounced as far as access to income and resources are concerned, varying in degrees between urban and rural areas. Income distribution remains skewed in terms of gender.

2.0 Methodological Considerations: Household, Household Headship and Family

2.1 Household

A household may mean different things to different people in different places. There is no universal meaning of the term 'household'. This has resulted in a growing debate among scholars on trying to generate definitions that might be universally applicable. For the purposes of the 2011 Population and Housing Census, household is defined as a unit composed of one or more persons 'living together under the same roof' and 'eating from the same pot' and /or making common provision for food and other living arrangements (CSO, 2011). The two concepts need not be interpreted literally, because they have a broader meaning. 'Eating from the same pot' attempts to summarise a variety

of situations where a group of people may combine all or part of their incomes for their maintenance as one unit. While, 'living under the same roof' may serve to strengthen the first concept by confining it to a specific physical location. In this regard household may be understood as kinship unit or economic unit rather than a housing unit. A household often consists of individuals related by blood or marriage, but they are not always family-based entities. They may comprise of unrelated persons such as colleagues and friends. A family can be a household but a household is not always a family. While the use of the term household depicts the family as a group of people who live together and share shelter, food and other basic requirements, the term kinship stretches the notion of family to include three or more generations and all their collateral relations. The household is regarded as a socio-economic unit where production, distribution and consumption activities take place.

2.2 Household Headship

A concept interlinked with household is household headship. It implies the power to make important decisions in a number of matters such as allocation of household resources, responsibilities, organization of household production, schooling of children and supporting the household economically (Chant 1997). In the 2011 census, consistent with previous censuses, it was specified that the head of household is any male or female, at least 12 years old who is regarded by other members of the household as head (CSO, 2011). The person can be a blood relative or not. In cases where there is no one aged 12 or over, the eldest child will have to be entered as the head. A household headship is complicated and fluctuating. A household may be headed by a woman at one time and by a man at another and women may head other households forever.

Household headship is complicated and fluctuating. At one time a household may be headed by a woman and by a man at another. Past research has shown that the female-headed households are economically disadvantaged than the male headed ones. Male-headed households are economically better than the female-headed ones because they have access to productive resources and they could also migrate to mines and other places to seek alternatives. They are male-headed households, which are poorer than the female headed ones. Most of the female-headed households are poor because they do not have access and control of the productive resources, and this is attributable to a number of reasons that may differ from one case to another. The main reason is that they face very serious socio-economic limitations in their lives. A single woman heading her household can marry at a later stage and become a member of a male-headed household. She may later become a widow and take over the headship. Most of the national and international data report a 'female headed household' as a unit where an adult woman (usually with children) resides without a male partner. In other words, a head of a household is female in the absence of a co-resident legal or traditional-law spouse or in some cases, another adult male such as a father or brother.

Relative to the family, the household has certain advantages as a unit of analysis. First, it is a much broader and diversified concept which may include within it the family (Burkey, 1985; Motts, 1994; Datta et al, 2000). Not only is the household more flexible in terms of collecting standardised data than the family, it is also more easily identifiable and much easier to work with as unit of analysis and for other data collection tasks. Unlike the family, the household is also more "static" or "stable" in terms of consumption and production purposes. Second, the household has been used most frequently as a unit of analysis in the collection of census and survey data. It has become a standard unit of analysis for ecological and economic purposes because pooling and sharing of resources, processing of food, cooking, eating and sheltering from elements of weather, all tend to happen in the household. In addition, the household is a fundamental social unit and it is the next biggest thing on the social map after the individual and most people in the majority of societies at most times live in households (McC.Netting et al, 1984). According to McC.Netting et al, (1984) it is in the household where most decisions are made, through negotiations, disagreement, conflict and bargaining.

2.3 Family

Closely related to the concept of the household is the family. In light of the definition of the household highlighted earlier, a family can be a household but a household is not necessarily a family (WLSA, Botswana, 1997). Similarly a household may contain one or more separate families and may also include members who are not related to one another. During population and housing censuses members of the household are asked to state their relationship to the household head. Based on this information one can deduce the types of family forms in existence.

Relative to the family, the household has certain advantages as a unit of analysis. It is a much broader and diversified concept which may include within it the family (Motts, 1994; Datta et al, 2000). Not only is the household more flexible in terms of collecting standardised data than the family, it is also more easily identifiable and much easier to work with as unit of analysis and for other data collection tasks. Unlike the family, the household is also more "static" or "stable" in terms of consumption and production purposes. Second, the household has been used most frequently as a unit of analysis in the collection of census and survey data. It has become a standard unit of analysis for ecological and economic purposes because pooling and sharing of resources, processing of food, cooking, eating and sheltering from elements of weather, all tend to happen in the household. In addition, the household is a fundamental social unit and it is the next biggest thing on the social map after the individual and most people in the majority of societies at most times live in households (McC. Netting et al, 1984).

3.0 Data Analysis

3.1 Past Trends: 1981, 1991 and 2011 Household and Population Censuses

Over the years the number of households just like the population has been increasing. In 1981 the census recorded 170,833 households, in 1991 the number of households rose to 276,209 and by 2001 the number had risen to 404,706. In the 2011 Population and Housing Census 550,926 households were enumerated. The increase in the population size as well as in the number of households has been accompanied by a decline the average household size. Based on the 1981 census the average household size was 5.5, in 1991 it went down to 4.8 and by 2001 it was 4.2. By 2011 the average household size had decreased to 3.7. The significant increase in the number of households can be attributed to the formation of new households. Households are breaking into smaller units as seen by the declining household size from an average of 5.5 persons per household in 1981 to 3.7 persons in 2011. Table 1 presents a summary of these trends from 1981 to 2011.

Table 1: Total Population, Number of Households and Household Size 1981, 1991, 2001 and 2011

Year	Population	Number of Households	Average Household size
1981	941,027	170,833	5.5
1991	1,326,796	276,209	4.8
2001	1,680,863	404,706	4.2
2011	2,024,904	550,926	3.7

3.2 Household Headship

As indicated earlier a total of 550,926 households were enumerated in 2011. Of these 52.5 percent were headed by males while the remaining 47.5 percent were headed by females. These figures are consistent with those obtained in for 2001 where 53.86 percent of the households were male-headed while 46.14 percent were female-headed and 1991 during which 53 percent of households were male headed while women headed 47 percent. The corresponding figures for 1981 census were 54.8 percent households headed by males and 45.2 percent headed by men. On the whole males head more households than females in the country.

3.3 Tenure ship Of Housing Unit

A question was posed to how the respondents had acquired the housing unit they were residing in. The responses included that the unit was self built, rented from different institutions, purchased or acquired through the job they were engaged in. The majority of the household heads that is both males and females reported that the housing unit that they occupied had been self built. Out of a total of 289,360 households headed by males 46.4% were self built. Quite a good number of the housing headed by males resided in rented housing units. They rent from individuals, Central Government, company, Botswana Housing Corporation (BHC) and Village Development Committees (VDC). The rented units made up a total of 34.1 percent. The same pattern of housing prevails amongst the female headed households. Almost 60 percent of them lived in housing units they had built for themselves and at least 29.8 percent of them rented their housing units from various institutions. Very few of the households reported that they had purchased their

housing unit. Close to two percent (1.8 percent) of the male heads of households had bought the unit while only 1.3 percent of the female headed households had purchased the housing unit they were living in. It should be noted that close to one percent of the heads both males and females reported that they were living in housing which had been donated. See table 2 for a breakdown of the data.

Tenure of housing	Sex of Household Head				
	Male		Female		
	No.	%	No.	%	Total
Self built	134,259	46.4	156,300	59.8	290,559
Rent individual	83,646	28.9	55,759	21.3	139,405
Job related-free	29,738	10.3	16,595	6.3	46,333
Rent Central Government	11,066	3.8	10,736	4.1	21,802
Free: Inheritance	6,150	2.1	5,332	2.0	11,482
Purchased	5,129	1.8	3,374	1.3	8,503
Rent: Company	8,189	2.8	2,757	1.1	10,946
Rent: BHC	3,503	1.2	2,662	1.0	6,165
Rent: Local institution	3,523	1.2	4,079	1.6	7,602
Rent: VDC	1,779	0.6	1,797	0.7	3,576
Donated	1,380	0.5	1,585	0.6	2,965
Do not know	998	0.3	590	0.2	1,588
Total	289,360	100.0	261,566	100.0	550,926

A further analysis revealed that female heads of household were more likely to live in units which had been self built than their male counterparts. While 53.8 percent of the female heads lived in self built accommodation compared to 46.2 percent of the male household heads. At the same time 60.3 percent of the male heads resided in accommodation that had been purchased and only 39.7 percent of the female heads were accommodated in units which had been purchased. When it came to rented accommodation more male headed household units lived in rented accommodation than the female headed ones. For instance 74.8 percent of the male headed households lived in housing which had been rented from a company compared to 25.2 percent of the female headed households. This is also evident when you consider the households renting from individuals and BHC. Male heads of households outnumber the female heads of households. However, there are some exceptions in this regards, more female heads rent from local institutions (53.7 percent) than their male counterparts (46.3 percent). Almost an equal number of both male heads and female heads rented from Central Government and from VDCs. A good number of male headed household (53.6 percent) lived in property they had inherited compared to 46.4 percent of their female counterparts. On the other hand 53.5 percent of female headed households resided in donated accommodation as compared to 46.5 percent of male headed households.

3.4 Economic Activities

Data on economic activity is intended to show the number of people who are economically active and the type of activities they are engaged in. The economically active refers to those who are employed as well as the unemployed. This question was addressed to those 12 years and above.

3.4.1. Headship and Usual economic activity

Usual economic activity referred to activity in which the head of household was engaged in during the last twelve months before the census. These activities included Seasonal work, paid or unpaid; non seasonal, paid or unpaid; job-seeker, homemaker, student, those who had retired; the sick and prisoners. For both male heads of household and female head of household the main activity that they are engaged in unpaid non-seasonal work. It was registered that 48.0 percent of the male heads were engaged in non-seasonal unpaid work while 39.6 percent of the female heads were also engaged in s are engaged non-seasonal unpaid work. The next significant category was that of students were 13.3 percent of the male heads and 23.0 percent of the female heads registered that they were students. This was followed by 11.1 percent male heads and 12.3 of female heads who reported that they were home makers. The

heads of households also indicated that they were involved in seasonal work both paid and unpaid. Amongst the male headed household heads, 6.9 percent and 2.5 percent were involved in paid and unpaid seasonal work respectively. With reference to the female headed households 5.7 percent and 2.2 percent indicated that they were engaged in paid and unpaid seasonal work respectively. An insignificant number of both males and female heads reported that they were in prison.

Examining the gender differentials i.e. comparing the male heads of household to the female heads of households against the different economic activities listed, there are more male heads of households involved in economic activities in comparison to the female heads. For instance in the category non-seasonal unpaid activity, 75 percent were male heads compared to 25 percent. This pattern is reflected in most of the categories except for the category of student and those who reported that they were sick. Amongst those who reported that they were students 54.4 percent were female heads compared to 45.6 male heads. Those who reported that they were sick comprised of 54.4 percent female heads and 45.6 percent females. Table 3 presents a summary of the data on usual activity of head of household by sex.

Table 3: Usual Economic Activity by Sex of Head of Household

Usual Economic Activity	Sex of Head of household				Total
	Male	Female	%	No	
Seasonal - Paid	14,381	63.6	36.4	8,213	22,594
Seasonal - Unpaid	5,173	60.3	36.7	3,402	8,575
Non-seasonal - Paid	99,582	63.7	36.3	56,677	156,259
Non-seasonal - Unpaid	10,231	75.0	25.0	3,416	13,647
Job seeker	21,377	58.4	41.6	15,231	36,608
Home maker	23,137	56.8	43.2	17,589	40,726
Student	27,598	45.7	54.3	32,831	60,429
Retired	2,711	63.0	37.0	1,595	4,306
Sick	3,385	45.6	54.4	4,043	7,428
Prisoners	86	67.7	32.3	41	127
TOTAL	207,661	59.2	40.8	143,038	350,699

3.4.2 Receipt of Cash from Household Activities

Respondents were also asked as to whether any member of the household had received cash from household activities that they were engaged in. These activities included traditional beer, other beverages, craftwork, clothes and cooked food. Most households that are 92 percent of them male headed and 88.3 percent female headed reported as having received no cash from any of the household activities that they were engaged in. However, 2.7 percent of the male headed households and 5.5 percent of those headed by females reported that that they had received cash from selling traditional beer. Very few of the respondents indicated as to whether any member of the household as having received cash from activities such as craftwork, clothes and cooked food.

Most members in female headed households were involved in dealing in traditional beer i.e. 64.8 percent compared to 35.2 percent of members living in male headed households. 57.1 percent of female headed households and 42.9 percent of male headed households of the households got cash from other beverages. More members in female head households were also involved in selling clothes compared to those members in households headed by males. Those who reported as having received cash from clothes included 60.0 percent female headed households and 40 percent male headed households. The same applied to cooked food as a source of cash. In this regard 60.2 percent of households headed by females compared to 39.2 percent of households headed by males received cash from cooked food. On the other hand they were more households headed by males than female headed households who were involved in craft work. Amongst male headed households 60.8 percent engaged in craft work as a source of cash compared to 39.2 percent of the female headed households. This is illustrated in table 4.

Table 4: Receipt of Cash from household activities by Sex of household head

Household activities	Sex of Head of household				Total
	Male	Female	No	%	
Traditional Beer	7,697	35.2	14,141	64.8	21,838
Other beverages	2,274	42.9	3,028	57.1	5,302
Craftwork	3,733	60.8	2,403	39.2	6,136
Clothes	3,357	40.0	5,038	60.0	8,395
Cooked Food	3,235	39.8	4,891	60.2	8,126
None	265,278	53.9	227,069	46.1	492,347
Other	411	43.8	527	56.2	938
Total	285,985	52.7	257,097	47.3	543,082

3.4.3 Other Cash Receipts

In addition to receiving cash from household activities like traditional beer, other beverages, craft work, clothes and cooked food, other sources of cash receipts were considered. These included remittances from both inside and outside Botswana, pension, rent maintenance, employment, and destitute allowance and Government rations. In this regards for both male and female headed households employment was a major source of cash. Of the households headed by male 69.3 percent reported that their other source of cash was employment while 56.4 percent of female headed households also indicated that they had received cash from employment. Households also received cash through remittances from inside as well as outside Botswana. Out of the total number of female headed households 7.5 percent indicated that they had received remittances from inside Botswana and only 0.4 percent from outside Botswana. Amongst the male headed households 4.5 percent had received remittances from inside Botswana and only 0.4 percent had received cash from outside Botswana. A substantial number of both male and female headed households indicated that they had not received any cash i.e. 18.4 percent male headed households and 23.5 percent female headed households.

Based on gender differentials more female headed households received remittances from both inside and outside Botswana, pension, rent, maintenance, destitute allowance, government rations than the male headed households. On the other hand more male headed households received cash from employment than the female headed households. However a majority of the female headed households i.e. 51.9 percent compared to 48.4 percent of the male headed households reported that they had not received any cash. This information is presented in Table 5.

Table 5: Other cash receipts by Sex of Head of household

Other cash receipts	Sex of Head of household				Total
	Male	Female	No	%	
Inside Botswana	8,759	41.9	12,170	58.1	20,929
Outside Botswana	721	43.0	956	57.0	1,677
Pension	8,703	46.1	10,188	53.9	18,891
Rent	1,508	42.5	2,039	57.5	3,547
Maintenance	609	30.4	1,394	69.6	2,003
Employment	134,378	59.6	91,266	40.4	225,644
Destitute Allowance	939	34.9	1,754	65.1	2,693
Government rations	2,038	37.2	3,439	62.8	5,477
None	35,757	48.4	38,049	51.6	73,806
Other	635	48.1	685	51.9	1,320
Total	194,047	54.5	161,940	45.5	355,987

3.4.4 Receipt of Cash from Agricultural Produce

Over 50% of the households headed by males had received no cash from sale agricultural produce. Of the male headed households that had received cash from agricultural produce at least 10.2 percent received cash from cattle and 5.5 percent from goats and sheep. In terms of crops 2.6 percent of households headed by males received cash from the sale of maize and 2.5 percent from melon and sweet reeds. Majority of the female headed households reported that they had not received any cash for agricultural produce. Amongst those who had received cash only 6.6 percent 4.0 percent of them received cash from the sale of cattle and goats and/ or sheep respectively. At least 3.2 percent of the female headed households also realised cash from the sale of phane. With regard to melon and sweet reeds 2.4 percent of the female headed households had received cash from their sale.

Sale of livestock is generally a source of cash for male headed households in comparison to those headed by females. Of those households which received cash from cattle males 63.8 percent were male headed households compared to 36.2 percent of the households headed by females. The same applies to receipt of cash from goats and sheep, 61.2 percent were male headed and 38.8 percent were female headed. Of those households headed by reported that they had received cash for cattle compare to percent of the females. More male headed households also received cash from produce such as maize; sorghum/millet; and melon/ sweet reeds. On the other hand female headed households fared better compared to the male headed households when it came to receipt of cash from agricultural produce like fruits and vegetables; phane and legume. Details are provided in Table 6.

Table 6: Receipt of Cash from Agricultural Produce by Sex of Household Head

Agricultural Produce	Sex of Head of household				
	Male		Female		
	No	%	No	%	Total
Cattle	33,586	63.8	19,061	36.2	52,647
Goats/Sheep	18,169	61.2	11,501	38.8	29,670
Poultry	11,725	54.1	9,958	45.9	21,683
Maize	8,498	55.7	6,762	44.3	15,260
Sorghum/Millet	3,920	54.8	3,235	45.2	7,155
Melons/Sweet reeds	8,325	54.6	6,926	45.4	15,251
Fruits & vegetables	5,337	47.6	5,871	52.4	11,208
Phane	6,107	39.6	9,333	60.4	15,440
Fish	1,470	56.0	1,157	44.0	2,627
Thatch/Poles/Reeds	3,331	51.0	3,197	49.0	6,528
Firewood	5,308	63.6	3,040	36.4	8,348
Legumes*	703	46.5	810	53.5	1,513
None	221,902	51.6	208,021	48.4	429,923
Total	328,381	53.2	288,872	46.8	617,253

*Beans, Ditloo, Manoko, Cow-Peas etc

3.5 ICT Equipment and Internet Access

3.5.1 Household Ownership of ICT Equipment

The respondent was asked whether any member of household owned ICT equipment which was in working condition. Amongst those residing in male headed households, 21.9 percent indicated that they did not own any ICT equipment. Of those members in male headed households who had indicated that they did own ICT equipment 19.3 percent owned a radio and 6.7 percent had a TV. The rest of the members in these households reported that they owned desktop computer (0.8 percent), laptop computer (0.5 percent) and telephone landline (0.4 percent). With the female headed households, 29.6 percent of the members had no ICT equipment. Of those who had ICT equipment, 15.9 percent said they owned a radio and 8.9 percent owned a TV. Very few members in the members in male headed households owned a desktop computer (0.3 percent), laptop computer (0.4 percent) and telephone landline (0.7 percent).

Comparing the ownership of ICT equipment along gender lines members in male headed households had more ICT equipment in working condition in comparison to those members who belonged to female headed households. As presented in Table 7, more members in male headed households owned desktop computer, laptop and radio in comparison to those members who belonged to female headed households. On the other hand they were more members in households headed by females in contrast to those headed by males who owned telephone landline and TV.

ICT Equipments	Sex of Head of household					
	Male		Female			
	No.	%	No.	%		
Desktop	1,188	58.3	851	41.7	2,039	
Laptop	1,508	57.5	1,113	42.5	2,621	
Radio	55,861	57.3	41,551	42.7	97,412	
TV	19,517	45.6	23,323	54.4	42,840	
Telephone (Landline)	1,157	37.4	1,938	62.6	3,095	
None	63,414	45	77,416	55	140,830	
Total	289,361	52.5	261,563	47.5	550,924	

3.5.2. Household Members Access to Internet

Respondents were asked to indicate whether any member of the household had access to the internet. Amongst members of the household belonging to male headed households 55.2 percent had no access to internet. Of those who had access, 6.7 percent said they accessed the internet at work, 4.4 percent through the cellular phone internet, 3.9 percent at internet cafes and 1.7 percent at home. The rest of the members in male headed households accessed the internet through the school (0.7 percent), other institutions (0.7 percent), at the post office (0.3 percent), library (0.5 percent) and elsewhere (0.4 percent). While 59.0 percent of the members belonging to female headed households said they had no access, 5.5 percent accessed it at work, 4.0 percent through the cellular phone internet, and 3.6 percent at the internet cafe. Other accessed the internet through the home (1.1 percent), school (1.1 percent), other institutions (1.0 percent). Very few access the net at the post office (0.3 percent), library (0.6 percent) and elsewhere (0.4 percent).

Table 8 illustrates the gender differentials of accessing internet between members belonging to male and female headed households. There is a slight difference in those who don't know and those who have no access to the internet. There are almost equal proportions of those who don't know and have no access in both male and female headed households. However when it come to access through the home or the work place, a higher proportion of members belonging to male headed households have access to the internet through the home (65 percent) and workplace (57.6percent). While only 36.5 percent and 42.4 percent of member belonging to female headed households had access to the internet through the home and the workplace respectively. Higher proportions of members in female headed than those in male headed households are able to access the internet through primary school (59.4 percent), secondary school (60.3 percent) and other institutions (54.7 percent). See table 8.

Table 8: Household Members Access to Internet by Sex of Household Head

Access to Internet	Sex of Head of household			Total	
	Male	Female			
Home	5,014	63.5	2,887	36.5	7,901
Workplace	19,437	57.6	14,310	42.4	33,747
Primary school	232	40.6	340	59.4	572
Secondary school	1,646	39.7	2,502	60.3	4,148
Other institution	2,067	45.3	2,495	54.7	4,562
Internet cafe	11,319	54.5	9,442	45.5	20,761
Cellular phone internet	12,624	54.6	10,502	45.4	23,126
Post Office	734	48.7	774	51.3	1,508
Library	1,346	46.3	1,560	53.7	2,906
Elsewhere	1,085	52.8	971	47.2	2,056
No access	159,775	50.9	154,257	49.1	314,032
Don't know	33,139	50.1	33,040	49.9	66,179
TOTAL	289,350	52.5	261,564	47.5	550,914

4.0 Discussion and Conclusion

There has been an increase in the number of households in country from 1981 to 2011. This is a reflection of the formation of new households due to the breakdown of households into smaller units. The breakdown of households into smaller units is evidenced by a decrease in household sizes over the same period. The 2011 data also showed that the gender variation in the household headship remains the same with males heading more households than females. This figure is consistent with what was obtained in 1981, 1991 and 2001 population censuses.

Based on the 2011 data male headed households seem to fare much better in comparison to female headed households. This is with reference to economic activity, receipt of cash from household produce and agricultural produce as well as ownership of durables and ICT equipment. Although a majority of the household heads that is both males and females reported that the housing unit that they occupied had been self-built, they were more female headed households who resided in donated accommodation as compared to male headed households. When comparing the male heads of household to the female heads of households against the different economic activities listed, there are more male heads of households who are economically active in comparison to the female heads. Despite the fact that most households, both male headed and female headed household members reported as having received no cash from any of the household activities that they were engaged in, members in male heads of household tend to be involved in more lucrative activities than the female heads. For instance most members of female headed households reported as having received cash from activities like the sale of beer or clothes members belonging to male headed households were engaged in craftwork which is more lucrative and stable.

More female headed households reported as having received remittances from both inside and outside Botswana, pension, rent, maintenance, destitute allowance, government rations than the male headed households. This could be an indication of the vulnerability of female headed households as they have depended on remittances, maintenance, and destitute allowance as a source of cash. Whereas more male headed households reported as having received cash from employment than the female headed households. Employment is a more reliable and consistent source of cash. Other source of cash included sale of agriculture produce such as livestock, maize, sorghum, fruits and vegetables. Male headed households seem to benefit more from the sale of livestock and commercial crops like maize and sorghum. Whereas female headed households tend to benefit from the sale of produce such as fruits, vegetables and phane. Most of which like phane are seasonal.

When it came to comparing the ownership of ICT equipment in working condition along gender lines members in male headed households had more ICT equipment than those members who belonged to female headed households. More members in male headed households owned desktop computer, laptop and radio in comparison to those members who belonged to female headed households. They were more members in households headed by females in contrast to those headed by males who owned telephone landline and TV.

Although this analysis of the 2011 data shows that female headed households are more vulnerable than those headed by males further analysis is necessary in order to reach a conclusion as to how vulnerable they are. It is also important to draw upon other surveys as a basis of comparison. It will be important to look into other census variables like family structure and education. What should also be examined is the impact of the different government policies and programmes which have been implemented in order to address issues of poverty and gender inequalities and yet the gap between male and female headed households still continue to persist. Based on this analysis one can also conclude that the household is a more effective unit of analysis as evidenced from the reliable and consistent data that has been produced across all the censuses and surveys conducted over the years.

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Ravendra Singh UNDP and Statistics Botswana presenting on Housing situation in Botswana:
The 2011 Population & Housing Census Perspectives

HOUSING SITUATION IN BOTSWANA: THE 2011 POPULATION AND HOUSING CENSUS PERSPECTIVES

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Abstract: Shelter is the basic human requirement that needs to be met on priority basis. It is much broader concept than housing. Investments in shelter not only improve and expand the available stock of housing units, but also improve both the working and living environment. The recognition of this fact has led to the Government of Botswana putting in place policy programmes aimed at improving housing situation among Batswana in general and individuals in particular. There has been significant decline in the proportion of traditional type of housing over time, which is now about 13 percent in 2011 to about 64 percent during 1991 census. There has also been an increase in the proportion of own occupier housing units over the years. However, in the urban areas, the proportion of households living in individual rental is also increasing over the years. In terms of housing conditions, the data show that there has been an improvement in the type of housing in Botswana. Furthermore, durable types of materials of construction are being used. While these finding are general indicators of housing conditions they are indicative of the quality of housing in Botswana.

1.0 Introduction

Human beings have a right to basic needs that enable them to live a decent life. Housing is one of the basic needs of all human beings. The Universal Declaration of Human Rights states: "Everyone has the right to a standard of living adequate for the health and well-being of himself and his family, including food, clothing, housing and medical care, and necessary social services." Other international declarations on the implementation of housing rights include emphasis on the physical structure such as the provision of drinking water, sanitation facilities, access to credit, land and building material as well as de-jure recognition of security of the tenure and other related issues. The United Nations Centre for Human Settlements (UNCHS) uses a broader term "Settlement conditions" because it extends to all those components of the physical environment with which an individual or a community comes into contact and which are used on a regular basis for a whole range of human activities - the individual dwelling and its related services, the dwelling's immediate surroundings, community facilities, transportation and communications network and so on. The National Housing Policy of Botswana, as advocated by the Global Shelter Strategy, seeks to facilitate provision of affordable shelter for all by creating an enabling environment for housing by State public agencies. The basic needs like Food, clothing and housing are required in that order for fulfilling the aspirations of the people.

For many years, the housing environment has been acknowledged as one of the main settings that affect human health. Living and housing conditions are the basis of many factors influencing residential health. The Scottish Office (2001) found a high correlation between poor housing and ill health especially in children. The survey also found that overcrowding causes depression. It also found that anxiety increases with an increase in housing problems. The quality of housing conditions plays a decisive role in the health status of the residents. Many health problems are either directly or indirectly related to the building itself, because of the construction materials that were used and the equipment installed, or the size or design of the individual dwellings.

The 2011 population census of Botswana collected detailed information on housing characteristics in the country. In the 2011 population census, a housing unit is defined as a fixed place of abode for habitation by one household. For every household occupying a housing unit, information related to the type of structure, material used in construction of the roof, wall and floor, etc. was collected in addition to household level amenities such as source of energy, source of water and sanitation facilities, etc.

Housing structures in Botswana have undergone a lot of changes. There seem to be a general move from typical traditional structures to more modern ones. While Batswana still maintain three residences, the village, lands area and cattle post, the units in villages (the core of the three residences) are being transformed into urban types. Furthermore, settlements like cattle post and lands, which were previously settled on seasonal basis, are being settled permanently. This has led to improved housing units in these localities. The improvement is more visible in the quality of housing units as a result of use of more durable materials as compared to traditional thatch roofs and hand mould mud bricks walls. As modern housing is more expensive than the traditional one, the accessibility of this type of housing depends on affordability by the household. The demand of housing increases with growth of population, rapid pace of industrialisation and urbanisation.

Housing situation and provision in Botswana can be looked at from privately developed housing to institutions that provide housing to individuals and/or employees. Among these are the following: the government that provides pool housing to employees, Botswana Housing Corporation (BHC), a parastatal that is responsible for building houses for government in urban areas and allocating houses to individuals and district councils. The increased demand on BHC housing has resulted in the corporation changing its policy from renting out units to building and selling of the houses with a view of trying to meet the demand. This was also necessitated by the realisation that not every person who was a wait-listed for BHC housing was actually in need of accommodation. The money raised from the sales of the houses by BHC is ploughed back into building new houses. The void in renting out units left by the corporation is being filled by the private sector. Unfortunately, many private landlords are mainly in the housing business for the money, so they may not provide the best accommodation they can afford, as BHC would. The other point is that the private sector rentals are driven by the supply and demand of the housing units in the market, while BHC has been more of a service provider as opposed to profit making. This makes rented accommodation in the private sector more expensive than what BHC would charge.

Apart from the institutions, whose mandate is to provide housing, there are other institutions that facilitate acquisition of houses by individuals. These institutions are- Attorney General's Chambers that issues title deeds to land and houses, Self Help Housing Agency (SHHA) that manages land for low income housing in urban areas, and Land boards that are responsible for leasing land in rural areas. There are also other government departments that are responsible for cadastral surveying, demarcating and allocating residential plots in urban areas. In terms of housing finance, banks provide mortgages and SHHA gives loans for basic housing materials to those who qualify for the scheme.

1.1 Objectives:

The paper is aimed at the following objectives:

- To analyse distribution of housing units across districts of Botswana,
- To classify availability of housing at the 2011 population census,
- To analyse housing tenancy,
- To analyse the material commonly used in the construction of houses and changes in the construction material over time,
- To compare the housing situation at the three population censuses, 1991, 2001 and 2011.

2.0 Policies on Housing in Botswana

Inadequacy of basic shelter is one of the major problems faced by many Batswana today. Consequently, there are enormous challenges in the Housing sector to develop initiatives to address the problems associated with poor living conditions. A country's housing situation is the by-product of household socio-economic conditions (including household income, property and assets) and government habitat policies and programmes. Success in improving housing conditions can be limited because policymakers often limit their efforts to housing policies and programmes and do not look at the whole picture, particularly key drivers like socio-economic conditions. Housing contributes to the socio-economic development of a society. The Government of Botswana is concerned with housing issues especially those in the low-income category. Recognising the importance of housing in improving the quality of life, the Government adopted a housing policy in 1982, following a white paper on housing. This policy elevated the status of the housing sector and laid the foundation for the formation of a Department of Housing to oversee implementation of the national policy. This housing policy was reviewed in 1997 and the current housing policy was adopted in 1999 on the basis of this review. Through the National Housing Policy 2000, the Government of Botswana commits itself to addressing housing needs of the population at large. The main goal of this policy is to provide decent and affordable housing for all with a safe and sanitary environment with the following four main objectives:

- To change the emphasis of the government from home provision to facilitation in partnership with other stakeholders;
- To channel more government resources to low and middle lower income housing in both urban and rural areas;
- To promote housing as an instrument for economic empowerment and poverty alleviation;
- To foster a spirit of partnership with the private sector and all major employers in housing development and facilitating home ownership by individuals.

The thrust of the Policy is to facilitate provision of houses in partnership with stakeholders through more Government resources to low and middle lower income housing and promote housing as an instrument for economic empowerment and poverty alleviation. The policy endeavours to ensure access to safe and sanitary housing as well as increasing the number of citizen owned housing. The strategy set by the policy is to create conducive policy environment to facilitate public, private and community participation in the provision of affordable quality housing. The policy addresses key elements of the housing sector including institutional capacity building, land, finance, subsidies, rentals, housing standards, building materials, housing legislation, Self Help Housing Agency (SHHA), District Housing, Botswana Housing Corporation (BHC) and private sector participation.

The Vision 2016 (1997) also stresses the importance of housing in the development of Botswana. The vision envisages that all citizens of Botswana would have access to adequate shelter, including privacy, space, security, lighting and ventilation, and basic infrastructure at a reasonable cost in relation to income. It recognises that not every person in the country would achieve the target on their own, and therefore pledges that where necessary subsidies will be instituted to make sure that a large proportion of the population has access to adequate housing. The challenge for Botswana is to enable all citizens to have access to adequate shelter, including privacy, space, security, lighting and ventilation and basic infrastructure at a reasonable cost in relation to incomes. The challenge is also there to plan for increasing urbanisation, and to provide the necessary housing and amenities.

3.0 Results and Discussions

3.1 Distribution of Housing Units by Type of Housing during 1991, 2001 and 2011

In Botswana, the types of housing units vary within the same locality and among localities. There are also regional variations in the types of units. The variations in the type of housing units within localities can be explained in terms of affordability of the materials by households while in most cases variations among regions could be explained by the availability of materials of construction. At the 2011 population census, all housing units were classified into one of the following classes:

Traditional (lolwapa). This comprises of one or more huts and/or other fractures which are usually fenced together or are in one yard even if it may not have a physical fence. The walls of the hut are usually made of hand made mould mud bricks while the roof is usually thatch.

Detached House: The building that stands alone without sharing a wall with any other building. A traditional house is not classified as a detached house even if it stands alone.

Semi-detached House: A housing unit that shares a wall with another housing unit

Town House: A group of units sharing walls on two sides but each having its own entrance. It has two or three storeys.

Mixed House: A housing unit is classified as mixed if there are both traditional and modern structures within the yard occupied by one household. When the two units are occupied by two separate households, one traditional and the other modern, units are classified as traditional and modern.

Flat: A housing unit in two or more storeyed building and the unit is just one of the storeys

Part of Commercial Building: A residential unit which forms part of a commercial building

Shack: A temporary structure built of packing material

Moveable: A housing unit that can be moved from place to place as a unit or in parts

Room: Rooms in a building that are sublet to tenants

Dwelling: A place of residence which can be divided into dwelling rooms by means of walls

Table 1 gives percent distribution of housing unit in Botswana according to the above classification at 1991, 2001 and 2011 population censuses. There has been a shift from traditional to modern housing units in the country during the 20 years under reference. The proportion of traditional housing units decreased from

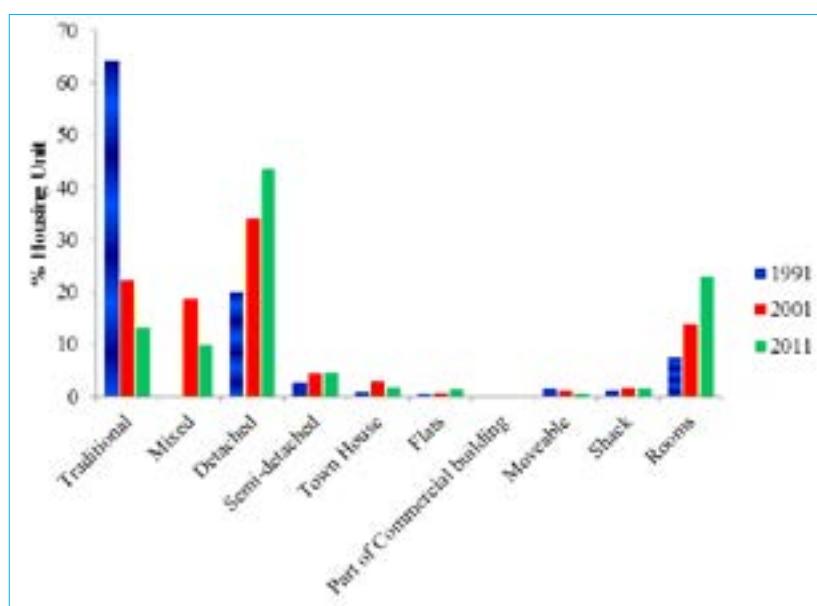
64 percent to 13 percent between 1991 and 2011. Most of this decreased occurred during 1991-2001. The distribution shows that the common type of housing unit in 1991 was the traditional type with 64.04 percent, followed by the detached type, which made up 20.06 percent. Rooms also contributed to the proportion of housing units with 7.54 percent of households. By 2011, traditional housing had lost its prominence. It contributed only 13.2 percent of the total housing. The decline in the proportion of traditional housing units between 1991 and 2001 was quite large compared to decline between 2001 & 2011. There are however, increase in the number of households occupying detached type-housing units from 20.06 percent in 1991 to 34.08 percent in 2001 and subsequently to 43.4 percent in 2011. Similarly, proportion of rooms increased from around 8 percent in 1991 to 14 percent in 2001 and 23 percent in 2011. This shows the emergence of shared housing units out of necessity, mainly used for rental purposes.

3.2 Distribution of Housing Units in Rural and Urban Areas by Type of Housing

**Table 1: Percent distribution of housing units by housing type
1991, 2001 and 2011 Censuses**

Type of Housing	1991	2001	2011
Traditional	64.04	22.17	13.2
Mixed	-	18.65	10.0
Detached	20.06	34.08	43.4
Semi-detached	2.7	4.43	4.6
Town House	1.02	2.84	1.9
Flats	0.47	0.85	1.5
Part of Commercial building	0.07	0.2	0.1
Moveable	1.53	1.24	0.7
Shack	1.12	1.7	1.7
Rooms	7.54	13.81	22.9
Shared	-	0.2	-
other	0.93	0.01	-
Not stated	-	0.23	-
Total	100.00	100.00	100.00
Number of housing units	276,209	404,706	550,946

Figure 1: Percent distribution of housing units by housing type 1991, 2001 and 2011 Censuses



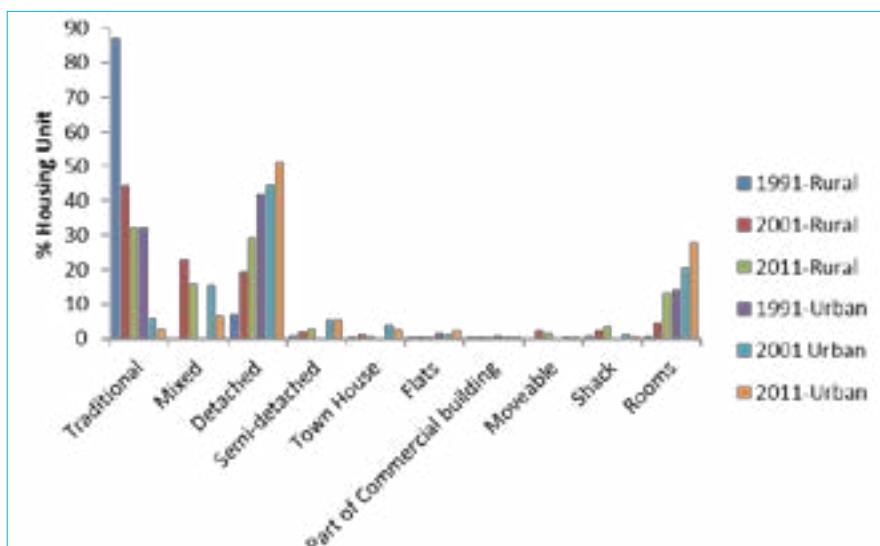
3.2 Distribution of Housing Units in Rural and Urban Areas by Type of Housing

The decrease in the proportion of traditional housing units is also very much visible in rural and urban areas. In the rural areas, proportion of traditional housing units decreased from 87 percent in 1991 to 32 percent in 2011. In the urban areas, this proportion decreased from 32 percent in 1991 to just around 3 percent in 2011. Another important observation of table 2 is that rooms as a housing unit increased from 0.6 percent in 1991 to more than 13 percent in 2011 reflecting an increasing trend towards shared housing. The proportion of detached houses also increased significantly from 7 percent to more than 29 percent in the rural areas during the period under reference. While information on mixed type of housing unit was not collected during the 1991 census, by 2001 this type of unit was 23 percent, which has now reduced to 16 percent in 2011. For urban areas, the most common type of housing unit is the detached type, which accounts for 51 percent. This is followed by rooms with 28 percent. The least common is the one that is part on the commercial building with 0.10 percent. While in 1991 a substantial proportion (32 percent) of housing units were still the traditional type in urban areas, by 2011 only a small proportion i.e. 3 percent fell under this category. Rooms are also an emerging type of housing units, which are steadily increasing apart from detached houses.

Table 2: Percent Distribution of housing in rural and urban areas by housing type

Type of Housing	Rural			Urban		
	1991	2001	2011	1991	2001	2011
Traditional	87.00	44.51	32.15	32.3	5.99	2.93
Mixed	-	22.90	16.13	-	15.56	6.69
Detached	7.3	19.30	29.32	41.7	44.78	51.01
Semi-detached	0.9	2.14	3.02	-	5.4	5.41
Town House	0.2	1.42	0.70	-	3.86	2.59
Flats	0.08	0.08	0.17	1.80	1.41	2.27
Part of Commercial building	0.1	0.17	0.22	0.9	0.22	0.10
Moveable		2.25	1.6	-	0.51	0.22
Shack	1.0	2.28	3.5	-	1.28	0.68
Rooms	0.6	4.55	13.18	14.2	20.52	28.1
Shared	-	0.17	-	-	0.22	-
other	-	0.01	-	-	0	-
Not stated	-	0.00	-	-	0.24	-
Total	100.00	100.00	100.00	100.00	100.00	100.00
Number of housing units	135,326	209,474	193,379	140,883	195,232	357,567

Figure 2: Percent Distribution of housing in rural and urban areas by housing type, 1991, 2001 and 2011 Censuses



For administrative purposes, Botswana is divided into 16 districts – 7 urban and 9 rural. Table 3 gives the classification of housing units at the district level at the 2011 population census. In the urban districts, about four-fifth of the housing units were either detached or rooms at the 2011 population census. The only exception to this pattern is Jwaneng district where detached housing and rooms constitute less than 70 percent of the total housing units at the 2011 population census. In the rural districts, on the other hand, traditional and mixed housing units are still common in Central and North-West districts. In these districts more than 40 percent of the housing units were either traditional or mixed at the 2011 census. By comparison, detached housing units appear to be more common. The Table shows that in all the urban districts of Gaborone, Francistown, Lobatse, Selebi-Phikwe, Orapa, Jwaneng and Sowa, the detached housing units are common with the proportion of such units ranging from 43 percent in Selebi-Phikwe to 83.7 percent in Sowa. The second most common type of housing units in urban districts is rooms. The only urban district that does not have a high proportion of rooms as housing units is Orapa (5.6 percent) & Sowa (4.6 percent). This may be because Orapa's main economic activity is mining and the mining company provides housing to all employees, while in case of Sowa, most of the people (84 percent) have the detached houses. Furthermore, movement into Orapa is restricted to people who have some business with the town. Individuals do not just migrate into the area like they would in other towns like Gaborone. Therefore, occupying one or two rooms would not be an option for a large number of people working in Orapa most of whom work for the mining company.

For the other districts, which are mainly rural in nature, the common type of housing units are the traditional, mixed and detached in that order. Detached housing is especially common in Southern (55.2 percent), Kgatleng (61 percent) and South East (53.6 percent) districts. These districts house some of the large villages, which have been classified as urban, and are in close proximity to Gaborone. A substantial number of workers in Gaborone find it necessary as a result of shortage and cost of accommodation to commute from these villages. To be able to attract tenants and to compete effectively with residential areas in Gaborone, the landlords build urban-type of housing. Finally, in all districts - rural or urban - Rooms are emerging as the alternative to detached housing.

Table 3: Percent Distribution of Housing Units within Administrative Districts by Type, 2011

District	Type of housing unit										Total housing units
	Traditional	Mixed	Detached	Semi-detached	Town House/ Terraced	Flats, Apartment	Part of Commercial building	Movable	Shack	Rooms	
URBAN											
Gaborone	0.2	1.2	49	4.9	5.1	6.7	0.1	0.1	0.6	32	74963
Francistown	0.2	0.8	47.8	4.8	3.1	2.6	0	0.2	0.3	40.1	31298
Lobatse	0.5	1.3	51.6	6.5	1.5	3.5	0.1	0	0.6	34.4	9214
Selebi_Phikwe	0.7	1.9	42.8	9.5	2	1.6	0.2	0.1	0.1	41.2	16059
Orapa	0.1	0.1	73.7	13.5	1.1	4.8	0.5	0.7	0	5.6	3292
Jwaneng	0.1	0.1	53.5	8.9	9.9	2.2	0.1	0.8	9.3	15.2	5940
Sowa Town	1.5	0.4	83.7	1.5	2.8	0	0.7	4.5	0.3	4.6	1191
RURAL											
Southern	14.7	9.9	55.2	3.7	1	0.6	0.1	0.7	3.6	10.6	48794
South East	2.2	3.8	53.6	7.2	2.6	1.4	0.2	0.3	1.4	27.4	23993
Kweneng	13.6	11.3	44	4.3	1.3	0.5	0.1	0.4	1.6	23.1	80560
Kgatleng	6.7	6.7	61	5	1.2	0.2	0.3	0.6	3	15.5	24917
Central	22.2	16.7	34.9	3.7	1	0.2	0.2	0.9	1.4	18.8	147603
North East	10.2	27	37.3	4	1.5	0.2	0.1	0.8	0.8	18.1	15865
North West	29.3	13.1	25.5	4	1.1	0.5	0.2	1.8	1.1	23.3	42384
Ghanzi	23.3	9.7	36.6	3.9	0.2	0.2	0	1.4	6.9	17.7	11375
Kgalagadi	18.2	10.5	47.4	4.2	0.4	0.1	0.1	2.1	3.1	13.9	13498
Total	13.2	10	43.4	4.6	1.9	1.5	0.1	0.7	1.7	22.9	550946

3.3 Number of Rooms

Number of rooms in a housing unit is an indicator of the size of the housing unit as well as quality of life pertaining to various households. In a traditional structure a hut in a lolwapa usually has a single room. If there is more than one hut in a lolwapa occupied by a single household, each hut is treated as a room. Therefore, the number of rooms in such a situation is equal to the number of huts. Figure 3 shows that almost two-third of the housing units were small having 1-2 rooms at the 2011 population census. Moreover, majority of the housing units were small irrespective of the type of housing units. On the other hand, a very small proportion of housing units were having five or more rooms. In general, the proportion of households decreases with an increase in the size of a housing unit. Of the total 550,741 households, a large number (37.07 percent) of units were of the one room type. Housing units with two rooms accounted for 25.43 percent of all the units. Only about 7 percent of households were occupying housing units with five rooms or more.

Figure 3: Percent type of housing units by number of rooms, 2011 Census

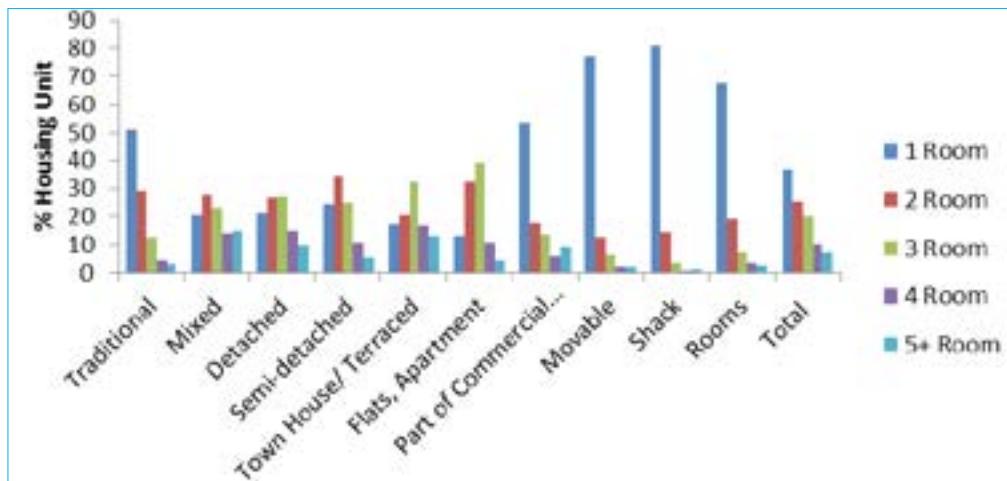


Table 4 presents the size of housing units by type with the number of rooms. The table shows that within each type of housing unit, most of the structures are smaller with three rooms or less. The smallest size is the shacks (81 percent) then movables (77 percent), and rooms with 68 percent. The types of units, which have more than five rooms, are mixed, town-houses, detached, semi-detached and Part of Commercial building. However, even within these categories the proportion of units with more than five rooms is small.

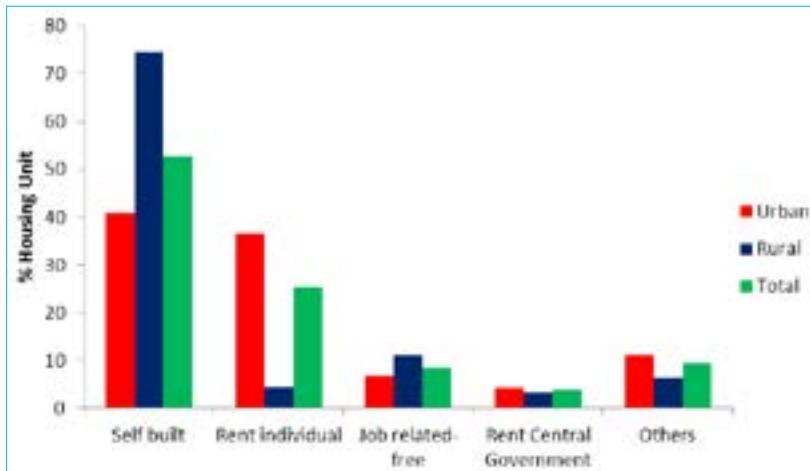
Table 4: Percent type of housing units by number of rooms, 2011 Census

House Type	No rooms	Total housing units							
		1 Room	2 Rooms	3 Rooms	4 Rooms	5 Rooms	6 Rooms	7+Rooms	
Traditional	0.02	51.01	29.01	12.7	4.45	1.51	0.58	0.72	72,604
Mixed	0.02	20.18	27.53	23.04	14.15	7.46	3.78	3.85	55,094
Detached	0.03	21.18	26.82	27.13	15.1	5.41	2.37	1.97	239,014
Semi-detached	0.02	24.74	34.7	24.75	10.55	2.67	1.31	1.25	25,184
Town House/ Terraced	0.07	17.36	20.54	32.39	16.75	6.92	2.71	3.28	10,625
Flats, Apartment	0.01	13.03	32.24	39.32	10.86	2.44	1.18	0.92	8,444
Part of Commercial	0.00	53.54	17.42	13.64	5.81	3.41	1.77	4.42	792
Movable	0.03	77.36	12.38	6.24	1.97	0.96	0.26	0.8	3,861
Shack	0.03	80.72	14.23	3.24	0.82	0.37	0.13	0.46	9,197
Rooms	0.01	67.79	19.18	7.14	3.21	1.37	0.63	0.67	125,926
Total	0.02	37.07	25.43	19.86	10.3	3.92	1.76	1.64	550,741

3.4 Housing Units Tenure

Housing tenure refers how the unit is acquired. Figure 4 shows that more than half of the households stayed in their own housing units followed by rented housing units, that they built themselves. The number of households that rent from individuals follows this. Renting from BHC and the council, the two institutions that are mandated to provide housing contributes only 1.12 and 0.65 percent respectively. While purchasing of a housing unit does not seem to very common, it can be seen as a major impact of sale of houses by BHC.

Figure 4: Percentage of housing units by Housing Tenure and type of residence, 2011 Census



There is a clear rural-urban difference in the tenancy status of housing units. In the rural areas, almost four-fifth of the housing units were self-built whereas in the urban areas, self-built housing units were only about 40 percent of the total housing units enumerated at the 2011 population census. On the other hand, rented units accounted for more than 36 percent of the total housing units in the urban areas, whereas this proportion was less than 5 per cent in the rural areas. In fact, these two types of tenancy status accounted for more than 78 percent of the total housing units in the country. Remaining type of tenancy units accounted for less than 22 percent of the housing units. Renting a housing unit in rural areas seems not to be common as it contributed less than 10 percent of the housing units occupied. Individuals were the main providers of rented accommodation in rural areas. Those who purchased their housing units accounted for only 0.41 percent. This may be a result of free access to land in rural areas. On the other hand, urban areas portray a slightly different picture in that a large (47.23 percent) of the households occupying a housing unit through renting them. Those who had built their own housing units are equally at 40.98 percent. As is the case with rural areas, individual landlords were the main providers of rented housing in urban areas also. On analysis of district data, it is also found that in four urban districts viz. Gaborone, Francistown, Lobatse and Selebi-Pikwe, over 50 percent of the households are living in the rental housing provided by individual house-owners.

Comparison of males and females housing unit tenure-ship shows that of the total 216,574 units occupied by female-headed households, 57.03 percent were owner occupied. For the males of the total 218,007 those occupied by owners, were relatively fewer at 50.29 percent.

Table 5: Percentage of housing units by Housing Tenure and type of residence, 2011 Census

Housing Tenure	Urban	Rural	Total
Self built	40.98	74.48	52.74
Rent individual	36.57	4.46	25.3
Rent Central Government	4.28	3.36	3.96
Free: Inheritance	2.2	1.88	2.08
Purchased	2.16	0.41	1.54
Rent: Company	2.85	0.38	1.99
Rent: BHC	1.72	0.01	1.12
Rent: Local institution	1.44	1.27	1.38
Rent: VDC	0.37	1.17	0.65
Donated	0.28	1.01	0.54
Do not know	0.23	0.39	0.29
Housing Units	357567	193378	550945

3.5 Housing by Material of Construction

The material used in the construction of the housing unit reflects its quality. This quality can be assessed using the materials used for the construction of floors, roofs and walls for housing unit. Good quality materials of construction are good for the safety and health of occupiers. However, decision on what material to use may not be option for the low-income households. In Botswana, Development Control Code and Building Regulations, 1983 (amended from time to time) regulate the material used in the construction of new houses. As a result more and more houses in urban areas use the modern type of materials. For rural areas, the types of materials used differ significantly and become more traditional with an increase with the distance from major towns.

Among the material regarded as quality for housing units are corrugated iron, concrete, slates, tiles, wood and treated thatch. Asbestos, which used to be common in the past, is currently viewed as a health hazard because it is associated with illnesses like tuberculosis. As a result not many houses built in recent years use asbestos. However, there are still some buildings constructed earlier.

Information available from the 2011 population census suggests that in almost 87 percent of the housing units in the country, the floor of the housing units was cemented while about 10 per cent of the housing units had mud and dung floor. Moreover, since 1991, there is a significant increase in the proportion of housing units having cemented floor while proportion of housing units having mud and dung floor has decreased almost in the same proportion. The proportions indicate the floors of most housing units are more durable, and there is a substantial increase in cement flooring from the traditional type of floor composed of mud and dung. This type of floor contributes only 10.4% of the total materials used for the floors.

Table 6 presents the material of construction for 2011, 2001 and 1991. As with the type of housing, the table shows that there has been a general improvement in the quality of materials used especially for floor and roof. More durable floors and walls are becoming common.

Table 6: Percent housing unit by material of construction (floor and roof); 1991, 2001 and 2011 Censuses

Material of construction	1991	2001	2011
Floor			
Cement	57.7	78.16	86.9
Mud	35.9	18.01	10.4
Others	6.4	3.83	2.7
Roof			
Corrugated Iron	49.6	68.88	86.4
Thatch	41.2	22	11.8
Others	9.2	9.12	1.8
Number of housing units	276209	4,04,706	5,50,946

Figure 5: Percent housing unit by material of construction of floor; 1991, 2001 and 2011 Censuses

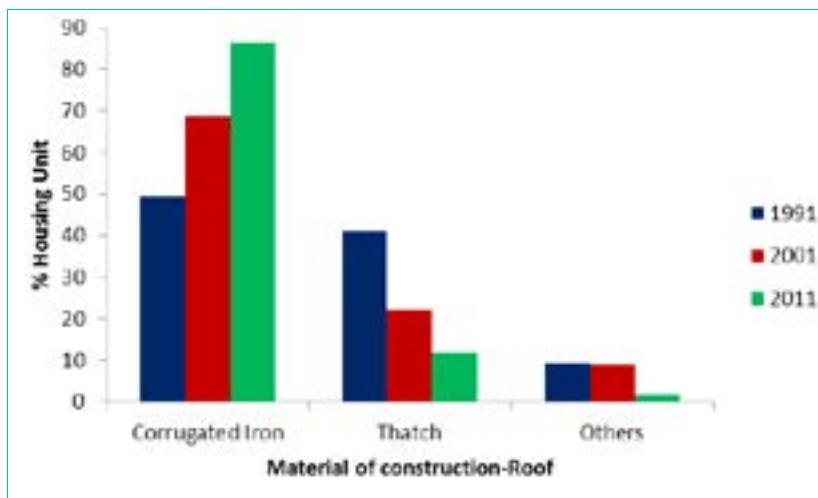
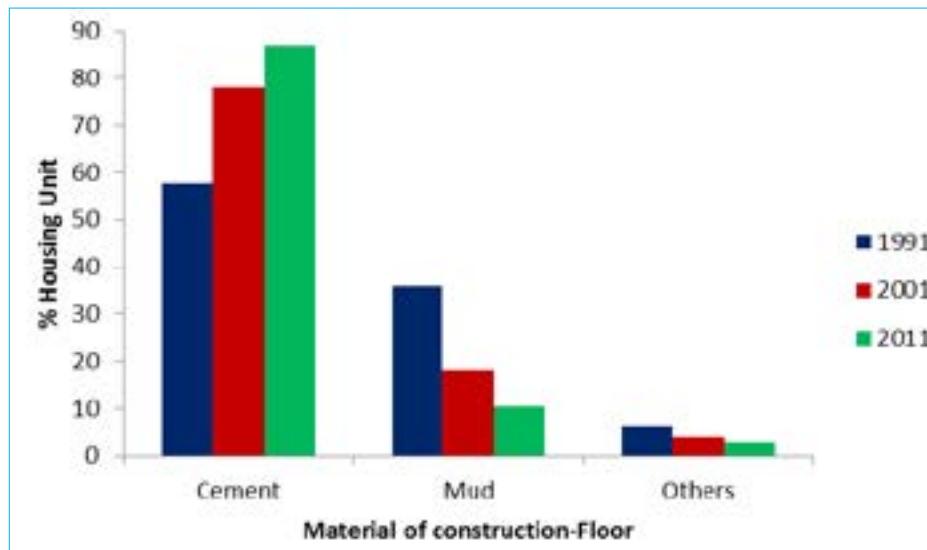


Figure 6: Percent housing unit by material of construction of roof; 1991, 2001 and 2011 Censuses



4.0 Summary and Conclusions

Information available from the 2011 population census reveals that there has been a significant change in the types of housing units in Botswana from traditional and mixed type of housing units to detached housing units and rooms. This change is particularly visible in the urban areas of the country. Moreover, the tenancy status has also changed over time with more and more housing units being owned by households in the rural areas and a clear trend towards individual renting in the urban areas. Similarly, data available through the 2011 population census suggest that there has also been a change in the material used in the construction of housing units leading to an improvement in the quality of housing. Majority of housing units in Botswana however remain small with 1-2 rooms in general. There are very few large housing units – units with at least five rooms. The main limitation of the results is that the actual number of the housing stock cannot be established from the results. As a result it is not possible to establish housing demands. The results show that there has been a general improvement in the quality of housing units in Botswana. This improvement is reflected in the decrease in the proportion of housing units classified as traditional type from 64 percent in 1991 to 22 percent in 2001 and 13 percent in 2011. On the other hand, there has been an increase in the proportion of more modern housing units. These are the detached and mixed housing units.

The rural and urban classification of housing units also reflects the same situation as at the national level. While in rural areas, the prominent type of housing unit remains the traditional type, there has been a large decrease in the proportion of households residing in the traditional type from 87 percent in 1991 to 44 percent in 2001 and further to 13.2 percent in 2011. The detached type of housing units increased to 43.4 percent in 2011 from 7 percent in 1991 and 19 percent in 2001. Rooms as a type of housing units were almost none existent in rural areas in 1991. By 2001 the proportion of households residing in rooms was almost 5 percent, which has now increased to 13 percent in 2011. While in the urban areas, the traditional houses are quite less (3 percent), while there has been substantial increase in the proportion of detached houses (51 percent) and Room (28 percent).

Distribution of housing units by type of unit and in terms of the number of rooms shows that the highest proportion of houses (37 percent) are of one room, followed by two room and three room houses. Most of the traditional houses are of one room type, while the semi-detached, town house, flats and detached houses have mostly two or three rooms.

Most Batswana stay in the units they built by themselves. About 53 percent of the people live in self built homes. The BCWI Survey, 2009-10 also found that over 50 percent of the household were occupying self built housing units. In terms of unit ownership, more female-headed households own the unit they resided in than males-headed households. For female-headed households, the proportion residing in their own housing units was 57 percent compared to 50 percent for males headed households. Further, there has been increase in households living in individually owned rented housing units during 2011 census, which is 25.30 percent overall, with 36.57 percent of the household living in rental housing units in Urban areas, whereas the rental households in the rural areas was just 4.46 percent. The corresponding position in the 2001 census was 31 percent in urban areas and just 3.40 percent in rural areas.

5.0 Policy Implications

The information collected on housing conditions during the population and housing census, 2011 are useful to monitor and evaluate the implementation of the policies and programmes of the Government especially on housing & land tenures, whether the targets set by the policy documents are being met.

In the urban areas of the country, renting housing units by individual house owners seems to be common and appears to be gaining ground. Therefore, there is a need for laws that should aimed at protecting both the tenant and the landlords. At the same time, there is an urgent need to develop affordable housing units in the urban areas by the Government in partnership with private sector otherwise there is quite likely that the country will not be in position to achieve the goal of providing decent and affordable housing for all with a safe and sanitary environment as articulated under Vision 2016 and National Development Plan 10. The BHC has been established for the purpose but the proportion of houses provided by BHC has decreased from 4.60 percent in 2001 to 1.72 percent in 2011. In the four urban districts viz. Gaborone, Francistown, Lobatse and Selebi_Pikwe, where over 50 percent of the households are living in the rented houses provided by individual house-owners, BHC is required to increase its efforts for building more housing stock, which can be made available to citizen on easy terms in an affordable manner with financial support extended to by the financial institutions.

Botswana must further develop its housing infrastructure and provide support for the proper operation of the housing market so that good quality basic shelter is available to all. It is inevitable that this will require a level of subsidy that can be regarded as a social and economic investment by the state.

Information on vacant houses is not available, there is need to take stock of these together with those that are under construction. Those left for a long time without occupation should be assessed with a view of respective councils acquiring them.

Housing information is only collected on the housing units occupied by the households without identifying the adequacy of the units. There is, therefore, a need to have an estimate of the actual housing demands.

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Rolang G. Majelantle University of Botswana presenting on Adult Mortality Levels & Trends in Botswana

ADULT MORTALITY LEVELS AND TRENDS IN BOTSWANA

By

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Abstract: This paper uses the data from 2011 Population Census of Botswana to examine levels and trends in adult mortality in Botswana using information on the distribution of deaths and population by age. Estimates of mortality indicate that mortality levels in Botswana have gone down between 2001 and 2011 nationally and across all districts. The data also shows that gains in life expectancy favoured urban areas to rural areas. The gains in life expectancy gained in the 1980's and reversed in 2001 have been regained. The sex differentials in mortality are still observed.

Introduction

This paper is based on the 2001 and 2011 Population and Housing Censuses data. The author recognises the fact that both morbidity and mortality are influenced by socio-economic and health conditions that prevail at a particular time and have been influenced by National policies and intervention programmes.

Methods

The paper uses the number of deaths during the twelve months preceding the 2011 Population and Housing census. Life tables for the whole country, rural, urban area, Cities/towns and Urban Villages were constructed using the reported age specific death rates by gender. First the numbers of deaths were multiplied by 1.083 to adjust for the fact that the reference period used to collect deaths was 11 months as opposed to 12 months. It is assumed that the deaths taking place twelve months before the population census were accurately reported.

Overview of Mortality Trends and Levels

Botswana experienced declines in both mortality and fertility levels since the 1980's, from the mid 1990's the country started experiencing an increase in the level of mortality. Between 1991 and 2001 the level of mortality went up mainly as a result of the increased number of deaths associated with HIV/AIDS epidemic. As a result of the introduction of free ARV's mortality declined over the intercensal period 2001 to 2011. This demographic change has resulted from socio-economic change and investment in public health and other social services by the government of Botswana.

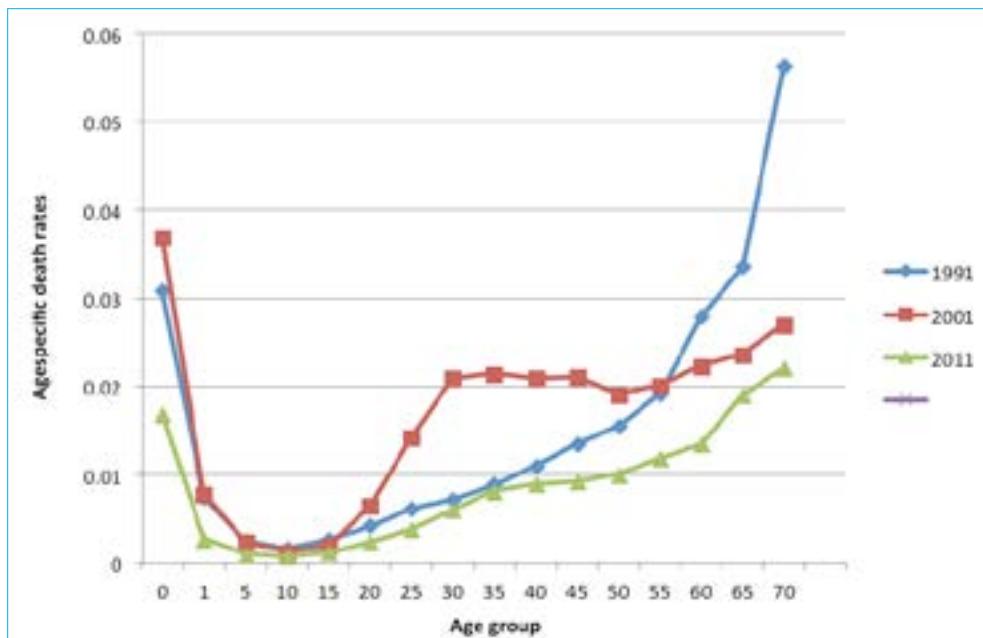
The estimates from the recent population censuses indicate that the crude death rate declined from 13.7 in 1971 to 11.5 in 1991 and increased to 12.4 in 2001 (CSO, 2001) and declined to 6.35 in 2011. While infant mortality rate dropped from 97.1 infants per 1000 live births in 1971 to 48.0 per 1000 live births in 1991 and increased to 56 per 1000 live births in 2001 and declined to a low level of 17.2 infants deaths per 1000 live births in 2011. The life tables constructed based on information on deaths during the 12 months preceding the survey shows that the probability that a one-year-old child will die before reaching age 5 has declined from 0.0358 in 1981 to 0.0160 in 1991 and increased to 0.039 in 2001 and declined again to 0.0281 in 2011. Life expectancy at birth (the average number of years a newly born baby would expect to live) has increased from 55.5 in 1971 to 56.5 in 1981 increased to 65.3 years in 1991, declined to 55.6 in 2001 and increased to a record high of 68 years in 2011.

National Adult Mortality Patterns

The two main objectives of the 2010 Revised National Population Policy was to reduce AIDS deaths, infant, child and adult mortality, especially maternal mortality including high-risk pregnancies. The data from the 2011 Population Census indicates that the aforementioned objectives are been met. Figure 1 below shows the age pattern of mortality by age calculated from the age distribution of deaths by age from the 1991, 2001 and 2011 Population Census of Botswana.

The age pattern of mortality shows that mortality during the first year of life was very high in 2001 compared to 1991 and 2011. There is very clear evidence that Infant mortality declined drastically over the period 2001 to 2011, this can be explained by the success of the National ARV and Prevention of Mother to Child Transmission Programmes. The gains in avoiding life wastage in infancy which were achieved in 1991 and reversed between 1991 and 2001 have been gained by 2011 and we are now experiencing the lowest Infant Mortality in the history of the country.

Figure1. Age Specific Death Rates Botswana: 1991; 2001; and 2011.



The age pattern of Mortality shows that the Epidemiological Transition in Botswana spear headed by HIV/AIDS Epidemic have generally led to high mortality in the 1990's and the Introduction of free ARVS have contributed to mortality decline over the decade 2001 to 2011.

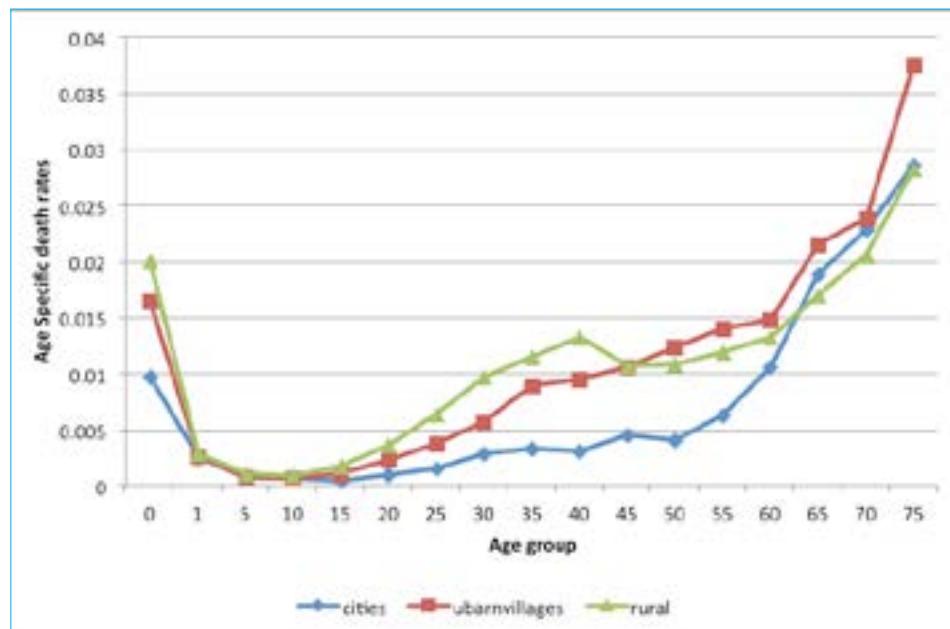
Figure 1 above shows that from age 15 to age 50 (highly sexually active population) morality in 2001 was extremely high compared to both 1991 and 2011, which shows the impact of HIV/AIDS among persons in childbearing ages in 2001 and the reduction in AIDS related deaths between 2001 and 2011 as per the objectives of the Revised National Population Policy. Generally mortality at all ages was reduced between 2001 and 2011.

Age Patterns of Mortality by Type of residence

The age patterns of mortality in 2011 differed by type of residence, namely Cities/Towns, Urban Villages and Rural areas. Generally speaking mortality is high in rural areas, followed by urban villages and very low in cities/towns. The age pattern of mortality also differs by type of locality. The rural areas shows relatively high Infant mortality (under 1 year) compared to urban villages and cities/ towns. Childhood mortality (ages 1 to 5 years) is almost the same for all three types of residence. During the childbearing ages (15 to 45 years) mortality in rural areas is very high followed by urban villages and very low in cities/towns. From age 50 the urban villages experienced the highest mortality compared to rural and cities/towns. From age 65 cities/towns have high mortality than rural areas.

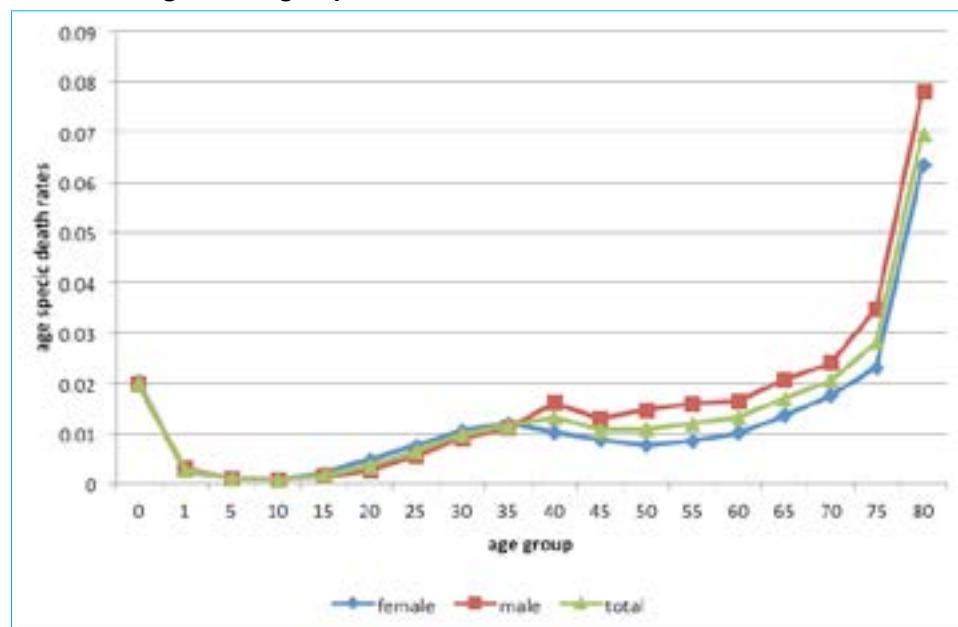
This finding clearly indicates that the intervention programmes aimed at promoting population health and mortality had different impact on the aforementioned types of residence. Rural areas did not gain as well as urban residence from the population health intervention programmes more especially the national ARV programmes.

Figure2. Age specific Death Rates for Cities/Towns, Urban Villages and Rural Areas Botswana 2011.



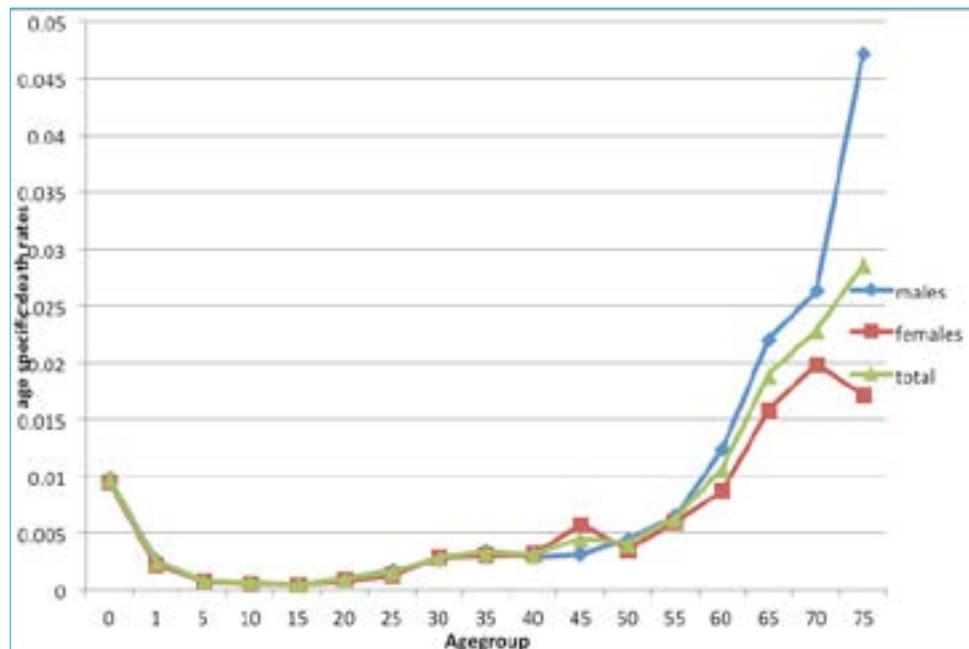
The data on the Distribution of deaths by age in 2011 shows that levels of mortality between males and females are almost identical up to age 35 with males experiencing slightly high mortality before age 15. Between age 15 and age 35 females experienced slightly higher mortality which can be explained by either high maternal mortality associated with HIV/AIDS. From age 35 men experience relatively high mortality than women. The gender differentials in mortality at ages above 35 can be explained by unusually high incidence of Tuberculosis among men and high rates of road accidents and differentials in health seeking behaviours between men and women. The high incidence of Tuberculosis among men in Botswana is not new; the HIV/AIDS epidemic has made the situation worse.

Figure 3. Age Specific Death Rates Botswana 2011



The sex differentials in the age pattern of mortality are more pronounced when we disaggregate the data by type of residence (see Figures 4 to 6)

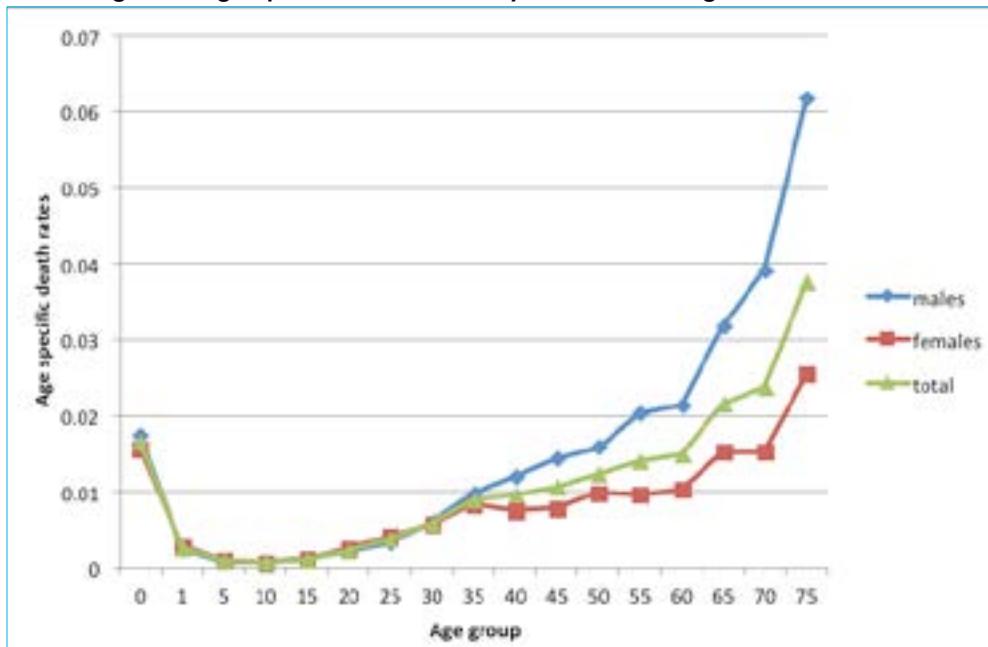
Figure 4. Age Specific Death Rates by Sex in Cities and Towns 2011



In cities/towns there are no gender differentials in mortality by age up to age 40. Between ages 40 and 50 females' experienced higher mortality and from age 55 males mortality is high compared to that of females.

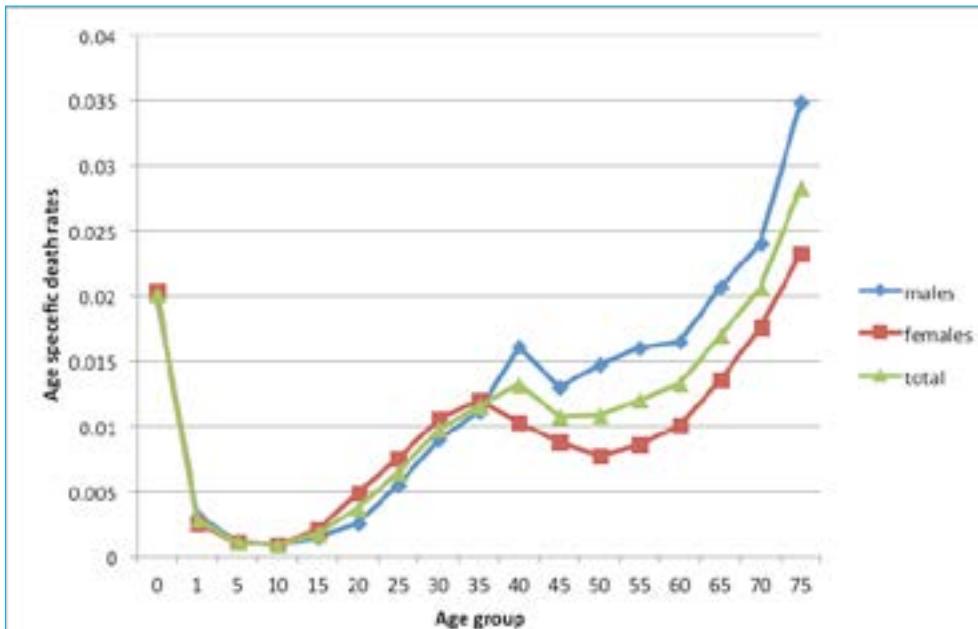
The sex differentials in urban villages is slightly different from that of cities/towns.(see figure 4 below). There is very little mortality differentials below age 35 and after age 35 males shows high mortality compared to females.

Figure 5. Age Specific Death rates by sex Urban Villages 2011



For the rural areas (see figure 6 below) there is yet another distinct sex differential of mortality by age. Infant mortality is higher than the national average and is the same for both males and females. From age 15 to age 35 females have slightly higher mortality and from age 35 males consistently have high mortality.

Figure 6. Age Specific Death rates by sex Rural 2011



Levels, Trends and Variations in Adulthood Mortality by Districts.

The 2010 Revised National Population Policy has the following Demographic targets:

- Increase life expectancy at birth for both sexes from 50.7 in 2001 to at least 67.5
- Increase life expectancy at birth for males from 52.5 in 2001 to at least 65.5
- Increase life expectancy at birth for females from 57.4 in 2001 to at least 70.5

The main objective of this paper is to come up with indicators which will show how far the country is from meeting the aforementioned targets. The index of mortality which is commonly used is the "expectation of life at birth". This measure is the average number of years that a newly born baby expects to live if the current risks of dying at each age are to remain unchanged. Looked at from a slightly different perspective, life expectancy at birth can be defined as the average age at death in a population or simply the number of years that a person born and living under particular socio-economic and mortality conditions expects to live. It is a useful measure of both mortality and health conditions in a population.

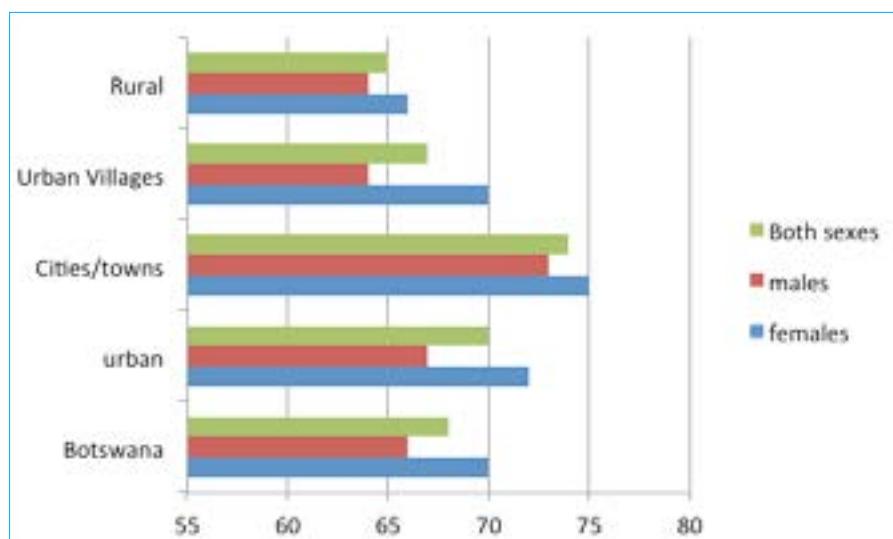
Using information of the number of deaths during the 12 months preceding the 2011 population and housing censuses, life tables were constructed for at national, cities/ towns, urban villages, rural localities and different districts in Botswana. The estimates from the 2011 Population and Housing Census indicate that the targets stipulated in the Revised National Population Policy have been met.

The 2011 census shows that nationally the average life expectancy at birth for both sexes stands at 68 years, for females it is 70 years and 66 years for males showing a gap of 4 years. The sex differentials in life expectancy at birth are more pronounced in urban areas, females expects to live for 72 years while males expects to live for 67 years, showing a gap of 5 years. In cities/ towns life expectancy at birth is 74 years, the gap between female life expectancy and male life expectancy is only 2 years, 75 for females and 73 for males.

In urban villages female's life expectancy is estimated at 67 years, 70 for females and 64 for males, showing a gap of 6 years. In the rural areas life expectancy at birth is estimated at 65 years, at birth males expects to live for 64 years while a female expects to live for 66 years showing a gap of 2 years. (See Table1 and Chart1 and tables A1 to A50 in the appendix)

Table 1 Life Expectancy at Birth by sex for National and Type of residence

	females	males	Both sexes
Botswana	70	66	68
Urban	72	67	70
Cities/towns	75	73	74
Urban Villages	70	64	67
Rural	66	64	65

Chart 1. Life Expectancy at Birth by sex for National and Type of residence

Adult Mortality Levels by District

According to the 2001 Census data life expectancy at birth for both sexes combined was 63.9 and 68.9 years in Gaborone and the South-East district respectively all other districts in Botswana were experiencing life expectancy at birth below sixty. According to the 2001 data life expectancy at birth was worse for North-East, Central, Ngamiland, and Southern Districts were a newly born baby expected to live for less than 50 years. Estimates of life expectancy at birth were 45, 46, 47, 48 years respectively for the aforementioned districts.

Table 2 below shows some districts and sub-districts ranked by the level of life expectancy at birth. The level life expectancy at birth for both sexes combined is now 70 years for four districts in Botswana. The estimated life expectancy is as high as 76 years in Gaborone followed by the South-East with Life expectancy at birth of 74 years, Francistown with 72 years and Kweneng East with 71 years.

All districts and sub-districts were data permitted recorded estimates of life at birth expectancy at birth of above 60 years; a drastic improvement from 2001 when only two districts (Gaborone and the South-East) had life at birth expectancy of more than 60 years. Only two districts recorded estimated life expectancy at birth of less than 65 years; Central Tutume (64), Central Mahalapye (63) and Ngamiland East (61)

Generally females expect to live longer than their male counterparts in all districts with the exception of Kweneng West, where males expect to live longer than females.

Table 2 Life expectancy at birth by sex and district

District	males (2011)	females (2011)	both sexes
Gaborone	75	77	76
South East	71	76	74
Francistown	71	73	72
Kweneng East	68	73	71
Lobatse	67	70	69
Selebi Phikwe	68	69	69
North East	66	69	68
Ngamiland West	64	70	67
Kgalagadi	66	68	67
Kgatleng	63	70	67
Central Serowe/ Palapye	65	68	67
Kweneng West	70	63	67
Central Boteti	63	68	66
Central Bobonong	61	69	65
Borolong	63	67	65
Ngakane	62	67	65
Central Tutume	61	67	64
Central Mahalapye	60	65	63
Ngamiland East	59	62	61

Concluding Remarks

Substantial regional differences in mortality have been shown by both the 2001 and 2011 census results, with relatively low mortality in Gaborone and the South-East district. The differentials in mortality between districts are usually associated with differing levels of social and economic development between districts, differentials in individual living standards and their socio-economic characteristics but it appears that the HIV/AIDS epidemic that distorted everything has now been contained.

The derived parameters of mortality can give great encouragement and aspirations to planners and policy makers for further efforts in the reduction of mortality levels because it is clear that all the mortality indicators targets set in 2010 have been met. These findings are sufficient indicators of the health transition in Botswana which shows that with proper and intervention programmes the HIV/AIDS related mortality can be contained. The question is; how long can AIDS related mortality without a serious reduction on HIV/AIDS incidence and prevalence be contained? The other question which should bother all the stakeholders' is "Is Botswana likely to experience a big BOOM in mortality when ARVs ceased to save lives of those who are on them"?

The other persistent character of mortality patterns in Botswana is the gap in life expectancy between males and females in favour of the latter. It is therefore necessary that studies be carried out to determine what should be done to improve the survival of men in order to bring them at par with that of females. The mechanisms that affect the differentials in mortality by sex and districts are not quite clear and they need to be investigated, using both macro and micro level approaches.

Table A1:Botswana 2011 both sexes combined

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.017	1723	98453	6808555	68.1
1	98277	0.011	1085	390392	6710102	68.3
5	97192	0.005	473	484777	6319710	65.0
10	96719	0.004	370	482669	5834933	60.3
15	96349	0.006	579	480432	5352264	55.6
20	95770	0.012	1143	476271	4871833	50.9
25	94626	0.020	1888	468774	4395562	46.5
30	92738	0.031	2869	456917	3926788	42.3
35	89869	0.041	3677	440388	3469871	38.6
40	86192	0.045	3911	421221	3029482	35.1
45	82281	0.047	3858	401774	2608262	31.7
50	78422	0.051	3986	382261	2206487	28.1
55	74436	0.059	4419	361297	1824226	24.5
60	70018	0.068	4756	338537	1462929	20.9
65	65262	0.094	6159	311292	1124393	17.2
70	59103	0.109	6448	279791	813100	13.8
75	52655	0.156	8188	244569	533309	10.1
80	44467	1	44467	288740	288740	6.5

Table A2:Botswana females

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.017	1675	98493	7009036	70.1
1	98324.88	0.011	1054	390660	6910543	70.3
5	97270.48	0.005	469	485181	6519883	67.0
10	96801.77	0.004	366	483093	6034702	62.3
15	96435.48	0.006	586	480868	5551609	57.6
20	95849.88	0.013	1294	476350	5070742	52.9
25	94556.21	0.021	2032	468051	4594391	48.6
30	92524.42	0.032	2950	455589	4126340	44.6
35	89574.61	0.040	3544	439061	3670751	41.0
40	86031.04	0.037	3158	422210	3231690	37.6
45	82872.61	0.040	3276	406174	2809481	33.9
50	79596.13	0.040	3174	390056	2403306	30.2
55	76422	0.044	3326	373906	2013250	26.3
60	73096.26	0.051	3717	356505	1639345	22.4
65	69379.73	0.072	4968	334858	1282839	18.5
70	64412.15	0.084	5385	308997	947981	14.7
75	59027.58	0.119	7032	279348	638984	10.8
80	51995.28	1	51995	359636	359636	6.9

Table A3: Botswana males

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.018	1768	98397	6585483	65.9
1	98231.64	0.011	1116	390247	6487086	66.0
5	97115.49	0.005	477	484384	6096838	62.8
10	96638	0.004	374	482255	5612455	58.1
15	96263.9	0.006	572	480004	5130200	53.3
20	95691.48	0.010	984	476224	4650196	48.6
25	94707.19	0.018	1735	469574	4173972	44.1
30	92971.71	0.030	2788	458346	3704398	39.8
35	90184.15	0.042	3809	441811	3246051	36.0
40	86375.16	0.054	4689	420318	2804240	32.5
45	81686.47	0.055	4529	397164	2383922	29.2
50	77157.16	0.064	4950	373643	1986758	25.7
55	72207.42	0.078	5655	347088	1613115	22.3
60	66552.72	0.087	5822	318556	1266028	19.0
65	60730.41	0.122	7438	285455	947472	15.6
70	53292.69	0.143	7596	247904	662017	12.4
75	45696.3	0.210	9590	206254	414113	9.1
80	36105.84	1	36106	207859	207859	5.8

Table A4: Rural both sexes

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.021	2072	98160	6491339	64.9
1	97927.51	0.012	1141	388845	6393179	65.3
5	96786.1	0.006	575	482493	6004334	62.0
10	96211.05	0.004	428	479985	5521841	57.4
15	95783.05	0.009	833	477077	5041856	52.6
20	94950.19	0.018	1741	470874	4564779	48.1
25	93209.56	0.033	3074	458961	4093905	43.9
30	90135.22	0.049	4429	440046	3634945	40.3
35	85706.33	0.058	4978	416280	3194899	37.3
40	80728.07	0.066	5335	390083	2778619	34.4
45	75393	0.055	4122	366404	2388536	31.7
50	71270.5	0.055	3943	346488	2022132	28.4
55	67327.4	0.061	4085	326485	1675643	24.9
60	63242.69	0.067	4233	305823	1349158	21.3
65	59009.28	0.086	5055	282695	1043335	17.7
70	53954.72	0.103	5560	256198	760640	14.1
75	48394.35	0.138	6671	226762	504442	10.4
80	41723.45	1	41723	277680	277680	6.7

Table A5: Rural females

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.021	2073	98159	6612837	66.1
1	97926.9	0.011	1039	389099	6514678	66.5
5	96887.42	0.006	566	483023	6125579	63.2
10	96321.64	0.005	457	480466	5642556	58.6
15	95864.83	0.010	971	477227	5162090	53.8
20	94893.77	0.025	2335	469270	4684863	49.4
25	92558.51	0.039	3614	454297	4215593	45.5
30	88944.64	0.054	4775	433127	3761296	42.3
35	84169.96	0.061	5100	407934	3328170	39.5
40	79069.69	0.052	4116	384732	2920235	36.9
45	74953.6	0.046	3480	365785	2535503	33.8
50	71473.5	0.039	2789	350319	2169719	30.4
55	68684.13	0.044	3044	335943	1819399	26.5
60	65640.36	0.052	3434	319851	1483456	22.6
65	62206.64	0.068	4208	300877	1163605	18.7
70	57999.14	0.089	5179	277452	862728	14.9
75	52819.91	0.116	6135	250167	585276	11.1
80	46684.64	1	46685	335109	335109	7.2

Table A6: Rural males

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.020715	2071	98140	6351339	63.5
1	97928.54	0.012675	1241	388723	6253199	63.9
5	96687.27	0.006039	584	481977	5864476	60.7
10	96103.35	0.004168	401	479515	5382499	56.0
15	95702.79	0.007479	716	476888	4902984	51.2
20	94987	0.012653	1202	472252	4426096	46.6
25	93785.11	0.027481	2577	463143	3953844	42.2
30	91207.78	0.045109	4114	446296	3490700	38.3
35	87093.5	0.055937	4872	423766	3044404	35.0
40	82221.75	0.079478	6535	394737	2620638	31.9
45	75686.92	0.063993	4843	366134	2225901	29.4
50	70843.46	0.075161	5325	340985	1859767	26.3
55	65518.77	0.079723	5223	314450	1518783	23.2
60	60295.45	0.081783	4931	289272	1204332	20.0
65	55364.31	0.10522	5825	262458	915060	16.5
70	49538.86	0.118225	5857	233328	652602	13.2
75	43682.13	0.165346	7223	201936	419274	9.6
80	36459.45	1	36459	217338	217338	6.0

Table A7: Urban both sexes combined

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.014875	1488	98653	6947425	69.5
1	98512.47	0.010586	1043	391443	6848771	69.5
5	97469.61	0.004111	401	486346	6457329	66.2
10	97068.9	0.003422	332	484514	5970983	61.5
15	96736.69	0.004771	462	482625	5486469	56.7
20	96275.13	0.009262	892	479351	5003844	52.0
25	95383.4	0.014594	1392	473702	4524493	47.4
30	93991.38	0.023598	2218	464776	4050791	43.1
35	91773.37	0.033374	3063	451429	3586015	39.1
40	88710.53	0.035381	3139	435820	3134585	35.3
45	85571.87	0.042525	3639	418930	2698765	31.5
50	81932.93	0.047899	3924	400038	2279835	27.8
55	78008.45	0.058344	4551	378904	1879796	24.1
60	73457.13	0.068864	5059	355116	1500893	20.4
65	68398.55	0.103374	7071	324794	1145777	16.8
70	61327.95	0.11558	7088	289376	820983	13.4
75	54239.65	0.17432	9455	249555	531607	9.8
80	44784.6	1	44785	282052	282052	6.3

Table A8: Urban females

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.014054	1405	98724	7179697	71.8
1	98594.59	0.010805	1065	391716	7080973	71.8
5	97529.27	0.004113	401	486643	6689256	68.6
10	97128.1	0.003174	308	484870	6202613	63.9
15	96819.79	0.004431	429	483122	5717743	59.1
20	96390.82	0.009339	900	479930	5234621	54.3
25	95490.58	0.015	1432	474146	4754691	49.8
30	94058.22	0.023914	2249	464992	4280545	45.5
35	91808.9	0.031187	2863	451980	3815553	41.6
40	88945.65	0.029704	2642	438166	3363573	37.8
45	86303.59	0.03575	3085	423960	2925407	33.9
50	83218.26	0.040432	3365	407752	2501447	30.1
55	79853.57	0.042913	3427	390787	2093695	26.2
60	76426.84	0.049591	3790	373035	1702908	22.3
65	72636.74	0.075236	5465	349881	1329874	18.3
70	67171.87	0.078363	5264	323071	979992	14.6
75	61908.09	0.121907	7547	292784	656922	10.6
80	54361.06	1	54361	364138	364138	6.7

Table A9: Urban males

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.015666	1567	98571	6665016	66.7
1	98433.44	0.010374	1021	391289	6566445	66.7
5	97412.28	0.004109	400	486061	6175156	63.4
10	97012.02	0.003672	356	484170	5689095	58.6
15	96655.78	0.005145	497	482130	5204926	53.9
20	96158.53	0.009175	882	478770	4722796	49.1
25	95276.31	0.014138	1347	473269	4244026	44.5
30	93929.31	0.023257	2185	464589	3770757	40.1
35	91744.79	0.035635	3269	450901	3306167	36.0
40	88475.49	0.041428	3665	433422	2855266	32.3
45	84810.1	0.050533	4286	413535	2421844	28.6
50	80524.41	0.05698	4588	391457	2008309	24.9
55	75936.09	0.077191	5862	365460	1616852	21.3
60	70074.54	0.093656	6563	334587	1251393	17.9
65	63511.65	0.143043	9085	295525	916806	14.4
70	54426.78	0.174713	9509	248976	621280	11.4
75	44917.71	0.268234	12048	196141	372304	8.3
80	32869.27	1	32869	176164	176164	5.4

Table A10: Urban villages both sexes total

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.016884	1688	98482	6709248	67.1
1	98311.55	0.010709	1053	390611	6610766	67.2
5	97258.77	0.004164	405	485281	6220156	64.0
10	96853.75	0.003516	341	483417	5734874	59.2
15	96513.2	0.005783	558	481313	5251457	54.4
20	95955.11	0.012074	1159	477164	4770144	49.7
25	94796.57	0.019145	1815	469774	4292980	45.3
30	92981.65	0.029626	2755	458483	3823206	41.1
35	90226.95	0.044816	4044	441367	3364724	37.3
40	86183.32	0.048217	4156	420598	2923356	33.9
45	82027.81	0.053401	4380	399320	2502758	30.5
50	77647.48	0.06174	4794	376399	2103438	27.1
55	72853.5	0.069631	5073	351634	1727039	23.7
60	67780.66	0.074254	5033	326625	1375405	20.3
65	62747.64	0.106562	6686	297372	1048781	16.7
70	56061.15	0.116922	6555	264328	751409	13.4
75	49506.35	0.178475	8836	227228	487081	9.8
80	40670.72	1	40671	259853	259853	6.4

Table A11: Urban village females

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.015956	1596	98561	7001195	70.0
1	98404.36	0.011293	1111	390837	6902634	70.1
5	97293.1	0.004176	406	485450	6511797	66.9
10	96886.76	0.003295	319	483636	6026347	62.2
15	96567.5	0.005468	528	481662	5542712	57.4
20	96039.42	0.01239	1190	477545	5061049	52.7
25	94849.48	0.020453	1940	469730	4583505	48.3
30	92909.48	0.029166	2710	458143	4113774	44.3
35	90199.65	0.041325	3728	441809	3655632	40.5
40	86472.13	0.037313	3227	424202	3213823	37.2
45	83245.59	0.038902	3238	408281	2789621	33.5
50	80007.14	0.050056	4005	390113	2381340	29.8
55	76002.3	0.047741	3628	370880	1991227	26.2
60	72373.87	0.05094	3687	352929	1620348	22.4
65	68687.17	0.074987	5151	330831	1267418	18.5
70	63536.5	0.075753	4813	306028	936587	14.7
75	58723.41	0.125465	7368	277239	630559	10.7
80	51355.68	1	51356	353320	353320	6.9

Table A12: Urban village males

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.017763	1776	98390	6355611	63.6
1	98223.69	0.010138	996	390504	6257221	63.7
5	97227.9	0.004152	404	485130	5866717	60.3
10	96824.19	0.003737	362	483216	5381587	55.6
15	96462.33	0.006122	591	480975	4898370	50.8
20	95871.75	0.011707	1122	476796	4417396	46.1
25	94749.42	0.017617	1669	469894	3940600	41.6
30	93080.23	0.030146	2806	458953	3470706	37.3
35	90274.26	0.048628	4390	440964	3011753	33.4
40	85884.41	0.060945	5234	416651	2570789	29.9
45	80650.21	0.072576	5853	388736	2154138	26.7
50	74796.91	0.077395	5789	359715	1765402	23.6
55	69008.03	0.099457	6863	328068	1405687	20.4
60	62144.69	0.107038	6652	294431	1077619	17.3
65	55492.86	0.154577	8578	256485	783189	14.1
70	46914.96	0.186112	8731	213165	526703	11.2
75	38183.52	0.275567	10522	165890	313538	8.2
80	27661.41	1	27661	147648	147648	5.3

Table A13: Cities and Towns both sexes

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.009913	991	99088	7393438	73.9
1	99008.71	0.010275	1017	393500	7294350	73.7
5	97991.43	0.003974	389	488984	6900851	70.4
10	97602.05	0.003176	310	487235	6411867	65.7
15	97292.05	0.002349	228	485911	5924632	60.9
20	97063.56	0.005081	493	484210	5438721	56.0
25	96570.37	0.007993	772	481094	4954511	51.3
30	95798.52	0.014928	1430	475630	4473417	46.7
35	94368.47	0.016753	1581	467906	3997787	42.4
40	92787.5	0.016193	1503	460283	3529881	38.0
45	91284.96	0.023879	2180	451073	3069598	33.6
50	89105.2	0.02103	1874	440939	2618524	29.4
55	87231.3	0.031921	2785	429697	2177585	25.0
60	84446.78	0.052551	4438	412029	1747888	20.7
65	80009.02	0.090345	7228	382822	1335860	16.7
70	72780.61	0.108212	7876	344666	953037	13.1
75	64904.91	0.146085	9482	303413	608372	9.4
80	55423.25	1	55423	304958	304958	5.5

Table A14: Cities and Towns females

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.009484	948	99126	7470031	74.7
1	99051.62	0.009565	947	393846	7370905	74.4
5	98104.16	0.003951	388	489552	6977059	71.1
10	97716.51	0.002859	279	487884	6487508	66.4
15	97437.09	0.001993	194	486720	5999624	61.6
20	97242.89	0.004685	456	485190	5512904	56.7
25	96787.31	0.006721	651	482475	5027714	51.9
30	96136.76	0.015941	1532	477110	4545239	47.3
35	94604.29	0.015448	1461	469378	4068129	43.0
40	93142.83	0.016993	1583	461962	3598751	38.6
45	91560.04	0.029513	2702	451079	3136790	34.3
50	88857.85	0.019152	1702	440021	2685710	30.2
55	87156.01	0.029521	2573	429777	2245690	25.8
60	84583.07	0.044789	3788	414141	1815913	21.5
65	80794.67	0.076433	6175	389331	1401771	17.3
70	74619.26	0.094851	7078	355457	1012440	13.6
75	67541.58	0.096204	6498	323496	656983	9.7
80	61043.81	1	61044	333487	333487	5.5

Table A15: Cities and towns males

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.010343	1034	99040	7298205	73.0
1	98965.74	0.010972	1086	393281	7199165	72.7
5	97879.84	0.003996	391	488421	6805884	69.5
10	97488.71	0.003499	341	486591	6317463	64.8
15	97147.6	0.00275	267	485095	5830872	60.0
20	96880.47	0.005516	534	483202	5345777	55.2
25	96346.04	0.009342	900	479651	4862575	50.5
30	95446.01	0.013906	1327	474087	4382924	45.9
35	94118.78	0.017999	1694	466383	3908838	41.5
40	92424.72	0.015449	1428	458551	3442454	37.2
45	90996.82	0.018377	1672	450929	2983903	32.8
50	89324.53	0.022929	2048	441751	2532974	28.4
55	87276.43	0.034195	2984	429489	2091224	24.0
60	84291.99	0.060203	5075	409864	1661735	19.7
65	79217.32	0.104824	8304	376252	1251871	15.8
70	70913.44	0.123959	8790	333593	875619	12.3
75	62123.1	0.223081	13858	279149	542026	8.7
80	48264.63	1	48265	262877	262877	5.4

Table A16:Gaborone males

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.006263	626	99412	7471987	74.7
1	99374	0.012704	1262	394508	7372575	74.2
5	98111	0.00449	441	489455	6978067	71.1
10	97671	0.003992	390	487379	6488612	66.4
15	97281	0.003494	340	485554	6001233	61.7
20	96941	0.003992	387	483793	5515679	56.9
25	96554	0.006978	674	481254	5031886	52.1
30	95880	0.013417	1286	476445	4550632	47.5
35	94594	0.018821	1780	468504	4074187	43.1
40	92813	0.013408	1244	460888	3605683	38.8
45	91569	0.014892	1364	454553	3144795	34.3
50	90205	0.020794	1876	446592	2690242	29.8
55	88330	0.029589	2614	435591	2243649	25.4
60	85716	0.052177	4472	417984	1808058	21.1
65	81244	0.06068	4930	394392	1390074	17.1
70	76314	0.094355	7201	365511	995681	13.0
75	69113	0.247036	17073	307077	630170	9.1
80	52040	1	52040	323093	323093	6.2

Table A17: Gaborone females

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.006263	626	99417	7725635	77.3
1	99374	0.009938	988	395039	7626218	76.7
5	98386	0.002996	295	491194	7231179	73.5
10	98091	0.002996	294	489722	6739985	68.7
15	97798	0.001	98	488749	6250263	63.9
20	97700	0.003993	390	487661	5761514	59.0
25	97310	0.005486	534	485348	5273852	54.2
30	96776	0.013414	1298	480813	4788505	49.5
35	95478	0.01094	1045	474787	4307691	45.1
40	94433	0.014404	1360	469036	3832904	40.6
45	93073	0.029075	2706	458655	3363868	36.1
50	90367	0.016854	1523	447950	2905212	32.1
55	88844	0.023734	2109	439296	2457262	27.7
60	86735	0.03879	3364	425885	2017966	23.3
65	83371	0.061151	5098	404619	1592081	19.1
70	78272	0.070013	5480	377935	1187462	15.2
75	72792	0.088864	6469	349655	809527	11.1
80	66324	1	66324	459872	459872	6.9

Table A18: Francistown males

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.010399	1040	99035	7075386	70.8
1	98960	0.007169	709	394153	6976351	70.5
5	98251	0.003494	343	490395	6582198	67.0
10	97907	0.00449	440	488438	6091803	62.2
15	97468	0.001998	195	486870	5603365	57.5
20	97273	0.00698	679	484941	5116495	52.6
25	96594	0.013907	1343	479755	4631554	47.9
30	95251	0.011931	1136	473525	4151799	43.6
35	94114	0.022749	2141	465438	3678274	39.1
40	91973	0.020289	1866	455141	3212836	34.9
45	90107	0.020295	1829	446039	2757696	30.6
50	88278	0.025693	2268	436172	2311656	26.2
55	86010	0.054626	4698	419500	1875484	21.8
60	81312	0.094352	7672	389440	1455984	17.9
65	73640	0.219585	16170	326672	1066543	14.5
70	57470	0.109788	6310	270794	739871	12.9
75	51160	0.160129	8192	237456	469077	9.2
80	42968	1	42968	231620	231620	5.4

Table A19: Francistown females

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.010988	1099	98992	7269464	72.7
1	98901	0.010333	1022	393056	7170471	72.5
5	97879	0.006479	634	487811	6777415	69.2
10	97245	0.00449	437	485134	6289604	64.7
15	96808	0.005982	579	482628	5804471	60.0
20	96229	0.005983	576	479754	5321843	55.3
25	95654	0.008964	857	476353	4842088	50.6
30	94796	0.021781	2065	469273	4365735	46.1
35	92731	0.026641	2470	457498	3896463	42.0
40	90261	0.023712	2140	445898	3438965	38.1
45	88121	0.024696	2176	435248	2993067	34.0
50	85944	0.030056	2583	423463	2557819	29.8
55	83361	0.037759	3148	408782	2134355	25.6
60	80214	0.025676	2060	396069	1725574	21.5
65	78154	0.056072	4382	381067	1329505	17.0
70	73772	0.109205	8056	350271	948438	12.9
75	65716	0.16881	11093	303929	598167	9.1
80	54622	1	54622	294238	294238	5.4

Table A20: Lobatse males

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.01742	1742	98419	6717970	67.2
1	98258	0.024825	2439	387179	6619551	67.4
5	95819	0.007472	716	477304	6232372	65.0
10	95103	0.003494	332	474683	5755068	60.5
15	94771	0.003495	331	473133	5280385	55.7
20	94439	0.016876	1594	468754	4807251	50.9
25	92846	0.018334	1702	460066	4338498	46.7
30	91143	0.022739	2073	450549	3878431	42.6
35	89071	0.019797	1763	440841	3427882	38.5
40	87307	0.017853	1559	432980	2987042	34.2
45	85749	0.05733	4916	416606	2554062	29.8
50	80833	0.023227	1877	399465	2137456	26.4
55	78955	0.05937	4688	384228	1737991	22.0
60	74268	0.084327	6263	355838	1353763	18.2
65	68005	0.079077	5378	327905	997926	14.7
70	62627	0.291316	18244	269886	670021	10.7
75	44383	0.259095	11499	191657	400135	9.0
80	32884	1	32884	208478	208478	6.3

Table A20: Lobatse both sexes

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.020036	2004	98217	6870363	68.7
1	97996.37	0.01819	1783	387514	6772146	69.1
5	96213.81	0.003992	384	480109	6384632	66.4
10	95829.72	0.001998	191	478670	5904523	61.6
15	95638.26	0.001499	143	477881	5425853	56.7
20	95494.89	0.00996	951	475562	4947972	51.8
25	94543.77	0.015878	1501	469103	4472411	47.3
30	93042.64	0.015877	1477	461648	4003308	43.0
35	91565.37	0.0247	2262	452330	3541660	38.7
40	89303.71	0.023244	2076	441661	3089330	34.6
45	87227.91	0.054974	4795	424362	2647669	30.4
50	82432.61	0.031985	2637	405638	2223306	27.0
55	79795.97	0.06592	5260	386778	1817669	22.8
60	74535.79	0.084945	6331	357708	1430891	19.2
65	68204.36	0.144627	9864	317176	1073183	15.7
70	58340.2	0.164194	9579	266827	756007	13.0
75	48761.1	0.131243	6400	228556	489180	10.0
80	42361.54	1	42362	260624	260624	6.2

Table A21: Selebi Phikwe males

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.024841	2484	97799	6756817	67.6
1	97516	0.010335	1008	387623	6659018	68.3
5	96508	0.001998	193	482058	6271395	65.0
10	96315	0.001998	192	481095	5789336	60.1
15	96123	0.001998	192	480192	5308241	55.2
20	95931	0.00847	812	477936	4828050	50.3
25	95118	0.012922	1229	472743	4350113	45.7
30	93889	0.020775	1951	464425	3877370	41.3
35	91939	0.009455	869	457512	3412945	37.1
40	91069	0.020303	1849	450965	2955433	32.5
45	89220	0.018334	1636	442100	2504468	28.1
50	87585	0.027125	2376	431956	2062369	23.5
55	85209	0.018331	1562	422155	1630413	19.1
60	83647	0.029629	2478	413063	1208257	14.4
65	81168	0.13451	10918	381747	795194	9.8
70	70250	0.153549	10787	330887	413448	5.9
75	59464	1	59464	82561	82561	1.4

Table A22:Selebi Phikwe females

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.012652	1265	98846	6909961	69.1
1	98735	0.006375	629	393368	6811115	69.0
5	98105	0.006479	636	488938	6417747	65.4
10	97470	0.001998	195	486862	5928809	60.8
15	97275	0.001998	194	485933	5441947	55.9
20	97081	0.005984	581	484109	4956014	51.1
25	96500	0.007476	721	480927	4471904	46.3
30	95778	0.028115	2693	472414	3990977	41.7
35	93086	0.012419	1156	462428	3518563	37.8
40	91929	0.01834	1686	455663	3056135	33.2
45	90244	0.024664	2226	445145	2600472	28.8
50	88018	0.006479	570	438641	2155327	24.5
55	87448	0.020824	1821	433566	1716686	19.6
60	85627	0.066902	5729	415117	1283120	15.0
65	79898	0.069719	5570	386834	868003	10.9
70	74328	0.218231	16221	340768	481169	6.5
75	58107	1	58107	140401	140401	2.4

Table A23: Ngwaketse males

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.018195	1820	98353	6233021	62.3
1	98180	0.009149	898	390564	6134668	62.5
5	97282	0.006479	630	484835	5744104	59.0
10	96652	0.001998	193	482777	5259269	54.4
15	96459	0.00698	673	480924	4776492	49.5
20	95785	0.018845	1805	475021	4295568	44.8
25	93980	0.035885	3372	461985	3820546	40.7
30	90608	0.041653	3774	444009	3358561	37.1
35	86834	0.064458	5597	420836	2914552	33.6
40	81237	0.082017	6663	389638	2493715	30.7
45	74574	0.082003	6115	357619	2104077	28.2
50	68459	0.099311	6799	325298	1746458	25.5
55	61660	0.100017	6167	292276	1421160	23.0
60	55493	0.077374	4294	266690	1128885	20.3
65	51199	0.112157	5742	242292	862195	16.8
70	45457	0.161971	7363	209167	619903	13.6
75	38094	0.185304	7059	173439	410736	10.8
80	31035	1	31035	237296	237296	7.6

Table A24:Ngwaketse females

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.016647	1665	98502	6729768	67.3
1	98335	0.018191	1789	388864	6631267	67.4
5	96547	0.007472	721	480929	6242403	64.7
10	95825	0.002996	287	478408	5761473	60.1
15	95538	0.008966	857	475871	5283065	55.3
20	94682	0.018348	1737	469521	4807195	50.8
25	92944	0.032496	3020	457630	4337673	46.7
30	89924	0.040214	3616	440999	3880043	43.1
35	86308	0.060608	5231	418474	3439045	39.8
40	81077	0.045884	3720	395756	3020571	37.3
45	77357	0.043995	3403	378148	2624814	33.9
50	73953	0.042115	3115	362158	2246666	30.4
55	70839	0.062495	4427	343183	1884507	26.6
60	66412	0.050676	3365	323604	1541325	23.2
65	63046	0.06535	4120	305191	1217720	19.3
70	58926	0.07753	4569	283761	912530	15.5
75	54358	0.132962	7227	255388	628769	11.6
80	47130	1	47130	373381	373381	7.9

Table A25: Barolong males

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.017614	1761	98403	6320509	63.2
1	98239	0.01859	1826	388571	6222107	63.3
5	96412	0.00449	433	480979	5833535	60.5
10	95979	0.002996	288	479178	5352556	55.8
15	95692	0.006979	668	477025	4873378	50.9
20	95024	0.016379	1556	471625	4396352	46.3
25	93468	0.024227	2264	462128	3924727	42.0
30	91203	0.044088	4021	446774	3462600	38.0
35	87182	0.068233	5949	421897	3015826	34.6
40	81234	0.098269	7983	385640	2593928	31.9
45	73251	0.059587	4365	354862	2208289	30.1
50	68886	0.066785	4601	333375	1853427	26.9
55	64285	0.106496	6846	304272	1520052	23.6
60	57439	0.080563	4627	275444	1215780	21.2
65	52812	0.104526	5520	250920	940336	17.8
70	47292	0.171031	8088	217428	689416	14.6
75	39203	0.278127	10904	168524	471987	12.0
80	28300	1	28300	303463	303463	10.7

Table A26: Barolong females

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.023504	2350	97933	6710147	67.1
1	97650	0.009938	970	388159	6612214	67.7
5	96679	0.006479	626	481830	6224055	64.4
10	96053	0.002996	288	479545	5742225	59.8
15	95765	0.001499	144	478525	5262680	55.0
20	95622	0.020834	1992	474317	4784155	50.0
25	93629	0.027154	2542	462252	4309838	46.0
30	91087	0.051675	4707	444047	3847586	42.2
35	86380	0.04402	3802	422497	3403539	39.4
40	82578	0.063806	5269	399162	2981042	36.1
45	77309	0.030503	2358	380347	2581880	33.4
50	74951	0.037323	2797	368075	2201533	29.4
55	72153	0.055978	4039	351219	1833458	25.4
60	68114	0.078812	5368	327329	1482239	21.8
65	62746	0.076482	4799	301821	1154910	18.4
70	57947	0.099901	5789	275666	853089	14.7
75	52158	0.128863	6721	245301	577423	11.1
80	45437	1	45437	332122	332122	7.3

Table A27: South East males

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.00981	981	99088	7098538	71.0
1	99019	0.005581	553	394763	6999450	70.7
5	98466	0.005982	589	490859	6604687	67.1
10	97877	0.00449	439	488288	6113828	62.5
15	97438	0.001998	195	486726	5625540	57.7
20	97243	0.007972	775	484509	5138814	52.8
25	96468	0.008466	817	480390	4654305	48.2
30	95651	0.013909	1330	475160	4173915	43.6
35	94321	0.01982	1869	467365	3698755	39.2
40	92451	0.04359	4030	452807	3231390	35.0
45	88421	0.044972	3976	432227	2778583	31.4
50	84445	0.051199	4323	411762	2346356	27.8
55	80121	0.072286	5792	386108	1934595	24.1
60	74330	0.058224	4328	360646	1548486	20.8
65	70002	0.066877	4682	339243	1187840	17.0
70	65320	0.166146	10853	301466	848597	13.0
75	54468	0.214415	11679	244324	547131	10.0
80	42789	1	42789	302807	302807	7.1

Table A27b: South East both sexes

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.009123	912	99158	7354485	73.5
1	99087.74	0.008356	828	394289	7255327	73.2
5	98259.74	0.003992	392	490318	6861038	69.8
10	97867.48	0.001998	196	488849	6370720	65.1
15	97671.94	0.003495	341	487604	5881872	60.2
20	97330.62	0.007971	776	484864	5394267	55.4
25	96554.84	0.008962	865	480754	4909403	50.8
30	95689.48	0.017851	1708	474482	4428650	46.3
35	93981.35	0.02177	2046	464991	3954167	42.1
40	91935.39	0.029563	2718	452975	3489177	38.0
45	89217.54	0.02713	2420	440079	3036202	34.0
50	86797.1	0.033946	2946	427014	2596123	29.9
55	83850.71	0.054535	4573	408288	2169109	25.9
60	79277.88	0.061065	4841	384212	1760820	22.2
65	74436.8	0.057395	4272	362060	1376608	18.5
70	70164.49	0.124887	8763	330665	1014548	14.5
75	61401.86	0.183135	11245	280420	683883	11.1
80	50157.03	1	50157	403463	403463	8.0

Table A28: Kweneng East males

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.0147	1470	98655	6761565	67.6
1	98530	0.008358	824	392151	6662910	67.6
5	97707	0.00449	439	487436	6270759	64.2
10	97268	0.00449	437	485247	5783323	59.5
15	96831	0.006977	676	482546	5298076	54.7
20	96156	0.00797	766	478970	4815530	50.1
25	95389	0.01391	1327	473894	4336560	45.5
30	94062	0.021288	2002	465681	3862666	41.1
35	92060	0.035395	3258	452559	3396985	36.9
40	88801	0.041163	3655	435155	2944426	33.2
45	85146	0.05544	4721	414082	2509271	29.5
50	80426	0.053566	4308	391644	2095188	26.1
55	76118	0.084011	6395	365413	1703545	22.4
60	69723	0.113887	7941	329482	1338132	19.2
65	61782	0.158235	9776	284189	1008650	16.3
70	52006	0.137741	7163	242007	724461	13.9
75	44843	0.194163	8707	203430	482454	10.8
80	36136	1	36136	279024	279024	7.7

Table A29: Kweneng East females

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.014019	1402	98727	7341487	73.4
1	98598	0.011517	1136	391555	7242760	73.5
5	97463	0.003494	341	486462	6851205	70.3
10	97122	0.002996	291	484883	6364744	65.5
15	96831	0.003494	338	483378	5879861	60.7
20	96493	0.007972	769	480777	5396483	55.9
25	95724	0.015392	1473	475286	4915706	51.4
30	94250	0.025682	2421	465489	4440420	47.1
35	91830	0.028582	2625	452533	3974931	43.3
40	89205	0.024693	2203	440554	3522398	39.5
45	87002	0.032483	2826	428198	3081844	35.4
50	84176	0.040193	3383	412598	2653646	31.5
55	80793	0.044976	3634	394967	2241048	27.7
60	77159	0.049274	3802	376427	1846081	23.9
65	73357	0.058765	4311	356267	1469654	20.0
70	69046	0.073332	5063	333113	1113387	16.1
75	63983	0.111537	7136	303679	780274	12.2
80	56846	1	56846	476595	476595	8.4

Table A30: Kweneng west males

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.021479	2148	98076	6966832	69.7
1	97852	0.010335	1011	388970	6868756	70.2
5	96841	0.005982	579	482756	6479786	66.9
10	96262	0.001998	192	480827	5997030	62.3
15	96069	0.009461	909	478375	5516204	57.4
20	95160	0.009955	947	473656	5037829	52.9
25	94213	0.029594	2788	464688	4564173	48.4
30	91425	0.029079	2659	450604	4099485	44.8
35	88766	0.039278	3487	435817	3648881	41.1
40	85280	0.080679	6880	409538	3213064	37.7
45	78399	0.058152	4559	379924	2803525	35.8
50	73840	0.045504	3360	361297	2423601	32.8
55	70480	0.124993	8810	329946	2062305	29.3
60	61671	0.046846	2889	300938	1732359	28.1
65	58782	0.101481	5965	280057	1431421	24.4
70	52817	0.130573	6896	247183	1151364	21.8
75	45920	0.163642	7514	210490	904181	19.7
80	38406	1	38406	693691	693691.5	18.1

Table A3b: Kweneng west both sexes

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.0236	2360	97925	6795667	68.0
1	97640.01	0.008356	816	388509	6697742	68.6
5	96824.14	0.00449	435	483034	6309233	65.2
10	96389.41	0.001	96	481706	5826199	60.4
15	96293.07	0.010458	1007	479518	5344493	55.5
20	95286.08	0.015392	1467	473104	4864975	51.1
25	93819.45	0.032496	3049	461932	4391870	46.8
30	90770.7	0.033439	3035	446367	3929938	43.3
35	87735.4	0.040693	3570	430148	3483571	39.7
40	84165.17	0.061071	5140	407939	3053422	36.3
45	79025.13	0.044426	3511	385798	2645483	33.5
50	75514.37	0.032	2416	371763	2259685	29.9
55	73097.91	0.074211	5425	352252	1887922	25.8
60	67673.23	0.04925	3333	329990	1535670	22.7
65	64340.33	0.077072	4959	309929	1205680	18.7
70	59381.46	0.103097	6122	282123	895751	15.1
75	53259.4	0.139098	7408	247768	613628	11.5
80	45851.14	1	45851	365860	365860	8.0

Table A31: Kgatleng males

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.024362	2436	97838	6281330	62.8
1	97564	0.015061	1469	386699	6183492	63.4
5	96094	0.005485	527	479154	5796793	60.3
10	95567	0.002996	286	477121	5317639	55.6
15	95281	0.00946	901	474423	4840518	50.8
20	94380	0.012921	1219	469032	4366095	46.3
25	93160	0.019823	1847	461667	3897063	41.8
30	91313	0.046495	4246	446912	3435396	37.6
35	87068	0.062995	5485	421913	2988484	34.3
40	81583	0.06714	5477	394062	2566571	31.5
45	76105	0.062968	4792	368630	2172508	28.5
50	71313	0.082498	5883	342046	1803878	25.3
55	65430	0.08609	5633	312936	1461832	22.3
60	59797	0.08813	5270	286409	1148896	19.2
65	54527	0.170788	9313	249668	862486	15.8
70	45215	0.145346	6572	209293	612818	13.6
75	38643	0.18053	6976	176613	403526	10.4
80	31667	1	31667	226913	226913	7.2

Table A32: Kgatleng females

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.019457	1946	98265	6958672	69.6
1	98054	0.005978	586	390748	6860407	70.0
5	97468	0.005485	535	486005	6469659	66.4
10	96934	0.003494	339	483821	5983654	61.7
15	96595	0.006482	626	481610	5499833	56.9
20	95969	0.016379	1572	476318	5018223	52.3
25	94397	0.022757	2148	466996	4541905	48.1
30	92249	0.03973	3665	452470	4074909	44.2
35	88584	0.040675	3603	434112	3622439	40.9
40	84981	0.055915	4752	413189	3188327	37.5
45	80229	0.053495	4292	390165	2775138	34.6
50	75937	0.047306	3592	370336	2384973	31.4
55	72345	0.036339	2629	355264	2014637	27.8
60	69716	0.062064	4327	338037	1659373	23.8
65	65389	0.055432	3625	317952	1321336	20.2
70	61764	0.075739	4678	297962	1003384	16.2
75	57086	0.146464	8361	266277	705422	12.4
80	48725	1	48725	439146	439146	9.01267

Table A33: Central Serowe Palapye males

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.022249	2225	98012	6523434	65.2
1	97775	0.01073	1049	388568	6425422	65.7
5	96726	0.005485	531	482304	6036854	62.4
10	96195	0.00449	432	479898	5554550	57.7
15	95764	0.00648	621	477361	5074653	53.0
20	95143	0.009459	900	473652	4597292	48.3
25	94243	0.017852	1682	467336	4123639	43.8
30	92561	0.024719	2288	457600	3656303	39.5
35	90273	0.054588	4928	439978	3198703	35.4
40	85345	0.067213	5736	412681	2758725	32.3
45	79609	0.079219	6306	382212	2346044	29.5
50	73302	0.075038	5500	352594	1963832	26.8
55	67802	0.080188	5437	325563	1611238	23.8
60	62365	0.099821	6225	296442	1285674	20.6
65	56139	0.111849	6279	264943	989232	17.6
70	49860	0.120095	5988	234822	724289	14.5
75	43872	0.204494	8972	198049	489467	11.2
80	34901	1	34901	291418	291418	8.3

Table A34: Central Serowe Palapye females

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.018586	1859	98338	6838322	68.4
1	98141	0.008356	820	390510	6739984	68.7
5	97321	0.005982	582	485151	6349473	65.2
10	96739	0.006479	627	482129	5864322	60.6
15	96112	0.004491	432	479574	5382193	56.0
20	95681	0.017864	1709	474781	4902619	51.2
25	93972	0.028616	2689	463628	4427838	47.1
30	91283	0.045018	4109	446668	3964210	43.4
35	87173	0.0573	4995	423310	3517541	40.4
40	82178	0.047321	3889	400906	3094231	37.7
45	78289	0.045921	3595	382462	2693325	34.4
50	74694	0.052098	3891	363681	2310863	30.9
55	70803	0.047327	3351	345448	1947182	27.5
60	67452	0.044049	2971	330131	1601734	23.7
65	64481	0.082588	5325	309612	1271603	19.7
70	59155	0.082049	4854	283840	961991	16.3
75	54302	0.117288	6369	256812	678151	12.5
80	47933	1	47933	421339	421339	8.8

Table A35: Central Mahalapye males

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.019839	1984	98214	6043206	60.4
1	98016	0.011125	1090	389440	5944993	60.7
5	96926	0.006976	676	482938	5555553	57.3
10	96250	0.003494	336	480407	5072615	52.7
15	95913	0.007972	765	477913	4592208	47.9
20	95149	0.017857	1699	471968	4114295	43.2
25	93450	0.031051	2902	460585	3642327	39.0
30	90548	0.049801	4509	442100	3181742	35.1
35	86038	0.066366	5710	416792	2739643	31.8
40	80328	0.114989	9237	378562	2322851	28.9
45	71091	0.084218	5987	340180	1944289	27.3
50	65104	0.107374	6990	307951	1604109	24.6
55	58114	0.098404	5719	276263	1296158	22.3
60	52395	0.1296	6790	245142	1019895	19.5
65	45605	0.140308	6399	211878	774753	17.0
70	39206	0.154799	6069	181166	562875	14.4
75	33137	0.238007	7887	146323	381709	11.5
80	25250	1	25250	235386	235386	9.3

Table A36: Central Mahalapye females

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.021965	2197	98058	6467501	64.7
1	97803	0.012304	1203	388191	6369443	65.1
5	96600	0.003992	386	482036	5981251	61.9
10	96214	0.006479	623	479514	5499215	57.2
15	95591	0.008468	809	476175	5019701	52.5
20	94782	0.027669	2622	468300	4543526	47.9
25	92159	0.049782	4588	449792	4075226	44.2
30	87571	0.049282	4316	427293	3625433	41.4
35	83256	0.070022	5830	402048	3198141	38.4
40	77426	0.074446	5765	371944	2796093	36.1
45	71661	0.043471	3115	350021	2424149	33.8
50	68546	0.038724	2654	335996	2074128	30.3
55	65891	0.039715	2617	323074	1738132	26.4
60	63274	0.056005	3544	308145	1415058	22.4
65	59731	0.101699	6075	283858	1106913	18.5
70	53656	0.092474	4962	255763	823055	15.3
75	48694	0.110554	5383	231046	567292	11.7
80	43311	1	43311	336246	336246	7.8

Table A37: Central Bobonong males

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.019936	1994	98205	6119188	61.2
1	98006	0.011914	1168	389215	6020983	61.4
5	96839	0.003494	338	483348	5631768	58.2
10	96500	0.00449	433	481419	5148420	53.4
15	96067	0.003494	336	479562	4667001	48.6
20	95731	0.011444	1096	476317	4187439	43.7
25	94636	0.020321	1923	469040	3711122	39.2
30	92713	0.061749	5725	450783	3242082	35.0
35	86988	0.080654	7016	417615	2791299	32.1
40	79972	0.083436	6673	383478	2373685	29.7
45	73299	0.116814	8562	345259	1990207	27.2
50	64737	0.115079	7450	304076	1644947	25.4
55	57287	0.080398	4606	274152	1340871	23.4
60	52681	0.062996	3319	255287	1066719	20.2
65	49363	0.116503	5751	232829	811432	16.4
70	43612	0.109354	4769	206455	578603	13.3
75	38843	0.195387	7589	176908	372147	9.6
80	31253	1	31253	195239	195239	6.2

Table A38: Central Bobonong females

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.020036	2004	98217	6896600	69.0
1	97996	0.008752	858	389834	6798383	69.4
5	97139	0.003494	339	484845	6408549	66.0
10	96799	0.002497	242	483392	5923703	61.2
15	96558	0.007973	770	481143	5440311	56.3
20	95788	0.014409	1380	475936	4959168	51.8
25	94408	0.038332	3619	463957	4483232	47.5
30	90789	0.055021	4995	442059	4019275	44.3
35	85793	0.075009	6435	412519	3577215	41.7
40	79358	0.049177	3903	386399	3164696	39.9
45	75456	0.03872	2922	369828	2778297	36.8
50	72534	0.04208	3052	354907	2408469	33.2
55	69482	0.034381	2389	341262	2053562	29.6
60	67093	0.031983	2146	330130	1712300	25.5
65	64947	0.03919	2545	318158	1382169	21.3
70	62402	0.023229	1450	308416	1064012	17.1
75	60952	0.045615	2780	298958	755596	12.4
80	58172	1	58172	456638	456638	7.8

Table A39: Central Boteti females

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.01187	1187	98915	6818466	68.2
1	98813	0.005581	551	393876	6719551	68.0
5	98262	0.002996	294	490572	6325675	64.4
10	97967	0.002996	293	489103	5835103	59.6
15	97674	0.004492	439	487461	5346000	54.7
20	97235	0.023758	2310	481265	4858539	50.0
25	94925	0.028119	2669	468276	4377273	46.1
30	92256	0.044522	4107	451361	3908997	42.4
35	88148	0.045925	4048	430663	3457636	39.2
40	84100	0.05114	4301	409606	3026973	36.0
45	79799	0.04355	3475	390483	2617368	32.8
50	76324	0.070481	5379	368450	2226885	29.2
55	70945	0.063801	4526	342907	1858435	26.2
60	66418	0.047874	3180	324459	1515528	22.8
65	63239	0.111291	7038	299485	1191068	18.8
70	56201	0.107359	6034	265799	891583	15.9
75	50167	0.126016	6322	235890	625784	12.5
80	43845	1	43845	389893	389893	8.9

Table A39: Central Boteti females

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.01187	1187	98915	6818466	68.2
1	98813	0.005581	551	393876	6719551	68.0
5	98262	0.002996	294	490572	6325675	64.4
10	97967	0.002996	293	489103	5835103	59.6
15	97674	0.004492	439	487461	5346000	54.7
20	97235	0.023758	2310	481265	4858539	50.0
25	94925	0.028119	2669	468276	4377273	46.1
30	92256	0.044522	4107	451361	3908997	42.4
35	88148	0.045925	4048	430663	3457636	39.2
40	84100	0.05114	4301	409606	3026973	36.0
45	79799	0.04355	3475	390483	2617368	32.8
50	76324	0.070481	5379	368450	2226885	29.2
55	70945	0.063801	4526	342907	1858435	26.2
60	66418	0.047874	3180	324459	1515528	22.8
65	63239	0.111291	7038	299485	1191068	18.8
70	56201	0.107359	6034	265799	891583	15.9
75	50167	0.126016	6322	235890	625784	12.5
80	43845	1	43845	389893	389893	8.9

Table A39b: Central Boteti both sexes

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.013824	1382	98744	6573640	65.7
1	98617.58	0.011911	1175	391536	6474896	65.7
5	97442.98	0.006479	631	485637	6083360	62.4
10	96811.65	0.001499	145	483695	5597724	57.8
15	96666.54	0.007975	771	481827	5114028	52.9
20	95895.62	0.020801	1995	474930	4632201	48.3
25	93900.91	0.023736	2229	464340	4157271	44.3
30	91672.08	0.051702	4740	447131	3692931	40.3
35	86932.48	0.048785	4241	424096	3245799	37.3
40	82691.53	0.059133	4890	400802	2821704	34.1
45	77801.74	0.036338	2827	382053	2420901	31.1
50	74974.55	0.076612	5744	361253	2038848	27.2
55	69230.63	0.077392	5358	332789	1677595	24.2
60	63872.72	0.091698	5857	305053	1344806	21.1
65	58015.71	0.120449	6988	272966	1039754	17.9
70	51027.78	0.146689	7485	236126	766788	15.0
75	43542.58	0.135464	5898	203394	530662	12.2
80	37644.14	1	37644	327267	327267	8.7

Table A40: Central Tutume males

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.013824	1382	98744	6573640	65.7
1	98617.58	0.011911	1175	391536	6474896	65.7
5	97442.98	0.006479	631	485637	6083360	62.4
10	96811.65	0.001499	145	483695	5597724	57.8
15	96666.54	0.007975	771	481827	5114028	52.9
20	95895.62	0.020801	1995	474930	4632201	48.3
25	93900.91	0.023736	2229	464340	4157271	44.3
30	91672.08	0.051702	4740	447131	3692931	40.3
35	86932.48	0.048785	4241	424096	3245799	37.3
40	82691.53	0.059133	4890	400802	2821704	34.1
45	77801.74	0.036338	2827	382053	2420901	31.1
50	74974.55	0.076612	5744	361253	2038848	27.2
55	69230.63	0.077392	5358	332789	1677595	24.2
60	63872.72	0.091698	5857	305053	1344806	21.1
65	58015.71	0.120449	6988	272966	1039754	17.9
70	51027.78	0.146689	7485	236126	766788	15.0
75	43542.58	0.135464	5898	203394	530662	12.2
80	37644.14	1	37644	327267	327267	8.7

Table A41: Central Tutume females

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.020229	2023	98200.97	6684077	66.84077
1	97977	0.011516	1128	389077.4	6585876	67.21855
5	96849	0.003494	338	483397.7	6196798	63.9843
10	96510	0.003992	385	481588.6	5713400	59.19987
15	96125	0.011938	1148	478158.3	5231812	54.42712
20	94978	0.021785	2069	470236	4753654	50.05031
25	92908	0.041189	3827	455570.8	4283418	46.10363
30	89082	0.049301	4392	434829.7	3827847	42.97008
35	84690	0.069444	5881	408415.1	3393017	40.06401
40	78809	0.043492	3428	385114.2	2984602	37.87147
45	75381	0.046414	3499	368289.3	2599488	34.48456
50	71882	0.056792	4082	348917.1	2231198	31.03954
55	67800	0.037271	2527	332499.1	1882281	27.76221
60	65273	0.04357	2844	319543.5	1549782	23.74304
65	62429	0.065331	4079	302116.6	1230239	19.70615
70	58351	0.060187	3512	283219.6	928122.1	15.90595
75	54839	0.102154	5602	261774.9	644902.5	11.75999
80	49237	1	49237	383127.6	383127.6	7.78134

Table A42: North East males

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.018582	1858	98320	6591253	65.9
1	98142	0.006375	626	391063	6492933	66.2
5	97516	0.005485	535	486243	6101870	62.6
10	96981	0.007968	773	482974	5615627	57.9
15	96208	0.002995	288	480309	5132653	53.3
20	95920	0.006481	622	478235	4652344	48.5
25	95299	0.012931	1232	473960	4174109	43.8
30	94066	0.055145	5187	459052	3700148	39.3
35	88879	0.067209	5973	429744	3241096	36.5
40	82906	0.078062	6472	397040	2811352	33.9
45	76434	0.030521	2333	376269	2414312	31.6
50	74101	0.072915	5403	357821	2038043	27.5
55	68698	0.072169	4958	330524	1680222	24.5
60	63740	0.049322	3144	311264	1349698	21.2
65	60596	0.147492	8937	281939	1038433	17.1
70	51659	0.130117	6722	240920	756495	14.6
75	44937	0.130816	5878	210698	515575	11.5
80	39059	1	39059	304877	304877	7.8

Table A43: North East females

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.009712	971	99106	6907583	69.1
1	99029	0.00796	788	394151	6808477	68.8
5	98240	0.001499	147	490834	6414327	65.3
10	98093	0.003992	392	489487	5923492	60.4
15	97702	0.007476	730	486959	5434005	55.6
20	96971	0.024724	2397	479495	4947047	51.0
25	94574	0.027634	2613	466687	4467551	47.2
30	91960	0.049336	4537	449202	4000864	43.5
35	87423	0.065741	5747	422597	3551662	40.6
40	81676	0.049729	4062	398200	3129065	38.3
45	77614	0.070393	5464	374213	2730865	35.2
50	72151	0.048209	3478	351342	2356652	32.7
55	68673	0.029549	2029	338200	2005310	29.2
60	66643	0.041646	2775	326524	1667110	25.0
65	63868	0.048849	3120	311987	1340586	21.0
70	60748	0.089438	5433	290546	1028598	16.9
75	55315	0.081739	4521	265964	738052	13.3
80	50793	1	50793	472088	472088	9.3

Table A44: Ngamiland East males

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.02321	2321	97933	5924032	59.2
1	97679	0.013883	1356	387439	5826100	59.6
5	96323	0.002996	289	480893	5438661	56.5
10	96034	0.012916	1240	477071	4957768	51.6
15	94794	0.005485	520	472673	4480697	47.3
20	94274	0.013423	1265	468676	4008023	42.5
25	93009	0.033005	3070	458170	3539347	38.1
30	89939	0.049292	4433	438942	3081177	34.3
35	85506	0.051703	4421	417066	2642236	30.9
40	81085	0.101359	8219	385853	2225170	27.4
45	72866	0.10955	7982	344072	1839317	25.2
50	64884	0.105911	6872	306782	1495245	23.0
55	58012	0.100166	5811	275394	1188463	20.5
60	52201	0.116487	6081	246184	913069	17.5
65	46120	0.16653	7680	210421	666885	14.5
70	38440	0.092265	3547	183764	456464	11.9
75	34893	0.336757	11750	147991	272700	7.8
80	23143	1	23143	124709	124709	5.4

Table A45: Ngamiland East females

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.027145	2714	97642	6164250	61.6
1	97286	0.014663	1427	385547	6066607	62.4
5	95859	0.012422	1191	476318	5681060	59.3
10	94668	0.006479	613	471808	5204742	55.0
15	94055	0.015396	1448	467111	4732934	50.3
20	92607	0.03007	2785	456501	4265823	46.1
25	89822	0.033929	3048	441674	3809322	42.4
30	86775	0.042626	3699	425152	3367648	38.8
35	83076	0.071827	5967	400474	2942496	35.4
40	77109	0.049697	3832	375696	2542022	33.0
45	73277	0.057331	4201	356016	2166326	29.6
50	69076	0.064846	4479	334273	1810310	26.2
55	64596	0.071906	4645	311736	1476037	22.9
60	59952	0.107373	6437	283576	1164302	19.4
65	53514	0.083801	4485	256261	880726	16.5
70	49030	0.114951	5636	231936	624465	12.7
75	43394	0.212179	9207	195483	392529	9.0
80	34187	1	34187	197046	197046	5.8

Table A46: Ngamiland West males

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.030565	3057	97342	6373247	63.7
1	96943	0.017805	1726	383564	6275906	64.7
5	95217	0.006976	664	474427	5892342	61.9
10	94553	0.002497	236	472176	5417915	57.3
15	94317	0.007973	752	469994	4945739	52.4
20	93565	0.015887	1486	464509	4475745	47.8
25	92079	0.029598	2725	454221	4011236	43.6
30	89353	0.051261	4580	436221	3557015	39.8
35	84773	0.082457	6990	406405	3120794	36.8
40	77783	0.061036	4748	376792	2714389	34.9
45	73035	0.072626	5304	351274	2337597	32.0
50	67731	0.040139	2719	331544	1986323	29.3
55	65012	0.045914	2985	317549	1654779	25.5
60	62027	0.040687	2524	304064	1337230	21.6
65	59504	0.077214	4595	287159	1033166	17.4
70	54909	0.147354	8091	256047	746007	13.6
75	46818	0.266447	12475	203833	489960	10.5
80	34344	1	34344	286127	286127	8.3

Table A46: Ngamiland West Females

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.02456	2456	97848	6953283	69.5
1	97544.02	0.011122	1085	387447	6855435	70.3
5	96459.17	0.004988	481	481093	6467989	67.1
10	95978.08	0.003992	383	478933	5986896	62.4
15	95594.93	0.008965	857	476116	5507963	57.6
20	94737.92	0.019821	1878	469457	5031847	53.1
25	92860.09	0.030066	2792	457688	4562390	49.1
30	90068.2	0.039227	3533	441640	4104702	45.6
35	86535.08	0.038699	3349	423906	3663062	42.3
40	83186.22	0.024205	2013	410917	3239156	38.9
45	81172.73	0.042573	3456	397218	2828239	34.8
50	77716.93	0.026156	2033	383539	2431021	31.3
55	75684.17	0.048769	3691	369102	2047481	27.1
60	71993.15	0.025681	1849	355546	1678379	23.3
65	70144.31	0.085583	6003	337255	1322834	18.9
70	64141.18	0.10124	6494	304867	985579	15.4
75	57647.51	0.138037	7957	269745	680712	11.8
80	49690.05	1	49690	410967	410967	8.3

Table A47: Kgalagadi males

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.018969	1897	98287	6582352	65.8
1	98103	0.020543	2015	387567	6484065	66.1
5	96088	0.005485	527	479121	6096498	63.4
10	95561	0.002996	286	477088	5617377	58.8
15	95274	0.01045	996	474095	5140289	54.0
20	94279	0.008467	798	469550	4666195	49.5
25	93481	0.026195	2449	462025	4196645	44.9
30	91032	0.037812	3442	447023	3734620	41.0
35	87590	0.053524	4688	426194	3287598	37.5
40	82902	0.040646	3370	405980	2861403	34.5
45	79532	0.050236	3995	387900	2455424	30.9
50	75537	0.058741	4437	366701	2067524	27.4
55	71100	0.063484	4514	344558	1700823	23.9
60	66586	0.094605	6299	316552	1356265	20.4
65	60286	0.048334	2914	294335	1039713	17.2
70	57373	0.139487	8003	267650	745378	13.0
75	49370	0.102463	5059	235284	477728	9.7
80	44311	1	44311	242444	242444	5.5

Table A48: Kgalagadi females

Age	I(x)	q(x,n)	d(x,n)	L(x,n)	T(x)	e(x)
0	100000	0.020808	2081	98153	6837682	68.4
1	97919	0.00796	779	389720	6739529	68.8
5	97140	0.013903	1351	482322	6349809	65.4
10	95789	0.002996	287	478229	5867487	61.3
15	95502	0.003992	381	476580	5389258	56.4
20	95121	0.003993	380	474784	4912678	51.6
25	94741	0.020331	1926	469803	4437893	46.8
30	92815	0.039752	3690	455504	3968090	42.8
35	89125	0.050682	4517	434336	3512586	39.4
40	84608	0.044024	3725	413862	3078251	36.4
45	80884	0.065209	5274	390692	2664388	32.9
50	75609	0.031021	2345	372300	2273697	30.1
55	73264	0.087434	6406	350039	1901396	26.0
60	66858	0.030536	2042	329289	1551358	23.2
65	64816	0.117567	7620	307268	1222069	18.9
70	57196	0.150166	8589	264274	914801	16.0
75	48607	0.140191	6814	226388	650527	13.4
80	41793	1	41793	424139	424139	10.1

Table A49: Ghanzi females

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.015286	1529	98618	6466493	64.7
1	98471.42	0.019363	1907	389117	6367875	64.7
5	96564.75	0.008464	817	480780	5978757	61.9
10	95747.42	0.01094	1047	476118	5497977	57.4
15	94699.96	0.011933	1130	470843	5021858	53.0
20	93569.94	0.022753	2129	462832	4551016	48.6
25	91440.91	0.024703	2259	451770	4088183	44.7
30	89182.06	0.037271	3324	437358	3636413	40.8
35	85858.14	0.018825	1616	425346	3199055	37.3
40	84241.82	0.051263	4318	411283	2773709	32.9
45	79923.35	0.054058	4321	389235	2362427	29.6
50	75602.84	0.08917	6741	360506	1973192	26.1
55	68861.37	0.041144	2833	337291	1612685	23.4
60	66028.13	0.108526	7166	314288	1275394	19.3
65	58862.35	0.189264	11141	265250	961105	16.3
70	47721.84	0.097734	4664	226409	695855	14.6
75	43057.82	0.138477	5963	201437	469446	10.9
80	37095.29	1	37095	268009	268009	7.2

Table A50: Ghanzi both sexes

Age	$I(x)$	$q(x,n)$	$d(x,n)$	$L(x,n)$	$T(x)$	$e(x)$
0	100000	0.015869	1587	98568	6747522	67.5
1	98413.06	0.015057	1482	389945	6648954	67.6
5	96931.26	0.004988	483	483448	6259009	64.6
10	96447.82	0.007472	721	480437	5775561	59.9
15	95727.16	0.005983	573	477310	5295124	55.3
20	95154.39	0.018347	1746	471832	4817814	50.6
25	93408.61	0.019807	1850	462533	4345982	46.5
30	91558.48	0.025679	2351	452134	3883448	42.4
35	89207.38	0.032486	2898	439083	3431314	38.5
40	86309.43	0.044026	3800	422204	2992231	34.7
45	82509.59	0.043082	3555	403944	2570027	31.1
50	78954.88	0.069462	5484	380859	2166082	27.4
55	73470.51	0.041636	3059	359885	1785223	24.3
60	70411.48	0.099329	6994	336246	1425338	20.2
65	63417.57	0.152232	9654	292551	1089092	17.2
70	53763.38	0.111917	6017	253883	796541	14.8
75	47746.36	0.205859	9829	215549	542658	11.4
80	37917.34	1	37917	327109	327109	8.6

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Kenabetsho Bainame, University of Botswana presenting on Fertility Levels & Trends & Differentials

1. Introduction

The current chapter presents an analysis of the Botswana 2011 Population and Housing Census data to establish fertility levels, differentials and trends in the country. It is hoped that the analysis will facilitate effective planning, implementation and monitoring of projects and programmes that are affected by fertility patterns. The Chapter is organised into six sections. The second section provides a brief outline of the current trend in the levels and differentials of fertility in Botswana. The third section describes how and why the Census collected fertility data the way it did. The section further examines the quality of the data. The fourth section discusses different methods that could be applied to the data to derive estimates of fertility. This discussion is immediately followed by the results section that presents the estimates of total fertility rate (TFR). The last section discusses how the estimates fit in the existing trend of fertility levels in Botswana.

2. Overview of levels, trends and differentials of fertility in Botswana

Previous studies on the levels and trends of fertility in sub-Saharan Africa (e.g. Kirk & Pillet, 1998; Kalipeni, 1995; Rustein & Blanc, 1994; Thomas & Muvandi, 1994; Cohen, 1993; Freedman & Blanc, 1992; Caldwell et al, 1992; and Cross et al. 1991) heralded three countries (Botswana, Zimbabwe, and Kenya) as the pioneers of the fertility transition that is currently underway in the region. Fertility began to decline in Botswana and Zimbabwe in the 1970s while in Kenya the decline was first observed in the 1980s (Anderson, 2003). The TFR of Botswana decreased from 6.8 in 1970 to 3.1 in 2007 (Anderson, 2003; Population Reference Bureau 2007).

The 2006 Botswana Demographic Survey showed that the country's total fertility rate (TFR) fell by more than three points between 1971 and 2001, from 6.5 to 3.3 births per woman. Between 1971 and 1981, it increased slightly from 6.5 to 6.6 births per woman. In 1981 the TFR started a sustained decline, falling from 6.6 to 3.3 births per woman in 2001 and further declined slightly to 3.2 births in 2006 (Central Statistics Office, 2009). It is evident from this discussion that overall, Botswana is a country of a relatively low and declining fertility.

3. Fertility data

In developing countries, Botswana included, complete reporting of vital events remains a challenge. Therefore demographic parameters such as the TFR are estimated from household surveys or census data. Direct estimation of fertility levels from survey or census data from developing countries is often impossible because data obtained from questions on current fertility (i.e. births in the last 12 months before enumeration date) are usually fraught with problems. Generally, these data tend to yield lower age-specific fertility rates (ASFR), especially among younger women (Feeney, 1998). This consequently leads to lower estimates of TFR than is the case. The problem is addressed by employing indirect estimation techniques that involve applying some multipliers (derived from parity data), to adjust the observed ASFRs to arrive at a more reliable approximation of TFR (United Nations, 1983).

Firstly, the 2011 census collected the two pieces of information required for indirect estimation of fertility. Parity data were gathered by asking women aged 12–49 years at the time of enumeration what are commonly referred to as Brass-type questions (i.e. questions on parity/total number of children (live births) ever born (CEB), and its components, children surviving and children dead. Secondly, the 2011 census asked the women to provide the full date (day, month, and year) of their last birth. This information can be used to derive the number of births that occurred within the last 12 months into the survey and hence facilitate the calculation of ASFRs and the TFR.

In an attempt to address the problems that were encountered with parity data in the past (e.g. women reporting surviving children as total children ever born), the 2011 census asked detailed filtering questions for each of the components that constitute the total number of children ever born. Thus, in addition to responses to the question on the total number of live births that a woman had experienced at the time of enumeration, she was also asked to report on the total number of children that are male and those that are female. In addition, the woman was asked to report, by sex of the child, the total number of children that live with her in the household in which she was enumerated and the number living elsewhere. Finally, she was also required to give the total number of her children that had died and disaggregate the number by sex of the children.

3.1 Assessment of data

The reliability of age specific fertility rates (ASFRs) and consequently TFR estimates obtained from Brass-type questions depends on the quality of reported parities as well as the quality of the data on births in the last 12 months before survey. However, the accuracy of these data also depends on the quality of age reporting among women of reproductive ages (Arriaga, 1994; Retherford & Mirza, 1982). In the next sub-sections, the report examines the quality of age data, parity data and the current fertility data.

3.1.1 Quality of age data

The first step is to examine the edited 2011 census data for age reporting errors. Various methods have been developed to assess deficiencies in age data. These include the Whipple's index, the Myers' blended index and the United Nation's age-sex accuracy index. The Whipple's and Myers' indexes perform analysis of digit preference in reported single year age distributions whilst the UN age-sex accuracy index provides a picture about the accuracy of age data by combining analysis of age ratios and analysis of sex ratios (Shryock et al. 1976; Arriaga, 1994).

Table 1: Summary Indices of Age Misreporting, Botswana 2011 Census

Index	Male	Female	Both Sexes
Whipple's	1.01	1.00	1.01
Myers	2.3	2.3	2.2
Bachi	1.1	1.3	1.2

In order to get a broad picture about the magnitude of age preference, Whipples, Myers and the Bachi indices were computed separately for males and females and for both sexes combined (see Table 1). The respective values are 1.0, 2.2, and 1.2 for both sexes. All three indices support the earlier argument which indicates that age reporting was accurate. On the basis of Whipple's Index, the quality of age reporting in the Botswana's 2011 census data is very good, with Whipple's Index of 101 for males, 100 for females and 101 for both sexes. These data show that there was no digit preference for "0" or "5". Myers' index was computed to detect preference for certain terminal digits. Myers indices show that there was no digit preference in the 2011 census data. Myers Indices of 2.3 for males and females separately and 2.2 for both sexes combined were reported for the 2011 census data. The indices show no digit preference.

This report employs the United Nations' age-sex accuracy index (Shryock et al. 1976; Arriaga, 1994) to evaluate the quality of age data in the 2011 census. The method was selected because it uses age data (in 5-year age groups) for both sexes and consequently provides an overall evaluation of age and sex data in a population. Although our interest is on the quality of age data for women in reproductive ages, it is an added advantage to know the overall quality of the data in the 2011 census. The index uses sex ratios and age ratio scores (for both sexes) to assign a composite score that shows the relative ranking of the quality of a given age-sex population distribution (Shryock et al. 1976; Arriaga, 1994). The UN classifies population age-sex structures into three categories: 1) accurate – if the index score is less than 20; 2) inaccurate – if the score is between 20 and 40; and 3) highly inaccurate – if the score is above 40. The results from the UN age-sex accuracy index indicate that the 2011 population census age data are not of good quality, with an index score of 21.0. However, this figure is slightly above the cut-off point of 20 score reflecting good quality data.

3.1.2 Quality of parity data

The report follows a five-step approach in evaluating the quality of the parity data collected in the 2011 census. In the case of age data, the report firstly examines the quality of the data by examining their internal consistency. This approach involves checking the distribution of women by reported children ever born, looking for implausible figures in the reports. Specifically, the report checks for the reported numbers of CEB that are physiologically not possible or not consistent with what is known about fertility behaviour in Botswana. The second assessment of the CEB data involves an evaluation of the pattern of average parities by age of mother and consistency checks in the reported average parities in 2011 census and other datasets, to determine whether cohorts of women reported consistent numbers of CEB. This type of evaluation is, however, suited for the terminal ages of the reproductive life span because less childbearing occurs in those ages. The final assessment employs the diagnostic properties of the P/F (Parity/Fertility) ratio method (Brass et al. 1968) to evaluate the accuracy of parity data in relation to current fertility data in the 2011 census.

Distribution of women by age and parity

Table 1 shows the distribution, by age group and reported CEB, of all women in the childbearing ages. The overall table shows that the 2011 census parity data are consistent with the expected trend, which may imply that data are of good quality. For instance, as expected, the proportion of childless women decreases with age. The table also shows evidence of suspicious age-specific reporting of CEB. For instance, some women in the age group 15-19 reported up to 10+ children. Although these parities are possible with multiple births, they are highly unlikely.

Age group	Total Children Ever Born (CEB)											Total
	0	1	2	3	4	5	6	7	8	9	10+	
N	N	N	N	N	N	N	N	N	N	N	N	
15 - 19	59724	135	3	1	3	0	0	1	0	0	0	59867
20 - 24	96972	7529	1133	204	56	29	2	1	0	0	1	105928
25 - 29	52474	32728	13081	3615	877	202	69	30	15	8	2	103101
30 - 34	26028	35501	26392	12038	4531	1490	436	142	72	25	3	106658
35 - 39	11498	20805	23858	15862	7937	3531	1553	602	231	82	67	86027
40 - 44	5884	10824	16671	14047	9043	5116	2712	1344	640	284	219	66784
45 - 49	3245	5720	9966	10396	8198	5354	3341	2017	1150	583	560	50530
Total	257980	116797	97808	64175	38265	21462	12279	6901	3839	1893	1077	623275

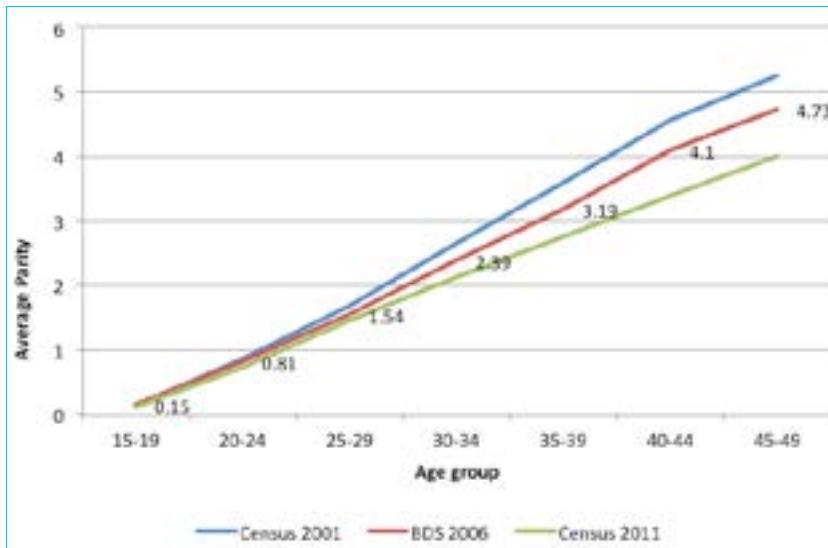
Consistency check of average parities in 2011 census

This part of evaluation involves an assessment of consistency in the reported average parities, to ascertain whether cohorts of women reported consistent numbers of CEB over time. It requires that the census data are compared with data from other sources and, as earlier mentioned, is suited for the terminal ages of the reproductive life span because less child bearing occurs in those ages. Figure 1 compares the average parities by age group of women in reproductive ages in the census with corresponding average parities in the 2006 Botswana Demographic Survey and 2001 population census.

Figure 1 show that the average parities from the 2011 census are in the expected direction when evaluated in concert with what was observed in the 2006 BDS and 2001 population census.

As expected when the data are of good quality, all the three data sources show average parities that increase rapidly with age. In addition, the 2011 data are consistent with the 2006 BDS and 2001 population data sources when using parity of cohorts of women over time. The average parities shown in Figure 1 suggest a decline in fertility between 2001 and 2011 censuses. This trend is commensurate with what is known about fertility trends in Botswana.

Figure 1: Average parities by age group of women, 2001-2011



Patterns of the P/F ratios observed in the 2011

In addition to it being a technique for estimating TFR, the (Brass, 1968) P/F ratio method can also be employed as a diagnostic tool in the evaluation of fertility data obtained in a survey or census (Chahnazarian, 1993; Rutenberg & Diamond, 1993; Hobcraft, Goldman & Chidambaram, 1982; Trussell & Hill, 1980). The method assumes that fertility has been constant in recent years, and errors in the data on current births are not correlated with the age of the mother. In the application of the method, mean parity equivalents (Fis) are estimated and compared with reported mean parities (Pis). The P/F ratios by age serve as indicators of the consistency and accuracy of the two sets of data.

The application of the P/F ratio method in the evaluation of 2011 census data shows that ratios are above unity, ranging from 1.10 to 1.39. This pattern implies three scenarios. The first is that there is an error of underreporting of current fertility relative to lifetime fertility. Secondly, that pattern suggests a declining fertility trend in Botswana in the recent past. Finally the pattern may imply that mean parities were over-reported. The first two scenarios are more probable while the last one is highly unlikely given existing evidence.

Age	Reported ASFR (f_i)	Average CEB (P_i)	Cumulative fertility Phi (i) (5^*f_i)	F(i)	P/F ratio
15-19	0.039	0.102	0.195	0.08	1.279
20-24	0.138	0.728	0.883	0.595	1.223
25-29	0.137	1.448	1.567	1.299	1.115
30-34	0.117	2.12	2.15	1.926	1.1
35-39	0.09	2.751	2.598	2.433	1.131
40-44	0.045	3.384	2.821	2.735	1.237
45-49	0.014	4.002	2.893	2.877	1.391
Total	2.893				

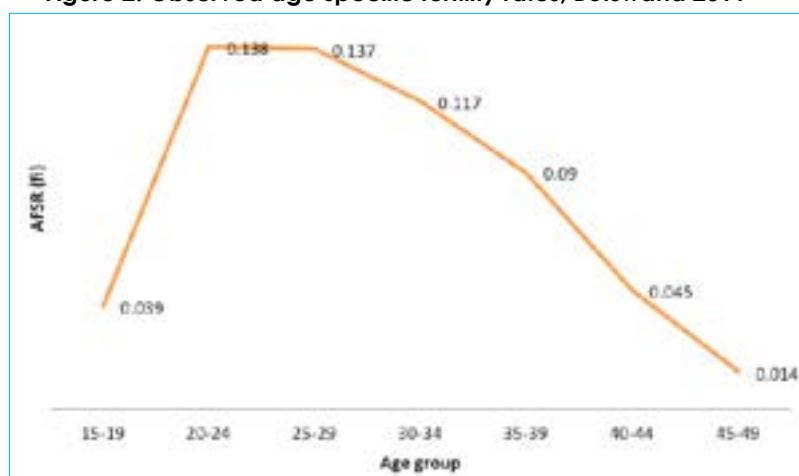
3.1.3 Quality of data on births in the last 12 months before enumeration

Women aged 12-49 years were asked to provide the number of children born alive since Independence Day 2010. This approach sought to address the known problem that women (especially younger ones) tend to underreport births when responding to the question on births during the 12 months prior to a survey/census. This section of the chapter briefly evaluates the 2011 census data, focusing on the observed patterns of ASFRs. It uses the 12-month period encompassed by Independence Day (30 September) 2010 and Independence Day (30 September) 2011 as reference. Accordingly, all births that occurred during the reference period are used to calculate ASFRs and the TFR.

The observed ASFRs

Figure 2 shows the pattern of the ASFRs obtained from the data in the last 12 months which looks plausible and suggests that the 2011 population data could be used to derive credible fertility estimates. The graph shows the ASFRs that are consistent with what is known about fertility behaviour of Botswana's population.

Figure 2: Observed age specific fertility rates, Botswana 2011



The calculation of current fertility using a direct estimation method gives a TFR of 2.89. Because the assessment of the quality of data suggests that the census data are of good quality, this estimate can reliably be used as the correct estimate of the average number of children born per woman. In order to satisfy ourselves, we used an indirect estimation technique by Arriaga to estimate TFR and obtained a similar estimate of TFR, 2.78.

3.1.4 Conclusion on the assessment of fertility data

In light of the preceding evaluation of the quality of different aspects of fertility data collected in the 2011 population and housing census, the following conclusions were made:

The shape of the current fertility schedule obtained in the 2011 census suggest that the data are of good quality;

The data assessment methods exhibit that the Botswana census data are of good quality and this evidence was obtained from the Whipples, Myers and Bach indices. However the UN Age-Sex Accuracy Index shows that the quality of age data is not good.

4. Methods used to estimate fertility levels

Several techniques could be employed to indirectly estimate fertility levels from parity and current fertility data as obtained in the 2011 census. The main techniques are discussed below.

4.1 The P/F Ratio Method

The P/F ratio method is based on the following assumptions: (1) fertility has been constant in the recent past; (2) the level of underreporting of births in the year prior to the census/survey does not vary by age; (3) data on CEB for younger women (up to 35 years of age) are more completely reported than births in the previous year (Feeney, 1998; United Nations, 1983); and (4) age misreporting among women of childbearing ages is negligible.

The assumptions do not quite hold in the current Botswana situation. For instance, the crucial assumption of constancy of fertility in the period immediately before a census/survey data collection is not true for the country's population. Several studies (e.g. CSO, 2009; Letamo and Gaisie, 1999; Thomas and Muvandi, 1994; Rutenberg and Diamond, 1993) have shown that fertility has been declining in the country since the 1980s. This trend is corroborated by the average parities shown in Figure 1, which indicate that fertility continued to decline during the period 1996–2006.

Some refinements to the method have been proposed. These include: (1) the Feeney (1998) approach; and (2) the Synthetic cohort P/F ratio method. The calculated P/F ratios indicate that the P/F ratio method cannot be used to adjust ASFRs as the ratios are three times above unity, which could indicate the declining fertility. Some of the indirect techniques require certain assumptions regarding the past course of fertility. For example, the Brass P/F Ratio method requires fertility to have remained unchanged. If this method is applied to data when fertility has been declining, as is currently the case in Botswana, it overestimates current fertility. The estimated TFR from P/F Ratio method was 3.2 based on the adjustment factor of averages of P3/F3 and P4/F4n which is highly likely to be an overestimate. Therefore, it was decided that because one of the key assumptions of the P/F ratio method has been violated, it cannot be used to provide reliable fertility estimates in the context of Botswana.

4.2 The Gompertz Relational Method

The method fits a Gompertz function to data on average number of children ever born or ASFRs, by age of women. The advantage of the method is that it provides estimates of TFR based on each 5-year age group in childbearing ages, which allows for inferences about trends in the level of fertility (Arriaga, 1994). Another attractive property of the Relational Gompertz method is that it is flexible enough to fit good data well but bad data badly (Udjo 2009). The main limitations of the method include: (1) the results obtained by applying the method are highly sensitive to errors in the reported numbers of children ever born by women; (2) estimates based on data for women aged 15–19 years are not reliable because data for these ages are sensitive to information errors; (3) the method is only well suited for populations with medium to high fertility (Paget & Timaeus, 1994; Booth, 1984). Estimates derived from Gompertz relational method are rather high. As such this method is not used to estimate fertility for Botswana.

Table 4: Calculation of corrected fertility rates using Gompertz Relational Method, Botswana 2011

		P_2/F_2	P_3/F_3	P_4/F_4	Avg ($P_3/F_3, P_4/F_4$)
Age	ASFR	-1.223	-1.115	-1.1	-1.108
15-19	0.039	0.059	0.054	0.053	0.054
20-24	0.138	0.174	0.159	0.157	0.158
25-29	0.137	0.166	0.151	0.149	0.150
30-34	0.117	0.140	0.127	0.126	0.126
35-39	0.09	0.106	0.096	0.095	0.096
40-44	0.045	0.050	0.045	0.045	0.045
45-49	0.014	0.014	0.013	0.012	0.013
TFR	2.893	3.539	3.226	3.184	3.205

4.4 Methods used to estimate TFR

4.4.1 The Arriaga Method

Unlike the P/F ratio method, the Arriaga (1983) method does not make the assumption of constancy of fertility in the period preceding a survey/census. Based on a simulation model, Arriaga (1994) shows that under conditions of declining fertility, the number of children ever born by age of mother changes linearly for mothers under 35 years of age. This observation and the fact that parity reports for women under 35 years of age are usually of good quality, allow for linear interpolation of the data on children ever born per woman by age of mother from two or more censuses/surveys to derive estimates of children ever born for one year prior (or posterior) to the date of the census/survey (Arriaga, 1994). Thus, having information on the average number of children ever born per woman by age of mother for two consecutive years, the cohort differences between them for each single year of age of the female population represent ASFRs by single year of age. The method is affected by misreporting of children in older ages. However, as with the P/F ratio method, if an age pattern of fertility is available, such a pattern can be adjusted to the fertility level implied by the fertility rates derived from the information on children ever born. We use this technique to indirectly estimate TFR for 2011 census, alongside the direct TFR estimate.

5. Results

The fertility estimates presented according to levels, trends and differentials were derived from the Arriaga method. All other fertility estimation methods were considered inadequate especially where the method assumptions were violated.

5.1 Fertility Levels

Table 5 below shows estimates of fertility based on the Arriaga Method, with adjusted ASFRs based on different age groups. According to the estimates of fertility based on the Arriaga Method, total fertility rate for Botswana in 2011 was estimated to range from 2.7 to 3.0 depending on the age group used to adjust the ASFRs data. However the estimated TFR for Botswana is 2.78 derived from the adjusted ASFR and TFR based on women 25-34 because the technique recommends the adjustment factor close to mean age at childbearing which is 29.9 years. If the adjustment factor used to adjust ASFRs is for women aged 25-29 years, then the estimated TFR would be almost the same as the reported TFR, which are 2.898 and 2.893, respectively.

Table 5: Age-Specific Fertility Rates and Total Fertility Rates, by Maternal Age, Botswana 2011

Age group	Reported ASFR	Adjusted ASFRs based on age group			
		20-29	25-29	25-34	30-34
15-19	0.039	0.041	0.039	0.038	0.036
20-24	0.138	0.145	0.138	0.132	0.127
25-29	0.137	0.145	0.137	0.132	0.126
30-34	0.117	0.123	0.117	0.112	0.108
35-39	0.09	0.095	0.090	0.086	0.083
40-44	0.045	0.047	0.045	0.043	0.041
45-49	0.014	0.015	0.014	0.014	0.013
Total Fertility Rate	2.893	3.057	2.898	2.783	2.669
Mean Age	29.85	-	-	-	-

*Using Arriaga fertility estimate with adjusted ASFRs based on age group 25-29 which is 0.963.

The TFR estimate is plausible because it is consistent with fertility trends in the region. For instance South Africa's national TFR was estimated to be 2.8 and for the Black population TFR was 2.9 in 2006 (Statistics South Africa, 2010) and 2.43 in 2011. Namibia's TFR was estimated to be 3.2, Zimbabwe 3.2, Lesotho 3.1 and Botswana 2.7 in 2011 (World Bank, 2013). Therefore Botswana's TFR of 2.8 in 2011 appears to be a plausible estimate.

5.2 Fertility Trends

Data from the previous censuses show that fertility has been declining since the 1980s. TFR was 6.6 children per woman in 1981 and decreased to 4.2 in 1991, 3.3 in 2001 and 2.8 in 2011 (see Table 6 below). Thus fertility decline has been sustained since the 1980s. An analysis of the ASFRs show a substantial decrease in the 15-29 year-olds particularly between 2001 and 2011.

Age group	1971	1981	1991	2001	2011*
15-19	0.096	0.102	0.054	0.053	0.038
20-24	0.278	0.260	0.134	0.171	0.132
25-29	0.276	0.250	0.134	0.202	0.132
30-34	0.243	0.234	0.119	0.130	0.112
35-39	0.198	0.190	0.102	0.069	0.086
40-44	0.138	0.134	0.064	0.026	0.043
45-49	0.071	0.084	0.036	0.003	0.014
TFR	6.5	6.6	4.2	3.3	2.8

*Using Arriaga fertility estimate with adjusted ASFRs based on age group 25-29 which is 0.963.

The completed family size is the number of children ever born by the end of reproductive period of a woman's life. It tends to exhibit much more stability than do age-specific fertility rates from year to year. Usually the average parity of women aged 45-49 is taken to represent the completed family size with the assumption that fertility of older cohorts are equal to the current fertility experience of women in childbearing ages. Evidence from Table 7 buttresses the consistent fertility decline since the 1980s. It is clear from Table 7 that both the completed family size and the TFR show a sustained decline since 1981. The completed family size shows that fertility declined from 6.5 children per woman in 1981 to 4.0 in 2011. TFR shows fertility declined from 6.6 in 1981 to 2.8 in 2011.

Table 7: Comparison of Completed Family Size and Total Fertility Rates by Age of Women:1971-2011

Year of Census	Age of women								TFR
	15-19	20-24	25-29	30-34	35-39	40-44	45-49		
1971	0.16	1.33	2.77	4.12	4.93	5.48	5.55	6.5	
1981	0.26	1.46	2.76	4.16	5.24	6.15	6.46	6.6	
1991	0.18	1.12	2.27	3.49	4.6	5.56	6.05	4.2	
2001	0.13	0.85	1.68	2.65	3.6	4.56	5.25	3.3	
2011	0.1	0.73	1.44	2.12	2.75	3.38	4.00	2.8*	

*Obtained using Arriaga indirect estimation method

5.2 Fertility Differentials

Fertility differentials could be presented for the place of residence and employment status only because other characteristics had data problems resulting in implausible results. Table 8 shows the TFRs and mean number of children ever born to women aged 45-49 years by place of residence and employment status. As expected the fertility of women living in urban areas were much smaller than that of women residing in rural areas, for both the TFR and mean children ever born. Most of the difference between rural and urban fertility rates was a result of higher ASFRs among rural residents aged 15-24.

Characteristic	Age specific fertility rates							Total fertility rate	Mean number of children ever born (45-49 years)
	15-19	20-24	25-29	30-34	35-39	40-44	45-49		
Residence									
Rural	0.041	0.152	0.144	0.121	0.094	0.046	0.015	3.057	4.244
Urban	0.025	0.089	0.114	0.102	0.075	0.037	0.011	2.257	3.137
Employment status									
Not working									
Working	0.035	0.145	0.166	0.146	0.114	0.059	0.018	3.411	4.507
	0.074	0.103	0.111	0.103	0.081	0.038	0.013	2.62	3.614

From this table, it is also evident, using both the TFR and mean number of children ever born, that fertility is lower among women who reported that they were employed at the time of the census. This finding is consistent with other studies on this issue.

6. Discussion and conclusions

Data from the 2011 population census appears good enough to enable direct estimation of fertility. The direct estimate of TFR is 2.9 which is similar to the 2.8 derived from the indirect estimation using the Arriaga method of fertility. The results of this analysis demonstrate that fertility in Botswana continues to decline, from a high of 6.6 children per woman in 1981 to 3.3 in 2001 and to 2.8 children per woman in 2011. Most of the fertility decline between 2001 and 2011 is accounted for by the decrease in the fertility of the 15-29 year-olds. Fertility rates of women residing in urban areas and those employed are consistently lower than those of their counterparts, which is consistent with previous research findings. The estimated TFR of Botswana for 2011 is resonates with those of other Southern African countries such as South Africa, Namibia and Zimbabwe.

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Rolang G. Majelantle University of Botswana Infant & Childhood Mortality Levels & trends in Botswana

INFANT AND CHILDHOOD MORTALITY LEVELS AND TRENDS IN BOTSWANA

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Content

This Paper will be based on the, Botswana Demographic Survey (2006) and the 2001 and 2011 Population and Housing Censuses data. The 2011 Population census allows us to estimate the past and current levels of infant and childhood mortality.

The paper will explore whether there still exist mortality differentials between the urban and the rural areas. Infants and children in the urban areas enjoy higher chances of survival than their rural counterparts. The paper will also explore at national and district level whether the girl child enjoys relatively higher chances of survival than the boy child as shown by finding from previous censuses.

Relevance to Policy

One of the demographic targets set in Botswana National Population Policy was to reduce infant mortality from 0.048 in 1991 to 0.027 in the year 2011. The Revised National Population Policy seeks to reduce infant mortality and under-five mortality to 0.023 and 0.029 by 2020 respectively, the paper will find out whether we are on track. This target was based on the remarkable infant mortality declines recorded during the decade 1981 to 1991 and the reversal of the decline between 1991 and 2001; it is the purposes of this paper to explore how far we are in reaching that target. It may be imperative for the Government to re-draw the targets if there is no improvement during the decade 2001 to 2011.

Methods

The estimation of childhood mortality in the absence of reliable vital statistics is normally based on information collected from mothers about the number of children ever borne and how many of these are still alive. Data on the average number of children ever born alive, by age of mother, and average number of children surviving at the time of the census or survey are employed to estimate the proportion of children died.

The estimation procedure is based on the assumptions that fertility and mortality levels and patterns have remained constant in the recent past and the risk of dying of a child is a function only of the age of the child and not of other factors. The probabilities of dying between birth and certain ages can then be estimated based on the proportion died among children ever born by five year age groups of the mothers. (Note that the assumptions proposed could pose some problems if fertility and mortality levels and patterns have been changing in the recent past as was the case between 2001 and 2010).

Secondly estimates on infant and childhood mortality should be interpreted with caution. This so because estimates on infant and childhood mortality for the recent past (2010-2011) are based on information obtained from women aged 15 – 19 years, and this group happens to experience heavier mortality because of their biological and socio-economic characteristics.

The estimates on infant and childhood mortality rates were obtained using computer software for the estimation of mortality called MORTPAK and Q5.

The technique used here provides us with estimates of infant mortality rate (IMR), childhood mortality rate 4q1 and the probability of dying before age five (q5).

In this paper we look at the estimates obtained using the 2001 census and 2006 Demographic survey and the 2011 census data. The estimation of infant and childhood mortality is based on information collected from mothers about the number of children ever borne and how many of these are still alive. Data on the average number of children ever born alive, by age of mother, and average number of children dead at the time of the census can be employed to estimate Infant and childhood mortality (under five mortality) at National and District level by gender using indirect estimation techniques if certain assumption holds. Unfortunately for the 2011 census the estimates are highly biased because the assumption underlying the estimation techniques gives highly biased estimate as a result of recent drastic changes in mortality as a results of the success of the

prevention of mother to child transmission programme, the national ARV programme and other government intervention programme aimed at improving the health and nutritional status of infants and children. We do not have any choice but to rely on direct estimates of infant and childhood mortality from the 2011 census.

Levels and Trends in Infant Mortality

We start by looking at the levels and trends in infant mortality estimated from the 2001 census data and the 2006 Botswana Demographic Health survey estimated using indirect estimation techniques.

Figure 1 below and tables 1, shows the levels and trends in IMR for the national, rural and urban populations from 1986 to 2001 as estimated from the proportion dead among children ever borne using the 2001 data. The estimates indicates that IMR for the national population dropped from 49 deaths per 1000 births in 1987 to 40 deaths per 1000 births in 1993 and increased to 54 deaths per 1000 births in 2001. The rural and urban populations experienced similar trends with the rural populations showing higher levels of infant mortality compared to the urban populations. The gains in the chances of survival for infants experienced in the 1990's have been lost between 1991 and 2001 mainly due to the HIV/AIDS epidemic.

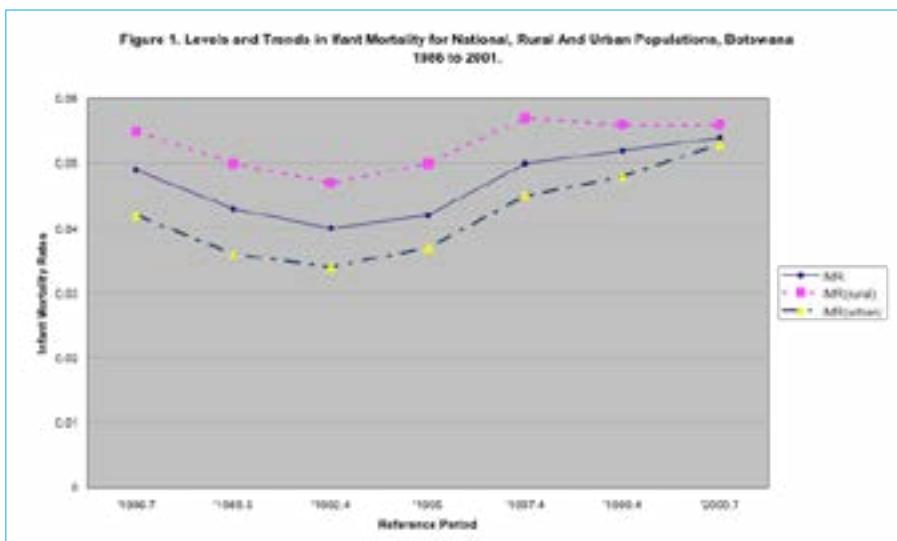
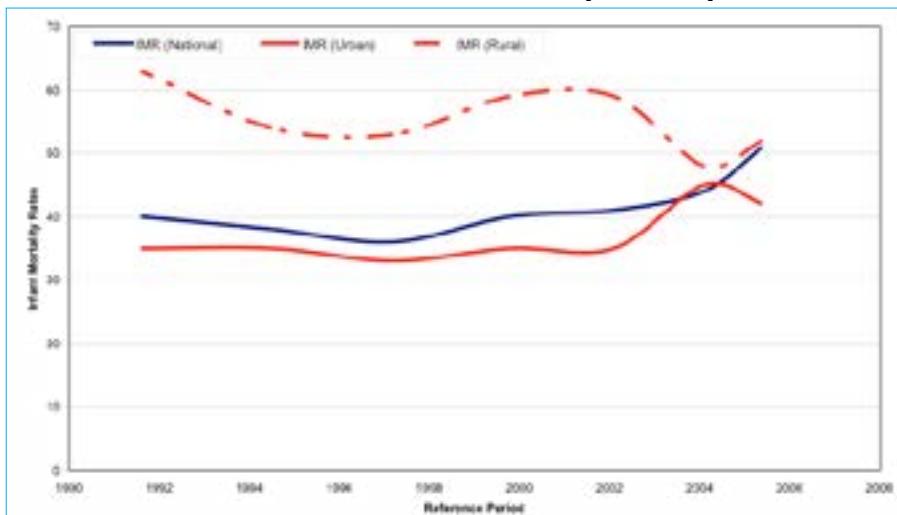


Figure 2 below shows the levels and trends in IMR for the national, rural and urban populations from 1992 to 2005 estimated from proportion dead among children ever borne from the Botswana Demographic Survey, 2006(BDS,2006)

The estimates indicates that IMR for the national population was estimated at 40 per 1000 in 1992, this figure dropped to 38 and 36 per 1000 in 1994 and 1997 respectively. The year 2000 saw an increase in IMR by four (4) points from the 1997 estimate of 36 per 1000. The increase is sustained over the period 2000 to 2005, reaching a high of 51 per 1000 in 2005. The rural and urban populations have also experienced similar trends; however, the rural population showed higher levels of IMR overtime when compared to the urban population.

Figure 2: Levels and Trends in Infant Mortality Rates for National, Urban and Rural Population, Botswana 1992-2005(BDS 2006)



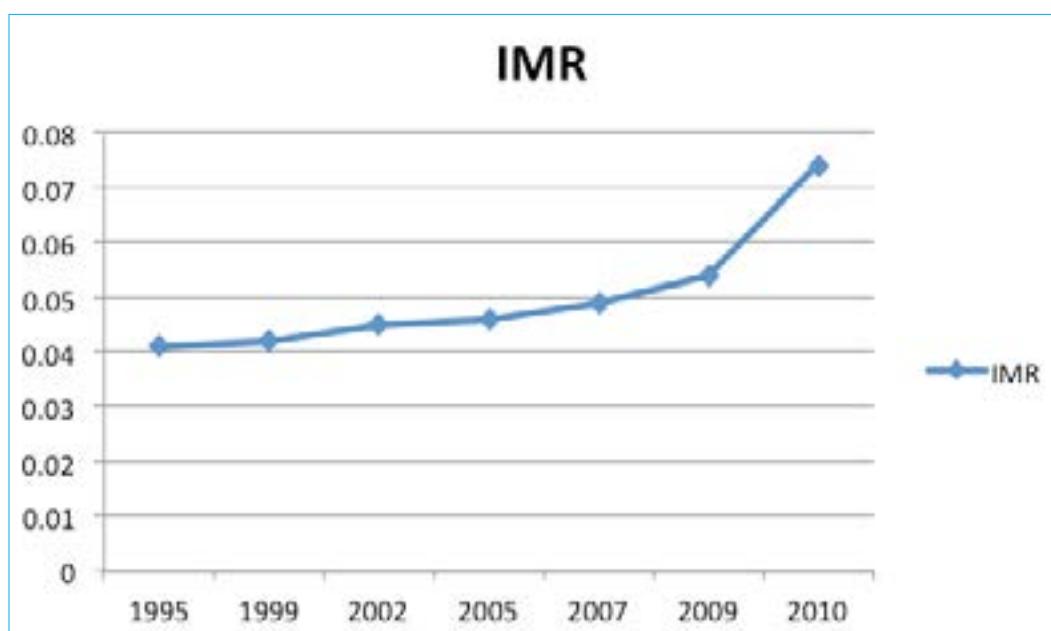
The 2011 census data yield biased estimates of infant and childhood mortality using the same techniques employed using the 2001 census and the BDS, 2006 data sets.

The estimates of infant and childhood mortality are increasing from 1995 up to 2010. The levels and trends of infant and childhood mortality based on indirect techniques using proportion dead among children ever born from the 2011 census should not be used. The reason why they should not be used is that there is evidence based on direct estimates which shows that mortality drastically declined from 2005 to 2010 rendering the use of such techniques questionable because as mentioned before they only work in conditions where there was no change in fertility and mortality in the recent past. (See figure 3.)

Figure 3, Levels and Trends in Infant mortality using the 2011 Census data.

Date	IMR
1995	0.041
1999	0.042
2002	0.045
2005	0.046
2007	0.049
2009	0.054
2010	0.074

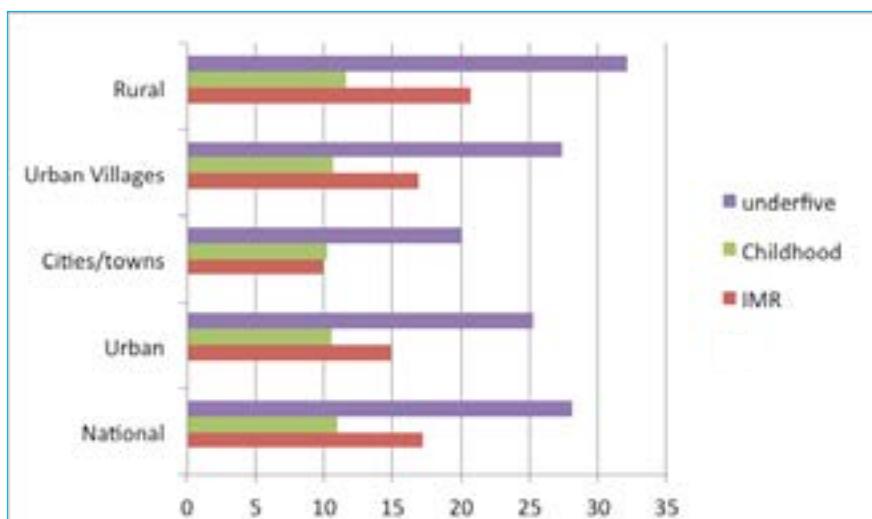
Figure 3. Trends and Levels Infant Mortality Rates Botswana 2011



Direct estimates of infant mortality show that it now stands at 17 deaths per 1000 live births during the year preceding the 2011 population census. Level of IMR is higher in the rural area at 21 compared to the urban areas where it is estimated to be 15. Those in cities/towns are exposed to very low levels of chances of dying during the first year of life compared to rural villages where the estimates of IMR stands at 10 and 17 respectively.(see figure4.).

Figure 4. Estimates of Infant, Childhood and under-five mortality for Botswana and Type of Locality

Locality	IMR	Childhood	under-five
National	17	11	28
Urban	15	11	25
Cities/towns	10	10	20
Urban Villages	17	11	27
Rural	21	12	32



Sex differentials in Infant Mortality

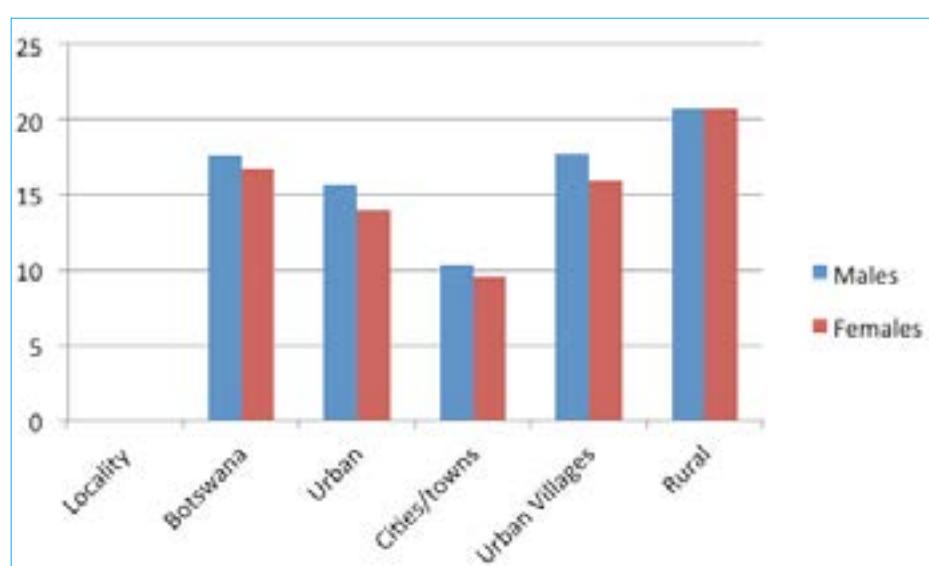
At national level Figure 5 below shows that the probability of dying before age one is slightly higher among males compared to females at 18 infants deaths per 1000 live births and 17 respectfully.

Male infants in the rural areas experienced the same mortality level (21 deaths per 1000 births) as female infants during the year preceding the 2011 census.

In urban area female infants experience lower mortality compared to male infants (with an infant mortality rate of 14 deaths per 1000 births and 16 respectively). All most the same sex differentials are seen in cities/towns and urban villages with the gap been narrow in cities/towns.

Figure 5: Direct estimates of Infant Mortality (1q0) for Botswana and by type of Locality

	Infant mortality rate	
	Males	Females
Botswana	18	17
Urban	16	14
Cities/towns	10	9
Urban Villages	18	16
Rural	21	21



The 2011 census data just like the previous data set shows that infant mortality also vary by districts. In table 3 below, the districts are ranked according to the level of infant mortality for both sexes combine starting with the districts with the lowest level of childhood mortality.

Gaborone, South East district, Francistown reported the lowest level of infant mortality of 6, 9 and 11 deaths among infants during the 12 months preceding the 2011 census per 1000 live births respectively. Ngamiland, Kweneng West and Kgatleng have the highest level of Infant mortality of 28, 25 and 23 deaths among infants during the 12 months preceding the 2011 census per 1000 live births respectively. There exist sex differentials in the level of Infant mortality by districts with females generally experiencing lower childhood mortality in some districts

Table3. Direct estimates of Infant Mortality rates by sex and District

District	Males	Females	(both sexes)
Gaborone	6	6	6
South east	10	9	9
Francistown	10	11	11
Central Boteti	14	12	13
North east	19	10	14
Kweneng east	15	14	14
Ghanzi	16	15	16
Ngwaketse	18	17	17
Central Tutume	17	20	19
Lobatse	17	20	19
Selebi Pikwe	25	13	19
Kgalagadi	19	21	20
Central Bobonong	20	20	20
Central Serowe Palapye	22	19	20
Barolong	18	24	21
Central Mahalapye	20	22	21
Kgatleng	24	19	22
Kweneng west	21	24	23
Ngamiland east	23	27	25
Ngamiland west	31	25	28

Levels and Differentials In Childhood Mortality

Childhood mortality is measured by the probability that a child reaching exact age 1 will die before reaching exact age 5 or the probability that a child reaching his or a first birth day will die before reaching the age 5. Figure 6 below gives us estimates of childhood mortality per 1000 children reaching age 1.

Childhood mortality estimates show almost a similar pattern as infant mortality estimates by sex and type of locality.

Nationally the direct estimate of infant mortality for both sexes combined now stands 11 children deaths per 1000 infants reaching age 1 will die before reaching age 5.(see figure 4. Above)

Sex differentials in Childhood Mortality

At national level Figure 6 below shows that the probability of dying between exact age one and exact age five is the same for males and female children and it stands at 11.

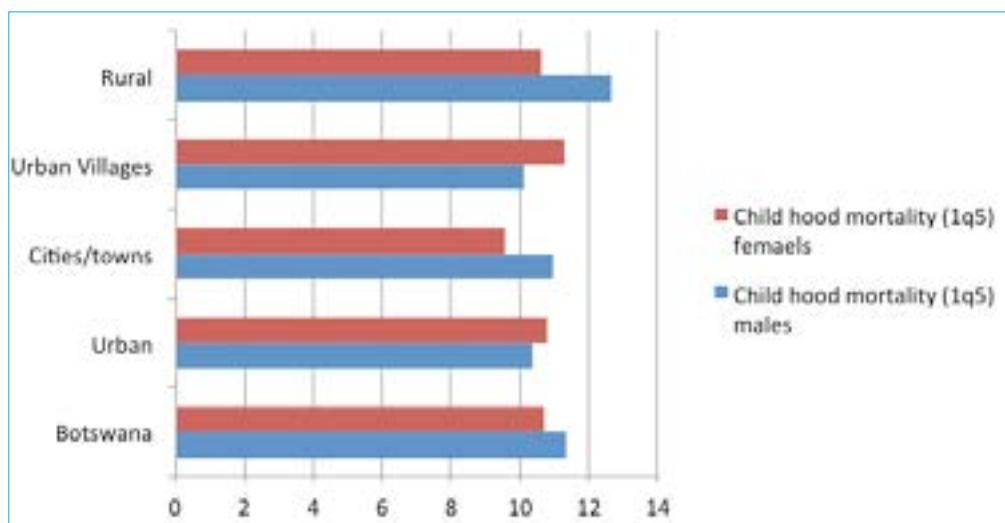
Male children in the rural areas experienced higher mortality level compared to female children(13 deaths per 1000 reaching age 1 dying before reaching age 5 and 11 per 1000 respectively) during the year preceding the 2011 census.

Generally in urban areas female children experienced slightly higher mortality compared to male infants (11 and 10 respectively), the same applies to those who resided in urban villages. In cities/towns male children experienced slightly higher mortality compared to female children over the same period (11 and 10 respectively). (See figure 6 below)

Figure 6: Direct estimates of Childhood mortality (5q1) for Botswana and by type of Locality

Child hood mortality (1q5)

Locality	males	females
Botswana	11	11
Urban	10	11
Cities/towns	11	10
Urban Villages	10	11
Rural	13	11



Childhood mortality by Districts.

The 2011 data just like the previous data set shows that childhood mortality also vary by districts. In table 4 below, the districts are ranked according to the level of Childhood mortality for both sexes combine starting with the districts with the lowest level of childhood mortality.

The South East district and the North East districts experienced the lowest level of childhood mortality (7) in the 12 months preceding the 2011 census followed by Selibe-Pikwe (8) and Central Boteti, Kweneng West and Francistown with (9).

Lobatse reported the highest level of childhood mortality (22) followed by Central Tutume with (17) with level of childhood mortality in all other districts ranging between (10) and (14)

There exist sex differentials in the level of childhood mortality by districts with females generally experiencing lower childhood mortality in some districts.

The following districts: Ghanzi; Ngamiland East; Ngwaketse; Central Mahalapye; Kweneng east; Francistown; South East and North East female children experienced higher mortality compared to male child over the same period.

District	Males	Females	Both sexes
South East	6	8	7
North East	6	8	7
Selebi- Pikwe	10	6	8
Central Boteti	12	6	9
Francistown	7	10	9
Kweneng West	10	8	9
Central Serowe Palapye	11	8	10
Kweneng east	8	12	10
Central Bobonong	12	9	10
Kgatleng	15	6	11
Gaborone	13	10	11
Central Mahalapye	11	12	12
Central Tutume	13	12	12
Ngwaketse	9	18	14
Kgalagadi	21	8	14
Barolong	19	10	14
Ngamiland east	14	15	14
Ngamiland west	18	11	14
Ghanzi	15	19	17
Lobatse	25	18	22

Levels and Differentials In Under-five Mortality

Under-five Mortality is measured by the probability that a newly born child will die before reaching exact age five or the probability that a newly born child will die before reaching age 5. Figure 7 below gives us estimates of under-five mortality expressed per 1000 newly born babies.

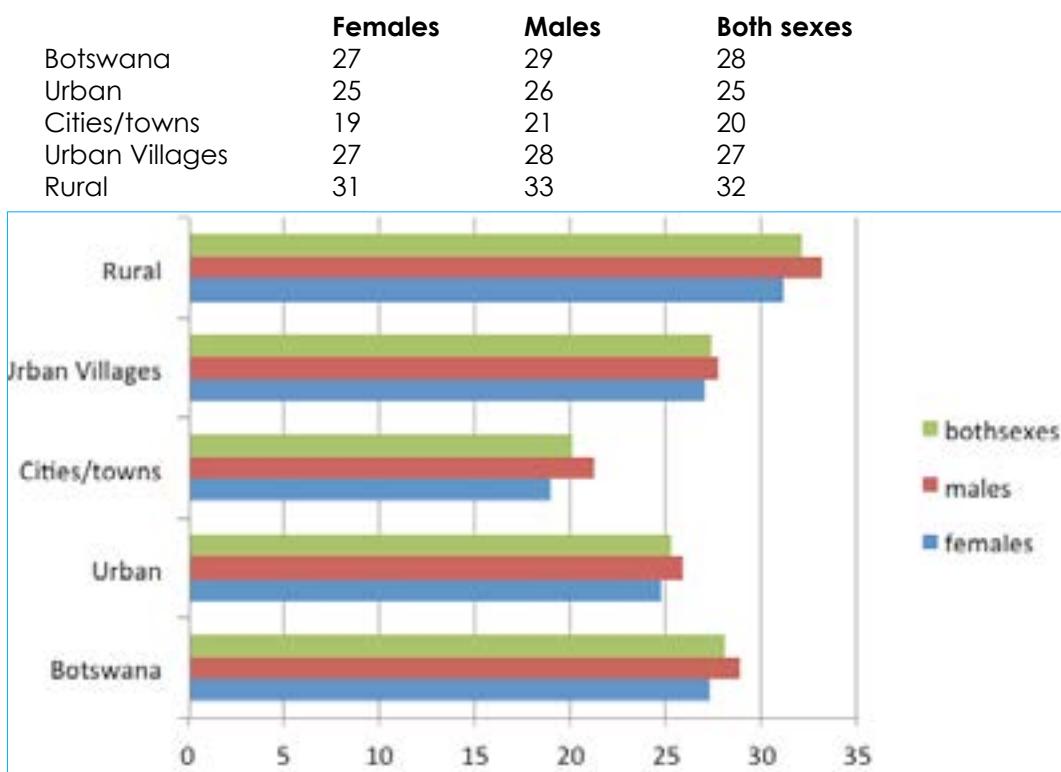
Nationally the direct estimate of under-five mortality for both sexes combined now stands 28 deaths among infants and children under five years old per 1000 live births (see figure 7 below). Under-five mortality is very high in the rural localities (32) and relatively low in cities/towns (20).

Sex differentials in under-five Mortality

At national level Figure 7 below shows that the probability of dying between exact birth and exact age 5 is higher for the males (29) compared to the females.

Male childrens in all locality types experienced higher under-five mortality level compared to female children.

**Figure 7: Direct estimates of under-five mortality for Botswana and type of Locality
The probabilities of dying between Birth and exact Age five.**



Under-five Mortality by Districts

The 2011 data just like the previous data set shows that under-five mortality also varies by districts. In table 5 below show districts ranked according to the level of under-five for both sexes combine starting with the districts with the lowest level of under-five mortality.

The South East district (16), Gaborone (18) and Francistown (19) experienced under-five mortality level of less than 20.

Ngamiland west and Lobatse reported the highest level of under-five mortality of 42 and 40 respectively followed by Ngamiland east with 39.

There exist sex differentials in the level of under-five mortality by districts some districts with females experiencing lower childhood mortality in some vice versa.

Table 5. Direct estimates of Under-five mortality rates by sex and District

District	both sexes	Females	Males
South east	16	17	15
Gaborone	18	16	19
Francistown	19	21	17
Central Boteti	21	17	26
North east	21	18	25
Kweneng east	24	25	23
Selebi Pikwe	27	19	35
Central Bobonong	30	29	32
Central Serowe Palapye	30	27	33
Central Tutume	31	32	30
Ngwaketse	31	35	27
Central Mahalapye	32	34	31
Kgatleng	32	25	39
Kweneng west	32	32	32
Ghanzi	33	34	31
Kgalagadi	34	29	39
Barolong	35	33	36
Ngamiland east	39	41	37
Lobatse	40	38	42
Ngamiland west	42	35	48

Conclusions

It is clear that Infant and childhood mortality have gone down in Botswana across all districts and types of localities. Secondly because of the decline in mortality the convention indirect estimation techniques using proportion dead among children ever cannot be used to analyse levels and trends of infant and childhood mortality.

The estimates used relied heavily on life tables constructed from the reported distribution of deaths in the 12 months preceding the 2011 census. We could not assess how well these deaths were reported, but there is no doubt that deaths in Botswana have been generally well reported in surveys and censuses.

The rapid decline in infant and childhood mortality between 2001 and 2011 is not surprising. Over the decade 2001 to 2011 improved socioeconomic status (education, employment etc.) of the population have led to increased access and utilization of health services. Government programmes more especially, Prevention of Mother To Child Transmission, national ARV programme and nutrition programmes contributed immensely to the declines in infant and childhood mortality.

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Ben M. Semommung UNICEF presenting Child Indicators & Policy Implications

CHILD INDICATORS AND POLICY IMPLICATIONS

By
Ben M. Semommung
UNICEF

1.0 Background information

- The effort to measure and monitor children's well-being and the use of child indicators is not new.
- UNICEF's State of the World's Children annual reports, as well as other international and national initiatives and projects are used to address issues of children and women globally.
- The United Nation's Convention on the Rights of the Child, through its global ratification and its reporting and monitoring mechanism, has also played a major role in increasing interest in addressing these issues.
- UNICEF HQ maintains a series of global databases on key indicators for monitoring the situation of children and women.
- This compilation of data is facilitated by the wide network of UNICEF Country offices which submit updated information to Headquarters on an annual basis.
- These data are complemented by information obtained through the on going collaboration with other relevant UN organizations, as well as through other sources such as the Multiple Indicator Cluster Surveys (MICS) and the Demographic and Health Surveys (DHS).
- Prior to inclusion in the UNICEF global databases, the data are thoroughly evaluated against a set of objective criteria to ensure an evidence base of the highest quality.

2.0 Definitions and terms

'Child'- a child is a person below the age of 18 years (UNCRC, 1989).

'Orphan' -is a child below the age of 18 years who has lost one or both parents".
Botswana programme definitions

'Orphan' is a child below 18 years who has lost one (single parents) or two (married couples) biological or adoptive parents. Married couples include those married in civil or traditional marriages" STPA (1999-2003).

'Social orphan' are children who are abandoned or dumped or whose parents cannot be traced" STPA (1999-2001)

'Vulnerable child'- a person below the age of 18 years who is in any situation or circumstance which is or is likely to adversely affect the child's physical, emotional, psychological or general well-being, which prevents the enjoyment of his or her rights, and who is in need of protection.

'A child in need of protection' - is a child in need of protection is a vulnerable child under the age of 18 years and includes a child who is temporarily or permanently deprived of parental care and support; or who is temporarily or permanently deprived of his or her family environment and care; etc (Children's Act 2009)

'Child-headed household' - is a family headed by a person under the age of 18 years, in the absence of his or her parent (s) or other adult family member to provide care for the children in the household.

3.0 UNICEF core indicators

UNICEF maintains the childinfo website as a source of up-to-date statistical information. Databases available include:

- Child Survival and Health
- Child Nutrition
- Maternal Health
- Newborn Care
- Water and Sanitation
- Education
- Child Protection
- HIV/AIDS

4.0 Child indicators-2011 census

Education

A World Fit for Children Goal

- To ensure that, by 2015, all children have access to and complete primary education that is free, compulsory and of good quality.

Millennium Development Goal

- Achieve universal primary education.

Child Protection

- Birth registration
- Child labour
- Child trafficking
- Child marriage

HIV/AIDS

- Children who have lost one or both parents (orphaned children)
- Child-headed households

In both 2001 and 2011 Census

- Youth constitute majority of the age groups.
- More programs for youth especially to address youth unemployment.

BAIS IV preliminary Results

- Showed that 14.4% of children below age 18 years were orphaned compared to 16 % recorded from 2008 BAIS III.
- 13.9% Households in which orphaned children lived received some free basic external support in 12 months preceding the survey.
- Continue with care and support for households with OVC.



Prof Thando D. Gwebu, University of Botswana, making a presentation on
Urbanization Patterns & Processes & their Policy Implications in Botswana

URBANIZATION PATTERNS AND PROCESSES AND THEIR POLICY IMPLICATIONS IN BOTSWANA

By

Prof Thando D. Gwebu
University of Botswana

Introduction

The rate of urbanization refers to the percentage of the national population that resides in places classified as urban whilst the growth rate means the pace at which urbanization is increasing annually. Globally, the tipping point in the distribution of population between rural and urban settlements was reached in 2007 when over 50 percent of humanity was classified as urban (UN-HABITAT 2007). Population projections show that by 2050, 95 percent of population growth will be concentrated in cities (UNESA 2007). Southern Africa has a regional population of approximately 210 million, at least 100 million of whom already live in urban and peri-urban areas. By 2020, this figure is estimated to rise to 150 million and to exceed 200 million by 2030 (UN-HABITAT 2008). With an annual urbanization rate that exceeds the global average and persistent and growing urban poverty, urban development challenges are set to intensify over the coming decades (AFSUN 10). Unless Botswana takes advantage of available Census data to make informed decisions, that are evidence-based, the country will be confronted with these challenges that undermine sustainability.

Data for this Chapter were obtained from the Statistics Botswana. They were then summarized into tables and graphs. Descriptive statistics and socio-economic indices were obtained and interpreted.

The chapter will examine recent urbanization patterns and processes in Botswana and assess their policy implications. Edited data are not anticipated to change these reported findings fundamentally.

Issues related to the census methodology used, types and quality of data obtained are reported exhaustively elsewhere in a separate chapter of the dissemination report.

Urbanization Change and Growth in Botswana

Table 1 shows population change and growth for the inter-censal period.

Table 1: Urbanization Change and Growth

	1971	1981	1991	2001	2011	Percent Change* 2001-2011	Inter-censal annual growth rate** 2001-2011
Number of Urban Places	5	8	25	34	52	47.1	4.4
Total Urban	54 300	166 400	600 100	909 800	1297287	42.6	3.6
Total Population	596 900	941 000	1 326 800	1 680 900	2024904	20.5	1.9
Urban as a Percentage of Total Population	9.1	17.7	45.2	54.1	64		
Total urban village as percentage of total urban population	0.0	9.8	50.6	56.9	66		

Source: Derived from Population & Housing Census 2011

*% Change = $(P_t - P_0) / P_0 \times 100$

**Annual growth rate r is a derivative of the geometric growth rate $P_t = P_0(1+r)^n$

The total national inter-censal population change since 2001 was 20.5 percent. This represents an annual growth rate of 1.9 percent per annum. Urbanization has thus been on the increase. Since the 2001 census, the number of places classified has gone up from 34 to 52, a percent change of 47.1 percent. The number of urban places has thus been increasing at a rate of 4.4 percent annually. Urbanization has increased from 54 percent in 2001 to 64 percent. About 66 percent of the urban population resides in urban villages who constitute 42.3 percent of the national population

From Figure 1, the tipping point came about between 1999 and 2000 when over half of the national population became classified as urban.

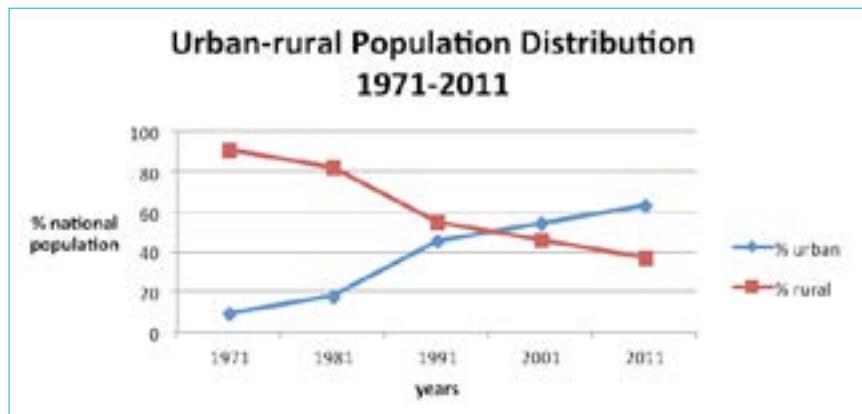


Figure 1: Population Distribution between Rural and Urban Areas

Source: Population & Housing Census 2011

Although rural urban migration and natural increase play a role in urban population increase, this trend can be attributed to, mainly, the reclassification of the previously rural villages to an urban status. This is attested to by the fact that the number of urban places increased by 18 and the population classified as residing in urban villages increased by 9.1 percent between 2001 and 2011.

Table 2 provides a closer picture of the growth trends for the respective urban settlements. The settlements can be broadly divided into Cities/towns and urban villages. There are two cities, namely Gaborone (being the capital) and Francistown. Lobatse and the diamond mining centers are towns. Under Cities/towns included are the townships of Kasane, Ghanzi and Sowa. Urban Villages have populations of at least 5 000 with a minimum 75 percent engaged in non-agricultural activities

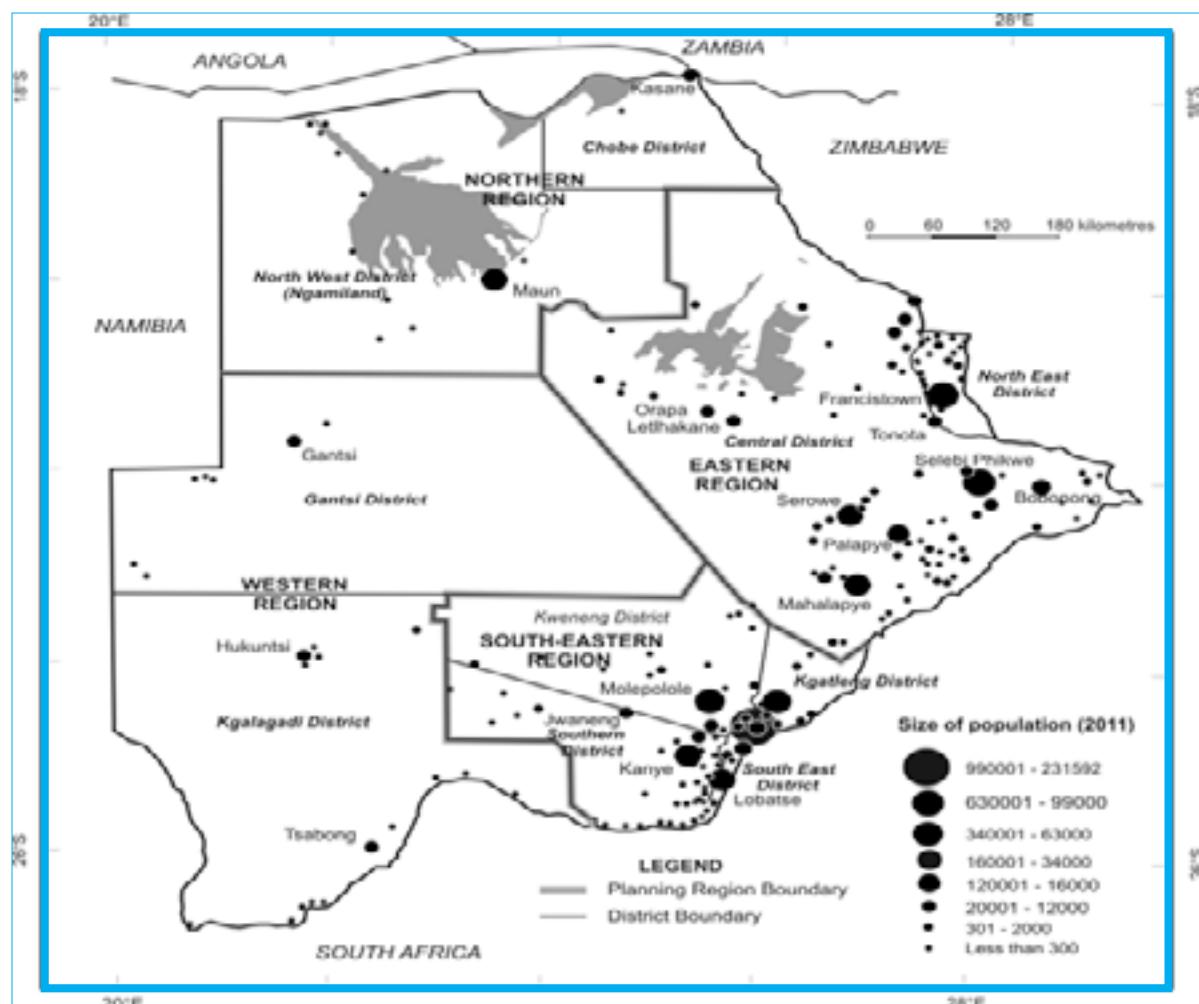


Figure 2: Location of Urban Centers by Planning Region

Source: Population & Housing Census 2011

Table 2: Annual Growth of Population in Urban Settlements, 1971-2001 ('000)

District	1971 000s	1981 000s	1991 000s	2001 000s	2011	Percent Change 2001-11	Growth percent annum 11/1/2001
Gaborone	17,7	59,7	133,5	186,0	231592	24.5	2.2
Francistown	18,6	31,1	65,2	83,0	98961	19.2	1.02
Lobatse	11,9	19,0	26,0	29,7	29007	-2.3	-0.2
Selibi-Phikwe	4,9	29,5	39,8	49,8	49411	-0.8	-0.01
Orapa	1,2	5,2	8,8	9,2	9531	3.6	0.35
Jwaneng		5,6	11,2	15,2	18008	18.5	1.7
Palapye		9,6	17,3	26,3	37256	46.7	3.6
Tlokweng		6,7	12,5	21,1	36323	72.1	5.5
Mogoditshane			14,2	36,3	58079	60	4.7
Serowe			30,3	41,8	50820	21.6	2
Mahalapye			28,1	38,4	43298	12.8	1.2
Maun			26,8	43,5	60263	38.5	3.3
Lethakane			8,6	15,0	22911	52.7	4.3
Kasane			4,3	6,7	9008	34.4	3
Ghanzi			5,5	9,7	14809	52.7	4.4
Sowa			2,2	2,9	3598	24.1	2.2
Kanye			31,4	40,2	47007	16.9	1.6
Moshupa			11,4	17,4	20016	15	1.4
Ramotswa			18,7	20,3	28952	42.6	3.8
Molepolole			36,9	53,9	66466	23.3	2.1
Thamaga			13,0	18,2	21471	18	1.7
Mochudi			25,5	36,7	47001	28.1	2.6
Bobonong			7,7	14,4	19389	34.6	3
Tonota			11,1	15,9	21031	32.2	2.8
Tutume			10,1	14,0	17528	25.2	2.3
Gabane				10,6	15237	43.7	3.7
Kopong				5,6	9312	66.3	5.2
Lethakeng				6,0	7229	20.5	1.8
Lerala				5,7	6871	20.5	1.9
Shoshong				7,5	9678	29	2.6
Mmadinare				11,0	12086	10	0.9
Maletšengwe				5,5	5890	7.1	0.7
Gumare				6,0	8532	42.2	3.5
Tsabong				6,3	8939	41.9	3.6
Bokaa				3,8	5680	49	4.1
Borolong				3,0	5184	72.6	5.7
Good Hope				2,9	6362	116.8	8.1
Kumakwane				3,1	5545	76.6	5.9
Masunga				3,1	5666	82.2	6.2
Metsimotlhabe				4,0	8884	119	8.1
Mmopane				3,5	15450	339.9	15.9
Nata				4,1	6714	61.8	4.7
Oodi				3,4	5687	65.3	5.2
Otse				5,2	7976	53.6	4.5
Sefophe				3,8	6062	58.6	4.7
Shakawe				4,4	6693	52.5	4.2
Tati Siding				4,4	8112	85.4	6.4
Mmathephe				4,4	5078	15	1.4
Molapowabojang				4,9	7520	54.4	4.4
Mmankgodi				4,9	6802	36.2	3.1
Kang				3,7	5985	59.9	4.7
Mathangwane				3,9	5075	28.1	2.6

Source: Population & Housing Census 2011

Both cities experienced an urban population percentage change below the national urbanization figure of 42.6 percent. Similarly, their annual inter-censal growth rates were below the national rate of 3.6 percent. Notably their rates show that they are now growing at a decreasing rate. The 1991-2001 annual growth rates for Francistown were 2.4 percent whereas that for 2001-2011 was 1.02 percent. Comparable figures for Gaborone were 3.37 percent and 2.2 percent, respectively. This could reflect the effects of urbanization diseconomies and the movement of the population within the Planning Areas of the Cities into the adjacent peri-urban localities.

Excluding Townships, the growth of Cities/towns has not been that spectacular either. Although some of the towns did experience a positive intercensal change, this was below the change experienced in the total urban population. The same can be said about their intercensal annual growth rates. There could have been outmigration into the peri-urban settlements for cheaper land and less expensive accommodation.

The performance of the two mining towns of Orapa and Jwaneng was equally lackluster due to the global economic downturn facing the diamond industry. Orapa is a closed town with limited access to those who are not formally employed in it.

Selibe-Phikwe and Lobatse actually experienced negative growth. Selebi-Phikwe has experienced the same problems as the diamond mining sector/settlements and in spite of Government's effort to resuscitate its ailing economy; investor confidence has never been regained. The result has been that few risk-takers have come into its commercial and industrial sectors while some have relocated. Lobatse, although its industrial base has broadened a little, has been over-dependent on BMC. Over the 2001 and 2011 period, BMC has experienced problems related to drought, FMD, restricted exports imposed by the EU and internal management problems. Lobatse's relative location to Gaborone and South Africa has made it relatively easy for its residents to relocate to alternative destinations in search of better economic and socio-economic opportunities.

Only the townships recorded notable growth over the review period. Ghanzi Township had an impressive growth at 4.4% per annum. It is the primary centre and headquarters of Ghanzi District, providing the highest order goods and services. Apart from employment offered by government and the service sector, population growth could also be related to the Trans-Kalahari highway and public transport, relocation of the Basarwa from CKGR, in-migration from adjacent districts and a slight decline in mortality and an increase in fertility.

Among the townships, the growth of Kasane was second to Ghanzi. Major sources of employment are tourism and the public sector. People migrate to Kasane seeking employment. Foreigners have also migrated into the area. There has been an expansion of tourism facilities, tourism operations and operators with Batswana getting financial assistance through CEDA. Rural push factors have worked against subsistence farming in the form of destruction of crops by wildlife-human conflicts, floods and endemic diseases such as malaria, bilharzia, but also foot and mouth preventing sale of livestock to BMC.

The population change and annual growth of Sowa was the least among the townships. The economic development of this area has been constrained by a small population and its remoteness. There, however, has been an increase of district development projects since 2008. Most workers are employed by Botswana Ash. The rest of the employees work for the government and parastatals such as Botswana Power Corporation, Water Utilities Corporation and Botswana Housing Corporation. Many have been attracted by employment in local government infrastructure maintenance, expansion of staff accommodation and government offices gravel road construction, servicing of the SHHA area. Self-employment has also attracted the development of illegal self-allocation of land by those engaged in informal employment.

Table 2 also portrays the growth of the rest of the settlements that are designated as urban villages. The national inter-censal urban population change is 40 percent whereas the annual inter-censal growth was 3.6 percent. The percent change for the urban villages' ranges from 7.1 percent for Maitengwe to 339.9 percent for Mmopane. The inter-censal annual growth rate ranges from 0.7 percent to 15.9 percent for the respective settlements. In general, it seems as if the settlements experiencing the least growth were losing their population to higher order centers.

About 50 percent of the urban settlements recorded change and growth rates either at or above the national benchmarks. 35 percent of these were satellites of Gaborone with Mmopane topping the list at 339.9 for inter-censal change rate and 15.9 percent for annual intercensal growth rate, followed by Metsimotlhabe at 119.0 percent and 8.1 percent, respectively. The annual growth rate of Tlokweng increased from 5.2 to 5.5 percent and almost matches that for Kumakwane at 5.9 percent, Oodi at 5.2 percent and Kopong at 5.2 percent. The annual growth rates of Gabane, Ramotswa and Mogoditshane were 3.7, 3.8 and 4.7 percent, respectively. Settlements that have experienced the least growth rates include Moshupa, Thamaga, Mochudi, Molepolole 1.4, 1.7 2.1 and 2.1 percent , respectively. The pattern could reflect differences in the accessibility

and availability of land and proximity to Gaborone. A similar pattern is apparent for Tati Siding and Borolong outside Francistown which experienced annual growth rates of 6.4 and 5.7 percent, respectively.

Generally, District and sub-district capitals appear to have grown rapidly over the review period. This is understandable since both public and private investment targets these centres. They therefore enjoy the monopoly for goods, employment, commercial and social services and employment. This is true for example for settlements such as Masunga, Mogoditshane, Palapye, Good Hope, Letlhakane, Tsabong, and Gumare. All of these recorded annual growth rates above the national annual urbanization rate of 3.6 percent.

There are however other District and sub-district headquarters that ranked below this benchmark including Serowe, Mahalapye, Kanye, Molepolole and Tonota. This could be due to comparative locational advantages and intervening opportunities that exist around these centres. For example Palapye enjoys a comparative advantage over Serowe and Mahalapye both in terms of accessibility and recently upcoming employment opportunities. Kanye and Molepolole both lie in the shadow of Mmopane and Motsimotlhabe whilst Tati Siding is an intervening opportunity for Tonota.

Table 3 groups the urban settlements on the basis of their inter-censal change and growth rates.

Table 3: Inter-censal Urban Population Change and Growth Rates

Percent Change 2001-11	Intercensal annual growth rate / % 2001-11	Class of Intercensal % change/growth	Settlement
<1.0	<1.0	Negative	Lobatse, Selibe-Phikwe
May-25	0.0-2.5	Low	Gaborone, Francistown, Orapa, Jwaneng, Serowe, Mahalapye, Sowa, Kanye, Moshupa, Molepolole, Thamaga, Tutume, Letlhakeng, Mmadinare, Maitengwe, Mmathethethe
26-40	2.6-3.3	Medium	Maun, Kasane, Mochudi, Bobonong, Tonota, Shoshong, Mankgodi, Mathangwane
41-45	3.4-4.0	High	Palapye, Ramotswa, Gabane, Gumare, Tsabong, Tlokweng, Mogoditshane, Letlhakane, Ghanzi, Kopong, Lerala, Bokaa, Borolong, GoodHope, Kumakwane, Masunga, Metsimotlhabe, Mmopane, Nata, Oodi, Otse, Sefophe, Shakawe, Tati Siding, Kang, Molapowabojang
>45	>4.0	Very high	

Lobatse and Selibe Phikwe are economic downward transitional areas whose dominant economic bases are in a state of decline. Low growth settlements include cities of Gaborone and Francistown that are losing population to their satellites. Francistown has lost employment in the retail sector because of diminishing custom from the north. The mining towns have been vulnerable to the global recession. Major urban villages have lost out in competition to city satellite communities or to more strategically located centres. Medium growth centres are either upcoming tourist/administration centres, satellite communities of cities or settlements that have been earmarked for district administration. High growth areas combine strategic location and administrative significance. Very high growth centers are either part of the Gaborone urban system or those settlements that have been targeted to play important administrative and service functions.

Urbanization and the Evolving National Urban Hierarchy

Urbanization and the evolving national urban hierarchy can be analysed in term of the absence of polycentrism, based on Jefferson's notion of primacy. He defined a primate city as being "at least twice as large as the next largest city and more than twice as significant" (Jefferson 1939). In this case, as shown in Table 4, Gaborone would be considered to be significantly primate being at least 2.3 the size of Francistown. Moreover, its population is 1.3 times that of the combined populations of its three rivals.

Table 4: The National Primacy Index Trends 1981-2011

Index	1981	1991	2001	2011
2 city	1.9	2.38	2.24	2.3

Source: Population & Housing Census 2011

Over the past censal period the index has increased from 2.24 to 2.30 due to the comparatively phenomenal growth of employment in the construction, commercial and industrial sectors in the capital.

In comparison to the urban hierarchy for Mauritius, the capital Port Louis has a population that is 1.5 times that of the second largest center and its population is 0.5 times that of the combined populations of its next three competitors. There is thus a more balanced urban development.

Another way of looking at the absence of a normal urban settlement distribution would be in terms of the expected sizes of the rest of the urban centers relative to the largest one. In terms of the rank size distribution, the expected population of each center, relative to the population of the largest center provides a good estimate of the population of that center, provided the hierarchy of centers is normal. From Table 5, the large discrepancy between the observed and expected population of the four largest urban centres reflects the extent of dominance of the capital city, Gaborone, and the extent of an unbalanced urban network in Botswana.

Table 5: Four largest urban places

Urban Place	Actual Population	Expected Population
Gaborone	231 592	
Francistown	98 961	115 796
SelebiPhikwe	49411	77 197
Lobatse	29007	57 898

Gaborone therefore exhibits the megacity syndrome by dominating the national urban settlement distribution. The capital dominates the space economy in the provision of public services, financial institutions, human, and intellectual resources, the greatest domestic demand public infrastructure investment, creating a "hub effect". This dominance or macrocephaly implies an excessive concentration of opportunities and public services in one center of the urban settlement system.

Some of the factors that have created this primacy include rural-to-urban migration due to wage differentials between rural and urban areas, economies of scale in production, which lead to greater labor productivity and increased wages, which in turn attract an inflow of labor from rural areas. The resulting increase in population intensifies existing economies of scale, through multiplier effects, and creates a self-reinforcing cycle of agglomeration otherwise known as cumulative causation.

Firms located in the capital also benefit from strong backward and forward linkages from superior access to consumers and a convenient market for their product, and from access to suppliers of the inputs of production and intermediate goods. Urban firms also benefit from convenient access to financing, better access to government production permits, licensing for international trade and to a large and diverse labor pool. Gaborone enjoys underpriced externality for traffic congestion, parking, air and water pollution.

The major disadvantages associated with this pattern of urban development include agglomeration diseconomies such as the daily transport congestion, shortage of land, shortage of accommodation and increasing antisocial behaviour. At the national level, there is regional economic polarization, regional income inequalities and a highly centralized administration.

The Gaborone system of settlements includes the capital and its satellite communities that are listed in Table 6.

Table 6: Population Growth Trends of Gaborone and its Satellites

Area	1981 Population	1991 Population	2001 Population	2011 Population	1981 %	1991 %	2001 %	2011 %
Gaborone	59 700	133 500	186 000	231 592	42.5	48.6	42.9	41.0
Gaborone Satellites	80 889	141 297	247 100	333 319	57.5	51.6	57.1	59.0
Total	140 589	274 797	433 100	564 911	100	100	100	100

The share of Gaborone's population in the system, as shown in Table 6, increased from 42.5 percent in 1981, peaked at 48.6 percent in 1991 before declining thereafter. Population increase in the satellite communities reflects the relocation of the population and direct movements into the satellite communities, and from elsewhere. Table 2 clearly shows the distance decay in this growth with Mmopane recording a 119 percent inter-censal change and a 15.9 percent annual growth rate. Over the same period Metsimotlhabe recorded 119 percent and 8.1 percent, respectively. These processes characterize the coal escence of the various spatial components, the Greater Gaborone Area to form a conurbation that will incorporate the proposed New Gaborone City Greenfield and overspill into Kopong. The Greenfield is larger than all the present Phases 1,2,4 and Blocks 3,5,6,7,8,9 and 10 combined (DTRP 2012). The area is estimated to yield over 60 000 plots, an approximate equivalent of 12 Neighborhoods of about 5 000 plots (DTRP 2012).

Figure 3: The Growth of Gaborone Relative to its Satellites

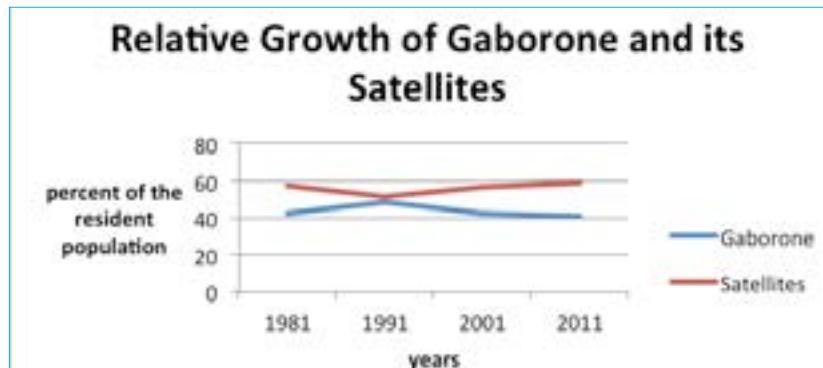


Figure 3 shows that whereas Gaborone seems to have grown at the expense of its satellites in the 1980s, the reverse appears to have been the case since the 1990s. Urbanization economies therefore appear to have been superseded by agglomeration diseconomies over time. This trend of events has been in the form of differential urbanization in Botswana (Gwebu, 2006).

Table 6: Gaborone and Satellite Percentage of National Population 1981-2011

Year	1981	1991	2001	2011
Percent of national Population	14.9	20.7	25.8	27.9

Table 6 shows the share of the Gaborone and its satellites to the national population over time. If the population of associated villages and other villages is included, the implication is that close to a third of the national population lives within the orbit of the national capital. While this situation has its advantages, it poses serious planning challenges in terms of creating a prosperous and productive nation.

Policy Challenges from the Results

The preceding discussion shows the complexity of patterns, processes and outcomes of urbanization in Botswana. The following paragraphs will highlight specific challenges and suggest how they could be dealt with in order to achieve sustainable development.

Rapid Urbanization

Urbanization is a product of three factors, namely; reclassification of previously rural settlements, migration and natural increase. The number of urban places has changed by 47 percent between 2001 and 2011 at a growth rate of 4.4 percent. The major driver of urbanization in Botswana is the reclassification of its villages to an urban status, once they exceed a certain threshold population size and attain a minimal functional characteristic. This is a positive development because the new urban villages will now be entitled to better infrastructure and social services commensurate with their population, function and status in the settlement hierarchy. From available data, it is feasible to determine, *a priori*, the probable future candidates for inclusion into the existing urban hierarchy. Proactive policies and mechanism therefore need to be put in place to plan for such settlements.

Several challenges face the newly designated Planning Areas, if conventional Urban Standards and Building Codes are to be applied. Large finance for higher standard housing infrastructure, social services, their management and maintenance would now be required.

The Revised National Settlement Policy refers to:

Upgrading of old neighborhoods to bring them in line with current development standards and make them safe and pleasant living environments for their inhabitants [p.21]

This indeed is a noble response to the National Policy on Housing (2000) in terms of promoting housing provision to low and middle income groups in the urban and rural areas and also using housing as an instrument for economic empowerment and poverty alleviation.

Urban standards will, however, require more formal housing solutions involving securing planning and building permits. The plans, building materials and construction costs are however often unaffordable to the most of the rural residents. The adoption and improvement of traditional building materials and techniques could be a step in the right direction but would require innovative efforts and resources before they can provide a healthy and structurally stable environment. Purchasing of serviced land and construction of houses require large financial resources, which are beyond the reach of a sizeable proportion of the urban village residents. The other point raised in the NSP is that:

Upgrading of existing parts of village primary centers shall include surveying to cadastral level roads, water, electricity and telephone reticulation provision 22.

This would involve destruction of some of the existing housing stock, displacement of neighbours and a general disorientation of settlement cohesion. Mechanisms need to be set in place to provide adequate compensation and minimize the potentially disruptive socio-cultural effects of these activities. This is the essence of a compassionate, just and caring nation.

Planners are usually obsessed with the superficial structural aesthetics of place. They are oblivious of topophilia or attachment to place. The phenomenological underpinnings of what place means to residents are lost on the drawing boards of technical urban design. Novel approaches to settlement and building design that blend what is deemed modern while retaining cultural essentials need to be considered. This will assist in integrating indigenous building practices and architecture with modern forms of design.

Over urbanization

The urbanization process has an immense potential for development. For example, when properly regulated, urbanization encourages compact settlements and leads to the full utilization of services. Also agglomeration encourages economies of scale and concentration of people in cities/towns and urban villages who, with better incomes, provide a good market for goods and services through effective demand.

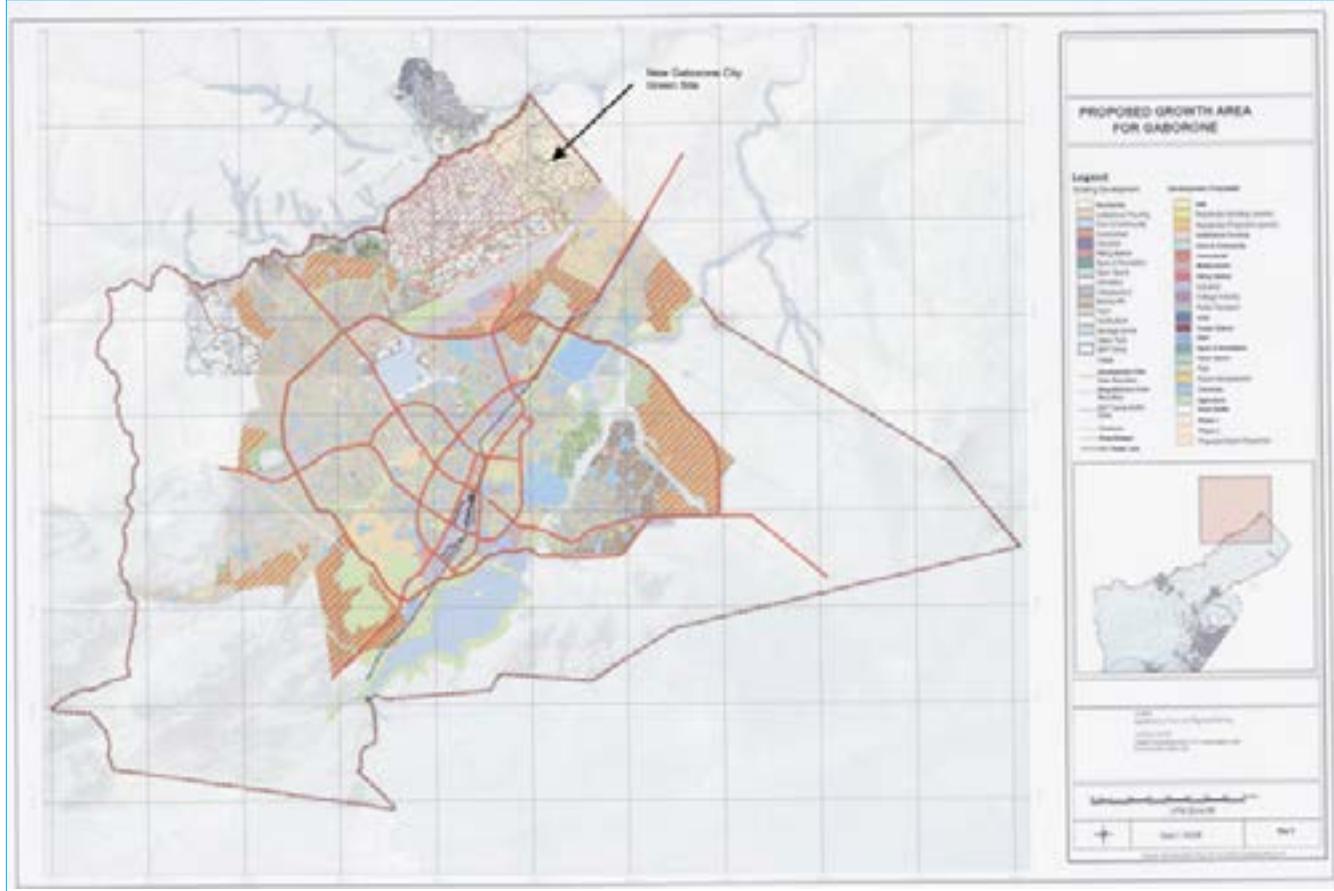
The rapid growth of urbanization has resulted in high demand for employment, infrastructure and services, outpacing the rate at which they are provided in cities/towns. There has been a high demand for serviced land and housing units in towns. Evidence of this has been the backlog in serviced urban land and housing units leading to a strain on infrastructure and services and overcrowding in existing housing areas. There is pollution of groundwater by nitrates and bacteria from pit latrines in the SHHA residential areas. Water samples from Gaborone Dam and the Notwane river have confirmed this. Contamination of rivers and streams by sewage outflows and waste disposal threatens environmental sustainability.

Peri urbanization

Whereas cities seem to be experiencing declines in their annual rates of growth most of the peri-urban and satellite communities have experienced robust growth. This implies increased demand for infrastructure and services. Settlement sprawl is costly in terms of service and infrastructure delivery.

As more and more people are moving closer to the cities and towns, peri-urban virgin land is becoming rapidly depleted. Peri-urbanization has led to the encroachment of freehold farms/tribal lands which are close to major towns and cities. Cases in point include Bonnington, Broadhurst, Pakalane, Forest Hill Farms and the recent development of Kgale Hill Farm 9-KO for industrial and commercial activities and the incorporation of Lobatse Farms into Lobatse Township. Approximately 5 270 hectares of the Kweneng District was recently ceded to Gaborone in the Ledumadumane area at Dumadumane, north of Mmopane.

Figure 4: The Greater Gaborone Area including the Proposed Gaborone City Greenfield



Source: Department of Town and Regional Planning (2012)

The case of Kgosi Gobopaone Diutlileng and some 600 residents of Ledumadumane, who were given six months to vacate their village so that their land would be provided to Gaborone City for expansion, has been narrated, graphically, by the media. Although the Land Board did set aside 249 hectares to accommodate the displaced villages, no provisions were made for their livestock, the main source of their livelihoods.

Land conflicts have characterized the urban frontier as it encroaches on land at the periphery. In Mogoditshane there was a total collapse of the legal procedures for allocating land, a proliferation of illegal land transactions and uncontrolled house-building. There were at least eight hundred illegally created plots, there were unauthorized subdivisions, unauthorized change of use and development apart from unauthorized transactions. The chaotic scenario that led to the institution of the Presidential Commission on Land Problems in Mogoditshane in the 1990s serves as a reminder of how the unscrupulous and predatory elements can dispossess unsuspecting rightful owners of their land resources.

The expansion of cities has caused the loss of valuable commercial and tribal farmland and threatens food security nationally and for the peri-urban residents. This calls for an intensification of urban development and innovative architectural designs to minimize the spatial spread of towns and cities. The environment has come under increasing pressure as the city continues to spread outwards. Demand for construction aggregates is escalating as river sand is being mined from rivers and sand used for building is being dug from the surroundings. With increasing fuel costs, wood is being harvested as a source of domestic energy by the lower income groups and deforestation has become a serious environmental threat. Destruction of vegetation and natural river courses threatens biodiversity and the integrity of the ecosystem. The ecosystem has become seriously fouled and impaired such as has happened along the Segoditshane river in which solid and liquid waste have been dumped and building sand has been extracted.

Environmental dereliction is a direct outcome of uncontrolled littering of construction rubble, solid domestic and commercial waste. This threatens environmental aesthetics and health. Air pollution is a health threat because of increasing traffic, firewood and litter burning, mixed with dust. Demand for water is increasing whilst supply is declining due to more frequent droughts drying up of reservoirs and falling water tables.

The above activities require serious policy attention in the form of adherence to and compliance with the Millennium Development Goal 7 that stresses the importance of ensuring environmental sustainability. Vision

2016 Pillar 2 also alludes to the creation of a prosperous, productive, and innovative nation. This implies promoting sustainable economic growth and diversification, job creation and access to shelter and a sustainable environment.

Proactive measures are also required to ensure the proper development of settlements. For example, Strategic Environment Assessment principles that, pro-actively, anticipates the probable effects of development activities should influence decision-making by informing policy and plan making and facilitate the achievement of sustainable development.

Several strategies need to be implemented to achieve the above ideals. The NSP advocates for the identification of all fertile arable land in order to protect it from indiscriminate encroachment by settlements. The National Land Policy (2003), coupled with the Integrated Landuse Plans, and could assist by guiding the allocation and management of land in a systematic and sustainable manner. Enforcement of the Tribal Land Act (Cap.32.02) 1993 would address issues on land competition, landuse pressure and conflict whereas the Town and Country Planning Act (Cap.32:09) would ensure the proper growth and development of primary centres and an orderly development of land in towns and districts and preserve and improve amenities therein.

The National Conservation Strategy Authority maintains that all aspects of the Town and Country Planning Act will be enforced to ensure the improved provision, design and management of human settlements, including public open space and recreational facilities and the conservation of natural resources within the Planning Areas of all settlements. The National Population Policy aims to stimulate development in the rural areas by expanding and improving physical and socio-economic infrastructure, the creation of alternative growth points to achieve a more even population distribution, and the generation of employment opportunities in the rural areas.

Migration

There are two major patterns of migration that influence the growth of urbanization. First, the population is being forced to relocate from the main urban centers to the neighbouring peripheral areas in search of cheaper accommodation and land. Such intra-subregional moves within the orbits of major centers need to be regulated along the same lines as what has been suggested under peri-urbanization.

Secondly, population from the rural areas and elsewhere is settling in the peripheral satellite communities where prospects of finding accommodation are better and where they are within access for possible employment opportunities in the main urban centers. Some migrants nonetheless still move to the main centers where they either target low income residential areas or establish squatter settlements. The impacts of net migration into urban areas have included overcrowding in destination areas such as Old Naledi, squatting such as in Senthumule near Jwaneng, in Ghanzi Township and within the 50 kilometer radius of Gaborone in Kweneng District. Squatters destroy the environment. They also lack proper sanitation and safe drinking water.

In the past, agriculture has been the pivotal mainstay of the rural economy. Today agriculture is characterized by low productivity that has been declining for years. The major challenges include persistent shortage of water, poor grazing conditions mainly due to recurring droughts, poor management practices, low technology use, pests and diseases, poor access to finance, poor marketing facilities, unremunerative prices and lack of business skills. There continues to be urban attraction for real and imagined cash employment, better social and physical infrastructure. The youth also view rural-urban migration as an escape route from restrictive and traditional lifestyles.

The National Settlement Policy has made suggestions on how to minimize rural-urban migration such as:

- Planning for the provision of similar level of infrastructure and services to villages on the same hierarchical level with towns,
- Provision of incentives for the location of job creating activities in rural areas and villages,
- Provision of financial and other incentives to investors locating in village primary centres, in line with the Financial Assistance Policy,
- Promotional Programmes to publicize opportunities in village primary centres,
- Improvement access to loans and financial resources to rural areas and villages.

In the past, the low standard of infrastructure and services and low purchasing power of rural inhabitants had rendered villages and rural areas unattractive to private investors and financial institutions. Moreover, with the current economic downturn, the scale and range of projects and those activities that had been intended to make lower order centers attractive to their potential migrants have been scaled down significantly. Furthermore, migration is an issue of how the actors perceive the differences between the origin and

destination. Currently, society and the educational curriculum put a premium on academic education that is employer-tied. However, after three years of secondary education, it should be possible, through various types of aptitude tests, to streamline students and start preparing those with vocational aptitudes for self-employment.

The importance of developing the agricultural sector is acknowledged. In this context, the role of the National Action Plan on the Convention on Combating Desertification, the National Policy on Agricultural Development aimed at improving Agricultural production (1991), the Integrated Support programme for Arable Agricultural Development (ISPAAD), designed to improve income levels and the food security situation in rural areas through subsidized inputs and improved extension outreach and the National Master Plan for Arable Agriculture and Dairy Development (NAMPAADD) to assist with transitioning from subsistence to commercial farming, provide critical inputs to a strategy towards making agriculture a viable alternative to urban based employment. However, these efforts need to be complemented with other non-agricultural micro-enterprises such as eco-tourism, manufacture of veld products, small scale mining, and welding and small scale construction. RIPCO (B) could provide the technology, LEA the training and CEDA the finance.

The Emerging Urban Hierarchy

The emerging urban hierarchy shows that Gaborone has undesirable megacity tendencies and continues to dominate the urban hierarchy. Coupled with this is the rapid growth of its peripheral settlements. Although these growth patterns towards a conurbation present ideal opportunities for urbanization economies, they pose serious challenges in terms of providing adequate social services, employment, physical infrastructure and sustaining the environment. These are the issues that relate to the MDG Goals of eradicating poverty and hunger and sustaining the environment. They are at the very heart of Vision 2016 that concerns creating a prosperous and productive nation.

The dominance of Gaborone, as shown by the rank size and primacy indicators, implies regional disparities, polarization and imbalances in economic development. Gaborone is eccentrically-located, as the national capital city. Moreover, its role in creating and reinforcing regional disparities among the Planning regions requires serious planning attention. Furthermore, its location relative to availability of water implies that there needs to be a shift and relocation of the capital to the northern and more accessible and relatively central part of the country such as in Palapye where there is adequate land for expansion, non-existence of physical obstructions to city growth, proximity of water resources and better access to national and international centers.

Decentralization aimed at polycentrism, through the National Settlement Policy, thus makes political sense in the form of promoting social justice but also economic sense in promoting income distribution.

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Prof K. Navaneetham, University of Botswana presenting on
Patterns & Differentials of Migration in Botswana: evidence from 2011 Census

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Abstract: Migration is an important component of population growth and it has significant social and economic implications of a country. In this paper, we analyse the patterns and differentials of internal migration in Botswana using the 2011 census data. Both lifetime migrations and short-term migration have been analysed. The study noted that the number of migrations has been increasing over the years. During the recent year, that is 2010-11, there were about 165 thousands in-migrations and 149 thousands out-migrations including international migrations. Among the international migrations, it was observed that, an emigration of 1203 persons and immigration of 17375 persons during 2010-11. The major destinations for immigration are Gaborone and Kweneng East. Among the immigrations, more than 50% of them were from Zimbabwe. As regards the migrations differentials, the propensity to migrate is almost same for both males and females. This is in contrast to most developing countries. The propensity to migrate is greater among adults (15-34 age), never married or living together, Christians, employed or unemployed and among students. To conclude, the flow of movements among the populations is likely to increase in the future; an appropriate policy needs to be developed to meet the demand from these migrations such as housing, water, sanitation and other infrastructural facilities.

1.0 Introduction

Migration is an important component of population growth and it has significant social and economic implications of a country. In recent years, migration both internal and international has become a concern for policy makers. The research on migration is attracting the policy makers since it has various social, economic implications. The movement of people from rural to urban increases the urbanisation and creates demand for various services in the urban areas. Similarly, remittances from international migrations will benefit the country for social and economic development. According to UN, migration is defined as a move from one migration-defining area to another that was made during a given migration interval and that involved a change of residence.

2.0 Objective

The main objective of this paper is to estimate the patterns, volume and differentials of internal migration in Botswana using the 2011 Census data.

Limitation: Due to non-availability of data, international migrations patterns and differentials were not analysed.

3.0 Results and Discussions

3.1 Lifetime migrations

The Table 1 gives the estimate of the lifetime migration in Botswana by district. This has been estimated using the place of current residence and place of birth. A person whose place of residence at the census date differs from his place of birth is a lifetime migrant and the number of such persons referred to as "lifetime migration". The limitation of this method is that it gives gross underestimates as it excludes movements that occurred between place of birth and place of current residence and as well those migrations who moved away from and subsequently returned to their place of birth. Also they are persons who were survivors on the census date and therefore exclude those migrants who died before the census date. However, this estimate has been frequently used to understand the movement of persons from birth place to another residence.

According to 2011 Census data, the lifetime migration is estimated at about 697,479 persons. The same was about 520, 957 persons using the estimates from the 2001 census data. This shows that the number of lifetime migration that occurred during the census interval, 2001-11 is about 176, 522 persons.

As regards the district-wise lifetime migrations, it is observed from the table that the volume of lifetime net in-migration is significant in Gaborone, Kweneng East, South East and Francistown. The largest share of in-migration to Gaborone is from Kweneng East (14%); Ngwaketsé (11%) and Central Serowe Palapye (11%). In the case of Francistown, the largest share of in-migration is from Central Tutume (23%) and from Ngamiland East (20%). In the following districts/sub-districts, the net outmigration is significant: Central Serowe Palapye,

Ngwaketse, Central Mahalapye; Ngamiland East and Central Tutume. Though the patterns remain the same as that of 2001 Census, there are some exceptional in 2011 Census. The Central, North East and Ngamiland continue to send migrants whereas Gaborone and Francistown continue to receive the migrants. Interestingly, Lobatse and Selebi Phikwe, till 2001, were the receiving towns, but now in 2011 these towns have become sending towns. Unlike in 2001 estimates, Kweneng East has received large scale life time in-migration, mostly from Gaborone (20%) followed by Ngwaketse (12%) whereas Ngwaketse has sent significant outmigration during the period 2001-11, mostly to Gaborone (28%) and Kweneng East (17%).

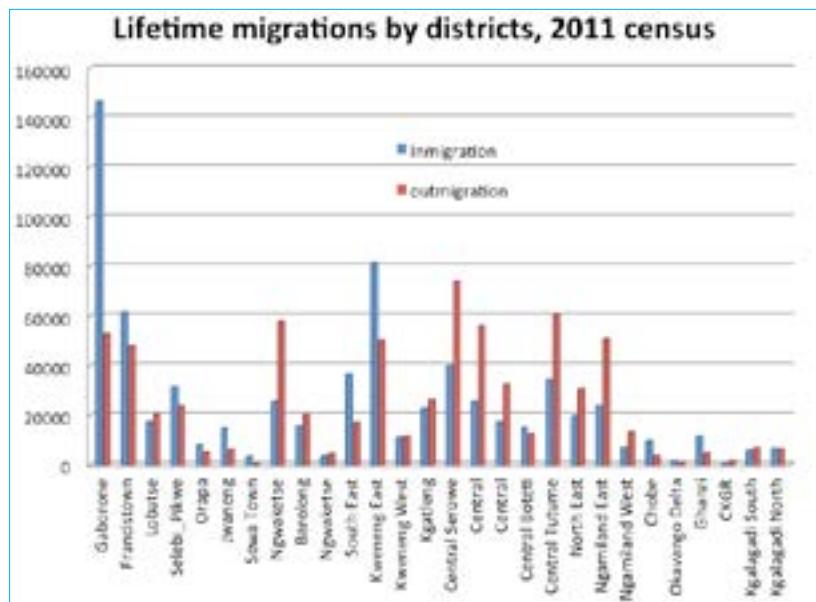


Figure 1: Lifetime migration by district: 2011 Census

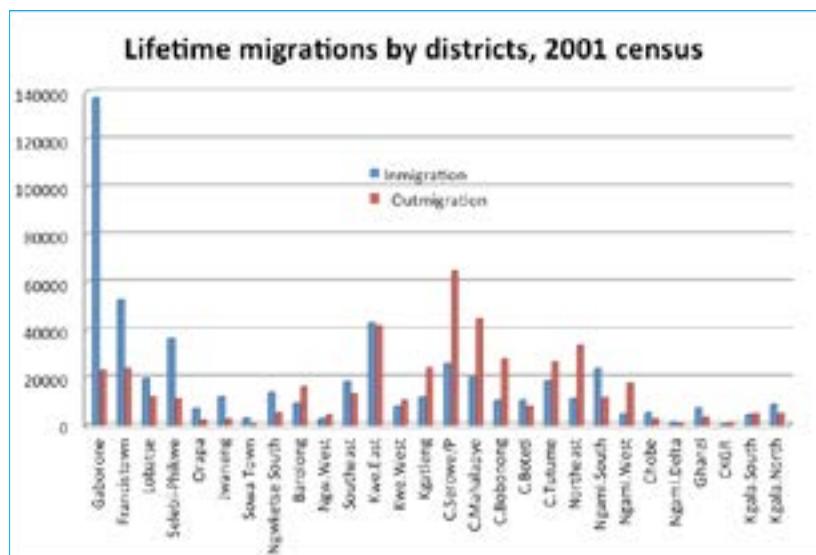


Figure 2: Lifetime migration by district: 2001 Census

3.2 Migration during 2006-11

Due to the limitation of the lifetime migration and also to estimate the recent patterns of migration between districts/towns, an attempt has been made to analyse pattern of migration that occurred during the period 2006-11. This has been estimated using the information on place of residence on the census date and place of residence 5 years ago. If a person's place of current usual residence is different from the place of usual residence 5 years ago, he/she is a migrant and that move occurred during the interval of 5 years. However, this method too has the limitation as that of life time migrations. This is estimate of survivors of the migrants on the census date and does not take into account of those who moved or died during the interval. Similarly, if a migrant has made more than one move before the census date, this does not take into account.

The total migrations that occurred during the period 2006-11 was estimated as 205, 989 including the international migration. During the period 2006-11, there were 1,359 emigrations from Botswana and 20,268 immigration to Botswana from other country. Among the total migrations, 155,314 are above age 5 and the remaining 50,675 are migrations of those who were born during the interval 2006-11. The districts/towns which

are net-outmigration during 2006-11 are: Gaborone, Francistown, Lobatse, Selebi Phikwe, Orapa, Jwaneng, Central Mahalapye and Ngamiland East. All others are net in-migration districts/sub-districts (Table 2).

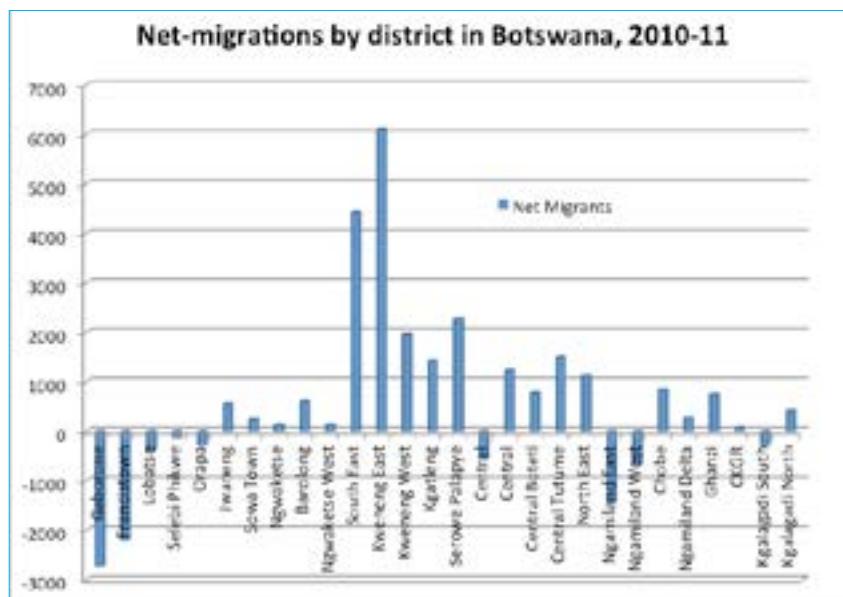
3.3 Migration during 2010-11

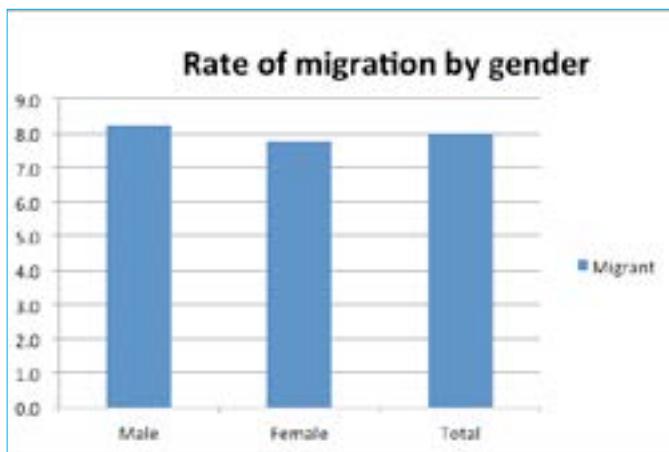
Table 3 below gives the estimates of district-wise migrations during 2010-11. This has been estimated using the information on place of current usual residence and place of usual residence 1 year ago. It was estimated that there were about 165,397 in-migrations and 149,225 out-migrations during 2010-11 including international migrations. As regards the international migration, the study noted that an emigration of 1,203 persons and immigration of 17,375 persons during the same period.

The table also indicates that following towns/districts are net out-migration districts during 2010-11: Gaborone, Francistown, Lobatse, Selebi Phikwe, Orapa, Central Mahalapye, Ngamiland East, Ngamiland West and Kgalagadi South. The remaining are net in-migration districts/sub-districts. There were about 30 thousands outmigrations from Gaborone district during the period 2010-11. Among them, majority of them out-migrated to Kweneng East (24%) followed by South East (10%). Gaborone is also received large scale in-migration of about 27 thousands. Among the in-migration to the district, large share of them were from the Kweneng East (20%) as well as from other countries (18%).

The Francistown recorded about 11 thousands in-migrations and about 13 thousand out-migrations. From Francistown, majority of them migrated to Central Tutume (23%) and North East (12%); and also 13% of them to other country. Among the in-migration to Francistown, around 21 percent of them were from Central Tutume and about 16% of them from Gaborone. The other notable district is Kweneng East, where it has received 19 thousands in-migrants and sent 13 thousands out-migrants during 2010-11. Among the in-migrations, majority of them were from Gaborone (37%). Among those out-migrated, majority of them (40%) had gone to Gaborone. The other notable district for significant flow of migration is Central Serowe-Palapye where it has recorded 13 thousands in-migrations and about 11 thousands out-migrations. Among the in-migrations to the district, majority of them are from Gaborone (19%) followed by Central Mahalapye (16%). Again, among the out-migrations, majority of them have gone to Gaborone (16%) and Central Mahalapye (14%).

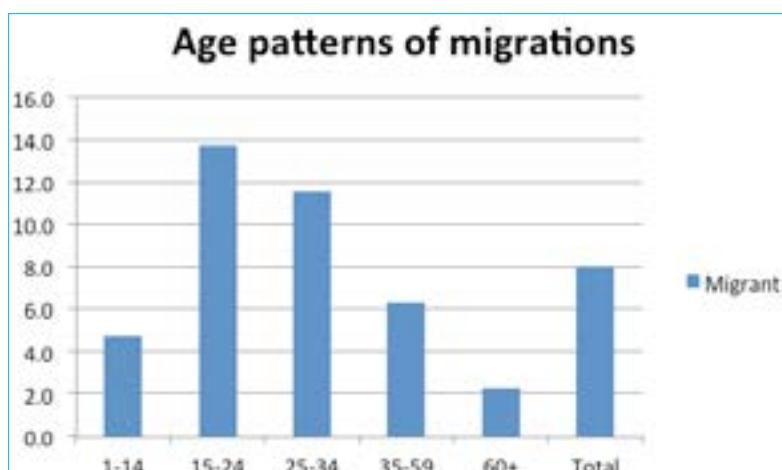
During the period 2010-11, there were 17,375 persons immigration to Botswana and 1,203 persons were emigrated from Botswana, resulting net immigration of 16,172 persons. Among immigration to Botswana, major destinations are the districts of Gaborone (28%) followed by Kweneng East (13%). Among the immigration to Botswana, more than 50% of them are from Zimbabwe and around 18 percent from South Africa and remaining are from other countries.





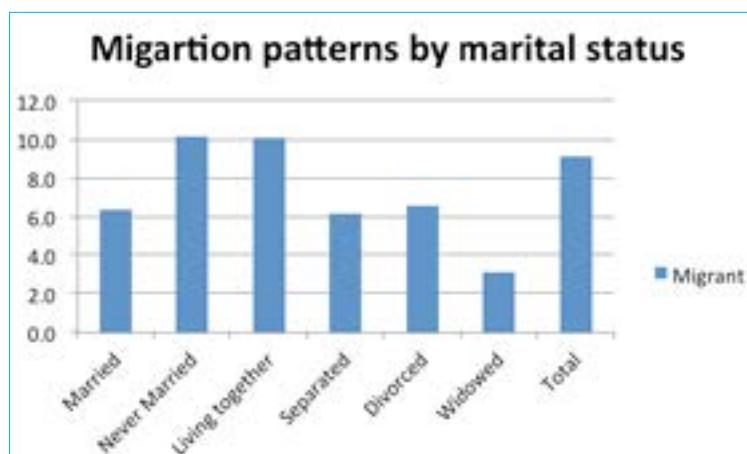
3.4.2 Age Differentials

There is a clear age patterns of migration observed in Botswana in the 2011 census. The age pattern of migration follows the inverted U shaped as in many developing countries. In general, migration in Botswana is selective to young age groups (15-34). The propensity to migrate is greater in the age group 15-24 (13.7%) followed by 25-34 (11.5%). After that age group, the rate of migration is declining. Among the migrants, majority of them belongs to the age group 15-24 (35%) followed 25-34 (27.2 %), see Table 5.

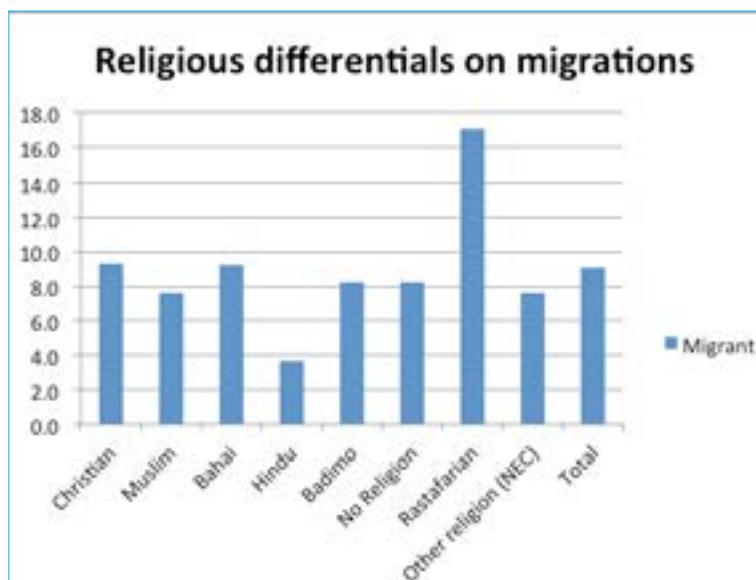


3.4.3 Marital Status Differentials

The 2011 Census data also indicates that migration differ with respect to marital characteristics. Among the migrants, majority of them are never married (62%) followed by Living together (23%). The propensity of migration is also greater among never married and living together, about 10 percent each. The propensity of migration is lowest among married, separated and divorced (Table 6).

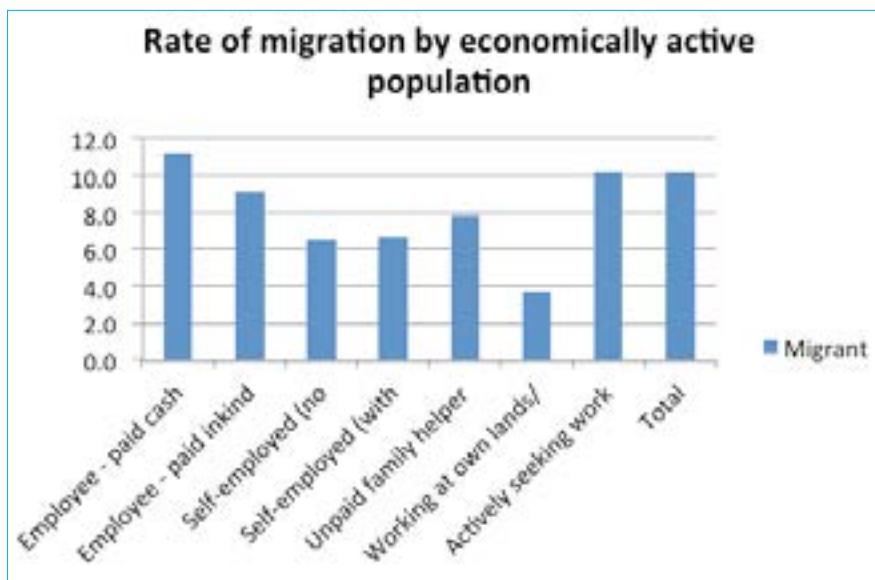


Among the migrants, around 81 percent of them are Christians; who share around 80 percent of the total population. The no religion population constitute about 14 percent of the total migrations. The religion Rastafarian (17%) has the greater propensity to migrate followed by Christians and Bahai (9%). In other words, for every 100 individuals, seventeen (17) of them are migrants among Rastafarian religion (Table 7).



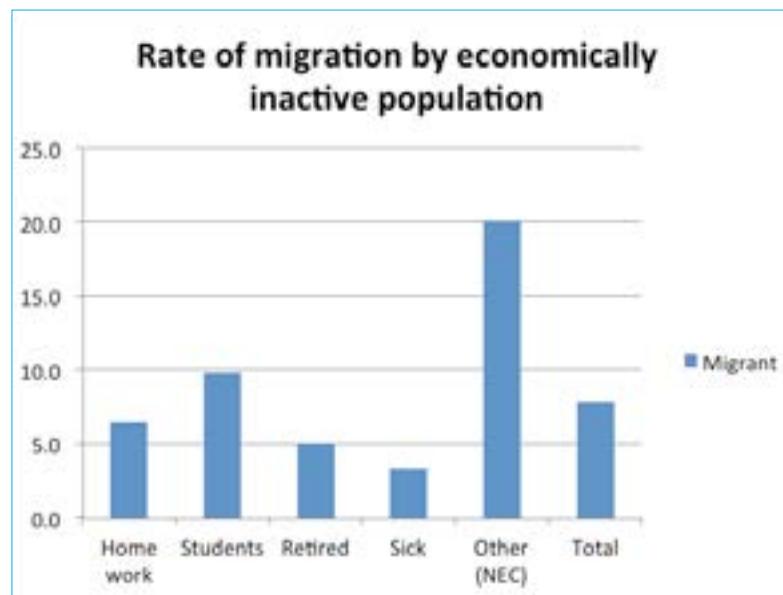
3.4.5 Migration Differentials by Economically Active Population

With respect to economic activity, the characteristics of migrants are likely to be different from non-migrants. Among the migrants, 72 percent of them are working as employee-paid cash after migrations. Among the non-migrants, this percentage is only 64. The rate of migration is highest among employee-paid cash followed by job seekers. For every 100 job seekers, 10 of them are migrants. The propensity to migrate is lowest among working at own land and self-employed (Table 8).



3.4.6 Migration differentials by Economically Inactive Population

The estimated migration during 2010-11 is about 50,000 persons. Among them, more than 50 percent of them are students and at around 36 percent of them are home worker. The propensity to migrate is also highest among the students.



4.0 Main Findings and Conclusion

The main objective of this paper is to study the patterns and differentials of internal migration in Botswana using the 2011 Census data. The main findings of the study are as follows:

The lifetime migration as on 2011 is estimated at about 697,479 persons in Botswana. The life time migration during the period 2001-11 was about 176,522.

The lifetime in-migration is substantial in Gaborone, Kweneng East, South East and Francistown and out-migration is significant in Central Serowe Palapye, Ngwaketse, Central Mahalapye; Ngamiland East and Central Tutume.

Lobatse and Selebi Phikwe, till 2001, they were the receiving towns, but now in 2011 these towns have become sending towns.

The total migrations that occurred during the period 2006-11 was estimated as 205, 989 persons including the international migration. Out of the total migrations, about 33% of them are those who were born during the period 2006-11.

During the period 2006-11, there were 1359 emigration and 20268 immigration and majority of immigrants were from Zimbabwe.

The districts/towns which are net-outmigration during 2006-11 are: Gaborone, Francistown, Lobatse, Selebi Phikwe, Orapa, Jwaneng, Central Mahalapye and Ngamiland East. All others are net-inmigration districts/sub-districts.

During the period 2010-11, there were about 165,397 in-migrations and 149,225 out-migrations including international migrations.

During the period 2010-11, an emigration of 1,203 persons and immigration of 17,375 persons were noted. The major destinations for immigration is to Gaborone (28%) and Kweneng East (13%). Among the immigrations, more than 50% of them were from Zimbabwe.

During the period 2010-11, the towns/districts which are net out-migrations: Gaborone, Francistown, Lobatse, Selebi Phikwe, Orapa, Central Mahalapye, Ngamiland East, Ngamiland West and Kgalagadi South. All others are net in-migration districts/subdistricts.

As regards the migrations differentials, the propensity to migrate is almost same for both males and females. This is in contrast to most developing countries.

The propensity to migrate is greater among adults (15-34 age), never married or living together, Christians, employed or unemployed and among students.

To conclude, the flow of movements among the populations is likely to increase in the future; an appropriate policy needs to be developed to meet the demand from these migrations such as housing, water, sanitation and other infrastructural facilities.

Appendix: Statistical Tables

Table 1: Lifetime migration by district: 2011 Census

District	In-migration	Out-migration	Net migration
Gaborone	146468	52755	93713
Francistown	61655	47859	13796
Lobatse	17419	20303	-2884
Selebi_Pikwe	31336	23729	7607
Orapa	7919	5150	2769
Jwaneng	14915	6017	8898
Sowa Town	3263	448	2815
Ngwaketse	25491	57740	-32249
Barolong	15491	20159	-4668
Ngwaketse West	3463	4695	-1232
South East	36679	17144	19535
Kweneng East	81528	50134	31394
Kweneng West	10925	11618	-693
Kgatleng	22694	26119	-3425
Central Serowe Palapye	39926	73996	-34070
Central Mahalapye	25494	55850	-30356
Central Bobonong	17366	32448	-15082
Central Boteti	15018	12528	2490
Central Tutume	34428	60405	-25977
North East	19749	30557	-10808
Ngamiland East	23757	50640	-26883
Ngamiland West	7132	13234	-6102
Chobe	9875	3673	6202
Okavango Delta	1492	967	525
Ghanzi	11467	4841	6626
CKGR	216	1435	-1219
Kgalagadi South	5797	6933	-1136
Kgalagadi North	6516	6102	414
Total	697479	697479	

Table 2: District-wise migration during the last five year (2006-11) from the date of Census 2011

District	Population	Immigration	Outmigration	Net Migrants	Annual rate of immigration	Annual rate of outmigration	Annual rate of netmigration
Gaborone	231592	31564	38720	-7156	2.73	3.34	-0.62
Francistown	98961	13108	16855	-3747	2.65	3.41	-0.76
Lobatse	29007	4114	5090	-976	2.84	3.51	-0.67
Selebi Phikwe	49411	6274	7001	-727	2.54	2.83	-0.29
Orapa	9531	1834	2398	-564	3.85	5.03	-1.18
Jwaneng	18008	4035	3615	420	4.48	4.01	0.47
Sowa Town	3598	1028	684	344	5.71	3.8	1.91
Ngwaketse	129247	10730	9965	765	1.66	1.54	0.12
Barolong	54831	5202	4010	1192	1.9	1.46	0.43
Ngwaketse West	13689	1255	1050	205	1.83	1.53	0.3
South East	85014	12275	7266	5009	2.89	1.71	1.18
Kweneng East	256752	25786	15041	10745	2.01	1.17	0.84
Kweneng West	47797	2918	653	2265	1.22	0.27	0.95
Kgatleng	91660	7849	6092	1757	1.71	1.33	0.38
Serowe Palapye	180500	16151	13295	2856	1.79	1.47	0.32
Central Mahalapye	118875	8600	9408	-808	1.45	1.58	-0.14
Central Bobonong	71936	7145	5195	1950	1.99	1.44	0.54
Central Boteti	57376	4923	3553	1370	1.72	1.24	0.48
Central Tutume	147377	13640	11363	2277	1.85	1.54	0.31
North East	60264	6923	4801	2122	2.3	1.59	0.7
Ngamiland East	90334	6131	8573	-2442	1.36	1.9	-0.54
Ngamiland West	59421	2339	2999	-660	0.79	1.01	-0.22
Chobe	23347	3239	2131	1108	2.77	1.83	0.95
Ngamiland Delta	2529	415	141	274	3.28	1.12	2.17
Ghanzi	43095	3177	2239	938	1.47	1.04	0.44
Central Kgalagadi Game Reserve	260	135	104	31	10.38	8	2.38
Kgalagadi South	30016	1822	1955	-133	1.21	1.3	-0.09
Kgalagadi North	20476	2018	1524	494	1.97	1.49	0.48
International migration		20268	1359	-18909	0.01	0.2	0.19
Total	2024904	205989	205989				

Table 3: District-wise migration during the last one year from the date of Census 2011(age 1+)

District	Population	Immigration	Outmigration	Net Migrants	Annual rate of immigration	Annual rate of outmigration	Annual rate of netmigration
Gaborone	231592	27076	29797	-2721	11.69	12.87	-1.17
Francistown	98961	10797	13001	-2204	10.91	13.14	-2.23
Lobatse	29007	3411	3798	-387	11.76	13.09	-1.33
Selebi Phikwe	49411	5136	5281	-145	10.39	10.69	-0.29
Orapa	9531	1525	1807	-282	16	18.96	-2.96
Jwaneng	18008	3544	2981	563	19.68	16.55	3.13
Sowa Town	3598	897	658	239	24.93	18.29	6.64
Ngwaketse	129247	8368	8242	126	6.47	6.38	0.1
Barolong	54831	3961	3348	613	7.22	6.11	1.12
Ngwaketse West	13689	1016	889	127	7.42	6.49	0.93
South East	85014	10174	5757	4417	11.97	6.77	5.2
Kweneng East	256752	19407	13311	6096	7.56	5.18	2.37
Kweneng West	47797	2132	174	1958	4.46	0.36	4.1
Kgatleng	91660	6544	5115	1429	7.14	5.58	1.56
Serowe Palapye	180500	13196	10931	2265	7.31	6.06	1.25
Central Mahalapye	118875	6847	7404	-557	5.76	6.23	-0.47
Central Bobonong	71936	5530	4304	1226	7.69	5.98	1.7
Central Boteti	57376	3824	3043	781	6.66	5.3	1.36
Central Tutume	147377	10959	9460	1499	7.44	6.42	1.02
North East	60264	5191	4065	1126	8.61	6.75	1.87
Ngamiland East	90334	4824	6246	-1422	5.34	6.91	-1.57
Ngamiland West	59421	1850	2516	-666	3.11	4.23	-1.12
Chobe	23347	2798	1951	847	11.98	8.36	3.63
Ngamiland Delta	2529	376	106	270	14.87	4.19	10.68
Ghanzi	43095	2711	1961	750	6.29	4.55	1.74
CKGR	260	128	56	72	49.23	21.54	27.69
Kgalagadi South	30016	1445	1723	-278	4.81	5.74	-0.93
Kgalagadi North	20476	1730	1300	430	8.45	6.35	2.1
International migration		17375	1203	16172	0.86	0.06	0.8
Total	2024904	165397	149225	16172			

Table 4: Migration Status by gender-2011 Census

Sex	Non_Migrant	Migrant	Total
Male	819059	73786	892845
Female	873033	73696	946729
Total	1692092	147482	1839574
Sex	Non_Migrant	Migrant	Total
Male	48.4	50	48.5
Female	51.6	50	51.5
Total	100.00	100.00	100.00
Sex	Non_Migrant	Migrant	Total
Male	91.7	8.3	100.00
Female	92.2	7.8	100.00
Total	92	8	100.00

Table 5: Migration Status by age group-2011 Census

Age group	Non_Migrant	Migrant	Total
1-14	551058	26945	578003
15-24	324421	51575	375996
25-34	307883	40052	347935
35-59	382283	25759	408042
60+	122772	2792	125564
Total	1688417	147123	1835540
Age group	Non_Migrant	Migrant	Total
1-14	32.6	18.3	31.5
15-24	19.2	35.1	20.5
25-34	18.2	27.2	19
35-59	22.6	17.5	22.2
60+	7.3	1.9	6.8
Total	100.00	100.00	100.00
Age group	Non_Migrant	Migrant	Total
1-14	95.3	4.7	100.00
15-24	86.3	13.7	100.00
25-34	88.5	11.5	100.00
35-59	93.7	6.3	100.00
60+	97.8	2.2	100.00
Total	92	8	100.00

Table 6: Migration Status by marital status-2011 Census

Marital Status	Migrant	Total
Married	235401	251447
Never Married	690365	768173
Living together	254472	282904
Separated	5747	6123
Divorced	12384	13251
Widowed	51941	53585
Total	1250310	1375483
Marital Status	Non_Migrant	Migrant
Married	18.8	12.8
Never Married	55.2	62.2
Living together	20.4	22.7
Separated	0.5	0.3
Divorced	1.0	0.7
Widowed	4.2	1.3
Total	100.0	100.0
Marital Status	Non_Migrant	Migrant
Married	93.6	6.4
Never Married	89.9	10.1
Living together	89.9	10.1
Separated	93.9	6.1
Divorced	93.5	6.5
Widowed	96.9	3.1
Total	90.9	9.1
Total	100.0	100.0

Table 7: Migration Status by religion-2011 Census

Religion		Migrant	Total
Christian	989168	101715	1090883
Muslim	9376	772	10148
Bahai	1716	175	1891
Hindu	3230	123	3353
Badimo	50244	4523	54767
No Religion	191288	17194	208482
Rastafarian	1512	312	1824
Other religion (NEC)	1226	101	1327
Total	1247760	124915	1372675
Religion		Non_Migrant	Migrant
Christian	79.3	81.4	79.5
Muslim	0.8	0.6	0.7
Bahai	0.1	0.1	0.1
Hindu	0.3	0.1	0.2
Badimo	4.0	3.6	4.0
No Religion	15.3	13.8	15.2
Rastafarian	0.1	0.2	0.1
Other religion (NEC)	0.1	0.1	0.1
Total	100.0	100.0	100.0
Religion		Non_Migrant	Migrant
Christian	90.7	9.3	100.0
Muslim	92.4	7.6	100.0
Bahai	90.7	9.3	100.0
Hindu	96.3	3.7	100.0
Badimo	91.7	8.3	100.0
No Religion	91.8	8.2	100.0
Rastafarian	82.9	17.1	100.0
Other religion (NEC)	92.4	7.6	100.0
Total	90.9	9.1	100.0

Table 8: Migration Status by economically active population-2011 Census

Economically active	Non_Migrant	Migrant	Total
Employee - paid cash	425659	54095	479754
Employee - paid in kind	2664	267	2931
Self-employed (no employees)	44461	3087	47548
Self-employed (with employees)	18091	1284	19375
Unpaid family helper	3512	301	3813
Working at own lands/cattle posts	37709	1440	39149
Actively seeking work (Job seekers)	133922	15183	149105
Total	666018	75657	741675
Economically active	Non_Migrant	Migrant	Total
Employee - paid cash	63.9	71.5	64.7
Employee - paid in kind	0.4	0.4	0.4
Self-employed (no employees)	6.7	4.1	6.4
Self-employed (with employees)	2.7	1.7	2.6
Unpaid family helper	0.5	0.4	0.5
Working at own lands/cattle posts	5.7	1.9	5.3
Actively seeking work (Job seekers)	20.1	20.1	20.1
Total	100.0	100.0	100.0
Economically active	Non_Migrant	Migrant	Total
Employee - paid cash	88.7	11.3	100.0
Employee - paid in kind	90.9	9.1	100.0
Self-employed (no employees)	93.5	6.5	100.0
Self-employed (with employees)	93.4	6.6	100.0
Unpaid family helper	92.1	7.9	100.0
Working at own lands/cattle posts	96.3	3.7	100.0
Actively seeking work (Job seekers)	89.8	10.2	100.0
Total	89.8	10.2	100.0

Table 9: Migration Status by economically inactive population-2011 Census

Economically Inactive	Non_Migrant	Migrant	Total
Home work	258425	17620	276045
Students	264524	28521	293045
Retired	16555	873	17428
Sick	39950	1378	41328
Other (NEC)	4599	1153	5752
Total	584053	49545	633598
Economically Inactive	Non_Migrant	Migrant	Total
Home work	44.2	35.6	43.6
Students	45.3	57.6	46.3
Retired	2.8	1.8	2.8
Sick	6.8	2.8	6.5
Other (NEC)	0.8	2.3	0.9
Total	100.0	100.0	100.0
Economically Inactive	Non_Migrant	Migrant	Total
Home work	93.6	6.4	100.0
Students	90.3	9.7	100.0
Retired	95.0	5.0	100.0
Sick	96.7	3.3	100.0
Other (NEC)	80.0	20.0	100.0
Total	92.2	7.8	100.0

Table 10: Distribution of District wise flow of Lifetime In-Migrations (%), 2011 Census

Place of current residence	Place of birth	Number of in-migrations																														
		Gaborone	Francistown	Lobatse	Selebi-Pikwe	Orapa	Jwaneng	Sowa Town	Barolong	Ngwaketse	Kweneng East	Kweneng West	Kgatleng	Central Serowe Palapye	Central Bobonong	North East	Ngamiland East	Ngamiland West	Chobe	Ghanzi	Central Kgalagadi Game Reserve (CKGR)	Kgalagadi South	Kgalagadi North									
Gaborone		6.3	2.9	2.5	0.5	0.6	0	11.2	4	0.3	4	13.9	1.6	7.1	11.2	10.3	3.7	0.8	7.6	4	4.7	0.4	0.3	0	0.5	0	0.8	0.6	1446468			
Francistown		4.7	0.9	3.2	0.7	0.2	0.1	1.9	0.6	0.1	1	2.5	0.2	1.7	10.3	6.3	5.5	1.7	23.1	13.5	20	0.6	0.8	0	0.2	0	0.2	0.2	61655			
Lobatse		5.7	2.9	1.3	0.2	0.9	0	27.8	20.2	1.2	4.4	7.7	0.6	3.5	5.6	4.6	1.6	0.5	3	1.7	3	0.2	0.2	0	0.5	0	1.2	1.6	17419			
Selebi-Pikwe		3.4	6.1	0.8	0.3	0.3	0.1	2.3	0.9	0.1	1	3.2	0.3	1.8	24.1	12.3	23.1	1.1	11.1	4.8	1.6	0.4	0.3	0	0.2	0	0.2	0.2	31336			
Orapa		4.4	6.4	1.4	3.7	1.1	0.1	3.1	0.9	0.2	1.4	3	0.1	2.3	18.9	7.4	5	17.8	8.3	3	10	0.5	0.4	0	0.3	0	0.2	0.2	7919			
Jwaneng		4.6	3.4	3.2	1.6	0.8	0	32	3.9	3.2	6.5	3.2	2.8	6	3.8	2.5	1.2	3	1.5	10	0.2	0.2	0	0.5	0	0.5	0	1	14915			
Sowa Town		3.5	11.9	0.6	2.6	0.6	0.2	2.3	1.1	0	1	1.9	0.2	1.5	8.8	4.4	3.5	4.2	35.8	7.3	7.3	0.3	0.7	0	0.2	0	0.1	0.2	3263			
Ngwaketse		15.9	2.6	18	1.4	0.4	7	0	9.8	1.8	4.6	11.7	1.9	2.8	4.4	3.4	1.5	0.8	2.2	1	4.4	0.2	0.2	0	0.8	0	1.7	1.2	25491			
Barolong		12	1.5	15.9	0.8	0.3	2.2	0	37	0.9	3.2	6.7	0.8	2.1	3.3	2.5	0.9	0.4	1.2	0.6	4.5	0.1	0.1	0	0.7	0	1.7	0.7	15491			
Ngwaketse West		3.7	1.6	3.9	0.5	0.1	9.4	0	27.6	3.4	1.7	4.5	10.2	1.4	2.1	1.2	1.1	0.5	1.1	0.6	1.6	0.2	0.1	0	2.7	0	11.5	9.4	3463			
South East		14.8	4.4	4.8	2.1	0.3	1	0	10.7	4	0.4	11.7	1.2	7.4	9	9	3.3	0.6	4.4	2.2	5.5	0.6	0.3	0	0.6	0	1.1	0.7	36679			
Kweneng East		20	4.8	2.6	2	0.3	0.7	0	11.9	3.3	0.3	4	5.7	4.8	8.7	8.9	3.7	0.8	7	3.4	4.1	0.3	0.3	0	0.5	0	1	0.7	81528			
Kweneng West		6.4	2.2	1.1	0.8	0.1	1.7	0	8.5	1.6	2	2.5	43.6	2.8	4.6	4.2	1.9	0.5	2.6	1.7	1.9	0.3	0.2	0	0.7	3.9	1.7	2.4	10925			
Kgatleng		20.6	4.4	3.1	2.5	0.4	0.5	0.1	6.3	2.1	0.2	4.4	14.2	2.3	8.7	10.6	2.8	0.7	3.9	2.3	7.9	0.2	0.3	0	0.6	0	0.6	0.4	22694			
Central Serowe Palapye		8.8	8.4	1.6	9.8	1.2	0.4	0.2	3.1	0.9	0.1	1.7	4.3	0.4	2.8	24.2	9.4	3.8	9.5	3	4.2	0.5	0.5	0	0.5	0	0.3	0.3	39926			
Central Mahalapye		11.1	5.6	1.5	5.1	0.7	0.4	0	3	0.9	0.1	2.2	6	0.6	4.3	39.3	4.4	1.7	4.8	2.2	4.5	0.3	0.4	0	0.3	0	0.3	0.3	25494			
Central Bobonong		8.4	0.7	29.2	0.6	0.4	0.1	1.9	0.5	0.1	1	2.9	0.2	2	20.5	6.7	1.2	7.5	3.2	6	0.2	0.3	0	0.2	0	0.2	0.3	17366				
Central Boteti		6.7	0.5	2.5	11.1	0.3	0.1	2	0.7	0.1	0.6	2.7	0.2	1.4	23.1	7.1	4.1	16.5	2.5	11.2	2.1	0.6	0	0.6	0.5	0.4	0.3	15018				
Central Tutepe		6.8	29.5	1	4.5	0.7	0.4	0.2	1.9	0.5	0.1	0.8	2.2	0.3	1.5	11.2	4.3	3.9	13.4	9.3	0.8	1.5	0	0.3	0	0.2	0.2	34428				
North East		6.3	31.8	1	3.3	0.5	0.2	0.1	1.9	0.7	0	0.9	2.5	0.2	1.5	7.5	4	5.4	1.4	25	4.2	0.4	0.7	0	0.2	0	0.2	0.1	19749			
Ngamiland East		3.2	7	0.8	1.7	0.9	0.3	0.2	2.1	0.5	0.1	1.1	3.3	0.4	1.5	5.7	3.3	2.5	9.4	10.8	3.2	32.7	2.7	2.1	3.3	0	0.6	0.6	23757			
Ngamiland West		1.6	3.5	0.4	0.8	0.2	0	0.2	1.9	0.6	0.1	0.7	2.3	0.4	1	3.7	2.9	1.8	3.2	4.9	2.6	56	1.5	5.8	2	0	1.3	0.6	7132			
Chobe		3.4	9.7	0.8	1.7	0.5	0.2	0.1	2.8	0.7	0.2	1.3	4.1	0.6	2	6.8	4.6	2.1	22.8	6.5	16	6.9	0.2	0.6	0	0.4	0.4	9875				
Okavango Delta		0.4	1.6	0	0.7	0.3	0	0	0.7	0.1	0	0.3	0.9	0.1	0.2	1.8	0.9	0.7	2.4	2.4	1.5	45	37.4	1.9	0.5	0	0	0	0	0	1492	
Ghanzi		3.3	2.5	1.2	0.9	0.1	0.5	0.1	5.2	1.7	2.9	1.6	4.2	2.1	1.9	3.4	2.6	1.4	1.7	2.8	0.9	21	12.1	0.6	0.1	7.6	4.8	12.8	11467			
CKGR		1.4	2.3	2.3	0.5	0.5	0	0	1.4	0.9	0.5	0.9	25.5	7.9	1.9	5.1	5.6	2.3	2.8	0.9	26.4	3.2	0	0	5.6	0	0.5	0.5	216			
Kgalagadi South		7.7	2.7	4.3	0.8	0.1	2.3	0	18.9	6.5	13.6	2.4	6.2	2.1	3.5	3.6	2.9	1.6	0.5	2.6	1.2	4.4	0.3	0.2	0	2.2	0	0.2	0.4	5797		
Kgalagadi North		4.5	1.9	3.4	0.9	0.1	2.3	0	8.6	1.9	13	1.6	6.6	14.3	1.7	2.6	2.2	1.1	0.4	1.6	0.7	2.1	0.5	0.2	0	11.2	0.1	16.5	6516			

Table 11: Distribution of District-wise flow of Lifetime out-Migrations (%), 2011 Census

Place of current residence	Place of birth	Central Boteti																										
		North East	South East	South Town	Orapa	Jwaneng	Botswana	Ngwaketse West	Kweneng East	Central Serowe	Plaapye	Central Mahalapye	Chobe	Okavango Delta	Central Kgalagadi Reserve (CKGR)	Kgalagadi South	Kgalagadi North	Number of out-migrations										
Gaborone	21.2	15.3	14.9	15.3	7.8	28.4	29.1	9.1	34.6	40.7	19.9	39.9	22.2	27	16.9	9.1	18.3	13.7	3.9	12.4	0.2	16	0.9	17	14.8			
Francistown	5.4	2.7	8.2	7.9	2.1	10.7	2.1	1.8	1.3	3.7	3.1	0.8	4.1	8.6	6.9	10.4	8.6	23.5	27.3	24.3	2.9	13.1	0.2	2.4	0.1	1.6	2	
Lobatse	1.9	1	0.8	2.5	0.2	8.4	17.5	4.6	4.5	2.7	0.9	2.4	1.3	1.4	0.8	0.6	0.9	0.9	1	0.3	1	0.1	1.9	0.1	2.9	4.6		
Selebi-Pikwe	2	4	1.2	2.1	1.4	3.8	1.2	1.4	0.4	1.9	2	0.7	2.2	10.2	6.9	22.4	2.9	5.7	4.9	1	1	2.6	0	1	0	1.1	1.2	
Orapa	0.7	1.1	0.5	1.2	1.4	1.6	0.4	0.4	0.3	0.6	0.5	0.1	0.7	2	1	1.2	11.3	1.1	0.8	1.6	0.3	0.9	0.2	0.5	0	0.2	0.2	
Jwaneng	1.3	1.1	2.3	1	2.3	0.7	8.3	2.9	10.1	1.8	1.9	4.1	1.6	1.2	1	1.2	1.4	0.8	0.7	3	0.3	0.7	0	1.7	0	5.9	2.4	
Sowa Town	0.2	0.8	0.1	0.4	0.4	0.1	0.1	0.2	0	0.2	0.1	0.1	0.2	0.4	0.3	0.4	1.1	1.9	0.8	0.5	0.1	0.6	0	0.1	0	0.1	0.1	
Ngwaketse West	7.7	1.4	22.7	1.5	1.8	29.8	1.1	12.4	10	6.8	5.9	4.3	2.8	1.5	1.5	1.2	1.6	0.9	0.9	2.2	0.4	1.7	0	4.1	0.1	6.2	5.1	
Barolong	3.5	0.5	12.1	0.5	0.8	5.7	0.4	9.9	2.8	2.9	2.1	1	1.3	0.7	0.7	0.4	0.5	0.3	0.3	1.4	0.2	0.4	0	2.2	0	3.9	1.8	
South East	10.3	3.4	8.6	3.2	2.4	5.9	2.9	6.8	7.3	3.3	8.5	3.6	10.4	4.5	5.9	3.7	1.8	2.7	2.7	4	1.6	3.3	0.1	4.2	0	6	4	
Kweneng East	30.9	8.2	10.6	7	4.8	9	5.8	16.8	13.3	6	18.9	39.7	15	9.5	13	9.3	5.2	9.5	9.2	6.6	2	7.6	0.2	9.2	0.5	11.8	9.8	
Kweneng West	1.3	0.5	0.6	0.4	0.3	3	0	1.6	0.9	4.6	1.6	9.5	1.2	0.7	0.8	0.7	0.4	0.5	0.6	0.4	0.2	0.5	0	1.6	29.8	2.6	4.3	
Kgatleng	8.9	2.1	3.5	2.4	2	1.8	3.1	2.5	2.4	0.9	5.8	6.4	4.4	2.7	4.3	2	1.3	1.5	1.7	3.5	0.4	2	0.1	2.6	0.6	1.9	1.5	
Central Serowe	6.7	7	3.2	16.5	9.5	2.8	14.3	2.1	1.8	1.2	3.9	3.4	1.2	4.3	17.3	11.5	12.2	6.3	3.9	3.3	1.4	5	0.3	4.4	0.1	1.6	1.8	
Central Mahalapye	5.4	3	1.8	5.5	3.2	1.8	2	1.3	1.1	0.6	3.2	3.1	1.4	4.2	13.5	3.4	3.5	2	1.8	2.2	0.6	2.8	0	1.6	0.2	1.3	1.1	
Central Bobonong	1.9	3.1	0.6	21.3	2.1	1.2	2	0.6	0.4	0.5	1	1	0.4	1.4	4.8	2.1	1.7	2.2	1.8	2	0.3	1.4	0	0.7	0	0.4	0.8	
Central Boteti	0.6	2.1	0.4	1.6	32.2	0.8	3.1	0.5	0.5	0.3	0.5	0.8	0.3	0.8	4.7	1.9	1.9	4.1	1.2	3.3	2.4	2.5	0.4	2	5.1	0.9	0.7	
Central Tutume	4.4	21.2	1.7	6.6	4.4	2	19	1.1	0.9	0.6	1.7	1.5	0.9	2	5.2	2.6	4.6	10.8	15.1	6.3	2.2	14.1	0.2	2.2	1	1.1	1.4	
North East	2.3	13.1	1	2.8	2	0.7	6	0.6	0.7	0.1	1	1	0.3	1.1	2	1.4	3.3	2.2	8.2	1.6	0.6	3.9	0	0.9	0.1	0.5	0.4	
Ngamiland East	1.5	3.5	0.9	1.7	4	1.1	8.9	0.9	0.6	0.7	1.6	0.8	1.4	1.8	1.4	1.8	17.7	4.2	2.5	58.7	17.2	51.4	16.3	0.6	2.2	2.4		
Ngamiland West	0.2	0.5	0.1	0.3	0.3	0	3.3	0.2	0.1	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.4	0.4	0.6	7.9	2.9	42.6	3	0.1	1.3	0.7		
Chobe	0.6	2	0.4	0.7	1	0.3	1.3	0.5	0.3	0.5	0.8	0.5	0.8	0.9	0.8	1.4	1.7	3.7	2.1	3.1	5.1	2.3	1.2	0	0.6	0.6		
Okavango Delta	0	0.1	0	0	0.1	0	0	0	0	0	0	0	0	0	0	0.3	0.1	0.1	0.1	0	0	0	0	0	0	0		
Ghanzi	0.7	0.6	0.7	0.4	0.3	0.9	1.6	1	1	1	7	1.1	1	2	0.8	0.5	0.5	1.6	0.5	0.4	4.7	10.5	2	1.6	0.1	0	0	
Central Kgatleng Game Reserve (CKGR)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.2	0	0	0	
Kgalagadi South	0.8	0.3	1.2	0.2	0.1	2.3	0.2	1.9	1.9	1.68	0.8	0.7	1	0.8	0.3	0.3	0.3	0.2	0.2	0.5	0.1	0.3	0.1	2.6	0	0	8.9	
Kgalagadi North	0.6	0.3	1.1	0.2	0.1	2.5	0	1	0.6	18.1	0.6	0.9	8	0.4	0.2	0.3	0.2	0.2	0.2	0.3	0.2	0.4	0	15.1	0.3	15.5		
Number of out-migrations	52755	47859	20303	23729	5150	6017	448	57740	20159	4695	17144	50134	11618	26119	73996	55850	32448	12528	60405	30557	50640	13234	3673	967	4841	1435	6933	6102

Table 12: Distribution of District wise flow of In-Migrations during 2010-11 (%)

District	Place of current residence		Place of residence 1 year ago		No. of in-migrations																									
	Francistown	Gaborone	Kgatleng West	Kgatleng East																										
Gaborone	6.4	2.5	2.3	0.7	1.2	0.2	6.7	2.9	0.2	8.5	19.5	0.1	5.8	6.4	5.2	1.9	0.8	4.1	1.8	2.1	0.4	0.5	0	0.8	0	0.5	27076			
Francistown	16	1	3.9	1.3	0.9	0.7	1.6	0.4	0.1	1.2	2.7	0	1.3	7.6	4.1	2.9	2.5	20.6	9.9	3.8	1.1	2.6	0	0.4	0	0.3	10797			
Lobatse	18.7	3.3	0.9	0.4	1.8	0.2	18.8	16.7	2	4.6	7	0	2.1	3.4	2.9	0.7	0.6	1.8	0.9	1.1	0.4	0.3	0	1.1	0	1.2	1.1	3411		
Selebi Phikwe	16	9	0.8	0.9	1.3	0.3	1.2	0.7	0.1	1.5	3.2	0	1.5	17.7	6.8	17.4	1.7	7.4	2.1	1.7	0.5	1.1	0	0.3	0	0.2	0.4	5136		
Orapa	13.2	11.9	1	3.6	4.3	1.2	1.7	0.7	0.1	1.2	2.2	0	1.1	10.4	3.9	2.4	21.2	5.8	2.2	3.3	0.4	0.5	0	0.5	0	0.1	0	1525		
Jwaneng	19.1	6.5	1.9	2	4.5	0.3	21.7	2.6	3	2.6	6.8	0.1	2.1	2.7	2.1	1.1	2.1	1.9	0.9	1.4	0.2	0.3	0	1.4	0.1	2.3	1	3544		
Sowa Town	7.2	10.7	0.3	3.9	1.7	0.2	1.6	0.2	0	1.2	2.1	0	0.8	5.6	2	1.1	1.8	48.5	2.9	2.7	0.1	2.2	0	0.2	0	0.1	0	897		
Ngakwetse	27.6	3	9.4	1.1	0.7	10.1	0.2	7.3	1.8	3.7	13.1	0.1	2.3	2.7	1.7	1.1	0.7	1.4	0.7	1.2	0.2	0.5	0	1.3	0	1.6	1.4	8368		
Barolong	21.8	2	13.9	1	0.3	5.7	0.1	25	0.8	3.2	8.8	0	2.1	2.5	1.8	0.5	0.4	1	0.6	0.4	0.2	0.4	0	0.9	0	1.4	1.4	3861		
Ngakwetse West	10.2	1.9	3.7	0.7	0	9	0.1	28	4.6	1.9	4.9	0	1.2	1.2	0.8	0.3	0.5	0.2	0.3	0.5	0.2	0.7	0	0.7	0	3.6	0	9.4	13.1	1016
South East	29.6	3.6	3.2	1.7	0.5	2.2	0.1	6.2	2.7	0.3	14.5	0	7.3	5.2	3.4	1.5	0.5	2	0.8	1.7	0.4	0.5	0	0.9	0	0.9	0.5	10174		
Kweneng East	37.3	4.6	1.9	1.7	0.5	1.4	0.2	6.6	2	0.3	6.1	0.6	4.2	4.8	4.3	1.5	0.8	3	1.2	1.7	0.4	0.5	0	0.9	0	0.7	0.6	19407		
Kweneng West	19.2	2.3	1.1	0.7	0.1	1.7	0	4.3	1.5	1.6	2.9	40.3	2.6	2.8	2.2	0.4	0.5	1.7	0.9	2.4	0.2	0.1	0	2	0.1	2.2	3.5	2132		
Kgatleng	33.2	4.1	1.9	1.5	0.5	1	0.2	3.4	1.4	0.3	5.6	13.8	0	4.9	5	1.4	0.6	2.1	1.1	1.6	0.6	0	0.7	0	0.7	0.7	6544			
Serowe Palapye	19.1	8.9	1.1	7.8	2.1	0.8	0.3	1.8	0.6	0.1	1.6	4	0	2.3	6.2	4.3	6	1.9	2.1	0.4	1	0	0.6	0	0.3	0.3	13196			
Central Mahalapye	24.2	7.7	1.5	5.3	1	0.7	0.4	2.2	0.7	0.1	2.4	6.6	0.1	4	23.1	3.4	1.8	3.4	1.2	1.7	0.4	0.9	0	0.7	0	0.4	0.2	6847		
Central Bobonong	13.8	9.1	0.7	19.5	0.8	0.5	1.1	1.1	0.3	0.1	1	2.4	0	1.5	20.1	4.3	1.9	7.4	3.7	2.1	0.3	0.9	0	0.3	0	0.3	0.1	5530		
Central Boteti	8.8	9.3	0.7	2.6	9.7	1.8	0.3	1.1	0.6	0	0.9	2	0	1.2	13.6	3.9	2.5	12.4	2.1	16.9	1.8	1.1	0	1.3	0	0.4	0.3	3824		
Central Tlume	12.1	26.8	0.6	3.4	0.9	0.9	1.6	1.1	0.4	0.1	0.8	2	0	1	6.6	2.4	2.5	2.9	8	8.1	0.7	4.4	0	0.5	0	0.3	0.1	10959		
North East	13.2	29.7	1.1	2.8	1.3	1.4	0.5	1.1	0.3	0.1	0.8	2.2	0	1.7	5.6	2.3	2.7	2	16.8	3.1	0.5	1.5	0	0.3	0	0.3	0.1	5191		
Ngamiland East	13.5	8.8	1	1.5	0.9	0.8	0.8	1.7	0.4	0.1	1.2	3.1	0	1.4	4.4	2	1.7	6.9	8	1.7	19.6	3.7	1.2	6.2	0.1	1	0.4	4824		
Ngamiland West	7	5.5	0.3	1.2	0.5	0.4	0.1	0.6	0.4	0	1.1	2.1	0	0.6	3.1	1.2	1.5	2.2	4.1	0.8	50.6	3.6	0.8	6.4	0.1	0.6	0.7	1850		
Chobe	13.1	12.6	1.2	1.8	0.5	0.4	0.5	1.8	0.8	0.1	1.4	2.7	0	1.9	4.6	2.5	2.3	1.6	19	4.6	11.2	4.2	0.6	1.3	0.1	0.4	0.3	2798		
Ngamiland Delta	1.9	2.1	0	0.3	0.3	0	0	0	0	0	0.3	0	0	0	0.8	0.5	0	0.8	0.8	54.3	21.5	6.4	2.1	0.8	0	0	0	0	376	
Ghanzi	11.4	3.4	1.3	0.6	0.2	1	0.3	3.2	1.3	2	1.5	4.8	0.1	1.5	2.5	1.2	1.1	1.4	2.2	0.8	17.2	22.1	1.3	0.1	1.1	3.3	5.7	2711		
CKGR	10.2	3.9	0.8	2.3	1.6	7.8	0	0.8	0	0	3.1	32.8	1.6	3.9	3.1	5.5	0	1.6	0.8	9.4	0.8	1.6	3.1	3.9	0	0	0	128		
Kgalagadi South	19.8	3.5	0.6	0.3	4	0.3	13.2	2.4	5.1	3.3	7.2	0.1	3.7	3.3	1.6	1.7	0.4	2.6	0.5	1.9	0.3	0.3	0.1	4.8	0	0	11.5	1445		
Kgalagadi North	12.1	2.9	3	0.9	0.2	2.4	0.1	6.2	1.4	8.7	2	5.5	0.2	2	1.8	1.6	0.7	1.2	1	0.6	2	0.8	0.7	0	11.8	0	25.7	1730		

Table 13: Distribution of District-wise flow of Out-Migrations during 2010-11 (%)

Table 14: Distribution of District wise flow of In-Migrations during 2006-11 (%) (all Ages)

Place of residence 5 years ago	Place of current residence-District	No. of in-migrations																											
		Kgalagadi North	Kgalagadi South	CKGR	Ghanzi	Okavango Delta	Ngamiland East	Ngamiland West	North East	Central Botswana	Central Tulieme	Chobe	Ngamiland Delta	Kgalagadi South	Kgalagadi North														
Gaborone	6.2	2.3	2.2	0.7	1.1	0.1	6.7	2.8	0.2	8.7	17.9	0.3	5.9	6.6	5.6	1.8	0.7	4.2	1.9	2.6	0.4	0	0.8	0	0.7	0.5	31564		
Francistown	15.9	1	3.9	1.4	0.7	0.6	1.5	0.5	0.1	1.4	2.8	0.1	1.4	7.9	4.5	3.2	2.3	19.8	9.3	7.4	1	2.2	0	0.4	0	0.3	0.2	13108	
Lobatse	18.7	3.3	0.8	0.4	1.8	0.2	18.1	16.7	1.7	5.3	7	0.2	2.1	3.9	3.2	0.7	0.5	1.9	0.9	1.1	0.3	0	1	0	1	1.2	4114		
Selebi Phikwe	15.6	9.5	0.8	1	1.2	0.3	1.3	0.8	0.1	1.5	2.9	0	1.4	17.8	7.4	16.8	1.6	7.7	2.3	1.8	0.5	0.9	0	0.3	0	0.2	0.4	6274	
Orapa	13.5	11.1	1.1	3.9	4	1.1	2.1	0.6	0.1	1.3	2.2	0	1.3	11.1	4.6	2.5	20.7	5.9	2	4	0.4	0.3	0	0.5	0	0.1	0	1834	
Jwaneng	19.2	6.3	2.1	1.8	4.2	0.2	21.8	2.5	3.1	2.8	6.5	0.7	2.2	3.1	2	1.1	2	1.8	0.9	2.6	0.2	0.3	0	1.2	0	2.2	1	4035	
Sowa Town	7.9	13.4	0.3	3.2	1.6	0.3	1.6	0.3	0	1.5	1.8	0	1	5.9	2.2	1.3	2.2	44.7	3.1	2.5	0.2	2	0	0.4	0	0.1	0.1	1028	
Ngwaketse	29.2	2.8	11.6	1.1	0.6	10.4	0.1	6.7	1.5	3.9	11.6	0.3	2.2	2.6	1.6	0.9	0.7	1.3	0.6	1.2	0.2	0.4	0	1	0	1.5	1.2	10730	
Barolong	24	1.9	16.2	0.9	0.2	5.1	0	23.7	0.7	3.3	7.4	0.1	2.1	2.5	1.9	0.6	0.4	0.8	1	0.2	0.3	0	1	0	1.2	1	5202		
Ngwaketse West	10.6	1.9	3.7	0.6	0	11.4	0.1	25.3	4.3	2	4.5	2	1	0.9	0.9	0.5	0.5	0.4	0.3	0.5	0.2	0.6	0	4	0	9.2	11.6	1255	
South East	31.7	3.4	3.6	1.6	0.5	2	0.1	6	2.8	0.3	13.1	0.1	6.7	5	3.7	1.6	0.5	1.9	0.8	1.9	0.4	0.4	0	0.8	0	0.8	0.5	12275	
Kweneng East	39.7	4.1	1.8	1.5	0.4	1.2	0.1	6.3	1.9	0.2	6.1	1.2	4	4.5	4.2	1.6	0.7	3.1	1.2	1.9	0.3	0.5	0	0.7	0	0.6	0.6	25786	
Kweneng West	18.6	2.2	1.1	0.5	0.1	2	0	5.5	1.3	1.7	2.7	43.1	2.3	2.4	2.1	0.4	1.7	1	1.9	0.2	0.1	0	1.6	0.3	1.8	3.1	2918		
Kgatleng	33.6	4.1	1.9	1.6	0.6	0.9	0.1	3.5	1.4	0.2	5.6	12.9	0.2	5.2	5.5	1.3	0.6	2.1	1	2.1	0.5	0.5	0	0.7	0	0.6	0.6	7849	
Serowe Palapye	19.9	9.4	1.2	8.7	2	0.8	0.3	1.8	0.6	0.1	3.8	0.1	2.2	16	5.8	4	5.8	1.8	2.2	0.4	0.9	0	0.6	0	0.2	0.3	16151		
Central Mahalapye	25.5	7.8	1.5	5.3	1.1	0.7	0.3	2.1	0.7	0.1	2.7	6.3	0.2	4	22.7	3.2	1.9	3.1	1.2	1.7	0.3	0.9	0	0.7	0	0.3	0.3	8600	
Central Bobonong	13.8	9.6	0.6	25.2	0.9	0.6	0.9	1.1	0.3	0.1	1	2.1	0	1.4	17.7	4	1.6	6.6	3.1	2.2	0.2	0.7	0	0.3	0	0.3	0.2	7145	
Central Boteti	8	9.4	0.6	2.3	13.4	1.5	0.3	1.1	0.5	0	0.9	2	0.1	1.3	14	3.8	2.3	11.6	2	16.2	1.7	1.1	0	1.2	0.1	0.4	0.3	4923	
Central Tulieme	12.4	30.2	0.7	3.5	0.9	0.7	1.4	1.1	0.4	0.1	0.8	1.8	0.1	1	6.4	2.4	2.3	2.7	7.4	7.4	0.7	3.8	0	0.4	0	0.3	0.1	13640	
North East	12.6	34.2	1	2.7	1.1	1	0.4	1.2	0.3	0.1	0.7	2	0	1.7	4.9	2.2	2.7	1.8	16	3	0.4	1.2	0	0.3	0	0.3	0.1	6923	
Ngamiland East	12.1	8.6	0.9	1.5	1	0.7	0.7	1.7	0.3	0.1	1.5	3.1	0.1	1.4	4.2	2.2	1.7	6.8	8.4	2	20.6	3.3	1.2	6.1	0	0.9	0.4	6131	
Ngamiland West	6.5	4.8	0.5	1.2	0.4	0.3	0.1	0.7	0.3	0	0.9	1.8	0	0.7	2.9	1.4	1.4	2.4	3.8	1	53.4	3.2	1.2	5.6	0	0.6	0.6	2339	
Chobe	12.1	13.2	1.1	1.8	0.6	0.3	0.4	1.7	0.7	0.1	1.4	2.7	0.1	1.7	4.6	2.6	2.5	1.7	20	4.6	11.5	4.1	0.6	1.1	0.1	0.4	0.2	3239	
Ngamiland Delta	1.7	1.9	0	0.2	0	0	0	0	0	0.2	0.2	0	0	0.7	0.5	0	1	0.7	0.7	54.9	22.9	5.8	1.9	0.7	0	0	0	0	415
Ghanzi	11.5	3.5	1.4	0.7	0.2	1.1	0.3	3.5	1.2	2	1.6	4.6	0.6	1.5	2.5	1.4	1	1.4	2	0.7	17	19.9	1.1	0.1	2.3	3.7	6	3177	
CKGR	9.6	3.7	0.7	2.2	1.5	7.4	0	0.7	0	0	3	31.1	6.7	3.7	3	5.2	0	1.5	0.7	8.9	0.7	1.5	3	3.7	0	0	0	135	
Kgalagadi South	19.8	3.2	3.7	0.5	0.3	4.2	0.2	13.8	3.7	6.3	3	6.4	0.4	3.3	3.2	1.6	1.3	0.4	2.2	0.3	2.3	0.4	0.3	0.1	4	0	0	10.8	1822
Kgalagadi North	11.8	3	3.1	0.8	0.1	2.8	0	5.9	1.4	8.9	1.9	5.7	0.8	1.9	2	1.9	0.6	1	0.5	1.9	0.8	0.5	0	12.7	0	24.6	0	2018	

Table 15: Distribution of District wise flow of Out-Migrations during 2006-11 (%) (all Ages)

Place of residence residence of current place	Place of residence 5 years ago										Kgalagadi North							
	Gaborone	Jwaneng	Orapa	Selebi-Pikwe	Francistown	Botswana	South Town	Ngwaketsese West	Kweneng East	Central Serowe	Central Mahalapye	North East	Central Boteti	Chobe	Okavango Delta	Ghanzi	Kgalagadi South	
Gaborone	11.7	14.5	9.7	9.1	9.9	6.4	21.3	21.7	6.2	37.6	15.3	30.5	15.6	18.8	11.2	6.3	11.5	10.4
Francistown	5.4	2.5	7.3	7.6	2.7	10.7	2	1.5	0.9	2.5	2.4	1.7	3.1	7.8	6.3	8.1	8.3	11.3
Botswana	2	0.8	0.5	0.7	2.1	1	7.5	17.2	6.7	3	1.9	1.2	1.4	1.2	0.6	0.6	0.5	0.4
Selebi Phikwe	2.5	3.5	1	2.5	2.1	2.3	0.8	1.2	0.6	1.3	0.3	1.4	8.4	5	20.2	2.8	3	1.3
Orapa	0.6	1.2	0.4	1	2	3.1	0.4	0.3	0.2	0.3	0	0.4	1.5	0.9	0.9	10.7	1	0.7
Jwaneng	2	1.5	1.7	1	7	1.5	8.8	2.5	11.9	1.6	1.7	4.6	1.5	0.9	0.8	0.9	2.2	0.6
Sowa Town	0.2	0.8	0.1	0.5	0.7	0.1	0.2	0.1	0	0.2	0.1	0	0.2	0.5	0.2	0.3	0.1	0.1
Ngwaketsese	8.1	1.8	24.5	1.7	2.8	31	2	17.9	15.3	5.8	8.3	5.2	3.9	2.1	1.8	1.9	2	1.2
Barolong	3.2	0.6	16.6	0.6	0.5	7.3	0.3	12.4	3.5	2.3	2.6	1.1	1.8	1	1	0.6	0.4	0.6
Ngwaketsese West	0.3	0.1	0.9	0.1	0	4	0.1	3.2	1.3	0.3	0.4	3.8	0.2	0.1	0.1	0.2	0.1	0.1
South East	10.1	2.5	8.6	2.9	2.7	6.7	2.3	7.4	8.6	3	10.7	2	13.4	4.6	4.8	3.7	1.6	2.1
Kweneng East	26.4	6.3	8.9	5.5	4.5	8.9	4.5	16.3	12.2	5.7	21.5	46.1	16.8	8.7	11.6	7.9	4.7	7
Kweneng West	1.4	0.4	0.6	0.2	0.1	1.6	0	1.6	0.9	4.9	1.1	8.4	1.1	0.5	0.6	0.3	0.4	0.6
Kgatleng	6.8	1.9	3	1.8	1.8	2	1.5	2.7	2.7	1.5	6.1	6.8	2.3	3.1	4.6	2	1.4	1.5
Serowe Palapye	8.3	9	3.7	20.1	13.5	3.5	7.7	3	2.5	1.9	4	4.1	1.8	5.7	27.4	18.1	18.3	8.2
Central Mahalapye	5.7	4	2.5	6.5	3.8	1.6	3.2	1.8	1.6	0.8	3.2	3.6	2	5.7	14.7	5.3	4.7	2.4
Central Bobonong	2.5	4.1	0.9	25.7	2.5	1.2	9.5	0.8	0.5	0.4	1	1	0	1.7	9.5	3	3.3	4.1
Central Boteti	1	2.7	0.6	1.6	27.4	2	1.9	0.5	0.7	0.2	0.6	0.7	1	5.2	2	2.2	5	2
Central Tutume	4.4	24.4	1.8	6.9	4.9	2.6	27.2	1.6	1.3	1.4	1.6	1.5	2.2	6.6	3.5	6.2	10.4	21.1
North East	2.3	14.1	1.4	2.7	3.3	1.9	4.2	0.8	0.5	0.4	0.7	0.9	0.5	1.9	2.6	1.6	3.7	3.5
Ngamiland East	1.9	3.1	1.1	1.3	2.6	1.2	6.1	1.1	0.5	0.4	1.3	1.2	1.4	2	11.7	4.5	2.5	42.1
Ngamiland West	0.4	0.7	0.2	0.4	0.4	0.2	0.3	0.2	0	0.3	0	0.3	0.5	0.3	0.6	1.6	0.8	14.6
Chobe	1	2.5	0.7	0.8	0.8	0.3	1.8	0.5	0.5	0.4	0.6	0.6	0.9	1.1	1.5	5.7	3.1	4.3
Ngamiland Delta	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	2.7
Ghanzi	0.9	0.7	0.9	0.3	0.3	1	1.5	1.1	1	6	0.7	1	2.8	0.6	0.5	1.3	0.6	6.3
Central Kgalagadi Game Reserve	0	0	0	0	0.1	0.3	0	0	0	0.1	0.3	1.4	0.1	0	0	0	0.1	21.1
Kgalagadi South	0.9	0.3	1.3	0.1	0.2	2.1	0.6	2.5	1.7	10.9	0.8	0.8	1.1	1	0.4	0.3	0.4	0.1
Kgalagadi North	0.6	0.4	1.2	0.2	0.1	1.6	0.1	1.2	0.7	17	0.5	0.8	2.5	0.6	0.3	0.4	0.2	0.4



Dr Tlameko O. Mmatli, University of Botswana presenting on Disability Analysis

DISABILITY ANALYSIS

By

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Introduction

Historically, people with disability have been discriminated against and treated as though they did not exist. Thus, many countries of the world have, until recently, not included people with disabilities in their population censuses. In the process they were excluded from many aspects of socio-economic life and their needs were often neglected or ignored, or inadequately addressed at best. Prior to the 1991 Population and Housing Census, in Botswana as in many countries worldwide, the number of people with disability had always been estimated by using the WHO criteria of 10% of the country's population. People with disabilities were enumerated for the first time in Botswana during the 1991 Population and Housing Census, which generating information that was crucial for their inclusion in society. The 1991 census revealed that 2.2% of the Botswana's population had some form of disability (CSO, 1991). The 2001 Housing and Population Census estimated that people with disabilities constituted 2.99% of the population.

Due to the difficulties surrounds the definition of disability; the past censuses have included only those disabilities that are visible and obvious. As a result, prior to the 2011 Population and Housing Census, information was collected on physical disabilities, as well as speech, sight, and hearing impairments. The census currently under analysis included new categories of disabilities such as intellectual disability and mental health disorder. It should be noted that there are usually numerous limitations affecting the collection of disability data. These include the stigma attached to disability, leading to concealment of people with disabilities during the census exercise; myths and cultural beliefs surrounding disability such as the view of disability as a gift from the gods; a curse or punishment for family misconduct, and so on. These factors may result in respondents not being able to freely reveal the disability status of members of their households.

The major objective of this report is to convey the results of the analysis of the 2011 Population and Housing Census data focusing on the disability category. The key demographic areas to be considered for this analysis include types of disabilities, age structure, gender, marital status, family size, distribution by districts, and any other variable that the 2011 census has included. As the focus of disability analysis the world over has shifted towards equalisation of opportunities for people with disabilities, educational levels, economic activities, etc., will form an important component of this analysis. However, some of the variables will be covered generally and broadly as a prelude to in-depth analysis by other analysts.

Disability Prevalence Rate by Gender and Districts

The results from the Population and Housing Census show that, of the total Botswana population of 2,024,904 in the year 2011, 59,103 (2.92 %) were disabled. This is almost equal the 2001 proportion of 2.99 %. The highest proportion of disabled persons is found in Gantsi (4.4 %), followed by Southern (3.7 %), Kgalagadi (3.7 %) and North-West district with 3.6 %. All other districts have disability prevalence rate of between 1.3 % and 3.5 % (see Figure 1).

Figure 1: Disability prevalence rate by district for Population and Housing Census 2011



Table 1 presents the disability prevalence rates by gender and district, and the national rate for males was 3.0 % compared to 2.9 % for females. As indicated on Table 1, the disability prevalence rate for females were less than those of males for all districts except in Gaborone and Sowa Town. The prevalence rates for both sex were equal (1.5 % each) in Gaborone while in Sowa Town male disability prevalence rate was 1.0 % compared to 1.6 % for females. The highest proportion of disabled male persons was found in Gantsi (4.6 %), followed by Kgalagadi (3.9 %), Southern (3.8 %), North-West (3.7 %), Central (3.5 %) and North-East (3.1 %). Other districts recorded proportions of less than 3.0 % with the lowest proportion of 1.0 % found in Sowa Town. The proportions of disabled females follow a similar pattern to that of males. The highest proportions were found in Gantsi district (4.4 %) followed by Kgalagadi and North West districts both with 3.6 % and Southern and Central districts with 3.5 %. The lowest proportions of disabled female persons were found in Francistown (1.3 %), Jwaneng (1.4 %) and Gaborone (1.5 %).

Table 1: Disability Prevalence Rate by Gender and District

DISTRICT	MALE			FEMALE			TOTAL		
	Disabled	Total**	Rate	Disabled	Total**	Rate	Disabled	Total**	Rate
National Total	29511	989128	3	29592	1035776	2.9	59103	2024904	2.9
Gaborone	1665	113580	1.5	1741	118012	1.5	3406	231592	1.5
Francistown	701	48124	1.5	648	50837	1.3	1349	98961	1.4
Lobatse	392	14145	2.8	306	14862	2.1	698	29007	2.4
Selebi_Pikwe	423	24749	1.7	394	24662	1.6	817	49411	1.7
Orapa	107	4736	2.3	99	4795	2.1	206	9531	2.2
Jwaneng	155	9831	1.6	115	8177	1.4	270	18008	1.5
Sowa Town	20	1961	1	26	1637	1.6	46	3598	1.3
Southern	3645	95834	3.8	3599	101933	3.5	7244	197767	3.7
South East	1121	40695	2.8	1270	44319	2.9	2391	85014	2.8
Kweneng	4209	149598	2.8	3966	154951	2.6	8175	304549	2.7
Kgatleng	1199	44580	2.7	1133	47080	2.4	2332	91660	2.5
Central	9842	279160	3.5	10325	296904	3.5	20167	576064	3.5
North East	882	28588	3.1	926	31676	2.9	1808	60264	3
North West	3134	85616	3.7	3252	90015	3.6	6386	175631	3.6
Gantsi	1029	22462	4.6	889	20893	4.3	1918	43355	4.4
Kgalagadi	987	25469	3.9	903	25023	3.6	1890	50492	3.7

**The district population totals were obtained from http://www.cso.gov.bw/index.php?option=com_content&id=2&site=census

Analysis of Disability by Type

Types of disability included in the census were sight/visual impairment; hearing impairment; speech impairment; impairment of the legs; impairment of the arms; inability to use the whole body; intellectual impairment; mental health disorder; missing legs and missing arms. The most common type of disability reported was the inability to see (visual impairment). Of those who were reported to be disabled, 40.7% reported that they had problems with their eyes, 17.0 % had problems with their hearing, whilst 9.9% had speech impairment. Inability to use arms and inability to use legs were reported at 11.7% and 6.3% respectively. Out of all the respondents 2.5% reported that they were unable to use their whole body. Close to 1% (0.7%) said that they were missing a leg or legs and less than 1% i.e. 0.2% reported that they were missing an arm or arms. It was further reported that 7.8% of people with disabilities had mental disorder, and 3.3% had intellectual impairment. Table 2 presents a summary of the distribution of the type of disabilities.

Table 2: Distribution of Type Disability

DISABILITY	Total	%
Sight/visual impairment	28721	40.7
Hearing Impairment	11981	17
Speech Impairment	6982	9.9
Impairment of Leg(s)	8242	11.7
Impairment of Arm(s)	4468	6.3
Inability to use the whole body	1759	2.5
Intellectual impairment	2321	3.3
Mental health disorder	5512	7.8
Missing leg(s)	469	0.7
Missing arm(s)	172	0.2
	70627	100.0

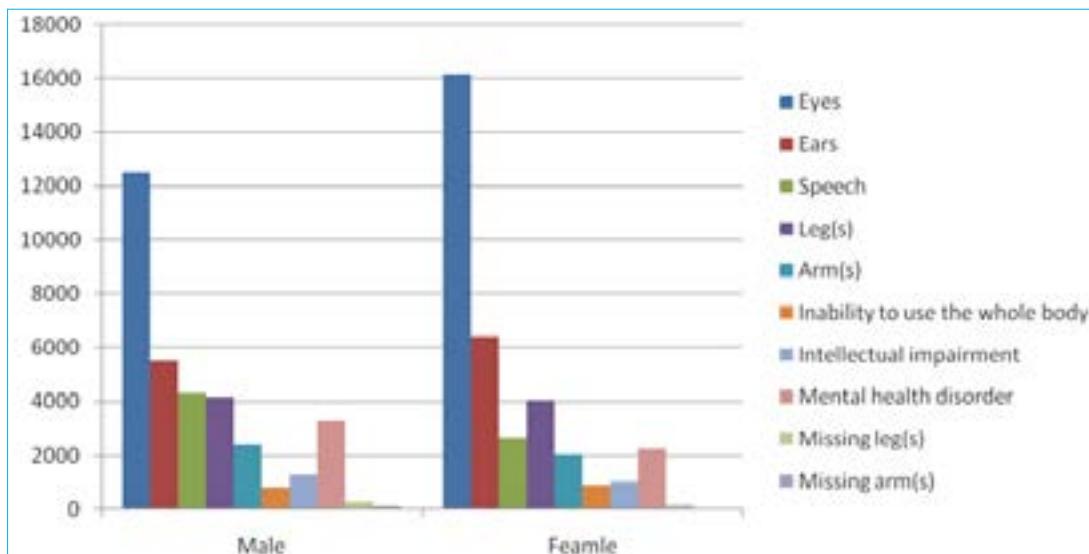
Type of Disability by Gender

Further analysis indicates that there are gender differentials in the distribution patterns by type of disability. These are presented in Table 3. As noted earlier most respondents reported having an eye disability. The majority of those with eye disability were female (56.4%) as compared to 43.6% who were males. This pattern prevails with reference to hearing impairment and inability to use the whole body. The other types of disabilities such as speech impairment, impairment of the legs and arms; intellectual impairment, mental health disorder, missing legs and missing arms tended to affect males more than females. For instance 61.8% of the males had speech impairment compared to 38.2% of the females. It was the same with mental health disorder, more males i.e. 59.7% had the disorder compared to 40.3% females. The same patterns prevailed with reference to missing legs and arms. More males than females had missing limbs. These patterns are also illustrated in Figure 2 below.

Table3: Type of Disability by Gender

DISABILITY	GENDER				Total
	Male		Female		
	Count	%	Count	%	
Sight/visual impairment	12528	43.6	16193	56.4	28721
Hearing Impairment	5533	46.2	6448	53.8	11981
Speech Impairment	4315	61.8	2667	38.2	6982
Impairment of Leg(s)	4183	50.8	4059	49.2	8242
Impairment of Arm(s)	2386	53.4	2082	46.6	4468
Inability to use the whole body	835	47.5	924	52.5	1759
Intellectual impairment	1289	55.5	1032	44.5	2321
Mental health disorder	3293	59.7	2219	40.3	5512
Missing leg(s)	309	65.9	160	34.1	469
Missing arm(s)	124	72.1	48	27.9	172

Figure 2: Distribution of Disability by Gender



Types of Disability and District

The Central District has the largest proportion of disabled people. In the category of physical disabilities, 5,298 people are unable to one leg, comprising 2,855 males and 2,443 females. Central District has highest proportion within this category (36.1%) followed by Kweneng (16%) and Southern (12.5%). The district with the least number of people with physical disability is Gantsi with 2.3% followed by Kgalagadi (2.6%) and South East (3.2%) in that order. Inability to use both legs affects 2,944 people comprising of 1,328 males and 1,616 females. Central District has the highest percentage of people who are unable to use both legs (36.8%). The next highest percentage of the population affected by inability to use both legs is in North West and Kweneng 13% and 12.8% respectively. The district with the least percentage of people within this category of disability is Gantsi (2.3%) followed by Kgalagadi (2.6%) and South East (3.2%).

Inability to use arms is another category of disability captured in the census data. A total of 3,765 were reported to be unable to use one arm, comprising of 2,055 males and 1,706 females. The Central District has the highest percentage of people with inability to use one arm (35.1%) followed by Kweneng (15.2%) and North West District (11.6%). The lowest proportion of people who are unable to use one arm is found in the North East District (3%), followed by Gantsi (3.1%) and Kgalagadi (3.1%), and the South East district (3.5%). Inability to use both arms affects 703 people, made up of 327 males and 376 females. The Central district has the highest proportion of the population with inability to use both arms (37.4%), whilst the North West District has the next highest proportion of people with inability to use both arms (14.2%), followed by Southern District (12.8%). South East and Central Districts have the lowest proportion of 2.8 percent each followed by Kgalagadi (3%), of those with inability to use both arms.

Considering inability to use the body, 32.7 percent people who have this type of disability were found in the Central District compared to 16.3 percent in Kweneng and 0.6 percent in Gantsi. The same pattern prevails with respect to missing legs and arms. The Central district has the highest number of people with missing limbs. The census data revealed that 37.5 percent of people missing one leg and 36.5 percent missing both legs resided in the Central District. With respect to intellectual impairment and mental health disorders the Central District has maintained the same pattern having recorded 33.8 percent. On the whole Gantsi District has the lowest proportions of people with disabilities.

With regard to gender differentials by type of disability across districts, males seem to be more affected than females with the exception of the category inability to use the whole body. In this category 52.5 percent were females compared to 47.5 percent males. In the remaining categories over 50 percent of the population affected by such disabilities were male. For instance the categories; missing one arm, missing both legs registered 72.8 percent and 66.2 percent of males respectively. See Appendix 1

Analysis of Disability by Marital Status

Marital status is perceived in Botswana to have significant importance. Table 4 shows that the majority of people who were said to have visual impairment were categorized as never been married. Out of a total of 27,613 people who were said to have visual impairment, 9948 (36%) were never married; 7184 (26%) were married, and 4,159 were in a relationship categorized as "living together". Of all the people who have visual impairment, 301 (1.1%) were reported to have separated from their partners, whilst 641 (2.3%) were divorced and 5,380 (19.5%) were widowed. Out of the 10,799 people with hearing impairment, the majority (468 or 43.3%) were never married, whilst 2,174 (20.1%) were married and 1,556 (14.4%) were living together. About 99 people (0.9%) of the people with hearing impairment were separated from their marital partners, 198 (1.8%) were divorced and 2091 (19.4%) were widowed..

Table 4: Distribution of population by type of disability and marital status

DISABILITY	MARITAL STATUS										Total		
	Married		Never Married		Living together		Separated		Divorced		Widowed		
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%	%
Sight	7184	26	9948	36	4159	15.1	301	1.1	641	2.3	5380	19.5	27613
Hearing	2174	20.1	4681	43.3	1556	14.4	99	0.9	198	1.8	2091	19.4	10799
Speech Impairment	436	8.4	3887	74.5	637	12.2	28	0.5	38	0.7	192	3.7	5218
Leg(s) disability	1761	22.3	3498	44.4	1126	14.3	94	1.2	189	2.4	1216	15.4	7884
Arm(s) disability	776	18.8	2048	49.7	712	17.3	36	0.9	85	2.1	466	11.3	4123
Inability to use the whole body	264	18	782	53.3	158	10.8	13	0.9	18	1.2	232	15.8	1467
Intellectual impairment	79	4.2	1605	85.6	109	5.8	9	0.5	9	0.5	65	3.5	1876
Mental health disorder	266	5.2	4090	80.6	380	7.5	50	1	57	1.1	234	4.6	5077
													100.0

Among those with speech impairment, the majority (3,887 or 74.5%) have never been married compared to 436 (8.4%) who were married, 28 (0.5%) who were separated, 38 (0.7%) who were divorced and 192 (3.7%) who were widowed. A significant number of people with speech impairment (1,556 or 14.4%) were living together. Regarding people with impairment/disability in the legs, the majority (3,498 or 74.5%) were never married. The next largest proportion in this category is that of those who are married, accounting for 1,761 (22.3%), about 94 (1.2%) people with impairment in the legs are in separation. This is the smallest proportion of people in this category of disability.

Disability in the arm(s) was reported to affect 4,123 people. Of these, the majority (2,048 or 49.7%) have never been married. The next biggest proportion is that of people who are currently married, accounting for 779 (22.3%) of the people who were reported to have disability in the arms. In this category of disability, those who are separated account for the lowest proportion, which is 36 (0.9%), whilst those who are divorced are only 85 (2.1%). Those who are 'living together', and those who are widowed are 712 (17.3%) and 466 (11.3%) respectively. Inability to use the whole body is reported to be affecting 1,467 people with a disability categorized in the census data as 'inability to use whole body'. The majority of these, 782 (53.3%) have never been married, whilst 264 (18%) are currently married, and 232 (15.8%) are widowed. About 158 (10.8%) are living together, 18 (1.2%) are divorced, and 13 (0.9%) are separated. The census results indicate that 1,876 had intellectual disabilities. An overwhelming majority of people with intellectual disabilities (1,605 or 85.6%) are reported to have never been married. Only 79 (4.2%) were married at the time of the enumeration, and 65 (3.5%) were divorced. 109 (5.8%) were living together, and 9 (0.5%) were separated. People with an impairment categorized as 'Mental health disorder' were reported to be 5077. The majority of these (4090 or 80.6%) were reported to have never been married, whilst 380 (7.5%) were married and 266 (5.2%) were living together. A sizeable number of people in this category of disability (234 or 4.6%) were widowed and, lastly 57 (1.1%) were divorced and 50 (1.0%) were separated. The data presented shows that people with disability are more likely to have never been married. This is true for all forms of disabilities. However, people with intellectual impairment are more likely to have never been married than people with other forms of disabilities with 85.6%, followed by those with mental health disorder at 80.6%. People with Intellectual disability are less likely to be married as only 4.2% of them are reported to be married. The people with a slightly better chance of being married are those with visual impairment and those with disabilities in the legs. However, their chances of getting married are still very slim at only 26% and 22.6% respectively. The information on marital status is presented in Table 4.

Women with Disability and Number of Children Ever Born

Table 5 displays a distribution of females with disabilities aged 12 years and over by type of disability and number of children ever born. A total of 15,739 women were reported to have visual impairment. Of these women, 18.7% were reported to have ever had only one child, whilst 15.8% have had two children. Those who were reported to have ever had between three and seven children ranged between 12.9% and 2.9%. The majority (30.6%) of women with visual impairment were reported to have had no child ever.

Out of the total number of women with disabilities 5,915 were reported as having hearing impairment. Of these 31.2% were reported to have had no children, 19.1 % had one child, 15.8% had two children and 12.7% had three children. Among those with more than three children, 9.5% had four children, 5.8% had five children, and 3.6% had six children, whilst 2.7% had seven or more children.

Of 2,032 women having speech impairment, 61.6% indicated that they never had children while 16.5% said they had one child and 9.3% had two children. Quite a good number of women with speech impairment were reported to have more than two children. Of these, 5.6% had three children, 3.7% had four children, whilst 1.6 % had had five children, 1.1 % had six children and at least 0.5% had seven or more children.

A total of 3,845 women were reported to have inability to use one or both legs. Amongst these women, 29.5% reported that they never had children, 20.4% had one child, and 16.6% had two children whilst 8.6% had four children. A further 5.8% of women in this category of disability had five children, 3.4% had 6 children and 2.5 % indicated they had seven or more children.

Of the 1,903 women who were reported to have inability to use one or both arms, 33.7% said that they had no children, whilst 19.3% indicated that they had one child and 16.0% had two children. The rest of the women reported had more than two children each. Those who were reported to have ever had between three and seven (or more) children ranged between 12.5% and 2.4%.

A total of 796 women were reported to be unable to use their whole body. Of these, 40.85 were reported to have no child; whilst 16.8% indicated to have one child and 14.2% reported that they had two children. Between 9.3% and 2.6% of women with inability to use the whole body were reported to have between three to seven children.

Amongst the 846 women who were reported to have intellectual impairment, 70.8% were said to have no children, 13.1% had one child and 6.4% had two children. Between 4.4% and 0.5% were reported to have between three and seven or more children.

Of the 2,041 women who were reported as having a mental disorder, 52% had had no children, 19.2% had one child born to them, 10.2% had two children and 7.4% had three children. Between 4.8% and 1.1% were reported to have four or more children.

Table 5: Distribution of women with disability aged 12 years and over by type of disability and number of children ever born

DISABILITY	CHILDREN EVER BORN									Total (%)	Total
	No child	One child	Two children	Three children	Four children	Five children	Six children	Seven or more children			
Sight	30.6	18.7	15.8	12.9	9.6	5.9	3.5	2.9	100.0	15,739	
Hearing	31.2	19.1	15.4	12.7	9.5	5.8	3.6	2.7	100.0	5,915	
Speech Impairment	61.6	16.5	9.3	5.6	3.7	1.6	1.1	0.5	100.0	2,032	
Leg(s) disability	29.5	20.4	16.6	13.1	8.6	5.8	3.4	2.5	100.0	3,845	
Arm(s) disability	33.7	19.3	16	12.5	8.3	5	2.7	2.4	100.0	1,903	
Inability to use the whole body	40.8	16.8	14.2	9.3	8.7	5	2.5	2.6	100.0	796	
Intellectual impairment	70.8	13.1	6.4	4.4	1.7	1.9	1.3	0.5	100.0	846	
Mental health disorder	52.6	19.2	10.2	7.4	4.8	3.1	1.6	1.1	100.0	2,041	

Our interpretation of the analysed data is that there is no significant difference between the number of children ever born to women with hearing impairment and the number ever born to those with visual impairment. Women with intellectual impairment are more likely (at 70.8%) to have no child born to them, followed by those with mental disorder (52%). This means that women with visual impairment are more likely to have children, or if they do, they are less likely to have more than three children ever born to them. The data indicate generally, that women with disabilities tend to have very few children (small family size).

Type of Disability by Current Economic Activity

The respondents aged 12 years and over were asked whether they were involved in any current economic activity. Current economic activity refers to any economic activity that they were engaged in seven days prior to enumeration. The activities included being an employee, self-employed, unpaid family helper, working at own lands or actively looking for work. They also covered activities such as home work, students, retired or whether the respondent was sick during that period. The data is presented in Table 6. Most of those who had sight disability reported that they were employees who were paid in cash (22.2%) and 20.7 % reported that were sick. In the same category, 18.9% worked in the home, 11.3 % were students, 20.7% said they were sick, whilst 7.3% worked at own lands or cattle post and 4.0 % reported that they were retired. A few (2.8%) reported that they were self-employed (and had with employees) and 0.9 % were self-employed but had no employees. A few said they were unpaid family workers i.e. 0.3%.

Amongst those with hearing impairment (be it partial hearing or total deafness), 21.8% were involved in home work, 19.9 % reported that they were sick, 17.6% were in paid cash employment, 12.6% were students and 7.9% worked at own lands or cattle post. Of those remaining 3.5% were actively seeking work, another 3.5 % reported that they were retired, 2.4 were self-employed with no employees and 0.3 was employed but were paid in kind.

Of those who with speech impairment 22.4% indicated they were students, while 20.6 % were in cash employment, 20.4% reported that they were sick and 18.4 % were engaged in home work. Some of those with speech impairment (5.3%) reported that they were actively seeking work; 3.1% were working at own lands or cattle post, and 0.6 % were self-employed with employees.

With reference to those with leg disabilities, 33.1% reported that they were sick, while 19.1 % were engaged in home work, 15.3% were in paid cash employment, 5.7% were students, 5.6% were working at own lands or cattle post, 3.9% were actively seeking work, 3.6% indicated that they were retired and 3.2% were self-employed with no employees.

Most of those with disability involving the use of one arm or both arms, 27.7% reported that they were sick, 19.9% worked in the home, while 17.2% were in cash employment, 8.1% were students , 6.0% worked at own lands or cattle post and 5.1% were seeking work. The rest included 3.2% self-employed but with no employees, 2.3% retired, 0.6% self-employed with employees, 0.5% were unpaid family helper and 0.4% were employed but were paid in kind.

Amongst those who reported an inability to use the whole body, 63.0% reported that they were sick, 12.7% were engaged in home work, 6.4% were % were in paid cash employment, 4.1 % were students, 2.9% worked at own lands or cattle post and 2.1% were retired. While the rest, 0.9% was self-employed with no employees, 0.2% was in unpaid employment, 0.1% was self-employed with employees and 0.1% were unpaid family helpers.

Of those who with intellectual impairment, 26.9% reported that they were sick, 24.5% indicated that they were students, while 23.5% were engaged in home work and 10.0% were in cash employment. While 4.1% were actively seeking work, 2.0% were working at own lands or cattle post, 1.5% were self-employed but with no employees, 1.5% were self-employed with employees and 1.1% were retired.

Table 6: Distribution of type of disability by current economic activity for population aged 12 years and over

DISABILITY	CURRENT ECONOMIC ACTIVITY													Total (%)	Total
	Employee		Self - Employed		Unpaid Family Helper	Working at Own Lands/ Cattle Post	Actively Seeking Work	Home Work	Students	Retired	Sick	Other Unknown			
	Paid Cash	Paid In kind	No Employees	With Employees											
Sight	22.2	0.3	2.8	0.9	0.3	7.3	2.7	18.9	11.3	4	20.7	0.3	8.3	100.0	26,589
Hearing	17.6	0.3	2.4	0.6	0.4	7.9	3.5	21.8	12.6	3.5	19.9	0.3	9.1	100.0	10,377
Speech Impairment	20.6	0.2	1.5	0.6	0.4	3.1	5.3	18.4	22.2	0.9	20.4	0.1	6.2	100.0	5,021
Leg(s) disability	15.3	0.4	3.2	0.7	0.3	5.6	3.9	19.1	5.7	3.6	33.1	0.3	8.8	100.0	7,494
Arm(s) disability	17.2	0.4	3.2	0.6	0.5	6	5.1	19.9	8.1	2.3	27.5	0.4	8.9	100.0	3,919
Inability to use the whole body	6.4	0.2	0.9	0.1	0.1	2.9	2.4	12.7	4.1	2.1	63	0.1	4.9	100.0	1,404
Intellectual impairment	10	0.3	1.5	0.2	0.2	2	4.1	23.5	24.5	1.1	26.9	0.1	5.7	100.0	1,785
Mental health disorder	8.6	0.1	0.7	0.1	0.5	1.7	5.1	20.7	7.4	0.9	47.5	0.4	6.2	100.0	4,765

With reference to mental health disorder, 47.5% reported that they were sick, with 20.7% indicating that they were engaged in home work, 8.6 % in paid cash employment, 7.4% were students, 5.1 % were actively seeking work and 1.7% were working at own lands or cattle post. The rest, 0.9 % indicated that they had retired, 0.7% were self-employed with no employees and 0.5 % were unpaid family helpers.

Looking at the data in table 5 most of the respondents who reported as to having a disability were involved in some economic activity in the period seven days before the census enumeration. Most common economic activity that the respondents were engaged in across all types of disability was cash paid employment followed by homework and working at own lands and cattle post. However quite a good number of the respondents reported that they were sick. For instance amongst those who were unable to use their whole body, 63% reported that they were sick. The same applies to those who had a mental disorder, 47.5% were not engaged in any economic activity in the week prior to the census because they were sick.

Type of Disability by School Attendance for the 5-17 Year Old Population

The population 5-17 years old is considered as the school going population and covers those who are in primary and secondary schools. Primary school education is very crucial in the learning process of children. It is during their primary school education that they acquire the learning skill such as reading and writing. While in secondary school they are able to use the skills that they have acquired at primary school and prepare for tertiary education and the labour market. It goes without saying that these are very crucial years for the children and for them to acquire these skills it is important they do not suffer from any disabilities as these would hinder them from acquiring these skills.

Table 7 illustrates type of disability by school attendance amongst the school going population aged between 5 and 17 years old. Amongst those who reported that that they had a sight disability 89.5 % were still at school, 4.1 % had left school and 6.4 % had never attended school. Of those with a hearing disability, 84.6 % were still at school while 6.2 % had left school and 9.2 % had never attended school. Just like with sight and hearing disabilities the majority of those with speech impairment i.e. 65 % were still at school, whereas 5.5 % has left and 29.5 % had never attended school.

Table 7: Distribution of type of disability by school attendance for the 5-17 year old population

DISABILITY	SCHOOL ATTENDANCE							
	Still at school		Left school		Never attended		Total	
	Count	%	Count	%	Count	%	Count	%
Sight	2605	89.5	120	4.1	186	6.4	2911	100.0
Hearing	1878	84.6	138	6.2	205	9.2	2221	100.0
Speech Impairment	1642	65.0	139	5.5	744	29.5	2525	100.0
Leg(s) disability	605	65.0	68	7.3	258	27.7	931	100.0
Arm(s) disability	481	68.7	50	7.1	169	24.1	700	100.0
Inability to use the whole body	84	25.1	24	7.2	226	67.7	334	100.0
Intellectual impairment	524	63.8	92	11.2	205	25.0	821	100.0
Mental health disorder	445	52.2	116	13.6	292	34.2	853	100.0

Amongst those with inability to use either one leg or both legs, 65% were still at school. 7.3% had left school and 27.7% reported that they had never attended school. While amongst those with arm disability i.e. the inability to use one or both arms, 68.7% were still at school, whereas 7.1% had left and 24.1% had never attended school. With reference to inability to use the whole body 25.1% were still at school, only 7.2% had left school and 67.7% had never attended school. Over 60% of those with intellectual impairment i.e. 63.8 % reported that they were still at school, while 11.2% had left school and 25.0% had never attended school. Amongst those with mental health disorder, 52.2% were still at school, while 13.6% had left school and 34.2% had never attended school.

Based on the data presented in Table 7, the majority of those with disability in the 5-17 age groups were still at school with the exception of those with the inability of use the whole body. Amongst those with the inability to use the whole body, the majority i.e. 67.7% had never attended school, only 25.1% were still at school and 7.2% had left school.

References

Appendix 1

Distribution by type of disability; administrative districts and gender

			DISTRICT									Total (%)	Total (Count)
DISABILITY		Cities/Towns	Southern	South East	Kweneng	Kgatleng	Central	North East	North West	Gantsi	Kgalagadi		
EYES	Partially sighted	Male	5.8	5.4	1.6	5.9	1.7	14.2	1	4.4	1.9	1.6	43.6
		Female	7.5	6.9	2.7	7.4	1.9	19.3	1.7	5.4	2	1.7	56.4
		Total	13.2	12.2	4.3	13.3	3.6	33.5	2.7	9.8	3.9	3.4	100.0
	Total blindness	Male	2.6	5.7	0.8	6.2	2.6	16.6	1.3	5.6	1.1	1.3	43.8
		Female	2.5	6.6	1.4	8.2	2.7	21.7	1.7	8	1.7	1.8	56.2
		Total	5	12.3	2.2	14.4	5.3	38.2	2.9	13.7	2.9	3.1	100.0
EARS	Partially hearing	Male	3.9	5.6	1.2	7.5	1.2	15.9	1	5.6	2	1.7	45.6
		Female	3.9	6.8	1.5	7.6	2	20.2	1.6	7.3	2	1.5	54.4
		Total	7.8	12.4	2.7	15.1	3.2	36.1	2.6	12.8	4	3.2	100.0
	Deafness	Male	5.8	4.6	7	5.6	1.8	15.2	2.5	5.1	0.9	0.8	49.3
		Female	6.3	5	4.1	5.4	1.2	18.2	1.9	6.5	1	1.2	50.7
		Total	12.1	9.6	11	11	2.9	33.4	4.4	11.6	1.9	2	100.0
SPEECH	Partial Speech Impediment	Male	7.7	7.5	1.8	9.3	2.5	22.3	2.6	6	2.5	2	64.1
		Female	4	4.1	1.6	5.1	1.5	13	1.4	3.2	0.9	1.2	35.9
		Total	11.6	11.6	3.4	14.4	4	35.2	4	9.1	3.3	3.3	100.0
	Inability to speak	Male	6.1	5.3	2.5	7.8	3.1	20.8	3.3	4.8	1	1.5	56.3
		Female	5.1	4.2	2.1	6.2	2.3	14.3	1.8	5.4	0.8	1.5	43.7
		Total	11.2	9.5	4.7	13.9	5.5	35.1	5.1	10.2	1.8	3	100.0
LEGS	Inability to use 1 leg	Male	5.1	6.4	1.8	9.1	1.9	19.2	1.6	6.3	1.2	1.3	53.9
		Female	4.5	6.1	1.5	7	1.5	16.9	1.5	5.1	1	1.1	46.1
		Total	9.6	12.5	3.3	16	3.3	36.1	3.1	11.4	2.2	2.4	100.0
	Inability to use both legs	Male	4.5	5.6	1.5	6.4	2.1	16.2	1.5	5	1.1	1.3	45.1
		Female	4.1	6.6	1.7	6.5	2.7	20.6	2	8	1.3	1.4	54.9
		Total	8.7	12.1	3.2	12.8	4.8	36.8	3.5	13	2.3	2.6	100.0
ARMS	Inability to use 1 arm	Male	5.8	6.4	1.8	8.2	2.2	18.5	1.6	6.5	1.7	2	54.7
		Female	4.3	4.9	1.7	7	1.8	16.7	1.4	5.1	1.4	1.1	45.3
		Total	10.1	11.4	3.5	15.2	4	35.1	3	11.6	3.1	3.1	100.0
	Inability to use both arms	Male	3.8	6.5	1.3	5.5	1.1	17.2	2	6	1.3	1.7	46.5
		Female	4.1	6.3	1.6	6.4	2.4	20.2	1.4	8.3	1.6	1.3	53.5
		Total	8	12.8	2.8	11.9	3.6	37.4	3.4	14.2	2.8	3	100.0

Distribution by type of disability; administrative districts and gender cont...

DISABILITY		Cities/ Towns	DISTRICT									Total (%)	Total (Count)	
			Southern	South East	Kweneng	Kgatleng	Central	North East	North West	Gantsi	Kgalagadi			
BODY	Inability to use the whole body	Male	4	6.4	1.6	8.3	1.8	14.2	1.9	7.1	0.5	1.7	47.5	835
		Female	4.3	6.9	1.6	8	1.4	18.5	1.5	7.9	0.2	2.3	52.5	924
		Total	8.2	13.4	3.2	16.3	3.2	32.7	3.4	15	0.6	4	100	1759
INTELLECT	Intellectual Impairment	Male	5.3	7.4	3.8	7.8	3	16.6	1.2	7	1.5	1.8	55.5	1289
		Female	4.4	6.2	2.7	5.8	2.6	12.6	1.6	6	1.4	1.1	44.5	1032
		Total	9.7	13.7	6.5	13.6	5.6	29.2	2.8	13.1	2.9	2.8	100	2321
MENTAL	Mental Health Disorder	Male	7.5	8.4	1.9	6.9	3.1	20.2	2.5	5.6	1.6	2	59.7	3293
		Female	3.9	5.9	1.4	5	2.3	13.5	1.4	4.4	0.8	1.6	40.3	2219
		Total	11.4	14.3	3.3	11.9	5.4	33.8	3.9	10	2.4	3.6	100	5512
MISSING LEG(S)	One leg	Male	6.1	10.9	1.8	8.6	2.5	24.6	2.5	5.3	1.3	2.3	65.8	260
		Female	3.8	3.5	1.8	3.8	1.8	12.9	0.5	4.3	1.5	0.3	34.2	135
		Total	9.9	14.4	3.5	12.4	4.3	37.5	3	9.6	2.8	2.5	100	395
MISSING ARM(S)	Both legs	Male	9.5	2.7	2.7	12.2	2.7	24.3	2.7	4.1	1.4	4.1	66.2	49
		Female	2.7	2.7	1.4	1.4	1.4	12.2	2.7	6.8	1.4	1.4	33.8	25
		Total	12.2	5.4	4.1	13.5	4.1	36.5	5.4	10.8	2.7	5.4	100	74
MISSING ARM(S)	One arm	Male	8.2	7.6	1.3	12	4.4	25.9	1.3	7	-	5.1	72.8	115
		Female	3.8	1.9	-	5.1	0.6	12.7	-	2.5	0.6	-	27.2	43
		Total	12	9.5	1.3	17.1	5.1	38.6	1.3	9.5	0.6	5.1	100	158
MISSING ARM(S)	Both arms	Male	-	-	7.1	14.3	-	21.4	7.1	7.1	-	7.1	64.3	9
		Female	7.1	7.1	-	-	-	14.3	-	7.1	-	-	35.7	5
		Total	7.1	7.1	7.1	14.3	-	35.7	7.1	14.3	-	7.1	100	14



Rebecca Kubanzi, University of Botswana making a presentation on Nuptiality Patterns & Trends in Botswana

NUPTIALITY PATTERNS AND TRENDS IN BOTSWANA

By
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Abstract: This paper derives from data obtained from census and other secondary sources of data on marriage patterns and trends in Botswana over the past 4 decades.

The 2011 census marital data was specifically examined in relation to gender, education, residence, religion, citizenship, occupation, household size, household headship and economic activity. The marital status of the population of Botswana has changed considerably over the past 4 decades, reflecting a significant change in social relations and family structure. Data from the previous censuses indicate that the institution of marriage is declining in Botswana between 1971 and 2001. However a slight increase in the proportion of married men was noted between 2001 and 2011 while for females it remained constant. Since 1971, the proportion of the population never married increased while a decline in the proportions 'married' was experienced. Furthermore, the proportion of the population cohabiting has increased since 1991, when this marital status was first introduced into the census. Cohabitation seems to be more appealing to males than females with increasing age.

Based on the analysis conclusions and recommendations for the establishment of a family policy might be a relevant intervention if the vision pillar of 'A united and proud nation' is to be realised. In order to maximise on quality statistics, the definition of marital status need to be revisited to incorporate both the legal and socio-cultural frameworks.

1.0 Introduction

The importance of nuptiality and its relationship to the formation and dissolution of families cannot be over emphasised (Newell, 1998). It also ideally prescribes the age at which sexual relations begin. Marriage in most societies represents stable unions in which reproduction is socially acceptable. The stability of such unions is paramount to the formation of societal values.

In Botswana, there are two types of marriages; customary marriage and marriage under the Act (or under the "common law"). Customary marriages are performed at a customary court ("kgotla") and require the approval of the local chief. Marriages under the Act are officiated by civil authorities and require registration with the National Registration (Omang) office. Although some people still choose to have a customary marriage ceremony, most people marrying in Botswana will register a marriage under the Act (a "common law" marriage) to ensure that they receive the full legal benefits of marriage. (www.usembassy.com)

Marital status in Botswana has been categorised into four (never married, married, separated, divorced and widowed) from 1971 to 1981. However since 1991, the category 'living together' has been introduced as a marital status (Mukamaambo; 1995). A change in marital status is the prelude to the formation or dissolution of a family or subfamily. The frequencies observed in the marital status categories depend not only upon demographic factors such as age- sex structure and mortality, but also upon legal and cultural factors. The definition of marriage also varies across countries, depending on the law governing the civil contract or the tribal and customary rules governing the union (Siegel; 1976).

Literature Review

Data from past censuses show that 17.1% of males and 19.9% of females were reported married in 2001 as compared to 44.4% and 41.5% respectively, in 1981. As the institution of marriage is less appealing, an increase in the proportion of people cohabiting has been noted. Statistics show that cohabitation increased from 12.2% to 16.8% among males and 12% to 17.1% among females from 1991 to 2001. The proportion of the never married population over the years steadily increased (Mukamaambo; 1995, Mookodi, 2004). On the one hand, an increase in divorce cases has been noted in recent years.

Gaisie (1995) attributes the gradual transformations from the traditional Tswana nuptiality patterns and universal marriage into different types of sexual unions and relationships to the political, social and economic changes that have taken place in the country. Among factors that have shaped the prevailing nuptiality patterns are abandonment of polygyny, labour migration, formal schooling and certain legal structures relating to rights to property, the author argues.

Corroborating with Gaisie, Dintwa (2010) also argues that the socio-economic and demographic factors experience by Botswana has fuelled the changing family structure. Furthermore, the author argues that the labour migration has brought about single parent families that characterise contemporary Botswana. One of the demographic factors that have brought about the disruption of the family structure is HIV and AIDS since it has had the negative impact of high mortality, poverty, lack of investment in the child and increase in the dependency burden (*ibid*).

Polygynous marriages are rare in contemporary Botswana; instead they seem to have been replaced by serial monogamy and concubinage (www.everyculture.com). Since 1991 the proportions in the category 'living together/cohabiting' increased. Cohabitation has grown in recognition or significance in Botswana over the years.

Childbearing is however embedded within the African culture. The value of childbearing, which has now spilled from the confines of marriage to out of wedlock in Botswana, can be traced back to its value within the context of marriage. Ellece (2012) accounts for the importance of motherhood in marriage in Botswana. From her accounts of Tswana marriage ceremonies (especially in Patlo or marriage negotiations) premise that in Botswana, motherhood is constructed as a compulsory and indispensable aspect of feminine identity, crucial for success in marriage. The payment of Bogadi or the bride price is formal request for conjugal rights by the groom and also a symbol of female fertility. The Bride price is in the form of a mokwele (the special bride price animal, usually a sheep), whose significance is that it 'opens' and 'cleanses' the birth passage to facilitate the birth of children. The author further argues that the symbolism of sheep to a woman's fertility is engendered as only the female anatomy is referenced. Ellece concludes that the compulsion to procreate does not necessarily suite anyone and to many it denies them the freedom to choose not to have children without the fear of stigmatisation.

Mookodi(2004) observes that anthropological accounts on customs and traditional practices in Bechuanaland during the early part of the early twentieth century, ascribed marriage as a rite of passage from childhood to adulthood, a basis for the formation of alliances between families and communities, and an integral part of the moral fabric of societies. Citing Schapera and Comaroff 1991, the author further notes the importance of bride wealth, which was used as a tool to unite families and consolidate assets within the extended family system.

The author further illuminates the changes brought about by male migration; this increased the age at marriage for men and saw the establishment of extra-marital pregnancies which became the basis of female headed households.

However contrary to popular opinion that high cohabitation levels exhibited in Botswana are due to factors like male labour migration to South Africa, decline in polygamy and Batswana women's access to education and enhanced legal status of unmarried women, Mokomane (2006) attributes these high levels as partly due to socio-demographic factors like constant population mobility, population's response to the marriage squeeze and high prevalence of pre-marital childbearing. A recommendation by the author is for further study involving comparative analysis to explain the factors that make Botswana's cohabiting levels to be so closely resembling of those in Latin America and the Caribbean than other Sub-Saharan countries. The study found Botswana to be having high cohabitation levels when compared with other Sub-Saharan countries.

Mokomane (2005) asserts that cohabitation in Botswana is a prelude and not an alternative to marriage since cohabiting relationships do not provide the socio-economic and legal security that marriage provides. Participants in the study intend to get married in future; hence the author premises that there is little chance that cohabitation will pose a widespread challenge to marriage as an institution in the foreseeable future. Findings from the study however resonates with others (Mookodi;2004;Mukammambo; 1995;Gaisie and Majelantle;1999) which confirm that cohabitation tends to delay marriage and has an influence on the marriage patterns as evidenced by higher ages at first marriage. The author further recommends the impact of cohabitation on children's psychological, emotional, behavioural and cognitive outcomes.

Baker (2003) also notes a decline in marriage prevalence among the Tswana in the Gaborone and Kgatleng districts of Botswana. Furthermore, the author argues that marriage is a doubtful proximate determinant of fertility since first births commonly occur out of wedlock. An interesting finding is that unlike in the past women with higher than secondary levels marry at higher levels, this suggesting that marriage is increasingly becoming a privilege of the educated.

In a study of pre-marital childbearing in Thamaga (Botswana), Pitso (2003) resonates with Baker on the fact that out of wedlock childbearing is common in Botswana. Findings from the study reveal that among older women, childbearing is often strategic and goal directed, providing a sense of self-worth, labour and old age security. It was also noted that societal attitudes to pre-marital motherhood became less condemning after about age 25, as a women is considered to have waited long enough for marriage. Further to this, the author attributes premarital childbearing to spontaneous sexual activity generated by the undermining of societal controls and inauspicious economic circumstances.

In recent years there has been concern over the high divorce rates experienced in the country. Kgalemang (2010) reported that Francistown alone registered 288 and 349 divorces cases in 2009 and 2010 respectively. The author concluded that such is an indication that the value and importance of marriage is reducing with time. Seitshiro (2010) asserted that adultery and desertion of partners were major factors in the increase in divorce cases in Botswana in 2010. The author further quotes a legal practitioner who said;

"There is no stigmatisation of adultery and therefore there is no retribution. The society is so permissive and adultery charges are also affordable to a lot of people"

Social and cultural barriers are also attributed as other major factors. He further quotes lawyers who indicated that three out of five women experience violence in their lifetime. Against this background, the author raises sentiments regarding the country's experience in the decline in marriage rates.

Shabani(2013) concurs with other authors as he quoted the Chief Justice's concern at the opening of the legal year on 5 February 2013. The Chief Justice raised concern over increasing registered divorce cases which stood at 971 and 1, 172 in 2009 and 2010 respectively, while in 2011 and 2012 there were 1, 118 and 971 respectively. The Chief Justice further cautioned that Batswana should be worried about the quality of the next generation families as well as the place of the social unit called 'family' in the future. He further reiterated the need to bring together all the main stakeholders to seriously introspect on the causes of high divorce rates, dysfunctional families and how to arrest the situation so that the national vision of 'A united and proud nation' could be realised.

3.0 Methodological Issues

The difficulties in defining marital status cannot be underestimated.

Mokomane (2006) argues that there is a possibility of an underestimate of the cohabiting population. The author quotes the explanation of the "Living Together", according to the 2001 census;

A man or woman may "live together" like husband and wife (even if they do not stay in the same locality) without having gone through any formal marriage ceremony.

The basis of the author's argument is that non-consensual sexual relationships/visiting unions could be classified as living together. Furthermore, she cites Pitso, 1997 who also raised the same sentiment. Citing (Carmichael, 1996) the author further posits that the phrase 'like husband and wife' could also result in underestimation of cohabitants since it implies that the union must be perceived as marriage-like to be relevant. For the enumerators to be required to tick the respondent's current marital status is another form of possible underestimation of cohabitants. An example is given where current cohabiting partners have formally been married/divorced, they could report that they are divorced (their legal status), rather than regard themselves as 'living together', which will in turn underestimate the number of cohabitants. The author therefore advocates for a more standard operational definition of cohabitation, given that variations in the definition of concepts can impede comparability of results at national level and make comparisons over time and difficult. A further recommendation is to have two separate questions, asking first the legal marital status and second whether or not the respondent cohabits with someone he or she is not married to. Another recommendation is for consensus and surveys to have separate relationship codes for spouses (to be used to classify married people only) and partners (to be used for classification of cohabitants only).

4.0 Policies Relating to Nuptiality in Botswana

The Revised National Population Policy has identified the considerable change in the marital status of the population as indicative of significant changes in the social relations and family structures in the country (Ministry of Finance and Development Planning, 2010). The decline in the value of marriage

in Botswana has also been noted as a worrisome development over the years. In order to achieve its goal of 'improved quality of life and standard of living of all people in Botswana', one of the objectives is to promote the institution of marriage and strengthen the role of the family in providing protection and social security. On the one hand NDP 10 states that the family as a primary social unit is threatened by the pace of change, urbanisation, the high degree of migrant labour and unfriendly family policy (e.g. Government transfer policy which separates spouses and restriction on maternity leave to women), Ministry of Finance and Development Planning, 2009.

Against this background, Botswana envisions to be a 'A united and proud nation' (Vision 2016.). This vision pillar puts emphasis on a strong family unit that is reinforced in the response to the rapid social changes experienced within the country, the region and the world. The vision further encourages strong emphasis on a strong family unit, which will in turn encourage responsible parenting and the institution of marriage. A strong family unit will also provide a foundation for the eradication of problems such as high incidence of teenage pregnancy, adultery, prostitution, street children and the spread of HIV.

5.0 Analysis of Results

5.1 Marriage Trends over the Past Five Censuses by Gender

Table 1: Percentage Distribution of Population of Marital Status by Sex

Marital Status	1971		1981		1991		2001		2011	
	M	F	M	F	M	F	M	F	M	F
Never Married	44	37	51.7	44.5	54.8	49.5	51.7	46.5	58.1	53.4
Married	47.1	42.9	44.4	41.5	29	27.2	17.1	17.9	18.8	17.9
Living Together	n/a	n/a	n/a	n/a	12.2	12	16.8	17.1	20.6	20.8
Separated/Divorced	5	6.6	2.1	3.3	1.7	2	1.2	1.8	1.1	1.7
Widowed	2.1	11.9	1.8	11	1.5	8.5	1.3	6.5	1.3	6.2

Source: CSO, 2004(Mookodi;172)

5.1.2 Never Married

Evidence has shown that the proportions of the population classified as 'never married' increased substantially over the past five censuses. While proportional increases were slightly higher among males (7.7%) than females (7.5%) between 1971 and 1981, the trend was reversed between 1981 and 1991 (in favour of females; 5.0% vs 3.1%). Between 1991 and 2001 there was a decrease in the proportions of both males and females who never married, still with higher proportions among males (same pattern as for 1971 to 1981). However between 2001 and 2011 higher increases were noted among females (6.9%) as compared to their male (6.4%) counterparts (Table 1).

5.1.3 Married

The proportions of married males have been declining from 1971 to 2001 (47.1%, 44.4%, 29.0% and 17.1% respectively), and a slight increase of 1.7% was noted between 2001 and 2011 (17.1% to 18.8%). Conversely for women the proportion of those married decline between 1971 and 2001 (42.9% to 17.9%), while between 2001 and 2011 there has been no change.

5.1.4 Living Together

Ever since the introduction of the category 'living together' in 1991, there has been a proportional increase in the people reporting to be cohabiting among both males and females. This implies that the people belonging to this category have been either classified as married or never married prior to 1991 (Mookodi, 2001)

5.1.5 Separated/Divorced/Widowed.

The proportions separated, divorced or widowed have been declining for both males and females between 1971 and 2001. However for the census period 2001 to 2011 there was no change in the proportions of widowed males, while for females the decline was maintained like for the other periods.

Regarding widowhood, women have been disproportionately affected when compared to their male counterparts (Mookodi, 2001). This resonates with the fact that females have higher life expectancies than males.

Table 2: Singulate Mean Age at Marriage in Years by Sex: 1971, 1981, 1991, 2001, 2011

Sex	Census Years				
	1971	1981	1991	2001	2011
Males	29.4	30.8	30.8	30.9	36.1
Females	24.8	26.4	26.7	26.5	32

Source:CSO, 1995(Mukamaambo:59); 2001 figure from www.chartsbin.com

5.2 Marital Status by Age and Sex

The singulate mean age at marriage (an estimate of the mean number of years lived by single persons who ultimately marry) has been increasing over the years, with higher mean years of singleness experienced among men than women (Table 2).

5.2.1 Never Married

According to the 1981 census, the proportion of never married males has been higher than for females up to age 39 years. However from age 40 onwards, the trend was reversed, females dominated the marital status. The same trend was experienced in 1991. However for 2011, higher rates of 'never marrying' males than females were experienced up to age 34. From age 39 onwards, the proportion of never married females was consistently higher than for men.

5.2.2 Married

In 1981 the proportions married have been higher among females than males up to the age of 34 years, thereafter the trend reversed in favour of males. The same trend was experienced for 1991. However for 2011, the proportion married was higher among females than males up to the age of 39 years. From the age of 40 and above, higher proportions of the married was experienced among males and females. (Table 3, 4&5)

5.2.3 Living Together

In the 1991 census, more females than males were classified as cohabiting up to the age of 29 years. From the age of 30 years onwards, more males than females were cohabiting. The same trend was experienced for 2011. Thus higher proportions of men than women were cohabiting with increases in age. (Table 3 & 4)

5.2.4 Separated and Divorced

For the separated and divorced, although the proportions have been consistently below 7.5 % in 1981, 1991 and 2011 censuses, higher rates experienced among women than men. There has been a rise in proportions with age up to age 60 – 64 in 1981; a decline was experienced at 65+, however with females still dominating. In 1991, the rise in proportions separated/divorced was up to ages 55-59 years for men while for women it was up to 60 -64 years. There was no change for men for the ages 55-59 and 60 -64 years. For the 2011 data, there is evidence of a rise in proportions separated /divorced up to 55-59 years; thereafter a decline is experienced, however still in favour of women. For all the 3 censuses, a decline in the proportions of this marital status is experienced between the ages 60-64 and 65+ (Table 3, 4 & 5).

5.2.5 Widowed

Increases with age in the proportions widowed have been experienced for 1981, 1991 and 2011 censuses, in favour of women. Higher proportional increases were noted over the years in the ages 60-64 and 65+. For example in 1981 the proportions widowed increased from 34.9% to 58.8 % (23.9% increase) among females from age 60-64 to 65+. Comparatively for males it was from 4.7% to 10.2 % (5.5% increase). In 1991, for the same advanced ages, for females the increase was from 30% to 50.7% (20.7% increase) while for males it was from 4.7% to 10% (6% increase). In 2011 for the ages under review, the proportion of females widowed increased from 23.6% to 43.8% (20.2% increase), while for males it was from 5.5% to 11.4% (5.9% increase).

5.3 Marital Status and Residence

Equal proportions of never married males and females resided in cities and towns, while for the rest of the settlements males dominated.

Amongst the married, males were predominantly found in cities, urban and rural villages, while for the rest of the settlements women dominated. More males than females cohabiting were found in cities/towns. For the rest of the settlements, the proportion of cohabitants was higher among females than males.

The stata separated/divorced and widowed had lower rates than the rest of the marital stata. For the separated/divorced, women dominated in residence across the different settlement, except for mixture of lands and cattle posts where there were more separated/divorced men than women.

Among the widowed, women dominated their male counterparts across the different settlements.(Table 6&7)

5.4 Education, Marital Status and Sex

5.4.1 Never Married

Higher proportions of never married females had secondary education (70.5%) when compared to their male counterparts (63.5%). These were followed by those with brigade (59.9% males and 58.1% females) and primary education (59.5% males and 49.6% females), with male dominating (Table 8). About 46.3% of male tertiary education holders were never married, when compared to 47.9% among females.

5.4.2 Married

Higher proportions of married males were recorded among those with formal education (37.9%) while their female counterparts recorded 27.8%. A higher proportion of married males were also found among those with tertiary education (34.4%), while females of the same status recorded 31.1%. Still more males than females had technical/vocational (29.3% males and 24.4% females) and apprentice (29.2% males and 25.5% females) levels of education. The lowest proportions of those married were registered among those with secondary education (9.7% males and 11.3% females).

5.4.3 Living Together

Among the living together, higher proportions of cohabitants were found among those with apprentice (29.0% males and 26.1% females), non-formal (28.7% and 18.6% females), pre-school (27.3% males and 15.9% females) and brigade (25.4% males and 26.2% females). In all the cases males were dominant with the exception for brigade level of education. The educational level that recorded the least cohabitants was tertiary(17.0% males and 16.3% females).

5.4.4 Separated and Divorced

For the separated/divorced, males with non-formal education recorded the highest rates, with females surpassing their male counterparts. These were followed by those with tertiary (1.9% males and 2.5% females). Separated/divorce females with technical/vocational and apprentice surpassed their male counterparts. The least rates for this marital status were found among those with secondary education (0.5% males and 0.9% females).

5.4.5 Widowed

Among the widowed, more females (70.1%) than males (56.7%) reported to be having primary education. However among those with secondary and tertiary, the pattern reversed in favour of males.

Across the different marital stata, lower proportions were reported among those with pre-school, non-formal, apprentice and brigade level of education.

5.5 Marital Status and Religion

The proportion of female christians who reported on the different marital stata was higher (81.3 – 88.3%) than for their male counterparts (67.3 – 78.8%). This was followed by those with no religion, where the proportions were in favour of men. More males than females across the different marital stata reported that their religion was 'Badimo'. (Table 9).

5.6 Marital Status and Citizenship

In comparison to other countries under consideration, Botswana had the highest proportions of never married individuals, with males dominating. Regarding those married, Botswana experienced the lowest rates when compared to other countries, with more males than females reporting to be married. Cohabitation was more prominent among Batswana and those from Central Africa. (Table 10).

Table 11 : Percentage Distribution by Marital Status, Household Headship and Sex

Marital Status	Headship	
	Male	Female
Never Married	24.2	28.7
Married	78.7	34.5
Living Together	56.8	36.8
Separated/Divorced	71	71.7
Widowed	77.6	78.1

5.7 Marital Status by Household Headship and Sex

About 29% of female households heads were never married, when compared to about 24% male heads of households. Among the married, a higher proportion of households were male headed than female headed. For the living together there were more male headed households than females ones. More female household heads reported to be separated, divorced and widowed.

5.8 Marital Status by Economic Activity and Sex

5.8.1 Never Married

Among the never married, males actively seeking work formed the majority. These were followed by those who declared to be in the category 'unpaid family helper', and males dominated. The third most prominent group were those categorised as employee 'paid in kind', male dominance was still experienced. Male students formed the larger part of the never married economically inactive group. Those classified as 'other' were the second dominant group, with females in the majority. Male homemakers formed the third largest group.

5.8.2 Married

For the married, those self-employed 'with employees' formed the majority of the economically active group, and females dominated the group. Those working at their own lands and cattle posts were the next largest group, however with males in the majority. The third largest group was those self-employed 'with no employees', and males were dominating.

Among the economically inactive group, male retirees were in the majority. The next group was the sick, and males still dominating. Homemakers were the third largest group, and females were in the majority.

5.8.3 Living Together

Cohabiting males formed the highest proportion of those self-employed 'with no employees'. Employees 'paid in cash and in kind followed respectively, males dominated for those 'paid in cash', while females dominated for those 'paid in kind'. For the economically inactive, a higher proportion of cohabitants were those classified as 'unknown', and females were in the majority. Homemakers were the second in majority and females were still more than their male counterparts. Those classified as 'others' were third in majority, and male dominance was experienced with this group.

5.8.4 Separated and Divorced

Among the separated and divorced, female employees 'paid in kind' were the dominant group for the economically active. The second and third dominant were the 'self-employed' with employees 'and those working at their own lands and cattle posts respectively. For both groups there were more females than males. Regarding the economically inactive, female retirees were in the majority; these were followed by the sick, however with males dominating. The third largest group was those classified as 'unknown', and females dominated.

5.8.5 Widowed

For the widowed, the predominant group for the economically active was females working at their own lands and cattle posts. These were followed by those classified as employee 'paid in kind'. The third in majority were those classified as self-employed 'with employees', and females were still in the majority. Among the economically inactive, the majority were the sick males. The second group with the highest proportion was retired females. Female homemakers formed the third group in majority. (Table 13)

5.9 Occupational Status, Marital Status and Sex

Among the never married, higher proportions were found among those implicated as having other occupations other than the ones enumerated. While higher proportions of never married males indicated to be holding elementary occupations, females dominated the service work. Clerical work was the second popular type of work among males, while for females it was Craft and related works. Lower proportions of the never married were found among legislators. (Table 12)

Among the married, legislators dominated all occupations, with males in the lead. The second most reported type of occupation among the married was professionals, with males still dominating.

For the living together, the most dominant form of occupation was plant and machine operators and assembly, with males in the lead. The second most dominant occupation among the cohabiting males was elementary. Nonetheless elementary dominated among females, followed by service work.

With the separated and divorced, the most dominant type of occupation was among male legislators, followed by service work. For females, the highest proportions of cohabitants were among legislators, followed by those with technical and associate professionals.

The highest proportions of widowed males was from the skilled agricultural, followed by legislators and those who declared other occupations. Among females, the highest proportions of widowed females were found among those with skilled agricultural works, followed by those who declared other occupations.

5.10 Marital Status and Household Size

Smaller households (1-2 members) were more associated with never married males than females (48.1% vs 47.4%). These were followed by households with 3-4 members however in favour of males; the difference between the sexes was small. Among the married, more females than males has smaller households (1 -2 members) – Table 14. The pattern however reversed for households with 3-4 members, where more married females than males had 3-4 members in their households. Among the cohabiting, higher proportions of females than males had 1-2 members (68.8% vs 56.1%). However more males than females reported to be having 3-4 members in their households. For those separated /divorced, all interviewed reported to be having 1-2 members in their households. However for 3-4 members and 5-6, the trend was in favour of women. Thus more separated/divorced males than females had a higher burden of household size (3+ members). Households with 7+ members were not found among the separated/divorced. For the widowed, more females than males had smaller households, and none reported to be having 3-4 members in their households. But more widowed males than females reported to be having 5-6 members. Like for the separated/divorced, households with 7+ members were not found in this marital status.

Table 15: Percentage Distribution of Age Specific Fertility Rates by Marital Status

Age	Age Specific Fertility Rates				
	Never Married	Married	Living Together	Separated/Divorced	Widowed
<15	0.1	0	17.4	0	0
15-19	0.1	27.6	82.3	59.4	18
20-24	34.9	63.5	79.7	40.9	60.2
25-29	39.5	70	65.5	44.3	36.7

5.11 Marital Status by Age Specific Fertility Rates

Higher age specific fertility rates (ASFRs) were experienced among those cohabiting and those married. Across the different marital status, fertility rates were increasing with age up to 25 – 29 years, thereafter a decline was experienced. Those cohabiting experience higher ASFR at age 45 – 49 when compared to other marital status. Those cohabiting experience higher total fertility rate, followed by those married, while the lowest was among the never married.(Table 15)

Conclusion/Recommendations

The marriage institution in Botswana is not thriving due to demographic, socio-economic and globalisation effects. Marriage is no longer attractive as evidenced by the higher proportions never married. There is gender disparity in marital patterns. While the proportions of males married are declining, divorce seems to affect more females than males. More men are therefore opting for cohabitation. The years spent single has also been increasing over the years. This calls for stakeholders to engage in dialogue, including the traditional leadership over the preservation of this important unit so that Vision 2016 could be realised. These developments threaten the existence of the family unit, which is the core of any society.

Table 3: Percentage Distribution of Population by Age, Marital Status and Sex ,2011

Age	Never Married		Married		Living Together		Separated Divorced		Widowed	
	M	F	M	F	M	F	M	F	M	F
<15	98.4	98.8	0.6	0.5	1	0.8	0	0	0	0
15-19	96.8	92.9	0.8	0.9	2.3	6.1	0.2	0	0	0
20-24	84.9	67.1	1.8	3.9	13	28.5	0.2	0.4	0.1	0.1
25-29	64.7	50.2	5.9	11.8	29	37.2	0.3	0.5	0.1	0.2
30-34	47.7	42	15	21.8	36.3	34.1	0.6	1.2	0.3	0.8
35-39	36.9	37.2	26.5	29.6	35.1	29	1.1	2	0.4	2.1
40-44	29.2	34.3	37	34.3	30.9	24	1.9	3.1	1.1	4.2
45-49	24.2	32.3	42.9	36.4	28.5	20.1	2.6	4	1.8	7.1
50-54	19.7	31	49.3	37.4	24.6	15	3.5	5.1	2.9	11.4
55-59	15.9	28.9	54.2	37.5	21.6	12.1	4.3	5.2	4.1	16.3
60-64	14.1	26.1	56.3	36.4	20	9.1	4.1	4.7	5.5	23.6
65+	14.5	21.6	55.8	26.1	14.7	5.4	3.6	3.1	11.4	43.8

Table 4: Percentage Distribution of Population by Age, Marital Status and Sex ,1991

Age	Never Married		Married		Living Together		Separated Divorced		Widowed	
	M	F	M	F	M	F	M	F	M	F
15-19	96.8	89.1	1.3	1.8	0.9	3.3	0.1	0.1	0.1	0.2
20-24	90.4	78.3	3.1	10.7	5.7	15.6	0.1	0.4	0.1	0.4
25-29	70.5	51.9	11	26.1	17.4	19.7	0.3	1.2	0.1	0.8
30-34	46.1	38.3	29.2	39	22.6	18.2	1.3	2.4	0.2	1.8
35-39	29	31	46.1	45.6	21.5	16.2	2.4	3.7	0.5	3.2
40-44	19.9	25.2	55.1	49.9	19.9	13.9	3.5	4.7	0.9	4.6
45-49	14.8	22.4	61.1	50.1	17.8	12.7	4.2	5.2	1.6	9.3
50-54	10.7	19.9	56.5	49.7	13.8	10	3.8	5.6	2	14.4
55-59	9.6	17.5	68.5	47.5	13.4	7.8	4.7	5.7	3.5	21
60-64	8.4	15.5	69.5	42	11.9	6.1	4.7	5.9	4.7	30
65+	10.1	11.7	64.1	28	10.3	4.5	4.2	4.3	10.7	50.7

Source:CSO, 1995(Mukamaambo;59)

Table 5:Percentage Distribution of Population by Age, Marital Status and Sex ,1981

Age	Never Married		Married		Living Together		Separated Divorced		Widowed	
	M	F	M	F	M	F	M	F	M	F
15-19	99.1	92.7	0.8	7			0	0.2	0	0.1
20-24	93.4	86.8	6.4	29.8			0.1	1	0	0.3
25-29	69.4	46.9	29.9	49.7			0.6	2.4	0.2	1
30-34	42.4	32.4	55.3	61.4			1.9	3.9	0.4	2.4
35-39	27.2	25.2	69	65.2			3.2	5	0.6	4.7
40-44	19.3	21	76	65.7			3.6	5.8	1.1	7.5
45-49	14.2	17.4	80.5	64			4.1	6.4	1.8	12.1
50-54	11.4	14.6	81.2	59.8			4.5	7.2	2.9	18.4
55-59	10	12.1	81.8	55.5			4.3	6.7	4	25.7
60-64	8.4	10.5	82.1	47.7			4.7	6.9	4.7	34.9
65+	7	7.8	78.3	28.7			4.5	4.7	10.2	58.8

Source:CSO, 1995(Mukamaambo;58)

Table 6 :Percentage Distribution of Population by Locality Type and Marital Status

Locality Type	Never Married		Married		Living Together		Separated Divorced		Widowed		
	M	F	M	F	M	F	M	F	M	F	
City/Town	53.8	53.8	23	20.9	21.5	20.7	1	1.7	0.7	2.8	
Urban Village	62.5	57.3	17.9	17.3	17.4	17.6	1	1.5	1.2	6.2	
Rural Village	60.4	51.9	16	15.3	20.6	22.2	1.2	1.9	1.8	8.7	
Lands area	49	34.3	21.2	21.5	26	32.7	1.6	1.8	2.2	9.9	
Cattle Post	51.4	27.4	14.5	19	30.3	44	1.8	1.5	2	8.1	
Freehold Farm	42	31	18.7	19.3	37	44.5	1.2	1.5	1.1	3.6	
Mixture of lands and Cattle Post	47.6	28.9	17.6	19	30.6	42.1	1.6	1.5	2.4	8.6	
Camp or Other Locality Type n.e.s	51.4	51.2	21	22.2	25.6	23.4	1.2	1.6	0.7	1.7	

Table 7 :Percentage Distribution of Population by Locality Type and Marital Status

Locality Type	Never Married		Married		Living Together		Separated Divorced		Widowed		
	M	F	M	F	M	F	M	F	M	F	
Urban	59.3	56.1	19.8	18.6	18.9	18.7	1	1.6	1	5	
Rural	56.1	47.9	17.1	16.5	23.6	25.3	1.4	1.9	1.8	8.5	

Table 8: Percentage Distribution of Population by Education, Marital Status and Sex, 2011

Highest Education	Never Married		Married		Living Together		Separated Divorced		Widowed		
	M	F	M	F	M	F	M	F	M	F	
Pre-School	43.1	35.9	25.5	21	27.3	15.9	0.5	3.6	3.7	22.6	
Primary	59.5	49.6	18.5	20	19.1	17.3	1.2	2.1	1.7	10.6	
Secondary	70.5	63.5	9.7	11.3	18.9	23.2	0.5	0.9	0.3	1.2	
Non Formal	26.7	29.9	37.9	27.8	28.7	18.6	2.8	3.6	4	20.1	
Apprentice	39.6	44.6	29.2	25.5	29	26.1	1.3	2.6	0.8	1.2	
Brigade	59.9	58.1	13.4	13.5	25.4	26.2	0.8	1.2	0.5	1.1	
Technical/Vocational	45.3	48.9	29.3	24.4	23.2	22.9	1.5	2.1	0.7	1.8	
Tertiary	46.3	47.9	34.4	31.1	17	16.3	1.9	2.5	0.6	2.2	
Level Unknown	49.3	46	26.3	29	22.5	17.4	1.1	2.9	0.9	4.7	

Table 9 : Percentage Distribution of Population by Religion, Marital Status and Sex

Religion	Never Married		Married		Living Together		Separated Divorced		Widowed		
	M	F	M	F	M	F	M	F	M	F	
Christian	57.8	53.9	20.4	18.5	19.5	19.8	1	7.3	1.2	6.1	
Muslim	43.6	33.9	38.8	46.7	13.4	11.1	2.5	7.4	1.6	4.4	
Bahai	22.9	24	46.3	46.7	20.9	21.1	3.9	7.8	5.9	6.1	
Hindu	24.4	15.6	71.5	77.6	1.4	1.9	1.3	1.3	1.3	3.7	
Badimo	48.4	39.3	16.8	16.2	30.3	31.2	1.7	1.9	2.7	11.4	
No Religion	63.6	56.1	11.4	10	22.8	27.3	0.9	1	1.2	5.5	
Rastafarian	60.2	41.5	13.2	41.9	22.3	8.8	3.2	4.9	1.1	2.9	
Other Religion	30.7	20.6	57.7	65.4	7.7	4.4	2.4	4.8	1.5	4.7	

Table 10 : Percentage Distribution of Population by Citizenship, Marital Status and Sex

	Never Married		Married		Living Together		Separated/Divorced		Widowed	
	M	F	M	F	M	F	M	F	M	F
Botswana	60.1	54.6	16.4	16.2	21.1	21.2	1.1	1.6	1.4	6.3
Other SADC	33.8	32.6	47.2	46.3	16.7	14	1.5	2.9	0.8	4.2
E.Africa	35.7	38	52.9	52.2	8.9	4.2	1.4	2.9	1	2.8
N.Africa	43.3	55	37.8	24.2	15.7	14.2	2.4	0.8	0.8	5.8
C.Africa	43.5	56.4	30.4	17.9	24.6	17.9	1	0	0	7.7
W.Africa	34.4	37.3	52.9	53.5	10.3	5	1.7	1.6	0.8	2.6
Africa Islands	64.2	64.4	20.8	9.6	15.1	20.5	0	1.4	0	4.1
Asia	32	17.2	61.8	79.9	5.2	1.2	0.6	0.4	0.4	2.2
Europe	22.9	20.5	59.9	61.8	9.7	7.8	5.5	4.9	2	5.1
Oceania	27	34.5	56.3	48.2	3.2	12.7	3.2	2.7	0.8	1.8
Unknown	60	68.8	25	15.8	0	10.5	5	0	10	5.3

Table 12 : Percentage Distribution of Population by Occupation, Marital Status and Sex

Occupation	Never Married		Married		Living Together		Separated/Divorced		Widowed	
	M	F	M	F	M	F	M	F	M	F
Legislators, Administrators, Managers	20.1	15.2	59.5	48	16.6	15.2	2.4	4.9	1.5	3.9
Professionals	31.9	16.6	46.4	40.9	19.4	16.6	1.7	2.9	0.6	1.6
Technicians and Associate Professionals	38	18.7	34.7	36.3	25	18.7	1.5	3.2	0.8	3.1
Clerks	47.3	25.8	22.5	21.3	28.2	25.8	1.2	2	0.7	1.9
Service Workers and Shop & Market Sales Workers	45.3	29.7	21.5	18.3	31.6	29.7	1.1	2.1	0.9	3.1
Skilled Agricultural and Related Workers	34	26.8	33.2	29	28.5	26.8	2.2	3.1	2.2	9.7
Craft and Related Trade Workers	41	29.4	24.8	21.5	32.3	29.4	1.1	2.2	0.9	5.5
Plant and Machine Operators and Assemblers	32.2	27.5	33	24.6	33.4	27.5	1.3	2.5	1	4.3
Elementary Occupants	51.4	30.1	13	16.5	32.9	30.1	1.3	1.3	1.2	4.7
Occupation not Classified	40.6	26.8	28.9	22.5	28.4	26.8	1.5	0	0.6	0
BDF	40.6	26.8	28.9	22.5	28.4	26.8	1.5	0	0.6	0
Occupation Unknown	76.2	59.4	10	14.5	11.5	17.7	0.8	1.2	1.5	7.2

Table13 : Percentage Distribution of Marital Status by Economic Activity and Sex

	Never Married		Married		Living Together		Separated/ Divorced		Widowed		
	M	F	M	F	M	F	M	F	M	F	
Economically Activity											
Employee(Paid in Cash)	42.5	46	25.1	21.9	30.2	26.6	1.3	2.4	0.9	3.2	
Employee(Paid in Kind)	50.4	41.7	19.2	18.7	26.3	28	2.2	3.6	1.8	8	
Self Employed(with no employees)	35.5	33.3	29.6	29.1	32	27.7	1.5	3.1	1.3	6.9	
Self Employed(with employees)	24.3	20.7	50.1	52.8	21.9	17.4	2.3	3.6	1.3	5.5	
Unpaid Family Helper	68.1	42.5	9.6	19.9	20.6	29.1	0.7	1.7	1	6.8	
Working at Own Lands/Cattlepost	32	22.2	38.4	35.4	23.8	22.9	2.3	2.8	3.4	16.8	
Actively Seeking Work	75.6	61.6	5	8.2	18.4	28.5	0.6	0.9	0.4	0.8	
Economically Inactivity											
Homemaker	60.4	36.1	17.3	26.7	18.2	24.8	1.4	1.7	2.8	10.7	
Students	97	94.9	0.9	1.4	2.1	3.6	0	0	0	0	
Retired	8.4	22.9	68	33.9	9.6	3.9	4.2	5.8	9.9	33.6	
Sick	45	34	28.2	16	13.4	8.5	3.6	2.8	9.8	38.7	
Other	73.1	83	5.3	5.7	19.6	2.3	0.6	1.1	1.4	8	
Unknown	47.4	37.3	22.6	22.1	26.2	27.3	1.6	2.6	2.2	10.8	

Table 14:Percentage Distribution of Population by Marital Status and Household Size

	Household Size											
	1_2		3_4		5_6		7_8		9_10		10+	
Marital Status	M	F	M	F	M	F	M	F	M	F	M	F
Never Married	48.1	47.4	22.9	22.8	14.7	15.8	6.9	7.3	4.3	3.8	3.1	2.8
Married	49.2	53.5	26.2	27.9	14.8	0	6.6	4.7	3.3	0	0	0
Living Together	56.1	68.8	22.7	15.6	10.6	6.3	6.1	6.3	3	3.1	1.5	0
Separated/Divorced	100	0	0	66.7	0	33.3	0	0	0	0	0	0
Widowed	66.7	100	0	0	33.3	0	0	0	0	0	0	0

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Prof Ntonghanwah Forcheh, University of Botswana presenting on Student Chronological Age & Grade Placement Congruence in the Compulsory Phase of Education in Botswana

STUDENT CHRONOLOGICAL AGE AND GRADE PLACEMENT CONGRUENCE IN THE COMPULSORY PHASE OF EDUCATION IN BOTSWANA

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Abstract: In many developing countries, researchers and policy makers have downplayed issues of age in grade intentionally to avoid the pedagogical issues that over-age or under-age children in schools raise, and also to avoid putting extra pressure on government that is still working hard to achieve and maintain universal enrolment targets. However, age-in-grade incongruence cannot be ignored as it has implications for pedagogy and child development. The purpose of the study was to evaluate the degree of congruence between student-age and grade placement in the basic or compulsory education phase of the education system in Botswana. Contrast was made between grade placement practices at school and the Age-in-Grade placement policy. Using data from the 2011 Census, and adopting a survey research design, involving the entire population of 587,308 children still in basic education at school, the paper found high levels of incongruence between the actual grades in which students were in and their age appropriate grade level. Lesser than 30 percent of the 7-13 year old still at school in compulsory education was in their age appropriate grade; the population was either one or more grade levels ahead (or behind). Incongruence persisted across various demographic categories including citizenship, gender, and main language spoken at home which suggests the school system did not discriminate. None of the 28 Census Districts in the country had the majority of the population in the compulsory education phase in their expected grade level. There was gender variation in age-in-grade congruence. Compared to boys, more girls entered the compulsory education system early, with more boys entered school over-aged. Likewise, compared to non-citizens, more citizen centered compulsory education over-aged, or at the right time. The paper theorized that the age-in-grade incongruence is indicative of serious problems that adversely affect access, curriculum implementation, performance, and child development. The evidence suggests a flouting of the age-in-grade policy, and points to systemic problem such as drop out, repetition and re-enrolment which needs urgent attention. Various implications for curriculum implementation and grade placement policy design have been discussed.

Introduction

A rights-based approach to the provision of education has become the norm globally, since the World Declaration on Education for All (EFA) following the Jomtien World Conference in Thailand in 1990. The declaration solidifies basic or compulsory education as a human right, in line with Article 26 of the United Nation's Universal Declaration of Human Rights (UDHR, 1948). The UN now protects basic education as a fundamental right. In the World Declaration on EFA, access to basic education, and completion thereof, became an obligation of the States who signed the agreement. This prompted in many countries globally the amassing of the eligible population into school, often without much regard for age. In many developing countries, researchers and policy makers have downplayed issues of age in grade intentionally to avoid putting extra pressure on the government that is still working hard to achieve and maintain universal enrolment targets. Other relevant agencies ignored the problem to avoid implicating themselves in the pedagogical issues that over-age or under-age children in schools raise.

In Botswana, gross and net enrolment rates are used to measure the overage and underage enrolment in the education system. However, gross and net enrolment rates do not show age-in-grade information. The national Age-in-Grade placement policy specifies that the grade in which a child is placed must correspond to particular age (STATS BRIEF CSO, 2013). This policy mandate is in response to the design of the official school curriculum which is based on single grade. In other words, as opposed to a multigrade curriculum, which is developed to facilitate students of different age groups in one class, the single grade curriculum is organized based on a tight fit between age and grade level, with the outcome being age segregation.

Age-in-grade incongruence has implications for both pedagogy and child development, and these cannot be ignored. In a school grade, children may be in one of three positions relative to their age: (a) appropriate age for the grade, (b) under-age for the grade, or (c) over-age for the grade. Over-age and under-age reflect age-in-grade inconsistency. Under-age for the grade suggests the child may have been grade accelerated whereas over-age suggests some form of deceleration. Grade acceleration is often a response to children's

levels of development, cognitive abilities, and social maturity (Dudeney, 2003). Grade acceleration is not a malpractice. Human development researchers specified three conditions under which learners may be accelerated: (a) cognitive –whereby the child demonstrates quicker and deeper level of mastery of materials; (b) emotional maturity – whereby the child demonstrates higher level of emotional maturity than peers; and (c) social maturity – whereby the child is more socially capable (Rauenbusch, 2013). To the extent that grade acceleration prevails in the Botswana education system, the rationale for the practice can be compared with these reasons.

On the other hand, motives for grade deceleration are viewed differently. Often it is due to curriculum challenges or deliberate family decision. For example, in other parts of Africa, as elsewhere in the world, it is not uncommon to find cases whereby families 'hold back' their children, especially girls. In general, there are two ways in which the issue of over-age children in the classroom occurs. One is through initial over-age enrolment; the other is through repetition or retention in the same grade (Hossain, 2010). Over-age enrolment is a complex issue and involves people's perception of schooling, the age and the physical size of the children; the problem is usually compounded by a lack of birth registration documents. A lack of awareness of the importance of sending their children to school at the right age contributes to over-age in class (Ghuman, 2006). The reasons for late enrolment often stem from pervasive illiteracy and poverty. Only a few parents recognise the stage and pace of child development and their implications on children's education. Health and nutrition sometimes play important roles in children's delayed enrolment and school performance (Ghuman, 2006; Alderman et al, 2001). However, the consequences of late compulsory school enrolment are clear and studies show that a two-years' late primary school enrolment, on average, costs individuals a substantial 6% of their lifetime income (Glewwe & Jacoby, 1995).

The purpose of the study was to evaluate the degree of conformance to the Age-in-Grade placement policy being used in Botswana and in so doing determine the extent of overage and/or underage enrolment in the education system. Based on this, it assessed implications for curriculum implementation and related issues. The assumption was that without careful implementation and monitoring, the policy provision would be flouted. This study contributes to the broader literature on government policies that can influence school curriculum implementation. It also contributes to the wider literature on child development, educational attainment, and hence future labour market outcomes such as income since early entry to the labour market allows for extended contribution to GDP (STATS BRIEF CSO, 2013).

The remainder of the paper is structured as follows; it begins with an overview, looking at key concepts including the compulsory grade, the grade placement policy, and the consequences of mismatch between age and grade. This discussion leads into the critical questions posed for investigation, and the methodology applied. The last section presents the results and implications.

Compulsory or basic education at School

Formal education in Botswana is divided into three distinct levels: primary, junior (lower) secondary and senior (upper) secondary school. The current structure of the education system is "7+3+2", which comprises 7-years of Primary, and 3-years of Junior Secondary (JC), and 2-years of Senior Secondary. Compulsory education refers to the first 10 years of formal schooling, which is also regarded as basic education. This equates to the age-range: 6 years to 15 years. Basic education then is compulsory, thereby being an automatic requirement of all the eligible population. These open up particular implications for parents and the State. As a compulsory provision, parents can be held accountable for their children's nonattendance. The government is obliged to make this level of education accessible to all.

The definition of basic or compulsory education in Botswana is framed within a narrow view, compared to the expanded definition in the World Declaration on EFA. The EFA offers an expanded definition of basic education, which includes early childhood development education (UNESCO 2012). Unlike elsewhere in the world, currently, pre-school education in Botswana, i.e., early stimulation and baby care, play school or day care/nursery and pre-primary or reception education – does not form part of the basic or compulsory education provided by the State. But pre-school education is being provided by private schools and it is not compulsory. While there are plans to make pre-school compulsory (NRDE, 2008), for the purposes of this analysis, pre-school level has been excluded as it falls outside the remit of basic education as defined in the country. Effective access to compulsory education is essential (Katz, 2000) but mitigating obstacles (e.g., ability, age) limiting effective access is a challenge.

Age-grade placement and the school curriculum

Across the school system in Botswana, as elsewhere in the world, the formal school curriculum is designed to align with children's chronological age and development. Proponents of the developmental approach

to curriculum design agree that chronological age is the starting point for curriculum design. The reason is that the formal curriculum must be structured around a child's readiness for learning which is estimated by age (Vygotsky, 2001).

Chronological age is a proxy for a child's development level in the various development domains: cognitive, social, physical, motor and emotional (Vygotsky, 2001). Consequently, age determines the scope, nature and significance of the learning prescribed in a curriculum. Mismatch between children's age and the grade in which they are placed often impinges on their optimal development across age-groups. For example, during the primary grades, curriculum planning is driven by the need to help children develop conceptual understanding that can apply across related subject discipline. But during the Junior Certificate (JC) school grades, curriculum planning attempts to help teenagers develop proficiency in learnt concept application. The curriculum materials and teaching methods target an appropriate age level. This means the curriculum for each grade level across the school system is designed to be at a level of difficulty appropriate to the anticipated chronological age. The knowledge, understanding and skills acquired at each preceding grade level form the foundation for learning at the next level (Dudeney, 2003).

Age-in-grade incongruence leads to negative outcomes. There is a lot of literature in relation to the negative effects of grade accelerated placement (i.e., under-age in grade). Conger (2012) found for instance that when some children are placed ahead of their age appropriate grade, they missed out on having aspects of their unique learning needs addressed in an orderly manner that acknowledges their maturity and development level. Furthermore, Rauenbusch (2013) found and further emphasized that accelerated academic learning in the compulsory education phase sometimes force the learner to rely on lower level processes such as memorisation instead of developing higher level cognitive strategies such as analysis, synthesis or problem solving skills. These situations in turn affect mastery of future learning. More importantly, grade acceleration means that the child is placed in a class with other children who are older (Brown, 2009; 2010). Thus grade acceleration forces children to compare their reasoning abilities and products to that of older students. Such comparisons have shown to impact negatively on the younger learner's self-esteem and learning motivation (Conger, 2012; Rauenbusch, 2013; Gagne, 2004). Grade acceleration may be a practice in the Botswana education system, which needs to be quantified and monitored.

There is also a lot of literature in relation to the negative effects of grade decelerated placement (i.e., over-age in grade). Children in grade behind their age appropriate grade levels are mature and older than their classmates. This reality creates a lot of challenges for the delivery of education. For these learners, they experience learning materials which are unchallenging; the materials they experience are below what Vygotsky calls the 'zone of proximal development' (Vygotsky, 2001).

Simply by virtue of having lived longer, older children are more matured and have had more exposure to information than younger ones, which puts the older ones at an advantage in the classroom. The behaviour of older children in the classroom has shown to affect teachers' evaluations of their performance and abilities (relative to their younger peers) (Elder & Lubotsky, 2007; Bedard & Dhuey, 2006; Datar, 2006). Brown (2010) found that in multigrade classes in South Africa, teachers verbally abuse older children who struggle to master curriculum concepts which are appropriate for the age of their younger classmates.

Older children tend however to perform better than younger one in the same class, and this have shown also to affect how teachers evaluate the younger children. In the first grade of primary school, the relative immaturity of the youngest children within their age cohort may disadvantage them because they are less able to perform the same tasks. There is an issue of ability and maturity and if it confuses the teachers, the less mature younger children may be identified wrongly as low ability and low performing children. Strom (2004, in Spietsma, 2008) shows that the effect of being the oldest children in the cohort is generally estimated to yield between 10 and 27 percent standard deviation higher on test scores than the youngest children. This experience may give the wrong information to the teachers, and the learners themselves, to parents and community to favour late enrolment, when children are older.

Multi-age grade: One of the principal reasons for a strict emphasis on grade to chronological age congruence is to limit the proliferation of what Brown (2009) called multi-age (multigrade) class in the school system. Multi-age teaching, whereby a teacher accommodates and instructs students of different age ranges in one class – raises policy questions because the school system is designed based on singlegrade teaching principles. Both grade acceleration and deceleration contribute to a multi-age class structure. However, multigrade teaching is not an official policy in the country. While there are benefits (Brown, 2009; 2010), previous studies have illustrated that, without careful planning and preparation, the formation of multigrade class arrangement can lead to poor quality of education because teachers' professional training focused only on single grade instruction.

Age-Grade placement policy and issues

The Age-Grade placement policy in Botswana provides that children's official age of entry at Grade 1 (Standard 1) in primary school is 6 years, and it is expected that they will be promoted to Grade 2 (Standard 2) in the next year at the age of 7 and in the next year to Grade 3 (Standard 3) at the age of 8 and so on. This implies that if the child at age 6 years progresses uninterrupted through the primary school levels, he/she should enter JC School (i.e., Form 3) by age 13 years.

However, for various reasons, the expected entry, progression, and exit of children through the school system is not always straightforward. For example, school officials and educators must undertake age calculation each school year to determine whether or not a child reaches the appropriate age to begin basic education. But birth registration details are sometimes unavailable. Calculating the age is itself a challenge. Since a child may only enter Grade 1 (Standard 1) at the start of the school year following his/her sixth birthday, those children born after the cut-off month for admission (end of December for January) must be isolated and excluded. Consider two children who need to enter Grade 1: Student A has a December birthday and will turn 6 years before 1st January, whereas student B has an April birthday and will still be 5 years on 1st January. According to the age-in-grade policy, student A should be placed in Grade 1 (Standard 1), while student B should continue pre-primary schooling, regardless of other attributes. Since the government admits in the 2008 National Report on the Development of Education (NRDE, 2008:18) to applying "a flexible policy on admission", leniency and systematic inefficiencies may cause both students to begin Grade 1.

Furthermore, unlike in private schools in Botswana, principals and teachers in public schools are indirectly involved in student admission. Selection and admission are done elsewhere by school representatives (e.g., Head of Houses) and bureaucrats, who often are unprepared to assess unique abilities and developmental needs of children. The Gifted child versus the slow learner for example are not always disaggregated and tested prior to placement. Cohort of children who enters school may have differential abilities and needs, such as differential cognitive skills, emotional maturity and social skills (Rogers, 2002; Gross & Sleap, 2000). It is quite possible that upon entry, there are children with atypical needs, such as children being gifted, which are different from the typical student population. Currently, and by and large, admission criteria do not go beyond age and self-reported disability. Thus, although compulsory or basic education is a fundamental human right, there is very little literature and research in Botswana which explores the issue of age-in-grade congruence, or lack thereof, and consequences across the entire population.

The age-grade policy itself is restrictive. The provisions emphasised appropriate age-grade placement. There is no provision for grade acceleration or deceleration, or response to these practices. The absence of provisions on these means there are no guidelines regulating practice. Yet both grade acceleration and deceleration can impinge negatively on the child. The central issues raised above have given rise to the following research questions, and aim:

What is the degree of congruence between student chronological age and the grade in which they are placed in the compulsory phase?

What is the relationship between student age-in-grade, and selected demographic factors such as gender; citizenship; district location, and household head?

What are the policy implications of this evidence for curriculum implementation and grade placement policy design and implementation at school?

Methods and summary statistics

To respond to the research questions, the study adopted a quantitative tradition and was descriptive in nature. Furthermore, the dataset used was the 2011 national census, which was a full census of the Botswana population. For this reason, the study design was survey. The census covered the entire population of approximately 2,024,904 but the cohort of those still at school was 587,308. The survey was restricted to the group still at school to measure the trends among this group and to avoid confounding with other sub-variables such as never attended or left school.

The population census dataset contained information on individual current age (and hence year of birth). In the presence of a binding rule on the age to enter school, this was determined to be sufficient to determine the appropriate grade of the 'still at school' cohort. We assumed that all individuals enter school at the modal age of entry, as in for example Angrist and Lavy (1997).

The population census dataset also contained information on school attendance; gender; citizenship; main language spoken at home; and their educational attainment, i.e., the highest Grade completed. This meant the Grade in which the cohort was in at the time of the census was not incorporated in the analysis since it was an incomplete school year. Among the cohort of those who were still at school, Grade completed referred to the Grade finished in the previous year. Thus, the dataset was used to assign birth cohort as well as the anticipated / expected Grade level of the population at school. A student who was 6-years old on the day of the census was assumed to be in Grade 1. But it was possible that a small percent of those born after the cut-off month (i.e., August) of the day of the census was included in this list – though they may not have reached primary school age; these students would still be in pre-school. However, this deviation was counterbalanced by those 5-years old who were in Grade 1 at the time of the census instead of pre-school.

Data was collected through the national census questionnaire. This is a standardised questionnaire which has been repeated, validated and improved upon since 1966. The instrument was developed by the CSO, which is responsible for the administration of the national census. The main procedure used in the analysis was descriptive statistics. There was no need to apply inferential procedures because the entire population was used in the study. Table 1 shows the school attendance pattern. Not surprisingly, the majority (56.8%) of the population aged 20 years or above. This cohort falls outside the compulsory school phase. However, in 2011, about 1 918 765 people reported to be aged 2 years or over; each one of these was considered eligible for school attendance. There is a slight increase in 2011 over 2001 in the population aged 2 years or over (1 918 765 currently compared to 1,601,885 in 2001).

The population still at school in the compulsory phase lies between age 5 and 16 years, as shown in the single age distribution in Table 1. There were between 45262 and 46723 children, in each of the 2 to 5 year old age categories eligible for pre-school. Nationally, 101 197 of the 2 024 904 population was not eligible for pre-school – their age being under 2 years old in 2011. Overall, the number of children of eligible pre-school education age (i.e., 0-5) increased slightly, compared to the 2001 census – which indicates a growing demand for pre-school attendance.

Findings

The chronological age distribution is shown in Table 1.

Table 1: Distribution of Single age in the population, 2011

Single age range	Frequency	Percent	Valid Percent
2 Years	45262	2.2	2.4
3 Years	45388	2.2	2.4
4 Years	45518	2.2	2.4
5 Years	46723	2.3	2.4
6 Years	43227	2.1	2.3
7 Years	43123	2.1	2.2
8 Years	41754	2.1	2.2
9 Years	40319	2	2.1
10 Years	42765	2.1	2.2
11 Years	44599	2.2	2.3
12 Years	39875	2	2.1
13 Years	40315	2	2.1
14 Years	39760	2	2.1
15 Years	42882	2.1	2.2
16 Years	43138	2.1	2.2
17 Years	42450	2.1	2.2
18 Years	40729	2	2.1
19 Years	41529	2.1	2.2
20+	1 149 409	56.8	59.9
Total	1 918 765	94.8	100
Under 2 years	101 197	5	
System (Missing)	4942	0.2	
Total	106139	5.2	
Total	2024904	100	

The Age-Grade policy specifies that students in the first Grade of primary school must reach age 6, and students in the first Form of JC School must reach age 13. Table 1 shows the number of individuals in the age range 6 to 13 who reached the eligible age to attend school in the compulsory phase. During the current 2011, approximately 40 000 individuals in each single-age band reached the compulsory school attendance age (Table 1). Consistent with the 2001 census, girls made up the majority (52.1%) of the gender in each of the age band within the compulsory school age range.

Table 2 shows the school attendance trends among the different age groups of the population. Three categories of school attendance were analysed: those still at school, those who have left school, and those who never attended school. The proportion of those who are still at school and/or have left school gives an indication of the literacy rate nationwide

Table 2: School attendance profile of population

No.	School attendance	Frequency	Percent	Valid Percent
1	Still at school	587308	29	30.6
2	Left school	979361	48.4	51.1
3	Never attended	351265	17.3	18.3
	Total	1917934	94.7	100.0
	Too young to be at school	105431	5.2	
	Others	1539	0.1	
	Total	106970	5.3	
	Total	2024904	100.0	

The analysis indicates that less than a quarter (17.3%) of the population had never attended school; 29 % were still attending school; and about one half (48.4%) had left school; much less (5.2%) was too young to be at school. This finding was a slight contrast to the 2001 census, where a quarter of the population (24.7%) had never attended school, 30% were still attending school and 45% had left school. The percent of the population that had never attended school in Botswana has decreased by over 7% since the previous census, and the decreasing trend has been consistent since 1981. The decline in the number of people who never participated in the formal school system is a good sign because it further points to decreasing trend in illiteracy rate.

Whereas the proportion of individuals still at school in the current census (29%) was more or less the same as the number (30%) reported during the 2001 census, the proportion of those who have left school increased by 3.4% in the current census period, compared to the last census. The circumstance for leaving school, and the point where a person may have exited school, was not specified in the census data. In the previous census in 2001, for example, it was reported that most of the children aged 15-19 who were not attending school, actually quitted or left school permanently. Furthermore, reasons for leaving school may be multifaceted, including positive reasons such as successful completion of a level, but it could also be a result of negative reasons such as health and related personal problems, psychosocial constraints, and systemic inefficiencies such as drop out, and multiple repetition of Grade. Overall, school attendance increased over the last 10 years to 2011.

Student chronological age and Grade levels analysis

One of the challenges of education systems globally is maintaining age in grade coherence as student progress through the education system. An efficient education system is one in which there is a close match between student chronological age and their grade level. In Botswana, the Age-Grade policy propagated by the Government to guide student placement at school is recognition of the significance of age-grade coherency in the school system, especially during the primary to the JC level where child cognitive and related development is most vulnerable. We analysed the chronological age of the population still at school in Grades in the Compulsory Phase, and determine the level of conformance to the Age-Grade Policy.

The Age-Grade Policy stipulates that a child should reach age 6 years to qualify to enter Standard 1, and should progress each year to the next Grade level. Thus, by the start of Form 1, JC, the child should be 13 years. This logic was used to assess the number of students in the population who fall within the expected grade completed based on their chronological age. Table 3 shows the comparison.

Table 3: Distribution of School Grade expected to have completed based on chronological age at last birthday

School phases	Expected school grade completed	Frequency	Percent	Valid Percent
Pre-primary	Pre-primary	43227	2.1	2.5
	Standard 1	43123	2.1	2.5
	Standard 2	41754	2.1	2.4
	Standard 3	40319	2	2.3
Primary	Standard 4	42765	2.1	2.5
	Standard 5	44599	2.2	2.6
	Standard 6	39875	2	2.3
	Standard 7	40315	2	2.3
Junior Secondary (JC)	Form 1	39760	2	2.3
	Form 2	42882	2.1	2.5
	Form 3	43138	2.1	2.5
Beyond JC	Completed at least form 4 or equivalent	1274117	62.9	73.4
	Total	1735874	85.7	100.0
	Too young or in pre-school	289030	14.3	
	Total	2024904	100.0	

At the time of the Census in 2011, approximately 43,227 (2.1%) of the 2 024 904 population should have completed pre-school. In the compulsory school phase, 43,123 of the 2 024 904 population should have completed Standard one; 41,754 should have completed Standard two; 40,319 should have completed Standard three; and 42,765 should have completed Standard four. About the same number (44,599) should have completed Standard five; but slightly less (39,875) should have completed Standard six. However, 40,315 should have completed Standard seven. The number of students who should have accessed the different Grade levels in the compulsory primary school phase increased, compared to the 2001 census figures which may be a result of growth in this age cohort of the population (...) and expansion in primary school infrastructure since 2001.

The compulsory JC School phase also shows an upward trend in physical access, compared to 2001. In the current census, 39,760 of the 2 024 904 population should have completed Form one; 42,882 should have completed Form two and 43,138 should have completed Form three. The majority (62.9%) of the population completed at least Form 4 or equivalent.

The population who should have completed a grade level however may or may not actually complete the level. To test whether the population still at school was in their age-appropriate grade, we performed crosstab analysis, based on age at the last birthday. There is inconsistency between the number of students who should have completed a grade level and the actual number who completed (Table 4).

Table 4: Expected school grade completed based on chronological age and current school attendance

School phases	Expected school grade completed	Ever attended school							
		Still at school		Left school		Never attended		Total	
		Count	Percent	Count	Percent	Count	Percent	Count	Percent
Pre-primary	Pre-primary	27176	63	574	1.3	15400	35.7	43150	100.0
Primary	Standard 1	39311	91.2	799	1.9	2976	6.9	43086	100.0
	Standard 2	39395	94.4	947	2.3	1379	3.3	41721	100.0
	Standard 3	38494	95.6	998	2.5	793	2	40285	100.0
	Standard 4	40802	95.5	1127	2.6	798	1.9	42727	100.0
	Standard 5	42647	95.7	1272	2.9	649	1.5	44568	100.0
	Standard 6	38781	97.3	715	1.8	363	0.9	39859	100.0
	Standard 7	39050	96.9	930	2.3	308	0.8	40288	100.0
Junior secondary	Form 1	38172	96.1	1211	3	353	0.9	39736	100.0
	Form 2	40159	93.7	2177	5.1	518	1.2	42854	100.0
	Form 3	38350	89	4151	9.6	613	1.4	43114	100.0
	Completed at least Form 4 or equivalent	133864	10.5	960547	75.6	175751	13.8	1270162	100.0
	Total	556201	32.1	975448	56.3	199901	11.5	1731550	100.0

Table 4 shows that 27,176 (63%) of the 43,150 students who were expected to have completed pre-school were still attending school while 35.7% are yet to start attending and 1.3% are reported to have left school. Likewise, 39,311 of the 43,086 students who were expected to have completed Standard 1 were still attending school, while 799 are reported to have left that Standard. The percentages for other age groups who were expected to complete but are still in the compulsory school phase ranged from 89.0% to 97.3%. However, the percentages drop drastically to 10.5% for those who were expected to have completed form 4 or equivalent grade but were still attending school. The drastic percentage change at the transition point between Form 3 (i.e., end of the compulsory stage of schooling) and the start of senior secondary school (non-compulsory) may need further indepth evaluation. At face value, it implies that there may be a high dropout and/or repletion rate at the end of Form 3 because the number of students that lagged at Form 3 did not transit into Form 4. In other words, there is evidence of a relatively low student transition from JC to senior secondary school.

The evidence in Table 4 confirmed the presence of late starters in the school system throughout the compulsory phase. The presence of late starters in the lower phase of the education system was also reported in the previous census in 2001. At the time, it was pointed out for example that while some 10 year olds were preparing to graduate from primary school, others were just starting the 7 year education journey (Forcheh, 2001). Forcheh (2001) also reported in the 2001 census analysis that 90 percent of children aged 5-9 years were attending standard one, two or three; and some children within the age group 10-14 were still in standard one. Thus, the present analysis of the 2011 census data highlights that the problems of late/early start of students in the system in the compulsory phase has not been corrected, 10 years after it was initially reported.

The magnitude of the population ahead or behind in the compulsory school phase

It is evident from the previous section that inconsistency between student chronological age and grade placement prevail. Further analysis was performed to determine the magnitude of the incongruence; i.e., the number of grade levels behind or the number of grade levels ahead the population still at school were in. This kind of treatment was being appliedto the data for the first time.

Across the compulsory school phase, a population of 556 200 students were eligible to attend school. The actual Grade that the studentswere in at school was compared with their actual chronological age at the time of the census (Table 5). For those who have left school, incongruence indicates that it may be due primarily to their not continuing schooling after a certain grade. For example, the assumption is that all children should complete Form 3. Those that drop out after Standard 7, and based on their current age, should have completed Form 4 would have a congruent value of 4. Likewise, a student who started primary school at age 5 will have congruent value of -2, indicating that they have accelerated grade. This could result from early completion of reception class.

Table 5:Age-Grade congruency among students still in the compulsory phase of school

Grade-Age Congruency	School attendance profile					
	Still at school		Left school		Total	
	Count	Percent	Count	Percent	Count	Percent
2 Grades ahead	31768	97.1	944	2.9	32712	100.0
1 Grade ahead	260552	39.0	406766	61.0	667318	100.0
At expected grade	162791	44.7	201525	55.3	364316	100.0
1 Grade behind	64160	37.9	104913	62.1	169073	100.0
2 Grades behind	21102	61.7	13097	38.3	34199	100.0
3 Grades or more behind	15827	6.0	248198	94.0	264025	100.0
Total	556200	36.3	975443	63.7	1531643	100.0

Grades ahead

The results shows that 97.1% of the students eligible to be at school were 2 Grade levels ahead of their chronological age appropriate grade. Likewise, 260,552 of the 667,318 (39%) of the students eligible to be at school was 1 Grade level ahead of their age appropriate grade. For all of these students who are ahead of their age appropriate grade level, there was a clear accelerated start to their schooling. However, accelerated grade placement is not a policy position of the government. It is not a provision in the current Age-Grade Policy.The evidence thus points to an issue in practice that may need serious and immediate regularisation through national policy.

However, many of the students who were eligible to be in the compulsory phase of school were in their expected grade. Forty-four percent (44.7%) of the 364,316 eligible student population were in their appropriate grade levels. These cases are in conformance with the Age-Grade Policy mechanism.

Grades behind

But there were many late starters in the still at school population. Whereas more than one third (37.9%) of the 169 073 eligible to be at school were one Grade level behind their age appropriate grade, about two thirds were two or more grades behind. The fact that students were behind their age appropriate grade implies there is still a serious challenge of education access among certain demographic variables such as community groups, location, ethnic enclaves, or among certain gender in the society. There are a myriad of reasons why children may access school later than their peers, such as childrearing patterns, and the values held of early childhood education among parents and in the wider society. Whatever the case, late start of schooling affects the age at which children exit the formal education system. Late starters are likely to join the labour market at a much later stage than their counterparts, and they consequently have a short time span to contribute to the productive sectors of economy. These consequences must be carefully balanced as discussion about normalizing the age-grade placement situation in the compulsory phase at school develops.

But education access goes beyond the mere physical access, to include access of the actual learning contents. In other words, inability to access and understand the teaching material itself may account for lags in grade progression due to curriculum problems such as grade repetition.

Trends in Age-Grade congruency for students of different demographic characteristics

Further analysis was performed to understand how the Age-Grade incongruence relates to particular demographic factors. Four key demographic factors were compared: gender, main language spoken at home groups, citizenship and census districts. The trends are shown in Table 6 and 7, respectively.

Table 6: Age- Gradeplacement congruence by selected demographic factors

		2 Grades ahead	1 Grade ahead	Expected grade	1 Grade behind	2 Grades behind	3 Grades or more behind	Total			
	Demographic factor	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Gender	Boys	12728	4.6	118803	43	84557	30.6	37647	13.6	13029	4.7
	Girls	19040	6.8	141749	50.6	78234	27.9	26513	9.5	8073	2.9
	Total	31768	5.7	260552	46.8	162791	29.3	64160	11.5	21102	3.8
	Setswana	25354	5.7	209981	47.6	128879	29.2	49628	11.2	15814	3.6
Language	English	1607	11.6	9189	66.1	2317	16.7	481	3.5	113	0.8
	Sekalanga	2268	5.3	19721	45.8	13287	30.9	5204	12.1	1539	3.6
	Other Botswana language	1274	3.4	12306	32.8	12460	33.2	6459	17.2	2798	7.5
	Other Language	1265	6.2	9355	46.0	5848	28.7	2388	11.7	838	4.1
Citizenship	Total	31768	5.7	260552	46.8	162791	29.3	64160	11.5	21102	3.8
	Non-Citizen	1660	11.5	8488	58.7	2911	20.1	787	5.4	279	1.9
	Citizen	30108	5.6	252064	46.5	159880	29.5	63373	11.7	20823	3.8
	Total	31768	5.7	260552	46.8	162791	29.3	64160	11.5	21102	3.8

Citizenship and Age-Grade congruency

Age-Grade placement at the compulsory phase of school differed significantly by citizenship. Non-citizens, compared to citizens were far more likely to be one (non-citizen = 58.7%; citizen = 46.5%) or two (non-citizen = 11.5%; citizen = 5.6%) grade levels ahead in the school system. There were about 3 non-citizens to every 2 citizens in the population of those who were one grade level ahead in the compulsory education phase at school. Likewise, in the population of those who were two grade levels ahead, there were about 2 non-citizens to every citizen. In fact lesser non-citizens, compared to citizens, were at their expected age appropriate grade level (Table 6) because most of them had moved ahead of the grade level. More citizens, than non-citizens, were one or two grade levels behind.

There is no obvious explanation for the difference in Age-Grade placement by citizenship. However, accelerated grade position is a reflection of early entry to the education system, which may be a result of several other factors like being gifted, or more matured (cognitive; emotional; social).

Gender and Age-Grade congruency

Age-Grade placement at the compulsory phase of school differed slightly by gender. More girls (57%), compared to boys (approx 47%), were one or two Grade levels ahead of their age appropriate grade. In contrast, much more boys (21.6%), compared to girls (14.8%), were one or more grade level behind their expected age appropriate Grade level. However, about the same proportion of boys (30.6%) as girls (27.9%) were at their expected age appropriate Grade level (Table 6).

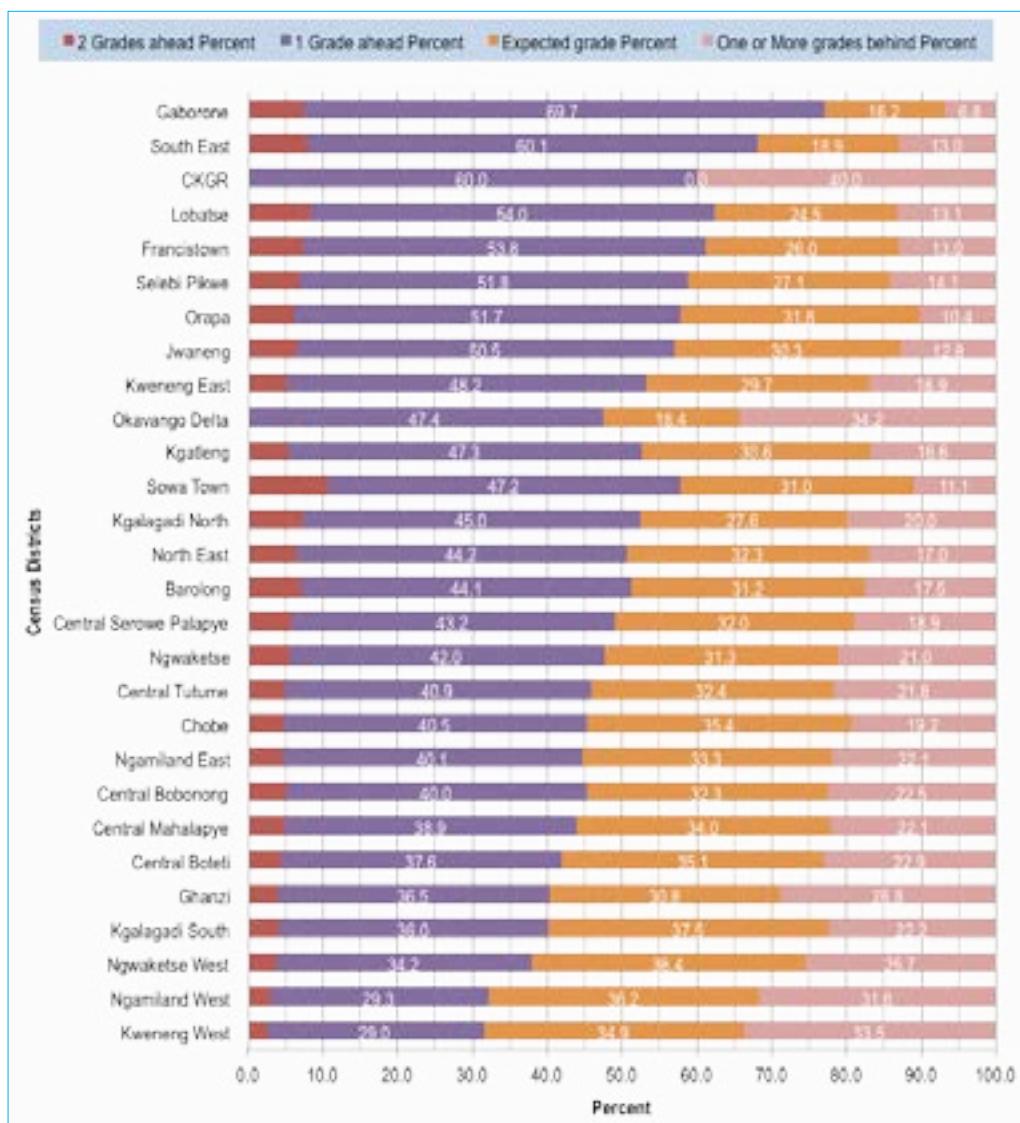
Language and Age-Grade congruency

Age-Grade placement at the compulsory phase of school also differed slightly by main language spoken at home. Just 6.2% of those whose main home language is English are behind their expected grade, while 77.7% of them are one or two grade ahead of their expected grade (Table 6). For those whose main language spoken at home is Setswana, 17.4% are behind their expected grade. The situation is essentially the same for Sekalanga, where 18.1% are one or more grades behind their expected grade. For other Botswana languages and other languages outside those used in Botswana, the majority of students were either at their expected Grade or one Grade ahead. The result implies then that those students who master the language of instruction can accelerate even at this basic level.

District and Age-Grade congruency

District analysis was further undertaken to determine the areas in the country most affected by incidence of age-grade incongruence: i.e., incidence of accelerated grade placement, expected grade placement, or slow grade progression. Twenty eight (28) census districts were compared; results shown in Figure 1.

Figure 1: Age- Grade congruency of population still at school by district



Students in grade ahead by Districts

All 28 districts had students who were ahead of their age appropriate grade level in the compulsory education phase (Figure 1). This confirmed that the age-grade incongruence is not a situation unique to particular communities but rather is a national occurrence, which may require a national strategy if the concern is to be appropriately addressed.

While there were students in grade levels ahead in each of the districts, the proportion differed. Gaborone district had the largest (77%) concentration of students who were one or more grade levels ahead of their age appropriate grade. This was followed by the South East (68.1%) and the CKGR (60%). The high concentration of students in grade levels ahead within the South East may be unsurprising because this constituency surrounds Gaborone, and bears more or less similar school and family characteristics as found in Gaborone. However, the emergence of the CKGR as an area with high incidence of grade acceleration is surprising because popular belief and media created perceptions suggested otherwise, i.e., that the Bakgalagadi and other minority groups (e.g. Bushmen) within the CKGR communities have limited access to school, or for various reasons (e.g. tendency to opt for early socialisation into the hunting and gathering lifestyle), access school late. The Government's decision to establish comprehensive schools (Primary to Secondary level) in the CKGR may have contributed to the current situation.

In addition, it is worth noting that while there is grade acceleration in the compulsory education school phase in the CKGR, it does not appear, at face value, to culminate into high incidence of student failure and frustration. In the 2011 census, the CKGR emerged as a district with relatively high (76.5%) primary to JC School transition rate. This rate has trended upwards across all the education policy periods since 1966 (Early Independence [1966-1977], NPE [1977-1995], RNPE [1996- To present] and Vision 2016) (see Forcheh & Brown, 2013).

Both the South East and CKGR had higher number of students who were one or two grade levels ahead of their age appropriate grade, than students who lived in major towns and mining communities such as Lobatse (62.4%), Francistown (61.1%), Selebi Pikwe (58.8%), Orapa (57.9%), and Jwaneng (57%). Due to the high volume of commerce, these towns and mining districts are generally densely populated with working class families and noncitizens, who are generally been able to expose their children much earlier than others to the education system – especially that the policy on strict age-grade placement appears relaxed. In general, 15 of the 28 districts had 50% or more of the students still at school in the compulsory education phase one or more grade level ahead. This includes districts such as Barolong (51.3%) and the North East (50.7%). Each of these communities has a relatively different socioeconomic and citizen / noncitizen profile.

Students in Expected Grades by Districts

None of the Districts had a case whereby the majority of the population still at school in the compulsory education phase was in the expected grade level. In the 28 Districts, the percent of the population in their expected age appropriate grade level ranged from 0% in the CKGR to 37.5% in Kgalagadi South. This evidence highlights the extent of the Age-Grade policy non-conformance nationwide.

Students in Grades behind by Districts

As Figure 1 indicates, the CKGR has the highest (40%) incidence of students being one or more grades behind their age appropriate grade levels while still at school. This evidence confirms the grade placement dilemma being experienced by teachers in the compulsory education grade levels at schools in the CKGR, where the extremes of either being ahead or being behind in the grades, prevailed as the norm. In fact, the percent of the population behind their expected age appropriate grade level ranged from 6.8% in Gaborone to 40% in the CKGR. Across the Districts, the percent range (6.8% to 40%) of the population behind in their grade level is larger than the percent range (0% to 37.5%) of the population who was at their appropriate (or expected) grade level. The evidence thus suggests that in the compulsory school period age-in-grade is grossly abnormal. Gross mismatch prevailed between the officially designated age for entry to and completion of primary education and the actual age of participation of children at this basic level of education.

Discussion, Conclusions and Policy implications of the Age-Grade congruence

The study investigated the age-in-grade congruence among the population still at school in the compulsory phase of education in Botswana, using the 2011 national census dataset. The purpose was to measure and understand the overage and underage enrolment trends in the education system. By so doing, the extent of the conformance with the age-grade policy was evaluated.

The study has offered the opportunity to explore the nature and magnitude of the age-grade mismatch and how it has affected effective participation of children in compulsory schooling. Over 70 percent of the children of 6-15 years enrolled in primary and junior secondary schools were found to be "age-in-grade incongruent." They came from different census districts across the entire country, spoke different languages as their main medium of communication at home, and were of different citizenship and gender. Clearly, age-in-grade incongruence among the compulsory schooling population still at school was relatively high. The fact that only 30 percent of the compulsory education population (6-15 years) still at school was in their age appropriate grade, is indicative of serious problems in the school system.

The challenge of high age-in-grade incongruence

Incongruence did not differ much by gender, which suggests the system may not be discriminating. Approximately 69.4 percent of boys, and 72.1 percent of girls, enrolled in the compulsory schoolsystem in 2011 were age-in-grade incongruent (i.e., either ahead or behind in grade). The same is evident by main language spoken at home and by citizenship. The high incongruence is a result of multiple factors. One essential factor seems to be the way the age-in-grade policy on admission is applied; there seems to be flexible and lenient application of the policy. The high proportion of age-in-grade incongruence is not a surprising outcome. It has been shown repeatedly in the gap in gross and net enrolment ratestatistics in Botswana over the last decade or more (UNICEF, 2008; Botswana, 2010). Incongruence suggests students start school late or too early; it also suggests there are incidences of grade repetition, and dropout re-enrolment at school – all of which are serious systemic problems in the school system.

Categories of age-in-grade incongruence

As the study found, there were two categories of age-in-grade incongruence, which have different explanation. One is the high incidence of students being ahead of their age appropriate grade (i.e., grade acceleration). The other form of incongruence is the high incidence of students being behind their age appropriate grade (i.e. late enrolment).

Late enrolment: Sending children to school at the 'proper age' is a complex issue and is influenced by several factors. As been argued elsewhere, some children may be sent to school late due to parents' preferences (STATS BRIEF CSO, 2013) or expectation that older children do better at school (Hossain, 2010). Whether the children who start school late are among the top performers / achievers at school is an area that needs to be further investigated. Nevertheless, late enrolment often results from pervasive illiteracy and poverty. Ghuman (2006) and Alderman et al (2001) claimthese were the main sources of similar late enrolment problems in Ghana and in India (Hossain, 2010). Poverty and illiteracy may also account for the late enrolment problems among students in Botswana because the Education Report,which is based on the Core Welfare Indicators Survey 2010 conducted by the CSO,found a strong relationship between poverty incidence and school attendance (STAT BRIEF COS, 2013).

Pervasive illiteracy and poverty often result in parents being unaware of the importance of sending their children to school at the right age; and/or leads to health and nutrition related problems which mediate appropriate enrolment. Poverty incidence still remains high in Botswana. Between 25 and 30 percent of the population live below the official poverty datum line in 2010 – majority of whomlived in rural and deep rural areas (Boyske, 2012). We have seen in this study that the highest concentration of the children who were behind their age appropriategrade levels lived in rural and deep rural communities such as the CKGR, Ghanzi, Kweneng West, Ngamiland West, Okavango Delta, and so on. This could be that children in these communities entered school late. It could also be that they dropped out and later returned, or were repeating grades. The communities mentioned above are among those with the highest dropout rates in Botswana (CSO, 2010/11). In the 2010 CSO First Term School Census primary and secondary schools report (CSO, 2010/11),it was noted that the Western Region of the country had the most primary school dropouts (25.6%), followed by South Central (20.8%), and Central South (20.7%).

Early enrolment: Grade acceleration was observed in this study but the reasons are unclear. Grade acceleration is an indication that the child entered the school system early, or he/she had skipped grades. Although grade acceleration practices need to be informed by child development data, in many compulsory schools, the measurement of student cognitive and socio-emotional maturity level prior to acceleration is not a common practice, and there is no policy regulating or mandating the practice. Thus acts of grade acceleration are generally unsystematic which offers little comfort that the practice in the local primary and junior secondary schools is based on learning theory and child development criteria as referenced by Rauenbusch (2013) and Dudeney (2003).

Grade acceleration was evident across all the demographic characteristics measured – census districts, gender, citizenship, main language spoken at home, and age groups. We could not determine whether any socio-economic difference (e.g., income level) exist among the parents whose children were grade accelerated. But US and European studies (Ray, 2012; Peters & Gentry, 2009) have shown that wealthy parents are the more likely to send their children to school early (under-age) or push to have their children skip grades. There are several reasons why parents may want to accelerate their children: convenience (Ray, 2012); conjecture or factual evidence that the child is 'gifted' (Ray, 2012); through recognition of the labour market and socio-economic benefit of early exit from school (Peters & Gentry, 2009). There is in fact a historical precedent from the developed world for using grade acceleration to improve lifetime employment income attainment regardless of parents' motives, grade acceleration needs to be a considered decision by education practitioners. The fact that it is occurring at school makes a strong case that the age-in-grade policy, which does not make provision for grade acceleration, is being flouted.

Age-grade Policy flouting or is it leniency

Our work contributes to government policy literature by showing the extent of the age-in-grade congruence in the school system. The age-in-grade policy requirement of age 6 years as the age to start basic education bears little resemblance to what is taking place in practice. Thus, there is tension between policy and practice. Furthermore, it is not the first time that prevalence in under-age or over-age enrolment is being reported. In the 2001 census analysis, Forcheh (2001) drew attention to the situation, and the CSO reports on Education make reference to the problem each time that the net and gross enrolment rates are calculated. If the current practice of age in grade incongruence is the new norm that the education sector wishes to be institutionalised, which we hope is not the case, then there needs to be policy revision to reflect the situation. In other words, it would make more sense to harmonise policy and practice.

The best policy position would be to enforce age-in-grade congruence. The merits for age-in-grade congruence are much stronger than any benefits for age-in-grade incongruence, especially in a system where the majority of the students are outside their expected grade level. As the section below indicates, the stress of being outside one's age appropriate grade may nullify any gain in the long run. Clearly, decisions about children schooling are emotional as well as practical. Emotionally, parents want to send their children to school to get a good education (Peters et al, 2007). However, for practical reasons, like availability, affordability, social and cognitive benefits, it is ideal to have children enrolment at the 'proper age'. Few parents recognise the stage and pace of child development and their implications on children's education. Education officials therefore have an obligation to better monitor and regulate admission.

Gender and age-in-grade congruence

We found gender variations in age-in-grade congruence. Compared to boys, more girls entered the compulsory education system early. More boys entered school over-aged. This meant more boys were behind at school than girls. The early entry of girls may be related to girl faster maturity than boys at younger age (Miller, 2009). Those girls who were behind may be those who re-enrolled after pregnancy (Molosiwa & Moselwa, 2012) or those who were 'held back' at home (Hossain, 2010). The boys who were behind may be those who re-enrolled after a brief period of drop out (Baputaki, 2011), or those who have had to repeat grades (Baputaki, 2011). The gender situation is happening at a time when according to the 2013 CSO Education Report, more boys since 2010 have been enrolling in primary schools than girls. This is due mainly to the sex ratio at birth in Botswana where boys are more than girls (STATS BRIEF CSO, 2013). Thus, more girls than boys enter the compulsory school early.

For a patriarchal society, the finding that girls enter compulsory schooling earlier than boys is surprising. Socially constructed patriarchal patterns of thinking suggest there would be a preference to encourage boys' early education over girls. The early entry of girls and the late starting of boys indicate the comparatively disadvantageous position of boys in the basic education phase. For instance, socially, boys are pressured after a certain age due to earning norms, or norms related to providing for their parents. They are also pressured by marriage norms (Ghuman, 2006). These pressures often interfere with grade progression rate among boys (Hossain, 2010). Already, boys are quitting schools at a higher rate than girls. The 2009 First Term School Census Report indicated that more boys drop out of school than girls (CSO, 2010), with most drop out cases observed at Grade 1 (Standard One) and the least at Grade 7 (Standard Seven). Girls drop out tend to occur much later in the school phase resulting mainly from pregnancy (Molosiwa & Moselwa, 2012).

With social pressures, more boys face the risk and disadvantage of exclusion from compulsory education. Their risk is the risk of drop out, which according to Lewin (2007) who developed the CREATE model of zones of exclusion from basic education, falls within zone 3 or zone 5 of the model. CREATE model has six zones of exclusion, beginning with zone 0 which describes those children who had no pre-school. However, zone 1

describes those children, who for whatever reason, never attend primary school but zone 2 contains those children who are excluded from education due to drop out and failing to complete the cycle. Zone 3 includes students in school but at risk of drop out, most obviously as a result of systemic inefficiencies such as truancy, sporadic attendance, low ability, and being overage. Lewin (2007) points out however that zone 4 includes those students who fail to transit for whatever reason to lower secondary education; zone 5 includes those who drop out of lower secondary education; while the last zone, zone 6, describes those students at risk of drop out from lower secondary education (Lewin, 2007). A strong implication then is that those students particularly boys who re-enrol/repeat, and those who enter school overage are at risk of exclusion from compulsory education due to social integration or re-integration challenges as those who enter school underage. These children constitute the 'silently excluded' at school.

Curriculum and child development implications of age-in-grade incongruence

Curriculum implications: The current research demonstrates that age-in-grade incongruence was far more prevalent in the compulsory education stage of the school system than age-in-grade congruence. While scholars have theorized about the concept of age-in-grade (Ghuman, 2006), and have made references to the existence of the problem and its causes, in the school system in Botswana (Molosiwa & Moselwa, 2012; Forcheh, 2001), our study shows the number of grade level ahead or behind that a given number of grade incongruent students were located, and as a result, hints at specific curriculum challenges to anticipate. These insights are important for both theory and practice.

Our work makes an important contribution to the curriculum implementation literature by showing that the age variation in classrooms in the compulsory school phase in Botswana is not consistent with the official monograde classroom formation. Curriculum development researchers and theorists have specified that monograde classrooms are characterised by students of similar ages. Students are brought together in monograde situation on the basis that learners of similar ages need similar learning opportunities to acquire the knowledge and skills expected of children of their age. The fact that 70 percent of the compulsory grade population was outside their age appropriate grade means that these students receive and experience education in classrooms typically defined as multigrade contexts. These contexts include what are also characterised as multi-age class, multi-level, multiple classes, composite class, and vertical group (Little, 2006). They are sometimes referred to as double stream classes, split grade classes, or combination classes (Padmanabha & Rama, 2010). The common denominator of students learning in multigrade classroom context is that the learners fall into different age brackets. Pedagogy in the compulsory education phase of the school system in Botswana is approached from a monograde perspective yet the composition of majority of the classes is multigrade. In other words, multigrade classes exist, unofficially, in officially monograde context. A strong implication of this finding is that for 'monograde trained teachers' multigrade teaching related training, which is designed to prepare individuals to flexibly adapt the monograde curriculum, is needed.

On a related note, our research sheds light on a grade-composition practice which may not be benefiting students in primary and JC schools. One of the obvious outcomes of placing students with diverse age characteristics in a class is a wide range of student learning needs. For students to perform to their full potential in a class with diverse learning needs, their teachers must be adequately prepared by being exposed to appropriate multigrade teaching methodologies (Brown, 2009). Training teachers for multigrade teaching creates opportunities for improvement in teaching which can benefit both mono-age and multi-age class. Scholars of multi-age class teaching have illustrated in their work that for student to benefit from the school curriculum and succeed in their learning in multi-age grade context, the teaching must be underpinned by several prerequisites, including acknowledgement that the class is multi-age, careful organisation and adaptation of the curriculum, and teacher commitment (Brown, 2009; 2010; Benveniste & McEwan, 2000; Little, 2006). The absence of these prerequisites leads to negative outcomes for students and teachers. The current teacher education system in the country does not prepare teachers for multigrade or multi-age teaching, and the single grade curriculum taught is unadapted. The implication then is that the current multi-age grade composition practice may have a bearing on the prevalence of systemic inefficiencies (e.g. drop out, repetition, failure, truancy) in the compulsory school system. Researchers have offered many factors that underpin the current high level of systemic inefficiencies occurring in primary and JC schools, including pregnancy, substance abuse, physical violence, disinterest in schooling, and cognitive challenges (e.g. Molosiwa & Moselwa, 2012; Ramirez & Carpenter, 2008). However, multi-age grade composition has not been put forward as one. We are adding to this debate by arguing that the systemic inefficiencies at school may also be linked to the multi-age grade composition which increased demands on teachers needing to cater for a wide range of student learning needs, resulting from the age-in-grade incongruence.

In a third domain, our research has implications for gender access to the curriculum. According to recent Central Statistics Office report, more boys drop out of compulsory school than girls (STAT BRIEF COS, 2013). Our findings provide clues as to why more boys may have been quitting compulsory school much earlier than girls, despite being exposed to the same system. In our study, the majority of the students, who were one or

more grade level behind, were boys. This is indication that boys repeated grade levels, and/or re-enrolled after initially dropping out (Molosiwa & Moselwa, 2012). A significant alternative reason relates to late enrol (Baputaki, 2011). Thus, in terms of educational access, boys are in a disadvantage position as they face the risk of exclusion.

There are consequences of late enrolment. Research by Brown (2013a; 2013b) in South Africa found that overage boys in classes with younger mates experience social stress that results from anti-social behaviours such as teasing and negative social labelling. In multigrade classes in South Africa, teachers verbally abuse older children who struggle to master curriculum concepts meant for younger classmates (Brown, 2010). These pressures mediate boy's access to the school curriculum. Furthermore, while there is no way to verify in this study whether late enrollees are among the cohort of boys who dropout of school prematurely each year, overage enrolment increases the risk of premature quitting of school system due to frustration and perception of not achieving a level of attainment at a certain age. From a theoretical point of view, it would be interesting to gain a deeper understanding of the consequences of late enrolment for boys beyond social stress issues.

Policy Recommendations

The issue of age in grade incongruence needs to be regulated. Government should develop a robust policy to guide admission and grade acceleration practices in basic education. Birth registration policy should be followed and implemented properly in the rural and deep rural areas of the country. In the same vein, robust mechanisms to determine student readiness for grade acceleration and the monitoring of grade acceleration effects on student development and adjustment at school should be implemented.

Secondly, in order to achieve universal basic education, the number of under-age and over-age students at school needs to decline to free places for students in the official school age groups. Thus, the goal of achieving age-in-grade congruence in basic education should become top priority. The serious implications of overage and underage enrolment for pedagogy and curriculum make the matter even more urgent.

Thirdly, dealing with a wide range of age group children in the classroom is a pedagogical issue which should be given proper attention considering the multi-grade settings of the class. Multigrade/multiage teaching issues should be incorporated in teacher training and the teachers training modules. Teachers should use and be trained to use appropriate teaching methods and techniques to address the needs of a mixed age group of children.

The issue of 'silent exclusion', especially among boys, should be discussed among education stakeholders and particularly the relevant school authorities to let them understand the magnitude of the problem by measuring it with a simple measurement tool. It is important to have a common understanding of the characteristics of silently excluded children in primary and lower secondary schools to know how and when this process starts in the classroom, what the causes are and how it can be handled.

Fourthly, the school should prepare and preserve a profile of students for all grades separately including basic socioeconomic background of the learners and age. On the basis of the profile respective schools and designated teachers, responsible for a grade, should prepare the cohort analysis reports and teachers should be given opportunity to be involved in the research process and to take necessary actions.

Finally, for the intermediary or short term 'stop gap method', additional academic support for the silently excluded children should be provided by employing additional, local community teachers in low performing schools or by providing extra academic support to poor and silently excluded children by creating low cost out of school learning centres involving local NGOs, working in education. We need a large scale nationwide study to determine whether school performance correlates to age-in-grade incongruence.



Dr S.D. Rakgoasi, University of Botswana presenting
Access to Education & Educational Attainment in Botswana

ACCESS TO EDUCATION AND EDUCATIONAL ATTAINMENT IN BOTSWANA

By

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Abstract: Education tends to leverage many variables related economic development and demographic change, access to education is an important ingredient in the social and economic growth and development process of any country. As such, investments in human capital through increased access to education are a key ingredient of the economic development of many countries. This chapter uses the 2011 Botswana Population and Housing Census to examine access to education and educational attainment in Botswana. The results show that Botswana enjoys very high access to both primary and secondary education. The results further show that the gender gap in access to formal education is very small, and that at levels beyond secondary education, the gender gap tends to marginally favour women. Thus increased and sustained investment in improved access to basic formal education beyond primary level is necessary in order to mitigate the socio, cultural and other norms that might perpetuate gender inequality in access to formal education remains key development imperatives.

Introduction

There is little doubt that human development, through education, is a key to sustaining social and economic development. The UN's millennium declaration of 2000 shows that education is not only a fundamental constitutional right, but is also a key priority essential for social and economic progress, human development and advancement in all countries. Two of the UN's MDGs focus on achieving universal access to primary education, the other promulgates the promotion and attainment of gender equality and elimination of the gender disparity at all levels of education by 2015.

Research generally points to an association between education and various aspects of development. Since education tends to leverage many variables related economic development and demographic change, access to education is an important ingredient in the social and economic growth and development process of any country. Investments in human capital through increased access to secondary education were found to be a key driver of economic development in many countries, especially Asian countries (IIASA, 2008; IIASA, 2011).

One of the pillars of Botswana Vision's 2016 is the transformation of Botswana into an 'informed and educated' nation through improved access to education. In fact, the expansion of education is a key element of the strategy for realizing enhancement of national productivity, innovation and competitiveness and thus supporting the attainment of other pillars of Vision 2016, such as "Prosperity for all Batswana", "A Compassionate, Just and Caring Nation" and building a "Prosperous, Productive and Innovative Nation". Siphambe (2000) found that while there were significant increases in earnings as the level of education rises in Botswana, and that while females on average were earning less than their male counterparts for all education levels, the inequality between genders became progressively less as education rises. The study also found that males with post-secondary education were earning six times more than those with no formal education, while females with post-secondary education were earning 13 times more than those with no formal education. While Botswana enjoys high access to basic education, and free education up to university level, there are concerns regarding the quality of education, specifically its relevance and suitability for the country's development needs.

Access to education in Africa

Achieving the Millennium Development Goals (MDGs) in sub-Saharan Africa requires investment in and development of human resources through improved access both primary and secondary education, as well as relevant skills development and training. Consequently, strategies aimed at expanded access to a basic education form the policy focus of many sub-Saharan governments. Consequently, access to education and educational attainment has increased significantly in Africa and the developing world, and returns to formal education have also increased substantially over time. For example, between 1950 and 1985, many developing countries experienced increases in educational attainment and a narrowing of the gender gap in education (Schultz, 1993). The number of years of formal education in the developing world has also increased from 2.1 to 7.1 between 1950 and 2010 (Barro & Lee, 2010).

According to Barro and Lee (2010), while the rates of return for an additional year of schooling range from 5 to 12 percent globally, for sub-Saharan Africa, this rate is 6.6 percent. While available evidence suggests that there has been improved access to education in sub-Saharan Africa, sometimes entrenched social and cultural norms and beliefs can facilitate unequal access to education that undermine the attainment of gender equality in education (UNESCO 2010).

Access to Education in Botswana

Since independence, Botswana has given priority to the development and improvement of education. In 1994, Government of Botswana adopted the Revised National Policy on Education (RNPE), which, among other things, seeks to increase access and equity in education and training through both formal and non-formal means; effectively prepare students for life, citizenship and the world of work; develop a responsive and relevant training geared to the needs of the economy and improve and maintain the quality of the education system. The policy was reinforced by the Botswana Vision 2016 which calls for transformation of Botswana into an 'informed and educated' nation.

Pre-School Education

The RNPE calls provision of pre-school education by the Ministry of Education and Skills Development, and tasks the Ministry of Education with provision of an enabling environment for pre-school education through provision of policy direction curriculum development and support materials, teacher training and support, through grants to NGOs and CBOs demonstrating commitment to provision of pre-school education. This resulted in the development of the Early Childhood Care and Education Policy of 2001, which was followed by the development of an Integrated Early Childhood Care Development (IECD) Program that targets children from diverse backgrounds, including children with intellectual disabilities, hearing and visual impairment.

Basic Education

Botswana has a highly accessible basic education system, which comprises seven years of primary and three years of junior secondary. The Gross Enrolment Rates has been more than 100% since 1994 due to increase in primary schools from 770 in 2003 to 790 in 2008. Net enrolment rates for primary school is very high ranging between 88 and 90 per cent of all 6-12 years olds between 2000 and 2011 (CSO, 2012). While net enrolment rates are generally high, they nevertheless suggest that close to 10 per cent of the country's primary going age population are not attending school. This is an especially worrying development as enrolment figures shows that net enrolment rates have taken a slight decline during recent years. While the magnitude of the decline might be small, it is likely to hide significant variations with certain population groups.

Vocational Education and Training

The Revised National Policy on Education emphasizes expansion and upgrading of facilities, provision of government sponsorship to cover private institutions and the implementation of equal opportunity and liberal admission policies has addressed access to Vocational Education and Training (VET). In addition the Botswana Technical Education Program (BTEP) has facilitated improved access technical and vocational education for all learners including people with disabilities. It envisages doing this through specially designed programs that are capable of producing graduates who are trainable, employable or have the ability and initiative to start their own businesses.

Tertiary Education

The Tertiary Education Council (TEC) was created in order to drive tertiary education and skills development and facilitate the expansion of tertiary education. It is responsible for the promotion, coordination, determination and maintenance of standards of teaching, examinations and research in tertiary education, has made tertiary education available to many students. The number of institutions that offer tertiary education has not only increased, but government sponsorship now covers these institutions. In addition to that, the recent establishment and opening of the Botswana International University of Science and Technology (BIUST) is set to increase access to tertiary education and improve the human capital development, especially in science and technology.

Quality of Education

While Botswana enjoys high access to basic education, and free education up to university level, there are concerns and issues regarding the quality of education, specifically its relevance and suitability for the country's development needs. Statistics show that in 2001, a fifth (19.9%) of secondary school graduates was unemployed. This percentage increased to almost a third (28.6%) in 2003, and increased further to 35% in 2006, while unemployment among graduates of vocational education also increased from 13% in 2001 to 18.4 and 17.1% in 2003 and 2006, respectively. The percentage of unemployed university graduates, while smaller by comparison, nevertheless suggests that many of them fail to find employment. This percentage was 3.2% in 2001, before increasing significantly to 17.5% in 2003 and declined to 8.6% in 2006.

Data

Data used in this chapter are drawn from the 2011 Botswana Population and Housing Census. The 2011 Population and Housing Census is the fifth of post-independence censuses. Previous censuses were held in 1971, 1981, 1991 and 2001.

Methods

Uni and bivariate distributions are used to examine the levels and patterns of access to education and educational attainment, using gross enrolment ratios and gender parity indices. Logistic regression is used to determine factors that influence access to education and educational attainment.

Definition of Terms

Access to education

Access to education is measured using Gross Enrolment Ratios (GERs). These are calculated as the proportion of school going age population that is enrolled in each of the three levels of formal education, namely primary; secondary and tertiary levels, and selected background variables are also used to determine their influence on access to formal education.

Next, Gender Parity Indexes (GPIs) for each level of education are calculated using age-specific gross enrolment rates for males and females. GPI are computed as the quotient of the value of indicator for females divided by the value of indicator for males at each level of formal education, multiplied by a constant, in this case 100.

Educational attainment

Educational attainment is measured as the percentage of each country's adult population that has attained a given level of formal education, namely primary, secondary and tertiary education. Educational attainment Gender Parity Indexes (GPIs) for primary, secondary and tertiary are calculated. GPIs for primary, secondary and tertiary education are computed as the quotient of the value of indicator for females divided by the value of indicator for males at each level of formal education, multiplied by a constant, in this case 100. Thus GPIs over 100 indicates a predominance of females over males while an index less than 100 shows the opposite.

Binary logistic regression is used to estimate the likelihood of enrolment in or attainment of a given level of education. The form of the logistic equation fitted to the data is as follows:

$$\ln(\frac{p}{1-p}) = \beta_0 + \beta_1 X$$

Where p is the probability that an individual is enrolled in a certain level of education or has attained a specified level of education; 1-p is the probability that an individual is not enrolled or has not attained a certain level of formal education. β_0 and $\beta_1 X$ are components of the regression equation, the β s represent regression coefficients and Xs represent a set of independent variables. The key independent variables used are age, sex and year of census.

Findings

Table 1 shows the characteristics of the population on which this analysis is based. Just over half of the population featured in this analysis was male (50.2). Close to fifth (18%) of the population resided in cities and towns, while 43 and 38 per cent resided in urban villages and rural areas, respectively. Close to two thirds (65%) of the population below 24 years were currently enrolled in formal education, 14 per cent had left school and just over a fifth (21%) had never attended school [a large portion of which is made up by those who are too young to be enrolled in formal education]. The results further show that 56 percent of the population had primary education or less, while over four out of every ten (39%) had secondary or tertiary education.

Over a quarter (27%) of the studied population was married, while an almost equal proportion (25%) was cohabiting, and almost four out of every ten (37%) were never married. A majority of the population were Christian (81%) while the rest belong to other non-Christian religions and those who did not identify with any religion. Slightly over half (53%) of households were female headed and six out of every ten households (59%) had three members or fewer.

Preschool education

Between 20 and 63 per cent of children between the ages of 4 and 6 years were enrolled in formal education, mostly pre-school education. The percentage of this age cohort that is enrolled is 20% among children who are 4 years old and increases to 29 and 63% among those who are 5 and 6 years old, respectively.

The results further show that enrolment rates among this cohort are highest in cities and towns (62%), followed by urban villages (42%) and rural areas (23%). Enrolment rates were almost equal among children who had lost one (32%), both (35%) or none (37%) of their parents. Enrolment rates among this age group also did not show any discernible difference according to sex of head of household (52% for both males and female headed households) or by household size (53 and 53% among households with three or less and those with four or more members, respectively).

Primary Education

This section presents formal; education enrolment rates for population between ages of 7 and 14 years. This age range is used to generally define the primary school going age population. Table 2 shows enrolment rates among the primary school age population. The results show that enrolment rates among this group are high, ranging between 91 and 97%. This percentage does not differ significantly between cities/towns (97%), urban villages (97%), and by comparison, is slightly lower in rural areas (93%); nor does it differ much by survival status of parents, religion, household headship or household size.

Secondary Education

As can be expected, secondary school enrolment rates are relatively lower than those observed at primary level, and they tend to significantly taper off with increasing age. For example, while 9 out of every ten people between ages of 14 and 15 were enrolled in formal education, this proportion declines to 78 and 60% among those in the age 16 and 17, and decline further to 40 and 31% among those in the ages 19 and 20 years.

Secondary school enrolment rates are 71 and 72% in cities/town and urban villages, respectively, while the corresponding rate for rural areas is 54%. Secondary enrolment rates are also higher among those who are never married (69%); followed by those who are married (45%); Living together (24%) and lowest among those whose unions have ended through divorce, widowhood or separation (13%). These rates however do not show a discernible difference by household headship or size of household.

Tertiary & University Education

Tertiary and University education enrolment rates are relatively lower compared to secondary education enrolment rates. As can be expected, tertiary and university enrolment rates also show precipitous decline with increasing age, from a quarter among those who are 21 years of age, to just under a fifth (19%) and just over a tenth (13%) among those who are 22 and 23 years of age, respectively. Tertiary and University enrolment rates are considerably lower for population that is 24 years of age or more, compared to those who are below 24 years of age. For example, only 10% of those who are 24 years of age were enrolled; this rate declines to just under 6% by age 26, and 3% by age 30.

Tertiary and University enrolment rates are higher in cities and towns (14%), followed by urban villages (10%) and lowest in rural areas (4%). These enrolment rates are also higher among never married respondents (12%), and are between 4 and 5% for respondents who are married; living together or divorced, widowed or separated. The results show that tertiary and university enrolment rates are slightly higher among respondents who have both parents (11%) compared to those who have lost both parents (7%) or lost one of the parents (8%). However, tertiary and university enrolment rates don't differ markedly according to household headship.

Educational attainment

This section presents results on the level of educational attainment among the adult population in Botswana in 2011

Primary & Secondary Educational Attainment

The results shows that 32% of males and 40% of females have who are over 30 years of age have primary education. For both males and females, the percentage with primary education increases considerably with increasing age from between 12 and 14% among those in the 30-34 age range, to well over 7 out of every ten among men over 70 years and women over 60 years of age.

The results show that secondary education attainment among men and women over the age of 30 years is 36 per cent. Secondary educational attainment rates however, display an inverse relationship with age, quite unlike and opposite to primary school enrolment rates. For example, the percentage of population over 30 years of age who have secondary education is highest among the youngest population, and decreases significantly as age increase. For example between 31 and 61% of men and women below 44 years of age have secondary education. This percentage declines to below 20% among both men and women who are 59 years or more, and are even lower among those who are over 70 years of age.

The results of the logistic regression net effects model suggest that sex of respondent, age, place of residence; marital status and religion have significant association with the likelihood of having attained secondary education. For example, the likelihood of attaining secondary education is 11% higher among men compared to women, and while the likelihood of attainment of secondary education is much higher among those who are under 40 years of age, this likelihood decreases significantly with increasing age. For example, the likelihood of attaining secondary is highest among those in the age group 30-34 years (Odds=67.310, p=0.000), and declines significantly among the age groups 35-39 years (Odds=30.201, P=0.000); 40-44 years (Odds=10.952, P=0.000) and 45-49 years (Odds=6.087; P=0.000), compared to those who are 85 years and over. The likelihood of attainment of secondary education decreases further among those between the ages of 50 and 70. Respondents between 50 and 59 years are between 3 and 4 times more likely to have attained secondary education compared to the reference category (85yrs+) while those between 60 and 74 are between 1.3 and 2 times as likely to have attained secondary education, compared to the reference category.

Tertiary and University Educational Attainment

The results show that 16% of men and 12% of women had Vocational and Technical education. The percentage of men with University education (15%) was significantly higher than that of women with university education (10%). For both men and women, the percentage with technical and vocation education, as well as university education is higher among those residing in cities and towns; followed by urban villages; and is least in rural areas.

Discussion

Access to formal education and improved educational attainment are important priorities for many countries' social and economic development. Formal education leverages social and economic development through its impact on health, mortality and productivity (Schultz, 1993, 2004), earnings (Barro, 2010) and fertility (Ainsworth, 1996; Lloyd et al., 2000). Access to education and educational attainment has increased significantly in Africa and the developing world, with the number of years of formal education in the developing world having increased from 2.1 to 7.1 between 1950 and 2010 (Barro & Lee, 2010). In Africa and much of the developing world, entrenched socio and cultural norms and beliefs have historically differentiated access to education according to gender, creating obstacles for female access to education compared to males. In five south East Asian countries, women are less likely to have secondary or tertiary education than their male counterparts (Cameron et al., 2001). This makes the monitoring of access to formal education critical to efforts to attain and sustain not only improved access to formal education, but also equality and justice in access to formal education and returns to education.

Botswana's Vision 2016 articulates Botswana's long-term development aspirations and provides a broad framework for development. The aspirations of Vision 2016 and the MDGs are complementary to each other, and thus these two documents have provided important reference markers to the country's social development targets. One of the pillars of Vision 2016 is that of an educated and informed nation, to be achieved through promotion of universal access to primary education. This is one of the key pillars because of education's ability to leverage, and thus facilitate achievement of other pillars of the vision, such as the one on prosperity, productivity and innovation; compassionate, just and caring nation and safety and security. Millennium Development Goal number 2 focuses on achieving universal access to primary education, targeting the achievement of universal access to 10 years basic education and the improvement of the relevance and quality of basic education by 2016. MDG 3 aims to attain gender equality and empowerment, and has as one of its targets, the reduction of gender disparity in all education 2015. The results of this analysis show that Botswana is well in its way to achieve these MDG targets, and that in some cases such targets have already been achieved.

Botswana enjoys high access to formal education and that unlike in other parts of the developing world, in Botswana women are more likely to have secondary or tertiary education than their male counterparts. The results show that the percentage of population, whose highest level of education is primary education, is highest among the eldest members of the population and declines with declining age. Thus, as younger cohorts

enter adults and elderly years, fewer and fewer members of this population will have attained only primary education; while increasing numbers will have acquired secondary education. The increase in population with secondary education is an important development because while primary education continues to exhibit the highest social profitability in the world regions (Psacharopoulos, 1994), improved access to formal education beyond basic primary education is a necessity for social development and transformation.

Botswana's education landscape displays a generally balanced gender distribution, with males and female being almost equally likely to be enrolled and to attain higher levels of education. However, there is need for vigilance, not only to ensure that the benefits of improved access are maintained, but to also ensure justice and fairness in access to formal education by ensuring that no population group experiences any unnecessary obstacles in accessing formal education. It is therefore important to keep close tabs on factors that might impede certain population groups to access formal education, such as socio economic status, membership of cultural, linguistic and other minority groups and remote area dwellers.

Limitations

Censuses are limited in the sense that despite their enormous cost, very few questions can be included in the census questionnaire, thus limiting in-depth analysis of many issues. There are other limitation inherent in using census data, the most obvious being the long inter-censal interval, which is ten years for most countries. This means that it takes a long time for new census statistics to become available. A third limitation is the quality of census data, especially the age sex data. Many censuses contain errors related age reporting which requires smoothing.

Acknowledgments:

Special thanks to Statistics Botswana, and Government of Botswana for making the census data available and facilitating this work. My sincerest gratitude goes to the University of Botswana for granting the time, space and resources that made this work possible. Special thanks to colleagues who reviewed and gave feedback on the draft manuscript.

Table 1 Population Characteristics 24 years and below

	Number	Percent
Sex		
Male	477 739	50.2
Female	474 398	49.8
Age		
0-4	237 365	24.9
5-9	215 146	22.6
10-14	207 314	21.8
15-19	210 728	22.1
20-24	81 584	8.6
Place of Residence		
Cities & Towns	174 694	18.3
Urban Villages	416 368	43.7
Rural Are	361 070	37.9
Ever Attended School	549 974	64.8
Still Enrolled		
Left School	121 171	14.3
Never attended	177 955	21
Highest Level of Education		
Primary & less	376 422	56.2
Secondary	263 777	39.4
Technical & Vocational	12 573	1.9
University	16 917	2.5
Marital Status		
Married	62 949	27.2
Never Married	84 961	36.7
Living Together	58 082	25.1
Div / Wid/ Sep	25 323	10.9
Religion		
Christian	330 766	80.5
Non-Christian	14 599	3.6
No Religion	65 421	15.9
Sex of Head of Household		
Male	289 342	52.5
Female	261 577	47.5
Household Size		
Three or less	137 493	59.4
Four or more	93 877	40.6

Access to Primary Education

Table 2: Pre-School Education Gross Enrolment Rates and Gender Parity Index
(Population 4-6yrs) in Botswana, 2011

Year	Enrolment Rates		Gender Parity Index
	Male	Female	All
Age			
4	20	20.9	20.4
5	28	28.9	28.5
6	61.5	64.5	63
Place of Residence			
Cities & Towns	61.9	62	61.9
Urban Villages	41	42.8	41.9
Rural Are	21.7	23.5	22.6
Parental Survival			
Both dead	33.2	37.7	35.4
One dead	31	33.5	32.2
Both Alive	36.6	38.3	37.4
Sex of Head of Household			
Male	52.3	53.2	52.8
Female	51	52.9	52
Household size			
Three or less	51.9	52.5	52.2
Four or more	51.4	53.9	52.6

Table 3: Primary Education Gross Enrolment Rates and Gender Parity Index (Population 7-13yrs) in Botswana, 1991- 2011

Year	Enrolment Rates		Gender Parity Index
	Male	Female	All
Age			
7	90.7	91.8	91.2
8	94.1	94.7	94.4
9	95.1	96.1	95.6
10	95	96	95.5
11	95	96.4	95.7
12	96.5	98.1	97.3
13	96	97.9	96.9
14	94.8	97.3	96.1
Place of Residence			
Cities & Towns	97.2	97.3	97.3
Urban Villages	96.4	96.9	96.6
Rural Are	91.6	94.4	93
Parental Survival			
Both dead	93	95.1	94
One Dead	94.2	96	95.1
Both Alive	94.8	96	95.4
Religion			
Christian	96.9	98.2	97.5
Non-Christian	88.2	93.7	90.7
No Religion	92.5	96	93.9
Sex of Head of Household			
Male	96.6	97.3	97
Female	96.6	97.1	96.8
Size of Household	96.6	97.1	96.8
Three or less	96.7	97.3	97

Access to Secondary Education

Table 4: Secondary Education Gross Enrolment Rates and Gender Parity Index (Population 14-19yrs) in Botswana, 1991- 2011

Year	Enrolment Rates		Gender Parity Index
	Male	Female	
Age			
14			
15	92.5	94.4	93.7
16	88	89.9	89
17	78.2	78.6	78.4
18	60.8	59.6	60.2
19	41.4	39.1	40.3
20	30.7	30.7	30.7
Place of Residence			
Cities & Towns	72.8	69.3	71
Urban Villages	73.2	70.3	71.7
Rural Are	52.2	54.6	53.3
Religion			
Christian	70	67.8	68.8
Non-Christian	50.1	52.7	51.1
No Religion	54.9	52.8	54.1
Marital Status			
Married	53.2	38.7	45
Never Married	67.1	70.3	68.7
Living Together	35.3	19.9	23.9
Div / Wid/ Sep	16	14.4	12.7
Sex of Head of Household			
Male	69.3	66.3	67.7
Female	69.2	66.5	67.8
Household Size			
Three or less	68.7	66.2	67.4
Four or more	70	66.7	68.3

Access to Tertiary education

Table 5: Tertiary Education Gross Enrolment Rates and Gender Parity Index (Population 20-24 yrs) in Botswana, 1991- 2011

Year	Enrolment Rates		Gender Parity Index
	Male	Female	All
Age			
21	24.2	24.7	24.5
22	19.3	18.5	18.9
23	13.6	12.1	12.8
24	10	9.7	9.9
25	7.4	7.5	7.5
26	5.6	6.1	5.8
27	4.4	4.8	4.6
28	3.8	4.4	4.1
29	3	3.6	3.3
30	2.1	3.2	2.7
Place of Residence			
Cities & Towns	14	14.3	14.1
Urban Villages	10.1	9.8	10
Rural Are	3.8	3.5	3.7
Marital Status			
Married	3.6	5.5	4.8
Never Married	11.3	12.6	11.9
Living Together	4.4	5.5	5.1
Div / Wid/ Sep	4.6	3.8	4.1
Parental Survival			
Both Dead	7.1	6.8	7
One Dead	10.5	8.4	8.3
Both Alive	10.5	10.8	10.6
Sex of Household Head			
Male	11.9	11.8	11.9
Female	11.3	11.9	11.6
Size of Household			
Three or less	11.7	11.9	11.8
Four or more	11.4	11.8	11.6

Educational attainment

Table 6: Primary and Secondary Educational Attainment and Gender Parity Index (Population 25+ yrs) in Botswana, 2011

Year	Primary			Secondary		
	Male	Female	GPI	Male	Female	GPI
Age						
30-34	14.2	11.5	123.5	52.7	61.3	86
35-39	21.5	21.7	99.1	43.7	52.2	83.7
40-44	32.8	40.4	81.2	31.3	35.5	88.2
45-49	41.9	50.9	82.3	24.3	24.7	98.4
50-54	48.3	57	84.7	21.1	19.2	109.9
55-59	53	66.4	79.8	19	13.5	140.7
60-64	61.4	75.8	81	15.3	9.7	157.7
65-69	64.4	80.1	80.4	13.5	7.5	180
70-74	71.2	83.2	85.6	11.8	6.5	181.5
75-79	76.3	86.3	88.4	9.2	5.4	170.4
80-84	78	85.8	90.9	9.7	5.4	179.6
85+	78.4	86.1	91.1	9.6	5.4	177.8
Place of Residence						
Cities & Towns	18	22	81.8	36	40.7	88.5
Urban Villages	30.8	39.9	77.2	38.1	38.1	100
Rural Are	47.8	56.3	84.9	31.7	29.8	106.4
Marital Status						
Married	30.1	37	81.4	26.4	30.3	87.1
Never Married	31.4	36.2	86.7	42.6	42.5	100.2
Living Together	33.9	37.5	90.4	42.1	46.8	90
Div / Wid / Sep	46.3	63.4	73	22.87	17.8	128.1
Religion						
Christian	30	39.4	76.1	35	36.2	96.7
Non-Christian	36.7	45.9	80	32	30.8	103.9
No Religion	39.6	46.7	84.8	39.4	40.6	97

Table 7: Technical /vocational and University Educational Attainment and Gender Parity Index (Population 25+yrs) in Botswana, 2011

Year	TECHNICAL & VOCATIONAL		UNIVERSITY		Male	Female
	Male	Female	Male	Female		
Age						
30-34	18.4	14.8	124.3	14.4	12.1	119
35-39	19.8	14.1	140.4	14.6	11.5	127
40-44	18.3	13.2	138.6	16.8	12	140
45-49	15.3	11.7	130.8	17.2	10.7	160.7
50-54	13	11.2	116.1	15.6	9.5	164.2
55-59	11.3	9.3	121.5	14.5	6.8	213.2
60-64	8.3	6.4	129.7	12.1	4.2	288.1
65-69	7.5	4.9	153.1	10.8	2.5	432
70-74	5.7	3.8	150	6.2	1.4	442.9
75-79	5.2	3	173.3	4.9	0.9	544.4
80-84	4.2	2.7	155.6	3.7	0.9	411.1
85+	3.6	2.3	156.5	3	1	300
Place of Residence						
Cities & Towns	19.9	16.5	120.6	25.7	20.2	127.2
Urban Villages	16.7	12.3	135.8	13.4	8.3	161.4
Rural Are	12.7	7.5	169.3	5.8	3.4	170.6
Marital Status						
Married	19	15.3	124.2	23.4	15.8	148.1
Never Married	15.2	11.7	129.9	10.1	8.3	121.7
Living Together	14.7	9.1	161.5	8.1	5.2	155.8
Div / Wid/ Sep	14.1	8.8	160.2	14.7	6.4	229.7
Religion						
Christian	17.9	12.6	142.1	16	10.2	156.9
Non-Christian	12.6	7.3	172.6	17.3	13.9	124.5
No Religion	11.8	6.3	187.3	8.2	4.5	182.2

Table 8: Binary Logistic Regression Coefficients of the likelihood of attaining Secondary education

Net Effects Model				
	Exp (B)	Significance	Exp (B)	Significance
Sex				
Male	1.202	0.000	1.105	0.000
Female	1.000	-----	1.000	-----
Age				
30-34	58.297	0.000	67.31	0.000
35-39	27.857	0.000	30.201	0.000
40-44	11.096	0.000	10.952	0.000
45-49	6.569	0.000	6.087	0.000
50-54	4.707	0.000	4.204	0.000
55-59	3.265	0.000	2.937	0.000
60-64	2.161	0.000	1.985	0.000
65-69	1.669	0.000	1.562	0.000
70-74	1.327	0.000	1.251	0.002
75-79	1.005	0.950	0.964	0.639
80-84	1.009	0.914	1.003	0.972
85+	1.000	-----	1.000	-----
Place of Residence				
Cities & Towns	3.266	0.000	3.260	0.000
Urban Villages	1.811	0.000	1.988	0.000
Rural Are	1.000	-----	1.000	-----
Marital Status				
Married	2.731	0.000	1.421	0.000
Never Married	4.273	0.000	0.997	0.836
Living Together	4.25	0.000	0.86	0.000
Div / Wid/ Sep	1.000	-----	1.000	-----
Religion				
Christian	1.048	0.000	1.408	0.000
Non-Christian	0.812	0.000	0.967	0.083
No Religion	1.000	-----	1.000	-----

Table 9: Binary Logistic Regression Coefficients of the likelihood of attaining Technical /vocation or more

	Gross Effects Net Model		Net Effects Model	
	Exp (B)	Significance	Exp (B)	Significance
Sex				
Male	0.843	0.000	0.923	0.000
Female	1.000	-----	1.000	-----
Age				
30-34	0.029	0.000	0.026	0.000
35-39	0.061	0.000	0.057	0.000
40-44	0.151	0.000	0.152	0.000
45-49	0.245	0.000	0.261	0.000
50-54	0.322	0.000	0.353	0.000
55-59	0.441	0.000	0.48	0.000
60-64	0.627	0.000	0.67	0.000
65-69	0.725	0.000	0.762	0.000
70-74	0.835	0.002	0.873	0.018
75-79	1.066	0.298	1.103	0.114
80-84	1.022	0.743	1.023	0.736
85+	1.000	-----	1.000	-----
Place of Residence				
Cities & Towns	0.324	0.000	0.343	0.000
Urban Villages	0.574	0.000	0.545	0.00
Rural Are	1.000	-----	1.000	-----
Marital Status				
Married	0.406	0.000	0.746	0.000
Never Married	0.265	0.000	1.035	0.028
Living Together	0.266	0.000	1.179	0.000
Div / Wid/ Sep	1.000	-----	1.000	-----
Religion				
Christian	0.947	0.000	0.718	0.000
Non-Christian	1.214	0.000	1.022	0.245
No Religion	1.000	-----	1.000	-----

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Prof Ntonghanwah Forcheh, University of Botswana presenting on
The Impact of Selected Policies on School Transition & Educational Attainment in Botswana

THE IMPACT OF SELECTED POLICIES ON SCHOOL TRANSITION AND EDUCATIONAL ATTAINMENT IN BOTSWANA

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Abstract: In this paper, we analyse the effects of changes in education policies over the period from Botswana's independence in 1966 to 2011 on educational attainment in the country. Using the points at which selected education reform policies were introduced as reference points, we evaluate the average educational attainment of the population and whether various deciles of the education distribution have been differentially affected by the different policy reforms.

Policy milestones in Botswana

At the time of independence from Britain in 1966, the structure of the education system in Botswana was referred to as "7+3+2": 7 years of primary, 3 years of junior secondary and 2 years of senior secondary school. The first National Commission on Education (NCE) which convened in 1977 recommended altering the structure of the education system from its pre-independence 7+3+2 format to 6+3+3. Following vigorous debate about the 6+3+3 structure, a 7+2+3 structure was implemented for the cohort entering school in 1986.

A second NCE that met in 1992/1993 brought up many problems associated with the temporary 7+2+3 structure. In particular, the Commission's report mentions a widespread perception that 2 years of junior secondary education was insufficient to prepare students for work or further training and also did not offer sufficient time for them to adjust from primary to secondary school. Completing the change in structure to 6+3+3 was no longer viewed as desirable. Instead, a switch back to the original 7+3+2 structure was recommended. Implementation of the change in structure was for the cohort entering school in 1996 – exactly a decade after the cohort experiencing the initial reform.

Other significant changes in education policy occurred in Botswana over the same period 1966 to 1996. The first NPE, which developed out of the work of the NCE completed in 1977, was implemented 1978. Prior to this policy, education provision in the country was guided by what Borkum (2009) called 'pre-independence' policies. The second NCE resulted in the revision of the first NPE in 1993/94. Botswana's Revised National Policy on Education (RNPE) of 1994 represents the country's response to globalisation – not just in labour market terms but also in terms of international comparisons in education, and international conventions (e.g., MDG, EFA). The RNPE of 1994 seeks to, *inter alia*, increase access and equity in education and training through both formal and non-formal means; effectively prepare students for life, citizenship and the world of work; develop a responsive and relevant training geared to the needs of the economy; improve and maintain the quality of the education system; and improve and enhance the status of the teaching profession. The RNPE of 1994 purports to, produce a self-programmable learner, for an economy undergoing rapid transformation. The thrust of the RNPE is indeed consistent with the United Nations declarations on not just education access, citizenship and participation but also on social justice and education as a right of all children in Botswana.

Parallel to the implementation of the RNPE, Botswana developed, in 1997, its long Term Vision, 30 years after independence. The Vision sets out the kind of society Botswana would like to be by the year 2016, and the role education and training should play. The national vision was a further response to globalisation and the rapid changes in global social attitudes and values, and the need to adapt while retaining the positive aspects of national cultural values that distinguish the country from other nations. The Vision calls for transformation of Botswana into a nation which is 'educated and informed', 'prosperous, productive, and innovative', 'compassionate, just and caring', 'safe and secure', 'open, democratic and accountable', 'moral and tolerant', and 'united and proud'. In other words, Vision is further expression of commitment to the kind of education sets out in the RNPE.

Alongside the policy reforms, and the quest to sustain international comparisons, Botswana became signatory to several international conventions. The two most notable conventions, of relevance to education and policy development in Botswana, are the Millennium Development Goals (MDGs) and the Education For All (EFA) declarations. Botswana became signatory to the Education for All declarations in 1990, as part of Article 26 of the Universal Declaration of Human Rights. The country signed the MDGs Declaration in 2000, ten years after the EFA declarations.

For Botswana, signatory to the EFA meant expansion of the view of basic education to include early childhood development education and the adoption of a rights-based approach to the provision of education in the country. The EFA calls for expansion of early childhood care and developmental; universal access to, and completion of, primary education or whatever level of education is considered basic by the year 2000; improvement in learning achievement such that an agreed percentage of an appropriate age cohort attains or surpasses a defined level of necessary learning achievement; reduction of adult illiteracy rate with sufficient emphasis on female literacy to significantly reduce the current disparity between male and female illiteracy rates; expansion of provision for basic education and training in other essential skills required by youth and adults; and increased acquisition by individuals and families of the knowledge, skills and values required for better living and sound sustainable development made available through education channels. The EFA contributed to the revision of the NPE in 1994 for greater alignment.

Since the adoption of the United Nations Millennium Declaration Goals in 2000, Botswana has been working to achieve its Millennium Development Goals (MDGs) by the set deadline of 2015. The goals overlap with goals set out in the EFA, but broadly include the quest to achieve universal primary education; promote gender equality and empower women; combat HIV/AIDS, malaria and other diseases; ensure environmental sustainability; develop a global partnership for development; improve maternal health; reduce child mortality; and eradicate extreme poverty and hunger.

Influences of education policies on educational attainment

Education policies in various countries have been shown to influence educational attainment. Several studies have focused on policies that improve enrollment, which may eventually translate into increased attainment. For instance, Borkum (2009) and other scholars (see Barrera-Osorio, Linden and Urquiola, 2007) found that policies related to fee reductions and conditional cash transfers (see Schultz, 2004) affects educational attainment in Europe and Asia.

Likewise, policy related to an expansion of access to education by simply building more schools contributes to gains in educational attainment. Duflo (2001) investigates a large primary school construction project in Indonesia, and finds substantial increases in educational attainment and wages for cohorts affected by the expansion. The issue of access is highly relevant here since it is one of the main reasons that many students in Botswana do not proceed to upper secondary education. Policies which influence the structure of education system, as evidence in the first National Policy on Education which called for extending the duration of lower secondary education by a year during the 1980s can therefore be viewed as an increase in access to the additional year, as is policies specifically linked to building new schools.

Perhaps the most common policy to boost educational attainment that has been considered to date in the literature is that of compulsory schooling laws. Angrist and Krueger (1991) were the first to use features of compulsory schooling laws in the U.S. to investigate returns to education, by noting that these laws would force students born later in the year to stay in school longer. Subsequent studies have taken advantage of mandated changes in compulsory schooling laws across a range of developed countries. Most of these studies agree that compulsory schooling laws are effective in increasing educational attainment, although there is some variability in the extent to which this affects later outcomes for those affected by these laws. Changes in compulsory schooling laws reflect aspect of the focus of this paper in that they point to a national policy that can induce changes in educational attainment.

Educational attainment: Concept and measurement

Educational attainment is a commonly used proxy for the stock of human capital – that is, the skills available in the population and the labour force (OECD, 2012). Some scholars put it differently, relating the concept to the highest level of education an individual has successfully completed. Another term typically used in the literature is (highest) 'educational qualification'. Educational attainment distinguishes individuals on a vertical scale, i.e. educational attainment categories can largely (although often not entirely) be ordered hierarchically.

Jenkins and Sabates point out that educational attainment refers to an important direct outcome of education (Jenkins & Sabates, 2007), as opposed to the input (e.g. cognitive ability; effort), process (e.g. educational pathway taken, full time or part time study) or indirect outcomes of education (e.g. income). There are other direct outcomes of education, most notably skills and competences and levels of performance in a specific exam or qualification.

Studies of educational attainment usually employ at least one measure of educational attainment as defined above. But measures of educational achievement or skills and competences require are quite complex to collect data on. Educational qualifications often serve as a proxy for skills and competences. Educational qualifications constitute important social signals in the labour and marriage markets and are highly predictive of related outcomes: e.g., indirect effects (e.g. income); various other outcomes at later stages in life (e.g. health); individuals' attitudes; individual's knowledge and horizon of experiences; direct exposure to norms and values.

Educational attainment is best denoted by the highest level of education achieved. The highest level of education successfully completed is either indicated by the highest educational qualification (vocational or academic) achieved, or by the number of years of education or schooling completed (in which case each year is regarded as a kind of level). Educational qualifications are official documents that certify that an individual has reached a certain level of competence in one field of education. 'Years of education' do not have the same meaning: they merely assume that the longer the individual stayed in education, the higher the level of attainment. Although correlated with qualifications achieved, this measure neither takes the element of validation of skills and competencies through examination, nor the official character of a qualification as a social signal into account. Analysts often avoid the highest educational qualification as a measure of attainment because it is more cumbersome to deal with, i.e. more difficult to code into an analytical variable.

Focus of the paper

This study will contribute to the broader literature on government policies that can influence educational attainment and hence future labour market outcomes such as participation and income levels, as well as future social outcomes such as civic responsibility and quality of life. Measuring educational attainment for different generations, for instance, not only provide a measure of the output of the education system, but also provide context for current educational policies, thereby helping to shape policies on, for example, lifelong learning.

Specifically, the critical questions of the paper are:

- What are the patterns in school transition across the policy period?
- How large is the gap in educational attainment between the populations that entered different school grades during the different policy milestone phases?
- What socio-demographic factors such as location, gender, age, have significant influences within and between each phase?
- Does the gap in education attainment (if any) during the different phases depend on field of education and mathematics?
- What are the policy implications of this evidence in terms of critical indicators such as measures of social, economic (access to education; labour market skills development, etc), political, and religious outcomes?

Methodology: data requirements

Data on population and educational attainment will be taken from the 2011 population census of Botswana. Attainment indicator will be based on the percentage of the relevant cohort that has completed a specified level of education. The analysis shall be disaggregated by district and strata and comparison shall be made with respect to gender of person and of head of household, citizenship, disability. Furthermore the effect of ownership of ICT on educational attainment shall be investigated.

The age coding shall be relative to the particular policy of interest hence the traditional coding of age is not useful in the paper. The raw data on the following variables shall therefore be required.

Results

Both educational attainment and school transition were treated as dependent variables in this paper. Both variables are related. Transition across the different phases of the education system (i.e., from the pre-primary to the tertiary level) provides insights into the point where different cohort of students have exited the education system. The point where individuals exists the education system reflects the highest level of education they successfully completed (or the highest educational qualification achieved, or the number of years of education or schooling completed).

The first part of the paper explores trends in school transition.

Patterns in school transition

Transition trends were analysed for students who moved across the different phases of the formal education system – i.e., from the primary to the tertiary level. Three significant transition points exist in the formal education system in the country: i.e., (a) transition from primary to JC; (b) transition from JC to senior secondary; and (c) transition from senior secondary to tertiary. Pre-primary phase is an important stage in all education system but in terms of this analysis, it has been excluded because for most of the period between 1966 and 2011, it was not included as part of the formal education system.

School transition and selected policy phases: Trends in student transition from one phase of the education system to the next are shown in Table 1 and Figure 1-3. Table 1 shows the trend in student transition from the primary to the Junior Secondary School level and from the Senior Secondary to the Tertiary level by policy period. Five-policy phases were analysed, namely, Pre-independence, Independence, the National Policy on Education era, the Revised National Policy on Education Era, and the period subsequent to the implementation of Vision 2016.

Table 1: Proportion of student transiting across the phases of the education system by policy

Characteristics	Tertiary							
	Transition to Junior Secondary		Transition to Senior Secondary		Transition to professional or technical		Transition to University	
	Not Transited	Transited	Not Transited	Transited	Not Transited	Transited	Not Transited	Transited
	Row N %	Row N %	Row N %	Row N %	Row N %	Row N %	Row N %	Row N %
Pre-Independence	82.9	17.1	84.6	15.4	95.1	4.9	95.6	4.4
Independence	62.8	37.2	71.8	28.2	89.6	10.4	89.1	10.9
NPE	33.7	66.3	50.1	49.9	84.5	15.5	85.7	14.3
RNPE	12.2	87.8	47.5	52.5	83.5	16.5	86	14
Vision 2016	8.4	91.6	44.3	55.7	86.4	13.6	86	14

Table 1 indicates that overall there has been an increase in student transition rate across each of the five policy phases in each of the phases of the education system. Transition rate from Primary School to Junior Secondary School during the Pre-Independence policy era was 17.1% but this rate grew to 37.2% during the Independence policy phase, and continued its upward trend to 91.6% in the current Vision 2016 phase. Likewise, transition rate from Junior Secondary School to Senior Secondary during the Pre-Independence policy era was 15.4%, which climbed steadily across the policy phases to 55.7% in the current Vision 2016 phase.

Transition rate from Secondary School to the Tertiary level was analysed taking into consideration the professional / vocational college education pathway and the university pathway. Transition rate from secondary school to each of these pathways grew or remained constant across the policy phases, with the exception of the Vision 2016 phase where transition to the professional/ vocational college education pathway declined from 16.5% in the previous policy RNPE phase to 13.6%. Interestingly, compared to transition across the policy phases from the primary to the secondary phases, transition from the secondary to the tertiary level across all the policy phases was relatively low.

While there has been increase in student transition rate within each level of the education system across the policy phases, the transition rate between the different levels of the education system within each policy phases has declined. During the Pre-independence policy period (i.e., before 1966), for instance, 17.1% of students transited from primary to junior secondary school. However, within the same policy period, only 15.4% reached senior secondary level, and even less (about 9.3%) transited to the tertiary level. The situation has not changed much today. For the policy period of the RNPE (three decades after independence), transition rate from primary to junior secondary was 87.8%, which declined to 52.5% from junior to senior secondary level, and still further to 30.5% to the tertiary (combining professional / vocational college and university education).

Student transition rate across the education system in each of the policy phases shows there is serious problem of access in the education system (see Figure 1).

Figure 1: Percent transitioning to JC for each policy cohort by citizenship and gender

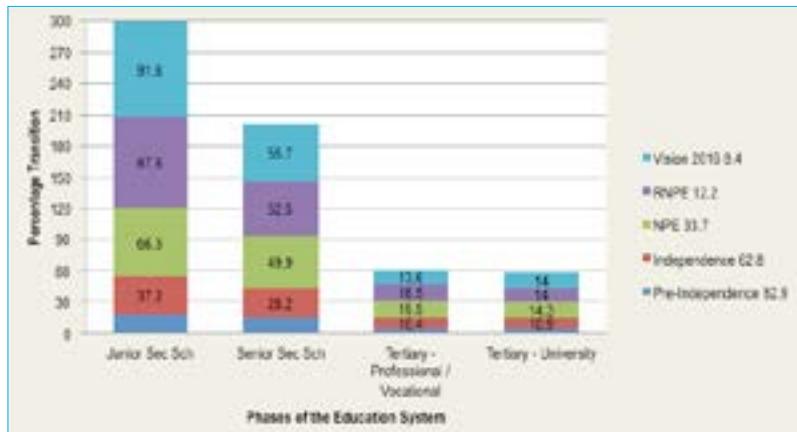


Figure 1 shows that whereas students progressed through the education system, there is heavy attrition at each phase. Regardless of the policy phase, school transition rate declined sharply between the senior secondary and tertiary stage of the education system. For instance, of the 87.8% of students who transited to JC during the RNPE policy phase, only 52.5% transited further to senior secondary school, and still only 30.5% transited to the tertiary level (professional/ vocational and university combined). This trend is evident in each policy phase.

School transition and student demographic factors: School transition rate was compared with selected demographic variables such as gender, geographic location, citizenship and language group (see Figure 2). These demographic variables may help in the explanation of any variation in school transition rate. Figure 2 to 4 and Table 2 show the result of the analysis.

Figure 2: Student transition rate by gender, citizenship and policy periods

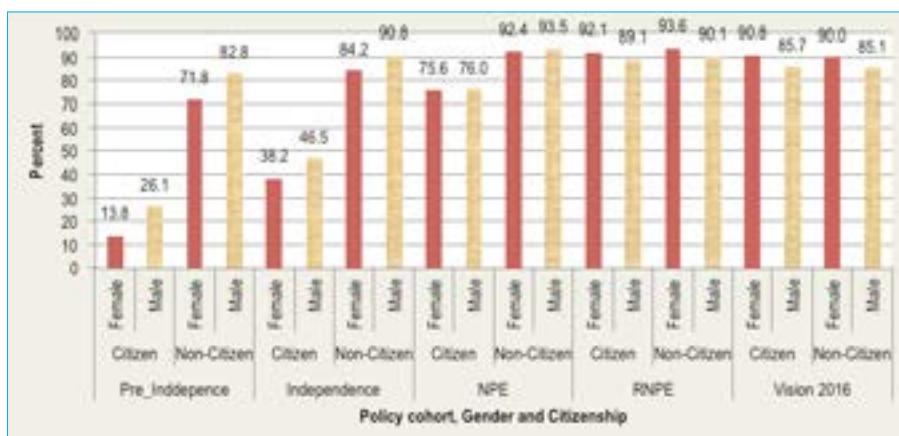


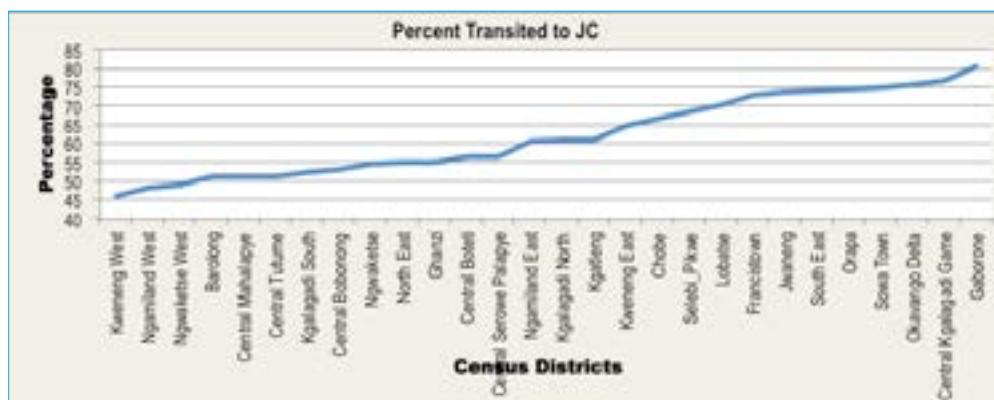
Figure 2 indicates that throughout the pre-independence and the independence policy period in Botswana, transition rate was higher for male than for female, regardless of citizenship. However, gender parity in transition rate began to emerge during the National Policy on Education (NPE) period, with male and female transition rate, regardless of citizenship, ranged between 75.6% and 93.5% (i.e., citizen male=76.0%; citizen female =75.6%; non-citizen male =93.5%; non-citizen female 92.4%). As Figure 2 shows, gender parity in transition rate continued into the RNPE period, but tipped in favour of female, regardless of citizenship, in the period following the introduction of the Vision 2016 strategy. Thus, male and female school transition rate in the current policy period to 2011 showed an inverted trend; female transition rate increased whereas male transition rate decreased, which gives a reverse of the situation during the pre-independence era.

Another significant observation in the data is that, in general, compared to male and female Botswana citizens, male and female non-citizens had consistently higher school transition rate across the policy period (pre-independence to the Vision 2016 era). During the pre-independence period, for instance, Batswana male school transition rate was 26.1%, compared to 13.8% for Batswana female. Over the same policy period, school transition rate for non-citizen female was 71.8%, compared to 82.8% for non-citizen male. Throughout the period 1966 to 1996, Batswana trailed non-citizens in school transition rate. Figure 2 indicates that between 1966 and 2011 (i.e., between independence and Vision 2016 policy period), non-citizen male and female maintained a school transition rate between 84.2% and 93.6%.

Parity in school transition rate of citizen and non-citizen emerged after the introduction of the RNPE and the subsequent Vision 2016 strategy period. In other words, it took Botswana 30 years after independence to gain parity in school transition rate with non-citizens in the country. Figure 2 shows, during the RNPE period, school transition rate for Botswana female and non-citizen female was 92.1% and 93.6%, respectively; whereas, for Botswana male and non-citizen male the figure was 89.1% and 90.1% respectively. This trend in parity in school transition rate among gender of the different citizenship continued into the subsequent policy period.

Although school transition occurs, and the pattern by gender is evident, a sense of the trend by Census Districts is also necessary for further policy planning. Thus, another aspect of the school transition rate analysed was transition by Census Districts in Botswana. Transition from primary to JC School is the first of the three major transition points in the formal education system. Figure 3 shows the percentage of students who transited at this first stage in each of the 28 different Census District.

Figure 3: Percent Transited From Primary to JC by Census District



Although student transition from primary to junior secondary school occurs, and the rate in 2011 stood at 91.6%, Figure 3 shows that the rate of student transition to JC is uneven across the districts. Some geographic locations were more affected than others by JC school transition problems.

The highest transition rate from primary to junior secondary school occurred in Gaborone (80.1%), whereas the lowest occurred in Kweneng West (45.9%). These two geographic locations represent the extremes of poverty and wealth in Botswana. Gaborone was the only census district with 80.0% primary to JC school transition rate. However, Gaborone was followed closely by eight other districts whose transition rate ranged in the 70s - the Central Kgalagadi Game Reserve (CKGR) (76.5%), Okavango Delta (75.3%), Sowa Town (74.9%), Orapa (74.4%), South East (74.0%), Jwaneng (73.6%), Francistown (72.9%), and Lobatse (70.2%). These figures show that primary to JC school transition rate in these communities were relatively high; these figures also show a few surprises such as the case of the CKGR – an area dominated by Basarwa and other minority groups – with the second highest transition rate to JC. However, these figures also confirm that 20% or more of the eligible children in the population are not making it to the JC school level from the primary school stage.

Majority of the children in Kweneng West (54.1%); Ngamiland West (52.0%); and Ngwaketse West (51.2%) who are eligible are not making the transition from the primary school phase to JC. Furthermore, there is also district level disparity. For instance, in Kweneng and Ngamiland, majority of the eligible children in the West – i.e., Kweneng West (54.1%) and Ngamiland West (52.0%) did not transit to junior secondary school. But majority of their counterpart in the East – i.e., Kweneng East (64.7%) and Ngamiland East (60.7%) transited. The same is true of other districts such as Ngwaketse. In fact, Figure 3 confirms that 16 of the 28 Census Districts is characterised by a situation where 40% or more of the eligible children did not transit from primary to JC school. These districts include Ngamiland East (60.0%), Kgalagadi North (60.0%), Kgatleng (60.0%), Barolong (51.1%), Central Mahalapye (51.1%), Central Tutume (51.2%), Kgalagadi South (52.2%), Central Bobonong (53.1%), Ngwaketse (54.6%), North East (54.9%), Ghanzi (55.0%), Central Boteti (56.2%), and Central Serowe Palapye (56.3%).

Policy can influence patterns of transition between phases of the education system. Thus, trends in school transition was analysed to determine whether there has been any meaningful change in the transition rate at different policy phases from the pre-independence era (before 1966) to the present Vision 2016 period. Figure 4 shows JC school transition rate by Census Districts across the five different policy phases.

Figure 4: Percent transited to JC by Policy periods and census districts

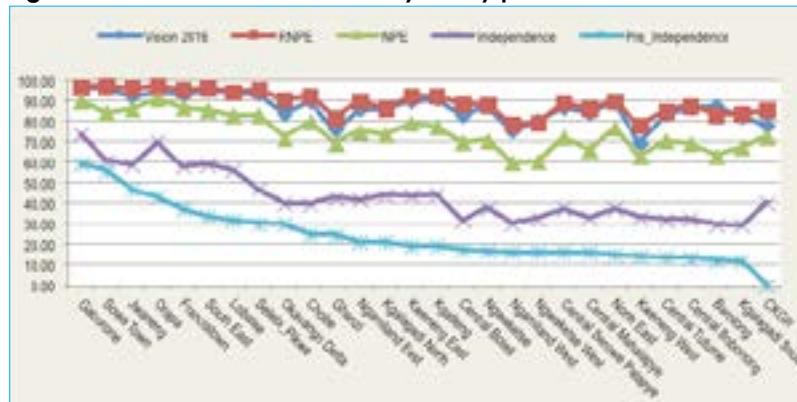


Figure 4 shows that school transition rate to JC improved, albeit at different pace, in the different districts across each policy phase. During the pre-independence policy phase, for instance, transition from primary to JC school was highest in Gaborone (59.0%), followed by other high commerce areas such as Sowa Town (55.6%), Jwaneng (46.6%), and Orapa (42.9%) and was lowest in Kgalagadi South (11.6%), followed by other deep rural areas then such as Barolong (11.9%), Central Bobonong (13.1%), Central Tutume (13.6%) and Kweneng West (13.9%). At the time the CKGR was not established as a Census District.

However, subsequent to the pre-independence period, each successive policy period shows there has been positive growth in JC school transition rate in the different districts. The gap that existed during the pre-independence era between the primary to JC school transition rate, has significantly narrowed in each of the districts, compared to the rate in those same districts in the current RNPE and the Vision 2016 policy period.

In addition to policy, the language group of those who transited from primary school to JC was also analysed and shown in Table 2.

Table 2: Percent transiting to JC for each policy cohort by language

Main language spoken at home	Transited to JC Pre- Independence	Transited to JC Independence	Transited to JC at NPE	Transited to JC at RNPE	Transited to JC at Vision 2016
	%	%	%	%	%
English	87.2	93.6	96.4	97.7	96.5
Other (NEC)	89.6	94.2	95.4	97.0	83.7
Other Asian languages	93.7	94.7	96.0	95.4	94.0
Zezuru / Shona	52.4	80.5	94.4	94.9	86.5
Other African languages	65.5	85.7	90.7	94.7	89.0
Sesubiya	14.5	28.7	75.6	93.2	88.4
Setswana	18.2	42.4	76.8	91.4	89.4
Sekalanga	14	34.8	75	91.3	89.2
Seherero	16.5	38.7	70.6	90.6	85.8
Afrikaans	40.1	57.4	79.1	90.6	87.5
Other European languages	51.9	82.4	86.7	90.3	87.9
Shekgalagadi	13.0	29.8	65.1	84.6	82.4
Ndebele	23.0	62.9	83.3	82.1	78.9
Seyeyi	13.8	26.6	58.6	80.2	82.4
Sembukushu	15.2	17.6	45.4	73.3	75.7
Sesarwa	13.0	12.1	36.4	54.4	51.3

Table 2 shows that throughout the policy period from Pre-independence to the Vision 2016 Era, JC school transition rate was highest between (87.2% and 97.7% rate) for individuals whose main language spoken at home was English, other NEC languages (between 89.6% and 97.0% rate), and Asian between (93.7% and 95.4% rate) Languages. Homes in which foreign languages such as Zezuru/ Shona, Afrikaans, and Other African and European languages were the main language spoken also had a high JC school transition rate. Prior to the introduction of the RNPE, homes in which Sesarwa or Sembukushu were the main language spoken had the lowest JC school transition rate (Sesarwa 12.1% to 36.4% rate; Sembukushu 15.2% to 45.4%).

It was only during the RNPE policy period that parity in JC school transition among the different language groups, emerged. The lifting of PSLE exam requirement as a condition to transit from primary school to JC may account for the parity in school transition among the groups after the RPNE policy period.

Educational attainment

The highest level of education successfully completed was the factor used to determined educational attainment. This was judged by the highest educational qualification achieved, or by the number of years of education or schooling completed.

Table 3: Proportion of the population achieving different levels of education

Level of Education Achieved	Frequency	Percent
Secondary	671920	33.2
Primary	572617	28.3
Professional	104845	5.2
Degree or higher	83484	4.1
University Certificate or Diploma	47927	2.4
Technical	38745	1.9
Pre-primary	32329	1.6
Non-Formal	8358	0.4
No Response	8005	0.4
Total	1568230	77.4

Just over 75% of the population responded to the question of the level of education achieved. Table 3 shows that Pre-Primary schooling is developing as a key phase of the education system with less than two percent (1.6%) of the population indicating that they achieved that level of education. Overall slightly lower than one third of the population (28.3%) completed primary school education, and about one third (33.2%) completed secondary school education – which includes the JC level.

Above the secondary phase, whereas 5.2% of the population stated they have successfully completed a professional qualification, only 4.1% acknowledged that they have a degree or higher as their highest level of education. A slightly lower figure (2.4%) completed university level Certificate or Diploma, and an even less number (1.9%) completed technical qualification. The transition data above points clearly to transition access to tertiary education as problem. Among those who get to the tertiary level, the educational attainment data in Table 3 points to a failure to complete tertiary as an additional problem in the education system.

Educational attainment by citizenship and gender: Educational attainment by citizenship and by gender was analysed, and is shown in Table 4.

Table 4: Educational attainment by citizenship and gender

Citizenship and gender		Highest level completed							
		Pre-primary	Primary	Secondary	Non-Formal	Technical	Professional	University Certificate or Diploma	Degree or higher
Non-Citizen	Male	2.4	14.9	43.2	0.3	1.2	12.3	5.6	16.7
	Female	3	17.1	50.8	0.3	0.5	11.4	4.3	11.8
	Total	2.7	15.8	46.5	0.3	0.9	11.9	5.1	14.6
Citizen	Male	2.1	38.2	41.4	0.4	3.8	5.8	2.9	5
	Female	1.9	37.6	43.7	0.7	1.4	6.9	2.9	4.5
	Total	2	37.9	42.6	0.5	2.6	6.3	2.9	4.7
Total	Male	2.1	36.5	41.5	0.4	3.6	6.2	3.1	5.9
	Female	2	36.5	44.1	0.6	1.4	7.1	3	4.8
	Total	2.1	36.5	42.8	0.5	2.5	6.7	3.1	5.3

Table 4 shows that whereas about the same proportion of citizen (2.0%) as non-citizen (2.7%) attained pre-primary school level education, a higher proportion of citizens (37.9%) compared to non-citizens (15.8%) successfully completed primary level education. However, at the secondary education level, a higher proportion of non-citizen (46.5%), compared to citizen (42.6%), successfully completed. Similarly, a much higher number of non-citizens, compared to citizens, have completed and attained professional qualification, university certificate/diploma and degree or higher qualification.

There is gender parity in the number of citizens who have successfully completed the highest qualification in all but one of the different stages of education. About the same number of male as female attained pre-primary education, primary education, secondary education, university certificate /diploma, and degree or higher qualification. However, higher proportion of male than female citizens attained technical level education. This dynamic may be explained in different ways.

In contrast, gender disparity prevailed in educational attainment in certain levels of education among non-citizens. For instance, whereas more female, compared to male, successfully completed primary (female 17.1%; male 14.9%) and secondary (female 50.8%; male 43.2%) education, more male, compared to female, successfully completed technical education, professional qualification, university certificate / diploma, and university degree or higher qualification (see Table 4).

Language and educational attainment: The distribution of the language groups in the population was analysed, and is shown in Table 5.

Table 5: Distribution of Language groups in population

Mother tongue Language	Frequency	Percent
Setswana	1484474	73.3
Sekalanga	141616	7.0
Shekgalagadi	65378	3.2
English	52925	2.6
Zezuru/Shona	38491	1.9
Sesarwa	31783	1.6
Sembukushu	31229	1.5
Ndebele	18959	0.9
Seherero	18710	0.9
Afrikaans	8082	0.4
Sesubiya	6515	0.3
Other European languages	6972	0.3
Seyeyi	4181	0.2
Other Asian languages	3857	0.2
Other (NEC)	4883	0.2
Other African languages	1280	0.1
Total	1 919 335	94.8

Table 5 shows that just over 94% of the population responded to the question of the mother tongue language spoken. Setswana remained the largest (73.3%) indigenous language spoken among the population in Botswana, followed by Sekalanga (7.0%) and Shekgalagadi (3.2%). The educational attainment by gender and language spoken at home is shown in Table 6.

Table 6: Education attainment by sex and main language spoken at home

Main language spoken at home		Highest level completed						
		Pre-primary %	Primary %	Secondary %	Non-Formal %	Technical %	Professional %	University Certificate or Diploma %
Setswana	Non-Citizen	1.6	23	51.6	0.4	1.5	10.2	4.0
	Citizen	2.0	36.9	43	0.5	2.6	6.7	3.1
English	Non-Citizen	4.1	13.2	32	0.2	0.6	14.7	7.7
	Citizen	7.2	20.9	31.1	0.3	1.4	10.2	6.8
Sekalanga	Non-Citizen	0.7	34.6	57.2	0.2	0.9	3.7	1.0
	Citizen	1.7	40.6	42.2	0.5	3.3	5.5	2.2
Other Botswana languages	Non-Citizen	6.1	48.4	35.5	0.5	1.2	4.4	1.0
	Citizen	1.7	49.9	40.7	0.8	1.9	2.7	1.0
Other languages	Non-Citizen	2.3	13.8	52.1	0.3	0.9	11.5	4.3
	Citizen	1.8	42.9	42.5	0.4	1.7	4.4	1.9
								3.0

The main languages spoken at home have been regrouped as shown in Table 6, with the three population indigenous languages and other languages being the categories. Citizens and non-citizens used a language as main language in each of these groupings. More Botswana citizens (36.9%), compared to non-citizens (23.0%), who speak Setswana as their main language at home have successfully completed primary level education. However, more non-citizens, compared to Botswana citizens, who speak Setswana as their main language at home, have successfully completed secondary level education (51.6%), professional level qualification (10.2%), as well as degree or higher qualification (6.8%). There is parity among speakers of Setswana in educational attainment in the other areas.

English is the official language in the country, and is the medium of instruction at the JC and higher level of the education system. However, educational attainment is not equal for citizens and non-citizens who used English as their main language at home. For example, Table 6 shows that more Botswana citizens, compared to non-citizens, who speak English as their main language at home, attained pre-primary and primary level education. In contrast, more non-citizens with the same language as home language successfully completed professional and degree or higher level qualification.



Jabulani Dick, Statistics Botswana presenting on Languages in Botswana: Growth or Decline

LANGUAGES IN BOTSWANA: GROWTH OR DECLINE

By
Jabulani Dick
Statistics Botswana

Abstract: This paper uses the 2001 and the 2011 Population and Housing Census results of Botswana to determine if the existence of minority languages in Botswana is on the increase or decline.

There is a concern amongst the minority tribes groups of Botswana that due to Government policy to observe English and Setswana as official languages in the country, the use of other so called minority languages is bound to decline and eventually run a risk of extinction. The 2001 and 2011 Population and Housing Census results reflect that the minority languages are still in existence despite the challenges.

1. Introduction

The purpose of this paper is to examine if the minority languages of Botswana are experiencing growth in terms of population and in districts or otherwise. The paper uses the 2001 and 2011 Population and Housing Census results to determine the patterns.

According to the Country's language policy, Setswana is the national language, while English is the official language. Other languages are referred to as minority languages. While this remains the Government's position since independence in 1966, there has been an outcry by the minority languages representative groups that their languages are on the decline and most importantly that these minority groups are denied access to Government information and programmes as they cannot read and write both English and Setswana, and that they cannot either understand or speak any of these two languages which are forced upon them. In most districts where the majority cannot speak Setswana language, kgotla meetings by Government officials are addressed in Setswana and those in attendance may not comprehend or follow what is communicated. Even important messages such as on HIV and AIDS to date have been communicated in Setswana leaving the rural minority population at the mercy of urban migrant relatives who visit the rural areas during the festive season to come and translate to them. While there is a Setswana name for HIV & AIDS known as "Segajaja" and other local names for other accessories such as condoms known as "sekausu" in Setswana, there seem to be no known synonyms in other languages spoken in Botswana and one is left to doubt the outreach of such lifesaving messages if there are communicated in the current format of Setswana and English.

It has been argued elsewhere by various commentators on the subject matter that Government discriminates against minority groups in general. This is evidently in-built into Botswana laws which include the Constitution of Botswana, the Chieftainship Act, the tribal lands Act, and the Botswana National Settlement Policy amongst others.

The National Education Policy does not allow children from minority groups to be taught in their mother tongue and does putting them at a disadvantage as they have to learn Setswana language first before they can understand concepts. While going through this difficult learning process they have to compete with Setswana language users.

The paper will determine the following:

- a. The language use in Botswana.
- b. The distribution of languages in Botswana per District.
- c. Whether there has been an increase or decline in the language population per district since 2001.
- d. Suggest recommendations for improvement on language use.

2. Methodology

The paper will analyze language use in Botswana districts based on population usage as well as the percentage usage per district since 2001 and determine whether in 2011 there has been any change across districts and at what levels.

According to Prof. H. M. Batibo (Botswana Language Situation paper), they are 28 languages in Botswana belonging to three language families, namely Bantu, Khoisan and Germanic.

However, it should be noted that the Population and Housing Census question on language is vague and data collected through the questionnaire cannot be relied upon to determine ones ethnicity. This argument was raised by Chebanne and Nyati-Ramahobo in 2003 on their submission on Language use and language

knowledge in Botswana. The two authors correctly pointed out that the question "What language does---- speak most often at home?" amongst others, is not asking about one's ethnicity. They argue that the data collected by the instrument does not represent the numerical significance of the ethnic speakers of those languages. In this regard, the language one uses at home may not necessarily be ones ethnic language. More often than not we speak the language of our spouses and significant others at home than our mother tongue as a compromise.

It follows therefore that there are a few statistics on ethnicity in Botswana because Government has sought to define all the people of Botswana as Batswana and has managed to manifest itself as a champion for the poor such that even the poorest of the poor from these minority tribes still cherish.

3. Population census 2001 results.

The table below gives a summation of the 2001 Population Census results on language per district in Botswana.

District	SET	ENG	KAL	SHEKG	YEI	HER	TSWAP	SEB	SEMB	SUBI	THU	SES	AFRI	NDE	ZEZ	IND	O.AFR	O.EUR	O.ASI	Other	Total	
GABORONE	142,299	15,916	9,215	1,024	17	178	510	221	67	169	35	40	799	1,244	2,391	1,061	2,079	368	1,071	237	178,941	
FRANCISTOWN	48,164	3,182	21,493	90	23	95	393	308	151	176	16	100	180	1,562	1,860	139	680	114	192	55	78,973	
LOBATSE	26,026	848	382	132	1	18	26	11	5	22	4	7	91	128	173	107	162	14	93	7	28,257	
SELIBE PHIKWE	39,639	1,259	2,932	60	8	75	742	1,090	68	31	3	14	149	168	1,018	93	268	7	83	11	47,718	
ORAPA	6,995	547	758	25	13	63	14	11	13	5	-	5	103	22	83	-	112	8	13	-	8,790	
JWANENG	13,004	657	277	265	-	15	9	5	-	8	-	-	165	31	65	2	65	12	9	2	14,591	
SOWA TOWN	1,959	149	521	5	-	2	10	17	-	4	-	-	61	21	5	-	2	3	2	-	2,761	
KANTE/MOSHUPA	105,944	588	139	373	5	12	6	1	3	24	14	7	168	117	137	63	371	12	15	17	108,016	
BAROLONG	43,975	118	71	94	1	9	10	4	1	1	1	1	5	88	14	17	3	657	3	4	8	45,084
NGWAKETSE WEST	7,753	15	6	2,054	-	1	-	-	2	1	58	16	1	4	-	10	-	1	2	9,924		
SOUTH EAST	53,542	1,959	529	120	2	16	65	28	18	48	5	10	214	243	644	69	399	65	69	30	58,075	
KWENENG EAST	172,544	2,822	1,238	346	-	217	45	32	3	111	45	107	215	479	1,733	82	630	27	94	80	180,850	
KWENENG WEST	21,588	59	220	15,529	4	3	29	10	4	21	2	799	52	7	8	12	46	-	11	25	38,429	
KGATLENG	68,439	753	202	26	1	45	12	6	2	27	21	10	29	48	214	4	127	9	17	25	70,017	
SEROWE/PALAPYE	139,799	1,248	1,266	78	10	53	214	53	17	98	21	1,030	59	129	675	29	394	35	34	61	145,303	
CENTRAL MAHALAPYE	96,944	607	678	386	7	1,081	2,939	88	31	77	28	207	100	86	169	36	310	6	20	41	103,841	
CENTRAL BOBONONG	52,487	231	439	39	14	21	180	9,435	44	55	21	47	45	39	98	12	102	-	11	26	63,346	
CENTRAL BOTETI	30,219	296	8,041	31	287	914	53	58	629	60	4	4,491	28	28	90	8	125	8	11	10	45,391	
CENTRAL TUTUME	57,641	658	50,238	51	26	35	27	50	462	137	27	3,765	44	396	888	18	2,237	17	23	57	116,797	
NORTH EAST	17,159	379	25,702	38	35	40	14	34	14	39	15	15	47	2,841	350	7	178	14	20	18	46,959	
NGAMILAND EAST	53,709	1,117	1,312	1,029	734	3,608	15	51	4,543	162	14	1,460	127	146	279	72	271	30	32	34	68,745	
NGAMILAND WEST	15,192	123	182	676	3,142	1,516	35	14	21,029	69	5	4,366	194	10	68	4	146	17	11	33	46,832	
CHOBE	9,219	292	764	13	17	5	12	13	89	5,108	3	503	79	396	201	12	406	18	8	28	17,186	
DELTA	1,618	121	8	4	420	8	1	-	72	3	-	12	2	-	2	1	1	2	-	2	2,277	
GHANZI	6,137	261	224	10,087	26	2,880	14	2	381	11	40	10,141	374	25	86	5	176	10	19	18	30,917	
CKGR	37	-	1	73	-	1	-	-	-	-	-	537	1	-	-	-	-	-	-	2	652	
KGALAGADI SOUTH	18,300	127	56	1,640	2	64	4	85	2	8	267	547	3,289	6	43	4	34	-	10	21	24,509	
KGALAGADI NORTH	2,748	101	58	10,418	6	24	2	6	5	1	98	1,673	71	3	12	3	47	6	20	14	15,336	
TOTAL	1,253,080	34,433	126,952	44,706	4,801	10,998	5,382	11,633	27,653	6,477	690	30,037	6,750	8,174	11,308	1,848	10,036	804	1,891	864	1,598,517	

From these 2001 results we can conclude that among the local languages, Setswana is the most used/spoken language in Botswana by 1,253,080 out of a total population of 1,598,517 which represents 78.4 % followed by Kalanga 7.9 % while other minority languages are below 3% of the entire population.

Where are local languages mostly spoken?

The table below gives an illustration of local languages per district in percentages.

District	SET	ENG	KAL	SHEKG	YEI	HER	TSWAP	SEB	SEMIB	SUBI	THU	SES	AFRI	NDE	ZEZ	IND	O.AFR	O.EUR	O.ASI	Language									
																				100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	
GABORONE	11.4	46.2	7.3	2.3	0.4	1.6	9.5	1.9	0.2	2.6	5.1	0.1	11.8	15.2	21.1	57.4	20.7	45.8	56.6	27.4									
FRANCISTOWN	3.8	9.2	16.9	0.2	0.5	0.9	7.3	2.6	0.5	2.7	2.3	0.3	2.7	19.1	16.4	7.5	6.8	14.2	10.2	6.4									
LOBATSE	2.1	2.5	0.3	0.3	0.0	0.2	0.5	0.1	0.0	0.3	0.6	0.0	1.3	1.6	1.5	5.8	1.6	1.7	4.9	0.8									
SELIBE PHIKWE	3.2	3.7	2.3	0.1	0.2	0.7	13.8	9.4	0.2	0.5	0.4	0.0	2.2	2.1	9.0	5.0	2.7	0.9	4.4	1.3									
ORAPA	0.6	1.6	0.6	0.1	0.3	0.6	0.3	0.1	0.0	0.1	-	0.0	1.5	0.3	0.7	-	1.1	1.0	0.7	-									
JWANENG	1.0	1.9	0.2	0.6	-	0.1	0.2	0.0	-	0.1	-	-	2.4	0.4	0.6	0.1	0.6	1.5	0.5	0.2									
SOWA TOWN	0.2	0.4	0.4	0.0	-	0.0	0.2	0.1	-	0.1	-	0.2	0.3	0.1	-	0.1	0.0	0.2	-	-									
KANYE/MOSHUPA	8.5	1.7	0.1	0.8	0.1	0.1	0.0	0.0	0.0	0.4	2.0	0.0	2.5	1.4	1.2	3.4	3.7	1.5	0.8	2.0									
BAROLONG	3.5	0.3	0.1	0.2	0.0	0.1	0.2	0.0	0.0	0.0	0.1	0.0	1.3	0.2	0.2	0.2	0.2	6.5	0.4	0.2	0.9								
NGWAKETSE WEST	0.6	0.0	0.0	4.6	-	-	0.0	-	-	0.0	0.1	0.2	0.0	0.0	0.0	-	0.1	-	0.1	0.2									
SOUTH EAST	4.3	5.7	0.4	0.3	0.0	0.1	1.2	0.2	0.1	0.7	0.7	0.0	3.2	3.0	5.7	3.7	4.0	8.1	3.6	3.5									
KWENENG EAST	13.8	8.2	1.0	0.8	-	2.0	0.8	0.3	0.0	1.7	6.5	0.4	3.2	5.9	15.3	4.4	6.3	3.4	5.0	9.3									
KWENENG WEST	1.7	0.2	0.2	34.7	0.1	0.0	0.5	0.1	0.0	0.3	0.3	0.2	0.8	0.1	0.1	0.6	0.5	-	0.6	2.9									
KGATLENG	5.5	2.2	0.2	0.1	0.0	0.4	0.2	0.1	0.0	0.4	3.0	0.0	0.4	0.6	1.9	0.2	1.3	1.1	0.9	2.9									
SEROWE/PALAPYE	11.2	3.6	1.0	0.2	0.2	0.5	4.0	0.5	0.1	1.5	3.0	3.4	0.9	1.6	6.0	1.6	6.0	3.9	4.4	7.1									
CENTRAL MAHALAPYE	7.7	1.8	0.5	0.9	0.1	9.8	54.6	0.8	0.1	1.2	4.1	0.7	1.5	1.1	1.5	1.9	3.1	0.7	1.1	4.7									
CENTRAL BOBONONG	4.2	0.7	0.3	0.1	0.3	0.2	3.3	81.1	0.2	0.8	3.0	0.2	0.7	0.5	0.9	0.6	1.0	-	0.6	3.0									
CENTRAL BOTETI	2.4	0.9	6.3	0.1	6.0	8.3	1.0	0.5	2.3	0.9	0.6	15.0	0.4	0.3	0.8	0.4	1.2	1.0	0.6	1.2									
CENTRAL TUTUME	4.6	1.9	39.6	0.1	0.5	0.3	0.5	0.4	1.7	2.1	3.9	12.5	0.7	4.8	7.9	1.0	22.3	2.1	1.2	6.6									
NORTH EAST	1.4	1.1	20.2	0.1	0.7	0.4	0.3	0.3	0.1	0.6	2.2	0.0	0.7	34.8	3.1	0.4	1.8	1.7	1.1	2.1									
NGAMILAND EAST	4.3	3.2	1.0	2.3	15.3	32.8	0.3	0.4	16.4	2.5	2.0	4.9	1.9	1.8	2.5	3.9	2.7	3.7	1.7	3.9									
NGAMILAND WEST	1.2	0.4	0.1	1.5	65.4	13.8	0.7	0.1	76.0	1.1	0.7	14.5	2.9	0.1	0.6	0.2	1.5	2.1	0.6	3.8									
CHOBE	0.7	0.8	0.6	0.0	0.4	0.0	0.2	0.1	0.3	78.9	0.4	1.7	1.2	4.8	1.8	0.6	4.0	2.2	0.4	3.2									
DELTA	0.1	0.4	0.0	0.0	8.7	0.1	0.0	-	0.3	0.0	-	0.0	0.0	-	0.0	0.1	0.0	0.2	-	0.2									
GHANZI	0.5	0.8	0.2	22.6	0.5	26.2	0.3	0.0	1.4	0.2	5.8	33.8	5.5	0.3	0.8	0.3	1.8	1.2	1.0	2.1									
CKGR	0.0	-	0.0	0.2	-	0.0	-	-	-	-	-	1.8	0.0	-	-	-	-	-	-	0.2									
KGALAGADI SOUTH	1.5	0.4	0.0	3.7	0.0	0.6	0.1	0.7	0.0	0.1	38.7	1.8	48.7	0.1	0.4	0.2	0.3	-	0.5	2.4									
KGALAGADI NORTH	0.2	0.3	0.0	23.3	0.1	0.2	0.0	0.1	0.0	0.0	14.2	5.6	1.1	0.0	0.1	0.2	0.5	0.7	1.1	1.6									
TOTAL	100.0																												

From these 2001 results we can conclude that among the local languages, Setswana is the most used/spoken language in Botswana by 1,253,080 out of a total population of 1,598,517 which represents 78.4 % followed by Ikalanga 7.9 % while other minority languages are below 3% of the entire population.

On recording districts with 5% or better frequency, the data depicts the following patterns:

a. Setswana is mostly used in the following Districts:

- i. Kweneng East at 13.8%
- ii. Gaborone at 11.4%
- iii. Serowe/Palapye at 11.2%
- iv. Kanye/Moshupa at 8.5%
- v. Central Mahalapye at 7.7%
- vi. Kgatleng at 5.5%

b. Ikalanga is mostly used in the following Districts:

- i. Central Tutume at 39.6%
- ii. North East at 20.2%
- iii. Francistown at 16.9%
- iv. Gaborone at 7.3%

c. Shekgalagari is mostly used in the following districts:

- i. Kweneng West at 34.7%
- ii. Kgalagadi North at 23.3%
- iii. Ghanzi at 22.6%

d. Shiyezi is mostly used in the following Districts:

- i. Ngamiland West at 65.4%
- ii. Ngamiland East at 15.3%.
- iii. Okavango Delta at 8.7%

e. Herero is mostly used in the following Districts:

- i. Ngamiland East at 32.8%
- ii. Ghanzi at 26.2%
- iii. Ngamiland West at 13.8%
- iv. Boteti Central at 8.3%

f. Setswadong is mostly used in the following Districts:

- i. Central Mahalapye at 54.6%
- ii. Selibe-Phikwe at 13.8%
- iii. Gaborone at 9.5%
- iv. Francistown 7.3%

g. Sebirwa is mostly used in the following Districts:

- i. Central Bobonong at 81.1%
- ii. Selibe-Phikwe at 9.4%

h. Mbukushu is mostly used in the following Districts:

- i. Ngamiland West at 76.0%
- ii. Ngamiland East at 16.4%

i. Subiya is mostly used in the following Districts:

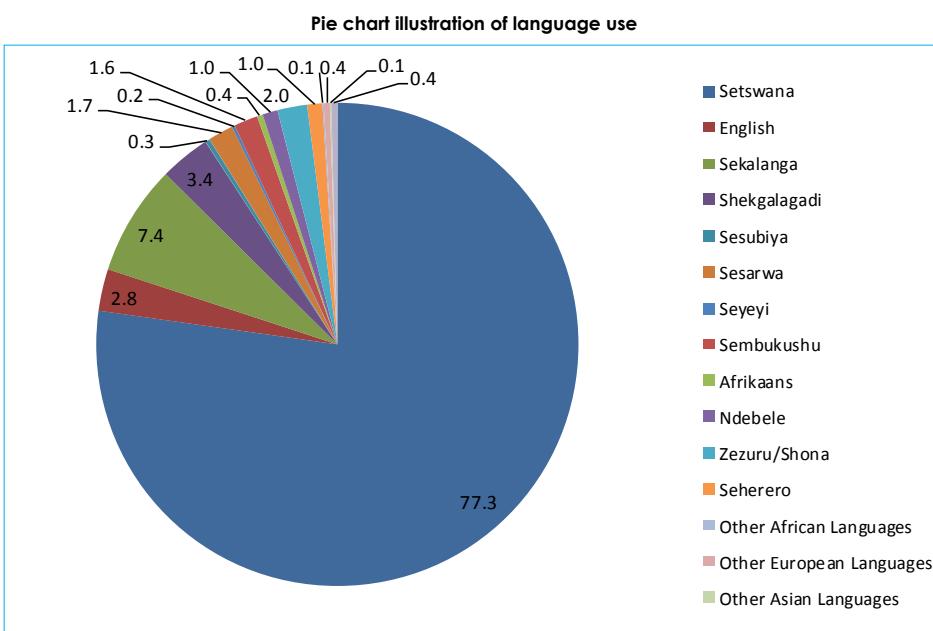
- i. Chobe at 78.9%
- j. Sekgothu is mostly used in the following Districts:
 - i. Kgalagadi South at 38.7%
 - ii. Kgalagadi North at 14.2%
 - iii. Ghanzi at 5.8%
- k. Sesarwa is mostly used in the following Districts:
 - i. Ghanzi at 33.8%
 - ii. Boteti at 15.0%
 - iii. Ngamiland West at 14.5%
 - iv. Central Tutume at 12.5%
 - v. Kgalagadi North at 5.6%
- l. Ndebele is mostly used in the following Districts:
 - i. North East at 34.8%
 - ii. Francistown at 19.1%
 - iii. Gaborone at 15.2%
 - iv. Kweneng East 5.9%

POPULATION CENSUS 2011 RESULTS.

The table below gives us the language use population wise nationally in 2011.

District	Language	Population wise by language use										Total
		Setswana	English	Sekgalagadi	Sesubiya	Seswana	Seyeyi	Ndebele	Shona	Other African languages	Asian languages	
Gaborone	166,365	23,924	11,544	1,769	121	51	67	101	821	2,894	8,379	533
Francistown	60,214	4,578	20,780	132	148	40	39	139	182	2,468	3,516	178
Lobatse	24,976	888	361	249	1	3	4	3	56	119	443	45
Selebi_Pikwe	41,749	1,332	1,930	81	23	7	14	4	52	246	1,372	59
Orapa	7,656	445	577	20	-	6	11	3	17	64	148	54
Jwaneng	14,729	931	330	453	7	2	8	3	254	76	284	33
Sowa Town	2,452	119	689	10	12	64	3	2	1	18	33	6
Ngakakete	118,048	990	318	791	16	22	16	8	206	314	871	73
Barolong	50,282	251	126	120	10	9	4	5	80	99	176	27
Ngakakete West	4,329	49	34	8,218	3	85	5	1	29	21	53	9
South East	71,324	3,738	1,219	407	45	10	18	56	334	871	2,681	111
Kweneng East	218,192	5,001	5,024	1,986	129	201	48	45	342	2,489	8,764	555
Kweneng West	22,711	181	237	20,383	14	1,006	6	12	31	76	158	35
Kgatleng	81,594	1,453	638	181	11	14	21	12	74	835	1,975	124
Central Serowe Palapye	160,264	1,884	2,275	221	56	1,181	33	41	126	707	2,133	181
Central Mahalapye	107,422	844	593	205	18	200	15	16	72	372	818	1,216
Central Bobonong	65,372	382	494	55	10	11	6	9	30	503	741	35
Central Boteti	39,614	464	6,796	73	72	4,650	225	94	32	141	376	1,541
Central Tutume	69,753	1,355	57,310	123	244	2,941	33	477	39	2,732	2,575	152
North East	25,096	783	26,470	32	40	22	11	25	39	3,114	1,125	116
Ngamiland East	65,208	1,628	1,651	1,158	198	1,568	1,062	3,242	154	338	940	7,342
Ngamiland West	19,934	225	322	782	81	3,924	1,975	25,685	35	40	146	1,969
Chobe	12,967	617	1,332	98	5,188	332	46	369	77	266	257	59
Okavango Delta	1,208	83	49	8	19	25	439	147	2	4	25	1
Ghanzi	8,490	438	306	12,265	34	13,372	62	717	489	81	355	3,995
Central Kgatlago Game Reserve (CKGR)	124	3	9	31	-	46	-	-	2	-	4	-
Kgalagadi South	21,177	183	114	1,801	8	283	7	6	4,378	47	49	154
Kgalagadi North	3,348	142	88	13,723	7	1,703	3	7	130	22	119	79
Total	1,484,598	52,921	141,616	65,375	4,181	31,778	6,515	31,229	8,082	18,959	38,489	18,710
											1,348	7,010
											7,337	1,202
											1,919,350	

The table below gives us the language percentage use per district in 2011.



5. COMPARISON OF 2001 AND 2011 RESULTS

LANGUAGE	FREQUENCY	PERCENT	LANGUAGE	FREQUENCY	PERCENT	% VARIANCE
						2001 POPULATION AND HOUSING CENSUS 2011 POPULATION AND HOUSING CENSUS
SETSWANA	1,253,080	78.4	SETSWANA	1,484,598	77.3	1.0
ENGLISH	34,433	2.2	ENGLISH	52,921	2.8	0.6
KALANGA	126,952	7.9	KALANGA	141,616	7.4	0.6
SEKGALAGADI/SENGOLOGA	44,706	2.8	SEKGALAGADI/SENGOLOGA	65,375	3.4	0.6
SEYEI	4,801	0.3	SEYEI	4,181	0.2	0.1
HERERO	10,998	0.7	HERERO	18,710	1.0	0.3
SETSWAPONG	5,382	0.3	SETSWAPONG	-	0.0	0.3
SEBIRWA	11,633	0.7	SEBIRWA	-	0.0	0.7
SEMBUKUSHU	27,653	1.7	SEMBUKUSHU	31,229	1.6	0.1
SESUBIYA	6,477	0.4	SESUBIYA	6,515	0.3	0.1
SEKGOTHU	690	0.0	SEKGOTHU	-	0.0	0.0
SESARWA	30,037	1.9	SESARWA	31,778	1.7	0.2
AFRIKAANS	6,750	0.4	AFRIKAANS	8,082	0.4	0.0
NDEBELE	8,174	0.5	NDEBELE	18,959	1.0	0.5
ZEZURU/SHONA	11,308	0.7	ZEZURU/SHONA	38,489	2.0	1.3
INDIAN	1,848	0.1	INDIAN	-	0.0	0.1
OTHER AFRICAN	10,036	0.6	OTHER AFRICAN	1,348	0.1	0.6
OTHER EUROPEAN	804	0.1	OTHER EUROPEAN	7,010	0.4	0.3
OTHER ASIAN	1,891	0.1	OTHER ASIAN	7,337	0.4	0.3
OTHER	864	0.1	OTHER	1,202	0.1	0.01
TOTAL	1,598,517	100	TOTAL	1,919,350	100	-

Comparison between the 2001 and 2011 results percentage variance informs us of the following:

- a. Setswana use has declined by 1% nationally while English usage increased by 0.6 %.
- b. Ikalanga usage also declined by 0.6%.
- c. Shekgalagari and Herero languages experienced some growth at 0.6% and 0.3% respectively.
- d. Minority languages usage has declined by 2.6% in total since the last census.
- e. There has been a quantum leap increase in Shona and Ndebele usage and this can be attributed to Zimbabwean migrants who speak these languages in the country since the last census. The majority of these people have been recorded in Kweneng East district (Mogoditshane) where most have set small businesses and reside.
- f. There has been a quantum leap of usage of other Asians and other Europeans languages from 0.1% to 0.4% and this can be attributed to the Chinese migration to Botswana since the last census.
- g. Dominance of minority language usage continues to be limited in the districts of their origin as no major infiltration has been recorded from one district to another, except for growth of Ikalanga in Gaborone which can be attributed to migration of tertiary students from up north to down south.

6. Conclusion

From the above data one can therefore make the following conclusions:

- a. Those minority languages are still very much in existence in Botswana despite challenges over the years.
- b. Those minorities languages are widely used in the country save for Kanye/Moshupa, Kweneng East, Serowe/Palapye, Central Mahalapye and Kgatleng Districts; this represents 5 out of 28 census Districts.

In the final analysis, it is my observation that unless the minority languages are recognized and promoted by Government policies, they are bound to decline and the use of English language will be on the increase. This paper provides some observations that could inform Government policies especially in introducing the mother tongue in the education curriculum at primary schools in districts where the minority languages are mostly used.

7. Recommendations

- a.** The question on language on the Household questionnaire should be revised to capture the ethnicity of respondents.
- b.** The fact that Botswana is a multilingual and multicultural country should be acknowledged.
- c.** Government programs and official kgotla meetings in 'minority districts' should be communicated and conducted in local languages.
- d.** The National education policy should be revised to cater for use of minority languages in primary schools in districts where their usage is high.

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Kenabetsho Bainame, University of Botswana presenting on
Demographic & Social Correlates of Living Arrangements among the Elderly

By

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Introduction

The Revised National Population Policy of 2010 shows that mortality in Botswana has improved from a crude death rate of 13.7 per 1000 in 1971 to a low of 11.5 in 1991. The improvement in the levels of mortality has meant an increase in the number of older adults in the general population requiring improved quality of life through improvement in health, housing, sanitation, education and others (NCPD 2010). Moreover, there are indications of changing social relations and family structure in Botswana, as overtime an increasing number of the population has never been married (NCPD 2010).

Intuitively, an increased number of people who are never married and an improved life expectancy translate into an increase in the number of people living alone.

The living arrangements of the older adult population sector are of highly significance in health and social policy:

- 1)** Older people who live alone and those who are raising grandchildren are at higher risk of mental and physical health problems and thus tend to access and use greater numbers of public health and social services
- 2)** Modernization-related changes such as rural-to-urban labour migration and out-migration of young adults diminish the availability of traditional familial care of older adults who need assistance, raising the likelihood of substituting this informal care with formal government services.
- 3)** Analysis of the material well-being of families that either include or are headed by older adults will inform policies about the nature and extent of these needs and how best to meet them.

Study Purpose

This study proposes to examine the living arrangements of adults aged ≥ 60 years (hereafter, older adults) in the Botswana 2011 Census. There are three specific objectives:

- 1)** To establish the main descriptive features of the living arrangements of older adults.
- 2)** To determine individual-level and society-level characteristics associated with living arrangements of this population sector.
- 3)** To compare descriptive features and correlates of living arrangements of older adults in the 2011 Census from data from previous censuses to determine if there are discernible trends, and if so, to describe them and establish predictors of change.

Literature Review

Population Ageing

The ageing of the world's populations is now widely recognized (Kinsella & He, 2009). Patterns vary, of course, and depend on complex and interacting factors. The populations of Sub-Saharan Africa (SSA) are comparatively young, but like other developing countries, they are ageing far more rapidly than those of developing countries, which are far along in their demographic transitions. In fact, the number of persons aged ≥ 50 years in SSA is expected to quadruple, from 40 million in 2010 to nearly 160 million in 2050. In Botswana, this age sector will triple, from 223,000 (11.3 %) to 677,000 (24.3%) in this time interval (United Nations, 2013).

Much has been written about social and economic forces that have helped to shape this demographic trend in developing countries, and about the near and long-term implications for older adults. These forces are highly context-dependent, but they essentially stem from sharp modernization-related declines in fertility after 1970 and in mortality after 1950. More recently, internal and out-migration have also contributed. In Botswana, economic development has been accompanied by a decline in total fertility from 5.97 in 1980 to 2.64 in 2010. During this same period, the percentage of people living in urban areas rose from 16.5% to 61.7%. In large part due to the HIV/AIDS epidemic, life expectancy at birth dropped from 63.9 to 46.5. But with the widespread availability of Highly Active Antiretroviral Therapy, life expectancy is beginning to slowly rise again as current cohorts of middle-aged and older people age with HIV infection.

These rapid, concentrated changes in the age structure of populations occurred before social and economic conditions permitted secure transfers of wealth towards older adults to emerge, develop or consolidate. As a result, Palloni (2002) argues, institutional contexts tend to be characterized by insufficiently developed capital markets; high risk and uncertainty that inhibit private savings; insecure property rights; high inflation and inadequate or non-existent social security schemes, private pension plans and health insurance. Older adults in Botswana have fared better than most of their contemporaries in SSA in terms of social security pensions and social protection measures; however, many older people do not know about or are not able to access these schemes, or else have died before they were eligible. In part, this is due to the longstanding cultural tradition in Africa for older adults to live in intergenerational households that served as an economic safety net and provided meaningful roles that help sustain their health, mental health and social well-being (Aboderin, 2004; Bainame & Shaibu, 2003).

Living Arrangements

In addition to explaining changes in the age structure of a society, population dynamics contribute to living arrangements and household structures. Living arrangements are influenced by factors such as marital status, financial well-being, health status, family size and structure, and cultural traditions such as kinship patterns, the value placed on living independently or with family members, the availability of social services and social support, and the physical features of housing stock and local communities (Verloff, 2001). In turn, living arrangements affect quality of life, life satisfaction, health and functional status, social support and mental health.

The rapid succession of large extended families in rural areas by nuclear families in urban enclaves raises serious concerns about the welfare of older people (Apt, 1996; Bongaarts & Zimmer, 2002; Cheng & Siankam, 2009). Yet, it is crucial to recognize the nature and extent of reciprocity and interdependence in co-resident households, and the bi-directional flow of resources and supports, which change in response to individual needs and capacities (Ruggles & Heggeness, 2008). Co-resident older adults may contribute, for example, through employment, childcare and household work and many are preserving families by caring for grandchildren and other young kin affected by HIV/AIDS. Studying the living arrangements of older adults will thus also shed important light on other generations in Batswana families and on changing intergenerational family dynamics. We next describe the basic scheme used by the United Nations (2005) to study the living arrangements of older adults and the major risks and benefits associated with these household configurations.

The U.N. schema encompasses five mutually exclusive categories of living: 1) alone; 2) with spouse only; 3) with a child (including adopted children), child-in-law or grandchild; 4) with another relative (other than a spouse or child/grandchild); and 5) with unrelated people only, apart from a spouse. Those living with a child/grandchild may also be living with other relatives or non-relatives, and those living with other relatives may also have non-kin in the household. The category of living with a child or grandchild is further broken down into multi-generational and skipped-generation households. This schema is based on family relationships of household members, not household headship, the meaning of which varies culturally. It ignores the marital status of adult children, which is salient in some contexts but in terms of the ability of adult children to support their parents, characteristics such as children's age and health status are likely to be more important (United Nations, 2011). The point is that the risks and benefits for older adults' well being vary greatly depending on their living arrangements.

The percentage of older people who live alone is the most widely available statistic on living arrangements of older persons, mostly because of how data on household composition are tabulated. This group is particularly vulnerable and of great concern to health and social policy. First, as Zimmer and Das (2013) note, linking household composition of older persons and material well-being is an important step toward understanding quality of life among older adults in less developed settings-- especially in sub-Saharan Africa, given poverty in the region. Futher, older people living alone are more likely to need assistance if ill or disabled, they have smaller social networks and greater risk of isolation, loneliness and mental health problems, i.e., depression and anxiety, and they are disproportionately likely—especially older women—to be poor (Casey & Yamada, 2002; Hermalin, 1997; Mui & Burnette, 1994; Zimmer, 2009).

The number of older persons living alone in Botswana has risen (Bainame & Shaibu, 2003). In 2001 2% of older people lived alone. This is worrisome as the country's 2001 household and population census showed that 36% of older persons are disabled and may need to be living with someone who can assist and care for them. It is also important to also note that Botswana does not have old age homes (McFarland, 20; Shaibu & Wallhagen, 2002).

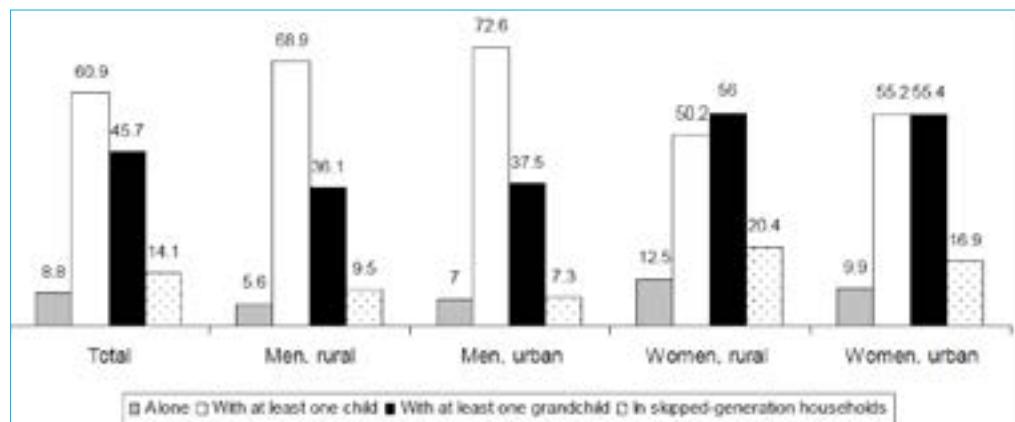
UNDESA (2011) reports that, on average, around three quarters of those aged 60 years or over in the less developed regions live with children and/or grandchildren, compared with about a quarter of the older population in the more developed regions. Perhaps the starker example of the downward flow of intergenerational supports is the tremendous growth of households in which older adults are raising grandchildren and other young kin who are orphaned or otherwise made vulnerable (OVCs) due to HIV/AIDS (some include the middle-generation). In SSA, an estimated 13.5% of persons aged ≥ 60 years were heading skipped generation households without adults (Cheng & Siankam, 2009; see also Hosegood & Timeaus, 2005 and Kautz, Bendavid, Bhattacharya & Miller, 2010). In Botswana, 42.5% of orphan caregiving households were headed by grandmothers (Botswana Government, 2008).

Grandparents are the sole caregivers for at least half of all OVC, and the number of grandparents in this role is expected to double between 2008 and 2015 (Help Aged, 2008). A large body of research shows that raising young kin can have significant personal and societal benefits. But these gains are too often countered by social, health and mental health problems, disrupted familial and social relationships and financial insecurity, especially in resource-limited settings where many grandparent carers are extremely poor (Help Age International, 2003; UNDESA, 2004) and consequently early morbidity (Clausen, Wilson, Molebatsi, & Holmbow-Ottensen, 2007). One in four people in Botswana is now living with HIV/AIDS and 93,000 children (12%) are orphaned due to the disease. New infections are declining; but, owing to a time lag between parent infection and death, adult deaths from AIDS will continue to add to the number of affected orphans in the next decade. Even with improved effectiveness, ease of administration and access to treatment, the number of HIV/AIDS affected OVC will thus remain exceedingly high (AVERT, 2013).

The social and economic needs of these families are well documented. There is less attention to the quality of their environments. The types of housing and community amenities that help older persons live comfortably and remain active and engaged in society include, for example, dwellings that can accommodate those with limited mobility and strength, a clean and safe environment inside and outside the home, transportation that is affordable and accessible, walkways in urban areas that are in good repair and free of obstacles, traffic signals that allow enough time for older persons to cross streets safely, places to rest outdoors, and public buildings that are accessible to those with limited mobility (WHO, 2007).

To summarize, there is growing evidence that the traditional system of caring and living with older people is under strain. A combination of economic development, rural-to-urban migration and changing norms concerning families and households is weakening the traditional support systems in SSA, including Botswana. Together with high mortality of working-age adults as a consequence of the HIV/AIDS epidemic, these social forces have disrupted demographic trends that highly favor social security and economic development. Given the inevitable competition for scarce resources, it is necessary to go beyond descriptions of household composition and characteristics to determine what factors influence the living arrangements and social support systems of older adults and what contributes to increased risks of poor economic, social, health, and mental health outcomes (McKinnon & Moore, 2013).

It is also important to assess trends in living arrangements and environments of older adults over time. Residential situations appear stable in aggregate, but panel studies of the same people over time show that many older persons' living arrangements change within a period of a few years, often in connection with changes in health and economic status (UNDEAS, 2011). This study aims to address these questions, which are essential for health and social policies for older Batswana and ultimately, their families and communities.



Kinsella and He, An ageing world: 2008.

1.1. Proportion of population living in urban areas (for 1971- 2011)

Year	Percentage of population aged 65 years and above	Number of people aged 65 years and above	Gross Domestic Product per capita	Average number of younger adult kin available to live with and, potentially, to support the older population	Percentage of population living in urban areas
1971	5.6	32149	0.13	5.6	9.0
1981	5.1	47992	1.07	5.6	17.7
1991	4.9	65013	3.94	5.8	45.7
2001	5	84043	6.03	6.7	54.2
2011			16.04	7.3	64.1

Source: Botswana, PHC

1. Health and mental health status and disorders

2.1. Household living arrangements

Household living arrangements	N	%
Living alone	11604	12,6
Living with spouse	34089	37,1
Living with children	46241	50,4
Living with close relatives	49399	53,8
Living with other relatives	12164	13,2
Not related	7122	7,8
Total	91805	

2.1. Proportion of older people with disability

Table 1

Living arrangements	Partially sighted	Pearson Chi-Square Tests					
		None		Partially sighted		Total	
		N	%	N	%	N	%
Living alone	9631	11.6	1973	22	11604	12.6	
Living with spouse	31336	37.8	2753	30.7	34089	37.1	
Living with children	42664	51.5	3577	39.8	46241	50.4	
Living with close relatives	45037	54.4	4362	48.6	49399	53.8	
Living with other relatives	11174	13.5	990	11	12164	13.2	
Not related	6579	7.9	543	6	7122	7.8	
Total	82824	176.8	8981	158.1	91805	175	

Partially sighted		
Living arrangements	Chi-square	1599.578
	df	6
	Sig.	.000*

Results are based on nonempty rows and columns in each innermost subtable.

*. The Chi-square statistic is significant at the .05 level.

Table 2

	Total blindness						
	None		Total blindness		Total		
	N	%	N	%	N	%	
Living arrangements	Living alone	11465	12.8	139	6.2	11604	12.6
	Living with spouse	33235	37.1	854	37.9	34089	37.1
	Living with children	44999	50.2	1242	55.2	46241	50.4
	Living with close relatives	48055	53.7	1344	59.7	49399	53.8
	Living with other relatives	11728	13.1	436	19.4	12164	13.2
	Not related	6942	7.8	180	8	7122	7.8
	Total	89554	174.7	2251	186.4	91805	175.0

Pearson Chi-Square Tests

		Total blindness
Living arrangements	Chi-square	216.97
	df	6
	Sig.	.000*

Results are based on nonempty rows and columns in each innermost subtable.

*. The Chi-square statistic is significant at the .05 level.

Table 3

	Partial Hearing						
	None		Partial hearing		Total		
	N	%	N	%	N	%	
Living arrangements	Living alone	10809	12.3	795	21.1	11604	12.6
	Living with spouse	32996	37.5	1093	29	34089	37.1
	Living with children	44675	50.7	1566	41.5	46241	50.4
	Living with close relatives	47505	54	1894	50.2	49399	53.8
	Living with other relatives	11717	13.3	447	11.8	12164	13.2
	Not related	6904	7.8	218	5.8	7122	7.8
	Total	88030	175.6	3775	159.3	91805	175.0

Pearson Chi-Square Tests

		Partial Hearing
Living arrangements	Chi-square	539.258
	df	6
	Sig.	.000*

Results are based on nonempty rows and columns in each innermost subtable.

*. The Chi-square statistic is significant at the .05 level.

Table 4

	Deafness						
	None		Deafness		Total		
	N	%	N	%	N	%	
Living arrangements	Living alone	11545	12.6	59	12.4	11604	12.6
	Living with spouse	33927	37.1	162	34	34089	37.1
	Living with children	46015	50.4	226	47.4	46241	50.4
	Living with close relatives	49134	53.8	265	55.6	49399	53.8
	Living with other relatives	12084	13.2	80	16.8	12164	13.2
	Not related	7086	7.8	36	7.5	7122	7.8
	Total	91328	175	477	173.6	91805	175.0

Pearson Chi-Square Tests

		Deafness
Living arrangements	Chi-square	9.602
	df	6
	Sig.	0.142

Results are based on nonempty rows and columns in each innermost subtable.

Table 5

	Hard hearing						
	None		Hard hearing		Total		
	N	%	N	%	N	%	
Living arrangements	Living alone	10809	12.3	795	21.1	11604	12.6
	Living with spouse	32996	37.5	1093	29	34089	37.1
	Living with children	44675	50.7	1566	41.5	46241	50.4
	Living with close relatives	47505	54	1894	50.2	49399	53.8
	Living with other relatives	11717	13.3	447	11.8	12164	13.2
	Not related	6904	7.8	218	5.8	7122	7.8
	Total	88030	175.6	3775	159.3	91805	175.0

Pearson Chi-Square Tests

		Hard hearing
Living arrangements	Chi-square	539.258
	df	6
	Sig.	.000*

Results are based on nonempty rows and columns in each innermost subtable.

*. The Chi-square statistic is significant at the .05 level.

Table 6

		Partial speech impediment					
		None		Partial speech impediment		Total	
		N	%	N	%	N	%
Living arrangements	Living alone	11561	12.6	43	16.0	11604	12.6
	Living with spouse	33999	37.1	90	33.5	34089	37.1
	Living with children	46108	50.4	133	49.4	46241	50.4
	Living with close relatives	49237	53.8	162	60.2	49399	53.8
	Living with other relatives	12129	13.3	35.0	13.0	12164	13.2
	Not related	7100	7.8	22.0	8.2	7122	7.8
	Total	91536	174.9	269	180.3	91805	175.0

Pearson Chi-Square Tests

		Partial speech impediment	
Living arrangements		Chi-square	
		df	
		Sig.	

Results are based on nonempty rows and columns in each innermost subtable.

Table 7

		Inability to use 1 leg					
		None		Inability to use 1 leg		Total	
		N	%	N	%	N	%
Living arrangements	Living alone	11316	12.5	288	20.5	11604	12.6
	Living with spouse	33630	37.2	459	32.7	34089	37.1
	Living with children	45654	50.5	587	41.9	46241	50.4
	Living with close relatives	48701	53.9	698	49.8	49399	53.8
	Living with other relatives	12001	13.3	163	11.6	12164	13.2
	Not related	7039	7.8	83	5.9	7122	7.8
	Total	90403	175.2	1402	162.5	91805	175.0

Pearson Chi-Square Tests

		Inability to use 1 leg	
Living arrangements		Chi-square	
		df	
		Sig.	

Results are based on nonempty rows and columns in each innermost subtable.

*. The Chi-square statistic is significant at the .05 level.

Table 8

		Inability to use 1 arm					
		None		Inability to use 1 arm		Total	
		N	%	N	%	N	%
Living arrangements	Living alone	11448	12.6	156	20.2	11604	12.6
	Living with spouse	33823	37.2	266	34.5	34089	37.1
	Living with children	45907	50.4	334	43.3	46241	50.4
	Living with close relatives	49031	53.9	368	47.7	49399	53.8
	Living with other relatives	12073	13.3	91	11.8	12164	13.2
	Not related	7055	7.7	67	8.7	7122	7.8
	Total	91034	175	771	166.3	91805	175.0

Pearson Chi-Square Tests

		Inability to use 1 arm	
Living arrangements		Chi-square	
		df	
		Sig.	

Results are based on nonempty rows and columns in each innermost subtable.

*. The Chi-square statistic is significant at the .05 level.

Table 9

		Inability to use the whole body					
		None		Inability to use the whole body		Total	
		N	%	N	%	N	%
Living arrangements	Living alone	11544	12.6	60	12.0	11604	12.6
	Living with spouse	33915	37.1	174	34.9	34089	37.1
	Living with children	45992	50.4	249	50.0	46241	50.4
	Living with close relatives	49120	53.8	279	56.0	49399	53.8
	Living with other relatives	12075	13.2	89	17.9	12164	13.2
	Not related	7076	7.7	46	9.2	7122	7.8
	Total	91307	174.9	498	180.1	91805	175.0

Pearson Chi-Square Tests

		Inability to use the whole body	
Living arrangements		Chi-square	
		df	
		Sig.	

Results are based on nonempty rows and columns in each innermost subtable.

*. The Chi-square statistic is significant at the .05 level.

Table 10

Living arrangements	Intellectual impairment					
	None		Intellectual impairment		Total	
	N	%	N	%	N	%
Living alone	11576	12.6	28	21.1	11604	12.6
	34056	37.1	33	24.8	34089	37.1
	46191	50.4	50	37.6	46241	50.4
	49329	53.8	70	52.6	49399	53.8
	12131	13.2	33	24.8	12164	13.2
	7110	7.8	12	9.0	7122	7.8
Total	91672	175	133	169.9	91805	175.0

Pearson Chi-Square Tests

		Intellectual impairment
Living arrangements	Chi-square	41.755
	df	6
	Sig.	.000*

Results are based on nonempty rows and columns in each innermost subtable.

*. The Chi-square statistic is significant at the .05 level.

Table 11

Living arrangements	Mental health disorder					
	None		Mental health disorder		Total	
	N	%	N	%	N	%
Living alone	11563	12.7	41	8	11604	12.6
	33945	37.2	144	28.2	34089	37.1
	45974	50.4	267	52.3	46241	50.4
	49095	53.8	304	59.5	49399	53.8
	12052	13.2	112	21.9	12164	13.2
	7074	7.7	48	9.4	7122	7.8
Total	91294	174.9	511	179.3	91805	175

Pearson Chi-Square Tests

		Mental health disorder
Living arrangements	Chi-square	70.472
	df	6
	Sig.	.000*

Results are based on nonempty rows and columns in each innermost subtable.

*. The Chi-square statistic is significant at the .05 level.

Table 12

Living arrangements	Missing 1 leg					
	None		Missing 1 leg		Total	
	N	%	N	%	N	%
Living alone	11592	12.6	12	10.9	11604	12.6
	34040	37.1	49	44.5	34089	37.1
	46184	50.4	57	51.8	46241	50.4
	49339	53.8	60	54.5	49399	53.8
	12149	13.2	15	13.6	12164	13.2
	7113	7.8	9	8.2	7122	7.8
Total	91695	174.9	110	183.6	91805	175.0

Pearson Chi-Square Tests

		Missing 1 leg
Living arrangements	Chi-square	3.05
	df	6
	Sig.	0.803

Results are based on nonempty rows and columns in each innermost subtable.

Living arrangements

	Living arrangements													Total	
	Living alone		Living with spouse		Living with children		Living with close relatives		Living with other relatives		Not related				
	N	%	N	%	N	%	N	%	N	%	N	%	N	%	
Place of residence															
Cities and Towns	723	11.2	2783	43.1	3478	53.9	3602	55.8	1021	15.8	549	8.5	6455	188.3	
Urban villages	3304	8.9	12799	34.4	21462	57.7	21343	57.4	5153	13.9	2765	7.4	37205	179.6	
Rural villages and settlements	7577	15.7	18507	38.4	21301	44.2	24454	50.8	5990	12.4	3808	7.9	48145	169.6	
Total	11604	12.6	34089	37.1	46241	50.4	49399	53.8	12164	13.2	7122	7.8	91805	175.0	
Sex of respondent															
Female	5056	9.3	12812	23.7	29523	54.5	32273	59.6	7679	14.2	3979	7.3	54167	168.6	
Male	6548	17.4	21277	56.5	16718	44.4	17126	45.5	4485	11.9	3143	8.4	37638	184.1	
Total	11604	12.6	34089	37.1	46241	50.4	49399	53.8	12164	13.2	7122	7.8	91805	175.0	
Age group															
65 - 69	3500	13.2	10973	41.3	13467	50.7	13659	51.4	3313	12.5	2164	8.1	26578	177.1	
70 - 74	2870	13.4	8383	39.2	10844	50.7	11233	52.5	2691	12.6	1653	7.7	21383	176.2	
75 - 79	2118	12.3	6187	36.1	8737	50.9	9345	54.5	2196	12.8	1278	7.4	17158	174	
80 - 84	1583	12.5	4265	33.7	6211	49.1	7002	55.4	1734	13.7	931	7.4	12644	171.8	
85 - 89	911	11.7	2387	30.6	3895	49.9	4481	57.4	1189	15.2	614	7.9	7811	172.5	
90 - 94	396	10.7	1161	31.3	1861	50.2	2149	57.9	587	15.8	251	6.8	3710	172.6	
95+	226	9.0	733	29.1	1226	48.6	1530	60.7	454	18	231	9.2	2521	174.5	
Total	11604	12.6	34089	37.1	46241	50.4	49399	53.8	12164	13.2	7122	7.8	91805	175.0	
Marital status															
Married	3369	9.2	24247	65.9	18627	50.6	18784	51.1	3819	10.4	2722	7.4	36785	194.6	
Never Married	2729	17.8	1440	9.4	7375	48	8412	54.8	2864	18.6	1298	8.5	15360	157.0	
Living together	562	7	5938	73.8	3494	43.4	3724	46.3	1084	13.5	705	8.8	8044	192.8	
Separated	326	35.9	51	5.6	302	33.3	413	45.5	107	11.8	66	7.3	908	139.3	
Divorced	681	30.8	153	6.9	883	40	1051	47.6	302	13.7	192	8.7	2209	147.7	
Widowed	3936	13.8	2258	7.9	15555	54.6	17014	59.7	3987	14	2139	7.5	28492	157.5	
Total	11603	12.6	34087	37.1	46236	50.4	49398	53.8	12163	13.2	7122	7.8	91798	175.0	
Educational attainment															
Never attended	41	10.8	123	32.4	186	48.9	207	54.5	60	15.8	39	10.3	380	172.6	
Non-formal	170	10.8	535	34.1	851	54.2	856	54.5	189	12	147	9.4	1570	175	
Primary	3675	11.9	10414	33.7	16332	52.8	17432	56.4	3644	11.8	2221	7.2	30935	173.6	
Secondary	479	14.8	1431	44.1	1513	46.6	1597	49.2	402	12.4	335	10.3	3247	177.3	
Tertiary	486	15.4	1560	49.4	1421	45	1391	44	357	11.3	344	10.9	3161	175.9	
Total	4851	12.3	14063	35.8	20303	51.7	21483	54.7	4652	11.8	3086	7.9	39293	174.2	
Religious affiliation															
No religion	1800	13.6	5483	41.3	6302	47.5	6798	51.3	1929	14.5	1079	8.1	13262	176.4	
Non-christians	1357	15.7	3585	41.4	4017	46.4	4301	49.7	1144	13.2	664	7.7	8651	174.2	
Christians	8405	12.1	24940	35.8	35824	51.4	38197	54.8	9059	13	5359	7.7	69675	174.8	
Total	11562	12.6	34008	37.1	46143	50.4	49296	53.8	12132	13.2	7102	7.8	91588	175.0	
Economic Activity															
Seasonal - Paid	462	13.3	1493	42.8	1636	46.9	1793	51.4	436	12.5	325	9.3	3485	176.3	
Seasonal - Unpaid	1231	11.9	4613	44.4	5285	50.9	5358	51.6	1175	11.3	783	7.5	10388	177.6	
Non_seasonal - Paid	1531	20.3	3483	46.2	3156	41.9	3078	40.9	868	11.5	756	10	7531	170.9	
Non_seasonal - Unpaid	1729	24.0	3056	42.4	2706	37.6	3064	42.5	700	9.7	569	7.9	7205	164.1	
Job seeker	108	11.1	354	36.5	496	51.1	501	51.6	163	16.8	93	9.6	970	176.8	
Home maker	3345	10.3	10343	31.7	17351	53.2	18708	57.4	4326	13.3	2287	7.0	32600	172.9	
Student	26	11.2	70	30.2	127	54.7	119	51.3	48	20.7	32	13.8	232	181.9	
Retired	1262	11.7	4976	46.2	5604	52	5871	54.5	1462	13.6	935	8.7	10769	186.7	
Sick	1902	10.3	5662	30.5	9825	53	10862	58.6	2976	16.1	1335	7.2	18536	175.7	
Prisoners	8.0	9.8	37.0	45.1	51.0	62.2	43	52.4	7.0	8.5	5.0	6.1	82.0	184.1	
Other (NEC)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total	11604	12.6	34087	37.1	46237	50.4	49397	53.8	12161	13.2	7120	7.8	91798	175.0	
Employment status															
Not working	7275	10.3	24567	34.8	37409	53	40097	56.8	9888	14	5278	7.5	70549	176.5	
Working	4329	20.4	9522	44.8	8832	41.6	9302	43.8	2276	10.7	1844	8.7	21256	169.9	
Total	11604	12.6	34089	37.1	46241	50.4	49399	53.8	12164	13.2	7122	7.8	91805	175.0	

Table 13

	Missing 1 arm						Pearson Chi-Square Tests	
	None		Missing 1 arm		Total			
	N	%	N	%	N	%		
Living arrangements	Living alone	11598	12.6	6	19.4	11604	12.6	
	Living with spouse	34079	37.1	10	32.3	34089	37.1	
	Living with children	46227	50.4	14	45.2	46241	50.4	
	Living with close relatives	49386	53.8	13	41.9	49399	53.8	
	Living with other relatives	12161	13.3	3	9.7	12164	13.2	
	Not related	7121	7.8	1	3.2	7122	7.8	
Total		91774	175	31	151.6	91805	175.0	

Results are based on nonempty rows and columns in each innermost subtable.
a. More than 20% of cells in this subtable have expected cell counts less than 5. Chi-square results may be invalid.

3. Relationship between living arrangements and socio-economic characteristics of older person's
- 3.1. Urban/rural residence (for 2011)
- 3.2. Education (for 2011)
- 3.3. Age and gender (for 2011)
- 3.4. Material well-being (Water source, Toilet or sewage, Floor material, Electricity, Radio, Television and Refrigerator) (for 2011)

Pearson Chi-Square Tests

	Living arrangements
	Chi-square
Place of residence	df
	Sig.
	Chi-square
Sex of respondent	df
	Sig.
	Chi-square
Age group	df
	Sig.
	Chi-square
P18/F20: Marital status	df
	Sig.
	Chi-square
Educational attainment	df
	Sig.
	Chi-square
Religious affiliation	df
	Sig.
	Chi-square
P19: Economic Activit since Independence day	df
	Sig.

3.6. Analysis methodology

Use of cross tables to establish the proportion of population aged 60 years or over living alone by Urban/rural residence and Education

Use of cross tables to establish co-residential living arrangements by urban/rural residence and education

Use of cross tables to establish differences by urban/rural residence in the proportion living in different arrangements

Mean material well being by living arrangements

Multivariate analysis of the effects of demographic and socio-economic variables on living arrangements among older persons

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Dr S.R.T. Moeng Department of Statistics, University of Botswana giving a presentation on
The Elderly Population in Botswana

THE ELDERLY POPULATION IN BOTSWANA

By

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Abstract: This chapter gives a brief insight of the situational analysis of the elderly population in Botswana. The Elderly refers persons aged 65 years and above, and an insight is also discussed for the elderly old, 75+ years old. The analysis is based on the 2011 Population Census of Botswana which enumerated 95947, elderly persons, aged 65 years and above which is 4.7%, of the total population in Botswana. About 51% of the elderly were females and 71% lived with close relatives. Most, 52.1% of the elderly population lives in rural villages. The distribution of socio-demographic, living arrangements and health status of the elderly by gender and type of residential locality are presented.

Introduction

The Elderly Population of Botswana

Elderly or old age refers to ages past the average life expectancy. The boundary of old age may have different meanings in different societies. Often people are considered as old once they lose their ability to perform certain physical and socio-economic activities. At these ages the person become more prone to diseases and sicknesses compared to the other age groups in the population.

Due to the changes in the family structures, the emergence of nuclear families, socio-cultural and economic developments, the elderly are increasingly becoming exposed to emotional, physical and financial hardships and insecurities. The ageing of the population has become a global issue and has presented challenges of meeting the needs of the elderly and Botswana is no exception to these challenges. Government and institutional programs catering for the elderly have been very few and have had less and limited coverage. It is Botswana's aspiration to ensure the well being of its population and hence policies, programs and laws that address different sectors of the population need to be put in place. This has become more essential in the context of the International plan of Action on Ageing adopted by the Second World Assembly in Madrid in 2002, of which Botswana has ratified. The aim of the Plan of Action is to ensure that persons everywhere are able to age with security and dignity and to continue to participate in their societies as citizens with full human rights (economic, social and cultural rights, and civil and political rights). Furthermore the elderly are to be provided with health care, support and social protection.

Objectives

A situational analysis of the elderly to identify the emerging areas of key concerns and inform on possible interventions to improve the living conditions of the elderly. In the broad context, the aim of this report are:

- To examine the ageing scenario.
- To examine the demographics of the elderly
- To assess the living conditions of the elderly
- To assess the economic status of the elderly

Methodology

The report is based on the Botswana 2011 Population and Housing Census. The census collected data on population size and composition, population dynamics, population and household characteristics, health characteristics and other variables. The study provides the distribution of the demographics, socio-economic status or profile, and disability conditions of the Elderly by gender and type of residence.

This report is based on the 2011 Botswana Population census together with the previous census results' analysis of the Elderly population and should provide insights to policy-makers and legislators in developing turnaround strategies, policies and programmes that can improve the living conditions of the Elderly persons.

The findings in this report will inform the review of existing policies and programs of the government including pensions, social welfare and other benefits. The aim will be to identify the extent to which these programs can be implemented to have a far reaching effect on alleviating the living conditions of the elderly.

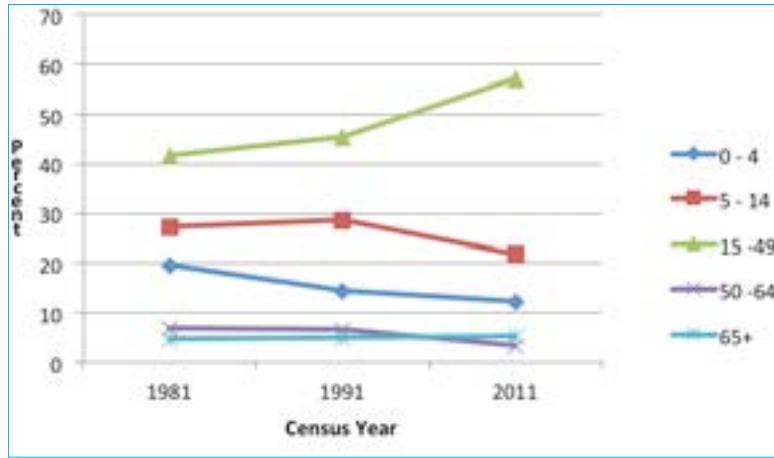
The Ageing scenario

Elderly population in this report is defined as population aged 65 years or older, which is the average age of retirement and the life expectancy in Botswana. Life expectancy, in Botswana, at birth is reported to be 64.1 years for males and 67.3 years for females. According to latest WHO data published in April 2011, the life expectancy in Botswana at the age of 65 is 77.9 years for males and slightly higher, 79.6 years for females. The same report indicates that males and females aged 75 years expect to live an extra 7 years. The population aged 75 years and above, (the elderly old) also needs some special attention since their needs will be more challenging than the 65-74 year old.

Figure 1 shows the breakdown of the percentage distribution of the population of Botswana, into five broad age groups; 0-4 years, 5-14, 15-49, 50-64 and 65 years and above over the census periods, from 1981 to 2011. The non citizens make up only a small proportion of the Botswana population. In fact in 2011 population census, only 111,846 persons were enumerated as non citizens and this represents only 5.5% of the total population. Over the years, the share of the 0-4 and 5-15 years declined from 19.7% to 12.3% and from 27.3% to 21.9% respectively from 1981 to 2011 (Figure1). During the same period, however, the percentage of the elderly population remained steady at about 4.8%, and its share of the total.

This calls for the Government of Botswana to come up with appropriate policy programs to cover the senior citizens. Reliable population projections are required to assist the policy makers to adequately prepare for the increasing graying population.

Figure 1. Age distribution of the population over the census years 1981 to 2011



Demography of the Aging population
Share of the Elderly in the Total Population

Highlight

- The Elderly population (65 years and above) is 95947, constitutes 4.7% of the total population of Botswana.
- Most 59.8% of the elderly in Botswana are females.
- More than half, 52.1% of the elderly live in rural villages.

The 2011 Population & Housing Census of Botswana counted 95,947, elderly persons, aged 65 years and above which is 4.7%, of the total population of Botswana in 2011.

The 2011 Botswana population census shows that a large percentage, 59.8%, of the elderly are females whereas 40.2% are males, Table 1. An even larger gender disparity is at the older ages, when the females make up a large majority, 63.2% of the old elderly aged, 75 years and above. This could be explained by disproportionate higher male mortality at older ages.

Around 7.1% of the elderly population lives in cities and towns and a further 40.8% live in urban villages. Most, 52.1% of the elderly population lives in rural villages (including farming lands areas and cattle posts). Most of Batswana consider cities and towns as a temporary residence, a place of economic employment and opportunities. On retirement the majority of Batswana in cities or towns return to their "homes", in the villages. It is in their villages where they get engaged in traditional economic activities, like farming. The elderly often

feel the village locations provide a sense of belonging and an environment in which they can enjoy peaceful, less stressful remaining years of their lives.

Table 1 Percentage age distribution by gender and type of residence locality

Age Group	Total	Sex		Locality Type		
		Male	Female	City/Town	Urban Village	Rural Village
	Count	%	%	%	%	%
0-4	237314	50.6	49.4	16.4	41.4	42.2
5-14	422456	50.4	49.6	16.5	43.1	40.4
15-49	1106267	49.1	50.9	26.7	42.8	30.4
50-59	120411	44.9	55.1	19.2	39.5	41.3
60-64	37584	46.1	53.9	12.8	38.3	48.8
65-74	50008	43.4	56.6	8.7	39.9	51.4
75+	45939	36.8	63.2	5.3	41.8	52.9
NS	4925	62.7	37.3	15	41.2	43.8
Total	2024904	48.8	51.2	21.7	42.3	35.9

Distribution Number and share of the Elderly population in the Total Population

Table2 shows the distribution of the elderly population by census districts in Botswana.

Of the total population of Botswana, Ngwaketse district has the largest, 7.0% share of the elderly population, followed by Barolong and Central Mahalapye districts with 6.7% and of their population aged 65+ years. The top two districts, in terms of the absolute number of the elderly population are Kweneng East and Central Serowe/Palapye, with the elderly populations above 10,000 each.

The cities and towns have the lowest share of the elderly populations, ranging from 0.6% to 2.7%. The mining towns recorded the lowest share of the elderly populations.

North East district has the largest female share percentage, 64.9% o of the elderly, followed by Central Bobonong and South East district (Table 2).

Marital, Education and Religion of the elderly

Highlight

- About 70% of the elderly have been in marital union at one time or the other in their lifetime.
- Almost 40% of the elderly are currently married and 35% of the elderly are have had their marriages disrupted by separation, divorce or widowhood.
- In each elderly age group, more males than females are still in their marital union.
- In each elderly age group, more females are separated, divorced or widowed.
- Only a small percentage of male or of female elderly are found living together, co-habiting without marriage vows.

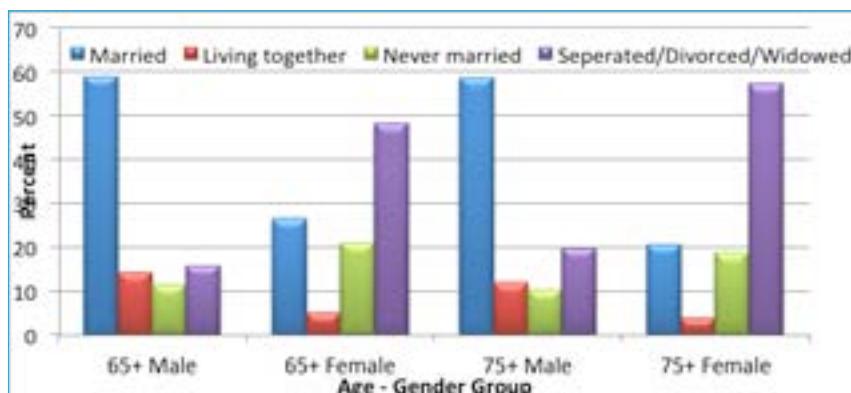
Marital Status of the Elderly

Marriage is an important status in Botswana, it is widely believed that marriage offers social, emotional and health security as one ages.

Table 3 shows that 39.4% of the elderly are currently married and the percentage decreases with age, 34.5% of the elderly are still in marriage union after the age of 75 years.

A significant gender difference is observed in the currently married elderly population. Table 3 and Figure 1 illustrate that almost 60% of the elderly males are currently married compared to 26.3% of females are still married. The gender difference in currently married is wider among the elderly old. Among the elderly old, 58.4% of the males aged 75+ years are married whereas only 20.6% of the females, aged 75+ years are currently married.

Figure 2. Percentage distribution of marital status of the elderly by gender



Highlights

- More than half, 57.4% of the elderly population has never been to school.
- About one third, have at most primary school education.
- The percentage with any level of education decreases with age, the oldest elderly have less education than the elderly.
- Gender disparities with respect to illiteracy, with a higher percentage of elderly males never been through any formal schools.
- About two thirds, 67.1% of the elderly in Rural Villages have never been to school compared to half and one third of the elderly in Urban villages and Cities/Towns respectively who have never been to school. Furthermore, more of the elderly population in Cities/Towns has primary and secondary education than the elderly in Urban villages or Rural villages.

Education is an important quality of life. If the elderly are educated they can support their families economically, they will be able to read medical prescriptions, instructions appliances thus minimize on the risk of not being able to follow instructions.

The 2011 Botswana Population Census collected data on highest level of education completed, field of education and whether the individual is still in school. However questions directly related to literacy were not covered in the population census.

More than half, 57.4% of the elderly have never been to school and a further 33.6% have had at most primary level of education (at most 7 years of education). Few elderly, almost 10%, have secondary school or higher education. More of the elderly have less education, primary or none, compared to the elderly segment of the population elderly. This implies that the highest illiteracy rates occur at the oldest ages.

The census data also indicate gender disparities in literacy and educational attainment. A large percentage, 62.5% of elderly males have never been to school compared to 53.9% of the female counterparts who have no education. More elderly females, than their male counterparts have some primary education or higher education.

Educational attainment varies by urban rural type of residence (Table 3). Whereas 27.0% of the elderly population residing in urban areas have never been to school, much higher percentages, 50.3% and 67.1% of the elderly in urban and rural villages, respectively, have never been to school. The elderly residing in cities and towns have recorded higher percentage with primary and secondary school education than their counterparts in urban or rural villages.

Living Arrangements

Highlights

Relation to the Head of the household

- **Majority, 69.4% of the elderly persons were heads of their households.**
- **11.7% and 7.7% of the elderly were the spouses and parents to the head of household**
- **A small percentage, 0.5% of the elderly persons was described as sons and daughters of the head of their households.**

Spouse

- **Slightly more than one third, 35.7% were living with their spouse**
- **Gender differences were observed in the living arrangements among the elderly. More than half, 55.6% of the males lived with their spouse and 22.4% of the females lived with their spouse. This could probably be explained by more males being currently married, higher mortality among the elderly males.**
- **The percentage of elderly persons living with spouse decreases with age.**

Household, Number of children and Relatives

- **12.1% of the elderly live alone.**
- **A higher percentage, 17.1% of the elderly males compared to 8.8% of the elderly females were living alone.**
- **Slight differences between the localities with respect to percentages of the elderly persons living alone.**
- **Nearly half of the elderly had no children living with them and 13.6% of the elderly had three (3) or more children living with them. No significant difference between the gender groups in having no children staying with them.**
- **About 71% of the elderly were staying with one or more close relatives. There were no significant differences between gender groups and between types of residential areas in the percentages living with at least one close relative.**

Relation to the Head of the household

Table 4 indicates that most, 69.4% of the elderly persons were heads of their households. It is also observed that 76.4% of the elderly males are heads of their households and a lower percentage, 64.8% of the elderly females were heads of their households. These high numbers are in line with the widespread cultural norm that the most elderly person in the household assumes the household headship role.

Also noted in Table 4 is the next largest percentage, 11.7% of the elderly were the spouses/partners to the head of the household. This was followed by 7.7% of the elderly who were parents to the head of household. Spouses

More, 55.6% of the elderly males were living with their spouse compared to 22.4% of the elderly females who reported living with their spouses. This reflects the differences in their marital status. The gap is even higher among the elderly old.

There is little difference in the percentages of elderly living with their spouse between types of residential locality, Figure 3. Urban villages have the lowest, percentage, 32.9% of the elderly living with their spouses. Within each type of locality, the percentage of elderly living with their spouse decrease with age.

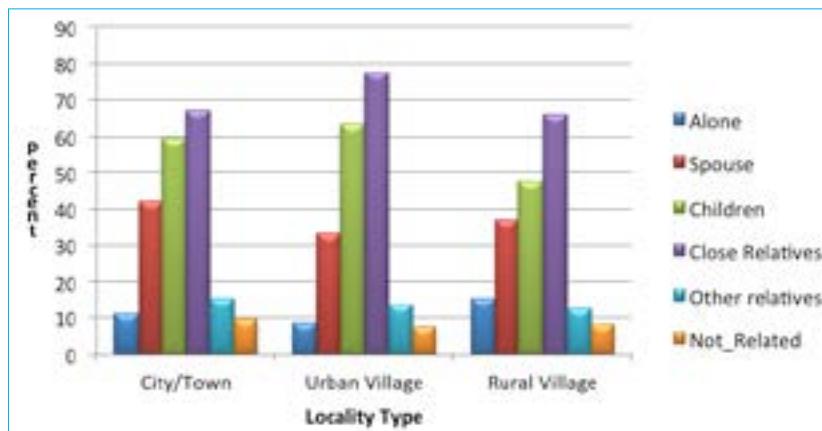
Number of children

As culturally expected a large percentage, 45.3% and 47.0% of the elderly and oldest elderly respectively are not living with their children, given that their children would have most likely be married and staying elsewhere. More than half, 52.6% of the elderly residing in the rural villages were not staying with any of their children, whereas 40.6% of the elderly in the cities and towns are not staying with their children, Figure 3. Close relatives.

More of the elderly females, 43.6%, than elderly males, 31.0%, live with 3 or more close relatives. Urban elderly have a high percentage, 44.5% living with 3 or more close relatives than the percentage of elders in cities/towns and rural villages.

An overwhelming percentage of the elderly do not live with persons unrelated to them. Only about 6% of the elderly are living with one person not related to them. This is observed through both gender groups and the different types of residential locations of the elderly, Figure 3.

Figure 3. Percent of elderly with different types of living arrangements



Economic Activities and Employment of the Elderly

Another important aspect of the elderly situation is their economic dependence. Economic independence reveals the day-to-day maintenance of the livelihood of the elderly. This report looks into various sources of income or assets the elderly persons have at their disposal. Other than the direct regular source of income generated from some form of employment, the household income generated by other members of the household, ownership of livestock, farmland for crop production, rental income from property owned by the elderly person or members of their household will be considered. Remittances into the household will also be considered.

The 2011 Botswana Population Census did collect data on various economic activities of the individuals and the household; their main occupation or economic activities in the past 7 days and since independence (the 12 months prior to the census date), the main products produced by the household and ownership of various durable assets.

It should be noted however, that the population census did not quantify these items, like the amount income from various sources, (including employment, government social grants, remittances etc.) the quantity of farmland and amount produced, the number of livestock owned.

Table 6 indicates the economic activities of the elderly. The common activity the elderly persons were engaged in was homemaker, 35.7% of the elderly reported they were homemakers. This is not unexpected since at these ages the persons are retired from active labour force, in fact 11.6% reported they were retired and thus not involved in any economic activity. Small percentages of the elderly, 3.8% and 8.1% were engaged in seasonal and non-seasonal paid work, respectively.

It was also noted that 20.4% of the elderly persons spent the past 12 months being sick and hence did not participate in any economic activity.

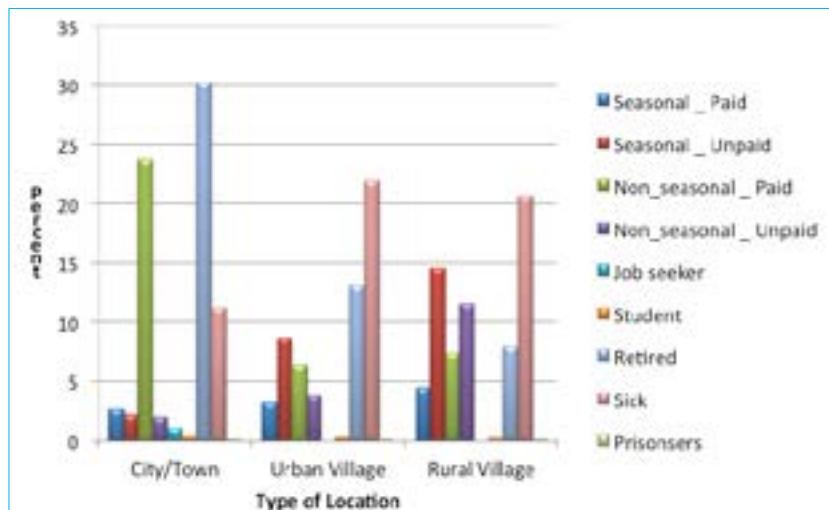
The distribution of economic activities by gender (Table 6) reveals that higher percentage of elderly males than of their female counterparts were involved in any category of economic activity, in the last 12 months, with an exception of homemaker category, where 45.8% of the elderly females and 20.8% of the males were homemakers. Also there was a higher percentage, 23% of the elderly females who reported they were sick compared to 16.6% of the elderly males who were sick in the past 12 months.

There were also differentials in the distribution of the economic activities of the elderly by type of locality. Figure 5. A larger percentage 14.5% of the elderly in rural areas were engaged in unpaid seasonal economic activities compared to 2.2% of the elderly males who were in the unpaid seasonal work. Differences in paid

work were also notable between elderly living in cities or towns and elderly living in rural areas. 23.7% of the elders in the cities or towns were engaged in paid work compared to 7.3% of the elders in rural areas who were in paid work.

The elderly persons residing in rural or urban villages were more likely to have spent the last 12 months being sick than the elderly persons residing in cities or towns, with 20.6% of the elderly in rural areas having been sick compared to 11.2% of the elderly in cities or towns who reported being sick in the past 12 months prior to the census.

Figure 4. Percentage Distribution of the Economic Activities of the Elderly by Type of residential location.



Disability among the elderly

Highlights

- The majority, 80% of the elderly persons did not indicate any form of disability; hence 17.2% of the elderly had some form of disability.
- Sight disability was the most common form of disability, 12.2% of the elderly persons, followed by hearing impairment, 4.6% and inability to use one or two legs, 2.7%.
- Sight impairment most common among the elderly residing in rural areas.
- All forms of disability rates tend to increase from Cities to Urban villages to Rural areas, probably a result of differential in health facility resources and their standards.

Disability has been defined as “a restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being” (WHO, 1980:27).

A disabled person is compelled to be particularly or totally dependent on others. A disabled person may be disadvantaged in several ways – socially, economically, psychologically and educationally. Disability combined with the normal emotional stress of old age often leads to an unpleasant remaining years of life of the elderly persons.

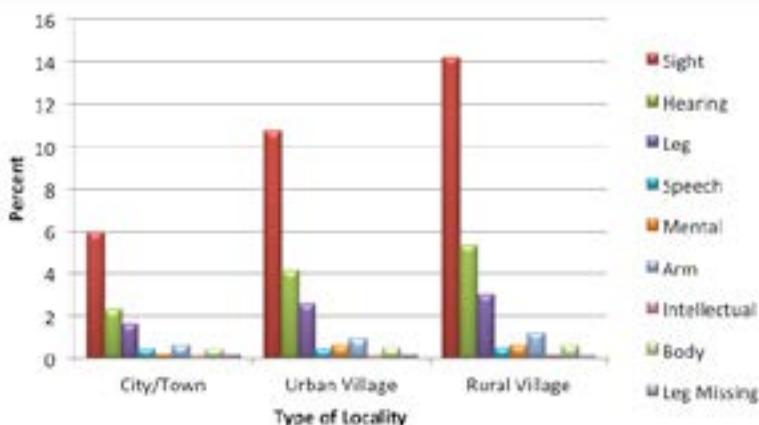
Information about 10 types of disabilities, including sight impairment, hearing impairment, mental and intellectual impairment were collected in the population census. Table 5 indicates the type of disability afflicting elderly persons.

Table 5 indicates that an overwhelming majority, 80%, of the elderly had no disability. The most common disability reported was sight impairment with 12.2% of the elderly having sight impairment followed by 4.6% having hearing impairment. The least frequent disability among the elderly is missing one or both arm and leg organs of the body.

Disability rates among the elderly persons vary by city/town, urban villages and rural area residence. Rural areas have higher disability rates than urban villages, and the lowest disability rates are among the elderly persons residing in the cities and towns. The lower disability rates in cities and towns areas might not be unconnected with the rural urban differentials in access to health care in Botswana.

The highest percentage, 14.2% of the elderly residing in the rural areas reported sight impairment, (Figure 5). The percentage of impairment increased with age, across all the gender groups and type of residential location.

Figure 5. Per cent of elderly with different types of disabilities by type of residential locality



Concussions and Recommendations

The number of elderly persons is increasing in absolute numbers, though their share of the total population has remained steady at low, about 5% over the years. The improvements in health sector, low reduction in mortality levels coupled with decline in fertility has led to the longer life expectation of the population.

The problems faced by the elderly will increase as a result of modern and development path Botswana is experiencing. Increasing urbanization, emergence of nuclear family structure and eroding extended family structure means the traditional support system can no longer be available to sustain old age.

Differential situations experienced by men and women, by different type of residential the elderly live in needs more attention. This calls for urgent government and other stakeholders to address issues of health, economy and living conditions faced by the elderly.

This report needs to be supplemented by more directed surveys to study the living conditions of the elderly. The census has provided valuable information, though does not address the size and quantity of household economic assets to the elderly, rather household ownership.

To be incorporated in this study, the available data on household resources should be linked to the elderly, eg. livestock ownership.

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Elizabeth P. Mukamaambo, University of Botswana giving a presentation on
The Profile of Orphans

THE PROFILE OF ORPHANS

By

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Abstract: The increasing number of orphans is one of the major challenges that Botswana is facing as a result of the HIV/AIDS pandemic. As AIDS mortality rises, growing numbers of children will be orphaned by the disease. By increasing the number of children who lose one or both parents, HIV/AIDS exacerbates poverty and inequality. In answer to this situation the Government has come up with policies and programmes that address the plight of orphans and vulnerable children. The paper makes an attempt to profile the orphans and use the profile to assess the degree of vulnerability of the orphans. In profiling the orphans the paper looks at age, sex, educational level and employment status. For the girl child aged between 15 years and 29 who are maternal orphans the paper goes further and establishes the number of children they have. This is as a result of the traditional role that mothers play in raising and fostering grandchildren. The loss of a mother has far reaching consequences than the loss of a father as it has implications of child care practices and mothers need to be relieved of responsibilities to either pursue further education or to look for employment. The upper age limit of orphans is taken as 29 years of age on the basis of the Government's definition of the upper age limit of youth. And also that it is important to synchronise youth programmes. The paper argues that the depletion of potential foster mothers due to increased death rates as a result of HIV/AIDS epidemic and the weakening of the extended family system have acted together to expose the youth especially females to poverty as in most cases, it is the girl child who is usually called upon to fill the gap of a parent in the absence of a parent. The papers used only the available information at the time of writing, which are age, educational attendance and employment status. With this information, the paper recommends that the upper age limit of 18 years to be a beneficiary of orphan programme be increased because vulnerability of orphans extends beyond economic situation.

Introduction

While persons referred to as orphans have been in existence for a very long time. As Mukamaambo (2010) points out that Botswana like many societies around the world have has orphans resulting from various causes of death however, what is new is the sheer magnitude of the orphans that has almost completely incapacitated the traditional methods of dealing with the same. The main culprit to the increasing numbers is the HIV and AIDS pandemic. HIV and AIDS have increased the death rate among reproductive age persons who in most cases still have young children to care for. The death of those in reproductive ages implies that it is those who are outside these ages that have to cope with the burden of looking after those left by their parents due to death. Given that those left to care for the young are either too old or too young, taking care of the orphans has been challenge.

In recognition of this problem, the Government of Botswana came up with an orphan policy and its implementation procedures where the orphans are registered at community level and are assisted at the national level through a welfare system specifically established for the same. The first step at the national level was to have a national level of an orphan. This followed more or less the international definition that focus on a child who has lost both parents through death, and, less commonly, one parent (<http://dictionary.reference.com/browse/orphan.2013>). The challenge for Botswana was to establish the upper age limit of the "child". This was pegged at age 18 years of age.

The main objective of this paper was to profile the orphans as reported during the 2011 census and use the profile to assess the degree of vulnerability of the orphans. In profiling the orphans the paper looks at age, sex, educational level and employment status. Using the profile the paper assess whether or not the age limit of who is regarded as an orphan and qualifies as a beneficiary of the orphan programme is not too low. The essay also interrogates the use of the upper age limit in the profile of orphans as provided by the 2011 census data with a view of advocating for the age limit to be raised to 29 years of age. According to the Department of Welfare, children up age 18 years qualify for orphan support. This support ceases once an individual reached age of 19 years. Those above age 18 years of age are regarded as being outside the age category of orphans and as such would normally not receive welfare support. The paper argues that in most cases those ages 19-23 years old would still be attending some form of tertiary education and with the current high unemployment rate among youth who in most cases would still be unemployed long after completing their education, there is need to re-assess the upper age limit of who should be considered an orphan. The main source of data for the paper is the 2011 Population Census and uses the simple cross tabulations and percentages

Limitations of the paper

The main limitation of the paper is that related to the data. Given the difference between the tables that were requested and those that were provided, it was not possible to exhaustively use tabulation plan that the authors had planned for the analysis. Specifically for any form of analysis on orphans the variable "age" is the key as it is used to define who is an orphan. As it turned out, the classifications are not provided by age. The other aspect is that the any person regardless of age is provided in the category age. This has made the initial objective of the paper which was to profile orphans with a view of using the profile to assess whether or not orphans a vulnerable population and the factors that make them Furthermore it has not been possible to compare the situation of orphans with the situation of non-orphans as information of the non-orphans was not tabulated. It is hoped that this information will be available when the paper is being revised.

Results

Table 1 shows the distribution of orphans by district. The aim of the table was to find out the district where orphans are mostly found. As a control measure, the table also provides population distribution by district. This was to establish if the percent distribution of the orphans is influenced by population size of the district. The table shows that while in most cases the number of orphans in a district may be influenced by the population size of a district; there are some districts that show that the number of orphans in the district may not necessarily be influenced by the population size of the district.

Table 1: Percent Distribution of Orphans and Population by District

	% Orphans*	% Population Distributions
Gaborone	10.9	11.2
Francistown	4.9	4.9
Lobatse	1.4	1.4
Selebi Phikwe	2.4	2.4
Orapa	0.4	0.5
Jwaneng	0.9	0.9
Sowa Town	0.2	0.2
Southern	9.4	9.7
South East	0.7	4.6
Kweneng East	16.6	14.9
Kgatleng	2.3	4.5
Central Serowe Palapye	4.5	9.2
Central Mahalapye	9.1	5.8
Central Tutume	6.0	7.1
North East	3.7	2.7
Ngamiland East	2.8	4.7
Ngamiland West	7.6	3.0
Chobe	3.2	1.2
Ghanzi	2.9	2.1
Kgalagadi South	0.1	1.5
Kgalagadi North	2.1	1.5

*May not add to 100 as some sub district have been left out as they did not have comparable population percentage.

The districts showing such differences are: Kgatleng (2.3% orphans and 4.5% population), Serowe Palapye (4.5% orphans and 9.2% population) and Ngamiland East (2.8% orphans and 4.7%). These show lower proportion of orphans compared to their proportionate share of population. On the other hand those showing a higher proportion of orphans compares to their proportionate share of population are Central Mahalapye (9.1% orphans and 5.8%), Ngamiland West (7.6% orphans and 3.0%) and Chobe (3.2% orphans and 1.2%). All other districts show that the population size may influence to some degree the number of orphans in the district.

Age Distribution

As expected the age distribution of orphans shows that the proportion of orphans increases with an increase in age. This has a lot of implications of the socio-economic status of the orphans in general and female orphans in particular. Ages 15-34 are the core ages for reproduction and also for economic activity. The data is illustrated in Table 2.

Sex Distribution

The table also shows age specific sex ratios of orphan. The ratios show that up to age of nine years, there are more male orphans than female orphans. After age nine the sex ratios favour female orphans. This may mean increased mortality for male orphans or maybe misclassification among relatively older orphans. See Table 2 for more details

Table 2: Distribution of Orphans by Age and Associated age Specific Sex Ratios

Age	Male	Females	Sex Ratio of Orphans
Infants	0.8	0.8	104.7
1-4	2.1	1.9	103.4
5-9	6.5	6	104.3
10-14	11.5	10.7	102.7
15-19	16.8	16.4	98.7
20-24	19	19.8	92.8
25-29	22.4	23.2	95.3
30-34	20.9	21.1	96.3

In terms of school attendance, and from the table 3, it seems females are fairing much better as a small proportion of females have never been to school, an equally smaller proportion have left school and also a higher proportion have left school. From the table it is not clear the level at which those who left school where in at the time of leaving school and why.

Table 3: Orphans School Attendance

	Males	Females
Still	16.69	15.14
Left	63.51	67.23
Never	19.79	17.64

Botswana is one of the countries that are faced with high youth unemployment rate. The problem is likely to be worse for orphans who in most cases do not have a solid social support system apart for the support from the Government through social well fare. In this paper an orphan is regarded as vulnerable if they are out of school when they are supposed to be in school, if they are unemployed (thus they are looking for a job), if they are employed in a non-secure job (are involved in seasonal or part time employment), if they are females, they have at least one child and are single as well as unemployed.

Table 4 provides some information on employment status of orphans. The table shows that a higher proportion of orphans are in secure jobs with almost 47 percent of male orphans and 32 percent of female orphans reported to be in non-seasonal paid jobs. There is a higher proportion of females reported to be home makers.

Table 4: Distribution of Orphan by type of Employment Status

Type of employment	Males	Females
Seasonal _ Paid	8.4	6.9
Seasonal _ Unpaid	4.1	5.1
Non_seasonal _ Paid	46.9	32
Non_seasonal_ Unpaid	5.6	3.1
Job seeker	11.2	11.0
Home maker	10.3	31.0
Student	13.3	12.0

Discussions

The distribution of orphans by district shows that of the three districts that reflect a higher proportion of orphans, two of them are remote districts. This is a concern considering that in most cases service provision for orphans is situated near large urban areas. Monitoring orphan situation may be a problem. In terms of the age distribution, the paper shows that the number of orphans increases with age. It is higher among those who are expected to be in school, work and those within the reproductive ages. Being an orphan during this period in one's life brings its own level of vulnerability. There is an issue of social connection at young ages. It is at this age that parental support is crucial. According to Tout (1994) orphans undergo a transition from a secure home with parents and siblings to a home where they have to fend for themselves or take care of elderly grandparents while they are ill prepared to take up such roles. This may affect their schooling. Being orphaned during reproductive age has implications on child care system especially because child fostering is common in Botswana. This affects those in labour force age as at times some young mothers are forced to take care of their children instead of looking for work. This may explain the high proportion of those reported as home makers among females. Given those in Botswana ones seems to be an orphan after age of 18, this makes female orphan especially vulnerable and disempowered. This is more so because, there is no smooth transition from being a beneficiary of the orphan programme to being a beneficiary of the youth programme. One has to completely stop before the other can start. The other challenge during this transition is the complicated procedures that are necessary to start benefitting from the youth programmes. The sex ratios show a depletion of male orphans with an increase in the age of orphans. This may have an implication on socialisation of young people who may be children of the orphans.

Conclusion

The youths are defined using age limit. For the purposes of service provision, the National Youth Policy (1996) defines youths as all persons aged 12-29 years old. The policy recognises that people in this age group require social, economic and political support to realise their full potential. For Botswana the definition of an orphan is circumstantial. An orphan is regarded as any person aged 18 years and below, who has lost both parents if the parents were married, or one who has lost a parent, if the parent was not married (single parent). The definition of an orphan, therefore, centres upon loss of a biological parent rather than loss of economic and social support as a result of the death of parent. This means an orphan is defined in terms of physical as opposed to psychological and social support. This invariably means that the definition centres on the parent and not on the child. Therefore, in effect, any child suffering from neglect, economic and/or social deprivation is not regarded as an orphan as long as a person regarded as a parent is still alive regardless of lack of support or a person reaches age of 18 years. There have been many cases when a child is classified as a potential orphan when the parent is terminally ill. However, the said potential orphans may not receive material support until the parent dies (Mukamaambo 2004.)

Recommendations

Based on the discussion above, there is a lot to be done in relation to the issues of orphan. The first such step should be to synchronise the upper age limit of those regarded as orphans to the one used for youth especially because up to age 23 or 24 most would still be at school. Second, there is need to assess child care system in Botswana with a view of assisting orphan with no family support to have a place to leave their children while at school or looking for employment. There are orphans who opt to live under conditions of poverty with their children because they have no one to help them. This may lead to a vicious circle of poverty among orphans and their children.

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Dr Moatlhodi Kgosimore, Botswana College of Agriculture giving a presentation on Trends & Distribution of Religious Affiliations in Botswana: The 2011 Population & Housing Census Data

TRENDS AND DISTRIBUTION OF RELIGIOUS AFFILIATIONS IN BOTSWANA: THE 2011 POPULATION AND HOUSING CENSUS DATA

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Abstract: Batswana are an extremely spiritual society with religion as the integral part of their daily lives. There is observed increase in religious affiliations and reduction in non-religious affiliations. However, there is a significant increase in the Christian society. The study also revealed that cohabitation is highly practiced in Botswana and the level of literacy is reasonably high.

Introduction

Batswana are an extremely spiritual society with religion as the integral part of their daily lives ranging from spiritual to traditional inclinations. Since the arrival of the colonial missionaries in the early 1800s, people worshipped Modimo, a greater God or Supreme Being representing the ancestors. Modimo was believed to be a supernatural being responsible for the creation of humankind, animals and plants and as such there was a strong connection between people and the natural environment.

Ancestral worship and religious practice remains central to those who still follow the traditional belief systems. It is generally believed that, if appeased, the ancestors will protect the family, strengthen the community and keep away ill omens. Ancestors may also be invoked to promote auspicious seasonal events, such as timely onset of the rains and a good-quality harvest. A traditional healer always played a strong or significant role in these belief systems as media through which ancestral spirits were contacted. Many traditional practices and beliefs started disintegrating when Christian word teachings were introduced by the missionaries.

Literature shows that Botswana has three (3) main categories or families of churches, namely the (i) Mainline churches (ii) Africa independent churches and (iii) Evangelical or Pentecostal or Charismatic churches (for detailed description of types of churches see Haron et al, 2008). The challenge has the determination of the prominent categories, even though some studies suggest that African independent churches dominate, followed by mainline churches. It is worth noting that these churches have varying doctrines or practices. The mainline churches commonly described as missionary-founded churches focus mainly on salvation and shared resources and their doctrines are aligned to international denominations such as Anglican, Catholic just to mention a few. The African Religion comprises a variety of churches: among them the Healing Church of Botswana, the Zionist Christian Church and the Apostolic Faith Mission belonging to two main movements: the African Independent and Pentecostal churches. These are indigenous religions that practice an integrated form of worship, combining the Christian liturgy with the more ritualistic elements of traditional ancestral worship. Very popular in the rural areas, the African Religion has a strong sense of community worship, rather than the more individualistic routine of modern Christianity. The Pentecostal church focus on being born again, Holy Spirit filled, living holy and prosperity.

Other religions such as Islam and Hinduism also uphold the spirit of adherence to religion focused on the social, economic and health aspects of humans. However, just like other religions the form of worship or practice differs from others.

The constitution of Botswana recognizes the right to religious association in all spheres of life. This is supported by Botswana's vision 2016 pillar of a moral and tolerant nation (Vision 2016, 1997). The Vision recognizes family as a central institution for support and development of people of Botswana and for transformation of social and moral values. Botswana is faced with challenges that include failure to cultivate and preserve national moral and cultural values in the face of rapid social change. The vision also advocates for shared values and respect for religious beliefs. In essence it promotes the vision 2016 pillars: a compassionate, just and caring nation. The religious institutions should be viewed as agents for change, maintenance and transmission of moral and ethical standards. The constitution permits the government to suspend religious freedom in the interest of national defense, public safety, public order, public morality, or public health when the suspension is deemed "reasonably justifiable in a democratic society (Botswana international religious freedom report, 2012). That is, the role or importance of religion is the promotion of social justice and dignity among humans particularly girls and poor women. Religious institutions have played a central role in shaping the character and quality of intimate relationships between married parents (Iannaccone, 1998) by fostering a range of relationship related values, norms, morals and social support. It fosters the establishment of a family unit, the key institution for transmission of traditional values, through the promotion of investment in marriage, discouraging

behaviour harmful to marriages and encouraging spouses to take favourable decisions appropriate for relationship building. The principles and goals of the vision form the foundation for future development plans, mid-term reviews and guides formulation of national policies. Every society's standards and laws are based on some form of religion (<http://www.ask.com>, 2013).

Literature review

Haron et al (2008) carried out an extensive secondary literature review on the contributions of faith-based organizations in the prevention of HIV/AIDS. The study reviewed both the local and international researches relevant to the involvement of faith-based or religious organizations on the prevention of HIV/AIDS. The study revealed weak links between collaborations between faith-based organizations (religious vs non-religious) as well as researchers (local vs international scholars). Precisely, there is no mechanism for nurturing and sustained collaborations and partnerships.

According to the International Religious Freedom report (2007) Botswana's constitution provides for freedom of religion and is widely respected by both government and private actors. Botswana enacted a Societies Act which requires the registration of all churches bodies and controls some of their activities (Sales, 2005).

As survey, census and historical data pile up, the continuing vitality of religion has become apparent especially in countries such as the United States where church membership has increased from 17% at the time of the Revolution, 34% by the mid-1800s and to more than 60% in the late 1990s (Iannaccone, 1998). Religion is not the province of the poor or uninformed, it was reports in numerous analyses of cross-sectional survey data that rates of religious belief and religious activity tend not to decline with income and most rates increase with education. However, styles of religion do vary with income and education. Theologically conservative denominations typically labeled 'fundamentalist', 'Pentecostal' or 'sectarian' draw a disproportionate share of their members from among the poorer, less educated, and minority members of society (Stark 1972; Roof and McKinney 1987; Iannaccone, 1992). On average in academia were less religious than the general public, but it was not clear that this reflects a fundamental tension between faith and science. Faculty staff members in the physical sciences and professional fields were much more likely to attend church, profess faith and approve of religion (Wuthnow, 1985). Among leading physicists, chemists and biologists, belief in a god who answers prayer is as widespread as irrespective of the generation (Larson and Witham, 1997).

The economics of religion reflects that in some countries such as the USA, churches contribution to the GDP is estimated at 1%, thus religious giving contributes significantly to charitable giving, with religious volunteer work is more common than any form of volunteer work and the majority of non-profitable organizations are or were religiously based (Iannaccone, 1998).

Botswana adopted the United Nations Millennium Declaration in 2000 and set a deadline of 2015 for the achievement of the millennium development goals (MDGs) and an impressive progress has been reported. This commitment according to the INDRH (2005) implies that Botswana through faith and traditional should:

Eradicate extreme poverty and hunger: through practice of generous behaviour and service to others. These traits go beyond the economic stability of families to include health, well-being and spiritual development of individuals.

Achieve universal primary education: through faith and traditions that promote appreciation for diversity and tolerance, such as the development of non-violence, peace-making, tolerance and healthy living values.

Promote gender equality and empower women: through devotion and respect for justice and equality, dignity and rights, education, both physical and mental health services which allows for participation in human societies. Provision of access to information to women of reproductive health, education, employment, social and political involvement as well as leadership in religious traditions.

Reduce child mortality: faith and religion should have high regard for sanctity of life.

Improve maternal health: promote balance and harmony for the well-being and health of humans.

Combat HIV/AIDS, Malaria and other diseases: Understanding of suffering and compassion shall be attributes of a religious society.

Ensure environmental sustainability: Understanding of need for balance of health and environment is crucial to a religious society.

Develop a global partnership for development: Strong advocacy for a just and peaceful society is a pre-requisite for collaboration.

The current status of progress of MDGs and vision 2016 shows progress particularly in the following goals: (i) Eradication of poverty and hunger (ii) Achieve universal primary education (iii) Promote gender equity and empower women (iv) global partnerships. These goals are driven by the national vision pillars (a) A compassionate, just and caring nation and (b) A moral and tolerant nation. The review of the vision also highlighted high rise in crime and violence, which demonstrates Botswana's regard for acceptable behaviour and law abiding society. There is also concern for eroded culture of family, with transition of 'traditional' to nuclear 'family' which destroys support and development, including transmission of social and moral values.

The Afro barometer raised crucial findings such as status of activity to religious affiliations and frequency of worship which could be attributed to some of the negative findings in the study. Improved communication with improved access to renowned international ministries, with messages centered on prosperity and healing may be the cause of growth of the Christian society. The legal framework that promotes or advocates for involvement of religion in spiritual healing may also have contributed to the rise in Christian levels.

Analysis commentary

The focus of the work is establishment of trends and distribution of religion in Botswana based on the following indicators (a) age (b) gender, (c) level of education attained (d) marital status and (e) employment status.

Age distribution

We categorized the age groups into the youth (18 – 35 years), sexual reproductive group (15–49 years of age) and the elderly (65 years and above) to obtain insight on the dynamics of religion among these important groups. These groups have key roles and responsibilities in the society which needs to be preserved for the development of the country. The youth are the future leaders of the society, the reproductive group is crucial for population growth, leadership and implementation of initiatives while the elderly are the mentors. The trends of Christianity dominance were recorded from the study and a higher proportion of the youth and/or reproductive groups (estimated 79%) are Christians. Notable the African tradition religion (Badimo) is dominated by elders; this is expected as elders tend to be preservative on issues of tradition while youth are generally vulnerable to the fast changing environment. The challenge arises from a higher proportion (16.3% against 15.5% and 14.5% of the reproductive and elderly groups) of the youth not aligned to any religion. The Islamic religion seems to be establishing itself among the youth and/or the reproductive groups. Implications of these results are that Botswana's young generation upholds religious values that is envisaged to transform the country to become a moral and tolerant nation and also capable of striving for spiritual and physical health.

Gender based distribution

The results of the study show that Christianity is female dominated religion (56%). The other religions are male dominated with Hindu leading the group at 64.5% (table 2(a)). Comparison by religion shows that male Christian population dominated other religions with 72.5% followed by the Hindu religion with 20%. Similarly the female population dominates at 85% followed by Hindu religion at 10.4%.

Marital status

One of the main objectives of Botswana in its mandate to achieve the millennium development goals and fulfill pillars of vision 2016 is through the promotion of family—a unit institutionalized through marriage. Comparison across religions shows that Christianity dominates all categories (married (83.6%), never married (79.1%), cohabitation (75.2%), separation (77.2%), divorce (83.6%) and widows (81.7%)) followed by non-affiliation to religious grouping (table 3(b)). The study further shows that within the Christian community a large proportion of individuals never got married (55.6%), while married and cohabitation are respectively about 19% and 20% respectively. The high rates of divorce among the Christian and traditional community poses a major challenge as the two systems are believed to have strong and solid marriage building foundations such as marriage counseling by qualified marriage counselors (in church) and uncles in the traditional settings. The question that remains "Would Botswana achieve its objective of promoting family in the context of a marriage?". These results have serious implications in building a tolerant nation as well as a compassionate and caring or united nation. Marriage support systems are slowly eroded by fast changing environment.

Level of education attained

Education is the tool through which assimilation of knowledge can be easily implemented. In her vision Botswana has advocated for universal primary education and access to ten years of basic education for all by 2016 through the pillar of an educated and informed nation. It is encouraging to note high level of literacy in Botswana. Today's gospel teaching encourages reinforcement of knowledge through self-study, which puts people of Botswana at an advantageous position to understand issues of life through access to information through various media.

Employment status

Religion is a vehicle for development and transformation in different aspects of life including economic stability. Trends show that within each religion the majority have no formal employment except for those practicing traditional religion (Badimo) [table 5(a)]. Hindu and Christian communities are the most hit with proportion of no-formal employment estimated at 58.4% and 56.7% respectively. Across all religions Christianity leads on both formal and non-formal employment with an estimated employment of 79% followed by the Hindu community (14.7% formal employment and 15.7% on non-formal employment). Implications of employment status could be attributed to a number of issues among them the prosperity teachings.

The researches even though reviewed religious contribution to the health aspect of the society particularly HIV/AIDS, did not incorporate analysis of HIV/AIDS as more data will have been required to effectively complete the exercise. It is hoped that analysis of HIV/AIDS will be covered elsewhere. Also omitted from the analysis are issues of child-bearing, juvenile delinquency and mortality.

Trends on the 2011 Population and Housing Census data show that Christianity (79%) remains the predominant religion followed by Badimo (4.1%) (commonly known as African traditional religion) and then Islam (0.74%). At least 15% of the population was not associated to any religion. The results showed an increase in level of religion with Christianity increasing by at least 7% from the 2001 population and housing census and reduction in non-affiliated members by about 5%. However, there is evolution of another religion known as Rastafarian advocating for recognition.

Implications of a society with strong religious tradition are that in addition to the economic aspects of individuals and families focus is also directed to the health, well-being and spiritual development of families. The faith and traditions 'aspirations for appreciation of diversity and tolerance advocate for non-violence which introduces children and youth to education programmes teaching peace building, tolerance and healthy living.

The picture portrayed by the 2001 and 2011 population and housing census coupled with the Afro barometer survey of 2005 of predominantly religious society (at least 84%) places Botswana in a better position to develop into a just, free, equal and compassionate society. The implications of the results are that Botswana is capable of fulfilling all the set standards of the MDGs, Vision 2016 as well as NDP10 initiatives provided the society practices strongly the characteristics and functions religions. However, more in-depth studies should be undertaken to determine factors crucial to the break-down of families. The high rates of cohabitation go against the Christian teachings which promote establishment of families made from formal marriages. The high rates of HIV/AIDS prevalence which seem to be reversing most of the gains made poses a major concern and calls for more rigorous intervention measures. Further, studies are also crucial to determine gaps that allow for the generation of new infections despite so much information about the disease. The results of the analysis show high rates of literacy which is an indicator of effective weaponry for understanding of moral values required for protection and execution of goals and initiatives.

Conclusions/Recommendations

Conclusions

Botswana is predominantly a religious society, with Christianity at the fore front. The study recorded low rates of marriages and high rates of cohabitation owing to the collapse of solid family structure. The high levels of literacy provide hope for a knowledge based society which is informed. The age distribution of religion also provides a foundation for young spiritual generation which may be a strong advocacy for transformation of the society.

4.2 Recommendations

A framework aimed at reviving the family unit should be developed, probably of multi-sectoral nature like that of prevention of HIV/AIDS.

Further studies on the influence, dominance and overlaps of category of churches in socio-welfare should be conducted.

Initiatives like reanyalana in Bokaa should be supported to reduce cohabitation.

Appendices

Table 1: Distribution of religion by selected age groups

Christian		Muslim		Badimo		No Religion		Other religions			
	Number	%	Number	%	Number	%	Number	%	Number	%	Total
Age	18-35	542616	78.7	5494	0.8	24858	3.6	112274	16.3	4577	0.7 689819
	15-49	874038	79.4	8755	0.8	40475	3.7	170647	15.5	7399	0.7 1101314
	65-98	72663	76.1	394	0.4	8239	8.6	13861	14.5	373	0.4 95530

Table 2(a): Intra – distribution of religion by Gender

Christian		Muslim		Bahai		Hindu		Badimo			
	Number	%	Number	%	Number	%	Number	%	Number	%	Total
Sex	Male	515891	44.0	6566	60.0	37781	62.3	145349	64.5	5764	62.0 711351
	Female	655646	56.0	4375	40.0	22832	37.7	80067	35.5	3530	38.0 766450
Total		1171537	10941		60613		225416		9294		1477801 95530

Table 2(b): Population based distribution of religion by Gender

Christian		Muslim		Bahai		Hindu		Badimo			
	Number	%	Number	%	Number	%	Number	%	Number	%	Total
Sex	Male	515891	72.5	6566	0.9	37781	5.3	145349	20.4	5764	0.8 711351
	Female	655646	85.5	4375	0.6	22832	3.0	80067	10.4	3530	0.5 766450
Total		1171537	10941		60613		225416		9294		1477801 95530

Table 3: (a) Intra – religion distribution by marital status

Christian		Muslim		Badimo		No Religion		Other religions				
	Number	%	Number	%	Number	%	Number	%	Number	%	Total	
Marital status	Married	226316	19.3	4587	41.9	10042	16.6	24662	10.9	5022	54.1 270629	
	Never Married	651597	55.6	4344	39.7	27272	45	137293	60.9	2784	30 823290	
	Living together	230205	19.7	1369	12.5	18566	30.6	55088	24.4	971	10.5 306199	
	Separated	5084	0.4	100	0.9	450	0.7	904	0.4	48	0.5 6586	
	Divorced	11941	1	237	2.2	659	1.1	1250	0.6	188	2 14275	
	Widowed	46281	4	300	2.7	3620	6	6198	2.7	278	3 56677	
	Total	1171424		10937		60609		225395		9291		1477656

Table 3: (b) Distribution of religion by marital status

Christian		Muslim		Badimo		No Religion		Other religions				
Christian	Muslim	Badimo	No Religion	Other religions	Total	%	Number	%	Number	%	Total	
	Number	%	Number	%	Number	%	Number	%	Number	%		
Marital status	Married	226316	83.6	4587	1.7	10042	3.7	24662	9.1	5022	1.9 270629	
	Never Married	651597	79.1	4344	0.5	27272	3.3	137293	16.7	2784	0.3 823290	
	Living together	230205	75.2	1369	0.4	18566	6.1	55088	18.0	971	0.3 306199	
	Separated	5084	77.2	100	1.5	450	6.8	904	13.7	48	0.7 6586	
	Divorced	11941	83.6	237	1.7	659	4.6	1250	8.8	188	1.3 14275	
	Widowed	46281	81.7	300	0.5	3620	6.4	6198	10.9	278	0.5 56677	
Total		1171424		10937		60609		225395		9291		1477656

Table 4 (a): Intra – religious distribution by educational status

		Christian		Muslim		Bahai		Hindu		Badimo		Total
		Number	%	Number	%	Number	%	Number	%	Number	%	
P14/F16: Ever attended school	Still at school	274501	23.4	2080	19	6257	10.3	43575	19.3	1414	15.2	327827
	Left school	779292	66.5	7956	72.8	35073	57.9	141082	62.6	7261	78.2	970664
	Never attended	117367	10	897	8.2	19268	31.8	40642	18	613	6.6	178787
Total		1171160		10933		60598		225299		9288		1477278

Table 4 (b): Distribution of religion by educational status

		Christian		Muslim		Bahai		Hindu		Badimo		Total
		Number	%	Number	%	Number	%	Number	%	Number	%	
Ever attended school	Still at school	274501	83.7	2080	0.6	6257	1.9	43575	13.3	1414	0.4	327827
	Left school	779292	80.3	7956	0.8	35073	3.6	141082	14.5	7261	0.7	970664
	Never attended	117367	65.6	897	0.5	19268	10.8	40642	22.7	613	0.3	178787
Total		1171160		10933		60598		225299		9288		1477278

Table 5(a): Intra-religious distribution by employment history

		Christian		Muslim		Bahai		Hindu		Badimo		Total
		Number	%	Number	%	Number	%	Number	%	Number	%	
Do any type of work for pay	Yes	506979	43.3	5388	49.2	28477	47.0	93798	41.6	5538	59.6	640180
	No	664558	56.7	5553	50.8	32136	53.0	131617	58.4	3756	40.4	837620
Total		1171537		10941		60613		225415		9294		1477800

Table 5(b): Distribution of religious by employment history

		Christian		Muslim		Bahai		Hindu		Badimo		Total
		Number	%	Number	%	Number	%	Number	%	Number	%	
Do any type of work for pay	Yes	506979	79.2	5388	0.8	28477	4.4	93798	14.7	5538	0.9	640180
	No	664558	79.3	5553	0.7	32136	3.8	131617	15.7	3756	0.4	837620
Total		1171537		10941		60613		225415		9294		1477800

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Mpho Keetile, Department of Population Studies, University of Botswana presenting on Socio-Economic Situation of Youth in Botswana

SOCIO-ECONOMIC SITUATION OF YOUTH IN BOTSWANA

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Abstract: The socio-economic wellbeing of youth is indicative of the success and progress in development of any nation since young people are the active participants and beneficiaries of the development process. This paper uses the 2011 Population and Housing Census of Botswana to assess the socio-economic situation of youth in Botswana. The analysis of this paper is mainly univariate and bivariate analysis. The results indicate that there are residential differences in access to socio-economic opportunities. For instance, the results show that unemployment, school dropouts and having never attended school are more common among youth in rural and urban villages than in cities and towns. The results also show that female youth are still left behind in participation in managerial and administrative jobs. However, progress has been made in terms of improving the socio-economic situation of youth in Botswana, and even though there is still need to do more.

Introduction

Young people are the future and the greatest resource in the socio-economic development of any country since they are both active participants and beneficiaries of the development process. The Revised National Youth Policy of Botswana serves as a framework for youth development and empowerment in Botswana. It is intended to guide all national efforts in the development and implementation of youth programmes. According to the Revised National Youth Policy (RNYP 2010) a youth is a person aged between 12-35 years. Over the past few years there has been a rapid increase in youth unemployment and a decline in youth entrepreneurship globally.

Literature Review

The protracted and deep-rooted economic crisis that has affected nearly every country in Sub Saharan Africa (SSA) has had a profoundly negative impact on the well-being of the entire population in the region, more especially young people. During the early years of independence until the late 1990's, young people in Botswana did not face any serious social and economic problems. As a result, unemployed and disadvantaged youth were not a major challenge for the government since Botswana needed more human resource for its fledgling economy. However, since early 2000 there has been a rapid fall in the socio-economic welfare of youth which has mainly been exacerbated by over dependence on government as the main employer and saturated employment opportunities.

Many youth remain marginalised in social and economic opportunities, with limited access to essential resources such as land and employment opportunities. Youth are among the most vulnerable of all persons the Millennium Development Goals (MDGs) aim to reach. Whether it is poverty, hunger, lack of education, maternal mortality, unemployment, environmental degradation or HIV/AIDS, the impact on young people can be far greater than on their older counterparts. This is because many young people often lack access to information, social influence and basic rights, and are often overlooked in national development agendas. Therefore, young people's participation and inclusion in efforts to achieve all of the goals are crucial to ensure a successful and sustainable outcome.

Vision 2016 envisage the welfare and socio-economic success of Batswana of all ages by deliberately aiming for a reduction of unemployment and economic inactivity in Botswana through a variety of measures aimed at training and education as well as job creation through diversifying the economy, building partnerships between the public and private sectors, introducing measures that support small- and medium sized enterprises, etc. National Development Plan 10's (NDP) main objective has been outlined as achieving MDGs and Vision 2016 pillars through enhancement of service delivery and project implementation thereby enabling Botswana to be more competitive internationally. Botswana's competitiveness internationally now and in future is very much premised on the socio-economic achievements of her young population. The current discussion is vital because an understanding of the socio-economic situation of youth in Botswana will help in discernment of progress made by Botswana in terms of the MDGs, Vision 2016 and NDP 10.

The results of this analysis will also inform youth policy of Botswana, whose main objective is to firstly promote youth development based on youth contribution and participation in socio-economic development; secondly to develop a coordinated contribution and participation by all stakeholders involved in youth development programmes and activities; lastly to develop structures and strategies that are supportive to young people's initiatives and capable of promoting social responsibilities and national pride among youth.

The main objective of this paper is to identify, analyse and evaluate the socio-economic situation of youth in Botswana as revealed by the 2011 population census and to highlight the policy implications related to this. This will serve as a useful tool to the government, policy makers and researchers in the country. The discussions of this paper is organized into the following sub sections; introduction, literature review, definition of youth, demographic profile of youth in Botswana, socio-economic characteristics of youth in Botswana, economic activities among youth, employment, unemployment and labour force participation among youth, discussion and finally recommendations.

Definition of Youth

The idea of defining youth is generally a varied and dynamic issue, which usually depends on the context. The fact is that the operational definition of youth differs from country to country, depending on the socio-cultural, institutional, economic and political factors obtaining within a particular context. According to the first National Youth Policy of Botswana of 1996, youth in Botswana constituted males and females aged between 12-29 years (Government of Botswana 1996). On the other hand United Nations General Assembly defined youth as those persons falling between the ages of 15-24 years. (<http://www.un.org/esasocdev/unyin/qanda.htm07/07/03>). The Revised National Youth Policy of Botswana defines youth as persons aged between 12-35 years. This paper adopts the Revised National Youth Policy definition of youth and the analysis would be focused on this group. It however, note-worthy that the youth may be divided into three sub groups; teenagers (12-19 years); young adolescents (20-29 years) and young adults (30-35 years).

Demographic Profile

Botswana is one of the countries which have a relatively youthful population. The trends show that out of 1,680,863 people who lived in Botswana in 2001, just about 732,053 or 43.6% were youth or people aged between 10-29 years and in 2011 out of about 2,024,904, just about 941,371 or 46.5% were youth at the time of enumeration (**see table 2**).

Table 1: The youth of Botswana in 1991 and 2001

Age group	1991	2001
10-14	183,483	209,968
15-19	152,525	203,705
20-24	116,883	170,614
25-29	99,848	147,766
Total	552,739	732,053

Source: Analytical report 2001 Population and Housing Census

Table 1 above shows that there was a 32.4% increase of youthful population from 552,739 recorded in the 1991 population census to 732,053 in 2001. In 2011 the number of youth had increased to 941,371 making a 28.6% increase from the 2001 figure.*

Table 2 below presents the socio-demographic characteristics of youth in Botswana. The results of this analysis indicate a total of 477,504 (50.7%) females and 463,867 (49.3%) males. This implies that there were slightly more females than males. Furthermore, results indicate that at the time of 2011 census, young people aged 12-14 years accounted for only 12.7% of youth, while all other groups had more than one fifth of youth. Thus, youth aged 15-19 years accounted for 22.4%, 20-24 years for 21.3%, 25-29 years for 22.1% and 21.5% for those aged 30-35 years. Table 2 also show that most of young people in Botswana reside in urban villages (43.7%), followed by rural areas (30.8%) and then Cities and towns (25.5%).

Table 2: Youth of Botswana by sex, age and residence -2011

Variable	Number	Percent (%)
Sex		
Male	463867	49.3
Female	477504	50.7
Age group		
12-14	119938	12.7
15-19	210746	22.4
20-24	200350	21.3
25-29	207852	22.1
30-35	202485	21.5
Place of residence		
Cities and towns	239627	25.5
Urban Villages	411383	43.7
Rural areas	290361	30.8
Total	941371	100

The size and nature of this youthful population has immediate implications in the distribution of the countries resources as well as the planning and implementation of any national policy that deals with the equitable distribution of resources.

Socio-economic characteristics of youth in Botswana

After being one of the fastest growing economies in sub Saharan Africa and the world, Botswana's economy has since experienced lower rates of growth and this has ultimately impacted on the governments' ability to deliver jobs to enhance the socio-economic livelihoods of Batswana, more especially the young people. The trends in total labour force, show that national unemployment rate was 13% in 1991 and continued to increase in 1993 (21.6%), 1995/6 (21.5%), and in 2001 Census it was estimated to have declined to 19.6 (MFDP Annual Economic Report 2003) before it declined further to 17% in 2010 (Morima 2012). Employment and labour force participation rates continue to be considerably low among youth.

Education

Even though the Revised National Policy on Education (1994) emphasise a free and compulsory primary education, the previous censuses have shown that there were cases of young people who dropped out of school, and those who have never attended school. One of the proposed national strategies is to encourage taking stern measures against parents who do not give their children basic education, towards achieving the envisaged goal of an educated and informed nation by 2016. Government is spending a lot of money on education and educational investment is seen as vital for socio-economic development of individual youth and the country.

The results of table 3 below indicate that 63% of youth had secondary education, 18.3% primary, 9% certificate, 8.6% diploma, and 0.1% had non-formal education. The results further indicate a relatively lower percentage of youth who have degree and postgraduate degree. However, one important thing to note is that over 95% of youth in Botswana have had access to education. It is worth noting that most of youth have secondary education, and as this is the highest level of basic education, it equips youth with the basic skills of life. Most of the youth who have finished or completed secondary education, go on to pursue certificates, diplomas, degrees and postgraduate degrees. However, other youth who have completed basic education end up idling and as a result fall into social ills that are often propagated by negative peer pressures. Among those with secondary education (65.6% and 60.2% respectively) and degree (1.1% and 0.9% respectively), females are more than males, whereas at primary level (20.5% and 16.5% respectively) and post graduate level (1.0% and 0.1% respectively) males are more than females. This indicates that at the highest level of education male youth are actively involved than their female counterparts.

Table 3: Education level among youth by sex

Level	Male	Female	Total	% Male	% Female	Total
Non formal	505	683	1188	0.1	0.1	0.1
Primary or less	89695	73981	163676	20.5	16.5	18.3
Secondary	263771	300507	564278	60.2	65.6	63
Certificate	42498	37888	80386	9.7	8.3	9
Diploma	37617	39224	76841	8.6	8.6	8.6
Degree	3766	5209	8975	0.9	1.1	1
Postgraduate	479	387	866	1	0.1	0.1
Total	438331	457879	896210	100	100	100

The census data (Table 4 below) revealed that overall, 62.7% of youth left school, 34.3% were still at school while 3% never attended school. Although, the number of those who never attended school seem low there is need for the government to ensure that education policy goal of compulsory basic education is enforced to ensure improved numbers of youth who have attended school. The number of youth who were not in school was slightly higher among females (63.6%) than males (61.7%). However, the number of youth who never attended school was higher among males (3.8%) than females (2.2%). When looking at age, most of youth aged 12-14 years (96.8%), 15-19 years (72.6%) and 20-24 years (19.5%) were still at school, while most of those aged 25-29 years (91.2%) and 30-35 years (92.6%) had left school and were probably working or seeking for employment. When looking at residence, the number of youth who never attended school was higher in rural areas (6.3%) than in urban villages (1.8%) and cities and towns (1%) respectively, while those who were still school was higher among those at urban villages (37.8%), rural areas (31.3%) and cities and towns (32%) respectively.

Table 4: Youth in school, left school and never attended school by place of residence, age and sex

	Still at school	Left school	Never attended	Total	% still at school	% left school	% never attended	% Total
Gender								
Male	159408	285445	17537	462390	34.5	61.7	3.8	100
Female	163113	303114	10673	476900	34.2	63.6	2.2	100
Age								
12-14	115999	2849	1024	119872	96.8	2.4	0.9	100
15-19	152945	54262	3319	210526	72.6	25.8	1.6	100
20-24	38892	155658	5311	199861	19.5	77.9	2.7	100
25-29	10500	188932	7769	207201	5.1	91.2	3.7	100
30-35	4185	186858	10787	201830	2.1	92.6	5.3	100
Residence								
Cities & Towns	76254	160021	2388	238663	32	67	1	100
Urban Villages	155405	247800	7572	410777	37.8	60.3	1.8	100
Rural	90862	180738	18250	289850	31.3	62.4	6.3	100
Total	322521	588559	28210	939290	34.3	62.7	3	100

Economic activities among youth

The situation of youth's socio-economic status deserves urgent attention as it threatens to violate the principles of equality and solidarity between generations, which is an important aspect of social justice. In addition, while unemployment destroys the economic and personal welfare of all those affected by it regardless of age, the destruction is most pronounced when it occurs at the fragile start of one's working life. The following subsections discuss the economic activity status of youth in Botswana. Table 5 results below show occupational status of youth in Botswana by sex. The results show that youth are underrepresented in administrative and managerial jobs, with only 1% of youth occupying such jobs. There is need for the government of Botswana to come up with strategies of ensuring that youth participate in these jobs so as to build their portfolio as future leaders.

Table 5: Occupational status of youth in Botswana by sex

Occupation	All	Male	Female % Distribution	%Female
Administrators and managers	9810	6107	3703	1 0.8
Professionals	22978	11400	11578	2.4 2.4
Technicians & associated prof.	26887	12341	14546	2.9 3
Clerks	29996	8791	21205	3.2 4.4
Service workers, shop and markets sales workers	61502			
Skilled agricultural workers	2931	27954	33548	6.5 7
Craft and related workers	48669	1992	939	0.3 0.2
Plant and machine operators and assemblers	20850	40979	7690	5.2 1.6
Elementary occupation		18731	2119	2.2 0.4
BDF	98245			
Occupations not stated	6877	49322	48923	10.4 10.2
	600518	6730	147	0.7 0
	270159	330359		63.8 69.2

One interesting observation is that unlike in the past female youth (0.8%) are also represented in administrative and managerial jobs. The jobs which are common among youth include; service works, shop and markets sales works (6.5%), elementary occupations (10.4%), craft and related works (5.2%) and other occupations which are not specified (63.8%). There are still few youth in skilled agricultural works (0.3%) and hence there is need for the government to consider youth active involvement in this sector as an effort to diversify the economy. One interesting observation is that there were 147 female youth soldiers at Botswana Defence Force.

Employment, unemployment and labour force participation among youth In Botswana

Across the world, young people face real and increasing difficulty in finding decent work. Youth unemployment has become a threat to the social, economic and political stability of many countries across the world. This section summarises the employment, unemployment and labour force participation among youth in Botswana.

Table 6:Currently economically active youth by place of residence in Botswana

	Employee paid in cash	Employee paid in kind	Self-employed(no employees)	Self-employed (employees)	Unpaid family helper	Working at cattle post	Total
	294889	1650	23195	7525	2715	11032	341006
Cities and towns	86.5	0.5	6.8	2.2	0.8	3.2	100
Urban villages	101034	329	7103	3180	247	83	111976
Rural areas	113206	534	11049	3283	741	1718	130531
Total	294889	1650	23195	7525	2715	11032	341006
Percentage distribution							
Cities and towns	90.2	0.3	6.3	2.8	0.2	0.1	100
Urban villages	86.7	0.4	8.5	2.5	0.6	1.3	100
Rural areas	81.9	0.8	5.1	1.1	1.8	9.4	100

Table 6 above, indicate that 86.5% of youth in Botswana who are economically active are employees who are paid in cash, 6.8% are self-employed with no employees, and 3.2% were working at the cattle post, while the balance constitutes of those who were self-employed with employees, unpaid family helper and employees paid in kind. When looking at the place of residence the number of employees paid in cash was higher in cities and towns (90.2%) than in urban villages (86.7%) and rural areas (81.9%) while, self-employed youth with no employees were many in urban villages (8.5%) than in cities and towns (6.3%) and rural areas (5.1%) whereas those self-employed with employees were many in cities and towns (2.8%) than in urban villages (2.5%) and rural areas (1.1%). Almost 10% of youth in rural areas were working at the cattle-post.

Table 7: Youth actively seeking work and economically inactive in Botswana

	Actively seeking work	Homework	Students	Retired	sick	Unknown	Total
	130354	146009	309603	18	7923	4311	598218
Cities and towns	21.8	24.4	51.8	0	1.3	0.7	100
Urban villages	28936	22439	72945	6	1140	1281	126747
Rural areas	64646	60162	149626	5	3338	2422	280199
Percentages							
Cities and towns	22.8	17.7	57.6	0	0.9	1	100
Urban villages	23.1	21.5	53.4	0	1.2	0.9	100
Rural areas	19.2	33.2	45.5	0	1.8	0.3	100

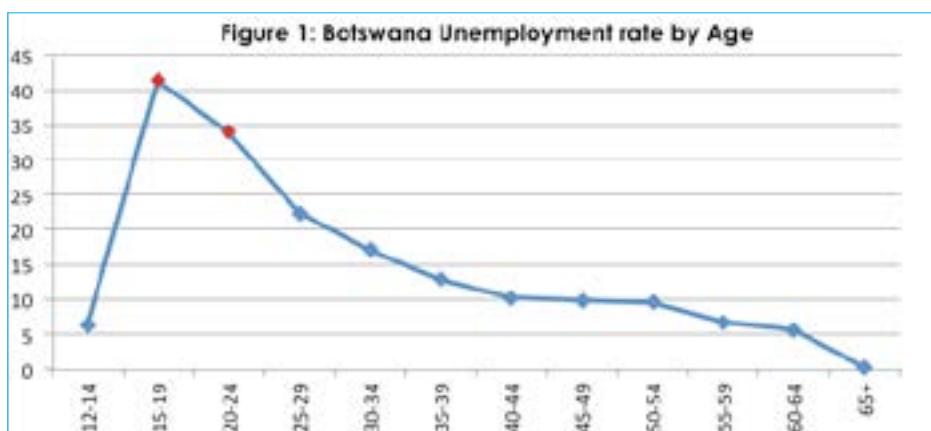
In terms of youth who are seeking for employment and those who are economically inactive, the results of table 7 above show that 21.8% of youth were actively seeking work, 24.4% were doing homework, 51.8% were students, 1.3% were sick and 0.7% unknown. In terms of the distribution by place of residence, many youth in urban villages (23.1%) than in cities and towns (22.8%) and rural areas (19.2%) were actively seeking for employment, while those who were doing home works were many in rural areas (33.2%) than in urban villages (21.5%) and cities and towns (17.7%), respectively.

Table 8 below summarises the unemployment and labour force participation rate among youth in terms of their age. The results show that unemployment rate is higher among youth aged 12-14 years (42.34%) , 15-19 years (51.98%) and 20-24 years (40.20%) and this is mainly so because most of these youth are still at school. On the other hand, for those of the "working age" unemployment rate among those aged 25-29 years (24.58%) and 30-35 years (16.48%) is still high. Overall, the results indicate that unemployment rate among youth had declined from the 2001 figure and it currently stands at 27.65% compared to about 31% in 2001.

Table 8 - Unemployment and labour force participation rate among youth by age

Age	Actively seeking work	Total economically active	Total Population	Unemployment rate	Participation Rate
12-14	672	1587	119938	42.34	1.32
15-19	16902	32515	210746	51.98	15.42
20-24	47275	117586	200350	40.2	58.7
25-29	38884	158187	207852	24.58	76.1
30-35	26621	161485	202485	16.48	79.8
Total	130354	471360	941371	27.65	50.1

Furthermore results indicate that participation generally increases with age among youth, and reaching almost 80 per cent at 30-35 years. The low participation rate, as unemployment rate among youth aged 12-24 years is generally accounted for by the fact that most people at that age are attending school and few would be active in the labour force. The results of figure 1 below also show that unemployment is higher among teenagers and starts to decline significantly at ages 20 years and above.



Source: 12th National Conference Report, Mosireletsi Legal services, 2012

Table 9 below shows the number of unemployed youth by sex and highest level of education. The distribution show that for those who had non-formal education 58.9% of those unemployed were females, while for those who had primary or less education 58.8% of those who were unemployed were males. For those with secondary education, more females (53.6%) than males (46.4%) were unemployed, whereas for those who certificate there were more females (54.1%) than males (45.9%) who were unemployed. Furthermore, results indicate that for those with diploma and degree there were more unemployed females than females. These results are quite indicative in the sense that, they show that women participation in economic activity is still minimal. These results underscore the need for empowerment of women at all levels of economic participation concomitant with their level of education and capabilities.

Table 9- Unemployed youth (Actively seeking work) by sex and highest level of education

Highest education Level	Males	Females	Total	%Male	%Female
Non formal education	69	99	168	41.1	58.9
Primary or less	7400	5185	12585	58.8	41.2
Secondary	42857	49589	92446	46.4	53.6
Certificate	4815	5665	10480	45.9	54.1
Diploma	3772	4668	8440	44.7	55.3
Degree	382	708	1090	35.0	65.0
Postgraduate	26	25	51	51.0	49.0
Unknown	3211	1883	5094	63.1	36.9

Discussion

The government of Botswana has long been coming up with plans and programmes to improve the socio-economic wellbeing of Batswana. Despite these efforts, there are still socio-economic challenges facing youth such as high unemployment rate and youth being side-lined in high occupation jobs such as managers and administrators. However, an encouraging observation shown in this analysis is that unemployment rate among youth has declined from the 2001 population census figure and this shows socio-economic progress. This could be attributed to the robust programmes and projects that are aimed at empowering youth. However, there is still need to put more effort to address the socio-economic situation of youth by bridling unemployment rate to a reasonable and acceptable range. The number of youth who reported to have never attended school is also a cause for concern and relevant stakeholders have to put in defined efforts, more especially because the Revised National Policy on Education advocates for universal access to education.

Although significant efforts have been made by the government of Botswana to enhance the socio-economic status of women, there still a gap in terms of labour participation among male and female youth. The current analysis like the previous analysis on employment and unemployment rates has shown that unemployment is common among females than males, even though the gap is being gradually closed. The government should put some more effort in addressing unemployment, especially among female youths. Overall, the results show a commendable observation, that most of the youth in Botswana have access to education, and it's only among those in rural areas where some few cases of youth who have never attended school are recorded. The results show that most of youth in rural areas are faced with relatively many socio-economic challenges compared to those in urban villages and urban towns.

Recommendations

Employment creation among youth has to be pursued more vigorously by the government and private sector;

There is need for more broad based preferential schemes for youth in business to help reduce unemployment rate;

The government should address the issue of disparities in socio-economic development among youth in urban areas and rural areas. Rural areas should be developed, and cultural activities could be used to generate money through cultural and ecotourism hence employing youth in rural areas;

The government should spend more money in agriculture to encourage young people in rural areas to venture in to commercial farming hence economic diversification;

There is need for more consolidated efforts by government, parastatal organizations and private sector to take the issue of youth development aboard, in all programs and policies.

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Kagiso Kobedi, University of Botswana on
Youth in Botswana: Analysis of the 2011 Census Data

YOUTH IN BOTSWANA: ANALYSIS OF THE 2011 CENSUS DATA

By
Robert Molebatsi and Kagiso Kobedi
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Abstract: Youth studies assume important policy attention as a significant proportion of the population is youth not only in Botswana but in many developing countries. However, youth is a population that has been variously determined and defined as it refers to a liminal stage between childhood and adulthood. The categorization of the youth phase has remained problematic as different parameters are used to refer to this phase. Common markers used have often revolved around demographic factors such as age group and marital status. Socio-economic and cultural factors have also been used to identify youth. All these have meant that youth phase differs in time, space, and context and has resulted in different conceptions and definitions of youth. For this analysis, the definition of youth by national youth policy will be used.

The main purpose of this paper is to analyze data on youth in Botswana. Specifically the analysis will centre on demographic and other socio-economic indicators that address the status, trends and varying youth related challenges. Some of the demographic variables in the analysis of youth include, age, sex, literacy rate, level of education, marital status, youth unemployment rate, economic activity, place of residence, relationship to household head and other household and housing characteristics.. An attempt will be made to establish trends from the previous census data sets.

Introduction

Botswana's is experiencing a 'youth bulge' phenomenon as youth constitute the majority of the current population of Botswana. The demographic characteristics suggest that the youth (aged 12 to 29) in Botswana account for approximately 36.5 percent of the total population. Youth studies have shown that young people encounter significant challenges as they transition from childhood into adulthood, and their character is often influenced by opportunities and challenges of their social environment – notably those related to their family, school and community (Goldstone, 1999; Urdal, 2004; Sommers, 2011). Amongst the most discernible of these challenges in Botswana are lack of adequate employment, wide spread poverty, high prevalence of HIV/AIDS, crime and violence, unplanned pregnancies, alcohol and substance abuse and sexual abuse. In some African countries, youth bulges have been associated with risk of domestic violence especially where opportunities for economic advancement are restricted.

Since the development of the first Botswana National Youth Policy in 1996, youth development and empowerment have been elevated in the national public policy agenda. The National Youth Policy acts as a framework of youth development in Botswana and gives direction and complementarity to youth programmes and services provided by government and non-governmental organizations. The policy further provides guidance and informs plans and strategies targeted at young people in the various sectors of government, civil society, development partners and the private sector. The establishment of the Ministry of Youth Sport and Culture in 2008 was government's effort to prioritize the youth development and empowerment agenda and to highlight youth as a critical public policy issue. The ministry, and by extension the Department of Youth, is thus tasked with providing government with a vision and strategy for the realization of the objectives of the National Youth Policy and mainstreaming youth in national development towards attaining the National Vision 2016.

Monitoring youth development in a systematic manner is crucial for government to make policy choices that are targeted and evidenced based. Disaggregated data on youth can be useful in shaping the direction of youth development work and policies affecting young people.

Censuses are fundamental sources of demographic data. The 2011 census collected data on population size and composition, population dynamics, population and household characteristics and other variables. The Youth Analysis Report provides a set of demographic, social, economic and other indicators that address the status, trends and differentials of youth related issues, clearly assessing the interrelationships between sex-specific data and other specific parameters such as sex, location, fertility rate, life expectancy, death rate, marital status, disparities in household resources, disability and engagement in economic activities. The report is intended to capture the true reflection of the situation, opportunities and challenges facing youth.

Purpose of this Analysis

Analysis of census data on youth is important for stakeholders in planning, monitoring and evaluating policies, strategies, plans and programmes in their respective areas. The analysis is expected to give a complete picture on youth in Botswana. In displaying the current demographic, socioeconomic status of youth and the prevailing policy and programme options, planning for the future becomes clearer. Through this analysis, a complete profile of youth is provided together with recommendations on how to handle youth matters.

Methodology

Undertake literature review on the national and international context in relation to the youth development; Compute relevant indicators to youth and development;

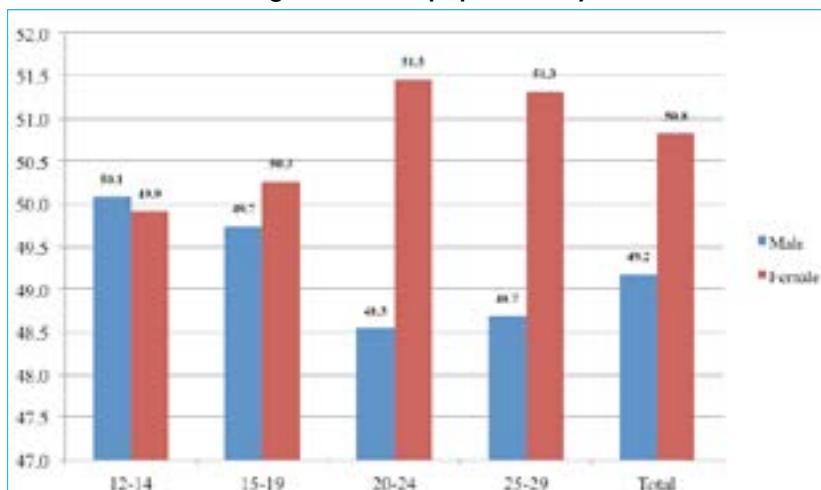
Interpretation and analysis on youth development;

Provide the situation analysis on Youth;

Demographic Profile

According to the 2011 population and housing census, youth aged 12-29 constitute 36.5% (738, 886) of the total population of the country, with a sex ratio of 97. This means that for every 100 females there are 97 males. The proportion by sex is almost even as 50.8 percent are females and 49.2 percent are males. The population of females tends to be higher in the younger age groups. Thus, Botswana's population is thus fairly youthful like is the case with many African and developing countries.

Figure 1: Youth population by sex

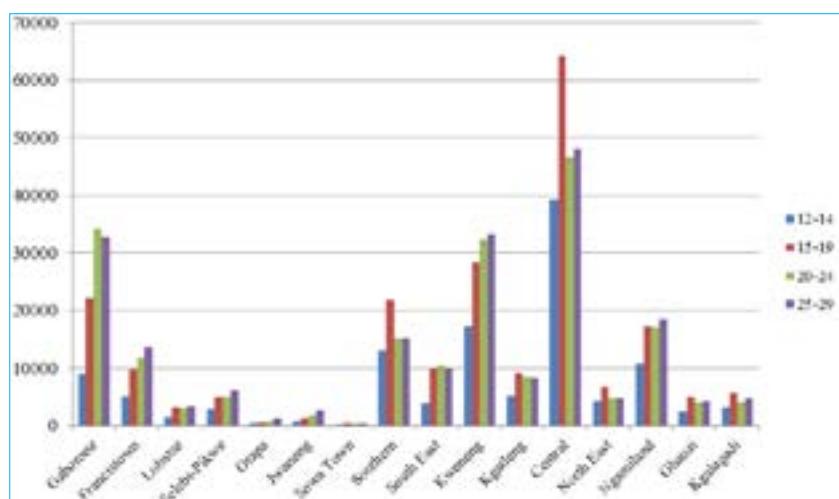


Whereas the population of males is 50.1% in the 12-14 age group, in the 20-24 age group the female population is 51.5% while the male population is 48.5% (Figure 1).

Table 1: Distribution of Youth by District and age

District/Age	Dec-14	15-19	20-24	25-29
Gaborone	9129	22295	34077	32825
Francistown	5064	9785	11987	13665
Lobatse	1559	3165	3054	3412
Selibe-Phikwe	2905	4951	4887	6280
Orapa	488	665	773	1182
Jwaneng	852	1176	1869	2710
Sowa Town	271	495	297	386
Ngwaketse	8432	13698	10442	10186
Barolong	3770	6878	3710	3851
Ngwaketse West	837	1228	1059	1184
South East	3916	9974	10390	9983
Kweneng East	14133	24487	28507	29045
Kweneng West	3056	3798	3881	4255
Kgatleng	5298	9303	8565	8348
Central Serowe Palapye	11649	19163	15350	16032
Central Mahalapye	8138	12355	8951	9464
Central Bobonong	5199	8918	5436	5522
Central Boteti	3882	6815	5030	5424
Central Tutume	10441	16916	11996	11642
North East	4306	6774	4862	4804
Ngamiland East	5448	8974	9175	9888
Ngamilaland West	4308	6440	4888	5145
Chobe	1141	1757	2829	3050
Okavango Delta	45	98	232	479
Ghanzi	2524	4937	4022	4302
Central Kgalagadi Game Reserve (CKGR)	1	14	31	55
Kgalagadi South	1925	2660	2372	2775
Kgalagadi North	1221	3027	1678	1958
Total	119938	210746	200350	207852

Figure 2: Distribution of Youth by District and Age.



As shown in Figure 2 above shows, the district with the highest number of youths are Central, Kweneng, Gaborone, Southern and Ngamiland in that order. These are also the largest districts in land mass and in population density. Gaborone district, which has the capital city, comes third after Kweneng and Central district.

Marital status

Analysis of youth marital status gives indication of exposure to sex and the risk of child bearing. Information on youth marital status is therefore important for understanding sexual activities and assists in programming for sexual and reproductive health.

Figure 3: Marital status of youth by age and sex



The 2011 population and housing census collected information on six variables of marital status including "married, never married, living together, separated, divorced, and widowed". Botswana women tend to marry earlier than men. For example, Figure 3 above indicates that in the 20-24 year age group 3.9% of women had entered marriages while married men in the same age bracket accounted for a smaller proportion 1.8%. In general, more female than male youth were married and were in the living together age bracket.

Between 50% and 98% of the youth stated that were never married at the time of the census.

Age of mother at birth of first child

Findings from Census 2011 (Figure 4) indicate that among all women aged 14-29 who had given birth to at least one child, 0.1% had given birth to their first child at the age of 14 years, and 0.4% at the age of 14 years. In absolute numbers only 16 and 23 births occurred to women aged 12 and 13 years respectively.

Figure 4: Percentage of mothers in each age category at birth of first child

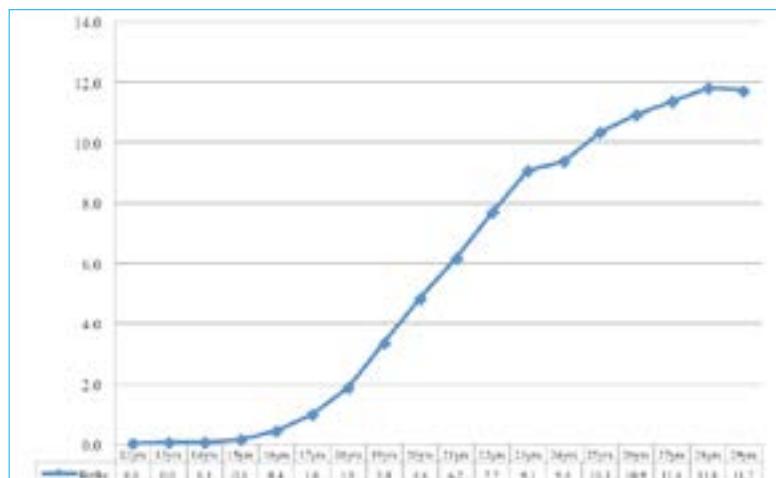
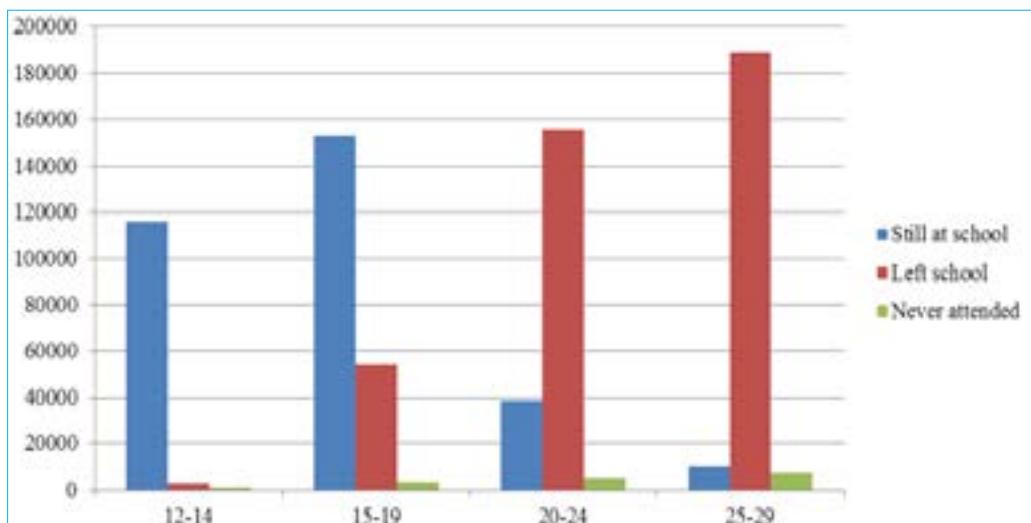


Figure 4 shows that the largest percentage of women gave birth to their first child between the ages of 19 and 29.

Education

Botswana has a universal primary education policy which started to operate in the year 1980. The policy entails that all school going children should have access to basic education for the first ten years of schooling. Figure 3 below shows the number of youth who have ever attended school by age group.

Figure 3: Number of Youth who ever attended school



Whereas most youths are still at school for those aged 12 to 19 years, or have been to school (those aged 20 to 29 years), there are however pockets of youth who have never been to school. Though the proportions of never at school appear to drop with a decrease in age, they are still prevalent even among the 12 to 14 years old youth. Given that the minimum age of enrolling at primary school in Botswana is 6 years, it is worrying that there are those who left school among the 12 to 14 years old. Mostly, 14 years old are still expected to be within the 10 year basic education programme.

Conclusion

Botswana is indeed experiencing an increase in the proportion of youth population. This is reflected by the inter-censal population growth rate and fertility rate for the past three censuses of 1991, 2001 and 2011. These young people are unevenly distributed throughout the country with urban and peri-urban areas carrying a weightier load of them. The commonly noted impact of increased youth population is its strain on social institutions like the education system and the labour market.

Youth are a resource and if harnessed well they can be used to create new economic opportunities. On the other hand, if youth are neglected they potentially may stall societal development and progress. It is important that policy planning and development execution take youth on board. To realize the demographic dividend, there is need for more investment on education, health and the economy on matters skewed towards youth. There will also be need to make efforts to change the population structure by way of lowering fertility. There is need for policy environment that support youth economic participation.

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Dr S.D. Rakgoasi, University of Botswana giving an
In-depth Thematic Analysis - Gender

Introduction & Background

Post the 1995 Beijing Conference, Botswana Government initiated and supported efforts and interventions towards gender equality and equity. In 1996, a National Policy on Women in Development was adopted and to ensure its full implementation, the Women's Affairs Division was upgraded to a full department, dubbed Women's Affairs Department (WAD) in 1997. WAD's mandate include the enhancement of the status and role of women in decision-making and leadership at all levels; the promotion of access to and control of factors of production and to remove all forms of legal and socio-cultural constraints to women's participation across all sectors of development; the promotion of health, especially reproductive health and rights, including family planning; enhancement of education and skills training of women and girls; elimination of the growing poverty among women particularly female headed households; and creation of awareness of gender issues at all levels.

In 1997, UNDP and the Government of Botswana signed an agreement (Program Support Document) aimed at strengthening the institutional arrangements and mechanisms related to the coordination and implementation of the National Gender Program Framework. The National Gender Framework identifies six areas of focus, namely Women and poverty, including economic empowerment; Women in Power and decision making; Education and training of women; Women and health; Violence against women including human rights of women; and the girl child.

Botswana has committed itself to a number declarations and protocols aimed at the full realization of all human rights and fundamental freedoms, including the goal of equality between women and men. These include the Convention on the Elimination of all forms of Discrimination against Women (CEDAW) 1979, which aims at bringing an end to discrimination against women and children; and the United Nations Millennium Development Goals (MDGs) 2000, which aim to promote gender equality and empowerment of women. Other instruments to which Botswana has committed herself include the Convention on the Rights of the Child (CRC, 1989); International Conference on Population and Development (ICPD, 1994); Beijing Declaration and Beijing Platform for Action (BPFA, 1995); The SADC Declaration on Gender and Development (1997) and its addendum on The Prevention and Eradication of Violence Against Women and Children (1998) and the UN Security Council Resolution 1325 on Women, Peace and Security (2000). Through commitment to these and other measures, Botswana hopes to direct attention to pressing needs, different situations and realities of women and men; and promotion and adoption of measures that embrace these women and men's experiences in the development of transformative processes, including economic development, budgeting and legislation.

In 1998, WAD, in the Ministry of Labor and Home Affairs, commissioned a review of discriminatory laws of Botswana, and those that negatively affect women. These include The Citizenship Act; The Criminal Procedure and Evidence Act; The Deeds Registry Act; the Deserted Wives and Children's Protection Act; The Penal Code; The Affiliation Proceedings Act; and The enactment of the Abolition of Marital Powers Act of 2004. These and other laws were amended in order to make them gender neutral or sensitive and had the effect of improving the position of women and children.

Government of Botswana has ratified a number of international and regional instruments supporting gender equality and has ensured that gender equality is protected by several laws. However the Customary Law and practice in Botswana limit the success of those efforts by continuing to perpetuate unequal power relations between men and women. Customarily, men are heads of households. This gives them the guardianship rights over women, children, family property and wealth.

Botswana has signed and ratified the SADC Declaration on Gender and Development in 1997, and by that it committed itself to achieving at least 30% women representation in political and decision-making structures by the year 2005. Already SADC wants to increase the quota to 50%, but Botswana has not achieved this objective. According to a 2005 United Nations Development Program report, women constitute 11% of parliamentary seats in Botswana. Post the 2004 general elections, the percentage of women legislators declined by half, from 18% to 9% despite a record number of women political candidates fielded by various parties, most of whom lost the elections. The most recent statistics on women in leadership and decision making positions show that despite some slight improvement, women remain seriously underrepresented in political and decision making structures in Botswana.

However, despite these efforts, challenges abound. For example, it has been difficult to establish a comprehensive and multi-sectoral framework, which will involve active participation of all stakeholders to implement the Policy on Women in Development, especially the coordination and mainstreaming of gender in all policies, programs and projects. Consequently, the concept of gender and its translation is still not fully understood in many sectors, including the general population. The country lacks a comprehensive affirmative action plan on promoting gender equality in all organizations, including women representation in politics. The participation of the civil society on gender issues is limited because of their lack of resources and in terms of their limited voice as agents of social change. In addition, efforts to involve men in promoting women's empowerment are limited. Botswana operates under the dual legal system of the common law based on the Roman Dutch and Statutory law and customary law. The latter system, traditionally, does not accord the woman full adult status, and equates her status to that of a minor.

History of data collection in Botswana

The 2011 census is the fifth in a series of post independence decennial censuses since 1966. The first post independence census was conducted 1971, and censuses have been conducted every ten year since then. In addition, Botswana has a series of national population and other surveys that have been running for a number of years. Some of the key surveys which will provide input into this analysis include the Botswana AIDS Impact Survey; the Botswana Demographic Survey, Botswana Family Health Survey, Botswana Income and Expenditure Survey, and the lasted addition to the survey series, namely the Botswana Core Welfare Indicators Survey

Gender variables in the Census

Like past censuses, the 2011 Botswana Population and Housing Census did not capture any questions on gender per se. However, sex of respondent will be used as a proxy for gender, or at least to provide a sex disaggregated analysis of some key indicators. This analysis uses frequencies, measures of central tendency and cross tabulations to provide a sex disaggregated analysis of selected individual and household indicators.

Results

Population size & Composition [by SEX]

Figure 1 shows age specific sex ratios according to the 2011 Population and Housing Census. On average, there were 105 females for every 100 males; however this ratio varies according to age. For example for ages up to mid-forties, the sex ratio is balanced and fluctuates between 97 and 106 females for every 100 males. However, beyond the mid-forties, the age sex ratios increasingly favour females compared to males, increasing from 117 females per 100 males in the mid-fifties, to over 130 females per 100 males in the seventies and between 171 and 194 females per 100 males in the early to mid-eighties.

Figure 1: Age -Specific Sex Ratios, Botswana 2011

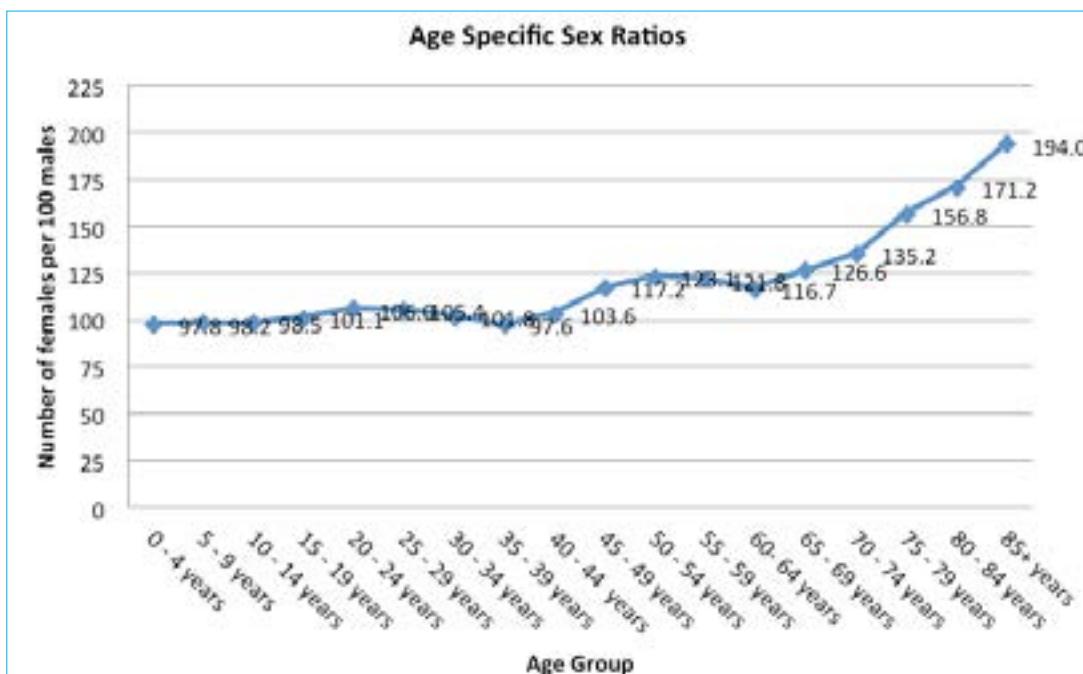
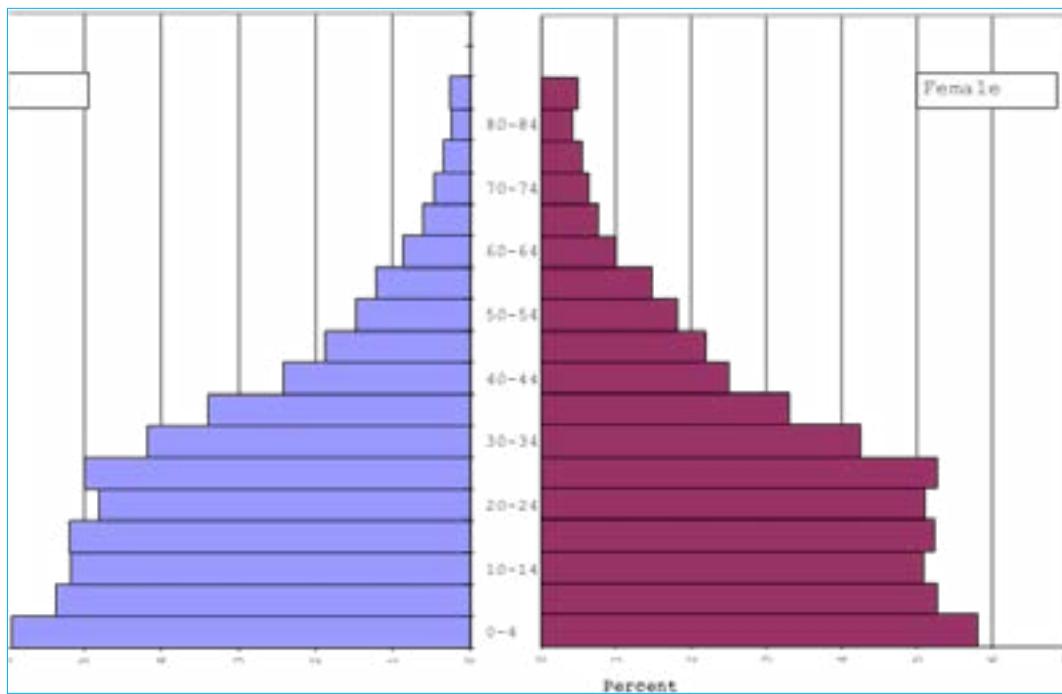


Figure 2 shows the population age pyramid of Botswana according to the 2011 census data. The pyramid has a typical expansive shape, signifying past high mortality and high fertility.

Figure 2: Population Age-Sex Distribution, Botswana 2011



The results (Table 1) show that just over a fifth (21.7%) of the population resided in cities and towns, over 4 in every ten (42.3%) resided in urban villages while just over a third (35.9%) resided in rural areas. The results also show that almost similar proportions of males (21.9%) and females (21.5%) reside in cities and towns, while a slightly higher percentage of females (43.9%) reside in urban villages compared to males (40.7%). The percentage of males residing in rural areas (37.4%) is slightly higher than that of females (34.6%) residing in rural areas.

Citizenship

The results show that 94.5% of the population were Botswana citizens (93.6% males & 95.4% females). While foreign nationals accounted for 5.5 per cent of the population, this proportion was slightly higher among males (6.4%) than females (4.6%).

Marital Status

Over half (55.7%) of the population was never married, just under a fifth (18.3%) were married while an almost similar proportion (20.7%) were living together (cohabiting) with a partner, while 5.2 per cent were either divorced, widowed or separated.

School Attendance

Just over half the population had left school (51.0%); just under a third (30.6%) was still attending school while under a fifth (18.3%) had never attended school before. The percentage of males and females who were still at school were almost similar (31.2% males & 30.1% females). Slightly higher percentage of females had left school (52.5%) compared to males (49.5%) while the proportion of population which had never been to school was marginally higher among males (19.3%) than females (17.4%).

Educational Attainment

Just under half (44.4%) of the population had secondary education; 37.6 percent had primary education while close one in every ten had vocational (9.4%) and university (8.9%) education. The percentage of population with secondary education is slightly higher among females (45.6%) compared to males (43.0%); while similar proportions of males and females (37.6%) had primary education. The percentage of population with vocational / technical and university education is slightly higher among males (10.1 & 9.2%, respectively) compared to females (respectively 8.7 & 8.1%).

Economic Activity

Over a third (34%) of the population was in non-seasonal paid employment while 6.2 and 3.1 percent of the population was in seasonal paid and seasonal unpaid employment, respectively. The percentage of males in non-seasonal paid employment is significantly higher among males (40.1%) compared to females (28.4%) while the percentage of males and females in season paid and unpaid employment were close. Specifically, 6.8% and 5.6% males and females were seasonal paid employment while 2.8 percent of males and 3.4 percent of females were in seasonal unpaid employment.

Just over one in every ten people (11.2%) was job seekers (11.1% males & 11.2% females); over a fifth (21.7%) was students (22.2% males & 21.3% females) while less than a fifth (16.3%) were home makers. The percentage of home makers is significantly higher among females (23.7%) compared to males (8.4%). Among those who were unemployed during the census, close to a fifth (19.1%) while over a third were doing home work (35.6) or they were students (37.1%), while the rest were either sick (5.2%) or retired (2.2%).

The results show that 43.3 percent of the population had done some work for pay during the seven days leading to the census; the percentage of population who did some work for pay during the seven days before the census is discernibly higher among males (51.0%) than females (36.2%). Eight out of every ten (80.8%) of those who were working were employees, paid in cash; 7.9 percent were self employed with no employees and 3.2 percent were self employed, with employees. A discernible proportion (6.8%) worked at their cattle posts and / or fields.

Figure 3: Age Specific Fertility Rates, Botswana 2011

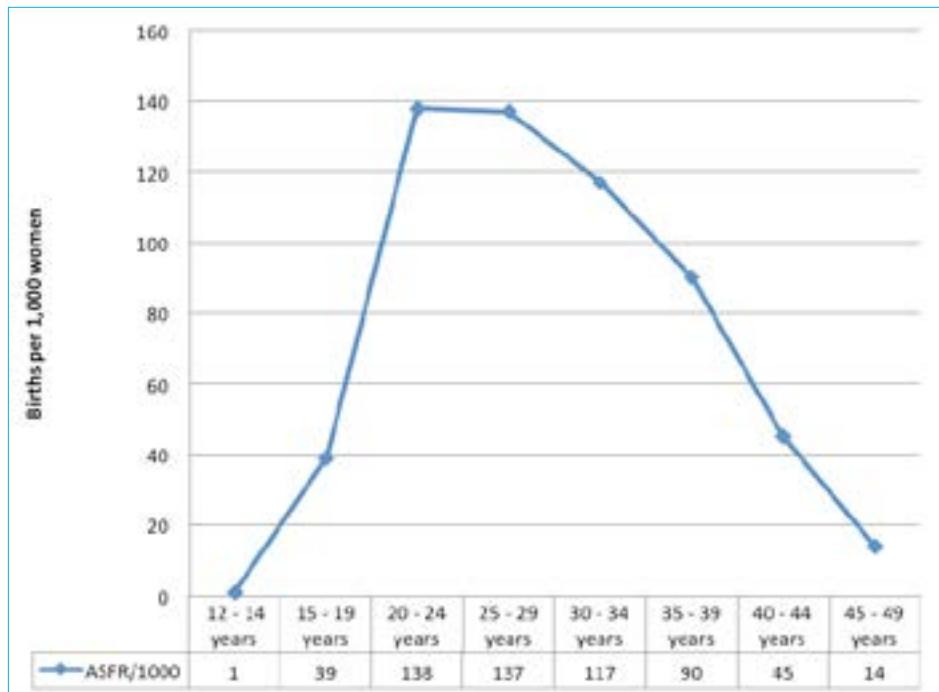


Figure 3 shows age specific fertility rates, showing the number of births in the year preceding the census, per 1,000 women of aged 12 to 49 years. The age specific fertility rates range from one birth per 1,000 women of ages 12-14 years, and increases to 39; 138 and 137 births per 1,000 women of ages 15-19; 20-24 and 25-29 years, respectively. ASFR start to decline in the early thirties, from 117 to 90; 45 and 14 births per 1,000 women of ages 30-34; 35-39; 40-44 and 45-49 years.

Household & Housing Characteristics

This section presents results based on household characteristics, including household headship and size.

Household Headship

According to the 2011 census, 52.5 percent of households were male headed, while the compliment (47.5 percent) were female headed. A large percentage of heads of households (36.9%) were never married; over a quarter (27.2%) were married while a quarter (25.1%) living together with a partner. One out of ten (10.7%) had their marital union terminated through divorce, widowhood or separation. The marital status of heads of households varies significantly by sex of head of household. For example, while just over a quarter (of heads of

households were married (27.2%) this percentage is significantly larger among male heads (35.6%) compared to less than a fifth (18%) among female heads. The percentage of never married heads of households is also higher among females (42.1%) compared to males (32.1%). The results also show that while just over a tenth of heads of households were divorced, widowed or separated, this proportion is almost a fifth (17.7%) among female heads of household compared to male heads (4.4%).

Type of house

Close to half (48.0%) of households resided in housing that comprised detached and semi-detached structures; just under a quarter (23.2%) resided in traditional housing structures, some of which were mixed with modern ones, while over a fifth (22.9%) resided in flats or townhouses. The percentage of male and female headed households who reside in detached and semi detached housing was almost similar (46.8% males & 49.4% females). Just over a fifth (21.4%) of male headed households and quarter (25.1%) of female headed households resided in traditional structures. A higher percentage of male headed households (24.1%) resided in flats and townhouses compared to that of female headed households (21.5%).

Over half (56.3%) of the houses that households resided in were self built or purchased while 43.6 percent of the housing structures was rented. The percentage of purchased or self built houses was discernibly higher among female headed households (63.1%) compared to male headed households (50.3%). Conversely, half (49.7%) of male headed households resided in rented accommodation than female headed households (36.9%).

Figure 4: Number of Rooms Occupied by Households, by Sex of Head Household

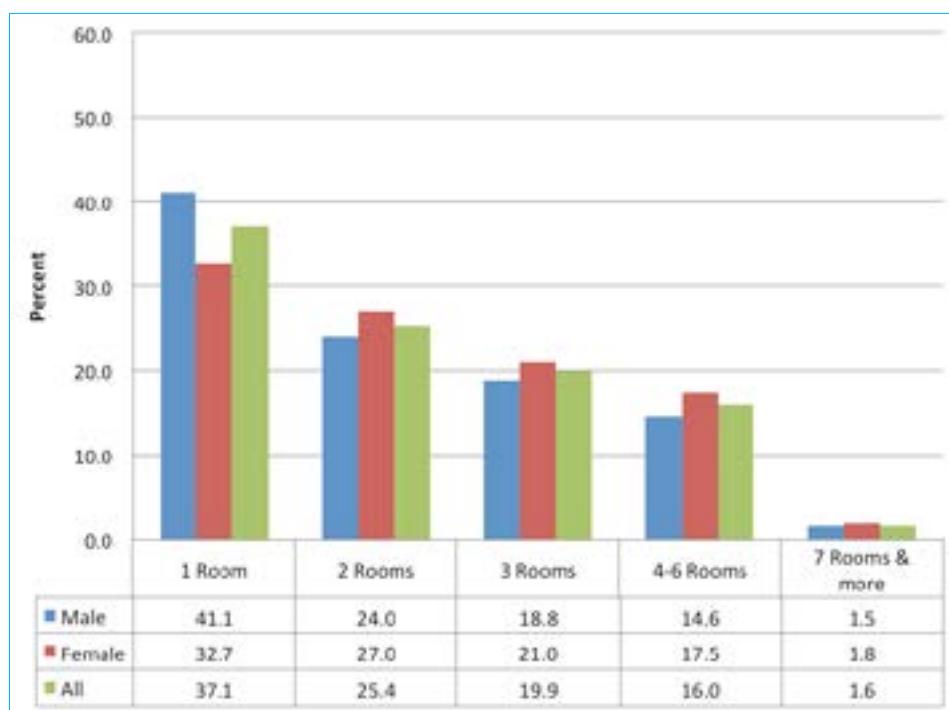


Figure 3 shows the number of rooms occupied by households according to the sex of head of household. The results show that 37.1 percent of households occupied one room; a quarter (25.4%) occupied two rooms; a fifth (19.9%) occupied three rooms while just under a fifth (16.0%) occupied four to six rooms. Less than two percent (1.6%) of households occupied seven or more rooms.

The percentage of households occupying one room is higher among male headed households (41.1%) compared to female headed households (32.7%) while the proportion occupying two rooms was slightly higher among female headed households (27.0%) compared to male headed households (24.0%). The proportion of households occupying three or more rooms is marginally higher among female headed households compared to male headed households. For example, over a fifth (21.0%) of female headed households occupied three rooms, compared to 18.8 percent among male headed households. Close to a fifth (17.5%) of female headed households occupied 4 to 6 rooms compared to just 14.5 percent among male headed households.

Type of housing structure

Eight out of every ten (81.8%) of households had walls made of conventional bricks (80.5% male headed; 83.2% female headed) and just under a fifth (18.2%) had wall made of mud or other materials. Close to two thirds of households resided in housing structures whose floors were made of cement (64.9%), while just over a fifth (22.0%) resided in housing whose floor was made of floor tiles. Over one in ten (13.1%) of households reside in housing structures whose floor was made of mud or combination of other materials. The percentage of households residing in housing structures whose floors are made of cement was slightly higher among female headed households (67.6%) than male headed households (62.4%); while the percentage residing in housing whose floor is made of tiles is slightly higher among male headed households than female headed (23% vs. 21.0%). The results show also that close to three quarters (73.5%) of households had housing structures whose roof is made of corrugated iron (72.5% male headed; 74.7% female headed) while 12.9 and 11.1 percent live in houses with roofs made of roof tiles and thatch/ straw, respectively.

The results show that one 13.1 percent of households had orphans, and that of these, 8.1 percent of households had one orphan, while 5 percent of households had two or more orphans. The results also show that female headed households were disproportionately more likely to have orphans compared to male headed households. For example, while 8.1 percent of households had one orphan, this proportion was significantly higher among female headed households (11.8%) than male headed households (4.8%). Also, while 5 percent of households had 2 or more orphans, this percentage was 8.1 percent among female headed households compared to 2.2 percent among male headed households.

Source of water

Just less than three quarters (71.1%) of households had water piped into the house or within the yard. In fact, 30.2 and 39.9 percent of households had water piped indoors and outdoors, respectively; while a fifth (20.4%) accessed water from communal standpipes or neighbours' taps. One in ten (9.5%) households accesses their water from other sources such as rivers; dams and mobile water delivery sources. The percentage of households which as water piped indoors are almost similar between male and female headed households (31.2% male and 29.1% female headed), while a slightly higher percentage of female headed households (43.2%) had water piped outdoors (within the yard) compared to males (36.9%).

Household Refuse Disposal

Close to half (44.9%) of households have their refuse collected from their homes; close to a fifth (19.0%) burn their refuse; just over one in ten (11.3%) dispose their refuse by the roadside (hopefully for onwards collection by relevant authorities), while a quarter (24.8%) dispose of their refuse using a rubbish pit. A slightly higher percentage of male headed households (46.9%) have refuse collected from their homes compared to female headed households (42.3%). A slightly higher proportion of female headed households (26.8%) dispose of their refuse using a rubbish pit compared to male headed households (23.0%).

Household toilet facilities

The most common toilet facilities available to most households are own flush (25.8%) Own pit latrine (23.7%) and shared pit latrine (18.2%). Fewer than fifteen percent (14.8%) of households had no toilet facilities. A slightly higher percentage of male headed households (26.6%) have a flush toilet compared to female headed households (23.7%) while a discernibly larger percentage of female headed households (28.1%) own a pit latrine compared to male headed households (19.7%). The percentage of both male and female headed households who use a shared pit latrine is almost similar (18.8% male headed vs. 17.6% female headed households).

Household sources of energy

Over half (53.5%) of households use electricity for lighting while just under a third (30.2%) use paraffin and slightly over one in ten (11.1%) use candles for lighting. Almost equal proportions of male (53.6%) and female (53.3%) use electricity for lighting. The percentage of households which use paraffin for lighting is slightly higher among female headed households (32.6%) than male headed households (28.0%).

The results also show that a majority of households use wood for cooking (41.6%); followed by gas (38.2%) while fewer than a fifth (18.0%) use electricity for cooking. The percentage of households that use wood for cooking is slightly higher among female headed households (44.3%) than male headed households (39.1%) while the proportion that uses gas for cooking is marginally higher among male headed households (39.4%) than female headed households (36.9%). A slightly higher proportion of male headed households (18.9%) use electricity for cooking compared to female headed households (16.9%).

The results show that a significant proportion of households don't have any source of energy for heating. In fact, over a third (33.6%) of households do not have a source of energy for heating; while close to half (47.7%) use wood for heating and just fewer than a fifth use electricity for heating. The percentage of households that don't have a source of energy for heating is almost similar between male and female headed households (34.3% male & 32.8% female headed households). Half (50.0%) of female headed households use wood for heating compared to 45.5% of male headed households; and a slightly higher percentage of male headed households (18.9%) use electricity for heating compared to female headed households (16.9%).

Ownership of durable assets

The results show that 6.3 percent of households had at least one member who owns a car or bakkie, while close to a third (32.3%) had other modes of transport, such as bicycles, motorbikes, donkey carts and boats, and six out of every ten (61.4%) households owned a refrigerator. The percentage of households who own a car or bakkie is higher among male headed households (7.8%) compared to female headed households (4.5%), while the percentage of households who own other means of transport was marginally higher among female headed households (33.5%) than male headed households (31.4%). Almost equal proportions of male (60.9%) and female headed households (62.0%) owned a refrigerator.

Access to cell phones

Nine out of ten households (89.7%) have at least one member who owns a cell phone (89.2% male & 90.4% female headed households). The results show that 42.5 percent of households had one member who had a working cell phone, just less than a third (30.6%) had two members who had a working cell phone; 14 and 7.1 percent had, respectively, three or four members with working cell phones, while 5.8 percent had five or more members with working cell phone.

Main economic activity of heads of households

Close to half (44.5%) of heads of households worked in non-seasonal paid employment during the year leading to the census; close to a fifth (17.2%) were students and about one in ten were either job seekers (10.4%) or home maker (11.6%). A discernibly higher percentage of male heads of households (47.9%) worked in non-seasonal paid employment during the year leading to the census compared to female heads of households (39.6%). While the percentage of male and female job seekers were almost similar (10.3% males & 10.7% female heads of households); female heads of households were significantly more likely to be home makers (23.3%) compared to their male counterparts (13.3%). Over half (52.4%) of heads of households were working as employees, paid in cash during the seven days leading to the census; and this percentage was higher among male heads of household (59.9%) than female heads of households (44.0%).

The results show that 5.2 percent of heads of households who were not working were actively looking for a job while 14.3 percent were doing home work. a further 2.5 and 2.1 percent were, respectively, students and retired, while 3.1 percent were sick. As observed earlier, female heads of households were significantly more likely to be doing home work (24.0%) compared to male heads of households (5.7%).

Appendix 1 Tables

Table 1: Population Background Characteristics by sex

	Male	Female	All
Citizenship			
Botswana	93.6	95.4	94.5
Foreign	6.4	4.6	5.5
Marital Status			
Married	18.8	17.9	18.3
Never married	58.1	53.5	55.7
Living Together	20.6	20.8	20.7
Union Dissolved	2.4	7.9	5.2
Ever Attended School			
Still at School	31.2	30.1	30.6
Left School	49.5	52.5	51
Never attended	19.3	17.4	18.3
Highest Level of Education			
Primary or less	37.6	37.6	37.6
Secondary	43	45.6	44.4
Technical/vocational	10.1	8.7	9.4
Tertiary /University	9.2	8.1	8.6
Place of residence			
Cities & Towns	21.9	21.5	21.7
Urban Villages	40.7	43.9	42.3
Rural Areas	37.4	34.6	35.9

Table 2: Percentage Age Distribution by Sex and Age Specific Sex

Age Group	Age Sex Distribution		Sex Ratio		
	Male	Female	total	M/100F	F/100M
0 - 4 years	12.2	11.3	11.7	102.3	97.8
5 - 9 years	11	10.3	10.7	101.8	98.2
10 - 14 years	10.6	9.9	10.3	101.5	98.5
15 - 19 years	10.6	10.2	10.4	99	101.1
20 - 24 years	9.9	10	9.9	94.3	106
25 - 29 years	10.3	10.3	10.3	94.9	105.4
30 - 34 years	8.6	8.3	8.4	98.2	101.8
35 - 39 years	6.9	6.5	6.7	102.5	97.6
40 - 44 years	4.9	4.9	4.9	96.5	103.6
45 - 49 years	3.8	4.3	4.1	85.4	117.2
50 - 54 years	3	3.5	3.3	81.2	123.1
55 - 59 years	2.5	2.9	2.7	82.1	121.8
60- 64 years	1.8	2	1.9	85.7	116.7
65 - 69 years	1.2	1.5	1.4	79	126.6
70 - 74 years	1	1.2	1.1	74	135.2
75 - 79 years	0.7	1.1	0.9	63.8	156.8
80 - 84 years	0.5	0.8	0.7	58.4	171.2
85+ years	0.5	0.9	0.7	51.6	194
Total	100	100	100	95.3	104.9

Table 3: Number of Women of Reproductive Ages, births and Age Specific Fertility and Total Fertility Rates, Botswana 2011

Age Group	WOMEN	BIRTHS	ASFR/1000
12 - 14 years	59867	42	1
15 - 19 years	105928	4134	39
20 - 24 years	103101	14186	138
25 - 29 years	106658	14597	137
30 - 34 years	86027	10029	117
35 - 39 years	66784	5989	90
40 - 44 years	50530	2254	45
45 - 49 years	44380	640	14
	623275	51871	
		TFR/1000	2897
		TFR/Woman	2.90

Table 4: Economic Activity by Sex, Botswana, 2011

	SEX OF RESPONDENT		
	Male	Female	All
Main economic activity since Independence Day			
Seasonal paid	6.8	5.6	6.2
Seasonal unpaid	2.8	3.4	3.1
Non-Seasonal-paid	40.1	28.4	34.0
Non Seasonal_unpaid	4.0	2.2	3.1
Job Seeker	11.1	11.2	11.2
Home Maker	8.4	23.7	16.3
Student	22.2	21.3	21.7
Retired	1.8	1.2	1.4
Sick	2.1	2.9	2.5
Prisoners	0.5	0.0	0.3
Other	0.2	0.1	0.2
Did any work for pay?			
Yes	51	36.2	43.3
No	49	63.8	56.7
If Not working, what did Do?			
Actively seeking	22.5	16.6	19.1
Home Work	23.9	44	35.6
Student	43.9	32.2	37.1
Retired	3.1	1.6	2.2
Sick	5.1	5.3	5.2
Other	1.5	0.3	0.8
Working as in past 7 days?			
Employee- paid / cash	80	81.9	80.8
Employee- pain in-kind	0.5	0.5	0.5
Self Employed (No employees)	6.7	9.4	7.9
Self-employed (employees)	4.0	2.2	3.2
Unpaid family helper	0.6	0.7	0.7
Cattle post/Lands	8.0	5.2	6.8
Other	0.2	0.1	0.1

Table 5: Household Characteristics by sex of Head of Household, Botswana 2011

SEX OF HEAD OF HOUSEHOLD	Male	Female	All
Marital Status			
Married	35.6	18.0	27.2
Never married	32.1	42.1	36.9
Living Together	27.9	22.2	25.1
Union Dissolved	4.4	17.7	10.7
Size of Household			
Three or less	66.5	52.4	59.8
4 or more	33.5	47.6	40.2
Type of House			
Traditional /mixed	21.4	25.1	23.2
Detached; Semi-detached	46.8	49.4	48
Flats/Townhouses	4.0	3.1	3.6
Rooms	24.1	21.5	22.9
Shacks & Movable	3.7	0.9	2.4
Housing Tenure			
Self-built / purchased	50.3	63.1	56.4
Rented	49.7	36.9	43.6
Number of Rooms			
1 Room	41.1	32.7	37.1
2 Rooms	24.0	27.0	25.4
3 Rooms	18.8	21.0	19.9
4-6 Rooms	14.6	17.5	16.0
7 Rooms & more	1.5	1.8	1.6
Material of construction of WALLS			
Conventional bricks	80.5	83.2	81.8
Mud & Other	19.5	16.8	18.2
Material of construction of FLOOR			
Cement	62.4	67.6	64.9
Floor Tiles	23.0	21.0	22.0
Mud & Other	14.6	11.4	13.1
Material of construction of ROOF			
Thatch / Straw	11.1	11.2	11.1
Roof tiles	13.4	12.4	12.9
Corrugated Iron	72.5	74.7	73.5
Asbestos & Other	3.0	1.7	2.4
Number of Orphans			
0 Orphans	93	80.1	86.9
1 Orphan	4.8	11.8	8.1
2 or more orphans	2.2	8.1	5.0

Table 6: Household Access to Water, energy, sanitation and Assets by Sex of Head of Household, Botswana 2011

SEX OF HEAD OF HOUSEHOLD	Male	Female	All
Source of Water Supply			
Piped – indoors	31.2	29.1	30.2
Piped – outdoors	36.9	43.2	39.9
Communal /neighbours	18.5	22.6	20.4
Other	13.4	5.1	9.5
Household Refuse Disposal			
Collected from home	46.9	42.7	44.9
Burning	20.1	17.9	19.0
Roadside collection	10.1	12.5	11.3
Rubbish Pit	23.0	26.8	24.8
Household Toilet facilities			
Own-flush	26.6	23.7	25.2
Own – VIP	1.6	2.1	1.8
Own Pit	19.7	28.1	23.7
Own –Dry compost	0.3	0.2	0.3
Shared-flush	9.0	8.2	8.6
Shared-VIP	1.5	1.4	1.4
Shared –pit	18.8	17.6	18.2
Shared- Compost	0.1	0.1	0.1
Communal/shared	5.0	6.6	5.9
None	17.4	12.0	14.8
Source of energy: LIGHTING			
Electricity	53.6	53.3	53.5
Paraffin	28.0	32.6	30.2
Candles	11.7	10.4	11.1
Wood/Gas / other	6.7	3.8	5.3
Source of energy: COOKING			
Electricity	18.9	16.9	18.0
Gas	39.4	36.9	38.2
Wood	39.1	44.3	41.6
Other	2.6	1.9	2.2
Source of energy: HEATING			
Electricity	18.1	15.3	16.8
Wood	45.5	50.0	47.7
Other	2.1	1.9	1.9
None	34.3	32.8	33.6
Ownership of ASSETS			
Car /Bakkie	7.8	4.5	6.3
Donkey cart / other	31.4	33.5	32.3
Refrigerator	60.9	62	61.4
Member of HH owns a working CELL PHONE			
Yes	89.2	90.4	89.7
No	10.8	9.6	10.3
Number of HH members who own a working CELL PHONE			
1 member	42.4	42.6	42.5
2 members	31.6	29.5	30.6
3 members	13.4	14.8	14.1
4 members	6.9	7.2	7.1
5+ members	5.7	5.9	5.8

**Table 7 Economic Activity of Heads of Households,
Botswana 2011**

SEX OF HEAD OF HOUSEHOLD	Male	Female	All
Main economic activity since Independence Day			
Seasonal paid	6.9	5.7	6.4
Seasonal unpaid	2.5	2.4	2.4
Non-Seasonal-paid	47.9	39.6	44.5
Non Seasonal_unpaid	4.9	2.4	3.9
Job Seeker	10.3	10.7	10.4
Home Maker	11.2	12.3	11.6
Student	13.3	23	17.2
Retired	1.3	1.1	1.2
Sick	1.6	2.8	2.1
Did any work for pay?			
Yes			
No			
If Not working, what did Do?			
Actively seeking	5.0	5.4	5.2
Home Work	5.7	24	14.3
Student	2.3	2.6	2.5
Retired	2.6	1.5	2.1
Sick	2.2	4.0	3.1
Working as in past 7 days?			
Employee- paid I cash	59.9	44	52.4
Employee- pain in-kind	0.3	0.3	0.3
Self Employed (No employees)	5.1	5.2	5.1
Self-employed (employees)	3.6	0.9	2.3
Unpaid family helper	0.3	0.3	0.3
Cattle post/Lands	6.7	3.2	5.0
Other			

Appendix 2 - Figures

Figure 5: Age - Sex Pyramid, Botswana, 2011

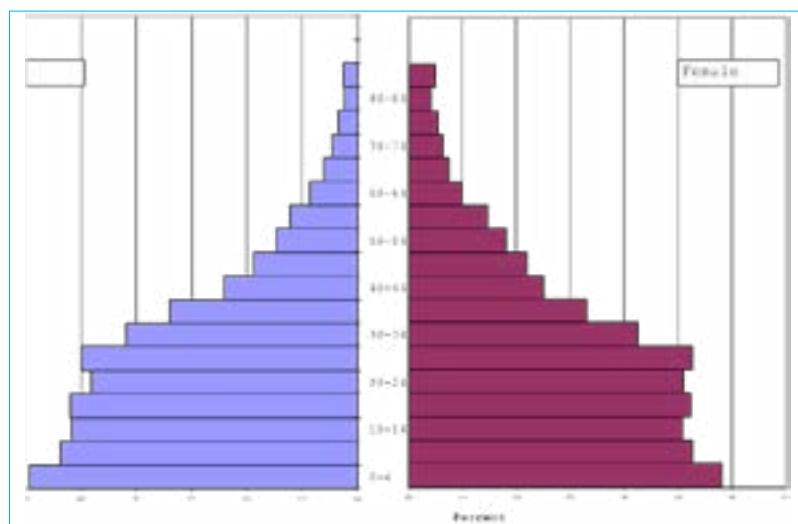
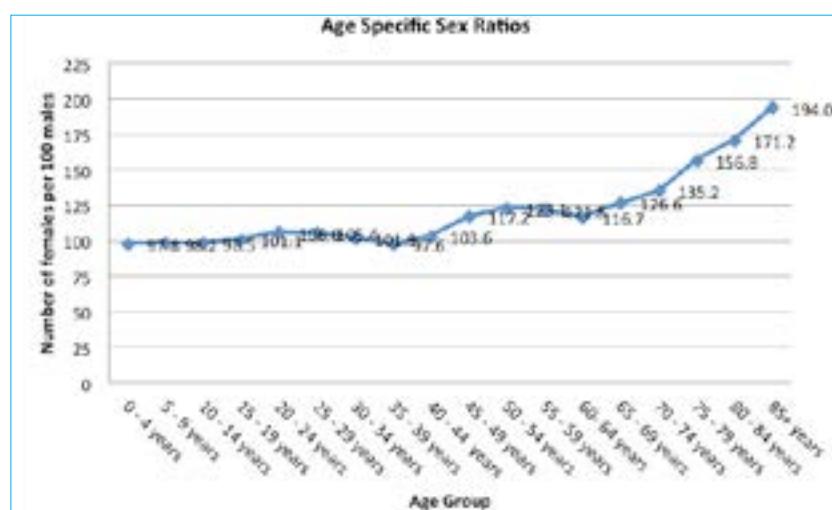


Figure 6: Age -Specific Sex Ratios, Botswana 2011





Shepherd K. Monyeki, Gender Affairs Department presenting on
Gender Dimensions of the 2011 Population Census

GENDER DIMENSIONS OF THE 2011 POPULATION CENSUS

By
Shepherd K. Monyeki
Gender Affairs Department

Abstract: Statistics Botswana has a tradition of bringing out disaggregated information by sex on various aspects of the population. This paper presents and analysis the gender dimensions of the 2011 population census focusing on population growth and distribution, education, marriage and household economy. These concepts are some of the key in socio economic development. The paper also defines gender, highlights population growth trends, highlights child marriage, and compares some indicators of the 2011 census to those of 2001. Also, the paper provides recommendations.

1. Introduction

The Constitution of Botswana (Section 3) prohibits discrimination on the basis of sex. Given this basis, principles forbid that any enactment of a piece of legislation that contravenes these provisions can be pursued. Moreover, the national aspirations "Vision 2016", Rural Development Policy, National Population Policy, National Youth Policy, Culture Policy and others recognise gender consciousness as a key element of and in development. Vision 2016 documents aver that "no citizen of Botswana will be discriminated against on the basis of gender, among others". The Draft Policy on Gender and Development has a strategic focus under research to "Strengthen collaboration efforts with training and research (Department, 2012). Provision of gender disaggregated statistics is one of the mandates that statistics Botswana exists to fulfil. These grounds either covertly or overtly highlight the responsibility of socio-economic players to monitor and evaluate the country's success or regress through a gender lens among others. Analysing the gender dimensions of the 2011 population census is one of the key steps to understanding, not only the inclusiveness, but also the size of population groups that need to be included in development planning. All development thematic areas are important to analyse through a gender lens since gender is a cross cutting issue of development. For this analysis population growth and distribution, marriage, education, economic activity and access to energy are investigated.

1.1 Definition of gender

Before landing analysis of the gender dimensions, it is imperative to understand the term gender. Gender was initially used by feminist theorists to encompass alleged sex differences that are socially and culturally produced (Zack et al, 2004). Patrick Hopkin in Zack et al (2004) notes that " categories of gender in different ways produce multiplicity of other categories in a society, affecting or determining labour, reproduction associated responsibilities, child bearing roles, distribution of political power, economic status, sexual practises, use of language, spirituality and religious beliefs and many more". Gender inequality take root from these pre-determined sex differences and role stereotyping. Janet Hunt (2004) and the National Gender Programme Framework observe that in raising the issues of gender inequality, early writers, activists and development planners focused on women in development, as opposed to gender and development approach. Hunt (2004) further notes that "the consequences of gender inequality is that women are vulnerable to poverty than men, especially as a result of widowhood, separation or divorce, and the consequence of loss of access to productive assets".

It is important therefore to be able to measure achievements and benefits in relation to efforts to promote gender equality and empowerment of women, as well as to measure the costs of persistent inequality in areas where progress is slow (Carolyn Hannan; 2007). There is a saying that "What is treasured is measured". Gender is not measured, but development through a gender lens. As such gender is a unit of analysis.

2. Gender dimensions of population growth.

Botswana's annual population growth rate between 2001 and 2011 is 1.9 percent. This is the lowest of all the population growth rates that Botswana ever had. It is noted here that Botswana's population continues to increase at diminishing growth rates. Specifically, population growth rate stood at 4.6% between 1971 and 1981, then grew with a diminishing rate by 3.5% in 1991 and lastly by 2.4 in 2001 before ultimately growing at a slower pace of 1.9 in 2011. Vision 2016 Document states the nation's challenge as "to manage the population growth if its people are to be adequately catered for in terms of education, health and service provision".

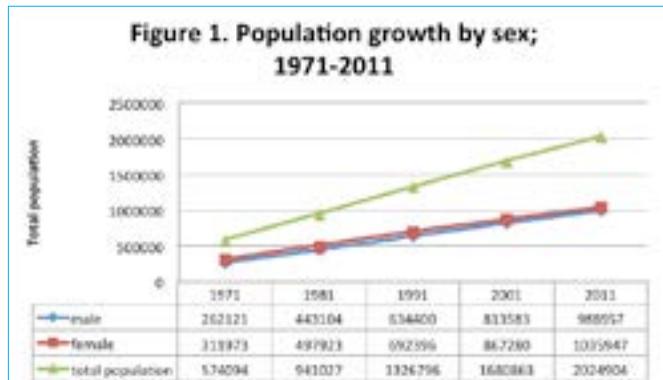


Figure 1 and Table 1 indicate that for all the census periods, female population has always outnumbered men. However, the pattern of population growth has been in such a manner that the growth of male population counters the female population dominance. That is, the margin between male and female population size is being gradually closed, as the population grows, having been closed from a margin of 8.6% in 1971 to a margin of 2.4% in 2011. While population growth is slow, there is a noticeable growth of male population bridging the population gap between males and females. This calls for special dispensation for the growing male population.

2.1 Population distribution and composition.

This section analyses population stratification on the basis of four main cohorts; children, youth, adults and the elderly. For purposes of this paper, population cohort from the age 11 and below are defined as children, population cohort of the ages ranging from 12 to 64 are defined as adults while the elderly cohort is defined in line with the old age pension guideline (65 years and above) and youth is defined in line with the Revised National Youth Policy (12 years to 35 years).

Table 2. population distribution by age and sex.

Variable	N	(%) Male	(%) Female	(%) Total
Children(0-11)	539832	50.6	49.4	26.7
Youth (12-35)	941371	49.3	50.7	46.5
Adults (36-64)	442829	47.5	52.5	21.9
Elderly (65+)	100872	41.3	58.7	5
ALL	2024904	48.8	51.2	100

Botswana population is highly youthful (47%) with higher female population (50.7%) and child packed population (27%) with male population outnumbering the female population with a margin of 1.2% (Table 2). A peculiar situation that presents itself is that male population within the children's cohort is higher than the female population, accounting for 50.6 per cent. The female population is higher in all the age groups such as youth, adults and the elderly, accounting for 50.7%, 52.5% and 58.7% respectively. Vision 2016 document notes that "There is a challenge to reduce unemployment which is particularly high amongst the youth, especially females". High unemployment rate among the youth, and the resulting poverty can be held accountable for social ills such as crime and drug abuse among males, and prostitution and backstreet abortions among females, among others. The recent Botswana Core Welfare Indicator Survey also reveals that unemployment rate stands at 17.8 per cent.

2.2 The Population and its locality

Botswana population is concentrated around villages (both urban "42.3%" and rural "25.9 %") making a cumulative percentage of 68.2 % (Table 3). Moreover, the population is concentrated in the developed or service centred localities such as cities or towns (21.7%) and urban villages (42.3%), also accounting for a cumulative 64%.

Table 3.population by sex and locality

Locality	N	(%) Male	(%)Female	(%) Total
City/town	440108	49.3	50.7	21.7
Urban village	857179	47	53	42.3
Rural village	523687	46.8	53.2	25.9
Lands	92776	57.8	42.2	4.6
Cattle post	52849	65.4	34.6	2.6
Freehold farms	15170	59.4	40.6	0.7
Mixture of lands and cattle posts	20203	61.5	38.5	1.0
Camp or other locality	22932	65	35	1.1
All	2024904	48.8	51.2	100

Women account for a higher percentage populations in cities or towns and villages while men account for higher percentages in all areas which are far from amenities such as health services, schools and electricity. Men account for 57.8%, 65.4%, 59.4%, 61.5%, and 65% at lands, cattle posts, freehold farms, mixture of lands and cattle posts and camp or other localities respectively, making these localities men's domain. The latter localities are traditionally known for productive economic activities, particularly within the agricultural sector.

Botswana has acceded to the Convention of the Elimination of all forms of Discrimination Against Women (CEDAW) which among others requires the state to take into consideration the special needs and challenges of women in the rural areas. This Convention required Botswana to extend adequate health care facilities, including information, counselling and services in family planning and adequate living conditions, particularly in relation to housing, sanitation, electricity and water supply.

Female headed households in Botswana's rural villages account for 57.9%, hence being higher than male headed households. Botswana's rural women population standing at 53.2% compared to men's.

3. Marital status of the population

The national aspirations instrument, Vision 2016 documents avers that "The emphasis on strong family unit will encourage responsible parenting and the institution of marriage. It will provide the social function for the eradication of problems such as high incidences of teenage pregnancies, adultery, prostitution, street children and the spread of HIV". Marriage and family life are key to the Botswana society. This section presents and analysis the marital status of the Botswana population, considering among other things marriage, cohabitation, singlehood, separation, divorce and widowhood. However, the main focus is on marriage, divorce and cohabitation.

The previous census reports have been analysing marriage from populations of 15 years old and above. This makes it difficult to make conclusions about increase or decrease in different marital status indicators of the population unless that former categorization is used. For this analysis marriage could not be defined from 15 years old since the Marriage Act of 2002 (section15) treats such as forbidden child marriages. The previous censuses could have grouped in line with prevailing legal instruments such as Marriage Act and the Penal Code. To that end, marital status of the population over 18 years was analysed separate from the population below 18 years old.

3.1 Marital status of population above 18 years.

Table 4 shows that a close to half of the population is single (47.2%), a quarter is in cohabitation relationships (24.6%), and just below a quarter of the population is in marriage relationships (21.9%). Widowed, divorced and separated populations account for lower percentages (4.6%, 1.2% and 0.5% respectively).

Table 4. Marital status of population above 18 years old.

Marital status	N	(%) Male	(%) Female	(%) Total
Married	269798	22.7	21.2	21.9
Single	582188	49.6	45	47.2
Cohabiting	303018	24.7	24.5	24.6
Separated	6596	0.5	0.6	0.5
Divorced	14317	0.9	1.4	1.2
Widowed	56815	1.6	7.3	4.6
All	1232732	47.8	52.2	100

23 % of the male population above 18 years old is in marriage relationship compared to female's 21 %. Men account for half of single population (49.5%) and a quarter of cohabiting population (24.7%) while women account for 45% and 24.5% respectively.

More women than men had failing or failed marriages accounting for 0.6% in separation and 1.4 in divorce populations compared to men's 0.5% and 0.9 % respectively. Widowhood is more in female populations than in male populations accounting for 7.3% among women and 1.6% among men of ages above 18.

3.2 Underage marriage

By setting a minimum age of marriage above 18 years old, the Marriage Act was setting a tone of forbidding child marriages in line with article 16 of CEDAW. Notwithstanding the fact that the Penal code prohibits sexual relations with younger persons under the age of 16, marriages of young girls, and sexual relations with such have been reported in Botswana and are verified by the census data. It has been observed that child marriages take effect through the customary law system. This legal system is recognised by the Botswana constitution (section 15), Marriage Act and the Abolition of Marital Power Act among others.

Census data shows that a total of 1644 children are in marriage relationships, 3748 in cohabitation, 2 divorced, 2 in separation and 4 widowed against 242810 children below the age of 17 in Botswana. 60.1 % of the married children are of the age group 12 to 15, much higher than those of age group 16 to 17. Also, those in cohabiting relationships are concentrated within the age group 16 to 17. Children who are in separation and widowhood account for 100% of the age group 12 to 15. Disaggregated further by the 26 Census districts, Kweneng East (13.6%) and Gaborone (11.1%) districts have higher percentages of children who are in marriage relationships while NgakaketseWest (0.1%) has the least percentage of children in marriage relationships.

Table 5 Underage marriage

Marital status	N	12-15 olds	16-17 olds	All
Married	1644	60.1	39.9	0.7
Single/ never married	242810	66	34	97.8
Living Together	3748	41	59	1.5
Separated	2	100	00	0.0
Divorced	2	50	50	0.0
Widowed	4	100	00	0.0

At 12 to 15 years old, children are expected to be at primary schools, and at 16 and 17 years they should be at lower secondary schools. Botswana laws forbid sexual debut with girls of ages less than 16.

Institutions tasked with implementing defilement legislations would have a difficult work to do under these circumstances.

4. Education

Botswana has a free education for all for the first 10 years. Moreover, government sponsors Batswana students to further their studies at universities, colleges and brigades. This section analysis the extent to which Botswana population has been through the formal education system.

Education is one of the key institutions that help to drive the economy. However, 18.3 per cent of the population has never been to school among which a higher percentage is females (50.4%). Table 7 shows that 18.8 % of the population has never been to school. Men accounting for a higher percentage (51.3%). Notwithstanding

this, approximately 72 per cent of the population have been to school, of which 30.6 % (46.6% males & 50.4% females) are still attending school and 51% (47.2% males & 52.8% females) having left school. The latter may mean two possibilities, that one went to school and completed or that one went to school and did not complete.

Table 7. Population's school attendance by sex

School attendance	N	(%) Male	(%) Female	(%) Total
Still attending	587338	46.6	50.4	30.6
Left school	979474	47.2	52.8	51
Never attended school	351926	51.3	48.7	18.3
All	1918738	934339	984399	100

Table 8 shows that children account for almost half of percentage of the population which has never been to school, with more males (51.1%) than females (48.9%). Adults account for 27% of the population which has never been to school, out of which 52.6% is male. Also, 16% of the population which has never been to school is accounted for by the elderly (44.4% male & 55.6% female). Lastly, youth account for 8% of the population which has never been to school.

Table 8 Population which has never been to school by age (N=351926)

	N	(%) Male	(%) Female	(%) Total
Children	172408	51.1	48.9	49
Youth	28210	62.2	37.8	8
Adults	95085	52.6	47.4	27
Elderly	56223	44.4	55.6	16

5. Employment

Vision 2016 document aspires that with economic growth targeted at \$8500 per capita in real terms, Botswana will reach full employment where the total number of jobs available in the formal and informal sectors is balance with the number of job seekers. Also, the gender distribution among the employed will be equitable and fair at all levels, including those of decision makers and middle management (Vision 2016). However, the Botswana Core Welfare Indicator Survey indicates that average unemployment rate was estimated at 17.8 per cent with female unemployment rate at 21.4 per cent and men's unemployment rate at 14.5 percent. There is a challenge to reduce unemployment which is particularly high amongst the youth, especially females.

5.1 Economic activity

This section explains different forms of activities, and the extent of engagement of residents in these economic activities. The economic activity of the population is divided into two units of analysis; the economically active and the economically inactive. Table 9 shows that 74.6 % of the economically active heads of households are employed compared to 75.8% during the 2001 population census. This presented a deficit in employment of heads of households. Within these inter-censuses, an increase in percentage employment of female heads of households is noted (36.7% in 2001 to 39.5% in 2011). Self-employment among heads of households did not suffer any percentage change as it stood at 10.6% in both census periods. However, a percentage decrease among female headed households is observed having fallen declined from 44.1% in 2001 to 38.3% in 2011. There has also been a percentage decrease in the unpaid family helpers from 0.7% in 2001 to 0.4% in 2011. However, an increase in female heads of households doing as unpaid family helpers is observed, having increased from 40% in 2001 to 44.8% in 2011. Moreover, a percentage increase is observed among heads of households who work in their own lands or cattle post population accounting for 4.4% in 2001 and 7.1% in 2011, with female heads having increased from 21.5% to 29.6%. A decrease in percentage of heads of households who are actively seeking employment is observed between the two censuses (9.1% in 2001 and 7.3% in 2011). While there has been this decrease in heads of households actively seeking employment, a percentage increase is observed among the female heads of household from 49% in 2001 to 49.2% in 2011.

Table 9.Economic activity of heads of household by sex.2011; comparison with 2001.

Economic activity	2011				2001			
	N	Male	Female	All	N	Male	Female	All
Economically active								
Employed	283478	60.5	39.5	74.6	183826	63.3	36.7	75.8
Self Employed	40244	61.7	38.3	10.6	25844	55.9	44.1	10.6
Unpaid family helper	1526	55.2	44.8	0.4	1748	60	40	0.7
Working at own lands/cattle post	27047	70.4	29.6	7.1	10731	78.5	21.5	4.4
Actively seeking work	27891	50.8	49.2	7.3	22242	51	49	9.1
Unknown	-	-	-	-	119	49.6	50.4	0.1
Economically inactive								
Home work	281846	60.5	39.5	80	106614	29.6	70.4	74.8
Student	1632	58.5	41.5	0.5	12785	57.2	42.8	9
Retired	27682	52.7	47.3	7.9	9609	65.1	34.9	6.8
Sick	12562	81.4	18.6	3.6	13179	46.5	53.5	9.2
Other	1526	55.2	44.8	0.4	271	66.4	33.6	0.2
Unknown	27047	70.4	29.6	7.7	163	38	62	0.1

increase from 74.8% heads during the 2001 census. However, a violent percentage decrease among female heads of households is observed from 70.4% in 2001 to 39.5% in 2011 census. There has also been a decrease in heads of households who are students from 9% in 2001 to 0.5% in 2011, and 42.8% to 41.5% female heads in the same period. Lastly, a percentage increase is observed among the retired heads of households from 6.8% in 2001 to 7.9% in 2011 coupled with female heads increase from 34.9 to 47.3 in the same period.

There has been a slight decrease in the percentage of heads of households who are employed from the 2001's 74.8% to 74.6%. However, an increase has been observed among women heads of households from 36.7 % of 2001 to 39.5 % in 2011. Women heads of household's reported to be employed among other economic activities.

5.2 Access to energy sources by heads of households by sex.

There are 550917 households in Botswana with maleheaded household's accounting for a higher percentage (52.5%) than female headed households (47.5%). Table 11shows that a higher percentage of households use wood for cooking (41.7%) out of which female headed households account for 50.6%. 18 % of households use gas for cooking among which 54.3% is male headed households.

Table 10 Household energy source by head of household and sex

	N	Male	Female	All
Household headship	550917	52.5	47.5	100
Energy for cooking				
Electricity (grid)	98005	55.3	44.7	18
Gas (LPG)	208747	54.1	45.9	38.3
Wood	226925	49.4	50.6	41.7
Others	10899	61.4	38.6	2
Energy for lighting				
Electricity (grid)	293330	52.6	47.4	53.2
Petrol	830	70.8	29.2	0.2
Diesel	4226	85.6	14.4	0.8
Solar power	2784	66	34	0.5
Gas(LPG)	1533	53.9	46.1	0.3
Bio Gas	117	53	47	0
Wood	19626	63.2	36.8	3.6
Paraffin	165386	48.6	51.4	30
Candle	60663	55.4	44.6	11
Other	2421	66.9	33.1	0.4
Access to safe water				
Pipe in yard	386239	51	49	70.1
Tap nearby (communal or neighbour's)	112460	47.5	52.5	20.4
Other	52218	74.5	25.5	9.5

Just over half (53.2%) of households in Botswana use grid electricity for lighting, close to a quarter (30%) use paraffin ,11% use candle and 3.6% use wood for lighting. For all the energy sources, women's use account for less than 47% except in using paraffin for lighting.

In terms of access to drinking water, 70.1% of families have pipe in their yards, male headed households accounting for 51%. That is, three quarter of household in Botswana have access to safe drinking water. Also, 20.4% (47.5%male headed & 52.5% female headed) households have access to drinking water through communal taps or neighbours taps. A cumulative 90.5% of households in Botswana have access to clean drinking water. 9.5% (74.5%male headed & 25.5% female headed) households use unsafe water.

6. Conclusions

Botswana population has a female population outnumbering males, and is also youthful with a higher percentage population among female youth. As the population grows at a diminishing growth rate, the male population rate is faster than female population growth rate. Botswana population is also concentrated around cities or towns and urban villages. This is an indication of rural urban migration. Women account for a higher percentage of rural population.

On matters of gender equality, situations where one sex of the population would have a higher percentage over the other in a given socio-economic indicator in one period only do be least in another has presented itself in a number of socio-economic indicators. For example, for the economically active heads of households, there was a percentage decrease from 0.7% in 2001 to 0.4% in 2011, but a percentage increase was also observed among female heads from 40% to 44.8% in the same period.Among the economically inactive, a percentage increase was also observed among heads of households who are home workers, accounting for 74.8% in 2001 to 80% in 2011. A percentage decrease among female headed households who are home makers was observed from 70.4% in 2001 to 39.5% in 2011. This means sometimes male population is more privileged than female population or female population privileged than male population over of socio-economic indicator.

Challenges that Botswana face include child marriage, non-school attendance by all age groups, high levels of singleness and cohabitation among other things.

7. Recommendation

- Given the rural women population, the persisting rural urban migrations, and the problems of maternal mortality, it is important to have more health services in rural villages and create more economic opportunities in rural areas.
- Given the background of high youth percentage, it is important for Government not only to strengthen the existing youth economic empowerment programmes, (especially by making them youth friendly and responsive) but also to create more employment opportunities. This effort should not be left to one player (government) but all economic players and thinkers. When addressing youth problems, which are mainly economical, it is important not to forget to address the issues affecting other cohorts such as children, adults and the elderly.
- Grouping of population groups for census or national statistics purposes should be done in line with the prevailing legal instruments.
- There is need to encourage more men to marry by way of regulating cultural practices such as bogadi which is considered one of the hindrances to marriage.
- Children should be protected against child marriage by way of offering public education on children's rights and defilement law. This should involve traditional authorities. Discussions and regulations of harmful cultural practices should also be help or pursued.

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APPENDIX

Table A1.Patterns of population growth by sex-1971 to 2011.

	1971	1981	1991	2001	2011
Enumerated population	574094	941027	1326796	1680863	2024904
Male	262121	443104	634400	813583	988957
Female	311973	497923	692396	867280	1035947
% Male	45.7	47	47.8	48	48.8
% Female	54.3	53	52.2	52	51.2
% Gender difference	8.6	6	4.4	4	2.4



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PRINCIPAL SOURCES OF WATER SUPPLY IN HOUSING UNITS

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Abstract: Botswana is endowed with valuable natural resources and an environment that can potentially sustain the country's development processes and people into the future. However, the country has scarce water resources, which could have a major, impact on development in the second driest country in sub-Saharan after Namibia. The Government of Botswana, in its decision making processes in water resources management, is guided mainly by the country's Vision 2016 that aims at, among others, harnessing the scarce water resources in a way that ensures an adequate supply of safe drinking water that is affordable and accessible to all its citizens. This chapter presents a descriptive analysis of the principal source of water supply in the households in Botswana based on data obtained from the 2011 Population and Housing Census. It describes the level of accessibility to different sources of water supply in different types of settlement, which are urban and rural areas that include lands, cattle posts and farms. The chapter also addresses the related issue of access to basic on-site sanitation facilities. Furthermore, to measure progress at national level since the 2001 Population and Housing Census, relevant indicators in the water sector are considered and compared to targets set by the Millennium Development Goals (MDGs) and those for Sub-Saharan Africa. Integrated water resources planning and management is a very complex issue which, in general, involves the joint consideration of water supply, social, socio-economic, economic and environmental issues. Therefore, to complement the descriptive analysis mentioned above, we propose the use of a method based on an environmental assessment tool called the Driving Force-Pressure-State-Impact-Response (DPSIR) conceptual framework to assess the interactions amongst water supply, social, socio-economic, economic and environmental issues.

1. Introduction

Botswana is endowed with valuable natural resources and an environment that can potentially sustain the country's development processes and people into the future. The country is semi-arid and characterized by unevenly distributed rainfalls that at best can be described as highly erratic. The western parts of the country are predominantly sandy with very low rainfalls, while the extreme southern parts of Botswana comparatively receive slightly higher amounts of rainfalls. The absence of major Rivers, discount any prospects of constructing sustainable water catchment dams in these parts of the country. Meanwhile the eastern corridor that extends from Lobatse to Ramokgwebana, and the northern parts of Botswana are relatively well endowed with big rivers, but because of highly variant amounts of rains that take place only in summer, the inflow of these rivers is only seasonal. Compounding the situation are the extreme summer temperature conditions that renders Botswana a dry country hence drinking water is viewed as a scarce and precious commodity. In order to alleviate this precarious water situation in Botswana, Government has embarked on strategic measures that mitigate against water shortages in Botswana. Currently there exist eight dams that supply households in urban, semi-urban and rural areas with potable water through Water Utilities Corporation. The water is cleaned and reticulated into households for domestic use, through water supply pipes located indoors, outdoors and communal standpipes. The rest of the country is dependent predominantly on untreated water drawn from wells, boreholes and rivers.

This chapter presents a descriptive analysis of the principal source of water supply in the households in Botswana based on data obtained from the 2011 Population and Housing Census. It describes the level of accessibility to different sources of water supply in different types of settlement, which are urban and rural areas that include lands, cattle posts and farms. The analysis is confined to domestic water supply. Also addressed in the chapter is the related issue of access to improved on-site sanitation. Further, to assess the cause-effect relationships amongst water supply, social, socio-economic, economic and environmental issues, we propose the use of a method based on an environmental assessment tool called the Driving Force-Pressure-State-Impact-Response (DPSIR) conceptual framework. The DPSIR framework was proposed by the European Environmental Agency (EEA, 1999). The idea of the framework was originally derived from social studies but, was later used widely internationally for organising systems of indicators in the context of environment and, recently, sustainable development. For example, JacoboFeas Vazquez (2003) used the DPSIR as a methodology for policy analysis in water resources management while Thupeng et al. (2011) used it to assess the use of forest resources in Germany. Thupeng and Forcheh (2011) used the DPSIR conceptual framework to study the availability and quality of data on water statistics by assessing the changes in water consumption in 17 major villages of in Botswana. Forcheh and Thupeng (2011) further employed the framework to assess the situation of water resources in Botswana. A full description of the components of the conceptual framework and its application to water supply management are discussed in section 4.

To put issues into perspective, a brief discussion of the broad policy objectives guiding the Government of Botswana in its decision-making processes in water resources management is discussed in the following section.

2. Policy Objectives

The National Water Master Plan calls for the urgent need to give attention to the use of water in Botswana and to establish the sustainable level of withdrawal from the country's water resources for domestic, industrial and personal needs. The Government of Botswana, in its decision making processes in water resources management, is guided mainly by the country's Vision 2016 that aims at, among others, harnessing the scarce water resources in a way that ensures an adequate supply of safe drinking water that is affordable and accessible to all its citizens. Vision 2016 articulates Botswana's long-term development aspirations and provides a broad framework for development. The development process is guided by six-year National Development Plans (NDPs). The NDPs are guided by Vision 2016 and, since the year 2000, the Millennium Development Goals (MDGs). See Botswana Millennium Development Goals Status Report 2010.

Within the water sector, there are three subsectors, namely, water, sanitation and hygiene. Each one of these is important in its own right, and should not be subsumed within the others. We focus on access to safe drinking water and improved sanitation facility. The MDG relating to drinking-water and sanitation is MDG 7: Ensure environmental sustainability whose Target 7c is to "Halve by 2015, the proportion of people without sustainable access to safe drinking-water and basic sanitation". Access to drinking-water and to basic sanitation is measured by the MDG indicators: Proportion of population using an improved drinking-water source and Proportion of population using an improved sanitation facility. These indicators and targets have been adapted by Vision 2016 under Pillar 3: A Compassionate, Just and Caring Nation, to local circumstances to create meaningful ownership. According to Vision 2016 Botswana Performance Report of 2009, the Botswana standards for safe water sources include piped water, borehole and well while improved on-site sanitation facilities include flush toilet and ventilated pit latrine.

It must be noted that any decision related to water resources management is undertaken within the framework of policy. In effort to achieve the MDG and Vision 2016 Pillar relating to safe drinking-water and improved on-site sanitation, the Government of Botswana has come up with various policies and set up various institutions. Such institutions have a variety of functions involving planning, development and delivery of water to all citizens. This integrated water resources planning and management is a very complex issue which, in general, involves the joint consideration of water supply, social, socio-economic, economic and environmental issues as a way to address what is essentially a problem of water supply. As a result, to measure progress at national level since the 2001 Population and Housing Census, the abovementioned indicators in the water sector are calculated and compared to targets set by the Millennium Development Goals (MDGs) and Vision 2016 and those for Sub-Saharan Africa. Globally, most of the MDG targets have a deadline of 2015, using 1990 as the baseline against which progress is gauged.

3. Analysis

3.1 Trends in Water Sources by Location

Table 1: Number of households by Water Supply and Region for the years 1991, 2001 and 2011 in Botswana

	Region											
	Towns and Urban villages			Rural Villages			Localities			Total		
	1991	2001	2011	1991	2001	2011	1991	2001	2011	1991	2001	2011
Piped or tapped	145,106	230,273	354,876	63,249	100,997	119,108	4378	23,655	24,745	212,733	354,925	498,729
Bouser/Tanker	-	194	976	-	962	1053	-	2529	4254	-	3685	6283
Well	-	93	44	-	271	150	11487	6874	4906	11487	7238	5100
Borehole	-	128	328	-	474	613	20759	20202	26096	20759	20804	27037
Other	-	4069	1352	-	2695	844	31230	11290	10967	31230	18054	13797
Total	145106	234757	357576	63249	105399	121768	67854	64550	71602	276209	404706	550946

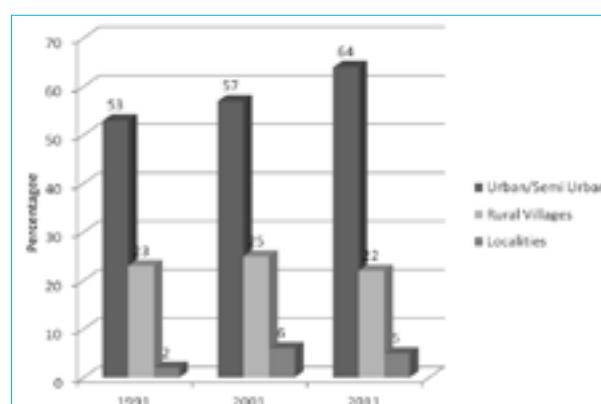
Tables 1 and 2 show that in 1991, out of the 276,209 households in Botswana, the percentage of those located in either urban or semi-urban areas and having access to improved water through piped-water indoor, piped-water outdoor or drawing piped-water from a neighbour or communal standpipes, stood at 53%. Those households in rural villages and having access to improved water was 23% while only 2% were located in lands area, cattle posts, freehold farms or other rural areas outside rural villages. This yielded a total of 77% of all households having access to improved water, nationally. In 2001, of the 404,706 households in Botswana, the percentage having access to safe drinking water and living in either urban or urban villages had risen to 57%. Similarly there was improvement to rural households, with one-in-four households living in rural villages and having access to safe drinking water, while those in rural localities rose to 6%. This yielded 31%, which is a combined percentage of households living in rural areas and having access to safe drinking water. The figures in Table 2 indicate a drop in the proportion of rural households having access to clean drinking water from 5.8% in 2001 to 4.5% in 2011. The drop, however, does not imply that certain households retrogressed to unimproved water sources. Instead, it can be attributed to a huge increase in the number of households that were located in rural villages in 2001, like Mmopane, but, were subsequently transformed into urban villages in 2011.

Table 2: Percentage distribution of households by Water Supply and Region for the years 1991, 2001 and 2011 in Botswana

	Number of households											
	Towns and Urban villages			Rural Villages			Localities			Total		
	1991	2001	2011	1991	2001	2011	1991	2001	2011	1991	2001	2011
Piped or tapped	52.5	56.9	64.4	22.9	25.0	21.6	1.6	5.8	4.5	77.0	87.7	90.5
Bouser/Tanker	-	-	0.2	-	0.2	0.2	-	0.6	0.8	-	0.9	1.1
Well	-	-	0.0	-	0.1	0.0	4.2	1.7	0.9	4.2	1.8	0.9
Borehole	-	-	0.1	-	0.1	0.1	7.5	5.0	4.7	7.5	5.1	4.9
Other	-	1.0	-	-	0.7	0.2	11.3	2.8	2.0	11.3	4.5	2.5
Total	52.5	58.0	64.9	22.9	26.0	22.1	24.6	15.9	13.0	100.0	100.0	100.0

Furthermore, Table 2 shows that a total of 88% of the households had access to safe drinking water in 2001. By 2011, the percentage of all households in Botswana with access to clean drinking water had exceeded the 90% mark, at 91%, with 64% located in urban and semi-urban areas, 22% in rural villages and 5% in rural localities (see Figure 1).

Figure 1: Percentage distribution of households with access to safe drinking water (Piped indoor/piped outdoor/community standpipe) by Region for the years 1991, 2001 and 2011 in Botswana.



3.2 Gender Differential on Improved Water Access

There is evidence of gender differences in the percentages of households headed by males and females, types of safe water indicators depicted by different types of piped-water and unimproved drinking water and area of residence,(Table 3). It is apparent that there is no significant differences in percentages in urban centres, with 55% of male-headed against 54% of female-headed households that have access to piped-water indoors. There is a 2% difference between male and female headed households having access to piped-water outdoors in urban areas while there is no percentage difference among different gender-headed households accessing piped water from neighbours and communal taps. Meanwhile in urban villages, the percentage of male headed households accessing safe drinking water from piped-water indoors is 31% against 29% amongst female-headed ones. A statistically significant percentage (29%) of female-headed households in rural areas that drink water from piped-water outdoors exceeds that of male-headed (21%).

Table 3: Percentage distribution of households with access to safe drinking water (Piped indoor/piped outdoor/ community standpipe) by Region and Gender in Botswana

		Safe Water Indicator				
		Piped indoor	Piped outdoor	Neighbour / Communal tap	Unimproved	Total
Urban	Male	54.90%	36.00%	8.20%	0.90%	100.0
	Female	53.80%	38.10%	7.50%	0.50%	100.0
Semi-urban	Male	31.40%	53.90%	13.90%	0.90%	100.0
	Female	28.30%	56.90%	14.10%	0.60%	100.0
Rural	Male	12.30%	20.90%	31.10%	35.80%	100.0
	Female	13.60%	29.30%	43.30%	13.80%	100.0

There seem to be impediments among female-headed households reticulating water into their compounds in rural areas especially in rural villages and lands, possibly attributable to prohibitive drilling and reticulation fees entailed. Even though 86% of female-headed households have access to safe drinking water, 43% of these households draw water from either their neighbours or communal standpipes. This compares with 31% of male-headed households having similar access. Interestingly, Table 3 also shows that 36% of male-headed compared to 14% of female-headed households in rural areas use unimproved water sources, mainly in the form of wells, boreholes and riverstreams at the cattle post and lands.

3.3 Disparities in Improved Water Supply by District

Table 4: Percentage of households by principal sources of water supply and district

District	Safe water indicator					
	Piped indoors Percent	Piped outdoors Percent	Neighbours or communal tap Percent	Improved Source Percent	Unimproved Percent	Total Percent
Kgalagadi North	20.1	45.2	23.2	88.5	11.5	100.0
Kgalagadi South	24.3	39.4	21.7	85.4	14.6	100.0
CKGR	47.6	4.8	4.8	57.1	42.9	100.0
Ghanzi	22.5	32.7	28.1	83.3	16.7	100.0
Okavango Delta	10.5	42.1	4.3	56.9	43.1	100.0
Chobe	29.4	50.7	16.4	96.5	3.5	100.0
Ngamiland West	12.5	21.1	51	84.6	15.4	100.0
Ngamiland East	22.6	36.9	23.8	83.2	16.8	100.0
North East	27.2	45.2	20.9	93.4	6.6	100.0
Central Tutume	17.0	30.2	37.1	84.2	15.8	100.0
Central Boteti	15.9	37.5	26.4	79.8	20.2	100.0
Central Bobonong	17.1	38.6	23.3	79.0	21.0	100.0
Central Mahalapye	19.0	36.0	31.9	87.0	13.0	100.0
Central Serowe Palapye	22.5	41.6	22.2	86.3	13.7	100.0
Kgatleng	26.9	52.5	7.6	87.0	13	100.0
Kweneng West	15.0	16.5	47.2	78.7	21.3	100.0
Kweneng East	23.2	51.7	18.8	93.7	6.3	100.0
South East	40.9	51.0	3.8	95.7	4.3	100.0
Ngwaketse West	16.1	33.9	33.0	83.0	17.0	100.0
Barolong	17.1	30.3	43.5	90.9	9.1	100.0
Ngwaketse	17.1	45.1	25.0	87.2	12.8	100.0
All Rural						
Sowa Town	91.5	6.0	1.8	99.3	0.7	100.0
Jwaneng	67.8	23.2	0.6	91.6	8.4	100.0
Orapa	95.5	4.3	0.2	100	0	100.0
Selebi_Pikwe	45.2	47.4	7.2	99.8	0.2	100.0
Lobatse	41.9	41.6	16.4	99.9	0.1	100.0
Francistown	44.3	48.8	6.6	99.7	0.3	100.0
Gaborone	58.7	32.1	8.6	99.4	0.6	100.0
Total Urban	54.4	36.9	7.9	99.2	0.8	100.0
National	30.2	39.9	20.4	90.5	9.5	100.0

Availability of safe drinking water is expected to vary across all districts of Botswana in view of its varying degree of scarcity. The problem is further compounded by the vastness of the country such that it becomes prohibitive to reticulate water from areas well-endowed with water resources like Chobe to far flung semi-arid districts like Kgalagadi and Ghanzi. One feasible option is therefore to provide the population with underground treated water. Table 4 contains percentages of households by principal sources of water supply and district from the 2011 Population and Housing Census. The initial mandate of the Water Utilities Corporation was to provide water in urban areas. This mandate has been successfully achieved with more than 99% of households in all urban centres, except Jwaneng (91.6%), enjoying access to improved water sources. The rural areas of Central Kgalagadi game Reserve and Okavango Delta are the two areas that have the least percentage of households having access to improved water source at 57% each. It is important to understand that the two areas are very sparsely populated and that the movement of humans in these areas is highly controlled. Kweneng West with a fully-fledged sub-district status is an area with the least percentage of household having access to improved water at 79%. Only 31% of these households have tap water within the compound. The rest of the households (47%) in the sub-district have access to clean drinking water supplied through communal standpipes. This is a 6% improvement when compared to 2001 where 73% of households had access to improved water sources. The next worse-off districts are Bobonong and Boteti sub-districts, in that order, in the vast Central District, with 79% and 80% of households with access to clean drinking water, respectively. This is a

drastic improvement of 21% for both sub-districts, when compared to ten years ago. One sub-district that has witnessed vast improvements in safe drinking water accessibility is Ngamiland East, whereby in 2001 just 52% of households had access to improved water supply but has achieved an 83% mark over ten years.

3.4 Socio-demographic Factors influencing availability of water

Table 5: Bivariate associations between main sources of water and socio-demographic factors

Main source of water		Safe water indicator				
		Piped indoors	Piped outdoors	Neighbours or communal tap	Unimproved	Total
E09 Tenure of housing unit	Self-built	17.1	40.1	29.8	13	100.0
	Rent individual	27.8	60.6	10.8	0.8	100.0
	Job related-free	54.3	15	6.8	23.9	100.0
	Rent Central Government	91.3	6.1	1.2	1.4	100.0
	Free: Inheritance	14.5	47.6	32.6	5.3	100.0
	Purchased	82.5	8.7	4.4	4.4	100.0
	Rent: Company	89.4	8.1	1.3	1.3	100.0
	Rent: BHC	94.5	5.1	0.3	0.1	100.0
	Rent: Local institution	91.4	5.8	1.3	1.5	100.0
	Rent: VDC	31.5	44.2	22.4	1.9	100.0
E08 Type of housing unit	Donated	8.1	25.5	60.3	6.2	100.0
	Do not know	24.3	30.4	22	23.3	100.0
	Traditional	2	11.9	48.2	37.9	100
	Mixed	10.9	45.7	31.9	11.5	100.0
	Detached	47	39.1	11.8	2.1	100.0
	Semi_detached	69.5	22.8	5.8	1.9	100.0
	Town House/Terraced	71.4	23.1	4.7	0.8	100.0
	Flats, Apartment	97.9	1.5	0.4	0.3	100.0
	Part of Commercial building	34	34.3	18.3	13.4	100.0
	Movable	7.4	22.8	17.4	52.3	100.0
Locality type Major Grouping	Shack	1.7	14.5	26.8	57	100.0
	Rooms	10	64.8	20.9	4.3	100.0
Locality type Major Grouping	City/Town	54.4	36.9	7.9	0.8	100.0
	Urban Village	29.8	55.5	14	0.8	100.0
	Rural	12.9	24.8	36.7	25.6	100.0

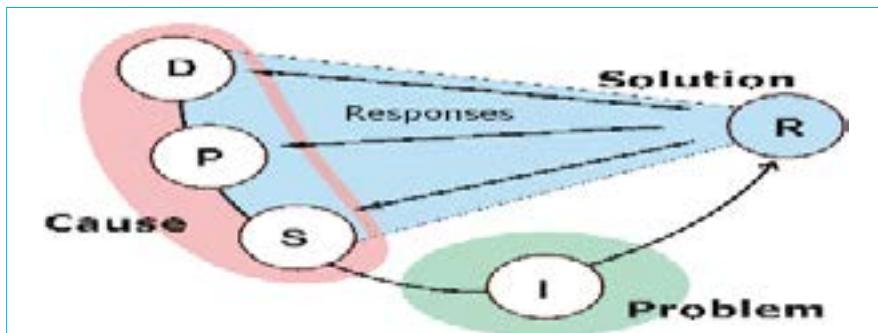
Ownership of the housing unit seems to determine the availability of safe drinking-water, with BHC and Government owned housing units having the highest proportion of inhabitants with safe drinking water. However, the situation is different when it comes to individually owned housing units, where donated, inherited and self-built housing units have 8%, 15% and 17% access to safe drinking-water, respectively.

4. The DPSIR Conceptual framework for Availability of Water

As indicated before, the DPSIR conceptual framework was originally developed by the European Environment Agency (EEA) and The Statistical Office of the European Communities (Eurostat) as tool for organising systems of indicators for measuring environmental change and sustainable development. The framework was formerly developed by the OECD (1993) in the PSR(Pressure-State_Response)form and is based on a concept of causality: human activities exert pressures on the environment and change its quality and the quantity of natural resources. Society responds to these changes through environmental, general economic and sector policies. The latter form a feedback loop to pressures through human activities (OECD 1993; EEA 1999). See Figure 2. In this chapter, the framework is used to highlight relationships between human activity and water use or availability.

Water scarcity is either the lack of enough water (quantity) or lack of access to safe water (quality).

Figure 2: Decision-Making within the DPSIR framework



The DPSIR conceptual framework distinguishes five broad components:

Driving forces are underlying factors influencing environmental change such as population growth, human demand for water and treatment and, recently, climate change. These driving forces lead to pressures on the environment. Specifically, Botswana's ever growing population is driving domestic demand for water and accelerates exploitation of water resources through abstraction. Rural – urban migration also increases pressure on human demand for water and sanitation facilities. Another important driving force is climate change. In Botswana, climate change is expected to have wide-ranging negative effects on key sectors such as water, agriculture, food security and human health. Botswana is especially exposed because of its fragile and arid environment. Already, increased intensity and frequency of extreme weather events like droughts and floods have been observed and are hindering progress towards the realisation of the goals and aspirations of the Vision 2016 and tenth National Development Plan (NDP10).

Pressures describe the variables which directly cause (or may cause) environmental problems such as exploitation of water resources. The pressures, in turn, affect the state of the environment. In the case of the water sector in Botswana the pressures include increased domestic demand for water, accelerated water abstraction, prolonged droughts, which are a result of increasingly unreliable and low rainfall. These lead to unusually low levels of water in the wells, boreholes and dams, especially in the southern parts of the country. These pressures lead directly to water scarcity.

State shows the current condition of the environment. Traditionally, in the water sector the state is assessed by studying the situation of water availability and water quality in a given country or locality. The World Health Organisation (WHO) produces international norms on water quality and human health in the form of guidelines that are used as the basis for regulation and standard setting in support of public health in developing and developed countries world-wide. For purposes of this report, however, we focus on the water availability as water quality is assessed by measuring a complex array of variables that the Population and Housing Census does not cover.

From the descriptive analysis above, a total of 88% of the households in Botswana had access to safe drinking water in 2001. By 2011, the percentage of all households in Botswana with access to safe drinking water had exceeded the 90% mark, at 91%, with 64% located in urban and semi-urban areas, 22% in rural villages and 5% in rural localities. However, to appreciate Botswana's progress as a country towards the Millennium Development Goal on access to safe drinking-water, an indication of the proportion of the total population that has access to different principal water sources is needed. A summary of this information is contained in Table 6.

Table 10: Proportion of population by district and principal source of water supply in 2011 and 2001

District	Piped		Well		Borehole		Other	
	2011	2001	2011	2001	2011	2001	2011	2001
Urban Cities/Towns								
Gaborone	99.4	99.8	0.0	0.0	0.0	0.0	0.5	0.2
Francistown	99.7	99.4	0.0	0.0	0.1	0.0	0.1	0.6
Lobatse	99.9	99.9	0.0	0.0	0.1	0.0	0.0	0.1
Selibe-Phikwe	99.8	98.4	0.0	0.0	0.1	0.0	0.0	1.6
Orapa	100.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0
Jwaneng	91.6	99.5	0.0	0.0	0.0	0.0	8.4	0.5
Sowa Town	99.3	100.0	0.0	0.0	0.4	0.0	0.3	0.0
Total Town/City	99.2	99.5	0.0	0.0	0.1	0.0	0.7	0.5
Urban and Rural Villages								
Ngwaketse	87.2	84.1	0.6	1.3	6.5	5.5	5.7	9.0
Barolong	90.9	84.3	0.5	1.1	5.8	7.4	2.8	7.2
Ngwaketse West	83.0	91.8	0.2	0.6	7.7	3.0	9.2	4.7
South East	95.7	95.5	0.1	0.1	2.0	1.3	2.2	3.1
Kweneng East	93.7	90.1	0.7	1.3	2.6	2.5	3.0	6.2
Kweneng West	78.7	77.8	0.7	1.3	16.2	17.6	4.4	3.3
Kgatleng	87.0	89.8	1.3	1.2	8.1	4.6	3.6	4.4
Central Serowe Palapye	86.3	83.2	1.3	2.7	8.6	9.4	3.9	4.6
Central Mahalapye	87.0	86.3	1.1	2.2	8.9	7.1	3.0	4.4
Central Bobonong	79.0	73.7	3.8	6.3	11.0	8.4	6.2	11.6
Central Boteti	79.8	68.8	4.1	9.8	10.8	16.7	5.3	4.7
Central Tutume	84.2	78.8	3.2	5.2	7.1	8.2	5.5	7.8
North East	93.4	89.7	0.2	1.1	1.4	1.0	5.1	8.2
Ngamiland East	83.2	78.7	0.5	3.2	5.7	10.2	10.6	7.9
Ngamiland West	84.6	71.8	2.2	4.3	2.9	5.1	10.3	18.9
Chobe	96.5	89.1	0.1	1.1	2.0	5.5	1.4	4.3
Okavango Delta	56.9	27.2	0.3	0.1	1.5	0.8	41.2	72.0
Ghanzi	83.3	72.6	0.2	0.8	14.3	18.3	2.2	8.3
Central Kgalagadi Game Reserve (CKGR)	57.1	43.3	23.8	0.0	0.0	0.0	19.0	56.7
Kgalagadi South	85.4	85.8	0.3	0.1	9.1	4.6	5.2	9.5
Kgalagadi North	88.5	82.5	0.1	0.4	5.2	11.2	6.3	5.9
Total Others	87.5	83.5	1.2	2.6	6.6	7.0	4.7	6.9
Total National	90.5	87.1	0.9	2.0	4.9	5.5	3.6	5.5

At a national level, a comparison of the results for the 2001 and 2011 Censuses in Table 6 shows that Botswana has made great progress towards the Millennium Development Goal on access to safe drinking water. The country has 99.9% coverage and has actually crossed the MDG target of 88% by 2015. At this pace, the country has also crossed the 75% target set for the Sub-Saharan Africa region, which is far ahead of the region's just 63% of safe drinking water coverage. In fact, on this score, Botswana is in the same league with developed countries which collectively stand at 99% coverage (World Health Organization/UNICEF, 2013. Progress on sanitation and drinking-water - 2013 update). See UN Water (). International Decade for Action 'Water for Life' 2005 – 2015

Table 7 Sanitation facilities by Type of locality – 2011 census

Type of sanitation facility	Urban and Rural			
	City/Town	Urban	Village	Rural
	Percent	Percent	Percent	Percent
Improved – flush/VIP or owned PIT	71.8	70.2	43.5	61.3
Unimproved - Shared Pit or compost	26.8	21	9.1	18.3
Unimproved - Other	0.7	5.7	9	5.6
Open defecation	0.6	3.1	38.3	14.8
Total	100.0	100.0	100.0	100.0

Results contained in Table 7 show by 2011, the percentage of the population in Botswana who gained access to a latrine, flush toilet or other improved sanitation facility is 61.3%. Thus, Botswana's progress towards the MDG

goal on access to an improved sanitation facility by far surpasses the Sub-Saharan Africa regional coverage of only 30%. However, the disparities are apparent among rural residents (about 44%) than either semi-urban villages or urban areas, where the improved sanitation coverage is above 70%.

Table 8: Inter Census trends in sanitation facilities - 2001 to 2011

Type of sanitation facility	2001	2011	2001	2011
Owned Flush	83887	139062	20.7	25.2
Communal/shared Flush	3348	48704	0.8	8.8
Total Flush	87235	187766	21.6	34.1
Owned-Other	176223	140492	43.5	25.5
Communal/shared Other	47061	138418	11.6	25.1
Open defecation	94187	84272	23.3	15.3
Total	404706	550948	100	100

It must be noted that the classifications of sanitation facilities for the 2001 and 2011 Population and Housing Censuses were different, thus, constraining comparison between the two time periods. In the present analysis, we have assumed that the classification "flush toilet" is an improved sanitation facility, whether owned or shared, hence making feasible comparison between 2001 and 2011 Census data. Results contained in Table 8 show that from 2001 to 2011, the percentage of the population in Botswana who have access to a flush toilet increased from 21.6 % to 34.1 %. Another interesting observation is that the proportion of other owned facilities (VIP and pit latrine) declined from about 44% in 2001 to about 26% in 2011. This could be attributable to increased availability of sewage systems in urban and large villages.

Impact describe the ultimate effects of changes of state, which may have impact on human health, ecosystems, biodiversity, economic and social status: water scarcity and social welfare.

Response refers to the reaction or efforts of society, Government, public institutions, local communities and others to undesired impacts of human activities or natural disasters on the environment in order to prevent, mitigate or adapt to changes in the environment. Within the context of this chapter, the response refers to Botswana Government policies, strategies and challenges it is facing in its effort to meet the targets set by the Millennium Development Goals (MDGs) and Vision 2016: To "Halve by 2015, the proportion of people without sustainable access to safe drinking-water and basic sanitation".

As indicated before, Botswana has made great strides towards the Millennium Development Goals on access to safe drinking water and access to an improved sanitation facility. However, the greatest threat to Botswana's progress remains water scarcity. With no perennial rivers under its full control (save the tail-end of the Okavango), a drought-prone environment, and dam evaporation rates accelerating with global warming, Botswana has perilously few water resources to meet ordinary demand and support economic growth (Nyandoro, 2012). This means that policies and strategies that can secure water service delivery, significantly reduce wastage and optimise water use are needed.

Over the years, Botswana Government has set up a number of institutions with various responsibilities in planning, development and delivery of water to all its citizens, including those living in small and remote settlements. Responsible for policy in the water sector is the Ministry of Minerals, Energy and Water Resources. In particular, the Department of Water Resources within the ministry is responsible for national planning and carrying out development work in districts. Botswana's water policy is based on the 1991 Botswana National Water Master Plan (NWMP), with recommendations for reform made in a 2006 review. The NWMP covers water resource monitoring and management, and water project feasibility studies and implementation. And, in another effort to improve planning, management and service delivery in the water sector, the review of the Botswana National Water Master Plan (NWMP) in 2005-2006 recommended a major restructuring of the water sector (WUC, 2011), including the separation of water resources management from water service delivery. The recommendation of the 2006 review led to a Water Sector Reforms Project which is being implemented in a phase approach, from May 2009 to 2014. Within the terms of this project, the Water Resources Council advises the Minister of Minerals, Energy and Water Resources, monitors and allocates water resources between users, and develops policy for managing water resources. Thus by 2015, the Department of Water Affairs will be responsible only for water resources planning and management, including construction of dams. The Water Utilities Corporation will be responsible for service delivery of water and wastewater services which entails providing potable water to all cities, towns and villages in Botswana as well as for waste water services.

Prior to the 2009 reforms, the Department of Water Affairs was responsible for protection of surface water resources from pollution and aquatic weeds and for administering the water legislation. District Councils were responsible for the operation and maintenance of water schemes in medium villages and smaller settlements. These schemes were constructed by the Department of Water Affairs and would then, on completion, be handed over to the respective district councils. The Water Utilities Corporation, on the other hand, was charged with supplying water to the 5 towns and 2 cities of Botswana, as well as supplying the Department of Water Affairs and district councils with bulk water for further distribution to the remaining areas in the country. Also, the Water Utilities Corporation were and still are responsible for Botswana's 6 major dams, namely, Gaborone, Bokaa, Nnywane, Shashe, Letsibogo and Ntimbale as well as for getting water from the Molatedi Dam in South Africa (which Botswana also gets water from).

For over 38 years, communal standpipes have been the main source of household water especially in the rural areas of Botswana. The excessive amount of water wastage from this water source, mainly through excessive use and leakages, has been a major concern of government in recent years. As a result, the government decided to install prepaid water meters in major villages and rural communities across the country in an attempt to reduce wastage of water. The Water Utilities Corporation charges are based on monthly usage and aim to recover production and transport costs.

Further to address the problem of water scarcity in Botswana, on March 01, 2013, the Government of Botswana, through the Ministry of Minerals, Energy and water Resources, signed a Memorandum of Understanding (MoU) with Lesotho and South Africa which put in place a framework for the feasibility study to determine the possibility of water transfer from the Senqu River in Lesotho to Botswana. The three countries, together with Namibia, are members of the Orange-Senqu Commission (ORASECOM) and, therefore, all have water rights to the river. (The ORASECOM treaty, originally signed in 1986, was formalised in 2000 to promote shared and sustainable development of resources of the Orange-Senqu River by the four countries that form the basin of the river.)

Most recently, as the effects of climate change become apparent, and are expected to worsen in many parts of the world, the Government of Botswana has started taking necessary steps that will ensure that these effects do not adversely impact on its development programmes. To this end, on August 28, 2013, the Botswana Government convened an inception workshop to initiate a stakeholder-focused process for the development of a National Climate Change Policy and Comprehensive Strategy and Action Plan (NCCSAP) in Gaborone. At the inception workshop, government emphasised its commitment in safeguarding the lives of Batswana through a holistic approach to addressing the challenges that climate change poses.

Despite the above-enumerated Government policies and strategies to manage water resources, the problem of water scarcity in Botswana continues to worsen. Following unsatisfactory 2012/2013 rainy season, dam levels have gone down below unprecedeted levels, with some of the Water Utilities Corporation's dams in the south completely dry. The problem is so acute that the Water Utilities Corporation has been compelled to introduce water rationing in the Gaborone and Greater Gaborone (which stretches from Mochudi to Goodhope) areas in an effort to reduce water usage and preserve the little water that is left in the country's dams. According to the WUC, these areas will have no water 6 to 8 hours for at least 3 times a week. The corporation came to this desperate decision after realising that Bokaa Dam, which supplies Mochudi and surrounding villages, would dry up in less than a week, making it the second dam to dry up in the southern part of the country in the 2012/2013 rainy season after Nnywane, which supplies the town of Lobatse.

5. Conclusions and Recommendations

5.1 The analysis of the 2011 Population and Housing Census, compared with those of 2001, show a significant improvement in accomplishing the Millennium Development Goal and Vision 2016 target of "Halving by 2015, the proportion of people without sustainable access to safe drinking-water and basic sanitation.

5.2 The disparities are apparent among rural residents (about 44%) than either semi-urban villages or urban areas, where the improved sanitation coverage is above 70%.

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Boat Modukanele, UNDP/UNEP Poverty Environment Initiative presenting on
Waste Collection & Disposal in Census Districts

WASTE COLLECTION AND DISPOSAL IN CENSUS DISTRICTS

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Abstract: The 2011 census results show that a total of 191,061 households or 34.68% of the total households in Botswana receive a regular waste collection service. This can be interpreted as the level of satisfaction with the waste collection service provided by the government's waste management sector. The level of regular waste collection as per the 2011 census is an increase of 5.35% from level recorded during the 2001 census (29.29 %). Of the households that receive a regular waste collection 56.46% resides in cities and towns while the rest are in urban and rural areas of the country. Some households reported receiving a collection service albeit it being irregular or in other words not reliable. 10.22% of the households reported receiving an irregular waste collection service. This proportion has increased compared to the 2001 census when 7.12% reported receiving an irregular service.

Introduction

Waste can be considered to be any material that is discarded because it has served its purpose or is no longer useful to the owner or generator. Industrial waste is usually the by-product or end product of materials from large-scale production factories or industries. They are often considered hazardous and can be toxic to both human being and the environment. Domestic or household wastes are wastes originating from domestic activities such as those emanating from house hold food preparation, production, consumption and the general upkeep of the household. This could include garbage from unwanted food items, paper, cleaning materials and other unwanted household items.

Human activities create waste be it during industrial production processes or household activities, and it is the way that the waste is handled, stored, collected and disposed which can pose a risk to both the environment and human health. Lack or inadequate waste collection and disposal systems can lead to indiscriminate waste disposal in the streets, open spaces or drains which could contribute to the problem of flooding, breeding of insects and rodent vectors which could lead to the spread of diseases. For a long time a focus has been on the collection of waste rather on the whole chain of activities related to the handling treatment and disposal of waste. However, over the past ten years the government of Botswana has invested in the development of sanitary landfills for the safe disposal and management of different types of waste. These sanitary landfills are mainly in urban centers as this are the places with a high population concentrations and hence a higher waste production.

Institutional Arrangements

There is a need for proper defined institutional arrangement within government in order to have an efficient waste management system. The government of Botswana has put in place structures that have a defined role in terms of their responsibilities within the waste management systems. At the central government the Department of Waste Management and Pollution Control within the Ministry of Environment Wildlife and Tourism is responsible for all legal and policy issues regarding waste collection, disposal and management of disposal sites. The department provides overall guidance on how the participation of non-state actors such as private sector and the informal sector can be managed while the detailed contract agreements are the responsibility of the contracting local authority. The responsibility for waste collection from households and management of the disposal facilities is the responsibility of the Ministry of Local Government and Rural development through the local authorities

Department of Waste Management and Pollution Control

The Department of Waste Management and Pollution Control (DSWM), formerly the Department of Sanitation and Waste Management, is the Central Government responsible party for all matters relating to sanitation and waste management. The department is responsible for oversight for the implementation of the waste management strategy and the enforcement of the Waste Management Act 1998. The department provides technical support and budgetary assistance especially with the development of waste management facilities to the local authorities to enable them to provide a sustainable service to the nation.

The Ministry of Local Government and Rural Development

The Ministry of Local Government and Rural Development through the district and town councils is responsible for the day to day running of the waste management systems in Botswana. The local authorities can either

carry out the collection themselves or they can contract the private sector in order to improve productivity and be able to cover areas they may not be able to attend to with their limited collection fleet and manpower.

Policy and Legal Framework

Waste Management Strategy

The Botswana Waste Management Strategy is a policy document that was established in 1998 in an effort to implement the aims and objectives of Agenda 21 of the Rio Summit. The strategy embodies the following principles whose basic premise is to minimize environmental pollution: Principle of prevention – environmental pollution must be minimized as far as possible and measures should be taken before damage occurs. Polluter pays principle – cost of preventing, eliminating or even transporting and treatment of waste must be borne by the waste generator. Principle of co-operation – cooperation among all stakeholders is necessary in order to solve environmental problems.

In addition to the above principles, the strategy has adopted the internationally accepted Waste Management Hierarchy of Reduction, Reuse and Recycling. These principles are the cardinal points of waste management in the country and therefore they are a foundation upon which all other tools of waste management are built. The main objectives of the strategy are inter-alia: Minimizing and reducing wastes in industry, commerce and households; Maximizing environmentally sound waste reuse and recycling; and Promoting environmentally sound waste collection, treatment and disposal.

Waste Management Act 1998

Based on Botswana's Waste Management Strategy, a Waste Management Act was formulated and promulgated in 1998. This act was set up as the legal framework to strengthen, implement and support the Strategy. The act provided for the establishment of an independent Department of Sanitation and Waste Management. This waste management legal framework is of utmost importance for any waste-related program to achieve its objectives. This is because in many instances individuals and organizations will only comply with or implement strategies and programs if they are legally binding. For instance, countries that are leading the way in the recycling of waste are those where a law requiring recycling exists. The legal framework should be coupled with a strong enforcement effort. In the case of Botswana, the legal framework exists; what is very much lacking is the enforcement.

Vision 2016

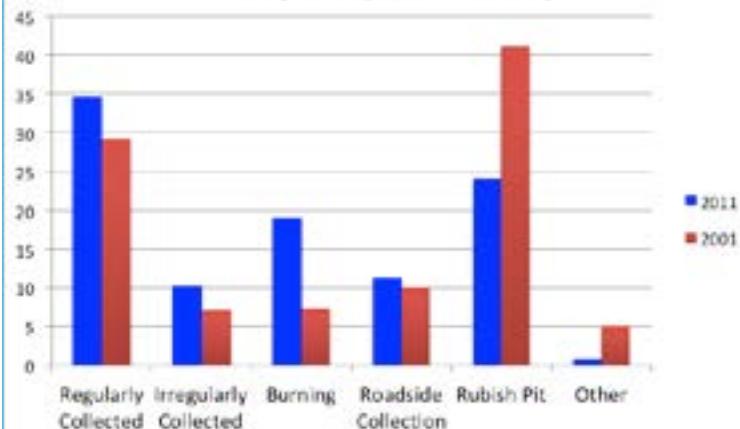
Vision 2016 states that by the year 2016, Botswana will have taken strong measures to limit the pollution that would otherwise have resulted from poor environmental management. Proper waste management can contribute positively towards achieving Vision 2016. However, at the current levels of waste management this will be difficult. It is also noted that Vision 2016 has got no household-based targets and therefore it would be difficult to measure the extent to which the Vision goals would have been realised.

Households and their mode of waste disposal

The 2011 census results show that a total of 191,061 households or 34.68% of the total households in Botswana receive a regular waste collection service. This can be interpreted as the level of satisfaction with the waste collection service provided by the government's waste management sector. The level of regular waste collection as per the 2011 census is an increase of 5.35% from level recorded during the 2001 census (29.29%). Of the households that receive a regular waste collection 56.46% resides in cities and towns while the rest are in urban and rural areas of the country. Some households reported receiving a collection service albeit it being irregular or in other words not reliable. 10.22% of the households reported receiving an irregular waste collection service. This proportion has increased compared to the 2001 census when 7.12% reported receiving an irregular service. When considering both regular and irregular waste collection, a total of 44.5% of households in Botswana receive some form of waste collection while 55.5% does not receive any waste collection service at all.

Figure 1 below shows the comparison of waste disposal by households during the 2001 and 2011 census. The figure shows that there was significant decline in the use of rubbish pit (41.19% in 2001 and 24.09% in 2011). However, there has been an increase in burning as a mode of waste disposal from 7.33% in 2001 to 19.05% of households in 2011.

Figure 1: Proportion of households in Botswana and their mode of waste disposal (2001 & 2011)



Waste collection in Cities and Towns

Figure 2 shows the percentage of households within cities and towns in Botswana and the mode of waste disposal. A total of 76.14% of households living in cities and towns receive a regular waste collection service. This is a decline from 80.47% as reported during the 2001 census. Selibe Phikwe and Orapa receive the highest regular waste collection service of 94.78% and 94.59% respectively. Selibe Phikwe regular waste collection service has significantly increased from 2001 census (79.93%). Sowa Town has declined in the regular waste collection service from 98.98% in 2001 census to 74.73% during the 2011 census.

Figure 2: Cities and Towns and their mode of waste disposal

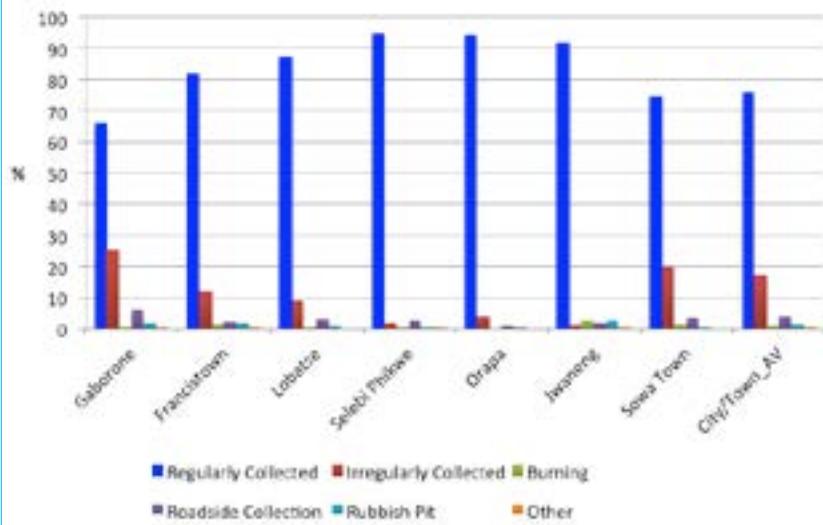
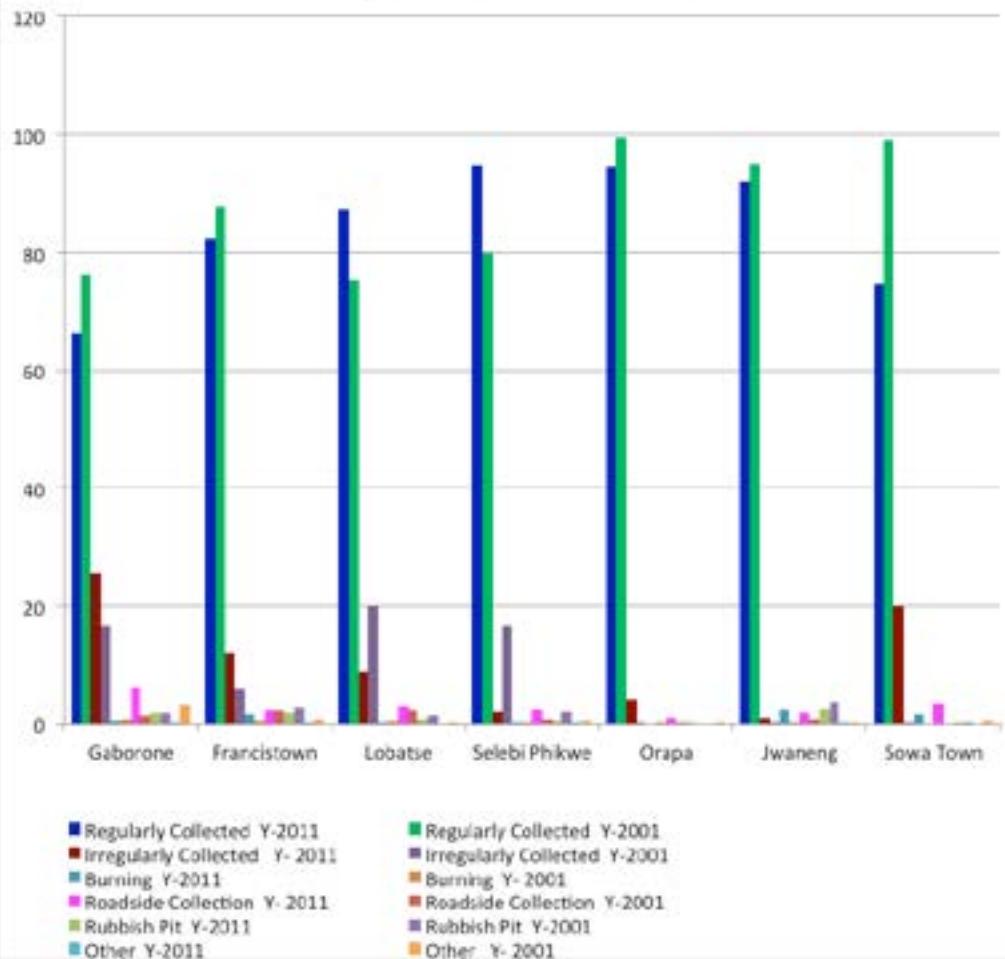


Figure 3 below shows the proportion of households in cities and towns and their mode of waste disposal during the 2001 and 2011 census. As the graph shows there has been a decline in some places in terms of regular waste collection, notably in Sowa Town. An irregular or unreliable waste collection service can have a negative impact on both the economy of the town/city and pose a public health risk to the people living in those areas. There can be incidences of increased illegal dumping of waste in public areas and drainage systems, which can end up blocking the systems and contributing to flooding during rainy season and become breeding ground for insects and rodent disease causing vectors. Lack of waste collection can also affect the aesthetics of the city/town and make it less competitive as a place for doing business especially in sectors such as tourism.

Figure 3: Towns and Cities and their mode of waste disposal (2001 & 2011)



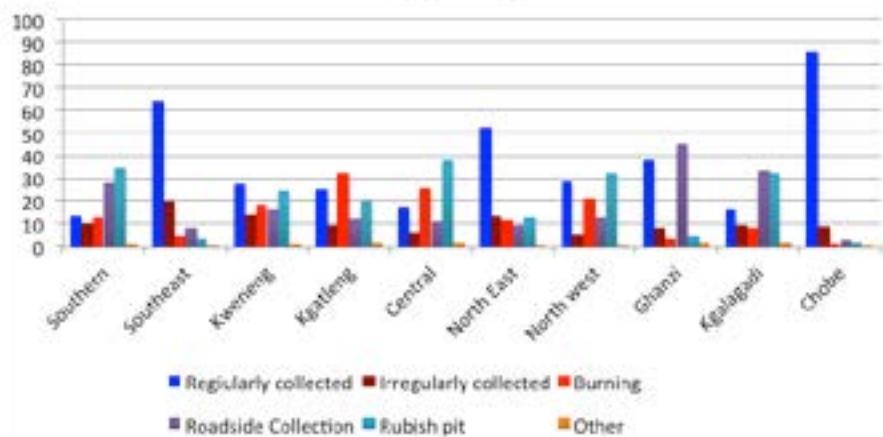
Waste collection in Census Urban Settlements

Census urban settlements are classified as those settlements that have a population of over 5000 and over 75% of its economically active population is engaged in non-agricultural activities. Therefore all towns and cities are classified as urban settlements, while some census districts have both urban and rural settlements. For the purposes of this analysis, towns and cities have been dealt with separately and this section will only deal with urban settlements in census districts. The town and cities are governed by the township act which dictates that resident must pay rates to the council which covers the compelled to collect household waste from all residential plots while in district councils plot owners have to pay a fee to the council before waste can be collected. Therefore the system in urban areas outside of the cities and towns is based on the willingness of the households to pay for the service. The challenge with such a system is that it can lead to indiscriminate waste disposal and pose both a health risk and an environmental problem, as there is no control on how waste is disposed.

Table 3 shows the proportion of households in urban part of census districts and that use of a given mode of waste disposal. 46.14% of all urban households receive a regular waste collection service while 12.95% receive an irregular service. There is no significant difference between the 2001 and 2011 census results in terms of waste collection. The 2001 census results showed a regular collection service of 45.96% and an irregular service of 10.24%. Therefore this can be interpreted as meaning that level of service provision in terms of waste collection hasn't improved in urban areas.

Chobe district has the highest regular collection service of the urban part of the census districts areas at 86.08% followed by South East at 64.20%. North East follows the two districts with a regular waste collection service of 52.42%. Figure 4 shows that for urban parts of the census districts, the most common mode of waste disposal is roadside collection, rubbish pit and burning respectively. It is important to note that roadside collection contribute to indiscriminate dumping as waste is often left uncollected for a longtime and both domestic and wild animals can have access to it and scatter it all over the place. Regular collection is lowest in the Central and Kgalagadi districts at 15.91% and 17.39% respectively.

Figure 4: Proportion of households in urban part of district and their mode of waste disposal

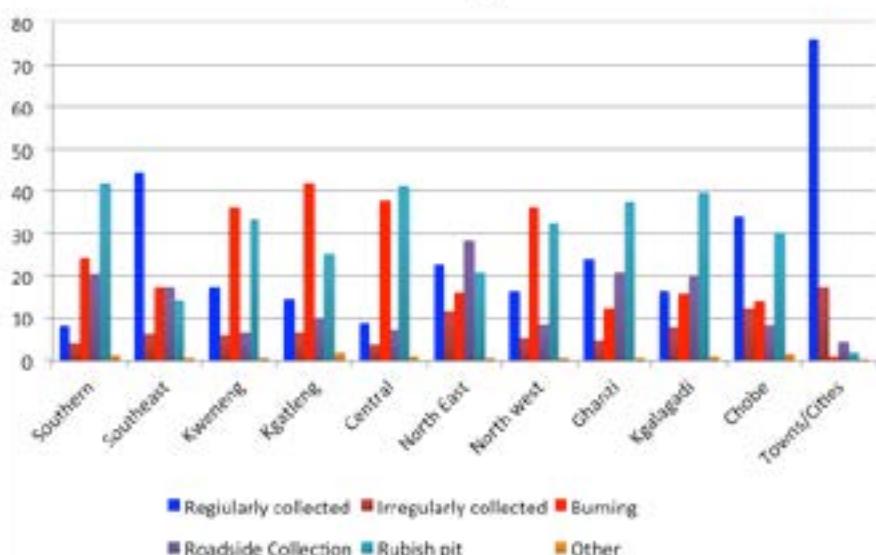


Waste Collection by Census Rural Settlements

Table 5 shows that a total of 13.41% of rural households receive a regular waste collection service while 5.17% receive an irregular collection service. The most dominant mode of waste disposal for rural households is burying waste in a rubbish pit followed by burning at 36.44% and 32.39% respectively. There is a very small increase in the proportion of rural households receiving regular collection in 2011 as compared to the 2001 census with 6.27% in 2001 while 2011 is 13.49%. There has been an increase in the proportion of households who burn their waste from 9.87% in 2001 to 32.39% in 2011. There has been a decline in the proportion of households burying their waste from 57.86 in 2001 to 36.44% in 2011. The two method of waste disposal even though they are dominant are also very problematic because they pose a risk to both human health and the environment. Burying waste can contribute to environmental pollution especially pollution of ground water system of which a majority of rural villages depend on for both domestic and livestock purposes.

The results of the 2011 census show that in rural areas there is very little or no waste collection service provided. There could be a number of possible reasons for the low collection service in rural households one of them being that the rural areas are far from each other and the cost of having collection vehicles travel to those areas makes it unsustainable especially during time of economic downturn. This problem offers an opportunity for the local authorities to engage small scale contractors who use local transportation systems such as donkey carts to collect waste from households to a safe waste disposal site or to a central place where the collection truck can pick up all the waste without having to go through the whole village where sometimes the roads are not conducive for use by heavy vehicles.

Figure 5: Rural Households and mode of waste disposal



Waste management is still a challenge for Botswana. The 2011 census results show that only 34.68% of the households in Botswana receive a regular waste collection service. Even though it is an improvement from 29.929% during the 2001 census, it is still an unsatisfactory level of service considering that during NDP 9 government has invested a lot of resources into developing sanitary landfills to improve the waste management systems and protect both the environment and human health. Most of the urban villages have sanitary landfills and if the waste collection is less than 50% of the households, this means that the facilities are underutilized and as such the tax payer is not getting value for their money invested.

The local authorities might be facing some challenges that impact on their ability to provide a sustainable waste collection service in their entire jurisdiction. Some of the challenges encountered include the following:

- High operating costs of the waste collection fleet

- The lack of willingness to pay for the waste collection service in urban and rural areas outside of towns and cities

- The use of inappropriate technology for waste collection that can lead to long periods of breakdown
- Non or lack of engagement of non state actors (private sector, NGOs and small scale contractors) in the waste collection and management system

Conclusion

The results of the waste data from the 2011 shows that more households who stay in cities and towns receive a waste collection service while those who resides in urban areas and rural settlements receive very little waste collection service. However, the results show that there has been a decline on the waste collection service reported in the 2011 census results as compared to the 2001 results (80.47% in 2001 and 76.14% in 2011). A decline in the waste collection service in towns and cities is not very good because these are places that have a high production of waste due to their economic activities and lack of proper waste management can lead to pollution of the environment and pose a risk to public health.

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Appendix 1:

Table 1: Proportion of households in Botswana that use a given method of waste disposal-2011 Census

District-Urban+Rural	Refuse disposal						Total	Total House-holds-2011 Census
	Regulary collected	Irregularly collected	Burning	Roadside collection	Rubbish pit	Other (NEC)		
Gaborone	66.21	25.45	0.45	6.04	1.81	0.04	100.00	74963
Francistown	82.21	12.06	1.59	2.16	1.88	0.09	100.00	31297
Lobatse	87.19	8.87	0.18	3.07	0.68	0.00	100.00	9214
Selebi_Pikwe	94.78	2.02	0.20	2.52	0.46	0.02	100.00	16059
Orapa	94.59	4.19	0.00	0.94	0.27	0.00	100.00	3292
Jwaneng	91.97	0.98	2.54	1.78	2.71	0.02	100.00	5940
Sowa Town	74.73	19.82	1.6	3.53	0.34	0.00	100.00	1191
Cities/Towns	76.14	17.21	0.74	4.28	1.59	0.04	100.00	141956
Ngwaketse	9.63	7.38	19.37	22.51	39.91	1.20	100.00	31479
Barolong	11.49	4.99	16.25	30.25	36.58	0.44	100.00	13757
Ngwaketse West	16.01	10.24	22.39	17.95	33.31	0.11	100.00	3555
Southern	10.62	6.91	18.71	24.36	38.49	0.91	100.00	48791
South East	60.79	17.63	6.50	9.97	4.86	0.24	100.00	23991
Kweneng East	24.67	12.25	22.62	13.83	25.61	1.01	100.00	68328
Kweneng West	21.56	5.98	28.43	8.40	35.25	0.38	100.00	12231
Kweneng	24.2	11.3	23.5	13.01	27.07	0.91	100.00	104550
Kgatleng	20.16	8.07	36.77	11.03	22.47	1.50	100.00	24913
Central Serowe Palapye	17.33	5.58	29.27	13.09	33.52	1.21	100.00	46185
Central Mahalapye	10.42	5.29	30.42	4.88	48.04	0.95	100.00	29794
Central Bobonong	13.63	4.70	30.16	8.34	41.22	1.95	100.00	19155
Central Boteti	15.52	5.83	42.53	6.05	29.3	0.77	100.00	14110
Central Tutume	7.95	3.78	34.98	8.65	43.53	1.11	100.00	38352
Central	12.84	4.96	32.37	8.99	39.65	1.18	100.00	147596
North East	29.76	12.05	14.8	23.9	19.05	0.44	100.00	15865
Ngamiland East	19.74	3.22	28.98	14.36	33.36	0.34	100.00	21736
Ngamiland West	7.95	4.75	40.14	7.46	39.41	0.30	100.00	13164
Chobe	56.82	10.65	8.27	5.76	17.62	0.88	100.00	6828
Okavango Delta	54.81	10.38	22.14	3.51	9.16	0.00	100.00	655
North West	22.59	5.00	29.00	10.66	32.33	0.41	100.00	42383
Ghanzi	28.67	5.95	8.97	29.43	26.09	0.90	100.00	11353
CKGR	52.38	0.00	38.1	0.00	4.76	4.76	100.00	21
Ghanzi	28.71	5.93	9.02	29.37	26.05	0.91	100.00	11374
Kgalagadi South	17.42	10.62	11.65	21.56	37.46	1.29	100.00	7956
Kgalagadi North	14.15	5.05	12.9	33.02	34.37	0.51	100.00	5542
Kgalagadi	16.08	8.33	12.16	26.26	36.19	0.97	100.00	13498
Total-2011 Census	34.68	10.22	19.05	11.26	24.09	0.71	100.00	550926
Total-2001 Census	29.29	7.12	7.33	10.02	41.19	5.05	100.00	404706

Table 2: Proportion of households using each mode of waste disposal in Botswana-2011 Census

District-Urban+Rural	Refuse disposal						Total
	Regular collected	Irregularly collected	Burning	Roadside collection	Rubbish pit	Other (NEC)	
Gaborone	25.98	33.88	0.32	7.30	1.02	0.74	13.61
Francistown	13.47	6.71	0.48	1.09	0.44	0.74	5.68
Lobatse	4.20	1.45	0.02	0.46	0.05	0.00	1.67
Selebi_Pikwe	7.97	0.58	0.03	0.65	0.06	0.08	2.91
Orapa	1.63	0.25	0.00	0.05	0.01	0.00	0.60
Jwaneng	2.86	0.10	0.14	0.17	0.12	0.03	1.08
Sowa Town	0.47	0.42	0.02	0.07	0.00	0.00	0.22
Cities/Towns	56.57	43.38	1.01	9.78	1.70	1.59	25.77
Ngakaketse	1.59	4.12	5.81	11.42	9.47	9.73	5.71
Barolong	0.83	1.22	2.13	6.71	3.79	1.54	2.50
Ngakaketse West	0.30	0.65	0.76	1.03	0.89	0.10	0.65
Southern	2.71	5.99	8.70	19.16	14.15	11.37	8.86
South East	7.63	7.51	1.49	3.86	0.88	1.49	4.35
Kweneng East	8.82	14.87	14.73	15.24	13.19	17.68	12.40
Kweneng West	1.38	1.30	3.31	1.66	3.25	1.21	2.22
Kweneng	10.20	16.17	18.05	16.89	16.43	18.89	14.62
Kgatleng	2.63	3.57	8.73	4.43	4.22	9.60	4.52
Central Serowe Palapye	4.19	4.57	12.88	9.75	11.67	14.29	8.38
Central Mahalapye	1.63	2.80	8.64	2.34	10.79	7.24	5.41
Central Bobonong	1.37	1.60	5.51	2.58	5.95	9.60	3.48
Central Boteti	1.15	1.46	5.72	1.38	3.12	2.77	2.56
Central Tutume	1.60	2.58	12.78	5.35	12.58	10.96	6.96
Central	9.92	13.01	45.53	21.39	44.10	44.86	26.79
North East	2.47	3.39	2.24	6.11	2.28	1.80	2.88
Ngamiland East	2.25	1.24	6.00	5.03	5.46	1.87	3.95
Ngamiland West	0.55	1.11	5.04	1.58	3.91	1.00	2.39
Chobe	2.03	1.29	0.54	0.63	0.91	1.54	1.24
Okavango Delta	0.19	0.12	0.14	0.04	0.05	0.00	0.12
North West	5.01	3.77	11.72	7.29	10.33	4.41	7.69
Ghanzi	1.70	1.20	0.97	5.38	2.23	2.62	2.06
CKGR	0.01	0.00	0.01	0.00	0.00	0.03	0.00
Ghanzi	1.71	1.20	0.98	5.38	2.23	2.64	2.06
Kgalagadi South	0.73	1.50	0.88	2.76	2.25	2.64	1.44
Kgalagadi North	0.41	0.50	0.68	2.95	1.44	0.72	1.01
Kgalagadi	1.14	2.00	1.56	5.71	3.68	3.36	2.45
Total-2011 census	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Total Households-2011 Census	191060	56299	104925	62045	132700	3897	550926

Table 3: Proportion of households in the urban part of each district that use a given method of waste disposal-2011 Census

District-Urban	Refuse disposal						Total House-holds-2011 Census	
	Regulary collected	Irregularly collected	Total Households	Roadside collection	Rubbish pit	Other (NEC)		
Gaborone	66.21	25.45	0.45	6.04	1.81	0.04	100.00	74963
Francistown	82.21	12.06	1.59	2.16	1.88	0.09	100.00	31297
Lobatse	87.19	8.87	0.18	3.07	0.68	0.00	100.00	9214
Selebi_Pikwe	94.78	2.02	0.20	2.52	0.46	0.02	100.00	16059
Orapa	94.59	4.19	0.00	0.94	0.27	0.00	100.00	3292
Jwaneng	91.97	0.98	2.54	1.78	2.71	0.02	100.00	5940
Sowa Town	74.73	19.82	1.60	3.53	0.34	0.00	100.00	1191
Cities/Towns	76.14	17.21	0.74	4.28	1.59	0.04	100.00	141956
Ngwaketse	12.16	9.93	12.76	29.55	34.78	0.82	100.00	18202
Barolong	14.57	8.02	10.94	26.84	38.15	1.48	100.00	2642
Ngwaketse West	20.35	12.58	14.88	22.54	29.58	0.07	100.00	2782
Southern	13.40	10.03	12.80	28.42	34.54	0.80	100.00	23626
South East	64.20	20.03	4.25	8.43	2.92	0.17	100.00	19860
Kweneng East	27.16	13.85	18.40	15.73	23.81	1.05	100.00	54702
Kweneng West	29.45	7.05	5.56	17.38	40.32	0.24	100.00	1674
Kweneng	27.23	13.65	18.02	15.78	24.30	1.02	100.00	56376
Kgatleng	25.07	9.37	32.14	11.94	20.07	1.40	100.00	13425
Central Serowe Palapye	22.86	7.26	19.48	16.74	32.00	1.66	100.00	24389
Central Mahalapye	16.13	5.87	26.86	4.97	44.74	1.43	100.00	12768
Central Bobonong	12.92	6.57	26.16	12.91	38.08	3.36	100.00	8630
Central Boteti	21.17	6.32	37.93	6.62	27.19	0.77	100.00	7057
Central Tutume	10.27	4.67	29.49	8.78	46.08	0.71	100.00	14790
Central	17.39	6.24	25.84	11.23	37.76	1.53	100.00	67634
North East	52.42	13.44	11.30	9.60	12.97	0.26	100.00	3823
Ngamiland East	21.75	3.75	21.87	16.51	35.78	0.35	100.00	14107
Ngamiland West	10.57	4.43	34.54	6.55	43.56	0.35	100.00	3434
Chobe	86.08	8.87	0.77	2.41	1.54	0.33	100.00	2988
Okavango Delta	1.86	4.97	47.20	14.29	31.68	0.00	100.00	161
North West	29.03	4.61	21.12	12.80	32.09	0.34	100.00	20690
Ghanzi	37.70	8.08	3.12	45.19	4.43	1.48	100.00	3974
Kgalagadi South	16.77	13.21	9.02	33.01	25.60	2.40	100.00	2672
Kgalagadi North	15.27	5.99	7.29	33.97	37.06	0.43	100.00	3524
Kgalagadi	15.91	9.10	8.04	33.55	32.12	1.28	100.00	6196
Total-2011 Census	46.14	12.95	11.83	11.03	17.41	0.64	100.00	357560
Total-2001 Census	45.96	10.26	5.49	6.18	29.13	2.98	100.00	234757

Table 4: Proportion of households using each mode of waste collection that falls in a given district (urban)-2011 Census

District-Urban	Refuse disposal						Total
	Regulary collected	Irregularly collected	Burning	Roadside collection	Rubbish pit	Other (NEC)	
Gaborone	30.08	41.20	0.80	11.48	2.19	1.26	20.97
Francistown	15.60	8.15	1.18	1.71	0.94	1.26	8.75
Lobatse	4.87	1.76	0.04	0.72	0.10	0.00	2.58
Selebi_Pikwe	9.23	0.70	0.08	1.02	0.12	0.13	4.49
Orapa	1.89	0.30	0.00	0.08	0.01	0.00	0.92
Jwaneng	3.31	0.13	0.36	0.27	0.26	0.04	1.66
Sowa Town	0.54	0.51	0.04	0.11	0.01	0.00	0.33
Cities/Towns	65.52	52.75	2.50	15.39	3.63	2.69	39.70
Ngwaketse	1.34	3.90	5.49	13.64	10.17	6.46	5.09
Barolong	0.23	0.46	0.68	1.80	1.62	1.69	0.74
Ngwaketse West	0.34	0.76	0.98	1.59	1.32	0.09	0.78
Southern	1.92	5.12	7.15	17.02	13.11	8.24	6.61
South East	7.73	8.59	2.00	4.25	0.93	1.47	5.55
Kweneng East	9.01	16.36	23.79	21.81	20.93	24.80	15.30
Kweneng West	0.30	0.25	0.22	0.74	1.08	0.17	0.47
Kweneng	9.31	16.62	24.01	22.55	22.02	24.98	15.77
Kgatleng	2.04	2.72	10.20	4.06	4.33	8.15	3.75
Central Serowe Palapye	3.38	3.82	11.23	10.35	12.54	17.61	6.82
Central Mahalapye	1.25	1.62	8.11	1.61	9.18	7.89	3.57
Central Bobonong	0.68	1.22	5.34	2.82	5.28	12.58	2.41
Central Boteti	0.91	0.96	6.33	1.18	3.08	2.34	1.97
Central Tutume	0.92	1.49	10.31	3.29	10.95	4.55	4.14
Central	7.13	9.12	41.32	19.26	41.03	44.97	18.92
North East	1.21	1.11	1.02	0.93	0.80	0.43	1.07
Ngamiland East	1.86	1.14	7.29	5.90	8.11	2.12	3.95
Ngamiland West	0.22	0.33	2.80	0.57	2.40	0.52	0.96
Chobe	1.56	0.57	0.05	0.18	0.07	0.43	0.84
Okavango Delta	0.00	0.02	0.18	0.06	0.08	0.00	0.05
North West	3.64	2.06	10.33	6.72	10.67	3.08	5.79
Ghanzi	0.91	0.69	0.29	4.55	0.28	2.56	1.11
Kgalagadi South	0.27	0.76	0.57	2.24	1.10	2.78	0.75
Kgalagadi North	0.33	0.46	0.61	3.03	2.10	0.65	0.99
Kgalagadi	0.60	1.22	1.18	5.27	3.20	3.43	1.73
Total-2011 census	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Total Households-2011 Census	164972	46301	42302	39445	62234	2306	357560

Table 5: Proportion of households in the rural part of each district that use a given method of waste disposal-2011 Census

Refuse disposal

District-Rural	Regulary collected	Irregularly collected	Burning	Roadside collection	Rubbish pit	Other (NEC)	Total	Total Households-2011 Census
Ngwaketse	6.16	3.87	28.45	12.85	46.94	1.73	100.00	13277
Barolong	10.76	4.26	17.52	31.07	36.20	0.19	100.00	11115
Ngwaketse West	0.39	1.81	49.42	1.42	46.70	0.26	100.00	773
Southern	8.02	3.98	24.26	20.54	42.19	1.01	100.00	25165
South East	44.42	6.12	17.28	17.36	14.23	0.58	100.00	4131
Kweneng East	14.69	5.83	39.58	6.24	32.81	0.86	100.00	13626
Kweneng West	20.31	5.82	32.05	6.97	34.44	0.41	100.00	10557
Kweneng	17.14	5.82	36.29	6.56	33.52	0.66	100.00	24183
Kgatleng	14.42	6.55	42.17	9.97	25.26	1.62	100.00	11488
Central Serowe Palapye	11.14	3.69	40.22	9.02	35.23	0.69	100.00	21796
Central Mahalapye	6.14	4.86	33.09	4.81	50.51	0.59	100.00	17026
Central Bobonong	14.20	3.17	33.43	4.60	43.79	0.80	100.00	10525
Central Boteti	9.87	5.35	47.13	5.49	31.41	0.77	100.00	7053
Central Tutume	6.49	3.23	38.42	8.57	41.92	1.37	100.00	23562
Central	9.00	3.88	37.89	7.10	41.25	0.89	100.00	79962
North East	22.56	11.60	15.91	28.44	20.98	0.50	100.00	12042
Ngamiland East	16.03	2.24	42.13	10.39	28.89	0.31	100.00	7629
Ngamiland West	7.02	4.86	42.12	7.78	37.94	0.28	100.00	9730
Chobe	34.06	12.03	14.11	8.36	30.13	1.30	100.00	3840
Okavango Delta	72.06	12.15	13.97	0.00	1.82	0.00	100.00	494
North West	16.46	5.38	36.52	8.62	32.55	0.47	100.00	21693
Ghanzi	23.81	4.80	12.12	20.94	37.76	0.58	100.00	7379
CKGR	52.38	0.00	38.10	0.00	4.76	4.76	100.00	21
Ghanzi	23.89	4.78	12.19	20.88	37.66	0.59	100.00	7400
Kgalagadi South	17.75	9.31	12.98	15.76	43.45	0.74	100.00	5284
Kgalagadi North	12.19	3.42	22.70	31.37	29.68	0.64	100.00	2018
Kgalagadi	16.21	7.68	15.67	20.08	39.65	0.71	100.00	7302
Total-2011 Census	13.49	5.17	32.39	11.69	36.44	0.82	100.00	193366
Total-2001 Census	6.27	2.8	9.87	15.33	57.86	7.87	100.00	169949

Table 6: Proportion of households using each mode of waste collection that falls in a given district (rural)-2011 Census

District-Rural	Refuse disposal						Total
	Regularly collected	Irregularly collected	Burning	Roadside collection	Rubbish pit	Other (NEC)	
Ngwaketse	3.14	5.14	6.03	7.55	8.84	14.46	6.87
Barolong	4.58	4.74	3.11	15.28	5.71	1.32	5.75
Ngwaketse West	0.01	0.14	0.61	0.05	0.51	0.13	0.40
Southern	7.73	10.02	9.75	22.88	15.07	15.90	13.01
South East	7.03	2.53	1.14	3.17	0.83	1.51	2.14
Kweneng East	7.67	7.94	8.61	3.76	6.34	7.35	7.05
Kweneng West	8.22	6.14	5.40	3.26	5.16	2.70	5.46
Kweneng	15.89	14.08	14.02	7.02	11.50	10.06	12.51
Kgatleng	6.35	7.53	7.74	5.07	4.12	11.69	5.94
Central Serowe Palapye	9.31	8.05	14.00	8.69	10.90	9.49	11.27
Central Mahalapye	4.01	8.27	9.00	3.62	12.20	6.29	8.81
Central Bobonong	5.73	3.34	5.62	2.14	6.54	5.28	5.44
Central Boteti	2.67	3.77	5.31	1.71	3.14	3.39	3.65
Central Tutume	5.86	7.61	14.45	8.94	14.02	20.24	12.19
Central	27.58	31.05	48.38	25.11	46.80	44.69	41.35
North East	10.41	13.97	3.06	15.15	3.59	3.77	6.23
Ngamiland East	4.69	1.71	5.13	3.51	3.13	1.51	3.95
Ngamiland West	2.62	4.73	6.54	3.35	5.24	1.70	5.03
Chobe	5.01	4.62	0.87	1.42	1.64	3.14	1.99
Okavango Delta	1.36	0.60	0.11	0.00	0.01	0.00	0.26
North West	13.68	11.66	12.65	8.28	10.02	6.35	11.22
Ghanzi	6.73	3.54	1.43	6.84	3.95	2.70	3.82
CKGR	0.04	0.00	0.01	0.00	0.00	0.06	0.01
Ghanzi	6.78	3.54	1.44	6.84	3.96	2.77	3.83
Kgalagadi South	3.60	4.92	1.10	3.69	3.26	2.45	2.73
Kgalagadi North	0.94	0.69	0.73	2.80	0.85	0.82	1.04
Kgalagadi	4.54	5.61	1.83	6.49	4.11	3.27	3.78
Total-2011 census	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Total Households-2011 Census	26088	9998	62623	22600	70466	1591	193366



Motsholathebe Bowelo, University of Botswana presenting on
Prevalence & Patterns on ICT Penetration in Botswana

PREVALENCE AND PATTERNS OF ICT PENETRATION IN BOTSWANA

By

Motsholathebe Bowelo & Dr Serai Daniel Rakgoasi

University of Botswana

Introduction

The aim of this paper is to examine and explore the prevalence and patterns of Information and Communication Technology (ICT) in Botswana. ICT can help developing countries tackle a wide range of health, social and economic problems. By improving access to information and by enabling communication, ICT can play a role in reaching Millennium Development Goals such as the elimination of extreme poverty, combating serious disease, and achieving universal primary education and gender equality. However, the biggest challenge is that ICT is often out of reach of the poor especially those in rural areas.

ICT is seen as a means of achieving many MDG goals. One target specifically relates to ICT aiming 'to make the benefits of ICT available to all'. Even Vision 2016 as a national blueprint of the Botswana government articulates the long-term economic goals for the country including strategies to meet them. The long-term vision is that Botswana will enter the information age on an equal footing with other nations. The country will seek and acquire the best available information technology and become a regional leader in the production and dissemination of information. One of the Pillars of Botswana's Vision 2016 is that of an Informed and Educated Nation. Two of the key areas of this pillar are related to an informed and IT literate society. ICT is also a major focus of the country's economic agenda, the National Development Plan. Significant investment has of late been made in upgrading Botswana's communications networks to facilitate new technologies. Furthermore, during the year 2002, Botswana established a government ministry dedicated to ICT, named the Ministry of Communications, Science and Technology which is to coordinate and promote technology development in the country.

Radio, television and print media are vital in many developing countries. In recent years 'new' ICT, such as mobile phones and the internet (and associated applications such as 'VOIP', transmitting telephone calls over the internet) have become available to growing numbers worldwide. The most rapid growth is in mobile phone usage. According to the UK Parliamentary Office of Science and Technology post note (2006), total (fixed and mobile) telephone access in developing countries increased from 2% in 1991 to 31% in 2004. The note further alluded that internet usage has also grown rapidly: from 0.03% of developing country inhabitants in 1994 to 6.7% in 2004. However, there are wide disparities between citizens and ICT is still out of reach of many groups due to factors such as lack of appropriate products, cost, technical skills, language, limited human resources and lack of robust regulatory framework for ICT.

According to Adu & Ifeoma (2013), only 5 percent of the population of Botswana has access to internet, and there is also considerable disparity in terms of urban and rural access to ICT services. Other challenges mentioned included the relatively high cost of PCs, the lack of electricity in many rural locations, and high charges for Internet usage. In addition, ICT is still not widely exploited by business in Botswana, although it is used extensively in the retail and mining sectors within foreign-owned companies. Other scholars argue that Botswana's ICT sector itself is small and generally focused on local market opportunities. (Shafika Isaacs 2009). ITC is the buzz word in every nation and as it evolved at a rapid pace, there is need for reliable data and indicators to measure ICT readiness, access, use and impact on the society (WSIS,2005). This makes it important to understand and document the levels and patterns of access to IT in Botswana, and other factors that may impede or facilitate improved access to IT. By examining access to IT within the context of household characteristics, including household headship, this analysis will also shed light on how far Botswana has come to reach Millennium Development Goal, in particular goal number three, on promoting gender equality, at least in as far as access to IT is concerned.

Methods

The paper uses primary data from the 2011 Botswana Population and Housing Census to explore levels and patterns of ICT penetration in Botswana. Prevalence rates will be calculated per 1000 population of ever used internet and mobile phone for people aged 10 years and above. The prevalence rates are calculated as the number of people using ICT, divided by the number of those who ever used these ICT equipment. Levels and patterns of access to information technology by analysing the percentage of population with access to information technology such as computers and computer networks; cell phones and electronic social media,

and relating these to key socio demographic background variables such as age, sex, education, residence and household headship and size of household. ICT in this paper comprises information technology industries (computer and laptop) telecommunications industries (telephone, internet and mobile phone and the broadcast media (television and radio). The household is the unit of analysis in trying to measure household ICT access and individual use.

Indicators

The Botswana National Population Census and Housing of 2011 included questions that can be used to produce a harmonized set of indicators to measure access and use of ICTs. The following are the indicators that can be derived from the questions:

- Proportion of households with a radio
- Proportion of households with a TV
- Proportion of households with a fixed telephone
- Proportion of households with a cellular telephone
- Proportion of households with both a fixed and cellular telephone
- Proportion of households with internet access at home
- Proportion of households with access to internet from any source

The aforementioned indicators were grouped into three adopted from South African Social Attitudes Survey (SASAS), which is a nationally representative, repeated cross-sectional survey that has been conducted annually by the Human Sciences Research Council (HSRC) since 2003

1. Access to telephonic communications in the household
2. Computers and the internet in the household
3. Access to various forms of public/private telecommunications service centres

Composite indicators were developed to capture household access to ITC at private level as well as public provision of ITC. The composite indicator on private ITC access was derived from proportions who have: access to landline telephones (i.e. no/proportion of households with access to main telephone lines), number/proportion of households with access to mobile telephone, access to computer (no. of households with access to personal computers), and access to internet (no. of households with internet access)

Composite indicator Public access to internet was derived from proportions who have internet access from workplace, schools (primary, secondary and other institutions), Internet café, Cellular phone internet, post office and library. The values are added then divided by 4 to get the composite indicators.

Results

Household Ownership and Access to ICT household access and individual use

The census questionnaire had 4 questions relating to ICT equipment. There were three questions on household access and 1 on individual use. Table 1 shows that when heads of household were asked "Does any member of this household own any of the following in a working condition, out of the 550941 households who reported ownership of listed ICT equipment, almost 60 percent owned television, 24.4 percent owned a radio, 14.6 percent were owners of a fixed landline telephone in their house and the least members of households(1.3%) were owing a computer (either desktop or laptop).

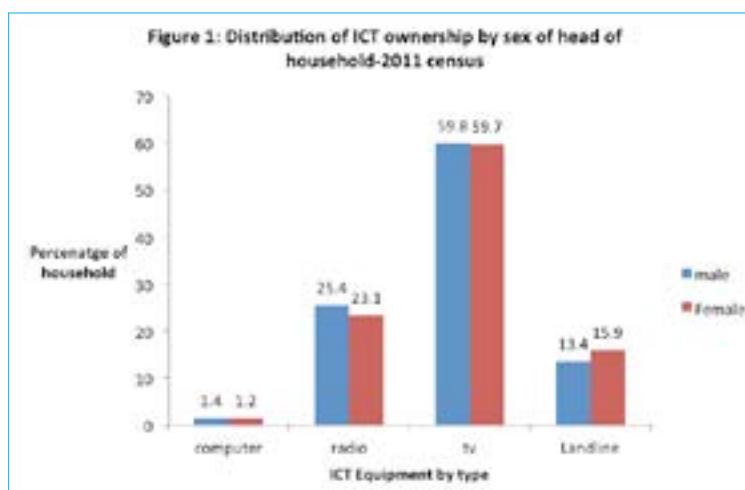
The table further shows that, when asked where members of the household access internet from, heads of household reported that 69.2 % of households do not have access, 11.3 % were accessing internet through the use of mobile phones, 8.5 % had their access point either at home or work, 5.7 % at internet café and the remaining were accessing at various places.

Regarding the ownership of a working cellular phone, almost 90 percent of households in Botswana had a member with a working cellular phone and only 10.3 did not own a cellular phone at the time of the census. The use of mobile telephone is very high. Almost 43 % of households with one member owned a working cellular phone, followed by household with two members at 30.6 % and those with 3 or more members were sharing the remaining balance.

Table 1: Frequency Distribution on ownership and Household access of ICT

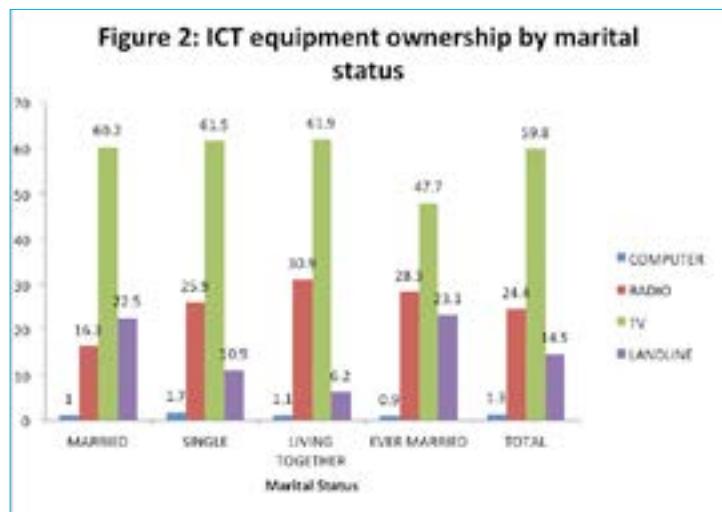
Ownership of ICT			
Television	245084	59.8	
Radio	99976	24.4	
Landline Telephone	59652	14.6	
Computers/Desktop/Laptop)	5261	1.3	
Total	409973	100	
Access to Internet			
No access	381068	69.2	
Cellular Phone	62010	11.3	
Home or Work	46617	8.5	
Internet café	31257	5.7	
Other institutions(library, schools,etc)	29977	5.3	
Total	550929	100	
Ownership of working cellular phone			
Yes	494365	89.7	
No	56577	10.3	
Total	550942	100	
No. of Household members owning a cell phone			
1 member	210236	42.5	
2 members	151239	30.6	
3 members	69489	14.1	
4 or more members	63401	12.9	

Figure 1 shows ownership of ICT equipment by sex of household headship in 2011. The results show that a 29.3 % of households owned a fixed telephone landline, of which 15.9 % were female headed and 13.4 % were male headed. Almost an equal proportion of male and female headed households owned a television (60%). In general terms, a slightly higher proportion of male headed households were owning computers (1.4 % versus 1.2%) and radio (25.4 % versus 23.1%) with the exception of fixed landline telephone where female headed household were slightly higher owners (15.9% versus 13.4%)

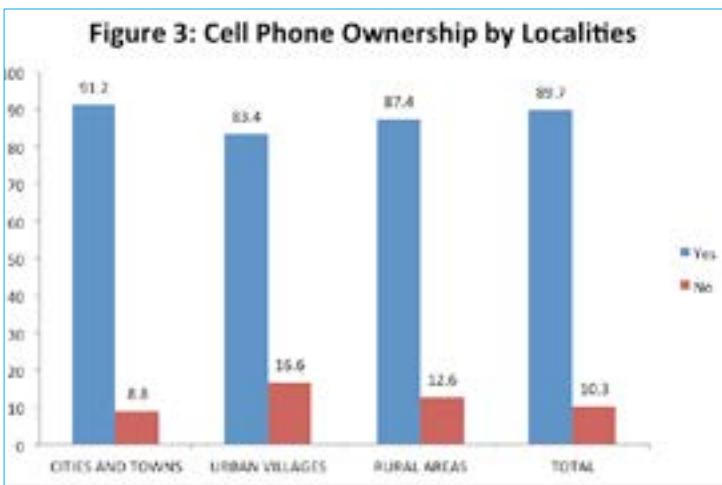


ICT ownership by Marital Status and Localities

Figure 2, shows that in terms of ICT equipment ownership by marital status, there were no major differences as almost an equal proportion of married at 60%, single at nearly 62% and living together at nearly 62% were owners of television except for the ever married where a slightly lower proportion of them reported to own a television set at the time of the census. A slightly higher proportion of the living together were radio owners, followed by the ever married at 28.3%, then the single at almost 26 % and lastly the married group at 16.3 %. An almost equal proportion of ever married (23.1%) and married (22.5%) owned a fixed telephone at home, whereas a slighter greater share of the singles (10.9%) owned a landline than the living together at 6.2%. Only around 1% on average were owners of computers regardless of marital status.

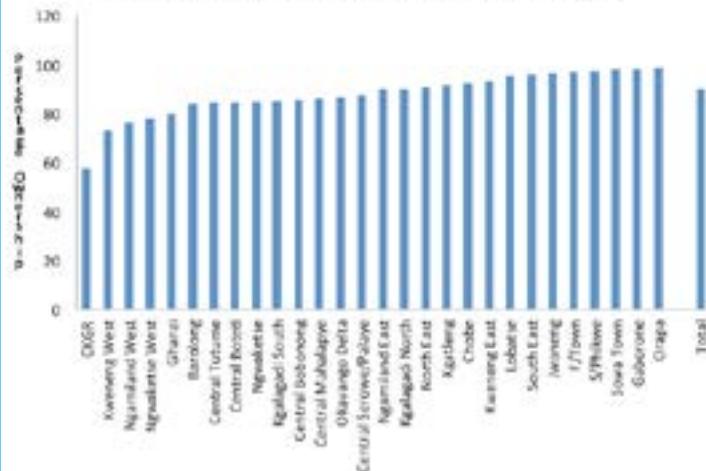


Regarding the extent of mobile phone coverage in relation to locations, either cities/towns, urban villages and rural areas, the results shows that, overall coverage is above 80 %. (See Figure 3). Cities and town had a higher proportion of mobile users at almost 91 %, followed by rural dwellers at almost 85% and the urban dwellers at 83%.



It is interesting to note that over 80 % of residents in majority of administrative districts owned a working cellular phone (see figure 4). This ranges from almost 84 % from Barolong to 98 % in Orapa. There are some districts hovering from 57 % to 79% as indicated in figure 4. Special mentioned in this category is CKGR where 57 % of residents reported to own a working cellular phone at the time of the census.

Figure 4: Cell Phone ownership by District



The proportion of individuals who reported ownership of ICT equipment by localities is presented in Figure 5. In terms of the location, an almost equal proportion of cities/town(nearly 61%) and rural areas dwellers(almost 64 %) were owning a television in comparison to other urban villages(51 %), where a slightly lower proportion were owning a television. The same argument holds where location seems not to matter as an almost equal proportion of residents owned a computer (1.3%). A fixed telephone (landline) appears to be owned by more people in cities/towns (16 %), followed by urban dwellers (9.3%) then lastly rural area dwellers at 7.9 %. Radio seems to be the preferred owned ICT equipment in urban areas (nearly 39%), followed by rural areas (27 %) and a slightly lower proportion of cities/town dwellers at nearly 22 %.

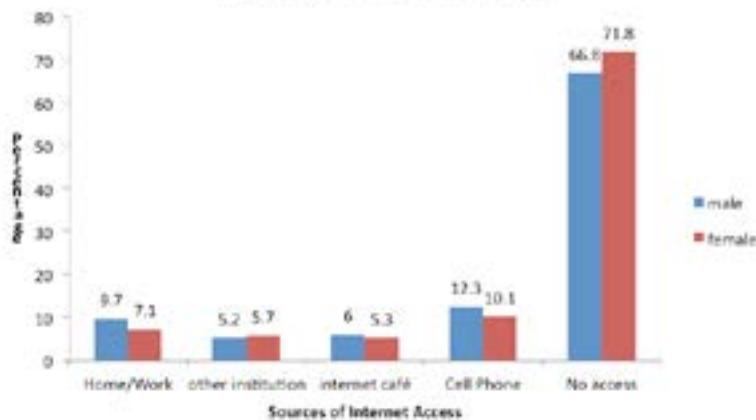
Figure 5: ICT equipment ownership by Localities



Access to Internet

The percentage of male and female household heads who reported that household members are accessing internet from different sources is presented below in figure6. The results indicate that on average a slightly higher proportion of males are accessing internet from different sources except at other institutions that include schools, library and others. However, slightly higher proportions (71.8 %) of females do not have access from any other sources compared to 66.8 % of males.

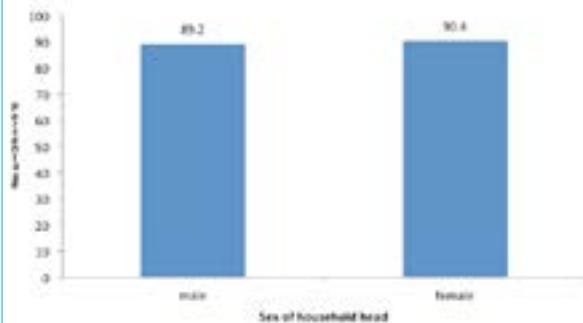
Figure 6: Percentage distribution where household members access Internet by sex of Head of Household



Ownership of cellular phone/ mobile phone

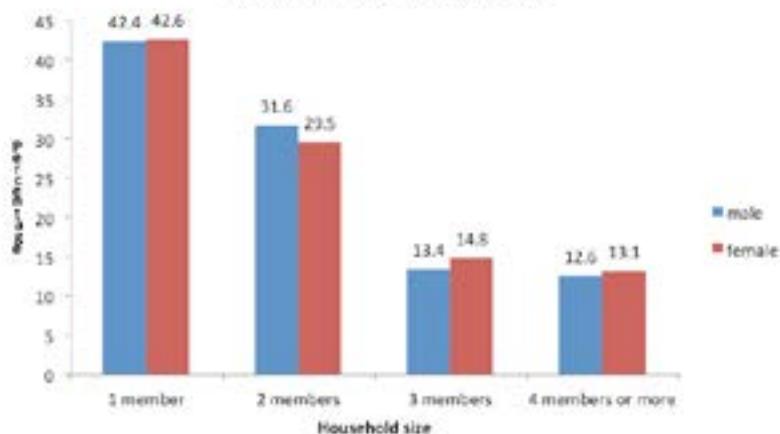
Figure 7 present's proportion of household members owning a working cellular phone by sex of head of household. The results clearly indicate an almost equal proportion of males and females owning a working cellular phone. A slightly less proportion of female (9.6%) do not own a working cellular phone in comparison to 10.8 % of males.

Figure 7: Proportion of household members owning a working cellular phone by sex of head of household

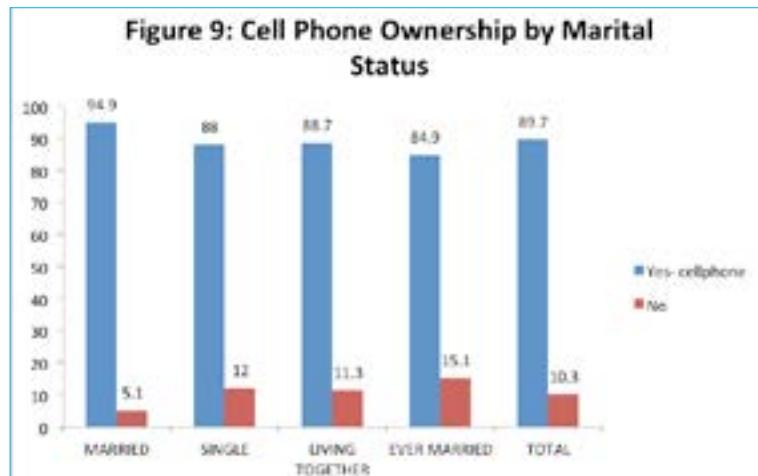


When relating the ownership of a working cellular phone to the household size, the results shows that an almost equal proportion of males(42.4%) and females(42.6%) in single headed household are owning a cellular phone. Where there are three or more members in a household, the proportion of female owning a working cellular phone is slightly more than that of males as revealed in figure 4.

Figure 8: Proportion of household members owning a working cellular phone by sex of head of household



In relation to the extent of mobile phone coverage in relation to marital status, either married, single, living together and ever married(separated, divorced or widowed), the results in figure 9 shows that, overall coverage is above 80 %. Those who reported themselves as married had a higher proportion of mobile users/ ownership at almost 95 %, followed by those living together at almost 89 %, then those never married or single at 88 % and lastly the ever married at 85 %.



Composite Indicators

In relation to the composite indicators, the results show that 34.15 of households in Botswana have private access to ICT while only 7.7 % of household are accessing internet through public outlets.

Discussion and Conclusion

This paper investigated the prevalence and patterns of ICT use Botswana in particular measuring household ICT ownership, access and use at individual levels. In terms of ownership of ICT, television and radio, which ownership maybe at household or individual level are the commonly owned assets while computer in respect of desktop at home or laptop are the least owned type of ICT equipment. Considering the gender differences, the results reveal an almost equal proportion of households owned television, while a slightly higher proportion of females owned fixed telephone landline while slightly higher men owned radio. The results further demonstrated that cell phone ownership by localities, either cities/town, urban villages or rural areas does not matter. However cities and town have a slightly higher ownership of cell phone than rural areas. The same argument holds when considering ICT ownership by localities where there is a slight difference between ownership of television in cities/town s and rural areas though rural areas have a slight higher proportion. Radios are dominantly owned by urban villages' dwellers while there is no great difference according to ownership of computers. Landline telephones are dominant in cities and towns. Regarding household members access to internet, a large proportion of household's members had no access to internet. Even though no significant test was conducted, men access to the internet was slightly higher at home/work, internet café and through cellular phone but less against women at other institutions that includes schools, library and others.

The results have further shown that the use of cellular phones in Botswana is very high and there is no gender differences as an almost equal proportion of male and females owned a working cellular phone. The distribution of mobile phones is equally spread between males and females as even those who reported not owning a cellular phone, there was no gender difference. However, the results showed that when considering ownership of the working cellular according to household size, there is no gender difference in situation where both sexes are heads in one singled headed household. Where there are two members in the household, a slightly higher proportion of males owned cellular phones but where there are three members or more, a slightly higher proportion of females are owners of cellular phones. The results further demonstrated that cell phone ownership by marital, either married, single, living together and ever married does not matter. However married people have a slightly higher ownership of cell phone than the others in particular the ever married. The same argument holds when considering ICT ownership by marital status where there is a slight difference between ownership of television for the single, living together and married though those married have a slightly lower proportion. Radios are dominantly owned by singles while there is no great difference according to ownership of computers. Landline telephones are dominant for the married.

In conclusion, the results have revealed that television and radio are the most widely used medium of ICT, mobile phone usage is widespread with an almost equal proportion between males and females, only minute proportion of men and women own computers and have internet use at home or work. Cellular phone are commonly used to access internet and only a relatively few proportions of households members are able to access the internet at public access points such as schools and privately owned internet cafés. In a few scenarios women owned a working cellular phone where the size of the household is more than two members. It is assumed that the higher proportions of persons who are using mobile phones own the devices.

In summary the core indicators on ICT access and Use by Households and Individuals measured in Botswana using the 2011 Population and Housing Census is as follows:

Table 3: 2011 Population and Housing Census – ICT Indicators

Indicators	Value
Proportion of households with a radio	24.4
Proportion of households with a television	59.8
Proportion of households with telephone	
Fixed	14.6
Mobile	89.7
Proportion of households with a computer	1.3
Proportion of households with internet access at home/work	8.5
Proportion of households with members owning a cell phone	89.7
Male	89.2
Female	90.2

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Dr Ravendra Singh, UNDP giving a presentation on Household Energy use for Lighting, Cooking & Heating in Botswana: The 2011 Population & Housing Census Perspectives

HOUSEHOLD ENERGY USE FOR LIGHTING, COOKING AND HEATING IN BOTSWANA: THE 2011 POPULATION AND HOUSING CENSUS PERSPECTIVES

By

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Abstract: This paper presents a descriptive analysis of the energy sources used in Botswana for household lighting, cooking and space heating based on the results from Botswana's 2011 Population and Housing Census. The main source of energy for household lighting in Botswana during 2001 in both urban and rural areas was paraffin, however, the situation has changed in 2011 in the urban area, where electricity has taken over as a major source of energy for lighting, whereas in the rural areas, the paraffin still remained the main source of lighting. The electricity was used for lighting in about 69 percent households in urban areas and in about 24 percent households in rural areas, whereas the share of paraffin has reduced to 21 percent & 46 percent respectively during 2011 compared to 49 percent and 59 percent during 2001. Nationally, the electricity used for household lighting by 53 percent of the households, whereas the paraffin and candles used in about 30 percent and 11 percent of the households for lighting. The principal energy sources found to be used for cooking in Botswana in both 2001 and 2011 censuses were wood and gas; the former dominating at the national level as well as in rural areas. The large number of households in rural areas over 77 percent was found to be using wood as main energy source for cooking during 2001 and 2011 censuses. There has been no reduction in the fuel wood users for cooking both in rural and urban areas, despite increase in use of gas and electricity. The dominant energy source used by households for space heating is wood (47.66 percent), followed by electricity (16.75 percent). However, the proportion of households that use wood for space heating varies significantly between rural (78.08 percent) and urban (31.21 percent) areas since the later can afford to use conventional energy sources like electricity (22.47 percent). The relationship between energy sources used by a household and the household size and tenureship of their housing unit(s) as well as the trend in energy use are also discussed. The paper also gives policy implications for improving the clean sources of energy for use by households.

1.0 Introduction:

1.1 Background

Energy and fuel use are important for the welfare of households. Using an energy source for lighting and cooking is essential to human life and part of what first defined the human race as separate from animals in pre-historic times. Energy is also an essential ingredient in the production and provision of all goods and services and therefore in the economic development process. Energy has become indispensable as it has gone beyond merely enhancing the provision of basic needs (food and warmth) to contributing in numerous ways to the much higher quality of life, human beings enjoy today.

To this day, many people remain dependent on traditional biomass fuels for cooking and on inefficient and costly sources for light such as candles and kerosene. Improving access to modern energy sources – electricity for light and appliances and clean cooking technologies – is an important development goal; it is complementary with other goals of development such as improving health and education. Use of biomass is not in itself a cause for concern. However, when resources are harvested unsustainably and energy conversion technologies are inefficient, there are serious adverse consequences for health, the environment and economic development.

The energy consumption is expected to continue to increase in the next few decades along with the economic growth and rising per capita income. According to the International Energy Agency (IEA), China, South Asia, East Asia, Latin America, Africa and West Asia will account for 68 per cent of the increase in world energy demand between 1997 and 2020. Member countries of the Organization for Economic Cooperation and Development (OECD) currently use 54 per cent of the world's energy, this is expected to decline to 44 per cent by 2020 while that of developing countries may rise to 45 per cent from its current 34 per cent. Botswana also going to experience vast growth in use of energy not only at household level but also for economic development.

The UN Millennium Project (2005) has emphasized that close links exist between energy and all the Millennium Development Goals (MDGs). Modern energy services help reduce poverty and can play a critical role in improving educational opportunities for children, empowering women and promoting gender equality. Inefficient combustion of fuelwood exacerbates respiratory illnesses and other diseases. Fuel substitution and improved stove efficiencies would help alleviate the environmental damage of biomass use.

The use of clean cooking fuels can also have positive effects on the external environment by reducing outdoor air pollution from venting of kitchen smoke as well as by combating forest degradation; collection of wood for firewood or charcoal production (ESMAP, 2001; Heltberg, 2001). Household energy use today is therefore as important as ever.

The main use of energy in households in developing countries is for cooking, followed by heating and lighting. Because of geography and climate, household space and water heating needs are small in many countries. Households generally use a combination of energy sources for cooking that can be categorized as traditional (such as dung, agricultural residues and fuel wood), intermediate (such as charcoal and kerosene) or modern (such as LPG, biogas, ethanol gel, plant oils, dimethyl ether (DME) and electricity). Electricity is mainly used for lighting and small appliances, rather than cooking and represents a small share of total household consumption in energy terms. Both traditional and modern energy sources are used in Botswana. The former are all locally produced and include wood, cow dung and crop waste. The latter, some of which are imported, include electricity, gas, biogas, solar, petroleum products and candle.

1.2 Data Collection

During the Population and Housing Census, each household in the country was asked to choose the energy source that is most commonly used for household lighting, cooking and space heating. In posing the questions, it was acknowledged that the household might be using more than one energy source for an activity but that the principal energy source that is used for the activity was the one to be reported. Furthermore, it is mentioned that during 2001 Census, paraffin/candles was added as a distinct category of the energy source for household lighting, distinguishable from the related two categories of paraffin and candles in which only the one named is dominant, however, during 2011 Census, this category was removed as during 2001 census, only 5 percent of households have reported using this combined category. However, two other categories viz. Petrol & diesel were added for data collection during population Census 2011. An additional category on Bio-gas was also added for heating.

2.0 Analysis and Discussion of Results

2.1 Sources of Energy Used for Lighting

The use of energy source for lighting is a good indicator of the level of uptake of the energy source at household level. This is because household lighting is less energy intensive (and therefore less expensive) than cooking/space heating; hence more households can afford to use even the expensive energy sources for lighting than for cooking/space heating. Table 1 provides information on the proportion of households that use each energy source for lighting in urban or rural areas. It is observed from Table 1 that the dominant source of energy for household lighting in Botswana during 2001 in both urban and rural areas was paraffin, however, the situation has changed in 2011 in the urban area, now electricity has taken over as a major source of energy for lighting, whereas in the rural areas, the paraffin was still the main source of lighting. The electricity was used for lighting in about 69 percent households in urban areas and in about 24 percent households in rural areas, where the share of paraffin has reduced to 21 percent & 46 percent respectively during 2011 compared to 49 percent and 59 percent during 2001. It is also observed from Table 1 that electricity used for household lighting by 53 percent of the households nationally, whereas the paraffin and candles used in about 30 percent and 11 percent of the households for lighting.

An district-wise analysis (Table 2) of source of energy for lighting reveals that among the urban districts, the mining districts of Orapa (99%) followed by Sowa Town (94 percent) have the highest user of electricity for lighting by households, whereas the lowest use of electricity for lighting was reported from the districts of Lobatse (57%), Francistown (68%) and Selebi_Pikwe (69%). While the use of electricity for lighting among the rural districts were reported to the quite poor except in South East, the districts of Southern (37%), Ghanzi (38%), Kgalagadi (39%) and Central (42%) were among the poorest in this regard. The dominant source for energy for lighting was paraffin and candles in all these districts.

Further the use of electricity for lighting was quite common among the housing types like Detached, Semi-detached, Town House/Terraced, Flats/Apartments, Part of Commercial building and Rooms, whereas in the house type of Traditional, Mixed, Movable and Shacks, the dominant use of paraffin and candles were reported for lighting (Table 2(a)).

2.2 Sources of Energy Used for Household Cooking

The UN Millennium Project has adopted a target of reducing by 50 percent the number of households using biomass as their primary cooking fuel by 2015. The recommendation related to energy for cooking is the following:

Enable the use of modern fuels for 50 percent of those who at present use traditional biomass for cooking. In addition, support (a) efforts to develop and adopt the use of improved cook stoves, (b) measures to reduce the adverse health impacts from cooking with biomass, and (c) measures to increase sustainable biomass production.

Table 3 provides information on the percentage of all households in urban or rural areas that use each energy source for cooking. The principal energy sources used for cooking in Botswana in both 2001 and 2011 censuses were wood and gas; the former dominating at the national level as well as in rural areas. The use of wood as energy source for cooking in rural areas remained almost the same and quite high, which was over 77 percent during the both censuses with marginal increase in use of electricity and slight reduction in use of LPG gas. While in the urban areas, the use of gas for cooking in the households was reduced from 57.65 percent in 2001 to 50.81 percent in 2011, while the use of electricity has increased significantly from 7.6 percent in 2001 to 23.56 percent during 2011. Further, there were still about same (22%) number of households in the urban areas using wood as main energy source for cooking during both the censuses.

Table 4 presents the district-wise use of energy sources for cooking during 2011 census. The analysis of the data shows that among the urban districts, Sowa Town use the electricity (72%) as the dominant source of energy, followed by Gaborone (32%), whereas use of Gas for cooking is highest in Orapa (81%) followed by Jwaneng (78%). The use of fuel wood for cooking was reported high from the districts of Francistown and Selebi-Pikwe, both over 14 percent. The position among the rural districts is quite different, where the dominant source of energy for cooking was reported to be fuel wood, except in South East district (15.38%), the use of fuel wood for cooking by households varied from about 40 percent to over 60 percent, the highest being in the Central district (64.15%) followed by Kgalagadi, North East and Southern districts. After the fuel wood, the gas and electricity were other main sources of energy for cooking in almost all districts.

2.3 Source of Energy Used for Household Heating

Table 5 provides data on the percentage of all households in urban or rural areas that use each energy source for heating. Botswana as a whole, the dominant energy source used by households for space heating is wood (47.66%), followed by electricity (16.75%). Wood is consistently the dominant source of energy used for heating irrespective of the location (rural or urban) of the household. The proportion of households that use wood for space heating, however, varies significantly between rural (78.08 percent) and urban (31.21 percent) areas since the later can afford to use modern energy sources like electricity (22.47%). On comparison of data collected from two censuses, it may be seen that the share of electricity used for heating has increased, while there is reduction of fuel wood for heating purposes during 2011 both in urban and rural areas.

Nationally, 33.60 percent of the households never carry out space heating in their dwellings, a situation that is more prevalent in urban areas (43.97%) than in rural areas (14.43%). This observation can be attributed to the fact that wood, the prevalent source of energy for space heating is more abundant in rural areas than in urban parts of the country. Additionally, most urban dwellings are of good quality and hence protect the occupants from weather elements more effectively than the majority of rural dwellings.

Table 5(a) provides district-wise information on the proportional distribution of all households that use each energy source for space heating. On the basis of individual energy sources that are used for space heating in households, over 84 percent of households in Orapa district use electricity as the main source of space heating, which is highest among all the districts in the country. The use of wood for heating is very negligible (0.14 percent), the lowest in the country. There were few households (about 14%), who were not heating their houses in this district. On the other hand, the majority of the households in the rural areas were using traditional energy sources for space heating except South East district, the use of fuel wood for heating by households varied from about 47 percent to over 70 percent, the highest being in the Kgalagadi district (70%) followed by Central (67.26%), Southern (64.99 percent and Ghanzi (63.75%) districts. After the fuel wood, the electricity was the other main source of energy for heating.

2.4 Trend in the Proportion of Households Using Various Energy Sources for Lighting and Cooking

Table 6 gives the trend in the proportion of households using different energy sources for lighting from 1981 to 2011. The use of electricity for lighting has increased nationally from 5.4 percent in 1981 to 24.84 percent in 2001 and now 53.24 percent in 2011. The same measure increased from 21.7 percent to 69.13 percent and from 1.2 percent to 23.87 percent for urban and rural parts of the country, respectively, in the same period. The change in electricity use by households over the last 20 years has been increased significantly in both urban and rural areas, where the proportion of households using electricity for lighting rose from 17.5 percent to 69.13 percent and 2 percent to 23.87 percent respectively between 1991 and 2011. On the other hand, the use of wood for lighting in households has dropped at the national level with the proportion of households decreasing from 24.5 percent in 1981 to 3.56 percent in 2011. The proportions for gas and paraffin, the other energy sources commonly used for lighting in Botswana's households, showed an increase in 1991 but had dropped back in 2001 and further reduced in 2011. The proportion of households that use candles in the rural parts of the country has increased from 8.1 percent in 1981 to 10.9 percent in 2001 and now to 16.25 percent in 2011. In the rural areas, the paraffin is still a dominant source of energy for lighting.

Table 7 provides the data in the proportion of households using different energy sources for cooking as collected from population and housing censuses conducted from 1981 to 2011. The proportion of households that use electricity for cooking has risen nationally from 1.8 percent in 1981 to 17.79 percent in 2011. The relatively small increase when compared with the same proportions for lighting can be attributed to the high cost of electricity and the fact that cooking is much more energy intensive than lighting. However, the increase in uptake of modern energy for cooking purposes is evidenced by the fact that the proportion of households that use gas for cooking rose significantly between 1981 and 2001 at the national level from 5.4 percent to 40.6 percent, as well as in both urban and rural locations from 18.9 percent to 57.7 percent and from 1.9 percent to 17.0 percent, respectively, in the same period. However, between 2001 and 2011, there has not been any increase in the proportion of gas for cooking nationally, but surprisingly, the use of gas for cooking has reduced not only nationally but also in urban areas. It shows that not much effort have been made for promotion of gas as a clean source of energy for cooking. The use of fuel wood for cooking has dropped from 85.8 percent in 1981 to 45.72 percent in 2001 at the national level; however, the corresponding decrease between 2001 and 2011 was quite small to 41.19 percent. There has been almost no reduction in use of wood for cooking in rural areas, which is still over 77 percent.

2.5 Household Size and Choice of Energy Sources

The choice of energy sources depends on the many factors, one of them is the size of the households. Therefore, an analysis of the population and housing census, 2011 was made to see the relationship between household size and the choice of energy sources. Tables 8(a), 8(b) and 8(c) provide the data on the proportion of all households in each household-size group that uses each principal energy source for lighting, cooking & heating respectively. It is observed from the table that the sources of energy predominantly used for lighting vary with the size of the household. In the smaller size households upto 5 members except single member household, the use of electricity for lighting increases, thereafter, the proportion of households using electricity for lighting reduces with increase in the size of the households and the use of paraffin and candles for lighting increases.

The position is similar in case of use of energy for cooking, the smaller sized households (1 to 5 persons) predominantly used gas & electricity for cooking while larger sized households used wood, the "cheaper" energy source. Larger the size of households, the use of wood increases and the use of electricity and gas reduces. This difference can be attributed to the fact that more energy is used in cooking than in lighting, hence larger-sized households, which cook more food and hence use more energy for cooking, are by necessity forced to use the cheaper energy source.

It is to note that the proportion of households using wood for space heating increases with household size, from 40 percent for one-person households to 81 percent for households with 16 or more members). This is mainly because space heating is energy intensive, and hence the larger the size of households, the fewer the affordable alternatives to wood that are available to the household. Due to the same reasons, the proportion of households that use electricity – the second most prevalent energy source that is used for space heating – decreases as the household size increases from 16.67% for one-person households to 3.15 percent for households with 16 or more members. Further, the households, who don't use any energy for heating decreases with the size of households.

A number of variables are shown to affect fuel choice and fuel switching: household expenditures, education, urbanization, electrification status, and water source: these variables all have a significant impact on the choice between modern and traditional solid fuels. Household size, in contrast, is found to increase the use of all energy sources – it matters for fuel choice but not for switching (World Bank, 2003).

2.6 Tenureship and Choice of Energy Sources

Table 9(a) provides the data on proportion of households for each tenureship category that uses a given energy source for lighting. The use of electricity is highest among households which have obtained their housing units freely from employers (96.40 percent), through purchases (87.86 percent), or are renting from BHC (93.43 percent), Government (90.72 percent), and local institutions/Councils (88.66 percent). On the other hand, households that acquire their housing units by building, inheriting or renting from VDC or individuals; mostly use paraffin for lighting. It is apparent that the determining factor here is affordability of the cost of electrifying the house, rather than the cost of using electricity for lighting.

Table 9(b) provides the data on proportion of households for each tenureship category that uses a given energy source for cooking. It is observed that gas and electricity is mainly used for cooking in rented, purchased and free housing units whereas wood is mainly used in inherited, self-built or donated houses.

Table 9(c) provides the data on proportion of households for each tenureship category that uses a given energy source for space heating. On this aspect, the main source of energy used for space heating is wood for housing units of types like self built, inheritance, VDC and donated, whereas the houses rented from BHC, Government, Councils and companies – which predominantly use electricity for space heating. Again, it appears that the main factor in the choice of the energy source used for space heating is affordability.

3.0 Conclusion

The analysis of data obtained from the 2011 population and housing census, has given quite interesting results. The use of electricity in Botswana's households has been increasing from last 20 years. Nationally, the electricity was used for household lighting by 53 percent of the households, whereas the paraffin and candles were used in about 30 percent and 11 percent of the households for lighting. The situation required to be improved in the rural areas, where only about 24 percent households have access to electricity.

The position about the clean energy source for cooking between 2001 and 2011 has not been quite satisfactory, although the use of electricity has increased, the use of gas (LPG) has declined. The main reason could be the supply constraints, which need to be tackled. The use of solar energy is also quite poor, although there is plenty of sun-shine which could be exploited beneficially. On the other hand, the use of wood as an energy source has been on a consistent decline since the 1981 census, though it is still quite high in the rural areas specially for cooking. Urban and better-off households are more likely to use modern fuels; rural and low-income households more often rely on firewood. The general pattern therefore appears to be one of an increase in the uptake of conventional energy sources and a decrease in the uptake of traditional energy sources, particularly wood. These are welcome developments particularly in view of fears over the unsustainable use of wood resources for energy sources.

4.0 Policy Implications

Household energy use is a critical, yet complex, topic. Fuel and electricity pricing is politically sensitive and important for poverty. The urban poor generally are the most exposed to energy price fluctuations; they often consume a mix of electricity, wood, charcoal, and kerosene. In the rural areas, biomass and kerosene often feature heavily. Policy interventions targeting cooking fuels and cooking practices are now being motivated due to concerns regarding indoor air pollution. Indoor air pollution has been estimated by the WHO (2002) to be the world's 4th largest killer. Policies to reduce indoor air pollution focus on either inducing a healthier fuel choice or on making biomass use cleaner and safer, for example through improved stoves or better ventilation in the cooking area.

The government action is required to promote clean sources of energy and in meeting the lighting and cooking-fuel targets. On the supply side, Botswana doesn't have self-sufficiency in the production of electricity as well as LPG gas, it depends on the import from South Africa as well as from other countries. Many times due to resource & supply constraints, the Government is not able to full-fulfill the needs of the people. Pricing these products could be another area, which need Government to subsidize these products especially in the remote rural areas. It is also difficult to establish a commercially viable LPG distribution network in the face of low population density, poor roads, and low LPG uptake and consumption among those who require LPG. The absence of economies of scale in catering to rural domestic consumers is one of the main factors

hindering LPG access. Demand-side barriers include low per-capita incomes, lack of awareness of the benefits of alternative fuels, inappropriate stove designs and simple force of habit. Moreover, even where LPG widely available, many poor households would not be able to afford the required capital investments. The start-up cost of buying a stove and paying a deposit for a fuel cylinder could be a serious barrier for many households. Improving the way biomass is supplied and used for cooking is an important way of reducing its harmful effects. This can be achieved either through transformation of biomass into less polluting forms or through improved stoves and better ventilation. Adding chimneys to stoves is the most effective improvement to be made from the point of view of health. Charcoal and agricultural residue briquettes have a higher energy content than fuel wood and so reduce the amount of fuel needed.

Regulatory reforms can improve the affordability, availability and safety of a range of cooking fuels and technologies. Governments can also support cleaner cooking by developing national databases which include information on the population to be served, potential fuels, stoves, the infrastructure and potential providers, together with cost analyses and estimates of the ability and willingness to pay, as a function of income. Botswana has a large reserve of coal, which can help in producing electricity, through the setting up of coal based power plants in partnership with private sector. Long-term commitments are needed from development partners to scale up energy investments, transfer knowledge and deploy financing instruments, which will leverage private capital.

Botswana has an abundance of solar energy which is environment friendly. The country receives over 3200 hours of sunshine a year, with infrequent completely cloudy days. Thus, Botswana has a tremendous potential for solar energy that must be exploited – particularly in rural communities that are not catered for by the national electric power grid. It is observed that there has been almost no improvement in coverage of solar energy. The Vision 2016 expressed the goal of developing Botswana as a centre of excellence for solar energy technology. This goal needs to be pursued to accelerate the uptake of solar power in households.

The NDP 10 have envisaged a number of Energy Sector policies and strategies, which will have the main effect of making electricity, gas, coal, solar and other conventional energy sources more accessible and affordable to households in Botswana, and thus increase the proportions of households using these energy sources. Furthermore, the successful execution of these policies and strategies will cause a reduction in the percentage of households in Botswana that use wood fuel and other traditional energy sources for lighting, cooking and/or space heating. It will mitigate the unsustainable use of Botswana's woodlands for energy purposes.

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Table 1: Proportion of all Households in Urban and Rural by Principal Energy Source for Lighting

Principal fuel-Lighting	Locality type					
	Urban		Rural		Total	
	2011	2001	2011	2001	2011	2001
Electricity	69.13	36.97	23.87	8.08	53.24	24.84
Petrol	0.12		0.21		0.15	
Diesel	0.04		2.12		0.77	
Solar power	0.17	0.11	1.12	0.4	0.51	0.23
Gas (LPG)	0.33	0.69	0.19	0.35	0.28	0.55
Bio gas	0.02	0.05	0.02	0.05	0.02	0.05
Wood	0.57	0.57	9.09	12.48	3.56	5.57
Paraffin	21.26	49.22	46.21	59.17	30.02	53.4
Candle	8.18	6.98	16.25	10.9	11.01	8.62
Other (NEC)	0.18	5.41	0.92	8.57	0.44	6.74
Households	357542	234757	193374	169949	550916	404706

Table 2: Proportion of All Households in the District by Principal Energy Source Used for Lighting

District	Electricity	Petrol	Diesel	Solar power	Gas (LPG)	Bio gas	Wood	Paraffin	Candle	Other (NEC)	Households
Gaborone	74.15	0.14	0.05	0.12	0.37	0.02	0.05	19.03	5.96	0.11	74963
Francistown	68.74	0.12	0.02	0.14	0.34	0.03	0.13	17.09	13.3	0.09	31298
Lobatse	56.71	0.27	0.05	0.09	0.31	0.01	0.15	33.25	9.06	0.09	9214
Selebi_Pikwe	68.09	0.08	0.01	0.07	0.21	0.01	0.08	23.86	7.49	0.1	16059
Orapa	98.94	0	0	0.21	0.64	0	0.03	0.09	0	0.09	3292
Jwaneng	70.49	0.1	0.02	0.07	0.52	0.02	0.1	21.16	7.37	0.15	5940
Sowa Town	94.29	0.08	0.08	0.08	0	0.08	0.25	3.11	1.76	0.25	1191
Urban Districts	71.73	0.13	0.04	0.12	0.35	0.02	0.08	19.59	7.84	0.1	141957
Southern	37.1	0.17	0.9	0.71	0.22	0.01	4.71	40.73	15.25	0.21	48794
South East	78.13	0.14	0.04	0.12	0.28	0.02	0.41	13.83	6.73	0.3	23993
Kweneng	52	0.2	0.25	0.5	0.34	0.03	5.56	31.2	9.55	0.37	80561
Kgatleng	56.57	0.16	0.16	0.62	0.26	0.03	1.42	32.68	7.67	0.41	24917
Central	42.17	0.13	1.31	0.55	0.23	0.02	5.77	38.72	10.5	0.6	147603
North East	51.59	0.22	0.2	0.69	0.21	0.02	1.47	29.21	16.14	0.26	15865
North West	43.98	0.16	1.49	0.89	0.21	0.02	4.05	28.42	19.5	1.29	42385
Ghanzi	38.8	0.15	5.15	1.91	0.36	0.01	8.62	29.05	14.68	1.27	11375
Kgalagadi	38.57	0.13	2.22	1.22	0.18	0.01	6.17	29.51	21.39	0.6	13498
Rural Districts	46.83	0.16	1.02	0.64	0.25	0.02	4.77	33.64	12.11	0.56	408991
Total	53.24	0.15	0.77	0.51	0.28	0.02	3.56	30.02	11.01	0.44	550948

Table 2(a): Proportion of all Households by type of housing unit and Principal Energy Source for Lighting

Type of housing unit	Principal fuel - Lighting										Total Households
	Electricity	Petrol	Diesel	Solar power	Gas (LPG)	Bio gas	Wood	Paraffin	Candle	Other (NEC)	
Traditional	3.05	0.09	2.34	0.62	0.15	0.02	19.39	53.2	20.01	1.13	72650
Mixed	33.06	0.14	0.79	0.53	0.22	0.01	2.87	48.68	13.23	0.46	55117
Detached	71.27	0.15	0.21	0.48	0.3	0.02	0.47	20.1	6.81	0.21	239214
Semi_detached	83.04	0.14	0.28	0.87	0.33	0.02	0.24	11.32	3.54	0.21	25193
Town House/Terraced	85.34	0.16	0.06	0.36	0.33	0.05	0.2	9.82	3.41	0.26	10515
Flats, Apartment	98.88	0.05	0.01	0.07	0.11	0	0.04	0.44	0.23	0.18	8418
Part of Commercial building	55.81	0.51	1.52	3.41	0.51	0.13	3.03	19.82	14.39	0.88	792
Movable	18.45	0.93	7.6	1.89	0.41	0.05	9.82	31.46	24.06	5.32	3869
Shack	4.41	0.17	7.9	1.09	0.22	0.05	15.71	40.24	28.18	2.03	9203
Rooms	49.73	0.18	0.39	0.35	0.34	0.02	0.71	34.01	14.01	0.29	125945
Total	53.24	0.15	0.77	0.51	0.28	0.02	3.56	30.02	11.01	0.44	550916

Table 3: Proportion of all Households in Urban and Rural by Principal Energy Source for Cooking

Principal fuel-cooking	Residence Type					
	Urban		Rural		Total	
	2011	2001	2011	2001	2011	2001
Electricity	23.56	7.6	7.12	1.08	17.79	4.86
Petrol	0.07		0.06		0.06	
Diesel	0.08		0.1		0.09	
Solar power	0.09	0.28	0.06	0.08	0.08	0.19
Gas (LPG)	50.81	57.65	14	17.01	37.89	40.59
Bio gas	1.17	0.66	0.45	0.44	0.92	0.57
Wood	21.81	22.81	77.03	77.28	41.19	45.68
Paraffin	2.1	10.47	0.85	3.47	1.67	7.53
Cow dung	0.04	0.02	0.14	0.23	0.07	0.11
Coal	0.04	0.12	0.03	0.11	0.04	0.12
Crop waste	0.02	0.1	0.01	0.06	0.02	0.08
Charcoal	0.16	0.02	0.08	0.06	0.13	0.04
Other (NEC)	0.05	0.26	0.06	0.19	0.05	0.23
Households	357542	234 757	193374	169 949	550916	404 706

Table 4: Proportion of All Households in the District by Principal Energy Source Used for Cooking

District	Principal fuel Cooking													Total
	Electricity	Petrol	Diesel	Solar power	Gas (LPG)	Bio gas	Wood	Paraffin	Cow dung	Coal	Crop waste	Charcoal	Other (NEC)	
Gaborone	32.28	0.07	0.11	0.09	61.45	0.76	1.79	3.17	0.02	0.05	0.01	0.18	0.02	74957
Francistown	22.16	0.05	0.06	0.05	59.08	1.49	14.06	2.79	0.04	0.03	0.01	0.14	0.05	31297
Lobatse	16.91	0.05	0.05	0.21	68.12	0.62	7.65	6.13	0.02	0.03	0.02	0.13	0.04	9214
Selebi_Pikwe	27.79	0.03	0.03	0.04	55.02	1.61	14.31	0.89	0.02	0.03	0.02	0.17	0.04	16058
Orapa	18.77	0	0.21	0.03	80.53	0.21	0.06	0.06	0	0.03	0.03	0.03	0.03	3292
Jwaneng	12.79	0.02	0.05	0.24	77.71	0.64	5.45	2.96	0.03	0.03	0.02	0.05	0	5940
Sowa Town	71.96	0.08	0.25	0	22	0.08	5.46	0	0	0.08	0.08	0	0	1191
Urban Districts	27.75	0.05	0.09	0.09	61.43	0.98	6.43	2.91	0.02	0.04	0.02	0.16	0.03	141949
Southern	12.18	0.06	0.07	0.08	26.08	0.8	58.79	1.25	0.51	0.02	0.01	0.13	0.02	48793
South East	25.31	0.14	0.1	0.06	54.62	2.24	15.38	1.69	0.03	0.03	0.02	0.3	0.08	23990
Kweneng	13.89	0.1	0.07	0.11	43.88	1	38.26	2.4	0.03	0.04	0.02	0.14	0.05	80548
Kgatleng	18.55	0.04	0.06	0.09	34.84	0.99	43.68	1.51	0.01	0.04	0.02	0.12	0.04	24915
Central	12.85	0.05	0.08	0.06	21.11	0.64	64.15	0.81	0.03	0.03	0.02	0.1	0.06	147598
North East	15.65	0.04	0.06	0.02	23.11	0.52	59.84	0.53	0.04	0.04	0.03	0.06	0.06	15865
North West	14.7	0.06	0.18	0.06	24.11	1.08	58.82	0.66	0.05	0.06	0.02	0.12	0.07	42385
Ghanzi	14.18	0.04	0.16	0.11	27.53	0.83	56.18	0.68	0.04	0.04	0.04	0.11	0.07	11375
Kgalagadi	11.09	0.02	0.12	0.06	26.05	0.81	60.91	0.63	0.05	0.01	0	0.06	0.19	13498
Rural Districts	14.33	0.07	0.09	0.07	29.72	0.9	53.25	1.23	0.09	0.04	0.02	0.12	0.06	408967
Total	17.79	0.06	0.09	0.08	37.89	0.92	41.19	1.67	0.07	0.04	0.02	0.13	0.05	550916

Table 5: Proportion of all Households in Urban and Rural by Principal Energy Source for Heating

Principal fuel -Heating	Residence Type					Total	
	Urban		Rural				
	2011	2001	2011	2001	2011		
Electricity	22.47	12.54	6.18	2.44	16.75	8.3	
Petrol	0.1		0.07		0.09		
Diesel	0.02		0.04		0.03		
Solar power	0.13	0.15	0.14	0.14	0.14	0.14	
Gas (LPG)	1.37	3.35	0.38	0.98	1.02	2.36	
Bio gas	0.06		0.05		0.06		
Wood	31.21	39.86	78.08	82.67	47.66	57.84	
Paraffin	0.24	1.97	0.3	1.29	0.26	1.69	
Cow dung	0.02	0.06	0.1	0.29	0.05	0.16	
Coal	0.15	0.17	0.11	0.08	0.13	0.13	
Charcoal	0.19	0.16	0.08	0.13	0.15	0.15	
None	43.97	40.7	14.43	11.51	33.6	28.44	
Other(NEC)	0.07	1.03	0.03	0.47	0.06	0.79	
Households	357542	234 757	193375	169 949	550917	404 706	

Table 5a: Proportion of All Households in the District by Principal Energy Source Used for Heating

District	Principal fuel Heating													
	Electricity	Petrol	Diesel	Solar power	Gas (LPG)	Bio gas	Wood	Paraffin	Cow dung	Coal	Char coal	None	Other (NEC)	Total
Gaborone	35.73	0.11	0.02	0.09	2.34	0.08	9.87	0.32	0.01	0.15	0.23	51.04	0.02	74957
Francistown	19.65	0.04	0	0.09	1.19	0.03	21.81	0.17	0.01	0.14	0.18	56.67	0.01	31297
Lobatse	24.71	0.09	0.01	0.03	1.88	0.05	21.92	0.66	0.01	0.13	0.1	50.34	0.07	9214
Selebi_Pikwe	21.58	0.04	0.02	0.06	1.39	0.06	26.38	0.11	0.01	0.12	0.12	50.08	0.02	16058
Orapa	84.14	0.06	0	0.03	1.09	0	0.18	0.03	0	0	0	14.43	0.03	3292
Jwaneng	44.06	0.07	0.02	0.17	1.4	0.03	13.22	0.07	0.02	0.15	0.07	40.74	0	5940
Sowa Town	27.79	0	0	0.08	0.34	0.25	17.88	0	0	0.08	0.17	53.32	0.08	1191
Urban Districts	31.27	0.08	0.01	0.09	1.87	0.06	15.14	0.26	0.01	0.14	0.18	50.86	0.02	141949
Southern	12.4	0.07	0.09	0.21	0.69	0.05	64.99	0.3	0.34	0.14	0.15	20.55	0.03	48793
South East	23.17	0.24	0.03	0.15	1.43	0.09	28.58	0.19	0.03	0.25	0.09	45.73	0.03	23990
Kweneng	14.11	0.12	0.02	0.1	1.23	0.05	47.29	0.32	0.02	0.12	0.15	36.37	0.09	80548
Kgatleng	15.89	0.1	0.04	0.19	0.9	0.08	50.23	0.29	0.04	0.21	0.19	31.8	0.05	24915
Central	8.87	0.06	0.03	0.16	0.4	0.04	67.26	0.23	0.02	0.12	0.13	22.62	0.07	147599
North East	12.4	0.14	0.02	0.14	0.73	0.09	61.57	0.42	0.04	0.05	0.23	24.13	0.01	15865
North West	8.12	0.09	0.03	0.14	0.57	0.07	61.75	0.18	0.02	0.14	0.13	28.66	0.1	42385
Ghanzi	7.48	0.15	0.04	0.2	0.57	0.08	63.75	0.15	0.04	0.14	0.12	27.25	0.03	11375
Kgalagadi	12.05	0.03	0.02	0.19	0.55	0.04	70	0.16	0.01	0.04	0.13	16.66	0.13	13498
Rural Districts	11.71	0.09	0.03	0.15	0.73	0.05	58.95	0.25	0.06	0.13	0.14	27.61	0.07	408968
Total	16.75	0.09	0.03	0.14	1.02	0.06	47.66	0.26	0.05	0.13	0.15	33.6	0.06	550917

Table 6: Percentage Distribution of Households by Principal Source of Energy Source Used for Lighting in 1981, 1991, 2001, 2011

Energy Source	1981			1991			2001			2011		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Number of Households	135966	34966	70262	276209	145106	131103	404706	234757	169949	550918	357542	193376
Percentage of Households	100	20.5	79.5	100	52.5	47.5	100	58	42	100	64.9	35.1
Electricity	5.4	21.7	1.2	10.1	17.5	2	24.8	37	8.1	53.24	69.13	23.87
Petrol										0.15	0.12	0.21
Diesel										0.77	0.04	2.12
Solar	-	-	-	-	-	-	0.2	0.1	0.4	0.51	0.17	1.12
Gas (LPG)	0.6	1.4	0.4	0.8	1.2	0.3	0.5	0.7	0.4	0.28	0.33	0.19
Biogas	-	-	-	-	-	-	0.1	0.1	0.1	0.02	0.02	0.02
Wood	24.5	1.4	30.5	11.4	0.8	23.1	5.6	0.6	12.5	3.56	0.57	9.09
Paraffin	53.8	34.5	58.8	64.5	65.7	63.1	53.4	49.2	59.2	30.02	21.26	46.21
Candle	14.8	40.5	8.1	11.8	14.1	9.3	8.6	7	10.9	11.01	8.18	16.25
Paraffin/Candle	-	-	-	-	-	-	6	5.2	7.1			
Other	0.8	0.5	0.9	1.4	0.7	2.1	0.6	0.1	1.3	0.44	0.18	0.92
Not Stated	-	-	-	-	-	-	0.1	0.1	0.2			

Table 7: Percentage Distribution of Households by Principal Source of Energy Source Used for Cooking in 1981, 1991, 2001 & 2011

Energy Source	1981			1991			2001			2011		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Number of Households	135966	34966	7262	276 209	145 106	131 103	404 706	234 757	169 949	550 945	357 542	193 376
Percentage of Households	100	20.5	79.5	100	52.5	47.5	100	58.01	41.99	100	64.9	35.1
Electricity	1.8	7.7	0.2	2.7	4.8	0.3	4.86	7.6	1.08	17.79	23.56	7.12
Petrol										0.06	0.07	0.06
Diesel										0.09	0.08	0.1
Solar	-	-	-	-	-	-	0.19	0.28	0.08	0.08	0.09	0.06
Gas (LPG)	5.4	18.9	1.9	21.6	35.6	6.3	40.59	57.65	17.01	37.89	50.81	14
Bio-gas	-	-	-	-	-	-	0.57	0.66	0.44	0.92	1.17	0.45
Wood/charcoal	85.8	48.8	95.4	64.3	40.6	90.6	45.72	22.83	77.34	41.19	21.81	77.03
Paraffin	6.4	23.3	2	10.7	18.2	2.5	7.53	10.47	3.47	1.67	2.1	0.85
Cow dung	-	-	-	-	-	-	0.11	0.02	0.23	0.07	0.04	0.14
Coal	0.3	1.1	0.1	0.1	0.1	0.5	0.12	0.12	0.11	0.04	0.04	0.03
Crop Waste	-	-	-	-	-	-	0.08	0.1	0.06	0.02	0.02	0.01
Charcoal										0.13	0.16	0.08
Other	0.2	0.1	0.2	0.5	0.6	-	0.11	0.12	0.09	0.05	0.05	0.06
Not Stated	-	-	-	-	-	-	0.12	0.14	0.1			

Table 8(a): Percentage distribution of Households by household size and by Principal Energy Source Used for Lighting

Household size	Principal fuel - Lighting										Households
	Electricity	Petrol	Diesel	Solar power	Gas (LPG)	Bio gas	Wood	Paraffin	Candle	Other (NEC)	
1	51.4	0.17	1.29	0.8	0.31	0.02	3.84	29.11	12.44	0.62	152938
2	54.96	0.13	0.87	0.5	0.3	0.02	3.44	28.26	11.07	0.45	99443
3	57.57	0.15	0.61	0.48	0.29	0.02	3.01	27.7	9.75	0.40	77152
4	58.06	0.15	0.48	0.38	0.3	0.02	3.07	28.29	8.94	0.32	65047
5	55.6	0.15	0.41	0.35	0.21	0.01	3.26	30.37	9.27	0.37	49717
6	52.1	0.14	0.4	0.28	0.25	0.02	3.62	32.87	10.02	0.30	35096
7	48.61	0.18	0.38	0.24	0.2	0.03	3.67	34.93	11.44	0.31	23381
8	46.06	0.1	0.3	0.24	0.14	0.01	4.09	36.76	11.98	0.32	15604
9	42.93	0.15	0.42	0.2	0.22	0.04	4.4	38.07	13.26	0.31	10842
10	40.77	0.11	0.4	0.24	0.23	0.04	5.02	39.29	13.7	0.21	8242
11-15	40.74	0.22	0.3	0.22	0.21	0.03	5.13	38.05	14.69	0.41	11474
16+	36.75	0.00	0.45	0.15	0.2	0.00	6.75	36.95	18.45	0.30	2000

Table 8(b): Percentage distribution of Households by household size and by Principal Energy Source Used for Cooking

Household size	Principal fuel - Cooking												Other (NEC)	Households
	Electricity	Petrol	Diesel	Solar power	Gas (LPG)	Bio gas	Wood	Paraffin	Cow dung	Coal	Crop waste	Charcoal		
1	18.69	0.07	0.12	0.09	42.08	1.07	34.95	2.57	0.06	0.03	0.02	0.15	0.1	152938
2	18.38	0.07	0.11	0.09	44.65	1.07	32.93	2.38	0.06	0.05	0.02	0.14	0.05	99443
3	19.78	0.05	0.1	0.09	41.91	0.95	35.35	1.5	0.06	0.03	0.02	0.13	0.03	77152
4	19.99	0.07	0.07	0.07	38.8	0.91	38.79	1.02	0.08	0.03	0.02	0.12	0.02	65047
5	18.78	0.07	0.06	0.05	34.19	0.76	45.05	0.74	0.1	0.03	0.01	0.12	0.03	49717
6	16.61	0.05	0.06	0.09	29.73	0.76	51.73	0.67	0.08	0.05	0.02	0.12	0.02	35096
7	13.83	0.05	0.05	0.05	25.91	0.68	58.52	0.65	0.09	0.05	0.02	0.09	0.03	23381
8	11.82	0.05	0.07	0.04	22.35	0.52	64.09	0.74	0.09	0.02	0.03	0.13	0.04	15604
9	10.07	0.03	0.02	0.03	19.07	0.58	69.22	0.68	0.12	0.01	0.00	0.13	0.04	10842
10	8.00	0.05	0.05	0.08	17.47	0.42	73.04	0.52	0.13	0.02	0.01	0.17	0.02	8242
11-15	6.95	0.06	0.06	0.04	14.62	0.29	77.07	0.54	0.17	0.03	0.00	0.15	0.01	11474
16+	4.35	0.2	0.00	0.00	12.7	0.45	81.65	0.25	0.15	0.05	0.00	0.2	0.00	2000

Table 8 (c): Percentage distribution of Households by household size and by Principal Energy Source Used for Heating

Household size	Principal fuel - Heating												Other (NEC)	Households
	Electricity	Petrol	Diesel	Solar power	Gas (LPG)	Bio gas	Wood	Paraffin	Cow dung	Coal	Charcoal	None		
1	16.67	0.09	0.04	0.13	1.09	0.07	40.25	0.29	0.03	0.12	0.12	41.05	0.06	152938
2	17.37	0.11	0.03	0.14	1.2	0.06	39.64	0.3	0.05	0.14	0.14	40.76	0.05	99443
3	19.74	0.12	0.02	0.15	1.19	0.06	42.7	0.24	0.04	0.13	0.15	35.41	0.06	77152
4	20.6	0.08	0.03	0.15	1.08	0.06	46.66	0.22	0.06	0.13	0.18	30.69	0.06	65047
5	18.86	0.07	0.02	0.13	0.96	0.05	52.86	0.21	0.07	0.12	0.2	26.37	0.07	49717
6	15.67	0.09	0.03	0.14	0.83	0.04	58.96	0.28	0.06	0.16	0.19	23.52	0.03	35096
7	11.8	0.09	0.02	0.12	0.61	0.03	65.05	0.24	0.06	0.13	0.19	21.61	0.04	23381
8	9.15	0.08	0.02	0.11	0.62	0.03	70.48	0.17	0.06	0.21	0.22	18.83	0.02	15604
9	7.00	0.06	0.02	0.11	0.46	0.04	74.51	0.23	0.06	0.18	0.12	17.19	0.04	10842
10	6.07	0.1	0.04	0.11	0.46	0.04	77.04	0.21	0.06	0.12	0.18	15.55	0.02	8242
11-15	4.42	0.09	0.03	0.14	0.4	0.01	79.04	0.23	0.07	0.18	0.17	15.23	0.01	11474
16+	3.15	0.05	0.00	0.00	0.2	0.00	81.65	0.1	0.15	0.4	0.15	14	0.15	2000

Table 9 (a): Percentage distribution of Households by housing tenure and by Principal Energy Source Used for Lighting

Tenure of housing unit	Principal fuel - Lighting												Other (NEC)	Households
	Electricity	Petrol	Diesel	Solar power	Gas (LPG)	Bio gas	Wood	Paraffin	Candle	Charcoal	None	Charcoal		
Self- built	39.04	0.15	0.77	0.42	0.22	0.02	5.75	40.51	12.63	0.48	290545			
Rent individual	67.77	0.13	0.05	0.19	0.38	0.03	0.21	21.4	9.68	0.17	139409			
Job related-free	61.96	0.3	3.65	1.26	0.3	0.02	4.28	15.96	11.26	1.04	46334			
Rent Central Government	90.72	0.03	0.46	1.68	0.28	0.01	0.12	4.75	1.76	0.17	21802			
Free: Inheritance	34.75	0.17	0.35	0.41	0.25	0.01	1.7	41.15	20.75	0.46	11482			
Purchased	87.86	0.13	0.38	0.25	0.34	0.02	0.87	6.64	2.76	0.74	8503			
Rent: Company	96.4	0.05	0.03	0.1	0.37	0.02	0.14	1.68	1.07	0.15	10946			
Rent: BHC	93.43	0.08	0	0.03	0.28	0	0.02	4.93	1.14	0.1	6165			
Rent: Local institution	88.66	0.08	0.04	2.59	0.38	0.01	0.12	5.41	2.5	0.21	7602			
Rent: VDC	38.84	0.22	0.17	1.2	0.53	0.03	0.59	42.67	15.27	0.48	3576			
Donated	13.5	0.54	0.37	0.4	0.1	0	6.71	42.85	33.81	1.72	2964			
Do not know	38.94	0.76	1.95	1.07	0.88	0	6.11	28.29	19.97	2.02	1587			
Total	53.24	0.15	0.77	0.51	0.28	0.02	3.56	30.02	11.01	0.44	550915			



Gofaone Kgosidintsi, University of Botswana presenting
on Determinants of Child Labour in Botswana

Determinants of Child Labour in Botswana

by

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Abstract: Using the 2011 Botswana Population and Housing Census, this paper investigates the levels and patterns of child labour and child work in Botswana. Child labour undermines human capital development and future earnings; reinforces the vicious cycle of poverty, and runs counter to Botswana Vision 2016 of being "An educated and informed nation" (Okurut & Yinusa, 2009).

The results show that only 2.1 percent of children aged 12 to 17 were involved in some kind of employment. However, the percentage of children involved in child labour is highest among children heading households/ children who were spouses of head of household, children who were not related to head of households, children who ever been in unions, children who were affiliated to other non-Christian religions and orphaned children.

The logistic regression model shows that males were more likely to participate in child labour compared to females and also shows that the probability of taking part in child labour increases with increasing age. Orphanhood was also seen to be associated with child labour. Children who had lost one parent were more likely to be involved in child labour however the odds were highest for children who had lost mother and were slightly lower for children who had lost their father. However, the odds were highest for children who had lost both parents. Children with primary education were more likely to take part in child labour compared to children who had secondary education. Children who were married were more likely to participate in child labour compared to children who were never married, cohabiting, and those whose marriages were dissolved.

The study further shows that children residing in urban villages and rural villages were more likely to participate in child labour. It was also evident that children who headed households or spouses of heads of households were more likely to be involved in child labour.

Introduction and Background

This paper investigates the levels and patterns of child labour and child work in Botswana. Determining the level and patterns of child labour is important because Child labour is harmful to the child, is economically exploitative, hazardous, interferes with the child's education, or harmful to the child's health or physical, mental, spiritual, moral or social development (Government of Botswana, 2006). In addition, child labour undermines human capital development and future earnings; reinforces the vicious cycle of poverty, and runs counter to Botswana Vision 2016 of being "An educated and informed nation" (Okurut & Yinusa, 2009).

Child Labour in Botswana

Recent evidence show that about 72.4 percent of school going children (7-17 years) were engaged in schooling only, 21.2 percent were involved in labour market activities as well as schooling, 2.6 percent were involved in working only, while 4 percent were not working and not schooling (Okurut & Yinusa, 2009). Furthermore, analysis of the Botswana AIDS Impact survey II and III indicate that there has been a decline in economically active children aged 12-17 from 3.2 percent in 2004 to 1.8 in 2008. Although incidences of child labour seem to be declining, there is still a great deal of urban-rural disparities. Hazardous work done by children in Botswana include collecting water and wood over long distances, livestock guarding, working in shebeens, working on the streets and working in agriculture (Government of Botswana, 2006).

In many countries, as is the case in Botswana, national laws and policies exist to protect the rights of children. However, the enforcement, implementation and monitoring of these various instruments remains a major constraint (University of Botswana & UNICEF, 2012)

Orphan hood and child labour

According to a 2005 Child Indicators Survey, children of school going ages who were not attending school, heading households or orphaned are most vulnerable to child labour (ILO & Government of Botswana, 2006). An orphan crisis has intensely developed in Africa largely due to the HIV/AIDS epidemic. Recent Demographic and Health Surveys (DHS) indicate that in Uganda, Malawi, Mozambique, Zambia, and Zimbabwe, nearly 15

percent of all children under the age of 15 had lost one or both parents and more than 20 percent of 15 year old children in these countries are orphans (Guarcello, Lyon, Rosati, & Valdivia, 2004).

The largest increases in orphanhood will be evidenced in countries with the highest HIV prevalence rates like Botswana, Lesotho and Swaziland. In countries with mature epidemics, like Uganda, HIV prevalence may have declined or stabilized in part due to high mortality rate, consequently, the percentage of children orphaned may be high even though HIV prevalence has declined (Guarcello, Lyon, Rosati, & Valdivia, 2004). As the HIV epidemic matures in Botswana, like in Uganda, there will be an increase in the percent of children who are orphaned. With increased number of orphans will come new challenges to the government of Botswana to try to expand its safety net to these potentially vulnerable children.

In fact, the number of orphans in Botswana has increased tremendously in recent years due to the high and increasing HIV and AIDS casualties, from 21,109 in 1999 to 42,000 in 2003, (Ministry of Local Government, 2004). It is estimated that about 15 percent of children aged 12-17 years old in Botswana have been said to be orphaned and that 6 percent of the orphaned children are economically active (ILO & Government of Botswana, 2006).

Botswana is currently implementing a number of programs aimed at mitigating the impact of orphan hood on children who have lost one or both parents. One such program is the Orphan Care program. First implemented in 1999, this program aims to alleviate some of the challenges that the orphaned are facing by providing food baskets, psychological counseling and to facilitating the waiving of school fees for orphans children.

Methodology

Data

The study uses data from the 2011 Botswana Population and Housing Census. The 2011 Botswana Population and Housing Census is the fifth in a series of post-independence national population and housing censuses conducted in Botswana since 1971.

The dependent variable in the study is child's labour or child participation in formal employment. It is measures using responses to a question on whether the child did any type of work for pay, profit or home use for at least 1 hour in the 7 days preceding the census.

A number of independent covariates were investigated, including sex of respondent, age, school enrolment, education level, marital status, religion; relationship to head of household and orphanhood. Orphanhood was measured as a composite index comprising responses to two questions on the survival status of the child's biological father or mother, and shows whether the child is a maternal or paternal orphan; double orphan or not being an orphan. Frequencies were used to find out emerging trends in child labour and cross tabulations were also used to identify determinants of child labour.

The response variable in this study is dichotomous therefore it is appropriate for logistic regression to be used in this study. The logistic regression formula computes the probability of a selected response as a function of values of the predictor variables.

$$P = 1 / (1 + e^{-(B_0 + B_1 * X_1 + B_2 * X_2 + \dots + B_k * X_k)})$$

Taking log transformation of the function yields:

$$\log\left(\frac{P}{1-P}\right) = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_k X_k$$

Adapted from (Clarke & Cooke, 1998)

Where p is the probability of the event (participation in work for pay, profit, or home use for at least one hour in the past seven days) happening.

(1-p) is the probability of the event not happening

$X_1, X_2, X_3, \dots, X_k$ are the independent variables

$\beta_0, \beta_1, \beta_2, \beta_3, \dots, \beta_k$ are regression coefficients to be estimated from the data.

Below is an outline of Logistic regression models that are used in this study as per specific objectives. IBM SPSS (version 19) was used to run all the analysis in this study.

Findings

Table 1 Distribution of Background Characteristics

	Numbers	Percent
Sex of Respondent		
Male	124640	50.1
Female	123933	49.9
Age of Respondent		
12	39890	16
13	40363	16.2
14	39800	16
15	42915	17.3
16	43149	17.4
17	42456	17.1
Highest level of Education		
Primary	100086	40.8
Secondary	145298	89.2
Respondents' Religious Affiliation		
Christian	200945	81.1
Other None-Christian	8064	3.3
No Religion	38677	15.6
Marital Status		
Married	1696	0.7
Never Married	242498	97.6
Living Together	3793	1.5
Marriage dissolved	367	0.1
Place of Residence		
Cities and towns	123651	49.7
Urban Villages	99827	40.2
Rural	25097	10.1
Relationship to head of household		
Head/Spouse	6028	2.8
Child/Grand Child	158970	75.7
Brother/Sister	15480	7.1
Other Relatives	33361	15.3
Not Related	4116	1.9
Do any type of work in the past 7 days		
No	243221	97.9
Yes	5151	2.1
Orphan hood		
Both parents alive	167786	70.8
Father only alive	13744	5.8
Mother only alive	41206	17.4
None alive	14411	6.1

Table 1 above shows the distribution of the sampled population by background characteristics. The table indicates that: half were males (50.1%); two fifths (40.8%) had primary education; four fifths were Christians (81.1%); almost all have never been married (97.6%). The table further shows that half resided in cities and towns (49.7%) while 40.2 percent resided in urban villages and only 10.1 percent resided in rural villages. Two point eight (2.8) percent were reported to either be the head or spouse of the head of household. Just under a tenth (6.1%) was reported to have no parents alive while under one fifth (17.4%) had lost their fathers and 5.8 percent had lost only their mothers. Only 2.1 percent did some kind of work for pay, profit, or home use for at least one hour in the past 7 days preceding the census.

Figure 1: What did the individual do if they were not working?

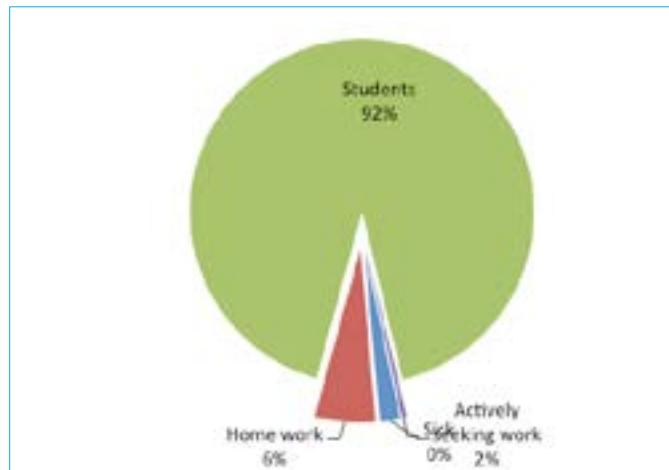


Figure 1 above indicates various activities that one was doing if they were not working. Majority of individuals were students (92%) while 6 percent were engaged in home work, 0.5 percent were reported to be sick and 2 percent were actively seeking employment

Figure 2: What has the individual doing in the past 7 days?

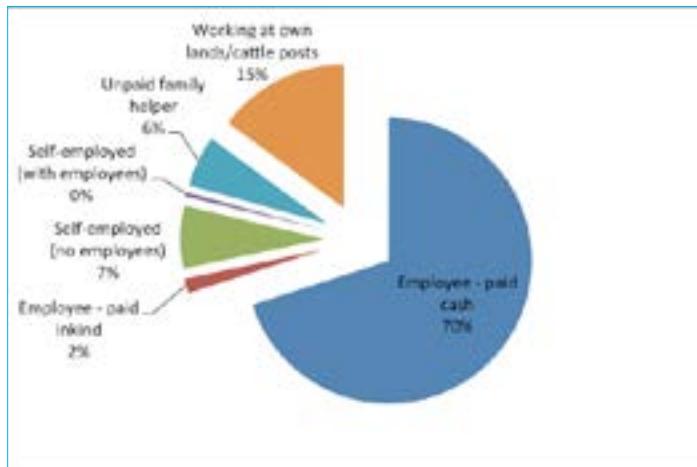


Figure 2 above indicate types of work children were engaged in. Under 3 quarters (70%) were paid in cash while 2 percent were paid in kind, 15 percent were working at own lands/cattle posts, 6 percent were unpaid family helpers, 7 percent were self-employed with no employees and 0.5 percent were self-employed with employees.

Table 2: Do any type of work by Background Characteristics

Do any type of work in the past 7 days		
	Yes	No
Sex of Respondent		
Male	2.9	97.1
Female	1.2	97.9
Age of Respondent		
12	0.6	99.4
13	0.9	99.1
14	1.1	98.9
15	1.8	98.2
16	2.7	97.3
17	5.1	94.9
Highest level of Education		
Primary	2.1	97.9
Secondary	1.6	98.4
Respondents' Religious Affiliation		
Christian	1.6	98.4
Other Non-Christian	5.9	94.1
No Religion	3.6	96.4
Marital Status		
Married	10.8	89.2
Never Married	1.8	98.2
Living Together	12	88
Marriage dissolved	10.9	89.1
Place of Residence		
Cities and towns	1.1	98.9
Urban Villages	1.4	98.6
Rural	9.6	90.4
Relationship to head of household		
Head/Spouse	23.3	76.7
Child/Grand Child	1.1	98.9
Brother/Sister	2.7	97.3
Other Relatives	2.3	97.3
Not Related	16.9	97.7
Orphan hood		
Both parents alive	1.8	98.2
Father only alive	2.9	97.1
Mother only alive	2.6	97.4
None alive	3.5	96.5
Total	2.1	97.9

Table 2 above indicates involvement in economic activity cross tabulated by background characteristics. The table indicates that 2.1 percent of children aged 12 to 17 years did some kind of work in the past 7 days prior to the census; for pay, profit, or home use for at least 1 hour. The table shows that a higher percentage of males were involved in work (2.9%) compared to females (1.2%). The percent of children aged 12 to 17 years involved in some kind of work increase gradually from 0.6 percent for children aged 12 years to 5.1 percent for children aged 17 years. A slightly higher proportion of children with primary education were involved in work compared to 1.6 percent of children with secondary education. A higher percent of other non-Christian religions (5.9%) were engaged in work compared to 3.6 percent who subscribed to no religion and 1.6 percent of Christians. A much smaller percent of children who have never been married (1.8%) were involved in some kind of work compared to over a tenth of children who are married (10.8%), Living together (12.0%), and those whose marriage have been dissolved (10.9%).

A greater percent of children who resided in rural villages (9.6%) were reported to have done some kind of work for pay, profit or home compared to over 1 percent of children residing in cities and town (1.1%) and urban villages (1.4%). About one fifth of children who were reported to be head of household or spouse of head of household (23.3%) and children who are not related to the household head (16.9%) were reported to be involved in some kind of work compared to less than 3 percent of children/grandchildren of head of household head (1.1%), brother/sister to the household head (2.7%) and children who were related to the head of household in some other way (2.3%). The table shows that a higher percent of children who had lost both their parents (3.5%) were involved in work followed by children who had lost one parent (2.9% paternal orphan and 2.6% maternal orphan) and who had both parents (1.8%).

Table 3: Logistic Regression

	Gross Effects Net Model			
	Exp (B)	Significance	Exp (B)	Significance
Orphan hood				
Both parents alive	1.000	-	1	-
Father only alive	1.623	0.00	1.104	0.143
Mother only alive	1.452	0.00	1.308	0.000
None alive	1.999	0.00	1.231	0.001
Sex of Respondent				
Male	1.000	-	1.000	-
Female	0.414	0.00	0.516	0.000
Age of Respondent				
12	1.000	-	1.000	-
13	1.461	0.00	1.497	0.000
14	1.747	0.00	2.286	-
15	2.914	0.00	4.512	0.000
16	4.57	0.00	7.864	-
17	8.748	0.00	17.502	0.000
Highest level of Education				
Primary	1.000	-	1.000	-
Secondary	0.737	0.00	0.34	0.000
Respondents' Religious Affiliation				
Christian	1.000	-	1.000	-
Other Non-Christian	3.768	0.00	1.76	0.000
No Religion	2.249	0.00	1.4	0.000
Marital Status				
Married	1.000	-	1.000	-
Never Married	0.155	0.00	0.229	0.000
Living Together	1.128	0.195	0.483	0.000
Marriage dissolved	1.011	0.951	0.73	0.000
Place of Residence				
Cities and towns	1.000	-	1.000	-
Urban Villages	1.182	0.00	1.367	1.000
Rural	9.121	0.00	4.881	1.000
Relationship to head of household				
Head/Spouse	1.492	0.00	1.562	0.000
Child/Grand Child	0.057	0.00	0.115	0.000
Brother/Sister	0.139	0.00	0.235	0.000
Other Relatives	0.115	0.00	0.199	0.000
Not Related	1.000	-	1.000	-

Table 3 above shows the Binary Logistic Regression results for both the gross effects model and the net effects model. The net effects model shows that people with mother only alive and no parents alive were 23 and 31 percent more likely to have been involved in child labour compared to individuals with both parents, respectively. The net effects model also shows that the odds of being involved in child labour increases with age from 1.497 for children aged 12 to 17.502 to children aged 17 years compared to children aged 12 years old. The table further shows that female were almost twice less likely to participate in child labour compared to males (1/0.516). Children who have Secondary education were almost 3 times less likely to participate in some form of employment compared to children with Primary education (1/0.340).

Children who were affiliated to no religion and children affiliated with other non-Christian religions were 40 and 76 percent more likely to be involved in child labour compared to children affiliated with Christianity. Being married was associated with child labour. For example, children who have never been married, cohabiting, and whose marriages have been dissolved were 4 times, 2 times, 1.4 times less likely to have been involved in child labour, compared to children who were married, respectively. Children who resided in rural villages were almost 5 times while children who resided in urban villages were 1.4 times more likely to participate in child labour compared to children residing in cities and towns. Children who were heads or spouses of head of household were 60 percent more likely to take part in child labour while children or grandchildren, brother/sister to head of house or related to the head in other ways were 8 times, 4 times, and 5 times less likely to have taken part in child labour, respectively.

Discussion & Recommendations

Child labour is harmful to the child, is economically exploitative, hazardous, interferes with the child's education, or harmful to the child's health or physical, mental, spiritual, moral or social development (Government of Botswana, 2006). In Botswana, unlike in many parts of the developing world, child labour is not rife. (Government of Botswana, 2006), however, children in the rural areas, those who have dropped out of school, have been said to be vulnerable to child labour.

The results show that only 2.1 percent of children aged 12 to 17 were involved in some kind of work. However, these proportions were highest in: males; older age groups; children with primary education; children who were affiliated with other non-Christian religions; children who ever been in union; children who reside in rural villages; children who were heads or spouses of household heads; and children whose parents had died.

It is therefore important to keep tabs on certain population groups in order to protect them from child labour and its effects. These groups include; children heading households/children who were spouses of head of household, children who were not related to head of households, children who ever been in unions, children residing in rural areas, children who were affiliated to other non-Christian religions and orphaned children.

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Prof Brothers Wilright Malema University of Botswana giving a presentation on
Unemployment & The Attributes Of The Unemployed

UNEMPLOYMENT AND THE ATTRIBUTES OF THE UNEMPLOYED

By

Prof Brothers Wilright Malema

University of Botswana

Introduction

From being one of the poorest economies in the world to one of the richest in a predominantly poverty stricken Sub Saharan Africa, Botswana has defied odds to become an upper middle economy within forty years of independence. This was driven largely by the mining sector in particular diamonds in which the country has been second to the Russian Federation in terms of diamond production (Hope, Sr K. R. 1996, 53). This phenomenal performance if at all it is needs to be construed within the proper developmental economic context. It is within this developmental context that we will be able to place Botswana's economic record into relevant economic perspective.

Botswana had been one of the poorest economies in the world at independence in 1966 and agriculture which was largely subsistence, accounted for 40 percent of Gross Domestic Product (GDP). The share of the sector dropped substantially and has been oscillating between 1.8 and 2.9 percentage points of GDP respectively in the decade ending in 2012. The drop in the share of Agriculture to total GDP could be construed in two fronts. Firstly it could be a result of the sector's failure to cope with the growth rate of the economy in particular, the mining sector whose revenue generation in particular diamonds was significantly higher than that for agricultural products. This is even more profound in view of the non-commercialisation of agriculture. The other reason which might in part explain this development is the failure by government to transform the agricultural sector through effective and efficient policy interventions.

It is important to differentiate between livestock farming and arable farming in our pursuit to better understand the dynamics surrounding the agricultural sector. Livestock farming, particularly cattle farming has been a major foreign income earner for the country coming second after minerals for most part of post-independence Botswana. However, this agricultural sub-sector just like mining is not labour intensive and could not be a significant source of employment creation. Notwithstanding its marginal employment generation capacity, the sector could have helped in employment creation if most of the by-products associated with beef production were utilized to the optimum. However, the country's emphasis seems to have been on beef production with little or no attention on by-products such as leather and others. This sub-sector has been well nurtured by government over the years and has done generally well.

The arable sub-sector has not contributed significantly to our economy as has the livestock sub-sector. A number of factors are most likely to be instrumental to such a scenario. Whereas the government has come up with programmes to propel the sub-sector forward over years, the expected yields seem to have been frequently futile. A number of initiatives have been implemented by the government such as ALDEP, ARAP and lately the ISPAAD programme which is more of a marginal improvement of the now defunct and substandard ARAP initiative.

The major undoing for most of these programmes was their failure to address the problems besetting agriculture, which has predominantly been the drought. Lack of adequate water is more profound for the arable sub-sector than the Livestock sub-sector. The programmes in particular ARAP and ISPAAD used substantial amounts of money with the latter being more significantly expensive. However, it is economically not rational to invest so heavily in an environment in which the probability of success hovers around zero. The fact that Botswana is a drought prone country calls for the identification of water sources for an improved likelihood of increased yields in arable farming through the use of irrigation. The provision of underground water though also expensive will in all likelihoods enhance the potential for increased yields for the arable sub-sector.

Irrigation will increase the success rate of government initiatives aimed at enhancing the agricultural production in particular the arable sub-sector. The country is so well endowed with massive rivers which flow every year and could be dammed as has recently been done with most of them. The water from the dam could then be used for irrigation purposes so as to ensure improved success rates of the arable agricultural sub sector.

The failure to transform the rural traditional subsistence agriculture to a modern commercialised agricultural sector defies the Arthur Lewis structural transformation model of economic development. This model was very influential in the 1960s and was in part a historical account of what the Most Developed Countries experienced in their industrialisation transition. Such a transition had an inherently inbuilt mechanism of employment creation (Todaro & Smith, 2009). A failure on our part to harness the rural economy as we were carried over by the

capital intensive mining industry explains the current social ills that the country is facing. We experienced economic growth rates which were far above the economy's labour absorptive capacity. This resulted in unemployment and the concurrent problems of inequality and poverty. While a notable degree of poverty reduction has been noted recently, such a rate at 19.3 currently is quite high for a country which for most part of the post-independence era basked in the glory of phenomenal economic growth. While we were able to register enviable economic growth rates, the basis upon which this outstanding growth was based needs proper understanding. It was a product primarily of the mining sector and the fact that we started off with a marginal GDP as the denominator, meant that any marginal increases to our national income were bound to translate into significant rates.

This impressive growth rates did not translate at least at the same rate to the betterment of national welfare as reflected by the high levels of poverty, inequality and unemployment which has the potential to destabilize the political economy (Hope, Sr K. R. 1996, 53). Since the paper is on unemployment, even though the other two economic evils are equally important and related to unemployment, it is the latter which is of great interest at the moment. We therefore shift our focus solely on unemployment and occasionally make reference to inequality and poverty.

Unemployment

Unemployment is a serious problem whose rates have been fluctuating from a low of 10.2 percent in 1981 to a high of 25.3 percent in 1984. The rates have been fluctuating since then and by 1994 unemployment was 21 percent as attested to by Table 1 below. These are national rates which are not segregated into any particular attributes like sex, area or any other considerations.

Table 1: Unemployment Rates

Year	Unemployment Rate (%)
1981	10.2
1984	25.3
1985	19.9
1986	16
1987	12.7
1991	13.9
1993	19.5*
1994	21.0*
2007	23.8
2008	17.5
2010	17.5
2011	17.8

Source: Hope, Sr K. R.
1996, 58

Note: *Projections

Botswana men have generally enjoyed high levels of education than their female counterparts and this has culminated in relatively lower unemployment rates for males (Hope, Sr K. R. 1996, 60). However, the author goes on to argue that even in cases where females were better educated than males, there seemed to be indications that they encountered barriers to labour force entry. Females were less represented in the formal sector and over represented in the informal sector at 36 and 75 percentage points respectively according to Jefferis (1993: cf Hope, Sr K. R. 1996, 60).

There has been a notable migration from the rural subsistence agriculture, a factor that has significantly brought down the sector's employment contribution to the labour force from 33 percent in 1984 to 15 percent in 1991 (Hope, Sr 1996, 60). This share dropped to a further 10 percent of the labour force by 1996 (Jefferis & Kelly 2007, 215). The author notes that it is believed in some quarters that if this migration had not taken place, national unemployment would have been zero and it would have not reached the double rates for which it is currently known for. We are of the view that the basis of this belief defies all manner of economic understanding and is not in consonance with the dynamics underlying the historical economic development process. He concludes by pointing out that rapid economic growth would not guarantee sufficient job creation. The decline in the agricultural sector has had adverse consequences both in terms of income generation and employment generation (Jefferis & Kelly 2007, 215 & Curry, Jr, 1987, 85).

The problem of unemployment has been identified as the primary determinant of poverty in Botswana even though there are some other factors which are instrumental in the high poverty levels experienced in the country albeit within a declining poverty trend (Jefferis & Kelly 2007, 221). The authors attribute the unemployment problem to among other things, the decline in the agricultural sector and the economy's inability to generate adequate employment opportunities both within the formal and informal sectors. It has also been noted that there is a positive correlation between land and cattle ownership and the poor often seek to sustain themselves by seeking wage employment from large farm operators and by migrating to urban areas in search of employment in Mines both in Botswana and South Africa (Curry, Jr, 1987, 74). The author points out that in spite of Botswana's achievements, the job seekers remain unemployed, thereby leading to poverty and waste. The failure by our economy to generate employment opportunities both within the public and private sectors has been recently reiterated by the President (Malema 2013)

Analysis

In analysing the unemployment phenomenon, we looked at the overall labour force and tried to have an elaborate understanding of it. We then moved on to zero into the unemployment observed within our labour force and how such could be analysed across varies socio-economic attributes. This we considered instrumental in getting to understand the nature of unemployment and its attributes with the hope that such might help in informing the enactment of relevant, effective and efficient policy interventions. The analysis of the data has been entirely based on tabulations.

School Attendance

Education plays a central role in one's probability to secure employment. It is therefore important that we analyse the nation's performance in this regard. Table 1 below seeks to determine the country's level of participation in school attendance. We have a total of 1 336 413 people whose school attendance is given. We note that 50.91 percent have left school whereas 30.53 percent are still attending. This gives a total of 82.44 percent of the respondents who have ever attended school. However, 18.26 percent of the respondents have never been to school whereas the educational status of 0.30 percent of the respondents is unknown. It is unfortunate that the variable that sought the highest educational level had at the time of writing this paper been unavailable for use.

Table 2: School Attendance

School Attendance	Frequency	Percent
Still at School	587,291	30.53
Left School	977 398	50.91
Never	351 239	18.26
Not Stated	5 776	0.3
Total	1, 336,413	100

Labour Force Definition

The issue of labour force could be contentious in terms of its definition. Whereas internationally the practice has been to have 16 years as the minimum age, we have oscillated between the ages 12, 15 and 18 years as our minimum age. It is comprehensible that the age 12 has been used as a way of trying to determine the existence and subsequent levels or rates of child labour. The 15 years have been in line with the universal practice and accords an opportunity for global comparisons. The choice of age 18 is in all likelihoods an infringement on the ability to execute international comparisons of unemployment rates between countries. The rational for its use is economically inadequate because it seeks to address what is already embedded within the definition of labour force. Its use could therefore be construed to have the connotation that one is not allowed to work if he/she is below the age of 18. Be that as it may, we have tried to look at labour force in terms of the minimum age of both 15 and 18 years with the former more often used so as to be consistent with international standards.

Labour Force by Education

We used 15 years and 18 years as minimum ages and we arrived at table 3 and table 4 respectively. This definition excluded only the students from the used age ranges. On the basis of these tables we observe that the labour force is greater when 15 years is used relative to the 18 years minimum by 23 342 workers. This is due to the fact that the 15 year minimum gives a wider age range than the 18 years minimum.

As per table 3, 87.83 percent of the labour force has left school which is relatively smaller than the 88 percent recorded for the labour force whose minimum age is 18. This marginal difference could be attributable to those aged between 14 and 18 years as the majority of them is most likely to be of school going age. Those who never attended school were higher for the 15 year minimum labour force at 11.81 percent than the 11.64 percent recorded for the 18 years minimum age group. This serves to indicate that there are children in the ages 15 - 18 have never attended school, which should be quite worrisome. Even though the differences in school attendance might be a bit marginal, the rates of unemployment may differ considerably given that the problem of youth unemployment in the country is quite a challenge.

Table 3: Labour Force Participation by School Attendance (15-64 years)

Labour Force	Frequency	Percent
Left School	929,850	87.83
Never	125,069	11.81
Not Stated	3,783	0.36
Total	1,058,702	100

Table 4: Labour Force Participation by School Attendance (18-64 years)

Labour Force	Frequency	Percent
Left School	911,166	88
Never	120,534	11.64
Not Stated	3,660	0.35
Total	1,035,360	100

Areas of Educational Expertise

This has been one of most challenging areas when it comes to the analysis of fields of study. This emanates from the 170 classification of educational areas of expertise that have been recorded in the study. To try to simplify the analysis it was resolved to look at the areas in which most of the training has been undertaken. To do that we looked at the programs or areas of education, which accounted for at least one percent of the total graduates. Using the criterion we arrived at 30 areas of expertise which were the most popular amongst the 170 that have been recorded. These are given by table 5 below.

The most popular area of expertise is Accounting and Auditing which has been done by 8.59 percent of total respondents. Of all those who did this program 62.76 percent of them have worked for at least an hour in the seven days prior to the interview. The next popular expertise area is Primary teachers training at 5.52 percent. This area has a high rate of those who worked for at least an hour at 81 percent. The least popular of the 30 areas was Electrician programs which were done by 0.98 percent of respondents of which 65.52 percent of them have worked. The police works programs were marginally more popular than the defence force programs at 2.41 percent and 2.21 percent respectively. However, in terms of the employment absorption capacity, the defence force programs were marginally ahead of the police force programs at 99.34 percent and 98.05 percent respectively. These are just a few of the programs for which the employment levels have been considerably high. It could also be that in the case of these two programs, the trainees could be trained whilst under the employ of both the military and the police services. The rest of the programs could also be interpreted in like manner, where the fourth column reflects the popularity of the program whereas the last column captures the percentage of those who have worked. However, that the people worked in their areas of expertise is assumed and this may give an incorrect indication of the employment potential of the programs.

Table 5: Field of Education for Tertiary Graduates and work done for at least an hour

Education	Worked	Total	% of total	% working
Accountancy/Auditing	13274	21151	8.59	62.76
Primary Teachers Training	11092	13589	5.52	81.62
Business/Commercial	6088	10481	4.25	58.09
Computer Science Pro	5144	10420	4.23	49.37
Secondary Teachers T	8295	10179	4.13	81.49
Typing/Shorthand/Sec	6314	9933	4.03	63.57
Radio/Electronics/Co	2979	6661	2.7	44.72
Masonry and Bricklaying	3796	6272	2.55	60.52
Basic Nursing Programme	4617	6219	2.52	74.24
Other Humanities Courses	3628	6028	2.45	60.19
Police Work Programs	5826	5942	2.41	98.05
Defence Force Programs	5412	5448	2.21	99.34
Labour Studies, Including Personnel Ad	3126	4984	2.02	62.72
Motor Mechanics	3263	4878	1.98	66.89
Carpentry/ Joinery Programs	2644	4633	1.88	57.07
Management, General	2777	4455	1.81	62.33
Marketing/Sales Courses	2534	4166	1.69	60.83
Electrical Engineering	2489	3510	1.42	70.91
Mechanical Engineering	2531	3387	1.38	74.73
Tailoring/ Textile Trades	1673	3317	1.35	50.44
Tourist Trade Programs	1369	3286	1.33	41.66
Other Natural Sciences	1623	3222	1.31	50.37
Social welfare/ Social Work Programs	1857	3126	1.27	59.4
Public Administration	2072	3068	1.25	67.54
Advanced Nursing including Midwives	2302	2980	1.21	77.25
Other (Professional)	1904	2 915	1.18	65.32
Civil Engineering	2266	2 906	1.18	77.98
Business machine operation	1658	2 854	1.16	58.09
Other Teacher/Training	1795	2 738	1.11	65.56
Electrician Programs	1582	2 411	0.98	65.62
Not Stated	3121	6347	2.58	49.17
Others		64807	26.31	
Total		246322	100	

Activities done by the population since Independence

There is an indication that of the 1 484 943 respondents, more than half a million were engaged in non-seasonal paid activities. They accounted for 33.96 percent of all the respondents followed by students at 21.67 percent. The seasonal paid respondents amounted to 6.19 percent, thus making total paid employees account for 40.15 percent of total respondents. Job seekers amounted to 11.15 percent of all respondents. This does not reflect the unemployment rate since it is denominated by all the respondents of which some were outside the labour force. Once all this is adjusted for the unemployment rate could then be calculated which will be in excess of 11.15 percent.

Table 6: Type of Activities done since independence by the Population

Activities by Population	Freq.	Percent
Non_seasonal _ Paid	504,284	33.96
Student	321,716	21.67
Home maker	241,857	16.29
Job seeker	165,589	11.15
Seasonal _ Paid	91,978	6.19
Seasonal _ Unpaid	46,113	3.11
Non_seasonal _ Unpaid	45,991	3.1
Sick	37,208	2.51
Retired	22,045	1.48
Not stated	4,104	0.28
Prisoners	3,927	0.26
Other (NEC)	131	0.01
Total	1,484,943	100

Labour Force (18years +) participation since Independence by type of work

Of 605 765 members of the labour force, 90.52 percent of them have at some point been to school with only 9.44 percent having never gone to school. The employees who were paid in cash were 82.43 percent of the population. On the basis of these alone, one could estimate the unemployment rate at 17.57 percent. However, we do have some other categories, which though not being a part of the employed were engaged in some activities which appears quite challenging to classify as unemployed or employed. Those who were self-employed with no employees and the ones who were working in their cattle posts or lands were 7.86 percent and 5.25 percent of the labour force respectively.

Table 7: Labour Force (18 years +) participation since Independence by type of work

Working as during the past 7 days	Labour Force (18 years +)				Total
	Left School	Never attended	Not Stated		
Employee_Cash	460,885 (76.08)	38,264 (6.32)	194 (0.03)	499,343 (82.43)	
Employee_Inkind	2,346 (0.39)	732 (0.12)	2 (0)	3,080 (0.51)	
Self-employed (no employees)	41,708 (6.89)	5,885 (0.97)	17 (0)	47,610 (7.86)	
Self-employed with employees	18,557 (3.06)	934 (0.15)	12 (0)	19,503 (3.22)	
Unpaid family helper	3,166 (0.52)	608 (0.10)	1 (0)	3,775 (0.62)	
Working at own lands/cattle post	21,089 (3.48)	10,684 (1.76)	5 (0)	31,778 (5.25)	
Not Stated	568 (0.09)	87 (0.01)	21 (0)	676 (0.11)	
Total	548,319 (90.52)	57,194 (9.44)	252 (0.04)	605,765 (100)	

Employment distribution by Industry

The subsistence agricultural industry employs the majority of the employed as it, accounts for 12.69 percent of the employed. It is followed by Central government and Local government at 10.78 percent and 7.11 percent respectively. When these two arms of government are summed together, they contribute 17.89 percent to total employment thus making the government sector the majority employer in the economy. Construction employs 6.14 percent followed by retail trade at 4.62 percent. The rest of the distributions are as shown in table 8 below.

Table 8: Main Product, Activity or Service engaged in at work in the past 7 days

Industry	Freq.	Percent
Traditional or Subsistence agriculture	82,144	12.69
Central Government Administration (\$)	69,739	10.78
Local Government Administration (\$)	46,038	7.11
Construction of Buildings and Houses -	39,718	6.14
Retail trade through informal outlets:	29,914	4.62
Private households with employed person	28,938	4.47
Primary education (including pre-primary)	21,583	3.34
Secondary education	19,469	3.01
Security Organizations	19,146	2.96
Business activities not elsewhere class	18,869	2.92
Human health activities (Hospitals etc.)	18,736	2.9
Retail stores specializing in goods exc	15,635	2.42
Maintenance and repair of motor vehicle	11,197	1.73
Non-specialized retail trade e.g. Gener	11,123	1.72
Building installation work - Plumbing,	9,965	1.54
Other services activities (including dr	9,148	1.41
Copper/Nickel mining	7,858	1.21
Retail stores specializing in food, bev	7,488	1.16
Diamond mining	7,401	1.14
Hotels and other short stay accommodation	7,085	1.09
Construction/Civil Engineering - Roads,	6,771	1.05
Clothing and other wearing apparel (inc	6,706	1.04
Taxis/Combis sole or small operators on	6,461	1
Restaurants, cafes and canteens	6,061	0.94
Note Stated	6,815	1.05
Others	132,924	20.54
Total	647,149	100

Activities of the unemployed labour force

The table below gives a summary of the statistics for those who were reported as not working at the time of the survey. Since the labour force estimation is based on those aged between 17 and 65 years exclusive, the presence of the information on students may be a reflection of the inconsistencies in our data.

Table 9: Activities of the Unemployment

Activities of the Unemployed	Labour Force (18 years +)			
	Left School	Never attended	Not Stated	Total
Actively seeking work	142,442 (33.41)	9,181 (2.15)	52 (0.01)	151,675 (35.58)
Home work	195,654 (45.89)	43,738 (10.26)	77 (0.02)	239,469 (56.17)
Students	1,310 (0.31)	60 (0.01)	7 (0)	1,377 (0.32)
Retired	7,492 (1.76)	1,609 (0.38)	9 (0)	9,110 (2.14)
Sick	12,732 (2.99)	7,802 (1.83)	53 (0.01)	20,587 (4.83)
Other (NEC)	3,064 (0.72)	933 (0.22)	8 (0)	4,005 (0.94)
Not Stated	111 (0.03)	9 (0)	4 (0)	124 (0.03)
Total	362,805 (85.1)	63,332 (14.85)	210 (0.05)	426,347 (100)

The unemployed

The unemployed are often referred to as the part of the labour force, which is not working. They are considered to be those who are actively seeking employment. Knowing who they are is quite important in guiding effective and relevant policy formulation. The reduction of the unemployment rates through employment creation rather than discouragement is key in fighting the three evils of poverty, unemployment and inequality. It is therefore our intention to make a concerted effort in trying to microscopically interrogate the nature and attributes of unemployment in Botswana. This part of the paper is geared towards dissecting the unemployment attributes as a betterment of our understanding of this phenomenon.

Sex Distribution of the unemployed

The response to the question which sought to find out the number of those actively seeking employment availed a total of 157 654 respondents. Of these respondents, 48.97 percent of them were males and the remaining 51.03 percent were females. Students are normally excluded from the labour force. However, the above figures included 2 434 respondents who were still going to school. Given that strictly speaking such are not considered to be part of the labour force we effectively had 155 220 respondents once the appropriate adjustments were made. The latter being the numerical that we have since used in the rest of the analysis. Upon using this new figure we realise that 50.99 percent were females and the remaining 49.01 percent were males..

Table 10: Sex Distribution of the Unemployed

Sex of Respondents	Numbers	Percentage
Male	76,070	49.01
Female	79,150	50.99
Total	155,220	100

Geographical distribution of the unemployed by sex

The geographical distribution is divided into the urban areas, which comprises cities and towns only and not urban villages contrary to common practice and rural areas otherwise. The table below shows that 21.53 percent of the respondents were in urban centres of which 54.24 were females representing 11.68 percent of all the unemployed and 45.76 percent were males representing 9.85 percent of all the unemployed.

The remaining 78.47 percent of respondents are in rural areas and 50.01 percent of all the rural respondents were females while the remaining 49.99 were males. The rural distribution by sex is almost equal for both the males and females at almost 50 percent.

The disaggregated data shows that Kweneng East had the highest unemployment rate at 14.38 percent followed by Gaborone at 10.35 percent, with Serowe/Palapye coming third at 7.99 percent. In all cities and towns, the majority of the unemployed were females, while in rural areas the results are mixed. The rest of the distributions are attached under appendix

Table 11: Unemployment distribution by Area and Sex

Area	Sex of Respondents		
	Male	Female	Total
Urban	15,272 (9.85)	18,101 (11.68)	33,373 (21.53)
Rural	60,696 (39.16)	60,941 (39.31)	121,637 (78.47)
Total	75,968 (49.01)	79,042 (50.99)	155,010 (100)

Unemployment by marital status and sex

The never married had the highest rate of the unemployed at 66.36 percent and this marital classification is the only one for which males were in the majority. The cohabitants and the married constituted 24.63 and 7.49 percentage points of the unemployed respectively. In both cases unemployment was more amongst females than males.

Table 12: Unemployment by marital status and sex

Marital status	Active Job Seekers by Sex		
	Male	Female	Total
Married	4,548 (2.93)	7,073 (4.56)	11,621 (7.49)
Never Married	55,469 (35.74)	47,533 (30.62)	103,002 (66.36)
Living together	15,215 (9.8)	23,012 (14.83)	38,227 (24.63)
Separated	241 (0.16)	323 (0.21)	564 (0.36)
Divorced	274 (0.18)	418 (0.27)	692 (0.45)
Widowed	315 (0.2)	789 (0.51)	1,104 (0.71)
Not Stated	8 (0.01)	2 (0)	10 (0.01)
Total	76,070 (49.01)	79,150 (50.99)	155,220 (100)

Unemployment distribution by age and sex

The greatest constituency of the unemployed was the 20-24 age group at 29.93 percent of all the unemployed followed by the age group 25-29 at 24.76 percent. In total the youth whose upper age limit in this case is 34 years accounted for 79.7 percent of the unemployed. Females were the most dominant of the youth age groups save for the 15 – 19 years in which more males were unemployed. However, for all the non-youth age groups more males were unemployed relative to females.

Table 13: Unemployment distribution by age and sex

Age Groups of Respondents	Sex of the Respondents		
	Male	Female	Total
15-19	8,266 (5.33)	7,820 (5.04)	16,086 (10.36)
20-24	21,890 (14.10)	24,566 (15.83)	46,456 (29.93)
25-29	17,923 (11.55)	20,508 (13.21)	38,431 (24.76)
30-34	10,807 (6.96)	1,936 (7.69)	22,743 (14.65)
35-39	7,023 (4.52)	6,754 (4.35)	13,777 (8.88)
40-44	4,010 (2.58)	3,347 (2.16)	7,357 (4.74)
45-49	2,819 (1.82)	2,177 (1.40)	4,996 (3.22)
50-54	1,692 (1.09)	1,076 (0.69)	2,768 (1.78)
55-59	1,054 (0.68)	651 (0.42)	1,705 (1.1)
60-64	586 (0.38)	315 (0.20)	901 (0.58)
Total	76,070 (49.01)	79,150 (50.99)	155,220 (100)

Unemployment by expertise and sex

The table below gives the ranking of the most popular tertiary programmes of the unemployed. There were in all 20 661 unemployed respondents who had done tertiary studies. We have picked the programs which have at least 400 graduates and they were 14 in total. Accounting/Auditing stands out as the most popular programme not only amongst the unemployed but rather the overall labour force. Of all the unemployed tertiary graduates 8.73 percent of them were in this field, of which 67.55 percent were females. The other most popular programs or areas of expertise were Computer Science programs, typing/shorthand and business/commercial at 7.14 percent, 6.36 percent and 5.33 percent respectively. All this popular programs have been dominated by females. It is therefore not surprising that 54.94 of the unemployed with tertiary education are females.

It is also worth noting that the tertiary graduates accounted for only 13.31 percent of those who were actively seeking employment at the time of the census. It could be therefore concluded that the remaining 96.69 percent of the respondents are therefore not tertiary graduates.

Table 14: Unemployment by expertise and sex

Area of Education	Sex of the Respondents		
	Male	Female	Total
Accountancy/Auditing	585	1,218	1,803
Computer Science Pro	683	793	1,476
Typing/Shorthand/Sec	110	1,203	1,313
Business/Commercial	363	738	1,101
Masonry and Bricklay	786	132	918
Radio/Electronics/Co	447	466	913
999	401	369	770
Carpentry/Joinery Pr	610	151	761
Tourist Trade Progra	224	509	733
Labour Studies, Incl	135	364	499
Motor Mechanics	424	68	492
Marketing/Sales Cour	214	269	483
Business machine ope	133	326	459
Tailoring/Textile Tr	41	409	450
Management, General	147	274	421

Conclusions

In this paper we used primarily the question which sought information on those who were actively seeking employment at the time of the census. This became the number for the unemployed. On the basis of it we were able to discover that the youth aged 15-34 years were faced with serious unemployment problem. They amounted to almost 80 percent of the unemployed at 79.7 percent.

Unemployment was also a major challenge in the rural areas with 78.47 percent of those actively seeking employment resident in rural areas. Whereas in the urban areas women seemed to be more affected by unemployment, the sex distribution was almost even in rural areas.

Employment and education are expected to be closely related. It is unfortunate that with the exception of the tertiary graduates, the educational attainment of the remaining 86.69 percent their educational distribution remains unknown. This is a serious shortcoming in view of the fact that educational is a major primary determinant of employment.

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Moffat Malepa Statistics Botswana giving a presentation on Economic Activity in Botswana

ECONOMIC ACTIVITY IN BOTSWANA

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Abstract: The aim of the paper is to provide the information on the economic activity of people in Botswana captured during the 2011 Population and Housing Census (PHC), and construct a profile of the labour force that can be used in the formulation of human resource development policies to address challenges of the labour market. There are three (3) categories into which the population targeted under economic activity could be grouped to analyse the supply and demand of labour in the market; the Employed, the Unemployed and Not Economically Active population

Statistics on the Economically Active Population include the size of its components (employment, unemployment and not economically active) and its socio-demographic characteristics, such as age, sex, geographical location, educational attainment etc. These are analysed to give profiles of the employed and unemployed population. The job market is analysed through the various jobs, occupation, industry, and economic sector in which the employed population is participating.

1.0 Introduction

The 2011 Population and Housing Census (PHC) collected information on economic activity for population aged 12 years and over. The economic activity information classifies the population into three (3) categories, being the employed, unemployed and not economically active.

The employed population refers to those individuals who engaged in an activity of economic value either for payment in any form or for no pay in the past seven (7) days, while the unemployed population refers to those persons who were not working in the past seven (7) days but were active job seekers (visiting firms, making applications etc.). The economically inactive population includes persons who were not engaged in activities of economic value. Included in this category are the retired, students, the sick and homemakers. The employed and unemployed together form the labour force, which gives a measure of the number of persons providing and ready to supply labour for the production of goods and services at a given point in time. Information on labour force and economic activity is needed for measuring the extent of the availability of human resources and the prevailing labour market structure of the economy. The information provides the basis for designing policies on human resource and economic development planning.

1.1 Objective

The objective of the paper is to present the size and profile of the labour force available and the labour market demand structure. Employment and unemployment measures will be analysed to give a picture of the labour market. In the process, analysis of the current prevailing economic activities available to absorb the labour force will be presented, and contrasted with the profile of the labour force.

1.2 Data collection

During the 2011 Population and Housing Census, questions on economic activity were administered to persons aged 12 years and above. The questions sought to establish the usual economic activities of individuals, which is the long term economic activity (activities for the last twelve months), followed by questions on the current economic activity. This paper will be concentrating on the current economic activities, which are activities done in short reference period, being the past seven days.

The International Labour Organisation (ILO) convention no. 138 stipulates that minimum age for employment should not be less than 15 years. However countries with less developed economic or educational infrastructure may set the minimum age at 14 years. Botswana has set employment minimum age at 14 years (Employment Act Chapter 47:01).

The Botswana Employment Act, Section 107 (2) states that "A child who has attained the age of 14 years and is not attending school may be employed on light work not harmful to his health and development". In addition, the country has ratified the ILO convention no. 182 on eliminating the worst forms of child labour.

In view of the foregoing, the analyses in this paper will be confined to the population aged 15 years and over.

2. Analysis and Discussion of the Results

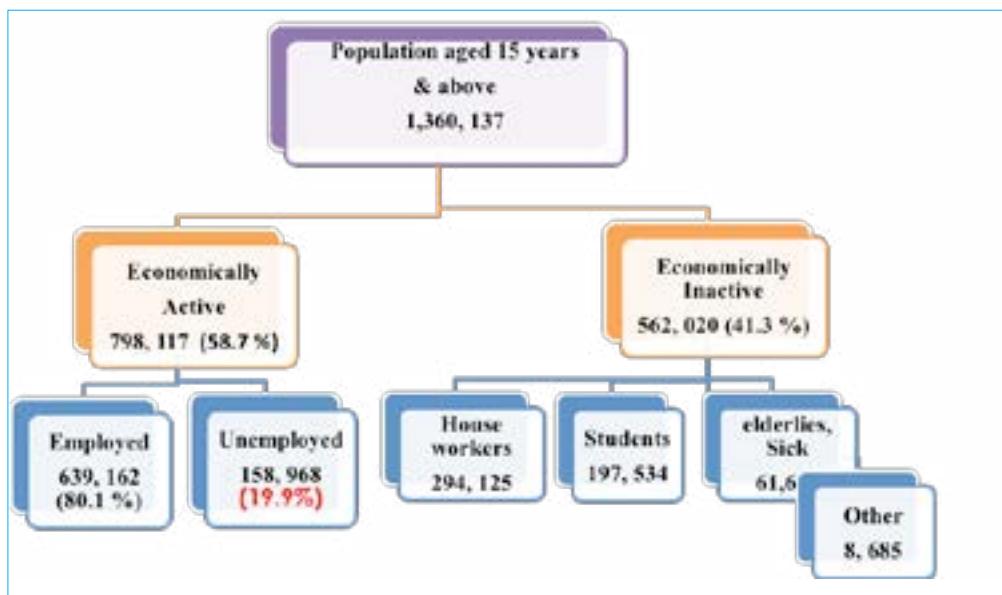
This chapter analyses the target population to derive indicators relevant to the labour market. It gives a profile of the labour force taking into account issues of disaggregation by topics of interest such as sex, age, education, training and geographical location.

2.1 Population Aged 15 Years and Above

Diagram 1 presents information on the population 15 years and above divided into currently economically active and currently economically inactive. The currently economically active population comprise of persons aged 15 years and above who were either employed or job seekers in the past seven days prior to the census interview date. This is the population which is referred to as the labour force. The economically inactive population includes all persons not classified as either employed or job seekers in the past seven days before the census enumeration. These are students, retired persons, sick and homemakers and others not elsewhere classified..

The enumerated population of persons aged 15 years and above consisted of 798, 117 (58.7 percent) economically active (labour force) and 562, 020 (41.3 percent) economically inactive population. Amongst the labour force (economically active) 639,149 (80.1 percent) were employed and 158, 968 (19.9 percent) were the unemployed (actively seeking work).

Diagram 1: Population Aged 15 years and above



2.2 Labour Force by Sex

The 798, 117 persons constituting the labour force consisted of 439, 707 (55.1 percent) of males and 358, 410 (44.9 %) females. The male unemployment rate was 17.7 percent, while that for females was 22.6 percent. The results thus show that males contribute more to the labour force compared to women. This is despite the fact that there are more females (52 percent) in the population aged 15 years and above, from which the labour force is drawn. The reason for fewer female participation rate in the labour force could be partially explained by the number of females who constitute the economically inactive (Diagram 4), which has 348, 755 economically inactive females, of which 213, 481 (61.2 percent) are engaged in housework. This contrasts with 37.8 percent of economically inactive males who are engaged in housework.

Diagram 2: Economically Active Population Aged 15 years and above by sex

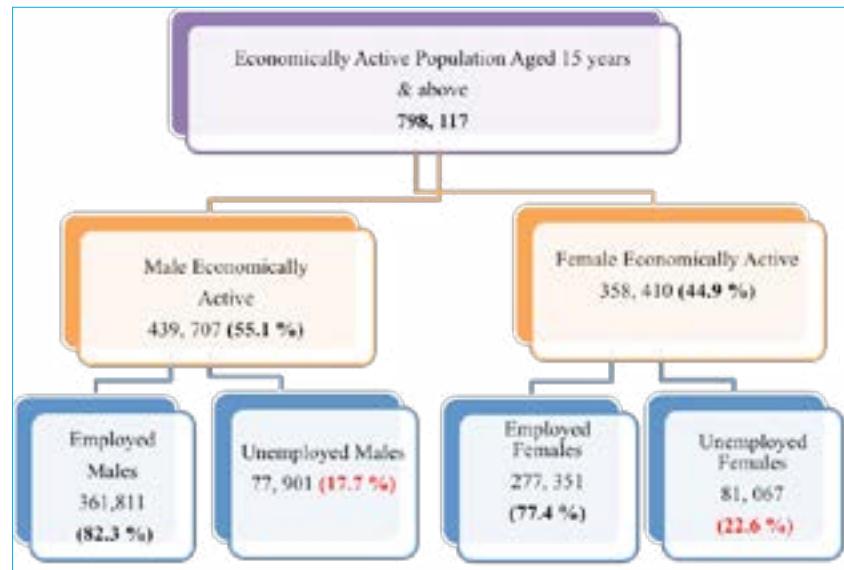


Figure 1 shows total Labour Force Participation Rates (LFPR) by age group between male and females from 2011 PHC. The LFPR reflects the extent to which a country's working age group is economically active. For both sexes, participation rate in economic activity is high for young adults, and then gradually declines at older ages. The figure shows that participation rates for males were higher than their female counterparts for all age groups. The lower participation rate in PHC for 15 to 19 years olds may be in line with their involvement in education activities. In general, labour force participation rates are higher for the youth age groups, aged 20 to 34. This is the age group that has high unemployment rates.

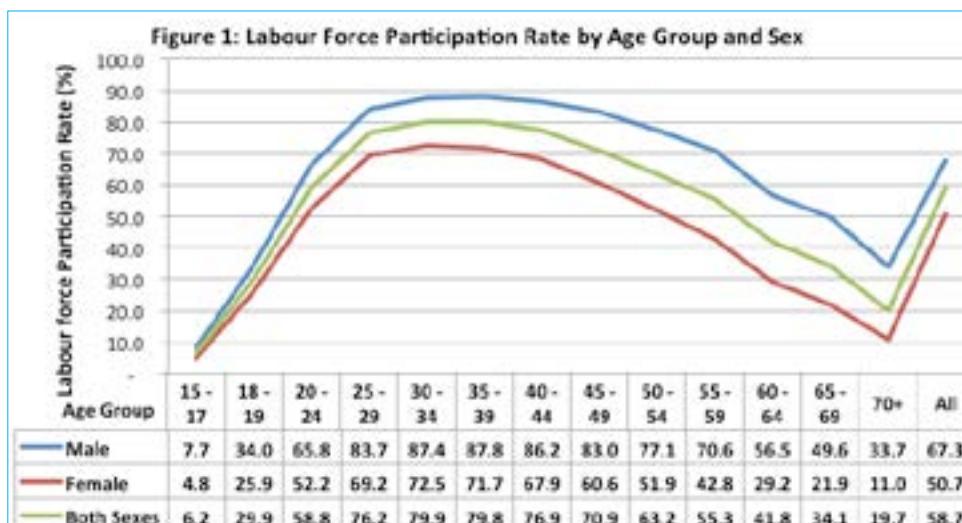
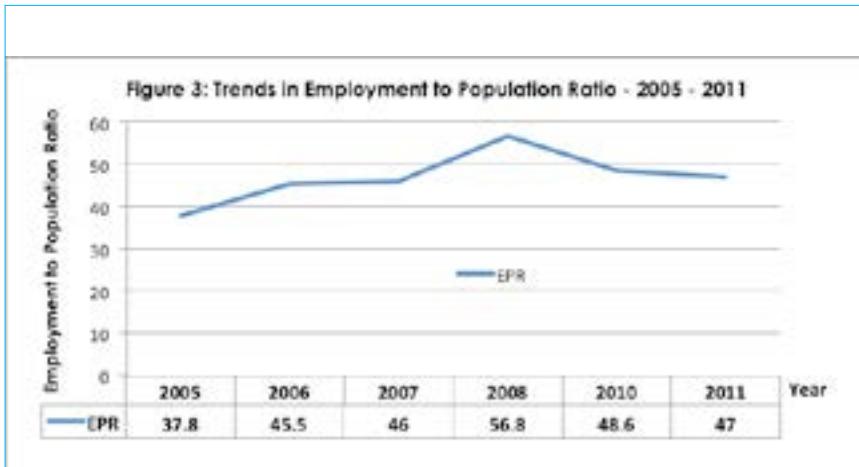
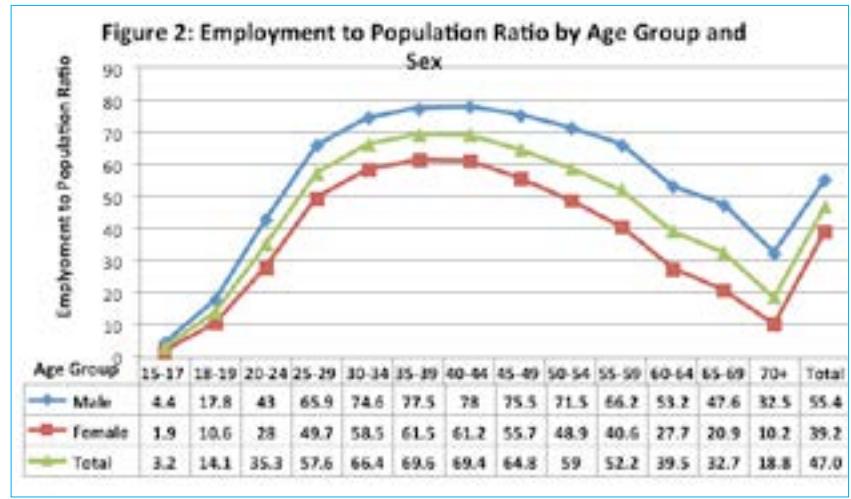


Figure 2 shows Employment to Population Ratio (EPR) of the labour force by age group for 2011 PHC. The Employment to Population Ratio, sometimes called Employment Rate reflects the extent to which the growth of a country's economy is able to create employment for the growing population. In short EPR is an important indicator of the ability of the economy to provide employment to its growing population. A decline in EPR is considered as an indication of population growth with less employment, or an indication of economic slowdown. The figure shows that, just like the LFPR the ratio for males were higher than their female counterparts from the onset.

Figure 3 gives trends in the EPR from 2005 to 2011. The highest EPR was observed in 2008 at 56.8. The trend averaged 47 percent over the period, suggesting stagnation in employment creation.



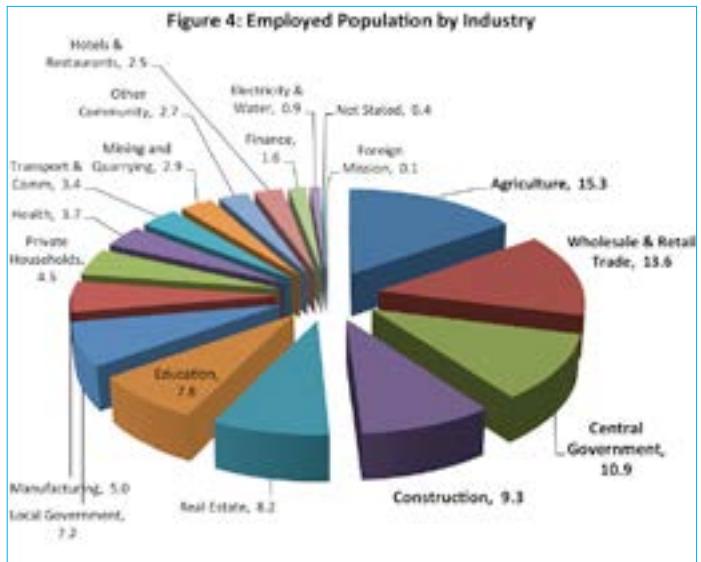
3. Currently employed

Employed persons or population can be described as all persons in the working age group who during a specified short reference period did some work either for payment in cash or in kind (paid employees) or who were in self-employment for profit or family gain as well as persons temporarily absent from these activities but definitely going to return to them (e.g. on leave or sick). Some work was defined as one hour or more in the reference seven days. It should be noted that any economic work took precedence over all other activities. The employment statistics analysis was based on those who were aged 15 years and above.

3.1 Currently Employed by Industry

Currently employed persons totaled 642,065 of which 363,742 were males and 278,331 (43.3 percent) females. The main industrial employers were Agriculture (15.3 percent), Wholesale and Retail Trade (13.6 percent), Public Administration (10.9 percent), Construction (9.3 percent), and Education (7.8 percent). Foreign Missions were the least with 730 employees representing 0.1 percent of the total employment (see Table 5).

Females are increasingly dominating in most industries, the largest being Hotels and Restaurants at 68.4 percent followed by Private Households with 89.1 percent. Females in Education, Finance, Wholesale and Retail Trade & Health employment all accounted for more than 60 percent each. Males dominated in industries such as Construction (90.7 percent) followed by Mining (87.1 percent). Significant numbers of males were also recorded in industries such as Transport and Communication (76.4 percent), Agriculture (75.6 percent), Water & Electricity (73.6 percent) and Real Estate (61.4 percent). This is depicted by the figure below.



The majority of persons (37.9 percent) were employed in urban villages, followed by Cities/towns with 30.7 percent. Rural villages constituted 17.3 percent of the employed persons. Agriculture dominated the rural employment by 56.1 percent and stood at 30.0 percent of the total employment. In urban Villages, most of the persons (19.1 percent) were employed under Retail Trade industry, followed by Public Administration with 15.0 percent. Retail Trade recorded the highest (17.5 percent) number of employees in Towns/Cities, followed by Public Administration with 13.4 percent (Table 10)

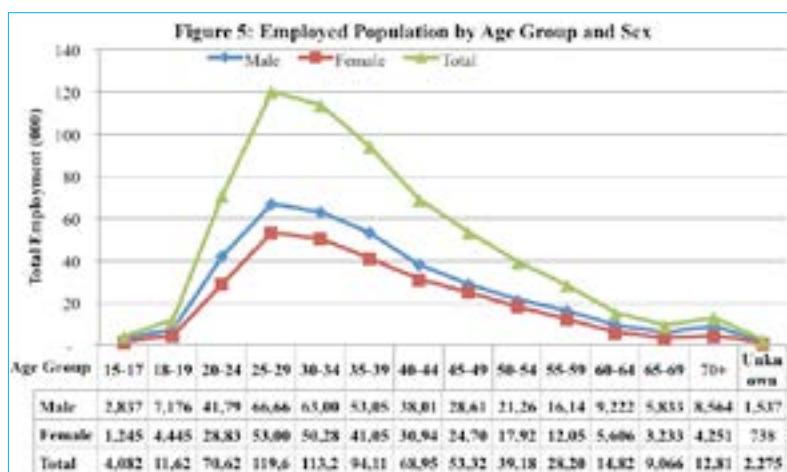
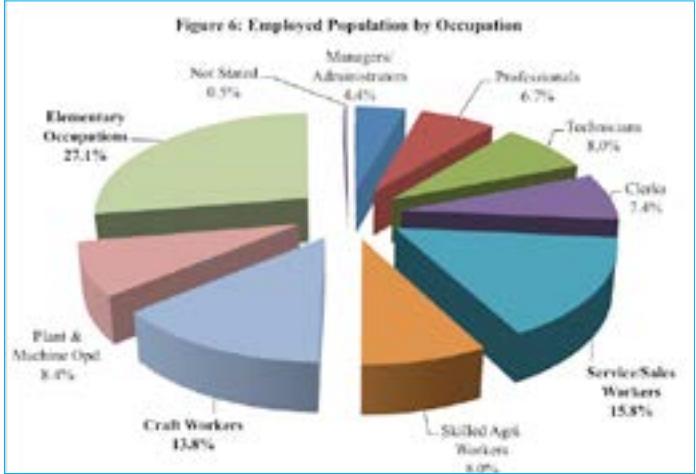


Figure 5 shows that employed population is concentrated in the ages 20 to 44 years and gradually decline towards the ages of 60 years and upward. This may be attributed mainly due to that when people get old they leave and retire from labour market. Figure shows that the age pattern of employment for men and women is very similar. The male curve is above the female curve, reflecting the higher employment of men at all ages.

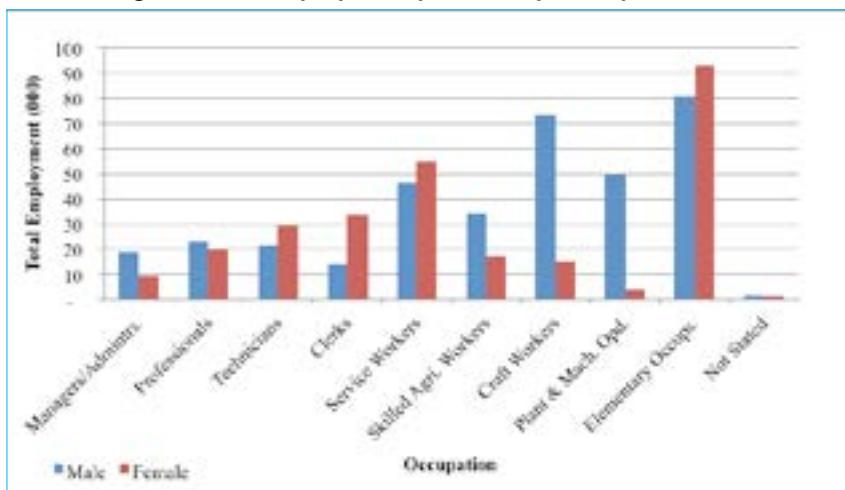
3.2 Currently Employed by Occupation

The most common occupations were elementary occupation accounting for 27.1 percent followed by Services/Sales workers and Craft workers with 15.8 and 13.8 percent of the total employment respectively. The majority of Elementary Occupations were in the Agricultural industry, (26.3 percent), (see table 6).Elementary occupations were prevalent in Kweneng East district with 11.5 percent followed by Gaborone and central Serowe Palapye district with 11.0 percent and 9.4 percent respectively. As expected, the majority of managers and professionals were found in Cities/Towns.



The female dominated occupations were Clerical (70.7 percent), Technicians (57.7 percent), Services & Sales workers (54.0 percent) and elementary occupations (53.4 percent). The high number of females in the technical/Associate Professionals is due to the large number of female nurses and teachers (Table 7).

Figure 7: The Employed Population by Occupation and Sex



3.3 Currently Employed by Status of Employment

Table 4 depicts employed population by employment status and district. The table indicates that majority (17.1percent) of employed population was in Gaborone, followed by Kweneng East with (12.7 percent) and Serowe Palapye at 7.6 percent.

Figure 8 shows that 80.8 percent of the employed population worked for paid employment, followed by 7.9 percent of people who were working in their businesses which have employees. Those working in their cattle posts and lands accounted for 6.9 percent of the total employed..

Employment status by sex is shown in figure 9, the figure shows that female are leading in the category which have people working in their own businesses which have employees.

Figure 8: The Employed Population by Employment Status

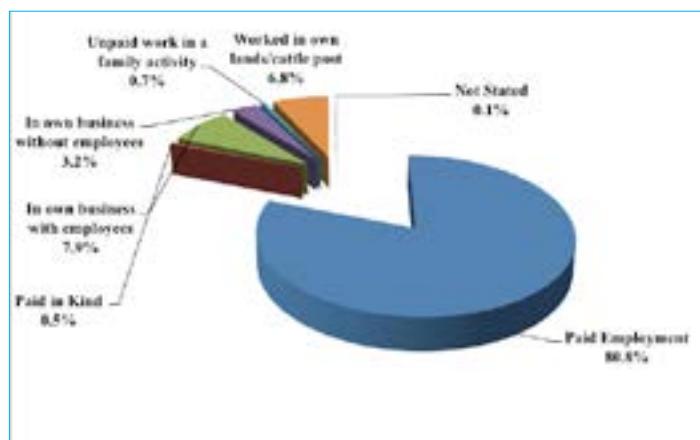
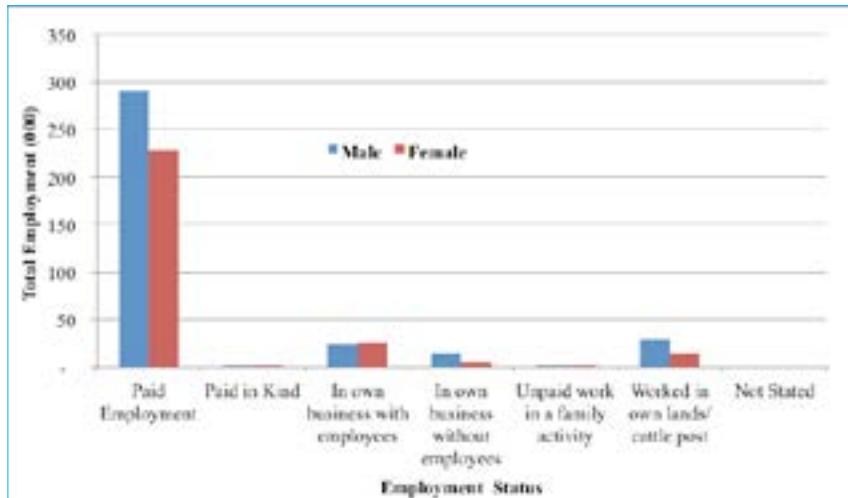


Figure 9: The Employed Population by Employment Status and Sex



3.4 Currently Employed by Education and Training

Those individuals who completed junior secondary dominated the currently employed with 26.1 percent, followed by primary and senior secondary completers with 17.9 percent and 15.2 percent respectively. The employed who never attended school accounted for 10.9 percent. (See Table 11)

3.5 Profile of the Employed Population the Labour Market

- The employed population is largely youthful, with persons aged 20 to 34 years accounting for 47.5 percent of the total employed population.
- Over 41.3 percent of the employed population have completed some secondary schooling (26.1 Junior & 15.2 Senior).
- The Majority (80.8 percent) are in paid employment.
- The most prevalent occupations among the employed were Elementary Occupations (27.1 %), Services/Sales (15.8 %) and Craft workers (13.8 %), which together accounted for 57 percent of the employed population.
- Agriculture, Wholesale & Retail and Central Government are the largest employers of the employed labour force, with 15.3, 13.6 and 10.9 percent respectively.
- Government (Central and Local) is the largest employer with 18.1 percent

4. Currently Unemployed Population

Unemployed persons were those individuals who did not do any work in the reference period (last 7 days) either for payment in cash or kind or who were not in self-employment for profit or family gain and actively looking for a job in the past 30 days. This excludes individuals who were temporarily absent from the above-mentioned activities and were definitely going to return to them.

The 2011 Population & Housing Census overall unemployment rate was 19.9 percent, higher than the 19.6 percent during the 2001 Census. The most affected age groups are the 15-19 and the 20-24: recording unemployment rates of 52.7 and 40.1 percent respectively.

4.1 Currently unemployed

The 2011 PHC information on Unemployed population by age group and sex is presented in Table 12. The total unemployed population was 159,455 out of which 81,190 (50.8 percent) were females while 78,265 were males. Unemployment was more prevalent among the age group, 18– 19 years, which constituted 52.7 percent, followed by age group 15 – 17 with 49.1 percent. The person aged 15-34 years accounted for 28.3 percent of the total unemployed during the 2011 PHC. Most of the unemployed were found in urban villages centers (49.5 percent). This could be due to migration of the population from rural areas to the urban villages for better opportunities. (See Table 15).

As already stated above, the majority of the unemployed were women, contributing 81,190 or 50.8 percent of the total unemployment. The most affected female age group was youth 15 –29, which recorded 38.1 percent. The unemployed were more concentrated in cities and urban villages than rural areas. Overall, there were 113,122 (70.9 percent) unemployed persons in urban areas, and most of these were aged between 18 and 34 years.

Unemployed population by district and sex is shown in Table 13. Central Boteti had the largest proportion of unemployment (27.3 percent). Ngamiland East district followed with 26.5 percent and North East came third with 25.9 percent. There were more unemployed females than males in most of the districts. Females had slightly the largest proportion (50.9 percent) of the unemployed while males accounted for 49.1 percent of the unemployed population, even though the difference is not so much but the unemployment rate for females is 22.6 percent while for males is 17.7 percent.

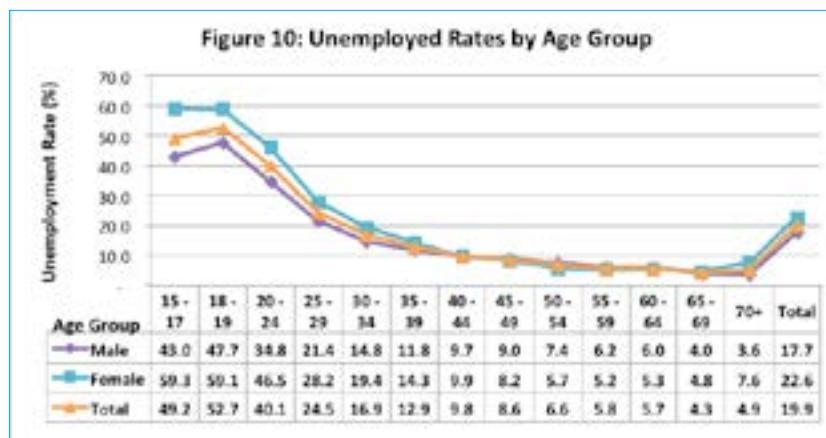
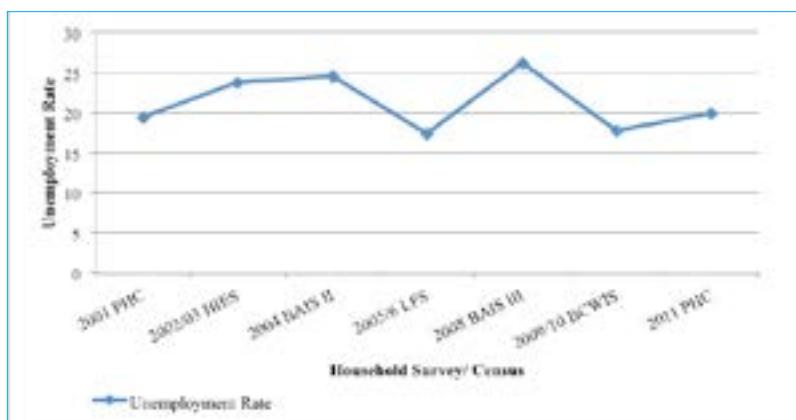


Figure 10 shows that the age pattern of unemployment for men and women is very similar. For both sexes unemployment is a problem particularly for young people, with over 70 percent being less than 35 years old. Table 3 presents comparison of unemployment rates by age group and sex for 2001 and 2011. The table shows that unemployment is a growing problem for males and females, with female numbers showing the highest increase in the period. Unemployment for both men and women increased in the period 2001 to 2011.

Figure 11 shows unemployment rates from 2001 to 2011. The figure shows that from 2003 to 2004 unemployment went up and then decreases in 2006, rises again in 2008 then went down in 2010, also this is shown in Table 3.

Figure 11: The Unemployment Trends, 2001 to 2011



4.2 Currently Unemployed by Education Level

Those individuals who completed junior secondary dominated the currently unemployed with 39.9 percent, followed by secondary and primary completers with 23.7 and 14.4 percent respectively. The unemployed who never attended school accounted for 6.4 percent.

Persons who completed non-formal education, and are currently unemployed constituted 0.3 percent of the total unemployed.

The majority (81,191) of the currently unemployed were women, with 41.3 percent having completed junior secondary school only. Females who have done senior secondary constituted 25.4 percent, while those who completed primary contributed 12.5 percent of all currently unemployed females.

4.3 Currently unemployed by Training Level

Among the currently unemployed population, 84.8 percent had no training at all, 6.6 percent were certificate holders, 4.0 percent had diplomas and 3.1 percent were degree graduates.

The majority (58.0 percent) of unemployed University diploma holders were females while among Brigade diploma holders were males (54.3 percent). The certificate holders' unemployed females were higher (55.4 percent) than males.

4.4 Profile of the Unemployed Population

The unemployed population is largely made up of the untrained , who constitute 16.8 percent of the total labour force. This is to say, out of the 19.9 percent unemployment rate, 16.8 percentage points is contributed by the untrained labour force. Of this 16.8 percent, 7.9 percentage points emanates from those who did junior certificate, 4.7 percent senior secondary school, and 1.3 percentage points is from those who never attended school.

Unemployment is more prevalent among the youth aged 20 to 34 years. These group accounts for 51.5 percent of the labour force.

5. Conclusions

The labour force is predominantly untrained, with 74 percent of the economically active population having no training. The percentage of untrained labour force in 2001 was 67.6 percent

The labour force has been increasing over the years, from 558, 753 in 2001 to 803, 129 in 2011 (12 years and over).

The unemployment rates have been fluctuating as observed from the surveys and censuses, with the lowest estimate of 17.5 form the 2005/06 Labour force Survey and the highest being 26.2 percent from the Botswana Aids Impact Survey III of 2008.

Agriculture remains the largest employer at 15.3 percent of the employed population. In 2001, agriculture industry accounted for 12.3 percent of the employed.

Government (Central & Local) was the largest employer with 18.1 percent in 2011, while in 2001was 15.6 percent.

Overall, the labour market scenario was more or less the same in 2011 as it was in 2001.

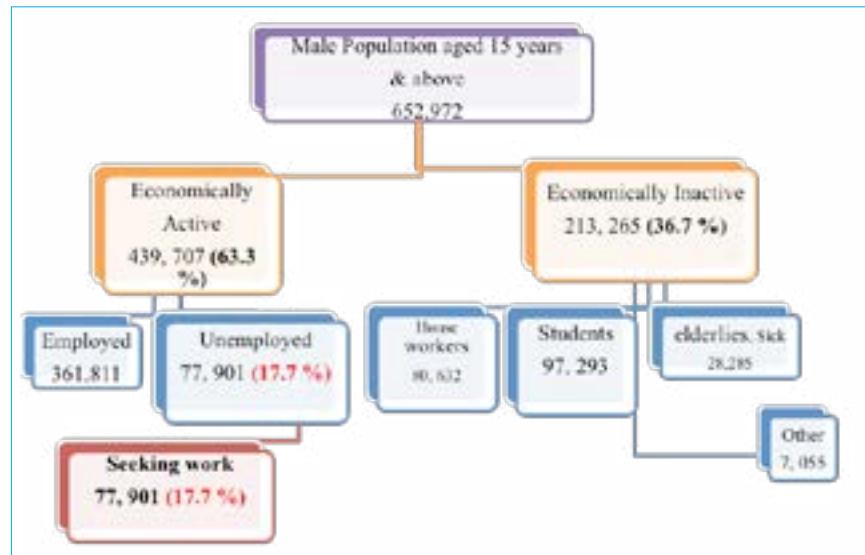
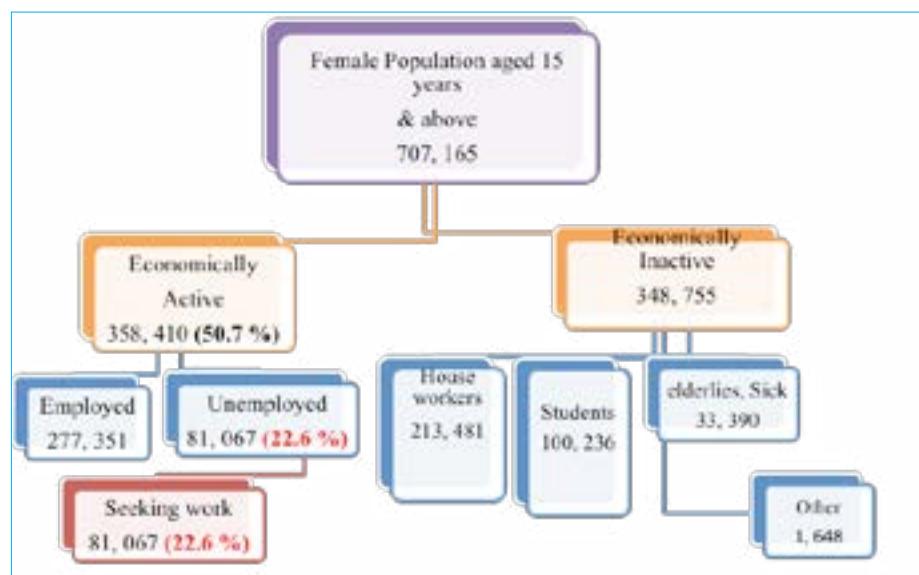
Diagram 3: Male Population Aged 15 years and above**Diagram 4: Female Population Aged 15 years and above**

Table 1: Labour Force Participation Rate by Age Group and Sex, 2011 Population and Housing Census

Age	Total Population			Economically Active			Labour Force Participation Rate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
15-17	64,517	63,957	128,474	4,967	3,054	8,021	7.7	4.8	6.2
18-19	40,301	41,971	82,272	13,719	10,862	24,581	34	25.9	29.9
20-24	97,249	103,101	200,350	64,084	53,821	117,905	65.9	52.2	58.8
25-29	101,194	106,658	207,852	84,786	73,765	158,551	83.8	69.2	76.3
30-34	84,515	86,027	170,542	73,927	62,380	136,307	87.5	72.5	79.9
35-39	68,435	66,784	135,219	60,150	47,887	108,037	87.9	71.7	79.9
40-44	48,767	50,530	99,297	42,083	34,334	76,417	86.3	67.9	77
45-49	37,881	44,380	82,261	31,459	26,902	58,361	83	60.6	70.9
50-54	29,742	36,620	66,362	22,961	19,012	41,973	77.2	51.9	63.2
55-59	24,368	29,681	54,049	17,200	12,723	29,923	70.6	42.9	55.4
60-64	17,344	20,240	37,584	9,809	5,922	15,731	56.6	29.3	41.9
65-69	12,243	15,504	27,747	6,077	3,396	9,473	49.6	21.9	34.1
70-74	9,464	12,797	22,261	3,959	2,025	5,984	41.8	15.8	26.9
75+	16,887	29,052	45,939	4,921	2,573	7,494	29.1	8.9	16.3
Unknown	3,088	1,837	4,925	1,905	866	2,771	61.7	47.1	56.3
Total	655,995	709,139	1,365,134	442,007	359,522	801,529	67.4	50.7	58.7

Table 2: Employment to Population Ratio by Age Group and Sex, 2011 Population and Housing Census

Age Group	Total Population			Employed			Employment to Population Ratio		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
15-17	64,517	63,957	128,474	2,837	1,245	4,082	4.4	1.9	3.2
18-19	40,301	41,971	82,272	7,176	4,445	11,621	17.8	10.6	14.1
20-24	97,249	103,101	200,350	41,797	28,831	70,628	43	28	35.3
25-29	101,194	106,658	207,852	66,667	53,009	119,676	65.9	49.7	57.6
30-34	84,515	86,027	170,542	63,007	50,287	113,294	74.6	58.5	66.4
35-39	68,435	66,784	135,219	53,059	41,055	94,114	77.5	61.5	69.6
40-44	48,767	50,530	99,297	38,016	30,940	68,956	78	61.2	69.4
45-49	37,881	44,380	82,261	28,619	24,705	53,324	75.5	55.7	64.8
50-54	29,742	36,620	66,362	21,262	17,923	39,185	71.5	48.9	59
55-59	24,368	29,681	54,049	16,142	12,059	28,201	66.2	40.6	52.2
60-64	17,344	20,240	37,584	9,222	5,606	14,828	53.2	27.7	39.5
65-69	12,243	15,504	27,747	5,833	3,233	9,066	47.6	20.9	32.7
70+	26,351	41,849	68,200	8,564	4,251	12,815	32.5	10.2	18.8
Unknown	3,088	1,837	4,925	1,537	738	2,275	49.8	40.2	46.2
Total	655,995	709,139	1,365,134	363,738	278,327	642,065	55.4	39.2	47

Table 3: Trends in Labour Force, 2001 to 2011

Census/Survey	Unemployed			Employed			Labour Force			Unemployment Rate		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
2001 PHC	51 916	57 596	109 512	268 024	185 361	453 385	319 940	242 957	562 897	16.2	23.7	19.5
2002/03 HIES	66 880	77 580	144 460	245 408	216 959	462 366	312 288	294 539	606 826	21.4	26.3	23.8
2004 BAIS II	86 233	99 583	185 816	259 219	311 110	570 329	345 452	410 693	756 145	25	24.2	24.6
2005/6 LFS	50 833	63 209	114 042	281 762	257 388	539 150	332 595	320 597	653 192	15.3	19.7	17.5
2008 BAIS III	81 630	101 417	183 047	290 694	223 728	514 422	372 325	325 148	697 471	21.9	31.2	26.2
2009/10 BCWIS	53 704	72 645	126 349	317 163	267 088	584 251	370 868	339 733	710 600	14.5	21.4	17.8
2011 PHC	78 670	81 458	160 128	364 466	278 535	643 001	443 136	359 993	803 129	17.8	22.6	19.9

Age group 12 years and above

Table 4: The Employed Population by District and Employment Status, 2011 Population and Housing Census

District	Employment Status								Total
	Paid Employment	Paid in Kind	In own business with employees	In own business without employees	Unpaid work in a family activity	Worked in own lands/cattle post	Not Stated		
Gaborone	95 862	323	6 833	6 045	214	209	65	109 551	
Francistown	34 026	141	4 282	1 654	109	123	10	40 345	
Lobatse	10 277	17	725	360	24	24	4	11 431	
Selebi-Pikwe	18 212	37	1 716	554	31	60	12	20 622	
Orapa	4 321	6	112	22	2	7	1	4 471	
Jwaneng	8 729	19	311	180	4	51	2	9 296	
Sowa Town	1 661	-	38	18	3	3	3	1 726	
Ngakane	22 467	363	2 127	818	656	3 866	37	30 334	
Barolong	9 885	204	691	204	229	1 271	14	12 498	
Ngakane West	2 258	38	118	50	174	787	5	3 430	
South East	27 318	151	2 232	1 183	174	766	52	31 876	
Kweneng East	65 827	392	8 071	2 596	599	4 008	98	81 591	
Kweneng West	9 413	189	806	118	177	2 311	13	13 027	
Kgatleng	23 962	109	2 629	987	261	2 565	79	30 592	
Central Serowe Palapye	39 518	313	3 983	1 311	362	4 584	81	50 152	
Central Mahalapye	21 388	209	2 398	781	277	4 094	31	29 178	
Central Bobonong	12 983	85	1 437	372	88	2 290	14	17 269	
Central Boteti	10 725	62	1 051	234	96	1 881	20	14 069	
Central Tutume	27 118	216	3 611	946	226	2 675	59	34 851	
North East	13 008	70	1 331	444	73	629	14	15 569	
Ngamiland East	18 871	180	2 403	774	200	3 031	29	25 488	
Ngamiland West	7 249	108	1 846	162	125	4 611	12	14 113	
Chobe	9 569	76	676	204	58	115	13	10 711	
Okavango Delta	1 387	8	122	5	6	100	-	1 628	
Ghanzi	10 611	58	549	265	57	1 579	10	13 129	
Central Kgalagadi Game Reserve (CKGR)	170	-	9	-	-	2	-	181	
Kgalagadi South	6 834	34	313	127	56	1 121	4	8 489	
Kgalagadi North	5 171	21	340	79	85	750	3	6 456	
Total	518 820	3 429	50 760	20 493	4 366	43 513	685	642 065	

Table 5: The Employed Population by Industry and Sex, 2011 Population and Housing Census

Industry	Sex		
	Male	Female	Total
Agriculture	74,196	23,986	98,182
Mining and Quarrying	16,417	2,438	18,855
Manufacturing	18,122	14,235	32,357
Electricity & Water	4,121	1,478	5,599
Construction	54,199	5,571	59,770
Wholesale & Retail Trade	37,491	50,052	87,543
Hotels & Restaurants	5,043	10,938	15,981
Transport & Comm	16,721	5,157	21,878
Finance	3,718	6,633	10,351
Real Estate	32,352	20,349	52,701
Public Administration	43,635	26,094	69,729
Local Government	17,494	28,511	46,005
Education	17,912	32,456	50,368
Health	9,364	14,280	23,644
Other Community	8,132	8,884	17,016
Private Households	3,142	25,760	28,902
Foreign Mission	356	374	730
Not Stated	1,323	1,131	2,454
Total	363,738	278,327	642,065

Table 6: The Employed Population by Industry and Occupation, 2011 Population and Housing Census

Industry	Managers	Professionals	Technicians	Clerks	Service/ Sales Workers	Skilled Agri. Workers	Craft Workers	Plant & Machine Opd.	Elementary Occupations	Not Stated	Total
Agriculture	839	60	119	233	452	48,734	522	755	45,866	602	98,182
Mining and Quarrying	815	1,271	1,344	766	633	19	5,185	6,209	2,584	29	18,855
Manufacturing	1,807	647	850	1,823	2,034	107	16,971	4,454	3,601	63	32,357
Electricity & Water	267	525	614	603	190	8	1,481	1,080	817	14	5,599
Construction	2,373	1,369	1,467	1,248	553	51	39,491	3,449	9,741	28	59,770
Wholesale & Retail Trade	5,338	930	1,396	12,410	28,795	121	14,324	2,696	21,473	60	87,543
Hotels & Restaurants	1,233	165	229	2,078	9,704	40	442	346	1,731	13	15,981
Transport & Commun.	1,275	823	1,220	2,025	3,560	86	797	10,331	1,721	40	21,878
Finance	1,423	1,716	2,366	3,714	593	2	36	95	388	18	10,351
Real Estate	4,743	5,242	4,510	5,824	19,044	121	3,912	2,818	6,266	221	52,701
Public Administration	3,668	5,752	7,035	10,146	15,427	943	2,291	16,152	8,185	130	69,729
Local Government	1,550	1,569	2,598	2,387	2,789	113	1,663	2,461	30,845	30	46,005
Education	1,505	18,165	15,008	1,828	6,381	94	552	607	6,169	59	50,368
Health	329	2,783	9,777	1,237	3,890	426	207	1,276	3,698	21	23,644
Other Community	933	1,396	2,322	1,099	6,752	196	680	848	2,733	57	17,016
Private Households	17	16	20	12	270	141	248	45	28,123	10	28,902
Foreign Mission	127	212	141	110	24	1	12	59	40	4	730
Not Stated	55	117	112	91	122	10	112	105	187	1,543	2,454
Total	28,297	42,758	51,128	47,634	101,213	51,213	88,926	53,786	174,168	2,942	642,065

Table 7: The Employed Population by Occupation and Sex, 2011 Population and Housing Census

Occupation	Sex		
	Male	Female	Total
Managers/Administrators	18,728	9,569	28,297
Professionals	22,831	19,927	42,758
Technicians	21,650	29,478	51,128
Clerks	13,969	33,665	47,634
Service/Sales Workers	46,567	54,646	101,213
Skilled Agri. Workers	34,176	17,037	51,213
Craft Workers	73,407	15,519	88,926
Plant & Machine Opd.	49,579	4,207	53,786
Elementary Occupations	81,195	92,973	174,168
Not Stated	1,636	1,306	2,942
Total	363,738	278,327	642,065

Table 8: The Employed Population by District and Occupation, 2011 Population and Housing Census

District	Managers/ Administrators	Professionals	Technicians	Clerks	Service/ Sales Workers	Skilled Agri. Workers	Craft Workers	Plant & Machine Opd.	Elementary Occupations	Not Stated	Total
Gaborone	10,494	14,188	11,554	11,358	18,143	745	15,133	8,401	19,078	457	109,551
Francistown	1,919	2,761	3,457	3,860	8,271	330	6,026	5,073	8,538	110	40,345
Lobatse	594	903	1,292	1,037	2,282	76	1,431	1,035	2,740	41	11,431
Selebi_Pikwe	723	1,221	1,637	1,510	3,235	134	3,924	3,825	4,371	42	20,622
Orapa	226	410	576	268	512	25	844	686	904	20	4,471
Jwaneng	460	540	865	709	1,162	114	1,973	1,225	2,244	2	9,294
Sowa Town	72	109	176	193	263	1	286	299	326	1	1,726
Ngwaketse	873	1,700	2,533	1,730	4,306	4,752	3,440	1,954	9,008	36	30,332
Barolong	290	678	882	635	1,588	1,598	1,074	729	4,965	59	12,498
Ngwaketse West	77	102	219	128	342	1,019	199	146	1,197	1	3,430
South East	1,504	2,819	3,007	3,314	5,609	767	4,407	2,432	7,784	232	31,875
Kweneng East	2,379	4,312	5,805	6,617	13,803	4,894	14,731	8,680	20,049	320	81,590
Kweneng West	209	282	665	367	1,040	2,576	643	1,872	5,358	15	13,027
Kgatleng	1,056	1,596	2,316	2,447	4,179	2,815	4,618	2,012	9,201	352	30,592
Serowe/Palapye	1,697	2,784	3,427	2,710	6,714	5,293	7,968	3,078	16,439	42	50,152
Central Mahalapye	805	1,314	2,004	1,532	4,303	4,417	3,366	1,315	9,823	299	29,178
Central Bobonong	442	824	1,081	847	2,190	2,563	1,995	1,126	6,102	99	17,269
Central Boteti	386	541	850	733	1,995	1,982	1,651	1,035	4,722	173	14,068
Central Tutume	738	1,687	2,163	1,717	4,960	3,294	4,534	2,250	13,318	190	34,851
North East	502	820	1,238	916	2,363	929	2,119	1,087	5,571	24	15,569

Table 8: The Employed Population by District and Occupation, 2011 Population and Housing Census (Continued)

Ngamiland East	1,059	1,151	1,868	1,933	5,116	3,497	3,168	1,695	5,857	144	25,488
Ngamiland West	315	419	808	490	1,737	4,879	1,667	586	3,183	29	14,113
Chobe	399	339	688	877	2,442	389	1,130	1,565	2,696	185	10,710
Okavango Delta	133	2	5	18	790	173	130	76	299	2	1,628
Ghanzi	419	538	869	784	1,763	1,778	1,151	724	5,071	32	13,129
CKGR	8	4	2	10	41	3	36	15	62	-	181
Kgalagadi South	296	335	660	546	1,223	1,294	691	469	2,947	28	8,489
Kgalagadi North	222	379	481	348	841	876	591	396	2,315	7	6,456
Total	28,297	42,758	51,128	47,634	101,213	51,213	88,926	53,786	174,168	2,942	642,065

Table 9: The Unemployed Population by Education/Training and Sex, 2011 Population and Housing Census

Education	Sex		
	Male	Female	Total
Never attended	6,705	3,421	10,126
Primary	12,844	10,128	22,972
Junior Secondary	29,940	33,527	63,467
Senior Secondary	17,151	20,591	37,742
Post Sec education	271	211	482
Non formal	205	223	428
Apprentice Cert	104	73	177
Brigade Cert	2,211	1,645	3,856
Brigade Diploma	132	111	243
Vocational Cert	1,986	2,689	4,675
Vocational Diploma	898	991	1,889
Education College Cert	273	572	845
Education College Diploma	517	775	1,292
IHS Certificate	30	126	156
IHS Diploma	72	133	205
University Cert	343	549	892
University Diploma	1,929	2,726	4,655
University Degree	2,412	2,472	4,884
Not Stated	242	227	469
Total	78,265	81,190	159,455

Table 10: The Employed Population by Industry and Locality Type, 2011 Population and Housing Census

Industry	City/Town	Urban Village	Rural Village	Lands area	Cattle Post	Freehold Farm	Mixture of lands and Cattle Post	Camp or Other Locality Type	Total
Agriculture	2,200	15,480	21,121	25,588	21,015	5,960	6,447	371	98,182
Mining and Quarrying	13,063	3,681	1,570	146	116	79	81	119	18,855
Manufacturing	13,889	12,921	4,282	710	222	81	148	104	32,357
Electricity & Water	1,843	2,859	737	70	26	15	13	36	5,599
Construction	17,764	26,358	10,492	1,516	505	272	499	2,364	59,770
Wholesale & Retail Trade	32,105	40,410	12,247	1,529	447	218	273	314	87,543
Hotels & Restaurant	5,731	7,013	1,949	219	48	250	72	699	15,981
Transport & Commun.	7,242	10,057	2,127	487	90	151	31	1,693	21,878
Finance	6,178	3,625	444	23	11	31	2	37	10,351
Real Estate	25,869	20,377	4,702	586	218	308	158	483	52,701
Public Administration	24,405	26,858	11,025	704	293	316	129	5,999	69,729
Local Government	7,449	18,726	16,393	1,942	819	74	436	166	46,005
Education	12,426	23,723	13,183	313	117	92	52	462	50,368
Health	7,340	11,101	4,246	286	138	43	51	439	23,644
Other Community	6,506	8,087	1,844	229	48	120	66	116	17,016
Private Households	12,190	10,890	4,164	601	176	527	120	234	28,902
Foreign Mission	551	143	33	-	-	1	-	2	730
Not Stated	689	1,165	443	60	16	17	9	55	2,454
Total	197,440	243,474	111,002	35,009	24,305	8,555	8,587	13,693	642,065

Table 11: The Labour Force by Education/Training and Sex, 2011 Population and Housing Census

Education	Employed			Unemployed			Economically Active			Unemployment Rate (%)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Never attended	49 016	21 070	70 086	6 666	3 395	10 061	55 682	24 465	80 147	12	13.9	12.6
Primary	64 372	50 351	114 723	12 850	10 136	22 986	77 222	60 487	137 709	16.6	16.8	16.7
Junior Secondary	88 122	79 702	167 824	29 980	33 572	63 552	118 102	113 274	231 376	25.4	29.6	27.5
Senior Secondary	53 939	43 744	97 683	17 151	20 591	37 742	71 090	64 335	135 425	24.1	32	27.9
Post Sec education	2 115	798	2 913	245	171	416	2 360	969	3 329	10.4	17.6	12.5
Non formal	1 855	1 837	3 692	218	234	452	2 073	2 071	4 144	10.5	11.3	10.9
Apprentice Cert	12 334	1 957	14 291	104	73	177	12 438	2 030	14 468	0.8	3.6	1.2
Brigade Cert	8 570	3 979	12 549	2 211	1 645	3 856	10 781	5 624	16 405	20.5	29.2	23.5
Brigade Diploma	629	357	986	132	111	243	761	468	1 229	17.3	23.7	19.8
Vocational Cert	13 054	9 743	22 797	1 986	2 689	4 675	15 040	12 432	27 472	13.2	21.6	17.0
Vocational Diploma	7 657	4 958	12 615	898	991	1 889	8 555	5 949	14 504	10.5	16.7	13.0
Education College Cert	2 252	3 276	5 528	273	572	845	2 525	3 848	6 373	10.8	14.9	13.3
Education College Diploma	8 345	13 018	21 363	517	775	1 292	8 862	13 793	22 655	5.8	5.6	5.7
IHS Certificate	198	517	715	30	126	156	228	643	871	13.2	19.6	17.9
IHS Diploma	1 962	4 604	6 566	72	133	205	2 034	4 737	6 771	3.5	2.8	3.0
University Cert	2 574	2 404	4 978	343	549	892	2 917	2 953	5 870	11.8	18.6	15.2
University Diploma	13 634	11 729	25 363	1 929	2 726	4 655	15 563	14 455	30 018	12.4	18.9	15.5
University Degree	30 015	23 019	53 034	2 412	2 472	4 884	32 427	25 491	57 918	7.4	9.7	8.4
Not Stated	3 095	1 265	4 360	248	230	478	3 347	1 498	4 845	7.4	15.4	9.9
Total	363 738	278 327	642 065	78 265	81 191	159 455	442 007	359 522	801 529	17.7	22.6	19.9

Table 12: The Economically Active Population by Age Group and Sex, 2011 Population and Housing Census

Age Group	Employed			Unemployed			Economically Active			Unemployment Rate (%)				
	Male	Female	Total	Male	Female	Total	Male	Female	Total	%	Cumulative %	Male	Female	Total
15-17	2,837	1,245	4,082	2,130	1,809	3,939	4,967	3,054	8,021	1.0	1.0	42.9	59.2	49.1
18-19	7,176	4,445	11,621	6,543	6,417	12,960	13,719	10,862	24,581	3.1	4.1	47.7	59.1	52.7
20-24	41,797	28,831	70,628	22,286	24,989	47,275	64,083	53,820	117,903	14.7	18.8	34.8	46.4	40.1
25-29	66,667	53,009	119,676	18,118	20,756	38,874	84,785	73,765	158,550	19.8	38.6	21.4	28.1	24.5
30-34	63,007	50,287	113,294	10,920	12,092	23,012	73,927	62,379	136,306	17.0	55.6	14.8	19.4	16.9
35-39	53,059	41,055	94,114	7,090	6,831	13,921	60,149	47,886	108,035	13.5	69.0	11.8	14.3	12.9
40-44	38,016	30,940	68,956	4,066	3,393	7,459	42,082	34,333	76,415	9.5	78.6	9.7	9.9	9.8
45-49	28,619	24,705	53,324	2,840	2,197	5,037	31,459	26,902	58,361	7.3	85.9	9.0	8.2	8.6
50-54	21,262	17,923	39,185	1,699	1,089	2,788	22,961	19,012	41,973	5.2	91.1	7.4	5.7	6.6
55-59	16,142	12,059	28,201	1,058	663	1,721	17,200	12,722	29,922	3.7	94.8	6.2	5.2	5.8
60-64	9,222	5,606	14,828	587	316	903	9,809	5,922	15,731	2.0	96.8	6.0	5.3	5.7
65-69	5,833	3,233	9,066	244	163	407	6,077	3,396	9,473	1.2	98.0	4.0	4.8	4.3
70+	8,564	4,251	12,815	316	347	663	8,880	4,598	13,478	1.7	99.7	3.6	7.5	4.9
Unknown	1,537	738	2,275	368	128	496	1,905	866	2,771	0.3	100.0	19.3	14.8	17.9
Total	363,738	278,327	642,065	78,265	81,190	159,455	442,003	359,517	801,520	100.0		17.7	22.6	19.9

Table 13: The Economically Active Population by District, 2011 Population and Housing Census

District	Employed			Unemployed			Economically Active			Unemployment Rate (%)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
Gaborone	58415	51136	109551	7762	8599	16361	66,177	59,735	125,912	11.7	14.4	13
Francistown	22,019	18,326	40,345	4,155	5,066	9,221	26,174	23,392	49,566	15.9	21.7	18.6
Lobatse	6,172	5,259	11,431	1,121	1,347	2,468	7,293	6,606	13,899	15.4	20.4	17.8
Selebi_Pikwe	12,151	8,471	20,622	1,506	2,161	3,667	13,657	10,632	24,289	11	20.3	15.1
Orapa	2,589	1,882	4,471	194	379	573	2,783	2,261	5,044	7	16.8	11.4
Jwaneng	5,897	3,399	9,296	808	877	1,685	6,705	4,276	10,981	12.1	20.5	15.3
Sowa Town	1,114	612	1,726	94	156	250	1,208	768	1,976	7.8	20.3	12.7
Ngwaketse	17,253	13,081	30,334	5,256	5,029	10,285	22,509	18,110	40,619	23.4	27.8	25.3
Barolong	7,321	5,177	12,498	2,257	1,846	4,103	9,578	7,023	16,601	23.6	26.3	24.7
Ngwaketse West	2,200	1,230	3,430	539	421	960	2,739	1,651	4,390	19.7	25.5	21.9
South East	16,980	14,896	31,876	3,699	4,084	7,783	20,679	18,980	39,659	17.9	21.5	19.6
Kweneng East	46,665	34,926	81,591	11,007	12,061	23,068	57,672	46,987	104,659	19.1	25.7	22
Kweneng West	8,469	4,558	13,027	1,599	1,197	2,796	10,068	5,755	15,823	15.9	20.8	17.7
Kgatleng	17,089	13,503	30,592	3,208	3,826	7,034	20,297	17,329	37,626	15.8	22.1	18.7
Serowe/Palapye	29,523	20,629	50,152	6,626	6,153	12,779	36,149	26,782	62,931	18.3	23	20.3
Central Mahalapye	16,696	12,482	29,178	4,641	4,610	9,251	21,337	17,092	38,429	21.8	27	24.1
Central Bobonong	9,741	7,528	17,269	2,825	3,149	5,974	12,566	10,677	23,243	22.5	29.5	25.7
Central Boteti	8,479	5,590	14,069	2,706	2,586	5,292	11,185	8,176	19,361	24.2	31.6	27.3
Central Tutume	19,628	15,223	34,851	5,477	5,063	10,540	25,105	20,286	45,391	21.8	25	23.2
North East	8,261	7,308	15,569	2,726	2,725	5,451	10,987	10,033	21,020	24.8	27.2	25.9
Ngamiland East	14,599	10,889	25,488	4,540	4,642	9,182	19,139	15,531	34,670	23.7	29.9	26.5
Ngamiland West	7,655	6,458	14,113	1,575	1,511	3,086	9,230	7,969	17,199	17.1	19	17.9
Chobe	6,308	4,403	10,711	680	802	1,482	6,988	5,205	12,193	9.7	15.4	12.2
Okavango Delta	854	774	1,628	26	13	39	880	787	1,667	3	1.7	2.3
Ghanzi	8,308	4,821	13,129	1,489	1,221	2,710	9,797	6,042	15,839	15.2	20.2	17.1
CKGR	149	32	181	1	1	2	150	33	183	0.7	3	1.1
Kgalagadi South	5,325	3,164	8,489	1,120	1,059	2,179	6,445	4,223	10,668	17.4	25.1	20.4
Kgalagadi North	3,880	2,570	6,450	628	607	1,235	4,510	3,181	7,691	13.9	19.1	16.1
Total	363,742	278,331	642,065	78,265	81,191	159,455	442,007	359,522	801,529	17.7	22.6	19.9

Table 14: The Employed Population by Age Group and Locality Type, 2011 Population and Housing Census

Age Group	Locality type									Total
	City/Towns	Urban Villages	Rural Villages	Lands areas	Cattle Posts	Freehold Farms	Mixture of lands and Cattle Post	Other Locality Type		
15-17	476	941	810	740	726	157	199	34	4,083	
18-19	2,561	3,672	2,452	1,137	985	289	335	194	11,625	
20-24	21,677	25,561	11,814	4,087	3,402	1,210	1,235	1,643	70,629	
25-29	40,952	46,420	18,130	4,641	3,666	1,480	1,323	3,065	119,677	
30-34	39,019	45,472	17,380	3,911	2,858	1,331	987	2,336	113,294	
35-39	31,723	37,243	14,932	3,203	2,488	1,035	849	2,641	94,114	
40-44	22,549	26,845	11,640	2,638	1,991	808	640	1,845	68,956	
45-49	16,153	20,671	9,800	2,514	1,841	737	613	995	53,324	
50-54	10,796	14,677	7,949	2,517	1,602	543	584	517	39,185	
55-59	6,628	10,146	6,294	2,592	1,376	393	527	245	28,201	
60-64	2,562	4,570	3,570	2,184	1,105	281	480	76	14,828	
65-69	1,119	2,715	2,341	1,634	790	142	293	33	9,067	
70+	845	3,616	3,463	2,996	1,277	123	458	36	12,815	
Unknown	382	922	428	216	198	26	64	32	2,268	
Total	197,442	243,471	111,003	35,010	24,305	8,555	8,587	13,692	642,065	

Table 15: The Unemployed Population by Age Group and Locality Type, 2011 Population and Housing Census

Age	Locality type									Total
	City/Towns	Urban Villages	Rural Villages	Lands areas	Cattle Posts	Freehold Farms	Mixture of lands and Cattle Post	Camp or Other Locality Type		
15-17	556	1,667	1,207	209	155	41	85	19	3,939	
18-19	2,566	6,156	3,431	393	204	54	110	46	12,960	
20-24	11,169	23,229	10,434	1,237	599	129	281	197	47,275	
25-29	9,001	19,643	8,320	1,013	429	118	215	135	38,874	
30-34	4,824	11,803	5,157	653	252	73	151	98	23,012	
35-39	2,715	7,084	3,321	386	193	44	113	64	13,921	
40-44	1,503	3,619	1,872	236	115	25	63	26	7,459	
45-49	877	2,433	1,371	174	99	25	44	14	5,037	
50-54	495	1,325	743	114	48	13	35	15	2,788	
55-59	248	797	513	89	42	10	19	4	1,722	
60-64	121	406	264	72	25	3	9	3	903	
65-69	48	171	131	34	8	5	9	1	407	
70+	44	314	224	34	24	6	14	3	663	
Unknown	58	249	130	25	21	-	6	6	495	
Total	34,225	78,896	37,118	4,669	2,214	546	1,154	631	159,455	

**Table 16: The Employed Population by Age Occupation and Locality Type,
2011 Population and Housing Census**

Occupation	Paid Employment	Paid in Kind	In own business with employees	In own business without employees	Unpaid work in family activity	Worked in own lands/ cattle post	Not Stated	Total
Managers/Administrators	19,454	38	1,711	7,045	18	27	4	28,297
Professionals	41,373	185	513	663	15	4	6	42,759
Technicians	48,117	139	2,125	704	25	6	13	51,129
Clerks	46,553	87	490	465	33	5	4	47,637
Service/Sales Workers	87,619	306	9,722	2,744	746	59	17	101,213
Skilled Agri. Workers	5,095	317	1,658	843	1,662	41,622	16	51,213
Craft Workers	66,455	426	15,908	5,527	316	126	169	88,927
Plant & Machine Opd.	49,730	93	2,996	846	43	14	65	53,787
Elementary Occupations	152,580	1,715	15,350	1,571	1,211	1,453	289	174,169
Not Stated	1,844	123	294	85	297	190	102	2,935
Total	518,820	3,429	50,767	20,493	4,366	43,506	685	642,065

Table 17: 2001 Census and 2011 Census Unemployment Rates by Age group and Sex

Age Group	Unemployed Population						Unemployment Rates					
	2001 Census			2011 Census			2001 Census			2011 Census		
	Male	Female	Total	Male	Female	Total	Male	Female	Total	Male	Female	Total
15-19	8,227	9,170	17,397	8,673	8,226	16,899	48.2	63.5	55.9	46.4	59.1	51.8
20-24	16,921	21,557	38,478	22,286	24,989	47,275	47.4	51.3	49.4	34.8	46.4	40.1
25-29	9,733	12,473	22,206	18,118	20,756	38,874	23.6	31.8	27.9	21.4	28.1	24.5
30-34	5,171	5,964	11,135	10,920	12,092	23,012	17	18.1	17.5	14.8	19.4	16.9
35-39	3,811	3,647	7,458	7,090	6,831	13,921	13.1	13.4	13.2	11.8	14.3	12.9
40-44	2,591	2,044	4,635	4,066	3,393	7,459	11.3	7.9	9.7	9.7	9.9	9.8
45-49	1,905	1,187	3,092	2,840	2,197	5,037	6.8	7.9	7.3	9	8.2	8.6
50-54	1,143	510	1,653	1,699	1,089	2,788	6.8	3.8	5.5	7.4	5.7	6.6
55-59	701	293	994	1,058	663	1,721	2.9	4	3.4	6.2	5.2	5.8
60-64	421	159	580	587	316	903	2.4	5.2	3.4	6	5.3	5.7
60-69	221	90	311	244	163	407	0	0	0	4	4.8	4.3
70+	229	168	397	316	347	663	0.7	2.6	1.2	3.6	7.5	4.9
Not Stated	406	24	430	368	128	496	-	-	-	19.3	14.8	17.9
Total	51,480	57,286	108,766	78,265	81,190	159,455	21.5	26.3	23.9	17.7	22.6	19.9

Table 9(b): Percentage distribution of Households by housing tenure and by Principal Energy Source Used for Cooking

Tenure of housing unit	Principal fuel - Cooking												Households	
	Electricity	Petrol	Diesel	Solar power	Gas (LPG)	Bio gas	Wood	Paraffin	Cow dung	Coal	Crop waste	Charcoal	Other (NEC)	
Self-built	11.04	0.06	0.05	0.06	22.37	0.67	64.63	0.82	0.1	0.03	0.01	0.12	0.04	290544
Rent individual	20.25	0.09	0.1	0.09	65.54	1.44	7.91	4.26	0.04	0.03	0.02	0.18	0.07	139409
Job related-free	26.37	0.06	0.18	0.1	36.52	0.71	35.05	0.75	0.04	0.05	0.03	0.11	0.04	46333
Rent Central Government	37.26	0.05	0.35	0.11	57.94	1.39	2.5	0.11	0.02	0.06	0.05	0.13	0.03	21802
Free: Inheritance	11.32	0.02	0.06	0.06	33.1	0.7	51.88	2.18	0.3	0.07	0.00	0.12	0.19	11482
Purchased	46.23	0.06	0.07	0.08	43.3	0.73	9.1	0.21	0.04	0.06	0.00	0.11	0.01	8503
Rent: Company	49.52	0.02	0.09	0.08	46.52	0.6	2.79	0.15	0.00	0.05	0.03	0.15	0.02	10946
Rent: BHC	48.65	0.02	0.15	0.15	48.86	0.88	0.97	0.13	0.00	0.1	0.02	0.1	0.00	6165
Rent: Local institution	36.87	0.11	0.16	0.09	59.06	1.22	1.92	0.33	0.01	0.05	0.07	0.11	0.00	7602
Rent: VDC	14.6	0.08	0.2	0.17	56.54	2.6	24.05	1.09	0.06	0.11	0.03	0.31	0.17	3576
Donated	3.58	0.13	0.03	0.2	9.99	0.4	81.21	3.88	0.17	0.1	0.03	0.17	0.10	2964
Do not know	16.19	0.13	0.06	0.06	27.1	0.69	53.06	2.14	0.19	0.13	0.00	0.13	0.13	1587
Total	17.79	0.06	0.09	0.08	37.89	0.92	41.19	1.67	0.07	0.04	0.02	0.13	0.05	550913

Table 9(c): Percentage distribution of Households by housing tenure and by Principal Energy Source Used for Heating

Tenure of housing unit	Principal fuel - Heating												Households	
	Electricity	Petrol	Diesel	Solar power	Gas (LPG)	Bio gas	Wood	Paraffin	Cow dung	Coal	Charcoal	None	Other (NEC)	
Self-built	8.86	0.08	0.02	0.13	0.59	0.05	70.52	0.28	0.07	0.13	0.15	19.08	0.05	290545
Rent individual	17.09	0.12	0.01	0.09	1.68	0.06	17.38	0.32	0.02	0.13	0.16	62.87	0.08	139409
Job related-free	30.54	0.09	0.05	0.16	0.98	0.06	37.87	0.14	0.01	0.13	0.13	29.82	0.02	46333
Rent Central Government	41.45	0.07	0.17	0.4	1.51	0.07	7.01	0.04	0.01	0.12	0.14	48.95	0.06	21802
Free: Inheritance	8.12	0.04	0.01	0.14	0.76	0.02	59.77	0.36	0.18	0.21	0.25	30.08	0.06	11482
Purchased	55.72	0.09	0.06	0.2	2.7	0.13	14.04	0.13	0.02	0.31	0.31	26.23	0.06	8503
Rent: Company	63.59	0.09	0.01	0.06	1.16	0.05	6.89	0.04	0.03	0.11	0.15	27.79	0.04	10946
Rent: BHC	49.08	0.02	0.02	0.05	2.03	0.05	6.88	0.06	0.02	0.15	0.08	41.56	0.02	6165
Rent: Local institution	41.75	0.07	0	0.54	1.71	0.05	6.97	0.04	0.01	0.14	0.12	48.55	0.04	7602
Rent: VDC	12.84	0.14	0.06	0.22	1.2	0.06	39.65	0.62	0.03	0.11	0.28	44.77	0.03	3576
Donated	2.73	0.1	0	0.17	0.3	0.1	78.95	0.44	0.1	0.13	0.17	16.73	0.07	2964
Do not know	11.72	0.06	0.06	0.13	1.39	0	55.26	0.19	0.06	0.19	0.19	30.56	0.19	1587
Total	16.75	0.09	0.03	0.14	1.02	0.06	47.66	0.26	0.05	0.13	0.15	33.6	0.06	550914



Malebogo Kerekang Ag Deputy Statistician General (ECOSOC) Statistics Botswana giving an Overview of the National Strategy for the Development of Statistics in Botswana (NSDS)

OVERVIEW OF THE NATIONAL STRATEGY FOR THE DEVELOPMENT OF STATISTICS IN BOTSWANA (NSDS)

By
Malebogo Kerekang
Ag Deputy Statistician General (ECOSOC)
Statistics Botswana

STATISTICS BOTSWANA MANDATE

- SB shall conduct its functions under the Statistics Act of 2009 as a primary agency of a system to be known as the National Statistical System(NSS)
- SB shall coordinate, monitor and supervise the activities of the NSS for the purpose of carrying out statistical business in accordance with the principles of official statistics
- National Statistics System comprise of all users and data producers of official statistics
- SB shall develop strategies to enable the promotion of the use of statistics for evidence based planning and decision making, policy programming and monitoring and evaluation of policy & programmes
- SB to appoint committees to provide expertise and advice to SB and the NSS in production of official statistics
- SB shall have seal to identify reports with official statistics

STATISTICAL PLANNING

- Policy makers remain an interested party in the statistical enterprise (the shareholder)
- Policy makers continue to provide support to statistics by:
 - Deepening use of statistics as evidence for policy and decision-making
 - Appreciating that statistics is a "public good" & part of necessary infrastructure for development
 - Investing in statistics and statistical development in the country

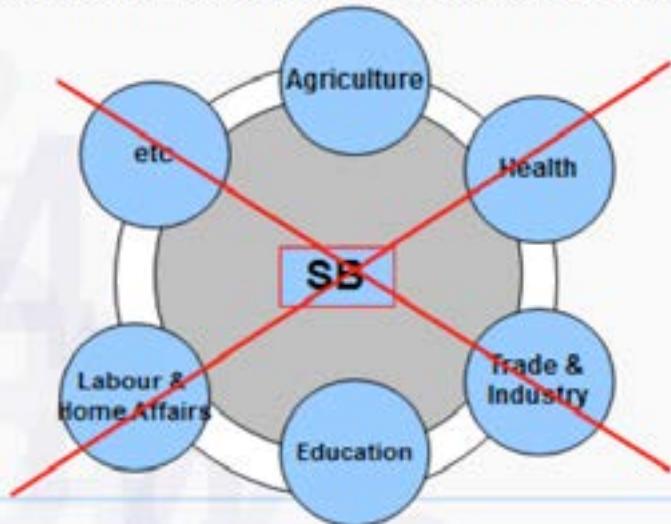
Process is as important as the strategy

- Process should:
 - facilitate statistical advocacy especially:
 - at political & policy level (Ministers, PSs, Parliamentarians, etc.)
 - at policy & decision-making level in identified sectors
- mainstream key stakeholders i.e should:
- be participatory
- be inclusive
- use a consensus-building approach
- build capacity
- enhance coordination by building a truly integrated National Statistical System

STATISTICS BOTSWANA



Uncoordinated National Statistical System



STATISTICS BOTSWANA



Partially coordinated National Statistical System



Fully coordinated National Statistical System



- Sensitisation of PS's, and Ministers has been done, and shall continue.
- Most Sector Statistics Committees have been established.
- Assessment in seven sectors that is: Trade & Industry; Tourism Sector; Local Government & Rural Development; Education; Agriculture; Surveys & Mapping and Statistics Botswana has been completed.

Way forward

1. Develop Sector Statistics Strategies by February 2014
2. Share draft NSDS with stakeholders by May 2014
3. Launch the NSDS for Botswana by June 2014



Mr Nonofo Mokwakwa Vision 2016 giving a Statement on the Implications
of Census Results on Vision 2016 & Beyond

STATEMENT ON THE IMPLICATIONS OF CENSUS RESULTS ON VISION 2016 AND BEYOND

Mr Nonofo Mokwakwa
Vision 2016

Thank you, Director of Ceremonies.

Indeed the dissemination of the 2011 Population and Housing Census comes at the most opportune time as the country is reflecting on the current Vision while in the process of developing the next Vision beyond 2016. As you all know, Vision 2016 is a blueprint guiding the development agenda of this nation. It is based on the notion of achieving prosperity for all by the year 2016 when the nation will celebrate 50 years of independence. The blueprint is a basis for creating the conditions where all people have some stake in both the present and the future. This shared vision will enable everyone to contribute to the common endeavor which will only happen if all Batswana own Vision 2016 and its implementation. The vision has provided an overarching programme of action and a framework for development interventions and resource mobilisation by a range of stakeholders including government, citizens, professional bodies, the private sector and development partners.

Vision Council is the custodian of the national Vision and their duty among other things, is to facilitate implementation of the Vision by monitoring and evaluating progress towards the aspirations of Vision 2016 and reporting back to the Citizen. Over the years the Council has used information generated from the previous census for monitoring the performance of Vision goals. To date the Council has produced a number of studies including two Botswana Performance Reports and the National Household Opinion Survey. Vision 2016 Performance Report tells a "performance story" for each pillar through results/outcomes based on a set of indicators and key results area exemplifying expected results for the nation.

However, monitoring and reporting on the pillars have been historically hampered by lack of suitable data and it is still the case. Investment in the right data is therefore required to understand critical problems facing Botswana and determine the appropriate policies and programmes.

The Vision 2016, convened the first Stakeholders Consultative Conference in 2003 with a theme, "Vision 2016 where are we"? This conference underscored the critical importance providing feedback to the citizens. Access to information is an essential component of a successful development strategy. In order to address challenges we are faced with, we must liberate access to information and improve its quality, something this conference is meant to achieve.

Results based Monitoring and Evaluation is a powerful public management tool that we can use to improve the way governments and organizations achieve results and provide the required feedback. Unlike traditional implementation focused M&E, Results based Monitoring and Evaluation moves beyond an emphasis on inputs and outputs to a greater focus on outcomes and impacts. Just as governments need financial, human resource, and accountability systems, governments also need good feedback systems that rely on up-to-date reliable data. Census results can also be a source for such data. However, the census data in its current form will mainly be able to answer the "what" question in relation to trends which can then trigger problem specific studies to answer the "why" questions to address the trends being observed. Only then can interventions informed by evidence be formulated to address problems identified, in line with the basic principles of evidence based decision making.

Where we are now?

Policy implementation poses particular challenges across all government sectors. Key challenges identified include: weaknesses in institutional processes for ensuring cross sectoral/horizontal linkages, weak capacities, poor policy coordination, coherence and alignment with Vision 2016 which acts as a barrier to effective implementation of Vision 2016. These weaknesses are exacerbated by lack of effective macro level mechanisms for collecting, monitoring, evaluating and disseminating evidence based data for policy making. An Integrated Results Based Management approach was proposed as part of NDP 10 for strategic planning, coordination and implementation of government policies and strategies. This framework is not currently functional across government and sector ministries are yet to receive relevant training and institutional support for Integrated Results Based Management.

The National Strategy Office is currently doing ground work for developing a national M&E Framework and providing necessary training.

The Botswana Performance Report of 2009 identified major challenges standing in the way of attaining the national aspirations as being, unemployment especially among the youth, crime, poverty, HIV AIDS and failure to diversify the economy. These are the major obstacles that threaten the nation ability to achieve the national aspirations. There is an urgent need to carefully reflect on the current policies that are geared towards addressing some of these challenges and articulate a clear strategy of how to mitigate against them. This must be accompanied by a clear commitment to evaluate the extent to which these policies resonate with the desires and wishes of the beneficiaries.

Where are we going?

Distinguished Guests, Ladies and Gentlemen, as much as the Data presented over the past four days is about what happened; we can still use the same data to inform the way forward. Census data plays a key role in the performance monitoring of some Vision goals.

Finally, I urge all of us to use the information gathered from this conference to make the necessary adjustments to our plans and fast track the implementation of Vision 2016 in the remaining years.

Let us also use the census data to project into the future and plan better for the next Vision beyond 2016. On behalf of the Vision Coordinator, I thank you for your attention.



Rev Rupert Hambira National Council Population Development Chair **Closing Remarks**

2011 POPULATION AND HOUSING CENSUS DISSEMINATION SEMINAR CLOSING REMARKS

By

Rev Rupert Hambira

National Council Population Development Chair

Director of Ceremonies

Deputy Statistics Board chair, Professor Thaga

Members of the Statistics Board here present

Deputy Permanent Secretary, Ministry of Education and Skills Development. Mr Ratsatsi

The Statistician General, Ms Majelantle

Deputy Statistician Generals, Mr Dabilani Buthali and Ms Malebogo Kerekang

District Commissioners here present

Senior Government Officials

1. It is indeed a great honour for me to be invited to the closing ceremony of important occasion, the Dissemination Conference of the 2011 Population and Housing Census. It's a pity that I could not be available to appreciate the deliberations of the conference due to other equally important engagements. However, my Secretariat has participated throughout the last three days and I have faith that the developmental issues raised here will be interrogated further by my Council.

2. Let me point out that Statistics Botswana could not have given the public a better Christmas present than disseminating the results of this important national undertaking. The public has waited patiently for this day. In that connection, we applaud the organisation for working tirelessly to ensure that this day and event eventually comes. I have been informed that it was not an easy sailing as there were a lot of behind the scenes activities to enable eventual analysis of the data.

Director of ceremonies

3. In the year 2010, Parliament adopted a Revised National Population Policy. The objective of this Policy is improved quality of life and standard of living for all; the Policy focuses on the cardinal elements which I will not enumerate. However the most important element today, is 'shared knowledge, information and timely availability of socio-economic data'. The conduct of this census, its analysis and dissemination serves that purpose.

4. Botswana population has gone through tremendous transformation over the years, from predominantly rural society to a now urbanised society; from a society of large families to one of smaller ones; from a predominantly agrarian society to one which relies on paid employment.

5. It is important to note that while urbanisation has some desirable benefits, it equally has some notable challenges. The benefits of urbanisation include, but not limited to; the ease of serving a population which is not far spread; the ease of providing infrastructure for this population; better opportunities for employment; and ease of attracting investment. On the other hand, the process of urbanisation brings with it a number of developmental challenges, which include, exerting considerable strain on sanitation facilities, strain on water supply, squatting, growing unemployment and increased crime among others. The revised population Policy recognises these challenges and calls for 'managed urbanisation to exploit its developmental potentialities in both rural and urban areas'.

Director of ceremonies

6. Some of you may recall that traditionally, Batswana had large families resulting in high rate of population growth. There were concerns that the high population growth and fertility rate will eventually overwhelm the country's capacity to provide basic services for its population, which include; health; education, water and sanitation and housing among others. This concern was raised as the forth National Development Plan. However, it was only during the seventh National Development Plan that Government took deliberate steps to contain the rapidly growing population and the high fertility rate. In fact, the first cardinal element of the 1997 Population Policy was to reduce the total fertility rate. Subsequently, the ensuing interventions were geared towards achieving such.

7. However, the Revised Policy has noted that both the growth and the total fertility rate are no longer issues of concern. Even though the fertility rate is still high at 2.7 children per woman, there are already fears that it may soon reach a level where the population might not replace itself. The policy options of avoiding a population drop need a careful balancing act of promoting the health of the population, attracting investment and retaining the country's capacity to provide basic services for its population. The current policy has, therefore, shifted focus from containing rapid population growth and fertility to improving the health of the population.

8. On that note, for some time, over the past two decades, many children died before they reached their first birthday. Today, I note, with great pleasure that the proportion of children dying before they reach their first birthday has declined considerably. While there is potential for debate around the magnitude of this decrease, we have no doubt that the interventions that this country has put in place to promote the health of infants and children are bearing fruits and we can only pray that the benefits are sustained for some time. Equally encouraging is the increased number of years that a newly born baby can expect to live. This has increased from 55.6 years in 2001 to the current estimate of 68 years. The increase is highly commendable and owes a lot to the improved health and quality of life for Batswana, which is the ambition of the National Population Policy.

9. The increase in the expectation of life is indeed an important indicator which should make us proud. Botswana deserves this improvement given the substantial resources committed to improving the health of the people over the last planks and budgets. However, the country should brace itself for; Firstly; a large army of youth surviving to join the labour force. The need to provide decent employment for this group need to be underscored. Already, the country is experiencing a surge in the number of unemployed youth, including those with graduate qualifications. I want to add that this group is not known for being patient.

10. Secondly, the country should brace itself for an ageing population in the long run. The elderly population which currently forms only 5 percent of the entire population is likely to increase. The needs of this group are unique and calls for unique approaches. The Revised National Population Policy proposes measures to assist the elderly population. These include;

- a.** Strengthening institutional framework for policy formulation, monitoring of the welfare and registration of the elderly; and
- b.** Providing subsidised facilities and services for the elderly and other vulnerable persons.
We hope the information provided by these analyses will give the responsible Departments opportunity to come up with measures to achieve these proposals.

Director of ceremonies

11. As I have already mentioned, the National Council on Population and Development will familiarise itself with the issues raised by the analysts and during interactions with stakeholders; debate them in-depth with a view to coming up with programmatic advice to Government; guide policy formation and suggest workable interventions to improve the lives of Batswana. In this regard, we shall count on Statistics Botswana to continue sharing the information with different stakeholders through different fora.

12. In concluding, I hope that these debates and presentations will not end between the four corners of this hall. There is need to engage further with decision makers on the results so that we come up with a common understanding and interpretation of the results. It is equally important to debate the results of this census at local authority level in order to create ownership of the results as well promote evidence based planning at that level. My Council stands ready to assist in this regard, especially communicating the developmental implications of the results at all levels.

13. I thank you.



Tapologo B. Baakile Director, Socio-Demographic Statistics, Reccomendations & Way Forward

2011 POPULATION AND HOUSING DISSEMINATION SEMINAR

RECOMMENDATIONS AND WAY FORWARD

By

Tapologo B. Baakile

Director, Socio-Demographic Statistics

1.0 CONCLUSIONS

Population Distribution

- The population has been growing at a declining rate – with increasing density across districts.
- The mean age of the population has increased – reflecting a population structure undergoing transition.
- More people in Botswana now live in urban areas
- Mortality of the population has generally declined for both adults and infants
- The life expectancy at birth has also increased owing to improved general mortality and decline in infant deaths.
- The average household size has been declining over the years – related to this, the total fertility has also declined.

Housing

- There is increasing proportion of those who rent houses, especially in urban areas – self built units are found more in rural areas.

ICT

- Ownership of cellular phones is at all time high in both rural and urban areas.
- Access to internet is still low even though increasing.

Elderly

- The elderly population has remained at 5 percent for the past 20 years, but is expected to increase due to improved life expectancy.
- Traces of some elderly – especially males – living alone.
- Most of the elderly are females and more than half of them live in rural areas.
- The use of local languages, including Setswana has declined while the use of English at home has increased.

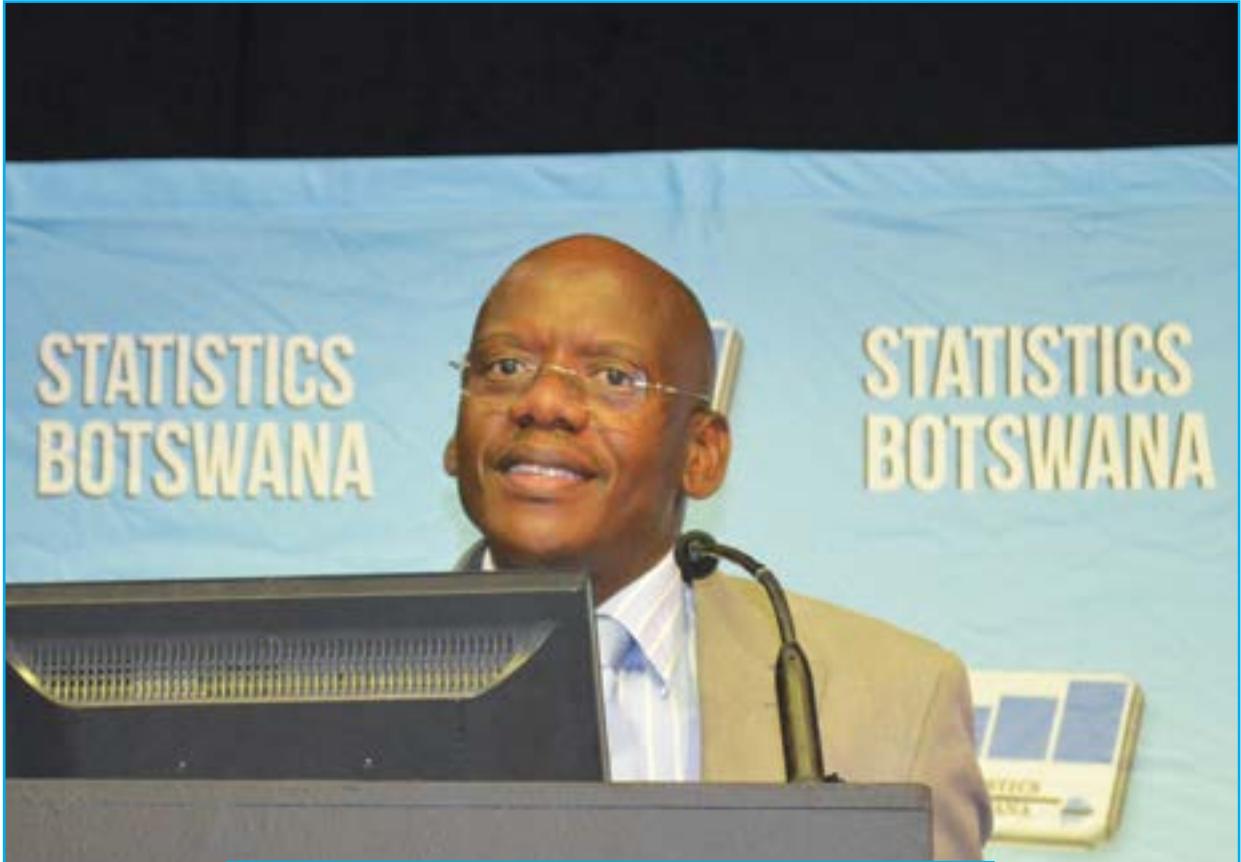
2.0 RECOMMENDATIONS

- Distribution
- Address the issue of regional imbalance in development to contain migration to the more developed eastern part of the country.
- Promote implementation of available policies on participation of the economy as they make up a larger proportion of the population.
- Consider assisting families in raising and rearing children to minimise the cost to families .
- Urbanisation, migration, disability and nuptiality
- Develop a policy to meet the needs of migrating groups in terms of providing housing, water, sanitation and infrastructural facilities.
- Provide appropriate facilities in rural areas to contain rural to urban migration.
- Provide appropriate legislation to promote marriage and discourage cohabitation.
- In future, include albinism as a form of disability.
- Education, training and Language
- Government should develop a robust policy to guide admission and grade acceleration practices in basic education.
- Robust mechanism to determine student readiness for grade acceleration and the monitoring of grade acceleration effects on student development and adjustment at school at school should be implemented.
- In order to achieve universal basic education, the number of under age and over age students at

- school needs to decline to free places for students in the official school age group.
- The school should prepare and preserve a profile of students for all grades separately including basic socio-economic background of the learners and age.
- Water supply, waste and ICT
- Promote the telephone as a means of disseminating information as it is available in both rural and urban areas.
- The local authorities should note and address the issue of refuse collection, especially in urban areas which generate a lot of waste due to their economic activities.
- Youth, gender and orphans
- Synchronise the upper age limit of those regarded as orphans to the one used for youth especially because up to age 24 most would be at school.
- To realise the demographic dividend, there is need for investment on education, health and the economy on matters skewed towards the youth.
- Assess child care system in Botswana with a view to assisting orphans with no family support to have a place to leave their children while at school or looking for employment.
- Progress to address men's problems as their population is nearing parity with women's.
- Encourage more men to marry by relaxing values(bogadi)
- Grouping /analysis of population groups for census or national statistics purposes should be done in line with the prevailing legal/ policy instruments.
- Strengthen education and advocacy, including implementation of laws/ policies against child marriage and defilement.
- Strengthen existing empowerment programmes and make them young women attractive and friendly.

3.0 WAY FORWARD

- Incorporate comments from the conference
- Related papers to reconcile indicators
- Final Papers to be submitted following the guidelines



Dr Tebogo Seleka Board member, Statistics Botswana giving **Vote of Thanks and Closing**

2011 POPULATION AND HOUSING CENSUS DISSEMINATION SEMINAR

VOTE OF THANKS AND CLOSING

By

Dr Tebogo Seleka

Board member, Statistics Botswana

At the end of the Seminar, Dr Tebogo Seleka thanked presenters for the presentations. He noted the workshop was as successful as it was productive. He observed there were four useful areas in disseminating information from a census, namely:

- I. it can be used as a planning tool for policy formulation
- II. It can be used as a monitoring tool of Vision 2016 and MDGs
- III. It can be used to assess the impact of interventions
- IV. It can be used as a baseline for tracking future developments

He described the presentations as insightful, adding they raised a number of issues, some of which he briefly discussed.

"Unemployment particularly among youth has risen. The question is, what are we doing about it. Policy should continue to focus on this issue." He noted there were changes in the demographic item, for example declining fertility rates and said there is need for further research for the nation needed to understand why that was the case.

Agriculture is the largest employer, but the worst economic performer; disability should be given more policy focus." He said.

He noted the issue of urbanisation and agriculture needed to be given greater attention as cities such as Gaborone continued to encroach on agricultural land.

Dr Seleka said it was imperative that health and life expectancy be improved. He said there was need to emphasise the quality of service delivery, especially in education.

"You can have many children attending school, but the quality of education may not be good," he said.

Dr Seleka also reiterated issues raised by participants for the dissemination conference.

"Having seen the statistics, we should ponder what the implications for development are". He also noted there was need to engage policy makers with a view to improving policies around various issues.

He said : "Gender disparities still exists in Botswana, females are disadvantaged. There are a number of policies targeting the disparities but more needs to be done. Health care has generally improved, especially on changing the attitude of Batswana towards HIV and AIDS issues, but emphasis is needed on the quality of service delivery. The high numbers shown on the enrolment on health programs are not necessarily quality indicators. The quality of service is also a vital point in the health sector. There is migration of people from major cities to nearby villages. The causes thereof and implications of the movement on the available resources in the villages should closely monitored. Should we consider housing facilities to the areas where the people are moving?"

He urged contributors to revise their documents with a view to incorporating concerns raised throughout the dissemination seminar. He also encouraged contributors to have extensive literature.

