

Metadata for the Limpopo Basin – South Africa

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List of abbreviations

AFSIS	Africa Soil Information Service
ALCOM	Aquatic Resource Management for Local Community Development Programme
AVG	Average
BFP	Basin Focal Project
BGS	British Geological Survey
CBO	Community Based Organisation
CGIAR	Consultative Group on International Agricultural Research
CPWF	CGIAR Challenge Program on Water and Food
CSO	Central Statistics Office
DAFF	Department of Agriculture, Forestry and Fisheries
DFID	Department for International Development (UK)
DHI	Drought Hazard Index
DWAF-SA	Department of Water Affairs and Forestry, South Africa
EISA	Electoral Institute for Sustainable Democracy in Africa
FAO	Food and Agricultural Organisation of the United Nations
GIS	Geographical Information Systems
HIV	Human Immunodeficiency Virus
IEC	Independent Electoral Commission
IFPRI	International Food Policy Research Institute
INE	Instituto Nacional de Estatística (National Institute of Statistics, Mozambique)
IP	Intellectual Property
IRD	International Relief and Development
ISRIC	International Soil Reference and Information Centre
JRC	Joint Research Centre
LimRAK	Limpopo River Awareness Kit
MAR	Mean Annual Rainfall
MFI	Micro-Finance Institution
MISAU	Ministerio da Saude - Ministry of Health Mozambique
NPO	Non-Profit Organisation
SADC	The Southern African Development Community
SOC	Soil Organic Carbon
StatsSA	Statistics South Africa
SWB	Surface Water Body
TAGMI	Targeting AGwater Management Interventions
TB	Tuberculosis
UK	United Kingdom
UNESCO	United Nations Educational, Scientific and Cultural Organisation
USGS	United States Geological Services
WGHTD	Weighted
WRD	The original SADC Water Resource Database produced by ALCOM
ZNSA	Zimbabwe National Statistics Agency

Spatial definition of study/focus area

Choice of districts to include in each country – using latest boundary demarcations, and including all districts that fall wholly or mostly in the Limpopo River Basin according to GIS overlay of the river basin over district boundaries.

Botswana (quasi-Provinces)	Mozambique	South Africa (new boundaries set in 2005)	Zimbabwe
<i>Urban districts:</i> Gaborone Francistown Lobatse Selibe Phikwe	<i>Gaza Province:</i> Bilene-Macia Chibuto Chicualacuala Chigubo Chokwe Guija Mabalane Manjacaze Massangena Massingir Xai-Xai Xai-Xai(town)	<i>Limpopo Province:</i> Capricorn Greater Sekhukhune Mopani Vhembe Waterberg	<i>Matabeleland South Province:</i> Beitbridge Bulilimamangwe Gwanda Insiza Matobo Umzingwane
<i>Rural Districts:</i> Southern South East Kweneng Kgatleng Central North East	<i>Inhambane Province:</i> Funhalouro Mabote Massinga Panda	<i>Mpumalanga Province:</i> Nkangala Ehlanzeni Gert Sibande	<i>Matabeleland North Province:</i> Bubi Umguza
		<i>North West Province:</i> Bojanala Central (now Ngaka Modiri Molema)	<i>Masvingo Province:</i> Chiredzi Mwenezi
		<i>Gauteng:</i> Mestwedding Sedibeng West Rand Ekurhuleni City of Johannesburg City of Tshwane	<i>Midlands Province:</i> Mberengwa

Note on data processing

Methodology

There are two parts to processing the data before entering it into the TAGMI database :

- 1) Extracting data from publicly available sources, and processing it into relevant indicators for the tool. This methodology is described for each indicator in the following document.
- 2) Transforming the numerical data into the format required by the TAGMI tool. This is the same methodology for all indicators, except Mean Annual Rainfall and Food Security.
 - a. All indicators : data values were classified into three categories (low/med/high) such that a roughly equal number of districts fall into each category (using Hierarchical-Equal Count discretisation function in GeNIe for 3 classes)
 - b. Mean Annual Rainfall: for **Conservation Agriculture**, rainfall range classes were set for the whole basin, not according to the range of values within each country (based on Rusinamhodzi et al 2011, who show that conservation agriculture performs very well within the **Med** rainfall class as below, averagely with **High** rainfall, and poorly with **Low** rainfall):
 - i. **Low** rainfall: < 350mm average per district
 - ii. **Med** rainfall: 350mm - 700mm average per district
 - iii. **High** rainfall: >700mm average per district
 - c. Mean Annual Rainfall: for **Small scale irrigation** and **Small Reservoirs**, the data was treated as for All indicators
 - d. Food Security: this data was compiled by Magombeyi et al (2013) to be comparable between countries, and therefore it has been similarly categorised in the tool:
 - i. **Low** food security: < $\pm 80\%$
 - ii. **Med** food security: $\pm 80 - 90\%$
 - iii. **High** food security: > $\pm 90\%$

Hydrological and administrative boundaries

The project is targeted at the river basin (hydrological area). Yet, for many users, the administrative boundaries of the districts and provinces are more relevant. Therefore, the data is compiled for the tool according to administrative boundaries.

However, spatial data such as distances to rivers and roads has been calculated within the hydrological area of the river basin only, and thus for districts which fall only partially in the river basin, the data only relates to those parts within the river basin (e.g. 'proximity to roads' refers only to the roads and district area within the hydrological limit of the basin).

Secondary data extracted directly from publications refers to the administrative boundary area.

Water resources

Characteristics of water resources that describe availability, access and quality of the water.

Water availability

D_MAR

Indicator name	Mean annual rainfall (mm)
Variable(s)	D_MARmin D_MARavg
Definition	Longterm average annual rainfall (mm) (1901-2005). (aggregation type: AVG) - minimum and average MAR per district
Data Source	Harvest Choice, available at: http://harvestchoice.org/data/longterm-average-annual-rainfall-mm (Accessed June 2013) Sourced from: University of East Anglia Climatic Research Unit (CRU). [Phil Jones, Ian Harris]. CRU Time Series (TS) high resolution gridded datasets. NCAS British Atmospheric Data Centre. Available from http://badc.nerc.ac.uk/data/cru (Accessed on 1 May 2011).
Sample size	West Africa, East & Central Africa, Southern Africa
Spatial scale	1 km grid cells, recalculated to district level (average value)
Year of data	1901 - 2005
Year of publication	2011
Methodology	<p>*same procedure as for D_cattle_dens*:</p> <ul style="list-style-type: none"> • Ensure raster is projected correctly - check that it lines up with a correctly projected layer • Run "Zonal statistics as table" (Spatial Analyst Tools\Zonal) • Set All Districts_Hydro as input raster or feature zone data • Set "District" as zone field • Set MAR layer as input raster or feature data class • Set "Value" as class field • Export table of attributes as a .dbf file – Open in Excel • Extract from data table MINIMUM and MEAN values <p>**Note: for Conservation Agriculture, rainfall range classes were set for the whole basin, not according to the range of values within each country: Low rainfall: < 350mm average per district Med rainfall: 350mm - 700mm average per district High rainfall: >700mm average per district (based on Rusinamhodzi et al 2011)</p>
Copyright	© HarvestChoice, 2006-2013/International Food Policy Research Institute (IFPRI): For personal use and non-commercial purposes: permission is granted to download and copy and to redistribute information and articles – and data subject to the User License – provided that this is not for profit, no text is changed, and the designated copyright notice and source details remain with any material obtained from the site. For material generated by HarvestChoice, the designated copyright notice is © HarvestChoice, 2006-2013. For any reuse or distribution, you must make clear to others the license terms of this work. The best way to do so is with a link to this web page.
Additional Information	

Access to water

D_prox_riv

Indicator name	Proximity to a river
Variable(s)	D_prox_riv
Definition	% of district area lying within 1 km of a perennial river
Data Source	CPWF Phase 1 data collection - Perennial and ephemeral river networks
Sample size	n/a
Spatial scale	Volta basin, Limpopo Basin
Year of data	
Year of publication	
Methodology	Ensure layer is projected correctly Remove non-perennial and ephemeral rivers Create 1km buffer around remaining rivers Calculate area within buffer, divide by total district area, multiply by 100
Copyright	CPWF 2008-2011
Additional Information	

D_watertable

Indicator name	Depth of water table
Variable(s)	D_watertable
Definition	Estimated depth to groundwater (mbgl - metres below ground level)
Data Source	'BGS Quantitative maps of groundwater resources in Africa' Available at: http://www.bgs.ac.uk/gwresilience/
Sample size	Africa
Spatial scale	5 km grid
Year of data	
Year of publication	2012
Methodology	Import text file with point locations into ArcGIS, Display X-Y data and convert to shapefile Convert point shapefile to raster, project to same as the district boundaries Run Spatial Analysis-Zonal-Zonal statistics as table - Note: values are discrete categories:- 0 = SM = 25 - 50 1 = VS = 0 - 7 2 = VD = >250 3 = M = 50 - 100 4 = S = 7 - 25 5 = D = 100 - 250 Use MAJORITY column for D_watertable, which reflects the most common water table depth class in the district
Copyright	Based upon mapping provided by British Geological Survey © NERC 2012. All rights reserved
Additional Information	Terms of use: Following extensive review, the British Geological Survey (BGS), a component

	<p>institute of the Natural Environment Research Council (NERC), asserts ownership of all intellectual property and associated legal rights in the following mapping â€”the Mappingâ€™:</p> <ul style="list-style-type: none"> ▪ Groundwater Storage Map of Africa ▪ Map of Depth To Groundwater Across Africa ▪ Groundwater Productivity Map of Africa; <p>The Mapping is made available to download and to be viewed for any purpose. Extracts of materials derived from the Mapping may be reproduced in analogue or secure electronic format (e.g. appropriately secured .PDF format from which it is not possible to: (i) reverse-engineer back to, or to decompile, the Data; and/or (ii) print or download the reproduced extracts independently from the document), for any purpose.</p> <p>The following acknowledgement must accompany material derived from the Mapping:</p> <p>â€œBased upon mapping provided by British Geological Survey Â© NERC 2012. All rights reservedâ€¿.</p> <p>No part of any of the Mapping may be traded, sold, licensed or sub-licensed or in any other way supplied/made available on a commercial basis to any other person or organisation.</p> <p>Neither NERC nor its employees gives any warranty as to the quality or accuracy of the Mapping, or its suitability for any use. All implied conditions relating to the quality or suitability of the Mapping, and all liabilities arising from the supply of the Mapping (including any liability arising in negligence) and for any reliance on results arising out of use of Mapping, are excluded to the fullest extent permitted by law.</p> <p>BGS has made reasonable attempts to identify/confirm ownership of any data used in connection with the creation of the Mapping, but will take down the Mapping immediately where infringement of any third party rights in any such data used in the creation of the Mapping is brought to our attention.</p> <p>By downloading or using any part of the Mapping, you agree that you have read, understood and accept these terms of use.</p> <p>Any queries, please contact Alan MacDonald</p>
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D_surf_water

Indicator name	Surface water nearby
Variable(s)	D_surf_water
Definition	Number of surface water bodies per km ² per district
Data Source	<p>African Water Resource Database - SADC-WRD Surface Water Body (sadc_swb dataset)</p> <p>Downloaded from: FAO Geonetwork, http://www.fao.org/geonetwork/srv/en/main.home , accessed September 2013</p>
Sample size	18098 polygons, lakes, dams and reservoirs features derived based on 1:250 000 data originally from ALCOM
Spatial scale	Southern Africa
Year of data	1997?
Year of publication	2006
Methodology	In ArcGIS intersect sadc_swb with Limpopo countries district boundaries

	Export attribute table to Excel and extract the number of Surface Water Bodies per district Calculate the density of Surface Water Bodies per area of the district
Copyright	FAO
Additional Information	Enhanced derivative based on the original SADC-WRD database of lakes & impoundments, the SADC_SWB shapefile data layer is comprised of 18098 polygons, lakes, dams and reservoirs features derived based on 1:250 000 data originally from ALCOM. Acronyms and Abbreviations: SADC - The Southern African Development Community; WRD - The original SADC Water Resource Database produced by ALCOM; ALCOM - Aquatic Resource Management for Local Community Development Programme; SWB - Surface Water Body.

D_water_infr *

Indicator name	Access to storage water infrastructure (e.g. rainwater harvesting tanks, shallow wells, boreholes, small ponds etc.)
Variable(s)	D_water_infr
Definition	
Data Source	
Sample size	
Spatial scale	
Year of data	
Year of publication	
Methodology	
Copyright	
Additional Information	

D_wpermit*

Indicator name	Have water permits
Variable(s)	D_wpermit
Definition	
Data Source	
Sample size	
Spatial scale	
Year of data	
Year of publication	
Methodology	
Copyright	
Additional Information	

Water quality

D_salinity*

Indicator name	Salinity
Variable(s)	D_salinity
Definition	
Data Source	
Sample size	
Spatial scale	
Year of data	
Year of publication	
Methodology	
Copyright	
Additional Information	

Social capital

“the social resources upon which people draw in pursuit of their livelihood objectives” (DFID, 1999), typically described in terms of **networks and connectedness, membership of more formalised groups and relationships of trust, reciprocity and exchanges.**

Organisational capacity

The organisational and leadership/management capacity that allow for effective networks and connectedness, running of community activities and providing a means of conflict management.

D_numCBOs

Indicator name	Number of community organisations
Variable(s)	D_numCBOs
Definition	The number of community-based organisations (CBOs), non-profit organisations and/or religious organisations present in the district, per 1000 population. South Africa: Number of registered non-profit organisations per 1000 households per district
Data Source	DSD. 2012. <i>State of South African Registered Non-Profit Organisations issued in Terms of the Non-Profit Organisations Act 71 of 1997: A report from the national NPO database</i> , Department of Social Development, Available at: http://www.dsd.gov.za/npo , accessed July 2013
Sample size	All registered NPOs
Spatial scale	District
Year of data	2012
Year of publication	2012
Methodology	Number of NPOs (taken from source) divided by the number of households multiplied by 1000
Copyright	© 2013 Department of Social Development - Non Profit Organisations
Additional Information	

D_voting

Indicator name	Voting turnout
Variable(s)	D_voting
Definition	Proportion of the voting population (%) who voted in the last government elections (South Africa: 2009 Provincial Elections)
Data Source	IEC South Africa. 2012. <i>National and Provincial Election Results - Voting Turnout</i> Website database, available at: http://www.elections.org.za/content/Pages/LGE_NPE_Reports/Reports.aspx?IEEtypeID=1&id=1426&name=Elections Accessed: 20 Aug 2013
Sample size	Registered voters
Spatial scale	Municipality
Year of data	2009
Year of publication	
Methodology	Re-calculated to district as the sum of voters in all municipalities in a district divided by sum of registered voters in all municipalities in a district, multiplied by 100.
Copyright	IEC 2012

Additional Information	
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D_interests*

Indicator name	# different interest groups
Variable(s)	D_interests
Definition	
Data Source	
Sample size	
Spatial scale	
Year of data	
Year of publication	
Methodology	
Copyright	
Additional Information	

D_disputes*

Indicator name	# conflicts managed
Variable(s)	D_disputes
Definition	
Data Source	
Sample size	
Spatial scale	
Year of data	
Year of publication	
Methodology	
Copyright	
Additional Information	

Support networks

D_information

Indicator name	Access to information (from radio)
Variable(s)	D_information
Definition	Proportion of households (%) possessing a radio
Data Source	StatsSA. 2009. <i>Community Survey 2007: Basic Results by Province</i> . Reports 03-01-27, 28, 33, 34. Statistics South Africa: Pretoria
Sample size	
Spatial scale	District
Year of data	2007
Year of publication	2009
Methodology	Taken directly from source

Copyright	Statistics South Africa 2009
Additional Information	StatsSA website is currently being updated to a new style, making data even more accessible – so the links may change; The Census 2011 results are available which could be used to update this dataset

D_remittances

Indicator name	Receiving remittances
Variable(s)	D_remittances
Definition	Proportion (%) of households receiving income from remittances
Data Source	StatsSA 2012. <i>General Household Survey 2011</i> . Statistical Release P0318, Statistics South Africa: Pretoria
Sample size	
Spatial scale	Province
Year of data	2011
Year of publication	2012
Methodology	Taken directly from source
Copyright	Statistics South Africa 2012
Additional Information	StatsSA website is currently being updated to a new style, making data even more accessible – so the links may change

Access to land

D_own_land*

Indicator name	Farmers owning land
Variable(s)	D_own_land
Definition	
Data Source	
Sample size	
Spatial scale	
Year of data	
Year of publication	
Methodology	
Copyright	
Additional Information	

D_avg_plot *

Indicator name	Average plot size per household
Variable(s)	D_avg_plot
Definition	
Data Source	
Sample size	
Spatial scale	
Year of data	
Year of	

publication	
Methodology	
Copyright	
Additional Information	

Conflict

D_unemploy

Indicator name	Unemployment rate
Variable(s)	D_unemploy
Definition	Rate of unemployment (%)
Data Source	StatsSA. 2012. <i>Census 2011 Municipal report Limpopo/ Mpumalanga/ North West and Gauteng</i> . Reports 03-01-57,56,55,54, Statistics South Africa: Pretoria
Sample size	Whole population
Spatial scale	District
Year of data	2011
Year of publication	2012
Methodology	Taken directly from source
Copyright	Statistics South Africa 2012
Additional Information	StatsSA website is currently being updated to a new style, making data even more accessible – so the links may change

Gender

D_femHH

Indicator name	Female headed households (%)
Variable(s)	D_femHH
Definition	The number of households in each district who acknowledge a single female as the head of the household, as a percentage of all households in each district.
Data Source	StatsSA. 2012. <i>Census 2001: Interactive data - Households</i> . [website] Available at: http://www.statssa.gov.za/census01/html/default.asp , Accessed August 2012
Sample size	All households. (Including collective living quarters)
Spatial scale	District
Year of data	2001
Year of publication	2003
Methodology	The number of female-headed households divided by the total number of households, multiplied by 100
Copyright	Statistics South Africa 2003
Additional Information	Please refer to the extract from the report of the Census Subcommittee to the SA Stats Council on Census 2001 (p.3) when reading this table. StatsSA website is currently being updated to a new style, making data even more accessible – so the links may change;

	The Census 2011 results are available which could be used to update this dataset
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D_g_credit*

Indicator name	Gender ratio - credit access
Variable(s)	D_g_credit
Definition	
Data Source	
Sample size	
Spatial scale	
Year of data	
Year of publication	
Methodology	
Copyright	
Additional Information	

D_gratio

Indicator name	Gender ratio - population
Variable(s)	D_gratio
Definition	Ratio of women to men in the population
Data Source	StatsSA. 2012. <i>Census 2001: Interactive data - Households</i> . [website] Available at: http://www.statssa.gov.za/census01/html/default.asp , Accessed August 2012
Sample size	All households. (Including collective living quarters)
Spatial scale	District
Year of data	2001
Year of publication	2003
Methodology	The number of women divided by the number of men
Copyright	Statistics South Africa 2003
Additional Information	Please refer to the extract from the report of the Census Subcommittee to the SA Stats Council on Census 2001 (p.3) when reading this table. StatsSA website is currently being updated to a new style, making data even more accessible – so the links may change; The Census 2011 results are available which could be used to update this dataset

D_gemployment *

Indicator name	Gender ratio - employment
Variable(s)	D_gemployment
Definition	Ratio of women to men who are employed
Data Source	
Sample size	
Spatial scale	
Year of data	
Year of publication	
Methodology	

Copyright	
Additional Information	

D_fem_ass *

Indicator name	Women's access to assets
Variable(s)	D_fem_ass
Definition	
Data Source	
Sample size	
Spatial scale	
Year of data	
Year of publication	
Methodology	
Copyright	
Additional Information	

Financial capital

“the financial resources that people use to achieve their livelihood objectives” (DFID 1999)

Access to credit

D_avail_MFI

Indicator name	Availability of MFIs
Variable(s)	D_avail_MFI
Definition	Proportion (%) of households with access to formal, semi-formal and informal credit
Data Source	Okurut, F.N. 2006. <i>Access to credit by the poor in South Africa: Evidence from Household Survey Data 1995 and 2000</i> . Stellenbosch Working Paper Series No. WP13/2006. Available at: http://www.ekon.sun.ac.za/wpapers/2006/wp132006 , accessed September 2013
Sample size	South Africa
Spatial scale	Province
Year of data	2000
Year of publication	2006
Methodology	Data taken from source - sum of % formal, semi-formal and informal categories
Copyright	Stellenbosch University
Additional Information	

Wealth

D_poverty

Indicator name	Poverty level
Variable(s)	D_poverty
Definition	Rural poverty level (%) (2010)
Data Source	Magombeyi, M. S., Taigbenu, A. E. and Barron, J., 2013. <i>Rural poverty and Food insecurity mapping at district level for improved agricultural water management in the Limpopo River Basin</i> . Colombo, Sri Lanka: CGIAR Challenge Program on Water and Food (CPWF). 54pp. (CPWF Research for Development (R4D) Series 6)
Sample size	
Spatial scale	District
Year of data	2010
Year of publication	2013
Methodology	Data taken directly from source.
Copyright	Copyright c 2013, CGIAR Challenge Program on Water and Food
Additional Information	

Human capital

“the skills, knowledge, ability to labour and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives” (DFID 1999)

Health Status

Statistics providing indicators of the state of health of individuals in each district, which affect their ability to contribute to the labour-force, as well as affecting the time spent caring for them by other members of the household and the expenditure of income within the household.

D_wsaf

Indicator name	Clean water
Variable(s)	D_wsaf
Definition	Proportion (%) of households with access to piped, point or improved (protected) sources of water; see country-specific definitions for details. South Africa: Proportion (%) of households with access to an improved water source (piped or borehole)
Data Source	StatsSA. 2007. <i>Community Survey 2007: Interactive data - Households</i> . [website] Available at: http://www.statssa.gov.za/community_new/content.asp , Accessed August 2012
Sample size	949 105 persons enumerated, 246 618 households covered
Spatial scale	District
Year of data	2007
Year of publication	2007
Methodology	Sum households with piped and borehole water divided by total number of households, multiplied by 100
Copyright	Statistics South Africa 2007
Additional Information	StatsSA website is currently being updated to a new style, making data even more accessible – so the links may change; The Census 2011 results are available which could be used to update this dataset

D_food_sec

Indicator name	Food security
Variable(s)	D_food_sec
Definition	Proportion of households (%) that did not experience hunger (2010) (i.e. they are food secure)
Data Source	Magombeyi, M. S., Taigbenu, A. E. and Barron, J., 2013. <i>Rural poverty and Food insecurity mapping at district level for improved agricultural water management in the Limpopo River Basin</i> . Colombo, Sri Lanka: CGIAR Challenge Program on Water and Food (CPWF). 54pp. (CPWF Research for Development (R4D) Series 6)
Sample size	
Spatial scale	District
Year of data	2010
Year of publication	2013
Methodology	Inverse of the source data (% food <i>insecure</i> households) - 100 minus source data. **Note: this data was compiled by Magombeyi et al (2013) to be comparable between countries, and therefore it has been similarly categorised in the tool

	(unlike most of the data which is categorised so that there are almost equal numbers of districts in each category): Low food security: < ± 80% Med food security: ± 80 - 90% High food security: > ± 90%
Copyright	Copyright c 2013, CGIAR Challenge Program on Water and Food
Additional Information	

D_clinics

Indicator name	# clinics per 1000 households
Variable(s)	D_clinics
Definition	Total number of clinics present in each district per 1000 households.
Data Source	Health Systems Trust. 2009. <i>District Health Barometer 2008-9</i> , Health Systems Trust: Durban Available at: http://www.hst.org.za/publications/district-health-barometer-200809 , accessed August 2012
Sample size	Whole district
Spatial scale	District
Year of data	2008-9
Year of publication	2011
Methodology	Number of clinics divided by the total number of households multiplied by 1000
Copyright	© Health Systems Trust 2011
Additional Information	

Labour availability

D_work_pop

Indicator name	Working age population
Variable(s)	D_work_pop
Definition	Proportion (%) of total population aged between 15 and 64 South Africa: Proportion (%) of total population aged between 15 and 60
Data Source	StatsSA. 2007. <i>Community Survey 2007: Interactive data - Persons</i> . [website] Available at: http://www.statssa.gov.za/community_new/content.asp , Accessed August 2012
Sample size	949 105 persons enumerated, 246 618 households covered
Spatial scale	District
Year of data	2007
Year of publication	2007
Methodology	Data taken directly from source
Copyright	Statistics South Africa 2007
Additional Information	StatsSA website is currently being updated to a new style, making data even more accessible – so the links may change; The Census 2011 results are available which could be used to update this dataset

D_g_ratio

Indicator name	Gender ratio
Variable(s)	D_g_ratio
Definition	Ratio of women to men in the population
Data Source	StatsSA. 2012. <i>Census 2001: Interactive data - Households</i> . [website] Available at: http://www.statssa.gov.za/census01/html/default.asp , Accessed August 2012
Sample size	All households. (Including collective living quarters)
Spatial scale	District
Year of data	2001
Year of publication	2003
Methodology	The number of women divided by the number of men
Copyright	Statistics South Africa 2003
Additional Information	Please refer to the extract from the report of the Census Subcommittee to the SA Stats Council on Census 2001 (p.3) when reading this table. StatsSA website is currently being updated to a new style, making data even more accessible – so the links may change; The Census 2011 results are available which could be used to update this dataset

D_HIV

Indicator name	HIV prevalence
Variable(s)	D_HIV
Definition	(represented by TB) Reported cases TB (all types) per 100 000
Data Source	Health Systems Trust. 2009. <i>District Health Barometer 2008-9</i> , Health Systems Trust: Durban Available at: http://www.hst.org.za/publications/district-health-barometer-200809 , accessed August 2012
Sample size	Whole district
Spatial scale	District
Year of data	2008-9
Year of publication	2011
Methodology	Data taken directly from source
Copyright	© Health Systems Trust 2011
Additional Information	

Skills (education and experience)

D_literacy

Indicator name	Literacy rate
Variable(s)	D_literacy
Definition	According to UNESCO's definition of 'functional literacy': 'A person is functionally literate who can engage in all those activities in which literacy is required for effective functioning of his group and community and also for enabling him to continue to use reading, writing and calculation for his own and the community's development' (cited in UNESCO 2005, p30). A simpler version of this is 'the ability to read and write, with understanding, a short, simple sentence about one's everyday life' (cited in UNESCO 2005, p29)

	South Africa: the proportion (%) of adults (aged 15+) who have completed 7 years of schooling (i.e. primary school)
Data Source	StatsSA. 2006. <i>Province Profiles 2004: Limpopo</i> , Statistics South Africa: Pretoria. Available at: http://www.statssa.gov.za/publications/Report-00-91-09/Report-00-91-092004.pdf , accessed August 2012; StatsSA. 2012. <i>Census 2001: Interactive data - Households</i> . [website] Available at: http://www.statssa.gov.za/census01/html/default.asp , Accessed August 2012
Sample size	Census population
Spatial scale	District
Year of data	2001
Year of publication	2004; 2001
Methodology	Only provincial literacy rates are published, so district literacy rates were calculated based on education level statistics available in the Census 2001 data, as follows: i) 'Population (aged over 20) by grouped highest level of education' and 'total population broken down by age' were extracted from the Census 2001 dataset ii) Population aged over 20 was calculated by summing all age categories 20 – 85+ iii) The literate population was calculated by summing the education categories 'Completed primary', 'Some secondary', 'Grade 12/Standard 12' and 'Higher' – according to South Africa's definition of literacy The literacy rate was calculated by dividing the literate population by the total population over 20 and multiplying by 100
Copyright	Statistics South Africa 2004, 2001
Additional Information	StatsSA website is currently being updated to a new style, making data even more accessible – so the links may change; The Census 2011 results are available which could be used to update this dataset

D_ag_ext

Indicator name	Agricultural extension
Variable(s)	D_ag_ext
Definition	Proportion of extension officers servicing 600 farmers or less (recommended extension:farmer ratio is 1:500)
Data Source	Department of Agriculture, Forestry and Fisheries (DAFF). 2009. <i>Report on the profiling of the current government-employed extension and advisory service officers in 2007</i> . Department of Agriculture, Forestry and Fisheries, Pretoria. ISBN 278-1-86871-303-5. Available at: http://www.nda.agric.za/doaDev/sideMenu/educationAndTraining/ProfileReport19Nov2009.pdf , accessed November 2012
Sample size	South Africa
Spatial scale	Province
Year of data	2007
Year of	2009

publication	
Methodology	Data taken directly from source - sum of categories 1-200; 201-400; 401-600 farmers
Copyright	DAFF
Additional Information	

D_soil_mgmnt *

Indicator name	Soil management used
Variable(s)	D_soil_mgmnt
Definition	
Data Source	
Sample size	
Spatial scale	
Year of data	
Year of publication	
Methodology	
Copyright	
Additional Information	

D_employment *

Indicator name	Employment rate
Variable(s)	D_employment
Definition	The proportion of the working age population (%) who are employed
Data Source	
Sample size	
Spatial scale	
Year of data	
Year of publication	
Methodology	
Copyright	
Additional Information	

Physical capital

“the basic infrastructure and producer goods needed to support livelihoods” (DFID 1999)

Infrastructure

D_prox_rd

Indicator name	Proximity to road network
Variable(s)	D_prox_rd
Definition	Proportion of district area (%) lying within 5 km of a road
Data Source	CPWF Phase 1 data collection - road networks
Sample size	n/a
Spatial scale	Country-wide
Year of data	
Year of publication	
Methodology	Ensure layer is projected correctly Create 5km buffer around roads Calculate area within buffer, divide by total district area, multiply by 100
Copyright	CPWF 2008-2011
Additional Information	

D_equipment *

Indicator name	Having agricultural equipment
Variable(s)	D_equipment
Definition	
Data Source	
Sample size	
Spatial scale	
Year of data	
Year of publication	
Methodology	
Copyright	
Additional Information	

D_postharv_infr *

Indicator name	Postharvest infrastructure available
Variable(s)	D_postharv_infr
Definition	
Data Source	
Sample size	
Spatial scale	
Year of data	
Year of publication	
Methodology	

Copyright	
Additional Information	

Market access

D_prox_rd

Indicator name	Proximity to road network
Variable(s)	D_prox_rd
Definition	Proportion of district area (%) lying within 5 km of a road
Data Source	CPWF Phase 1 data collection - road networks
Sample size	n/a
Spatial scale	Country-wide
Year of data	
Year of publication	
Methodology	Ensure layer is projected correctly Create 5km buffer around roads Calculate area within buffer, divide by total district area, multiply by 100
Copyright	CPWF 2008-2011
Additional Information	

D_market

Indicator name	Distance from the nearest market
Variable(s)	D_market
Definition	Median travel time to human settlement of 20,000 or greater population. (aggregation type: AVG)
Data Source	HarvestChoice, available from: http://harvestchoice.org/data/average-travel-time-nearest-town-over-20k-hours-2000 Sourced from: HarvestChoice/IFPRI 2009
Sample size	West Africa, East & Central Africa, Southern Africa
Spatial scale	1 km grid cells, recalculated to district level (average value)
Year of data	2000
Year of publication	2011
Methodology	*same procedure as for D_cattle_dens* <ul style="list-style-type: none"> • Ensure raster is projected correctly - check that it lines up with a correctly projected layer • Run "Zonal statistics as table" (Spatial Analyst Tools\Zonal) • Set District boundaries as input raster or feature zone data • Set "District" as zone field • Set Market access layer as input raster or feature data class • Set "Value" as class field • Export table of attributes as a .dbf file – Open in Excel • Extract from data table MEAN values
Copyright	© HarvestChoice, 2006-2013/International Food Policy Research Institute (IFPRI):

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Additional Information	

D_transport *

Indicator name	Having transportation
Variable(s)	D_transport
Definition	
Data Source	
Sample size	
Spatial scale	
Year of data	
Year of publication	
Methodology	
Copyright	
Additional Information	

D_cell_net

Indicator name	Having cellphone (for market information)
Variable(s)	D_cell_net
Definition	Proportion of households (%) possessing a cellphone
Data Source	StatsSA. 2009. <i>Community Survey 2007: Basic Results by Province</i> . Reports 03-01-27, 28, 33, 34. Statistics South Africa: Pretoria
Sample size	
Spatial scale	District
Year of data	2007
Year of publication	2009
Methodology	Taken directly from source
Copyright	Statistics South Africa 2009
Additional Information	StatsSA website is currently being updated to a new style, making data even more accessible – so the links may change; The Census 2011 results are available which could be used to update this dataset

D_input_market *

Indicator name	Input markets present
Variable(s)	D_input_market
Definition	

Data Source	
Sample size	
Spatial scale	
Year of data	
Year of publication	
Methodology	
Copyright	
Additional Information	

D_output_market

Indicator name	Output markets present
Variable(s)	D_output_market
Definition	Density of populated places (villages, towns, cities) per district
Data Source	de Condappa, D, I. Terrasson and J. Lemoalle. 2008. [CD] <i>BFP VOLTA Data Volume</i> , IRD & CGIAR-CPWF - Populated_places.shp from BFP VOLTA Data Volume Disc Originally from: FAO Geonetwork. <i>Populated places in the world</i> . Available from: http://www.fao.org/geonetwork/srv/en/metadata.show?id=12690 ,
Sample size	Global
Spatial scale	District
Year of data	2003
Year of publication	2008
Methodology	In ArcGIS, using South Africa Districts polygon layers, use Hawth's Tools - Analysis tools - Count points in polygon -> gives the number of populated places per district Calculate the number of populated places divided by district area
Copyright	CPWF/ FAO Copyright: Exclusive right to the publication, production, or sale of the rights to a literary, dramatic, musical, or artistic work, or to the use of a commercial print or label, granted by law for a specified period of time to an author, composer, artist, distributor
Additional Information	The geonames were extracted in 2003 from the National Geospatial-Intelligence Agency's (NGA) and the U.S. Board on Geographic Names' (US BGN) database of foreign geographic feature names through the GEOnet Names Server (GNS). The layer contains information on cities, towns, villages, or other agglomerations of buildings where people live and work. For the bigger areas a name is enclosed. Please note: All related fields are described in the attached DCW.pdf document.

Natural resources

“the natural resource stocks from which resource flows and services (e.g. nutrient cycling, erosion protection) useful for livelihoods are derived”

Soil suitability

Characteristics of soil that describe its suitability for a technology.

D_SOC

Indicator name	Soil organic matter content
Variable(s)	D_SOC
Definition	Soil organic carbon (g/kg) in topsoil (0-5cm deep) - % area of district with high or very high soil organic carbon on the scale: 0-1 g/kg = low; 1-2 g/kg = medium; 2-5 g/kg = high; above 5 g/kg = very high South Africa: area of district with 5-15 g/kg SOC (very high)
Data Source	Published by AFSIS http://www.isric.org/data/soil-property-maps-africa-1-km - Reference ISRIC – World Soil Information, 2013. Africa soil property maps at 1 km. Available for download at www.isric.org .
Sample size	Africa
Spatial scale	1km resolution raster of Africa, clipped to Limpopo basin, tabulated to district
Year of data	1950 - 2005 (temporal coverage approximate)
Year of publication	2013
Methodology	<ul style="list-style-type: none">• Ensure layer is projected correctly• Reclassify (Spatial Analyst tools\Reclass\reclassify) raster according to decision that organic content is measures in terms of g/kg – 0 -1, 1-2, 2-5, 5-15 and 15+, according to Henry et al., 2009 – Soil carbon ion ecoregions of Africa. Biogeosciences discuss. Vol. 6, Pgs 797 – 823• Tabulate by district area (Spatial Analyst Tools\Zonal\Tabulate by area)• Divide results by 1000000
Copyright	© Copyright ISRIC 2013
Additional Information	Downloaded: 5 th June 2013 Data license (IP policy): Attribution-ShareAlike CC BY-SA Online repository of R scripts: https://code.google.com/p/gsif/source/browse/trunk/AFRICA/1km/

D_clay

Indicator name	Clay content
Variable(s)	D_clay
Definition	% area of district with on average >30% clay in top 200cm of soil
Data Source	Published by AFSIS http://www.isric.org/data/soil-property-maps-africa-1-km - Reference ISRIC – World Soil Information, 2013. Africa soil property maps at 1 km. Available for download at www.isric.org .
Sample size	Africa
Spatial scale	1km resolution raster of Africa, clipped to Limpopo basin, tabulated to district
Year of data	1950 - 2005 (temporal coverage approximate)
Year of publication	2013

Methodology	<ul style="list-style-type: none"> • Ensure layer is projected correctly • Reclassify (Spatial Analyst tools\Reclass\reclassify) raster according to decision that Clay: < 20%, 20 – 30%, > 30% in accordance with Soil textural triangle http://age-web.age.uiuc.edu/classes/age357/ABE459_08/html/Soil%20Properties.pdf. • Tabulate by district area (Spatial Analyst Tools\Zonal\Tabulate by area) • Divide results by 1000000
Copyright	© Copyright ISRIC 2013
Additional Information	Downloaded: 5 th June 2013 Data license (IP policy): Attribution-ShareAlike CC BY-SA Online repository of R scripts: https://code.google.com/p/gisf/source/browse/trunk/AFRICA/1km/

Land availability

D_cropland

Indicator name	Total cropland area
Variable(s)	D_cropland; Cropland (for Fields to display)
Definition	Total cropland area (including irrigated) (ha) (2000). (aggregation type: SUM)
Data Source	HarvestChoice, available at: http://harvestchoice.org/data/cropland-area-ha Sourced from: Ramankutty et al. (2008), "Farming the planet: 1. Geographic distribution of global agricultural lands in the year 2000", Global Biogeochemical Cycles, Vol. 22, GB1003, doi:10.1029/2007GB002952.
Sample size	West Africa, East & Central Africa, Southern Africa
Spatial scale	1 km grid cells, recalculated to district level (average value)
Year of data	2000
Year of publication	2008
Methodology	*same procedure as for D_cattle_dens* <ul style="list-style-type: none"> • Ensure raster is projected correctly - check that it lines up with a correctly projected layer • Run "Zonal statistics as table" (Spatial Analyst Tools\Zonal) • Set District boundaries as input raster or feature zone data • Set "District" as zone field • Set Cropland layer as input raster or feature data class • Set "Value" as class field • Export table of attributes as a .dbf file – Open in Excel • Extract from data table MEAN values
Copyright	© HarvestChoice, 2006-2013/International Food Policy Research Institute (IFPRI): For personal use and non-commercial purposes: permission is granted to download and copy and to redistribute information and articles – and data subject to the User License – provided that this is not for profit, no text is changed, and the designated copyright notice and source details remain with any material obtained from the site. For material generated by HarvestChoice, the designated copyright notice is © HarvestChoice, 2006-2013. For any reuse or distribution, you must make clear to others the license terms of this work. The best way to do so is

	with a link to this web page.
Additional Information	

D_slope

Indicator name	Average surface slope
Variable(s)	D_slope
Definition	Proportion (%) of the district by area that is classed as flat (i.e. with < 8% slope, or a gradient <4.57°, according to FAO's Geonetwork slope classification - http://www.fao.org/geonetwork/srv/en/main.home#soils)
Data Source	Surface slope courtesy of the U.S. Geological Survey – according to http://www.usgs.gov/visual-id/credit_usgs.html ; Available for download from: USGS - https://lta.cr.usgs.gov/HYDRO1K , downloaded May 2013
Sample size	Global
Spatial scale	Calculated to district
Year of data	Various
Year of publication	1996
Methodology	(See Extended Methodology and GTOPO30 README found at https://lta.cr.usgs.gov/gtopo30 for greater detail) <ul style="list-style-type: none"> • Download the .tar file for the Limpopo tile • Convert into a raster using IMAGEGRID • Define the co-ordinate system and projection to match the other data layers • Note that the documentation comments that the raster values have been multiplied by 100 in order to allow for the inclusion of the maximum amount of data., therefore modify raster by two orders of magnitude to correct for this • Re-classify raster according to FAO's Geonetwork classification of slope classes (http://www.fao.org/geonetwork/srv/en/main.home#soils): <ol style="list-style-type: none"> a. Level to undulating - < 8% slope (< 4.57°) b. Rolling to hilly – 8 – 30% slope (4.57° - 16.7°) c. Steeply bisected to mountainous - > 30% slope) (> 16.7°). • Calculate area per class per district • Calculate % area per class of total district area
Copyright	USGS 2012
Additional Information	

D_pop_dens

Indicator name	Population density
Variable(s)	D_pop_dens
Definition	Average population density (people/km ²)
Data Source	StatsSA. 2007. <i>Community Survey 2007: Interactive data - Persons</i> . [website] Available at: http://www.statssa.gov.za/community_new/content.asp , Accessed August 2012
Sample size	949 105 persons enumerated, 246 618 households covered
Spatial scale	District
Year of data	2007
Year of	2007

publication	
Methodology	Total population of district divided by district surface area
Copyright	Statistics South Africa 2007
Additional Information	StatsSA website is currently being updated to a new style, making data even more accessible – so the links may change; The Census 2011 results are available which could be used to update this dataset

Biomass availability

The total amount of biomass available to farmers to use in agriculture (e.g. for mulch or feed).

D_bio_prod

Indicator name	Potential Biomass production																																										
Variable(s)	D_bio_prod																																										
Definition	Index of biomass production that is not crops, based on landcover types, with value range: 0 - 3 (100% city/cropland/bare - 100% forest)																																										
Data Source	JRC. 2003. <i>Global Land Cover 2000 database</i> . European Commission, Joint Research Centre, [website] Available at: http://bioval.jrc.ec.europa.eu/products/glc2000/products.php , accessed July 2013																																										
Sample size	All of Africa																																										
Spatial scale	1 km resolution, calculated to % of district area																																										
Year of data	1994 - 2000																																										
Year of publication	2003																																										
Methodology	<p>Calculate area of each landcover class in each district, then % of total area covered by each class. To create index, assign landcover classes to categories: Forest, shrubland, grassland, other (includes cropland, cities, water); and rank categories according to the amount of biomass produced and available by farmers to use as mulch or feed: Forest = 3, shrubland = 2, grassland = 1, other = 0</p> <table><thead><tr><th>Landcover class</th><th>Category</th><th>Rank</th></tr></thead><tbody><tr><td>Closed evergreen lowland forest</td><td>Forest</td><td>3</td></tr><tr><td>Degraded evergreen lowland forest</td><td>Forest</td><td>3</td></tr><tr><td>Closed deciduous forest</td><td>Forest</td><td>3</td></tr><tr><td>Deciduous woodland</td><td>Forest</td><td>3</td></tr><tr><td>Deciduous shrubland with sparse trees</td><td>Shrubland</td><td>2</td></tr><tr><td>Open deciduous shrubland</td><td>Shrubland</td><td>2</td></tr><tr><td>Closed grassland</td><td>Grassland</td><td>1</td></tr><tr><td>Open grassland with sparse shrubs</td><td>Grassland</td><td>1</td></tr><tr><td>Open grassland</td><td>Grassland</td><td>1</td></tr><tr><td>Sparse grassland</td><td>Grassland</td><td>1</td></tr><tr><td>Croplands (>50%)</td><td>Other</td><td>0</td></tr><tr><td>Salt hardpans</td><td>Other</td><td>0</td></tr><tr><td>Waterbodies</td><td>Other</td><td>0</td></tr></tbody></table>	Landcover class	Category	Rank	Closed evergreen lowland forest	Forest	3	Degraded evergreen lowland forest	Forest	3	Closed deciduous forest	Forest	3	Deciduous woodland	Forest	3	Deciduous shrubland with sparse trees	Shrubland	2	Open deciduous shrubland	Shrubland	2	Closed grassland	Grassland	1	Open grassland with sparse shrubs	Grassland	1	Open grassland	Grassland	1	Sparse grassland	Grassland	1	Croplands (>50%)	Other	0	Salt hardpans	Other	0	Waterbodies	Other	0
Landcover class	Category	Rank																																									
Closed evergreen lowland forest	Forest	3																																									
Degraded evergreen lowland forest	Forest	3																																									
Closed deciduous forest	Forest	3																																									
Deciduous woodland	Forest	3																																									
Deciduous shrubland with sparse trees	Shrubland	2																																									
Open deciduous shrubland	Shrubland	2																																									
Closed grassland	Grassland	1																																									
Open grassland with sparse shrubs	Grassland	1																																									
Open grassland	Grassland	1																																									
Sparse grassland	Grassland	1																																									
Croplands (>50%)	Other	0																																									
Salt hardpans	Other	0																																									
Waterbodies	Other	0																																									

	Cities	Other	0
Copyright	<p>1. Download for scientific use - Parts or all of the dataset can be freely downloaded for further use in scientific applications under the condition that the source will be properly quoted in published papers or journals. Appropriate reference for the data is provided for the whole database and for each individual component (e.g. regional maps) in a text file accompanying each product on the products download page. By way of an example, the digital global land cover database should be quoted in the form "Global Land Cover 2000 database. European Commission, Joint Research Centre, 2003, http://www.gem.jrc.it/glc2000".</p> <p>Copied from http://bioval.jrc.ec.europa.eu/products/glc2000/disclaimer.php</p>		
Additional Information	<p>http://bioval.jrc.ec.europa.eu/products/glc2000/metadata.php?product=Africa</p> <p>DATASET DESCRIPTION</p> <p>Title of Dataset Vegetation Map of Africa</p> <p>Abstract The Land Cover map of Africa is one regional component of the GLC2000 exercise, conceived and coordinated by the European Commission's Joint Research Centre. The GLC2000 maps are based on daily observations made from 1st November 1999 to 31st December 2000 by the VEGETATION sensor on the SPOT 4 satellite. The Africa map's legend pays special attention to the forest and savannah biomes. The map shows specific land-cover features as the irrigated agriculture, the ribbons of secondary forest of the swamp forests at a spatial detail never achieved before.</p> <p>Keywords Global Land Cover 2000, Africa, Vegetation</p> <p>Language English</p> <p>Version / Edition 3.0</p> <p>Production Date 20/02/2003</p> <p>Status Complete</p> <p>CONTACT DETAILS</p> <p>Compiled by</p> <p>Institution Name : GVM, JRC</p> <p>Contact Name : Philippe MAYAUX</p> <p>Email : philippe.mayaux@jrc.it</p> <p>Web Link : http://bioval.jrc.ec.europa.eu/products/glc2000/glc2000.php</p> <p>Project Co-ordination</p> <p>Institution : Joint Research Centre</p> <p>Contact Name : Philippe MAYAUX</p>		

	Email :	philippe.mayaux@jrc.it	
	Web Link :	http://www-gvm.jrc.it/glc2000/defaultGLC2000.htm	
	Other Collaborating Partners	E. Bartholom��, M. Massart, C. Van Cutsem, A. Cabral, A. Nonguierma, O. Diallo, C. Pretorius, M. Thompson, M. Cherlet, J-F. Pekel, P. Defourny, M. Vasconcelos, A. Di Gregorio, S.Fritz, G. De Grandi, C..Elvidge, P.Vogt, A. Belward	
	METHODOLOGY		
	Lineage of the Data		
	Data Source(s)		
	Temporal Start :	1994-1996 for radar data	
	Coverage of the Data End :	2000 for optical data	
		Name :	Land-cover legend
		Description :	
	Legend	Online Resources :	http://www-gvm.jrc.it/glc2000/Products/africa/GLC2000_africa3.pdf
	Data Quality Assessment	Qualitative : % Assessed by Regional Experts :	ongoing
	SPATIAL REPRESENTATION INFORMATION		
	Geographical Location	ULX : -28.837057	LRX : 57.921857
		ULY : 46.002137	LRY : -36.024635
	Spatial Resolution	1km at Equator (0.00892857dd)	
	Map Projection	Geographic (Lat/Lon)	
	Spheroid	WGS84	
	File Size (Mb)	3.40 / 3.43	

D_cattle_dens

Indicator name	Cattle density
Variable(s)	D_cattle_dens
Definition	Average cattle density per district (head/ km ²), from Cattle density per grid cell (in 2005). (aggregation type: WGHTD)
Data Source	Harvest Choice, available at: http://harvestchoice.org/data/cattle-density-headsq-km-2005 Sourced from: FAO. 2007. Gridded livestock of the world 2007, by G.R.W. Wint and T.P. Robinson. Rome, pp 131.

Sample size	West Africa, East & Central Africa, Southern Africa
Spatial scale	1 km grid cells, recalculated to district level (average value)
Year of data	2005
Year of publication	2011
Methodology	<p>Ensure raster is projected correctly - check that it lines up with a correctly projected layer</p> <ul style="list-style-type: none"> • Run “Zonal statistics as table” (Spatial Analyst Tools\Zonal) • Set District boundaries as input raster or feature zone data • Set “District” as zone field • Set Cattle density layer as input raster or feature data class • Set “Value” as class field • Export table of attributes as a .dbf file – Open in Excel • Extract from data table MEAN values
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Additional Information	

Weather variability

D_dryspells

Indicator name	Drought hazard index
Variable(s)	D_dryspells
Definition	Drought Hazard Index (DHI), which focuses on the probability of crop failure combined with the degree of rainfall variability. Low DHI indicates a relatively low chance of crop failure, and High indicates an increased probability of crop failure, due mainly to rainfall variability
Data Source	<p>Limpopo River Awareness Kit, http://www.limpoporak.com , data originally from:</p> <p>Leira, E.M., Rafael, J., Bata, M.O., Mechisso, M., McNabb, M., Engelbrecht, R. Maló, S. 2002. Atlas for Disaster Preparedness and Response in the Limpopo Basin. Available online at: http://edmc1.dwaf.gov.za/library/limpopo/index.htm Accessed on February 1, 2010 (by LimRAK)</p>
Sample size	Sub-Saharan Africa and Madagascar
Spatial scale	Not known
Year of data	
Year of publication	2002
Methodology	Create a raster, then use ‘Spatial Analyst/Zonal/Zonal Statistics as Table’ to extract the Mean Drought hazard per district per district in the basin.
Copyright	Limpopo River Awareness Kit, DWAF-SA

Additional Information	
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Pests and disease

D_loss_prod *

Indicator name	Loss of harvest to pests/disease
Variable(s)	D_loss_prod
Definition	
Data Source	
Sample size	
Spatial scale	
Year of data	
Year of publication	
Methodology	
Copyright	
Additional Information	

Fields to display

Total population

Indicator name	Total population
Variable(s)	population
Definition	Total population per district (2007)
Data Source	StatsSA. 2007. <i>Community Survey 2007: Interactive data - Persons</i> . [website] Available at: http://www.statssa.gov.za/community_new/content.asp , Accessed August 2012
Sample size	949 105 persons enumerated, 246 618 households covered
Spatial scale	District
Year of data	2007
Year of publication	2007
Methodology	Data taken directly from source
Copyright	Statistics South Africa 2007
Additional Information	StatsSA website is currently being updated to a new style, making data even more accessible – so the links may change; The Census 2011 results are available which could be used to update this dataset

Mean annual rainfall (mm)

See D_MAR

Total cropland area (ha)

See D_cropland

Poverty level (%)

See D_poverty

Food security (%)

See D_food_sec

Glossary of variables for South Africa:-

D_MARavg	Longterm average annual rainfall (mm) (1901-2005). (aggregation type: AVG) - minimum and average MAR per district
D_MARmin	Longterm average annual rainfall (mm) (1901-2005). (aggregation type: AVG) - minimum and average MAR per district
D_prox_riv	% of district area lying within 1 km of a perennial river
D_watertable	Estimated depth to groundwater (mbgl - metres below ground level)
D_surfwater	Number of surface water bodies per km ² per district
D_water_infr	
D_wpermit	
D_salinity	
D_numCBOs	Number of registered non-profit organisations per 1000 households per district
D_voting	Proportion of the voting population (%) who voted in the last government elections (2009 Provincial Elections)
D_interests	
D_disputes	
D_information	Proportion of households (%) possessing a radio
D_remittances	Proportion (%) of households receiving income from remittances
D_own_land	
D_avg_plot	
D_unemploy	Rate of unemployment (%)
D_femHH	The proportion (%) of households in each district who acknowledge a single female as the head of the household, as a percentage of all households in each district.
D_g_credit	
D_gratio	Ratio of women to men in the population
D_gemployment	
D_fem_assets	
D_avail_MFI	Proportion (%) of households with access to formal, semi-formal and informal credit
D_poverty	Rural poverty level (%) (2010)
D_wsaf	Proportion (%) of households with access to an improved water source (piped or borehole)
D_food_sec	Proportion of households (%) that experienced hunger (2010)
D_clinics	Total number of clinics present in each district per 1000 households.
D_work_pop	Working age population - Proportion (%) of total population aged between 15 and 60
D_g_ratio	Ratio of women to men in the population
D_HIV	(represented by TB) Reported cases TB (all types) per 100 000
D_literacy	Literacy rate - the proportion (%) of adults (aged 15+) who have completed 7 years of schooling (i.e. primary school)
D_ag_ext	Proportion of extension officers servicing 600 farmers or less (recommended extension:farmer ratio is 1:500)
D_soil_mgmnt	
D_employment	
D_prox_rd	Proportion of district area (%) lying within 5 km of a road
D_equipment	

D_postharv_infr	
D_market	Median travel time to human settlement of 20,000 or greater population. (aggregation type: AVG)
D_transport	
D_cell_net	Proportion of households (%) possessing a cellphone
D_input_market	
D_output_market	Density of populated places (villages, towns, cities) per district
D_SOC	Soil organic carbon (g/kg) in topsoil (0-5cm deep) - % area of district with high or very high soil organic carbon on the scale: 0-1 g/kg = low; 1-2 g/kg = medium; 2-5 g/kg = high; above 5 g/kg = very high South Africa: area of district with 5-15 g/kg SOC (very high)
D_clay	% area of district with on average >30% clay in top 200cm of soil
D_cropland	Total cropland area (including irrigated) (ha) (2000). (aggregation type: SUM)
D_slope	Proportion (%) of the district by area that is classed as flat (i.e. with < 8% slope, or a gradient <4.57°, according to FAO's Geonetwork slope classification - http://www.fao.org/geonetwork/srv/en/main.home#soils)
D_pop_dens	Average population density (people/km ²)
D_bio_prod	Index of biomass production that is not crops, based on landcover types, with value range: 0 - 3 (100% city/cropland/bare - 100% forest)
D_cattle_dens	Average cattle density per district (head/ km ²), from Cattle density per grid cell (in 2005). (aggregation type: WGHTD)
D_dryspell	Drought Hazard Index (DHI), which focuses on the probability of crop failure combined with the degree of rainfall variability. Low DHI indicates a relatively low chance of crop failure, and High indicates an increased probability of crop failure, due mainly to rainfall variability
D_loss_prod	