

ZIMBABWE INFRASTRUCTURE REPORT 2019



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FOREWORD

Zimbabwe has faced headwinds over the last decade resulting in a collapse of the economy. However, following the political transition of November 2017, the new government requested the African Development Bank to update the 2011 Zimbabwe Infrastructure Flagship Report, so as to aid in investment planning as part of the vision 2030. The government also requested the Bank to prepare an urgent economic report, to assist and advice on re-engagement with the international community. All these requests were to aid in the Joint Needs Assessment that was to be coordinated by the Bank, the United Nations and the World Bank. The Bank accepted these requests, cognizant of the fact that policy actions and, in particular, investment in infrastructure have important roles to play in the development of continental trade and in promoting economic linkages within Africa.

The Bank recognises that poor infrastructure is a critical barrier to accelerating growth and poverty reduction in Africa. Studies have shown that increasing the stock of infrastructure by one percent can add up to one percent to gross domestic product. Infrastructure is considered a key component of the investment climate by reducing the costs of doing business and enabling people to access markets. It is a precondition for private sector development and a key enabler of integration of regional sub-regional markets for intra-African trade, and positioning of a competitive Africa in world markets. Investments in infrastructure are critical to advances in agriculture and fundamental to human development, including the delivery of health and education services to poor people. Infrastructure is an enormous untapped potential for the creation of productive employment.

In recognition of these facts, the development of Africa's infrastructure and economic integration are key components of the strategic direction being pursued by the Bank. In this regard, besides various normal lending and non-lending instruments offered by the Bank to its regional member countries, the AfDB leads on several key continental infrastructure initiatives. Currently, the Bank is the Executing Agency for the Programme for Infrastructure Development in Africa (PIDA); the programme designed as successor to the NEPAD Medium to Long Term Strategic Framework (MLTSF), to develop a vision and strategic framework for the development of regional and continental infrastructure (Energy, Transport, Information and Communication Technologies (ICT) and Trans-boundary Water Resources). The PIDA initiative is being led by the African Union Commission (AUC), NEPAD Secretariat and the Bank. The Bank's role as Executing Agency covers the responsibility for contractual, financial, technical and administrative management of the programme including responsibility for procurement procedures, in conformity with its existing regulations, budget management and disbursements.

This Report serves four purposes by providing: (i) the Government with a master plan for rehabilitation of infrastructure assets and recovery in infrastructure services in Zimbabwe within the context of vision 2030; (ii) a game plan for re-engagement with the international community in the field of infrastructure in the event that the Government moves ahead with arrears clearance in 2019; (iii) a platform from which a strategy for possible AfDB and other donor operations in Zimbabwe can be drawn up; and (iv) as part of the Joint Needs Assessment including costing of the infrastructure sectors.

The focus of this Report is on the services associated with transport, electric power, information and communication technologies (ICT), and water and sanitation in Zimbabwe. The Report provides a detailed assessment of the current status of the infrastructure and services in these four sectors in the country and their role within the Southern Africa region. It sets achievable objectives for Zimbabwe's infrastructure by

2030, and lays out an action programme for achieving these objectives that includes policy and institutional reform, capital expenditure programmes for rehabilitation and new capacity, and increased resource allocations for maintenance of these facilities. It provides options for financing the proposed programme, identifies the specific areas where there is a role for private investment, and discusses improvements in the operating environment that will be required to attract this investment.

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PREFACE

It is now widely recognised that growth and development can only be achieved with the availability of economic and social infrastructure. The need to improve the quality of infrastructure services in Zimbabwe is, therefore, the cornerstone of the government of Zimbabwe's policy, strategy and programmes to promote sustained and shared economic growth in the country. This has been articulated in vision 2030 and also the recently launched Transitional Stabilisation Programme (October 2018 – December 2020). In line with the government's commitment to address infrastructure bottlenecks in the country, this publication seeks to contribute to the body of knowledge regarding this complex sector, and to assist by providing current information and analysis in order to inform and facilitate decision making.

This Report is important for several reasons. First, it provides the Government, the donor community and the private sector with a detailed assessment of infrastructure investment opportunities in Zimbabwe. Second, it proposes an Action Plan to develop these opportunities, and in so doing, helps fill the gap created by the absence of master plans for the development of the four sectors. Third, it can be used to inform and support the Government's dialogue with donors and the business community about further development of these sectors. Increased coordination within this partnership can improve the alignment of investments with the national objectives, as set out in Zimbabwe's vision 2030, and regional priorities for infrastructure development within the Southern African Development Community (SADC). In this way, the Report can contribute to the overall efficiency of the development process in Zimbabwe.

The preparation of the report was based on a broad stakeholder participation and consultation. This involved numerous rounds of consultations with government officials and various key stakeholders between September and November 2018, including a consultation workshop on 15th November 2018, to forge a consensus on the actions to be taken and to adequately reflect them in the report. The African Development Bank looks forward to continued dialogue, with this report as an input, to develop bold and new approaches towards addressing infrastructure deficiencies in Zimbabwe, within the framework of the Joint Needs Assessment.

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Acronyms and Abbreviations

AACL	Association of African Communications Lawyers
ACMA	Australian Communications and Media Authority
ACZ	Airports Company of Zimbabwe
ADB	Asian Development Bank
AfDB	African Development Bank
AIIB	Asian Infrastructure Investment Bank
A-MDTF	Analytical Multi-Donor Trust fund
ARDA	Agricultural and Rural Development Authority
ARDS	Agricultural and Rural Development Authority
AREX	Department of Research and Extension Services
AU	Africa Union
BA	British Airways
BAZ	Broadcasting Authority of Zimbabwe
BBR	Bulawayo and Beitbridge
BF	Broadcasting Fund
BIPPas	Bilateral Investment Promotion and Protection Agreements
BOT	Build Operate Transfer
CAA	Civil Aviation Authority
CAAZ	Civil Aviation Authority of Zimbabwe
CC	Catchment Councils
COP	Catchment Outline Plan
COP	Catchment Outline Plan
DDF	District Development Fund
DFI	Development Finance Institutions
DID	Department of Infrastructural Development Services
DOI	Department of Irrigation
DoR	Department of Roads
DRC	Democratic Republic of Congo
DWR	Department of Water Resources
EASSy	East African Sub-Marine System
EBITDA	Earnings Before Interest, Tax and Amortisation
EBRD	European Bank for Reconstruction and Development
EHA	Environmental Health Assistant
EHO	Environmental Health Officer
EHT	Environmental Health Technician
EMA	Environmental Management Agency
EPIRP	Emergency Power Infrastructure Rehabilitation Project
EU	European Union
FAA	Food and Agricultural Authority
FAO	Food and Agriculture Organisation
FDI	Foreign Direct Investment
FOB	Fibre Optic Backbone
GDP	Gross Domestic Product
GMB	Grain Marketing Board
GMB	Grain Marketing Board
GINI	Gross National Income
GoZ	Government of Zimbabwe
GPA	Global Political Agreement
HDI	Human Development Index
IAP	Internet Access Provider
ICAO	International Civil Aviation Organisation
ICDS	Inter-censal Demographic Survey
ICOLD	International Commission on Large Dams
ICOLD	International Commission on Large Dams
ICT	Information, Communication and Technology
IDBZ	Infrastructure Development Bank of Zimbabwe
IDS	Infrastructural Development Services
IFI	International Financial Institutions
IG	Inclusive Government
IPP	Independent Power Producers
I-PRSP	Interim Poverty Reduction Strategy Paper

IPTV	Internet Protocol Television
ISP	Internet Service Provider
IT	Information Technology
ITU	International Technology Union
ITU	International Technology Union
JNA	Joint Needs Assessment
km	Kilometer
KQ	Kenya Airways
kWh	Kilowatt hour
MDTF	Multi Donor Trust Fund
MEWC	Ministry of Environment, Water and Climate
MFED	Ministry of Finance and Economic Development
MISA	Media Institute of Southern Africa
ML	Megalitres
MPI	Multidimensional Poverty Index
MRRWD	Ministry of Rural Resources and Water Development
MRRWD	Ministry of the then Rural Resources and Water Development
MTP	Medium Term Plan
MW	Megawatts
NAC	National Action Committee
NEPAD	New Partnership for Africa's Development
NGOs	Non-Governmental Organisations
NOCZIM	National Oil Company of Zimbabwe
NRZ	National Railways of Zimbabwe
POTRAZ	Postal and Telecommunications Regulatory Authority
PPF	Project Preparation Facilities
PPFN	Project Preparation Facilities Network
PPP	Public-Private Partnership
PSB	Public Service Broadcaster
PSIP	Public Sector Investment Programme
RBZ	Reserve Bank of Zimbabwe
RCDF	Southern African Development Community
RCDF	Rural Capital Development Fund
RDCs	Rural District Councils
REA	Rural Electrification Agency
REF	Rural Electrification Fund
REP	Rural Electrification Programme
RICZ	Railway Infrastructure Company of Zimbabwe
RPI	Rural Public Institutions
SADC	Southern African Development Community
SAPP	Southern African Power Pool
SATA	South African Telecommunications Association
SCC	Sub Catchment Councils
SDG	Sustainable Development Goals
SOC	State Owned Companies
SPV	Special Purpose Vehicle
SSA	sub-Saharan Africa
SSC	Sub-Catchment Councils
STERP	Short Term Emergency Recovery Programme
TAS	Transform Africa Summit
TMP	Transport Master Plan
UDI	Unilateral Declaration of Independence
UN	United Nations
UNCTAD	United Nations Conference on Trade and Development
UNICEF	United Nations Children's Fund
US	United States
USD	United States Dollar
USF	Universal Service Fund
UWSSRP	Urgent Water Supply and Sanitation Rehabilitation Project
WACS	West Africa Cable System
WACS	West Africa Cable System
WASH	Water, Sanitation and Hygiene
WBG	World Bank Group
WES	Water Environmental Sanitation
WES	Water Environmental Sanitation Working Group
WHO	World Health Organisation

WTO	World Trade Organisation
ZEDS	Zimbabwe Economic Development Strategy
ZERA	Zimbabwe Energy Regulatory Authority
ZERC	Zimbabwe Electricity Regulatory Commission
ZESA	Zimbabwe Electricity Supply Authority
ZETDC	Zimbabwe Electricity Distribution and Transmission Company
Zim Asset	Zimbabwe Agenda for Sustainable Socio-Economic Transformation
ZimFort	Zimbabwe Fund for Transition
ZimFund	Zimbabwe Multi-Donor Trust Fund
ZIMSTAT	Zimbabwe National Statistics Agency
ZINARA	Zimbabwe National Roads Authority
ZINWA	Zimbabwe National Water Authority
ZMC	Zimbabwe Media Commission
ZPC	Zimbabwe Power Company
ZRSC	Zimbabwe Railway Services Company

INTRODUCTION

Zimbabwe is undergoing a transition as it seeks to reengage fully with the international community, attract foreign direct investments (FDI), and restore confidence in the economy. This draws from the political changes beginning November 2017 and also cognizant of the fact that, over the past 18 years, fiscal excesses, corruption and uneven implementation of reforms – including land reform - had ushered in the deepest peacetime contraction recorded of any economy, a steep decline in social indicators, and hyperinflation, which led Zimbabwe to abandon its currency in 2009 and adopt a multi-currency regime to include the USD. During the same period, payment arrears were accumulated with International Financial Institutions (IFIs) and bilateral creditors, and many western governments imposed political and economic sanctions on Zimbabwe in response to increasing concerns over respect for the rule of law and protection of human rights.

Recognizing these past and current challenges as well as opportunities ahead, the Government of Zimbabwe requested support from the African Development Bank (AfDB), United Nations (UN), World Bank Group (WBG), and other partners to assess the scale and scope of the challenges, opportunities and needs in Zimbabwe. Such an assessment of needs would contribute to the ongoing preparation of the next five-year national development plan and to the dialogue around designing sector strategies and reforms for economic and social transformation. It would also support the ongoing transition by providing an objective evidence base from which to understand the many interlinked requirements to revive the economy and attract financing for development from both public and private sources. In the wake of the new presidency this Report will hopefully provide the basis for a longer-term planning and well-structured and coordinated international

support to put Zimbabwe on a path to achieving the Sustainable Development Goals (SDGs).

In the context of and as contribution to this needs assessment, the AfDB at the request of the government releases this update to the infrastructure sector report on the state of infrastructure in Zimbabwe, originally prepared in 2011. This is also viewed in the context of recognition by the AfDB, that poor infrastructure is a critical barrier to accelerating growth and poverty reduction in Africa. The Bank Group, through one of the High 5s, i.e. integrate Africa, is cognizant of the fact that policy actions and investment in infrastructure have important roles to play in the development of continental trade and in promoting economic linkages within Africa.

In the needs assessment and the updating of the report on the state of infrastructure in Zimbabwe, infrastructure will be defined to include sub-sectors of water and sanitation, energy, transport (roads, railways and aviation); and information, communications and technology (ICT).



PART A: A PROGRAMME FOR SUSTAINED ECONOMIC RECOVERY

1. ECONOMIC CONSTRAINTS TOWARDS VISION 2030

1.1. OVERVIEW

Zimbabwe is a landlocked country with an area of about 391,000 square kilometres (km) and a population of just over 13 million as at 2012 National Census. ZIMSTAT projects the population to grow to 19.1 million in 2030 under a high scenario, 18.7 million under a medium scenario and 18.03 million under a low scenario.¹ Agriculture and mining and their related industries, as well as Zimbabwe's geographic location, are the main factors that have had a profound influence on the spatial and modal development of the transport system in Zimbabwe. This situation is not likely to change in the near future. Prior to the economic difficulties experienced in the past two decades, Zimbabwe's economy was mainly agrarian, backed by a strong commercial farming sector. Maize was the country's largest crop, while tobacco was the largest export crop, followed by cotton. The country is endowed with a wide variety of mineral resources, and there is extensive mining of coal, gold, platinum, copper, nickel, tin, clay, chromium ore, and iron ore. Among Zimbabwe's industrial products are steel, wood products, chemicals, fertilizer, clothing and footwear, foodstuffs, and beverages.

Much of the country lies on a high plateau with the central plateau forming a watershed between the Zambezi and Limpopo river systems. The Limpopo and the lower Zambezi valleys are broad and

relatively flat plains. The eastern end of the watershed terminates in a north-south mountain spine, the Eastern Highlands, which have some of the most productive agricultural areas of the country. The northwest portion of the country consists mainly of plateaus interspersed with giant granite outcrops. The southern portion of the country consists of the level savannah that drains into the Limpopo River.

1.2. GROWTH AND DEVELOPMENT

1.2.1. Trends in the Macroeconomy, 1980 - 2018

Since independence in 1980, Zimbabwe's economic performance has been mixed, as a result of policy lapses, targeted sanctions and adverse weather conditions that affected agricultural output. The summary below of Zimbabwe's recent economic history highlights periods since independence in 1980. Three distinct episodes can be distinguished during the 1980-2018 period: post-independence sub-periods covering 1980-99, 2000-2009 and 2010-2018.

Post-Independence (1980 - 1999): The first decade post-independence brought resurgence in economic activity. Economic growth in Zimbabwe surpassed the average for sub-Saharan Africa (SSA) during this period (Figure 1). The earlier years of post-independence were influenced by favourable domestic and external conditions, including the lifting of economic sanctions against the Unilateral Declaration of Independence (UDI) government of Rhodesia, stimulation of overall demand in the economy with redistributive fiscal policies, and the opening up of external markets. Thereafter, towards the end of 1990s, growth was, characterised by periods of economic booms and busts corresponding essentially to periods of good weather or severe drought. The general trend of the 1990s is that the economy showed signs of weakening on account of low investment, an

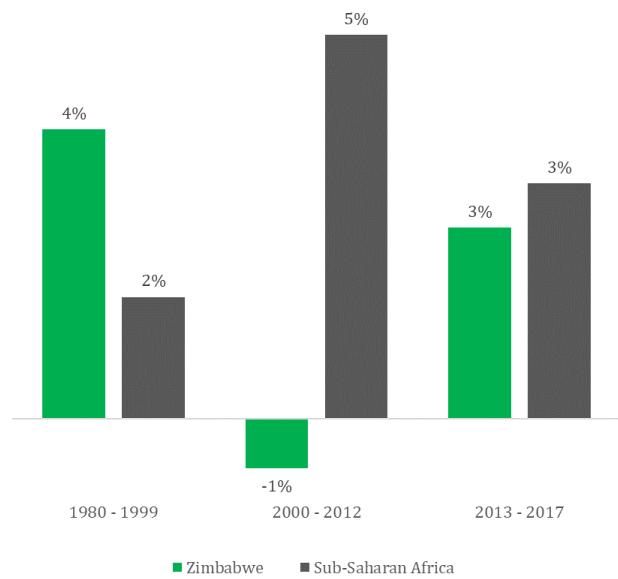
¹ ZimStat in their 2015 *Population Projections Thematic Report* compute population projections under three scenarios – high, medium and low. The scenarios combine assumptions on current programs and policies such as the Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZIMASSET), their targets as well as future trends of fertility, mortality and net international migration. The medium scenario is the most probable and unless otherwise specified, it is the scenario which is utilised for projections comparative purposes. The low scenario embodies achievement of all planned component interactions while the high scenario assumes a slow response to current and future interventions.

adverse internal environment and cutback in production by manufacturing industries due to foreign exchange shortages.

The Lost Decade and the Coalition Government (2000 - 2012): Between 2000 and 2008, a sustained and broad-based decline in economic activities led to a cumulative decline of nearly 50% in real GDP growth. The crisis can be attributed largely to a combination of factors, including economic mismanagement, poor governance mainly arising from weaknesses in the rule of law in the context of the Government's fast-tracked land reform programme, the concomitant loss of support from the international community, capital flight, and low investment. The inflation rate increased substantially from 2000, reaching triple figures in 2006. It then moved to severe hyperinflation in 2007 before peaking at five hundred billion percent at end-2008. It was fuelled by years of money creation to finance public expenditures and quasi-fiscal spending by the Reserve Bank of Zimbabwe (RBZ). Sustained high inflation contributed to real output contraction, while widespread controls of producer and retail prices accentuated shortages of most consumer items. Expropriation of farm land and resettlement in communal and commercial agriculture exacerbated the decline in food output. After the wake of the Lost Decade, a coalition government was put in place in 2009. The Coalition Government responded to the ailing economic environment through the implementation of a Short-Term Emergency Recovery Programme (STERP) and a multi-currency economy was introduced. The interventions showed some success. The economy picked up for a while with the GDP growth rate rising to 19.7% in 2010 (2012 constant prices).

New Constitution and Change in Presidency (2013 - 2018): A new constitution was promulgated in 2013 and the coalition government was disbanded. By 2013, the economy had been subdued with the growth rate reaching 2%.

Figure 1: Average Growth Rates for Zimbabwe and Sub-Saharan Africa, 1980 - 2017

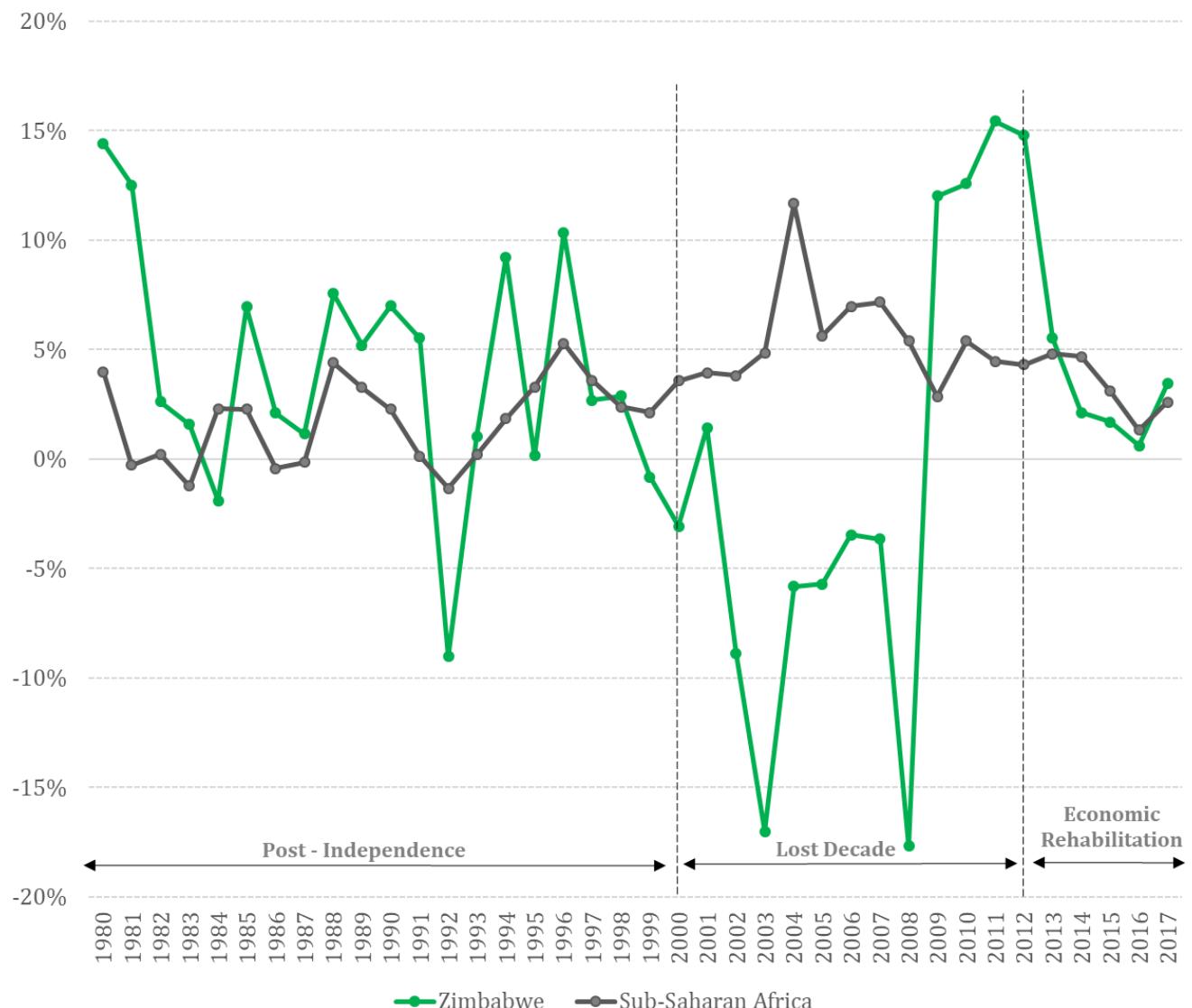


Source: World Bank, Zimbabwe and SSA Data, 2018

This was an indication of the economic fragilities and structural challenges from the previous decade. The key challenges facing the country over that decade included; rising youth unemployment, a liquidity crunch, a negative country-risk premium arising from high levels of public debt, declining international capital inflows (including remittances), and infrastructure bottlenecks and multinational company closures. The Government also, in this period, released a 5-year development policy blueprint called Zimbabwe Agenda for Sustainable Socio-Economic Transformation (ZIMASSET). The policy period concludes in 2018.

In November 2017, former President Mugabe stepped down as the president of the Republic of Zimbabwe. Emmerson Mnangagwa thereafter became the second president of Zimbabwe. National elections were held in July 2018. President Mnangagwa made a commitment towards reinvigorating the Zimbabwean economy, with the "Zimbabwe is open for business" and "Vision 2030" narrative.

Figure 2: Growth Rates for Zimbabwe and Sub-Saharan Africa, 1980 - 2017



Source: World Bank, Zimbabwe and SSA Data, 2018

* note: 2018 figures not reflected

1.2.2. Socio-economic Context

Poverty and Unemployment

The October 2018 World Bank Poverty and Equity Brief reports that the multidimensional poverty index (MPI) for Zimbabwe suggests a higher incidence of poverty between 2001 and 2007. Furthermore, in general, rural areas are prone to higher poverty levels than the urban areas. The

Brief further indicates that the poverty rate² was estimated to be more than 70.9% in 2001 increasing to 72.3% in 2011. Extreme poverty³ for 2011 was calculated to be 22.5%. The Zimbabwe Poverty Atlas (2015) also confirms higher incidence of poverty in rural areas. Matabeleland

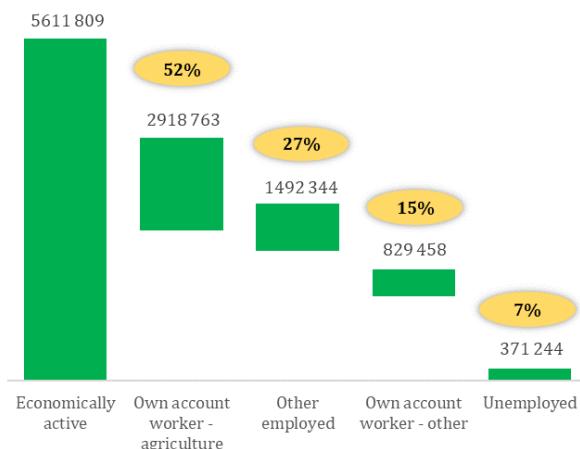
² This is indicative of "Monetary Poverty" which is measured by the proportion of people whose consumption is less than the Total Consumption Poverty Line (2011 PPP USD 4.7 per person per day).

³ Population living below the food poverty line of 2011 PPP USD 2 per person per day

North is shown to have the highest poverty prevalence of 85.7% and Harare with the lowest poverty prevalence of 36.4%.

Zimbabwe is one of the most literate countries in SSA. The Inter-censal Demographic Survey (ICDS) (2017) reports a literacy rate of 94% versus that of SSA estimated at 64.3% for 2016. The ICDS also reports an unemployment rate of 6.6% where almost 70% of the population is economically active.

Figure 3: Zimbabwe Economically Active Population by Employment Type, 2017



Source: ICDS, 2017

Table 1 and Table 2 below provide a summary of the country's human development indicators.

Table 1: Zimbabwe Human Development Indicators Trends, 1990 to 2017

Selected Human Development Indicators	1990	2000	2010	2017
Life expectancy at birth	57.9	44.8	53	61.7
Expected years of schooling	9.8	9.8	10.1	10.3
Mean years of schooling	4.5	6.5	7.3	8.1
Human Development Index (HDI) value	0.49	0.44	0.47	0.54

Source: UNDP, Human Development Indices and Indicators: 2018 Statistical Update

Table 2: HDI trends for Zimbabwe and Sub-Saharan Africa Average, 2018

Country	HDI value	Life expectancy at birth	Mean years of schooling	GNI per capita (PPP ⁴ USD)
Zimbabwe	0.54	61.7	8.1	1 683
Sub-Saharan Africa	0.54	60.7	5.6	3 399

Source: UNDP, Human Development Indices and Indicators: 2018 Statistical Update

Vision 2030: Attainment of Upper-Middle Income Country Status

Zimbabwe is classified as a low-income country⁵ by the World Bank Group (WBG). In 1980, Zimbabwe had the tenth highest gross national income (GNI) per capita in SSA at USD 980 (current USD). SSA GNI per capita in 1980 was USD 663. GNI per capita income fell sharply from about USD 644 in 1990 to USD 433 in 2006 and to an estimated USD 338 in 2008. As of 2017, The World Bank reports Zimbabwe's GNI per capita as USD 821 (constant 2010 prices). The Government of Zimbabwe (GoZ) envisions the attainment of an upper middle-income economy status by the year 2030 – “*Vision 2030*”. This would mean increasing the GNI per capita per annum to between USD 3,896 – USD 12,055. An extended period of strong economic growth will therefore be required to raise incomes to the levels prevailing in the 1980s and early 1990s. The aspirations of Vision 2030 will be realised through five strategic clusters, namely:

- Governance.
- Macro-economic Stability and Re-engagement.
- Inclusive Growth.
- Infrastructure and Utilities.
- Social Development.

⁴ PPP here is an acronym for Purchasing Power Parity

⁵ Low income countries are categorised as having a gross national income (GNI) per capita of USD 995 or less.

Government has identified four key sectors under the infrastructure cluster as critical economic growth drivers, namely: water and sanitation, energy, ICT and transport.

1.3. THE ECONOMIC STRUCTURE

1.3.1. Overview

The following sectoral analysis sheds some light on the changes in Zimbabwe's agricultural, mining, manufacturing and services sectors from 2010 to 2017. The economy grew by 3.7% in 2017. This was largely driven by agriculture, mining, electricity generation and the service sectors. Zimbabwe implemented the Special Economic Zones Act No.7 of 2016 to foster growth and attract foreign investment in the export-oriented industrial activities by way of manufacturing, processing, and services. In 2012, the Ministry of Industry and Commerce released an Industrial Development Policy for the period 2012 to 2016 aiming to transform Zimbabwe away from primary production to producing processed value-added goods for the domestic and export market. The five key sectors of focus are agriculture, manufacturing, mining, tourism and services. Its key objective was to increase the manufacturing sector's contribution to GDP from 15% in 2012 to 30% and increase its export contribution from 26% to 50% by 2015. Both these objectives were not realised.

Figure 4 illustrates that the services sector remains the largest contributor to the Zimbabwean economy with the sector's contribution increasing significantly over the period 2010 to 2017. Furthermore, the agriculture sector has remained relatively the same from 2010 to 2017, although the sector has not recovered to the 2000 level prior to the land reform programme.

The mining and quarrying and manufacturing sectors growth rates have been on the decline over the period 2010 to 2017 (Figure 5) due to various constraints discussed in the section to follow.

1.3.2. Agriculture and Mining

Agriculture

Agriculture is a critical sector for the Zimbabwe economy. Key crops include maize, tobacco, wheat, and sugarcane. The uncertainties and disruptions of land reform, erratic weather, HIV/AIDS, the high and unpredictable inflation, and unstable agricultural policies have undermined agricultural production and productivity and resulted in persistent food shortages in the country.

Agricultural production in general has suffered as a result of weak support services, lack of credit, and acute shortages of essential inputs such as seeds, fertilizer, and fuel. In drier areas water scarcity is a major challenge for farmers. Drought has exacerbated an already difficult situation and has made it harder for farmers in dry areas to increase their productivity. Food insecurity continues to worsen both for urban and rural populations. Zimbabwe has become a net importer of food products and many millions of people are now dependent on food aid.

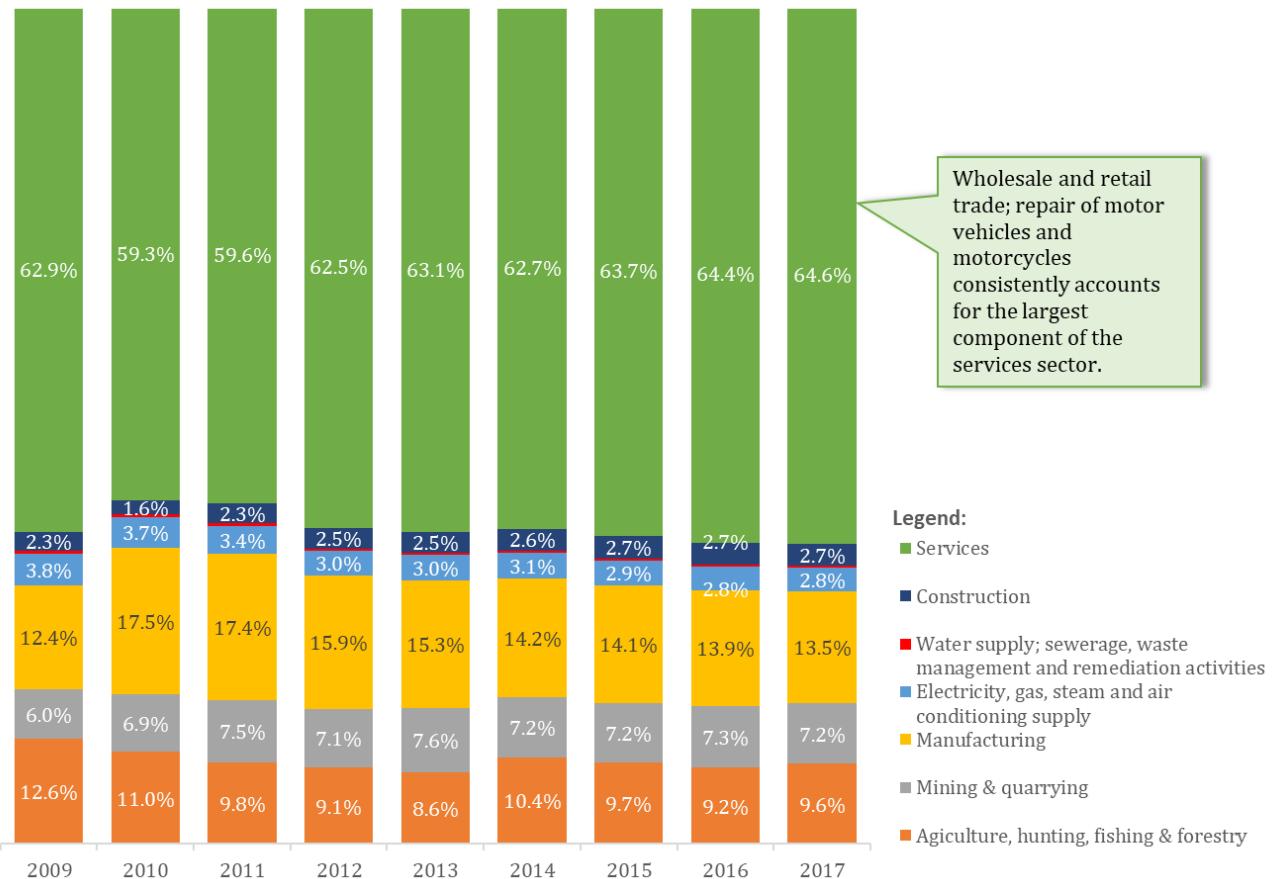
The agricultural sector grew by more than 20% in 2014 benefitting from the 2012/14 rainfall. Although its share in GDP is lower than that of the manufacturing sector, it is the most important sector in terms of contribution to exports and provision of livelihood for many Zimbabweans (the ICDS 2017 reports 52% of the labour force is engaged in agriculture-related occupations - Figure 3).

The agricultural sector also has linkages with the manufacturing sector as a supplier of a sizeable proportion of the raw materials required in the industrial sector, as well as a consumer of a large portion of industrial sector output (fertilizer, chemicals, stock feed, machinery, spare parts, and liquid fuels). Agricultural production has declined over the years due to varying factors that include erratic weather, limited access to finance, infrastructure bottlenecks, control of producer and

food prices, and large-scale underutilisation of land. The share of agriculture to GDP was about 9.8% in 2010, falling to 8.6% in 2017. The 2014/15

drought resulted in low harvest but growth in the sector has improved.

Figure 4: Production Share of the Economic Sectors in Zimbabwe, 2010 - 2017



Source: ZIMSTAT, Gross Domestic Product 2009 – 2017 Figures (Base Year 2012)

Mining

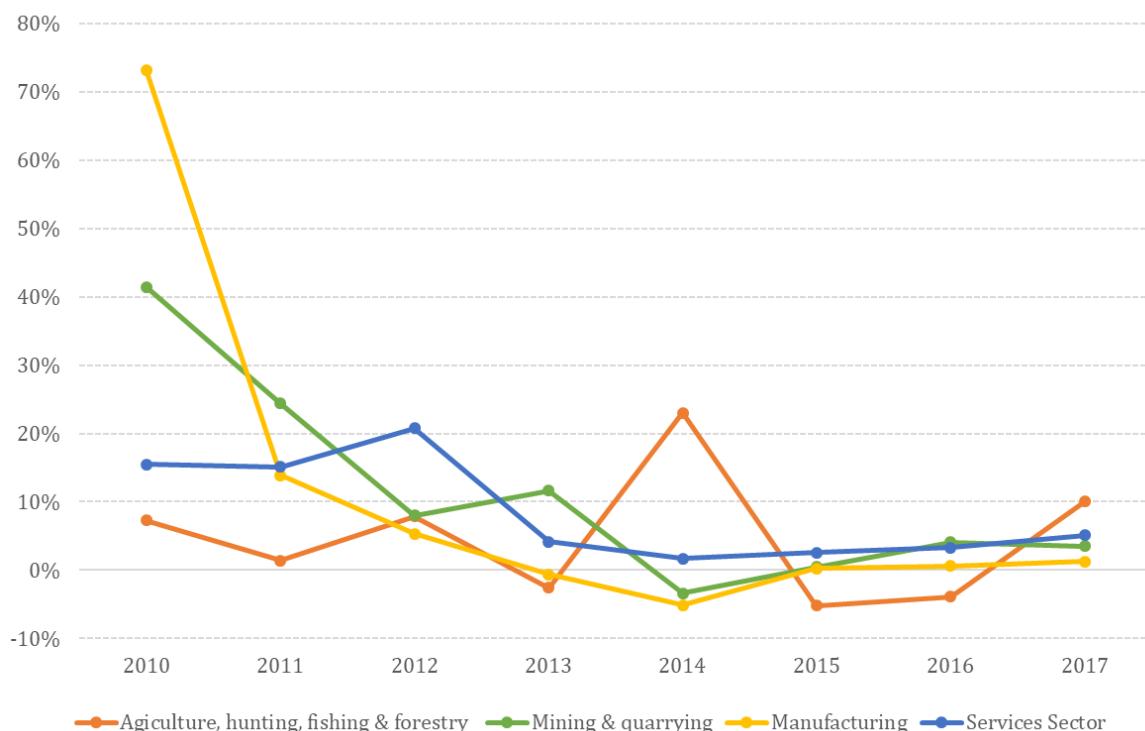
Zimbabwe is a mineral resources rich country; however, the mining sector remains small and largely underdeveloped. The sector contributed 6.2% to GDP in 2009, peaking in 2010 and remaining stable over the next seven years at around 6.5%. Major resources of the sector include gold, diamonds, coal, iron ore, chrome ore, nickel, and platinum. Others, such as silver, cobalt, tin metal, limestone, phosphate, and lithium, also exist, but only in small quantities. In 2018, there were reports of oil and gas discovery in Zimbabwe. Despite the sector's challenges, the sector is also expected to be a key driver of growth in the near term and will seek to attract increased foreign

direct investment (FDI). FDI into mining and quarrying fell from USD 2.2 billion in 2012 to USD 780 million in 2015. The sector faces a number of structural constraints, such as a lack of electricity, a shortage of skills, and limited access to domestic capital.

1.3.3. The Manufacturing Sector

The manufacturing performance was demonstrated by an increase in its contribution to GDP from USD 1.16 billion in 2009 to USD 2.3 billion in 2017. The sector contributed 12.1% to the GDP in 2017 in contrast to 15.6% in 2010.

Figure 5: Annual Growth Rate for the Agriculture, Hunting, Fishing and Forestry; Manufacturing; Services Sectors, 2010 - 2017



Source: ZIMSTAT, Gross Domestic Product 2009 – 2017 Figures (Base Year 2012)

Value added by the manufacturing sector has decreased from 15.78% of GDP in 2007-09 to 9.55% of GDP in 2016. Growth in the manufacturing sector has also slowed down. Growth continues to be constrained by scarce foreign exchange, an overvalued exchange rate, fuel shortages and inefficient transport infrastructure. Manufacturing is expected to pick up underpinned by increased Government reassurance through the protectionist policy framed by Statutory Instrument⁶ 64 of 2016 in support of local industry.

1.3.4. The Services Sector

The services sector has consistently contributed the largest share to GDP – 65% as of 2017 (Figure 4). The sector comprises economic activities including transportation and communications,

tourism, financial services, and electricity that have sharply deteriorated over time, as well as community and personal services, which are sensitive to weaknesses in law and order and in governance. The recovery of infrastructure services, financial services, tourism, and community services, would ensure that the sector becomes once again an important source of growth and employment creation in Zimbabwe going forward. Strong backward linkages with the agricultural and manufacturing sectors and the potential for developing the tourism industry are major assets in this regard.

1.3.5. External Accounts

Zimbabwe's external position remains precarious with imports still heavily outweighing exports. While manufacturing accounted for the largest export in 2014; manufacturing imports accounted for about 90% of the imports bill. Of total exports reported by the Reserve Bank of Zimbabwe (RBZ)

⁶ On the 1st of July 2016, the Government of Zimbabwe gazetted SI 64 of 2016, whose objective is to boost domestic production by protecting local industries from unfair competition from foreign firms.

in 2016, 60% was mineral exports and 29% was agricultural exports. The spike in total imports over 2015 was a result of drought conditions triggering a surge in food imports due to low harvests.

Zimbabwe is not in a current position to compete against its regional neighbours in forming a competitive manufacturing sector. The current account balance as a percentage of GDP deteriorated from -13.3% in 2009 to -15.1% in 2014. As of 2016, the current account deficit stood at USD 552.8 million or -4.0% of GDP. Zimbabwe's external debt remains highly unsustainable and continues to grow owing to accrual of arrears and new payments of interest and penalty charges on existing payment arrears.

Total external debt stands at USD 11.3 billion or 77.6% of GDP in 2017 (see Annex Table 5 and Annex Table 6). Government has made commitments to pay off its debt; however, this may only be achieved over the medium-term period given the country's other financial commitments to reviving the economy.

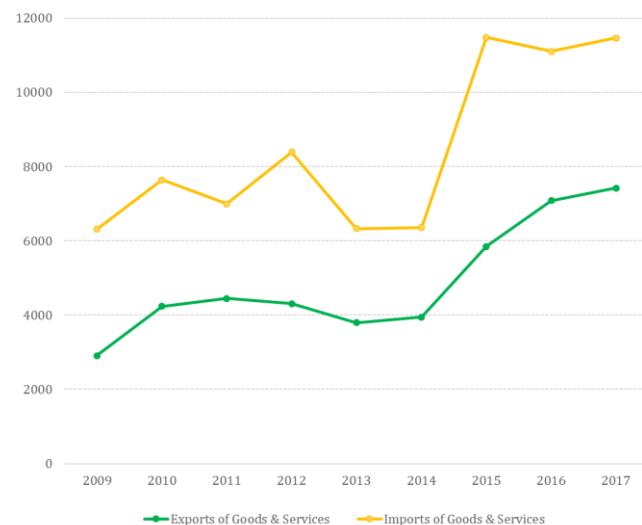
1.4. DRIVERS OF ZIMBABWE'S FUTURE GROWTH

Zimbabwe can count on several assets to boost productivity and output growth: a relatively young population, a highly educated population, and regional connectivity within its sub-region, in particular proximity to South Africa.

However, given the neglect of infrastructure assets in recent years, the changes in the regulatory environment, and rapid changes in technology over the past two decades, it would be hard for Zimbabwe to reap these benefits without significant improvement in the country's regulatory framework and provision of good quality infrastructure.

In this context, an understanding of the contribution of infrastructure to output growth would be of great use to policymakers.

Figure 6: Exports and Imports of Goods and Services, 2009 - 2017 (in 2012 Prices, USD millions)



Source: ZIMSTAT, Gross Domestic Product 2009 – 2017 Figures (Base Year 2012)

Relatedly, a number of key policy and structural weaknesses will need to be addressed, in particular, a sound macroeconomic policy framework and healthy financial system, the low level of human capital, a large informal sector, and widespread poverty. Furthermore, poor physical infrastructure (including transport, telecommunications, energy and water), restrictive regulations, and insufficient competition in key sectors are hindering productivity growth. In this environment, larger firms are likely to successfully navigate around costly administrative burdens and manage to overcome infrastructure lags, while many small- and medium-scale firms face severe constraints to investment and expansion.

The preceding sections discussed how the low growth rates in Zimbabwe may be accounted for by both a significant slowing of capital inputs and falling productivity growth. This section provides a broad overview of some of the key determinants that explain Zimbabwe's performance. For the purpose of this study the section will focus only on

three key factors, namely structural reforms (including governance and investment climate), human capital, and physical infrastructure.

1.4.1. Structural Reforms

Since 2009, Zimbabwe's government has instituted several reform initiatives aimed at rebuilding and reviving economic growth in the country. In the government's STERP and MTP, the importance of improving institutions that foster investment to enable Zimbabwe to reach its aggressive growth targets has been highlighted. However, challenges still remain including pressures from a large public debt, the wage bill, and political roadblocks in achieving objectives of the Global Political Agreement (GPA). Additional reforms will be needed to bring growth rates up to the higher level required to sustain improvements in per capita GDP and to reduce poverty. Some of these reforms are reminiscent of those rejected in the 1990s, with dire consequences for growth and TFP.

1.4.2. Strategies, Policies and Priorities for Economic Stability and Growth

The GoZ has implemented a number of economic restoration and poverty reduction policies and reforms since independence. Key policies, strategies and priorities implemented by GoZ over the past two decades are summarised below.

Vision 2020 and Long-Term Development Strategies (1997 – 2020)

The policy covers 23 years and sought to revive the economy through good governance, political stability and sustainable macro-economic growth.

Zimbabwe Economic Development Strategy (ZEDS) (2007 – 2011)

This policy was instituted at a time when Zimbabwe was facing the brunt of its economic challenges. The policy contained similar themes to the Vision 2020 policy. The primary objective was

to achieve sustainable, balanced and robust economic growth and development.

STERP II: The Three Year Macro-Economic Policy and Budget Framework (2010 – 2012)

Short Term Emergency Recovery Programme (STERP) II succeeded the 2009 9-month STERP that showed some success in stabilizing the macro-economy. STERP II was a 3-year macroeconomic policy and budget framework by the Ministry of Finance. The policy aimed to sustain macroeconomic stability, restore basic services, encourage public and private investment and regional integration.

Medium Term Plan (MTP) (2011 – 2015)

The Medium Term Plan (MTP) for Zimbabwe sets out the national priorities and guidance for government policy documents and the national budgeting process for 2011 – 15. It responded to the mandate set out in Article III of the Global Political Agreement to support the restoration of economic stability and growth in Zimbabwe and built on the foundations laid by the STERP II adopted by the Inclusive Government in March 2009. The MTP was guided by the Vision 2020 and linked to the Millennium Development Goals (MDGs). The theme of the MTP were the restoration and transformation of capacities for sustainable economic growth and development. Government anticipated that economic growth would be broad based and private sector driven, with strong performance in the four key sectors of agriculture, manufacturing, mining, and tourism. The realisation of this ambitious growth scenario was based on a number of key assumptions, including: political stability; a supportive monetary and fiscal policy framework; continuation of the multi-currency regime; improved governance; creation of a conducive business climate through strong policy and structural reforms covering areas such as tax, mining, land, property rights, public enterprise, and financial sector development; reversal of the brain drain; and

successful re-engagement with the international community. The implementation of the MTP required a total of USD 9 billion of total investment. Since this could not be financed through public resources alone, donor inflows and private sector financing, especially through private-public partnerships (PPP), were to play a critical role.

Zimbabwe Agenda for Sustainable Socio-Economic Transformation (Zim Asset) (2013 – 2018)

Zimbabwe developed and released in October 2013 a 5-year development policy blueprint. ZimAsset was an economic blueprint for the period 2013–18 containing a long list of infrastructure projects that the Government wished to execute during this period. The policy plan was couched on a number of assumptions including increased investment in infrastructure such as energy, transport, ICT, and water and sanitation, through acceleration in the implementation of PPP and other private sector driven initiatives. The policy blueprint also intended to accelerate re-engagement with IFIs and other creditors on arrears clearance, debt relief, and generate new financing.

Interim Poverty Reduction Strategy Paper (I-PRSP) 2016 – 2018

The strategy paper was a short-term agenda focused on 8 pillars including private sector participation, infrastructure and strengthening governance and institutional capacity to tackle poverty and improve the livelihoods of the Zimbabwean people. The plan's objectives were aligned to those of the ZimAsset.

Transitional Stabilisation Programme – TSP (October 2018 – December 2020)

The TSP was launched in October 2018. It focusses on stabilising the macro economy, and the financial sector; introducing necessary policy, and institutional reforms, to transform to a private

sector led economy; addressing infrastructure gaps and launching quick-wins to stimulate growth. The realisation of *Vision 2030* will therefore be achieved through the implementation of the following strategic programmes:

- A two and a quarter year “Transitional Stabilisation Programme” to run from October 2018 to December 2020.
- Two Five-Year Development Strategies, with the first one running from 2021-2025, and the second covering 2026-2030.

While all the above are very purposeful in their laid-out objectives, there should be more alignment between the various policy imperatives to effect maximum impact. The TSP is an important document to roadmap Zimbabwe into *Vision 2030*.

1.4.3. Physical Infrastructure

An adequate supply of infrastructure services is an essential ingredient for productivity and sustained growth. Poor economic infrastructure contributes to high production costs for businesses, raising unit production costs and making the country uncompetitive. Growth requires investment in physical capital—in plants, machinery, raw materials, and the like that are central to production and investment. Countries, such as Singapore, China, and India, that have achieved sustainable growth have managed a significant increase in the levels of both domestic and foreign investment as a percentage of GDP. Conversely, restricted or expensive access to finance is a major constraint on such investment, particularly for small and medium-sized enterprises and for the informal sector. A well-functioning financial sector enhances economic growth through ensuring that capital is not left idle, that it is directed to where it is most beneficial, and that risks are borne efficiently. Alongside the quantity, the quality of investment matters.

Deterioration across all major infrastructure services in the country has been marked over the

past decade, reflecting poor maintenance and limited new investment in key infrastructure such as power and transport services.

In the power sector, the deterioration of generation capabilities coupled with degrading of the transmission and distribution network has resulted in unreliable power supplies and severe electricity shortages. Power interruptions have sharply increased production costs for manufacturing and other enterprises, making them uncompetitive in many areas. A large number of firms are forced to operate their own power generators.

The lack of routine and periodic maintenance of the transport infrastructure for a decade or more, however, has resulted in serious deterioration in the quality of these assets. Surfaced roads in Zimbabwe are designed for 20 years. Most of the state roads have outlived their design life by more than 10-15 years. The current condition of the network is not known with accuracy, but it is clear that it has declined significantly since the mid-1990s as a result of the lack of funding for routine and periodic maintenance.

The railway network of Zimbabwe has also seen a dramatic decline in the past decade. This decline is mainly due to aging track, including insufficient ballast, rail wear, deteriorating earthworks, and rail signalling and communications with obsolete equipment and lack of spare parts. Rolling stock suffers from low availability and utilisation and, as a result, the railway is not able to meet current demand for freight services. This adversely affects business costs incurred to find alternative transport means, as well as the time cycle for goods to get to market.

As a result of the economic problems of the past decade and sharp decline in tourism in Zimbabwe, international and domestic aircraft movements have declined sharply (Chapter 9). The decline in domestic movements was even greater, owing to

diminished domestic travel by tourists and the adverse effect of domestic economic difficulties.

A contraction in demand for air services to and from Zimbabwe contributed to a reduction in the number of international airlines that service the Zimbabwe market. During 1997-2007 more than twenty scheduled airlines discontinued services in Zimbabwe, including major carriers such as Air France (1997), KLM (1998), Lufthansa (2000), Swiss Air (2000), and British Airways (BA) (2007). At the time of writing, 16 airlines operate services to and from Zimbabwe. These airlines include Air Namibia, BA Comair, Emirates, Ethiopian Airlines, Fastjet Tanzania, Kenya Airways, Mozambican (LAM), Malawian Airlines, Proflight Zambia, RwandAir, South African Air Link, South African Airways, South African Cargo, Martin Air Cargo and TAAG Angolan Airlines. In 2010, licenses were issued to Emirates, Fastjet Tanzania, Malawian Airlines, Proflight Zambia and RwandAir. 5th Freedom Traffic Rights were extended to Emirates, Ethiopian Airlines, Kenya Airways, Air Namibia and RwandAir.

The political and economic crisis experienced in Zimbabwe in the past decade has also reduced the growth of ICT. Limited depth of innovation has been shown to restrict growth and this can be particularly relevant in Zimbabwe's case as the country school enrolment and literacy rates still remain high in comparison with other African countries.

An area for focus emphasised in the country's new ICT policy has been to enhance the current education curricula to include more emphasis on technology-oriented subjects including more funding and support for RandD initiatives.

1.4.4. Financial Development

Financial development promotes economic growth by improving the efficiency, stability, and accessibility of the financial system. An efficient financial system reduces information and

transaction costs by performing the following five core functions well: producing ex ante information about possible investment and allocating capital; helping to monitor investment and provide corporate governance after providing finance; facilitating the trading, diversification, and management of risk; mobilizing and pooling saving; and easing the exchange of goods and services.

Financial repression over the last decade and high financing costs have discouraged domestic investment. High real interest rates continue to limit private credit growth, despite low financial intermediation due to the lack of effective competition and high level of non-performing loans. In Zimbabwe, tight liquidity constraints and wide intermediation spreads have further discouraged savings deposits, leading to a vicious circle of tight liquidity constraints. The slow execution of due process, lenders' inadequate access to timely foreclosure procedures, the absence of credit assessment information, and weak enforcement of property rights all undermine financial intermediation.

In contrast, an efficient financial system enhances a country's growth prospects by channelling resources to their most productive uses, thereby fostering a more efficient allocation of resources. It also helps boost aggregate saving and investment rates, thus speeding up the accumulation of physical capital. Finally, it enhances growth by strengthening competition and stimulating innovative activities, so promoting dynamic efficiency.

1.4.5. Investment Climate

It has been widely accepted that poor governance deters investment, undermines competition, encourages rent-seeking behaviour, and distorts public expenditure in an economy, and as a result, negatively affects productivity. A major concern for many economic actors in Zimbabwe centres on the land reform policy and indigenisation bill. The

uncertainty as to direction and implementation of these critical pieces of legislation act as a major disincentive for any long-term large private investment, particularly in the form of FDI.

FDI can positively affect TFP in the form of increased capital accumulation, improved efficiency of local businesses, technological change, and human capital accumulation. Governance issues are also reflected in the ease with which the private sector can conduct business. Allegations in the private sector about irregular application of law and regulations, and lax enforcement of prohibiting bribes to corrupt officials are commonplace in Zimbabwe.

Zimbabwe ranked 159 out of 190 countries in the 2018 Doing Business Report by the World Bank. Its ranking however is still well below those of neighbouring countries Botswana (81), South Africa (82) and Namibia (106).

1.4.6. Human Capital

A wide range of labour skills is needed to catalyse and sustain economic growth, including education at all levels from primary schools through to universities, and including technical and vocational training as well as 'learning by doing.' Unfortunately, progress in overcoming shortages of skilled and trained manpower in the world's poorest countries has been disappointingly slow. Although basic education is widely considered to be critical for reducing poverty, there is emerging evidence that secondary and higher education are more significant in raising long-term growth rates and income levels as they play a key role in the creation and application of new knowledge and technologies. This effect occurs primarily through people's improved capabilities to absorb technological advances.

Access to and quality of education are major factors that impede productivity growth. Post-independence (during the 1980s) the Zimbabwean government recognised this and to reverse the

racial imbalances in education adopted a policy of universal primary school enrolment. Tertiary education also faced policy actions which included the building of more technical colleges and revamping the apprenticeship system—all to redress racial imbalances. Severe economic challenges since 2000 eroded Zimbabwe's gains with regard to historically high literacy rates of 98% (which had benefited from high investment and appropriate policies in education during the 1980s), leaving the country with the current skills deficit.

There are multiple avenues by which human capital—the ability and efficiency of people to transform raw materials and capital into goods and services—affects economic growth. The accumulation of human capital improves labour productivity and increases returns to capital. A well-educated workforce also facilitates the adoption and diffusion of technology. Less often noted is that a critical threshold for human capital stock may be a precondition for growth because low education levels may act as a barrier to imitation, which may prevent the diffusion of technology. Larger and deeper stocks of human capital may also have spillover benefits. A prime example is that more educated mothers tend to have children with better health and education outcomes.

Education increases an individual's probability of being employed in the labour market and improves earnings capacity. Since human capital encompasses skills that can be acquired through the educational system, at the micro level education contributes to an individual's labour productivity and earnings as well as to the level of production. That said, human capital development is intrinsically welfare enhancing. The Government has prioritised the rehabilitation of schools, construction of new schools, and capacity development of public administration (including teacher training, review of existing curricula, among others). Investment in education and skills can be as important as investment in machinery

and plants in delivering growth. Investment in this "human capital" is especially appealing as it directly leads to improved human development as well as helping to drive growth.

1.4.7. Trade and Openness

For most of its history over the past 50 years, Zimbabwe's integration into global markets has been partial. This has impeded integration into goods and input markets, notably integration into financial capital. Openness of a country's goods markets encourages growth, facilitating technology transfer and competition, and benefiting consumers. Zimbabwe has followed a policy of 'import substitution,' deliberately shielding many industries from international markets to allow them to develop. The success of such policies has been mixed. As protection has costs in terms of lost growth, such policies were harmful. Similarly, capital market integration that allows smoothing of living standards, risk-sharing among countries, and technology transfer from the developed world has been significantly impeded by political sanctions at various times in Zimbabwe's history.

The country is ranked 153 by the Doing Business Report under the sub-category "Trading Across Borders" – border compliance for export and import trade is reported to be 74 hours and 81 hours respectively.

While, the liberalisation of the economy launched by the Government is a step in the right direction, more urgent regulatory reforms are essential to untangle the costly and complex web of regulations that govern business activity at present. The challenge for Zimbabwe in both of these areas is to design proper reforms that take into account the proper sequencing and pacing of reform to smooth the adjustment for domestic producers.

1.5. ECONOMIC OUTLOOK FOR THE SHORT, MEDIUM AND LONG-TERM

1.5.1. Key Policy Messages

Zimbabwe has recovered from the over a decade of economic decline and stagnation. As it emerges from this lost decade, medium- and long-run growth will reassert itself as the priority concern of policy makers. Short-term aggregate demand management will have to give way to structural policies that augment the economy's productive capacity. It is thus a good time to take stock of Zimbabwe's growth prospects further out and to reconsider its pathways to growth. Inward-looking policies that were effective in the period just after independence are likely to be less effective in today's environment.

The government has implemented a number of reforms designed to alleviate some of the constraints to export performance aimed at improving competitiveness. Important efforts are ongoing to improve access and affordability of basic physical infrastructure. In parallel, the government is processing key reforms aimed at improving the business environment in the areas of the judiciary and administration of justice, the financial sector, and the land tenure and mortgage regimes. These reforms should also improve the availability of finance. Further efforts are still needed to exploit the growth potential of the rural economy, improve the regulatory and institutional framework, strengthen transportation links to neighbouring countries, enhance education and skill development programmes, raise labour productivity, and accelerate diversification.

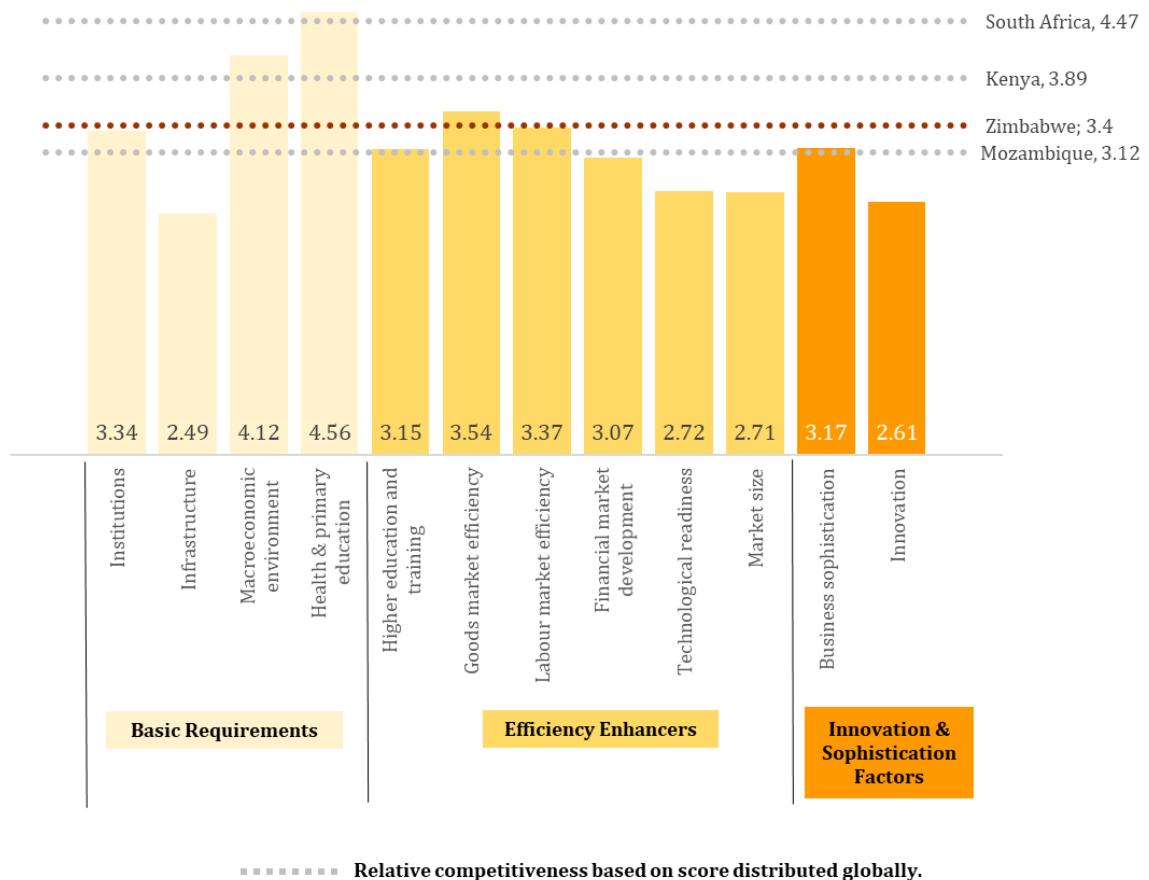
Productivity growth, in particular, will play a bigger role as a driver of economic growth. Structural policies that promote productivity growth therefore hold the key to sustaining the country's growth that, in turn, will reduce the numbers of the poor and spread the benefits of economic progress to more people. Four specific

areas—trade, human capital, infrastructure, and financial development—are significant in this respect. Although the four areas were examined separately, much interdependence exists between them, and progress in one area will facilitate improvements in another. For example, a major impediment to trade in many parts of the region is inadequate transport infrastructure.

Improvements in this area, both domestic and regional, can stimulate and catalyse intraregional trade and trade in general. Similarly, financial development, especially the development of bond markets, which provide a stable and secure source of long-term financing, will have a positive impact in addressing the country's need for transport, communications, and energy infrastructure. Financial development can also promote the accumulation of human capital by channelling resources to individuals who want to invest in their own education. Progress in the four areas will thus be mutually reinforcing and jointly push out Zimbabwe's production frontier.

Finally, good governance and institutions matter for growth. In particular, government effectiveness and control of corruption have significant positive impacts. In addition, governance has a bigger effect in developing countries where the government tends to play a larger role in the allocation of resources. Competent and honest governments that efficiently deliver basic public services, such as administration, education, and health care, raise the productivity of all firms and industries. Such governments are also more conducive for political stability and a more benign investment climate. Increasingly, an important dimension of strong governance and institutions will be the capacity to deliver inclusive growth which spreads the fruits of growth to the wider population. As conditional cash transfers show, well-designed inclusiveness-promoting programmes can make a big dent on poverty at manageable fiscal cost. By promoting social stability, such programmes can foster a more conducive environment for growth.

Figure 7: Ratings for Zimbabwe for the 12 Pillars of Economic Competitiveness, 2017-2018



Source: AFDB, *The African Competitiveness Report, 2017*

1.5.2. Challenges for the Short- to Medium-Term

Zimbabwe's short- to medium-term economic growth outlook is subject to a similar variety of threats as there were a decade ago. First, the fiscal scenario is likely to remain unsustainable if public sector wage costs are not contained and indeed reversed to create fiscal space for urgent growth-oriented investment programmes and social projects.

Second, the stability of the financial sector needs to be preserved through the intensification of measures to contain rapidly rising liquidity and credit risks to the banking system by stepping up supervisory efforts. Third, measures to promote significant improvement in the business climate need to be pursued aggressively. Fourth, the lack of

access to medium- to long-term financing for critical investment in infrastructure rehabilitation and maintenance and upgrading of power generation capacity, as well as limited access by business to lines of credit, needs to be addressed.

1.5.3. Challenges for the Longer-Term

The macroeconomic challenges in the country will need to be addressed to be able to achieve success in improving infrastructural development. Deeply embedded structural constraints prevent it from reaching its full production potential and attaining the maximum possible outputs that its vast resources are capable of producing.

The presence of structural constraints and the severe deterioration in the basic infrastructure of the country has limited Zimbabwe's international competitiveness, an issue of major concern given

the importance of export markets for sustained long-term growth. Zimbabwe continues to be among the least competitive economies in the world. The weak competitiveness of the Zimbabwe economy reflects several constraints that are critical to determining the level of productivity of the country, including inadequate supply of infrastructure facilities. (see Figure 7).

Poor infrastructure and high infrastructure costs present key binding constraints to sustained growth. By rehabilitating and strengthening its infrastructure, production and trade costs are reduced, which in turn attracts FDI and has a direct impact on productivity and trade.

To accelerate growth and reduce poverty, Zimbabwe must address the limitations it faces in promoting the efficient use of resources and in raising productivity. As Zimbabwe's reform of institutions and economic policies and its resulting recovery gather momentum, medium- and long-run growth will reassert itself as the overriding concern of policy makers. Continued reliance on expanding the factors of production — that is, a growing labour force and capital stock—is essential for increasing long-term supply. The diversification of the economic base from agriculture to secondary and tertiary sectors is an important source of total factor productivity in the economy. But more than simple accumulation of factors, efforts to use these resources more efficiently and spur innovation hold the key to sustaining high growth over the longer term. Expanding trade would also allow Zimbabwe to transition away from labour-intensive to more capital- and knowledge-intensive manufacturing and put the country on a higher growth profile.

2. STATUS OF INFRASTRUCTURE IN SERVICES IN THE ECONOMY

2.1. BACKGROUND

2.1.1. The Setting

This Chapter briefly discusses the role that infrastructure plays in economic development and the impact it can have on growth. The infrastructure refers to assets held in transportation services, electricity, water and sanitation, and telecommunications sectors. The chapter then provides a high-level overview of these aforementioned sectors and summarises some key challenges the sectors face.

The Report gives particular attention to three aspects of economic infrastructure:

- the role of public utilities and the private sector in creating and maintaining the infrastructure;
- the extent to which these infrastructure assets promote productive economic activity for the nation as a whole; and
- the extent to which the provision of these services is efficient and reliable, which is critical to unlocking bottlenecks, improving productivity and competitiveness, and achieving sustained economic development in Zimbabwe.

2.1.2. The Impact of Infrastructure on Growth

The amount and quality of a nation's infrastructure has an important bearing on economic growth in both the medium- and longer-term. It is often viewed as the wheels of economic activity since it provides the environment for productive activities to take place and facilitates the generation of growth. Most of the literature finds a positive impact on the relationship between infrastructure and output, growth, or productivity. However, the

results largely depend on the measures of infrastructure employed in the analysis. The empirical literature uses various measures of infrastructure, such as physical units of infrastructure, stocks of public capital, and infrastructure spending flows. Some studies use the indices of infrastructure as proxy for infrastructure.

2.2. STATUS OF INFRASTRUCTURE AND SERVICES IN ZIMBABWE

2.2.1. Overview

The Government is a signatory to a number of SADC protocols that have implications for the design and implementation of infrastructure policy and programmes within Zimbabwe. Most of these protocols were established in the 1990s. Action was taken on a number of policy fronts in the years immediately after the protocols were signed, but in the past decade there has been very limited further policy reform. The SADC Protocol on Transport, Communications, and Meteorology (1996) is a regional protocol that committed all SADC member states to compliance with its requirements by 2010. The ICT and energy sectors both released sector policies in 2012. A transport masterplan has been developed with the support from African Development Bank and private sector consultants CPCs.

2.2.2. Transport

Sector Overview. The transport sector has four sub-sectors: road, rail, aviation and inland water⁷. The transport sector is administered by the Ministry of Transport and Infrastructural Development and supported by various

⁷ The inland waters sub-sector represents a relatively small component of the transport sector and therefore shall not be discussed herein.

departments, councils and parastatals including Zimbabwe National Road Administrations (ZINARA), National Railways of Zimbabwe (NRZ) and the Civil Aviation Authority of Zimbabwe (CAAZ). Zimbabwe is a key hub within the road and rail corridor in the SADC region. The country has a vast road and rail network connecting it to its regional neighbours.

Sector specific policies, strategies and reforms. The importance of the transport sector is emphasised across the various policies implemented over the years. The 2018 National Budget Statement reiterated that “investments in transport infrastructure will be prioritised in 2018, targeting roads, aviation and rail.” Zimbabwe has an obligation as a Member State of SADC to assist in developing adequate transport networks that support socioeconomic growth in the region. In response to this obligation, the Zimbabwe National Road Administration (ZINARA) and the Road Fund were established in 2001. A National Transport Policy was launched in 2013. The policy aimed to reduce the cost of movement of goods, persons and services as a result of improved transport infrastructure. There have not been any significant policies or reforms specific to the railways and aviation sub-sectors over the past decade. The Government’s policies have addressed the need to improve the railway network to enhance regional competitiveness.

Road sub-sector. Road transportation remains the mode of choice. In 2016/17, 87% of visitor arrivals were by road; visitor arrivals by air in contrast only contributed 13% of arrivals into Zimbabwe. Over the last decade, Government’s interventions in the transport sector has been focused around enhancing accessibility and promoting regional trade and investment particularly through the promotion of private sector participation. The past coalition Government reiterated their focus to clear the maintenance backlog in trunk and feeder road networks. However, this requires substantial investment. In 2011, the Ministry of Finance and Economic Development (MFED) reported an

excess of USD 2 billion would be required to rehabilitate and maintain the primary, secondary and tertiary road networks.

Railways sub-sector. Government recognises the importance of rehabilitating rail infrastructure to ease the burden of vehicles on the road networks as well as reducing the costs of transportation for businesses. Zimbabwe’s railways are interconnected with other national networks along the North-South corridor, allowing for through traffic from Zambia, Zimbabwe, Tanzania, and South Africa. The NRZ is mandated to provide, operate and maintain an efficient system of public transportation of goods and passengers by rail. NRZ was allowed to operate as a commercial entity after the 1997 deregulation of the transport industry, however, the parastatal faces a myriad of challenges. There are strategies to recapitalise the NRZ to restore the critical role of rail transport in Zimbabwe. The recapitalisation programme targets refurbishment and replacement of NRZ rolling stock, signaling, ICT and track infrastructure under a joint venture partnership.

Aviation sub-sector. The aviation sector plays an important role to a key sector such as tourism. Zimbabwe has six international and four domestic airports. The three main international airports are Robert Gabriel Mugabe International Airport in Harare (main hub), Victoria Falls International Airport in Victoria Falls and JM Nkomo International Airport in Bulawayo. Efforts are being focused on upgrading various airports including the Robert Gabriel Mugabe International and Victoria Falls International. The latter was opened in late 2015 with a runway capable of accommodating large body aircrafts including Ethiopian Airways and Kenya Airways (KQ). Funding for the airport came from Exim Bank of China in the form of a USD 150 million loan.

Increasing investment into the rehabilitation and maintenance of transport infrastructure can open up the country to more regional trade and increase Zimbabwe’s competitiveness in the region.

2.2.3. Electric Power

The availability of electric power is a basic requirement for all Zimbabweans. Power supplies underpin all other services, and there is undeniable evidence that the development of reliable, adequate, low priced power can contribute significantly to the efficient and effective functioning of the Zimbabwe economy and the maintenance of Zimbabweans' standard of living, as well as to stimulating the expansion of existing businesses and the establishment of new ones. However, to operate efficiently, businesses and factories need electricity supplies that are free of interruptions and shortages. In the past decade, domestic power generation capacity has improved from the previous decade with Government injecting capital into various generation projects. The Kariba South Hydropower Plant underwent expansion and an upgrade to increase generation capacity from 920 megawatt (MW) to 1050 MW. An efficient and viable electricity sector will ensure economic stability and growth, given the forward and backward linkages with the rest of the economy.

Sector specific policies, strategies and reforms. On the institutional front, an Energy Act was promulgated in 2011. It provided for singular point of reference for all energy related matters. The Zimbabwe Energy Regulatory Authority (ZERA) was established under the Energy Act and took over the mandates of the Zimbabwe Electricity Regulatory Commission (ZERC) and the Petroleum Regulatory Authority. Zimbabwe is also signatory to the SADC Protocol on Energy and an operating member of the Southern African Power Pool (SAPP).

Renewable energy sub-sector overview. The main renewable energy sources in Zimbabwe are solar, and hydropower with some geo-thermal and co-generation energy potential. But the latter two have not been exploited. Small amounts of energy generation also come through co-generation. The Batoka Hydropower Project will be located on the

Zambezi River and extend across Zambia and Zimbabwe. While the sector has managed a few IPPs to the market, many have not started operating due to concerns around economic stability.

Rural Electrification. Rural electrification projects are financed through the Rural Electrification Fund (REF). Between January and September 2017, 192 rural electrification projects were completed. The 2018 Budget earmarked USD 36.5 million from the REF to target 706 rural institutions, installation of 50 stand-alone solar micro grid solar systems at public institutions, and 16 biogas digesters.

Private sector participation is key in assisting in the investment of energy projects, especially so for power generation, transmission and distribution projects. A number of IPPs have entered the market thereby showing private sector interest in the power sector. There may be further opportunities for private players in electricity transmission. Therefore, there is a procurement framework in place as well as precedent for IPPs in Zimbabwe. This forms a solid foundation for the use of IPPs as a procurement vehicle going forward.

2.2.4. Water Supply and Sanitation

Zimbabwe is primarily dependent on surface storage for its water needs. All of its major rivers are shared with other members of the SADC. There is active cooperation with other members of SADC on the shared management of the region's river systems, and it is a signatory to the Shared Water Course Systems Protocol, which provides the basis for management of the international rivers in the SADC countries. It is also an active member of the Limpopo and Zambezi basin communities which oversee joint management of these international rivers.

The largest user of water in Zimbabwe is the agricultural sector and while agriculture can

consume about 82% of the country's water resources, water being used currently is estimated to be at approximately 20%.⁸ It is a major national resource and, up until the economic uncertainty of the past decade, it was a crucial factor in Zimbabwe's agricultural and industrial competitive advantage in the region. Access to improved water and sanitation has a direct positive impact on health in Zimbabwe, particularly among children. It also tends to raise school attendance rates, particularly for girls, and the ability of children to learn. Improvements in such areas in turn may have a high payoff in the long term in terms of productivity.

There are two main acts governing water affairs: the Water Act of 1998, and the Zimbabwe National Water Authority (ZINWA) Act of 2000. A Water Fund was established under the 1998 Water Act. The Fund was created to pool levies, fees and public funds that will be used to support water service needs. Within the Water Act, there are established sub-catchment councils made up of water stakeholders who work with policymakers and planners in terms of water usage. A council oversees catchment management.

ZINWA is mandated to deliver quality water to all rural and urban communities on a commercial basis whilst also advising the ministry on the formulation of national policies and standards. The National Action Committee (NAC) for Water, Sanitation and Hygiene (WASH) – an inter-ministerial committee – was established to assist with rural water supply. NAC WASH includes representatives from any ministry with vested interest in water and sanitation. The NAC has three sub-committees namely water resource management, urban and rural WASH.

All water affairs were previously administered by the Ministry of Environment, Water and Climate. In the new Government structure established after

the July 30, 2018 elections, the water portfolio has been reassigned under the Ministry of Lands, Agriculture, Water, Climate and Rural Resettlement.

The water sector has multiple forward and backward economic linkages to key sectors including agriculture, energy and mining sector. To manage demand, prepaid metering and e-metering is being considered and may improve revenue collection. The compilation of detailed project preparation guidelines and requirements by the Ministry of Environment, Water and Climate will aid in effective due diligence and realistic costing of water infrastructure projects.

2.2.5. Information Communications and Technology

Equitable and adequate access to ICT is essential for growth of the Zimbabwe economy. Globally, ICT has become an important technological focus and its accessibility and affordability has increased exponentially in the past quarter century. A developed and reliable ICT infrastructure contributes to the ease of doing business and ensure the efficiencies are attained and that productivity increases. According to the World Bank, a 10% increase in broadband penetration contributes 1.38% in GDP growth. Donou-Adonsou, F et. Al (2016) also find that a one percentage point increase in internet and mobile phone usage raises growth by 0.12 and 0.03 percentage points, respectively.

For businesses, reliable and widely available ITC facilitates the rapid and free flow of information, which impacts positively on efficiency by helping to expedite communication and decision making by economic actors on the basis of readily available relevant information. ICT is also increasingly becoming an important instrument that is challenging the traditional methods of the commercial world. Greater accessibility to information through the use of computers also helps to enhance the quality of learning. It is also

⁸ Water consumption estimates provide by the Zimbabwe National Water Policy, 2012.

transforming the way students are being taught and the way governments are delivering services to people.

The Government did adopt a sector reform policy that called for universal access to affordable telecommunications and postal services and emphasised the need for improvements in service availability and quality and the development of new services through de-monopolisation and privatisation. However, in the past decade the Zimbabwe government still has a substantial stronghold in the sector by owning the fixed-line operator, TelOne and the 2nd mobile operator, NetOne with a majority stake in the 3rd largest operator, Telecel. Consequently, it continues to lag behind its regional counterparts in terms of ICT service penetration, and the rate at which new technology is adopted.

The Ministry of Information Communication Technology and Cyber Security is responsible for the coordination, deployment and development of all ICT across all Government and throughout the country. The ministry is in charge of e-Government and national data centres. The Ministry State Owned Companies' (SOC) role is to expand communication infrastructure. There are a number of SOC in the ICT sector.

- PowerTel SOC rolls out fibre optic networks.
- TelOne SOC expands fixed network infrastructure, rolls out fibre optic infrastructure, microwave network infrastructure and satellite communication infrastructure. TelOne connects to 2 undersea cables in the Indian Ocean, namely East African Sub-Marine System (EASSy) cables, and West Africa Cable System (WACS).
- Transmedia Corporations provides radio and television signal distribution services for broadcasters in Zimbabwe in terms of Zimbabwe Broadcasting Commercialisation Act 2001.

Sector specific policies, strategies and reforms. Government has reiterated the importance of the applications of ICT across multiple spheres. The 2016 National Policy on ICT seeks to deepen the use of ICT in the economy, targeting e-Government and e-learning programmes.

Zimbabwe's desire to move into a cashless economy provides an opportunity for government and private players to expand financial inclusion of citizens who do not have access to the formal banking sector. The active mobile subscriptions and mobile and internet penetration rates have increased from 2016 to 2017 indicating increasing demand for telecommunications.

2.3. MAJOR CHALLENGES IN REBUILDING BASIC INFRASTRUCTURE

2.3.1. Sector Specific Challenges

Challenges in the transport sector. The past two decades have been marred with economic challenges which led to difficulty in ensuring the continuous rehabilitation and maintenance of transport infrastructure. The quality of Zimbabwe railroad and road infrastructure is ranked by the World Economic Forum at 86 and 116 respectively out of 137 in 2018. This is down from 83 and 101 for railroad and road infrastructure respectively.

Over-reliance on road transportation is resulting in an accelerated depreciation of road networks which are already in need of extensive rehabilitation. The GoZ implemented various road-user fees to collect revenue. Based on our analysis in Chapter 8, the fees collected are sufficient to rehabilitate and maintain the road network. However, the funds are not effectively rationalised with administrative costs outweighing maintenance funding. Furthermore, the Department of Roads (DoR) has limited institutional capacity to undertake its mandate.

The railways sector has experienced a number of challenges related to deteriorating tracks, obsolete signalling systems and rolling stock, theft of operating equipment, low locomotive and wagon availability. Fiscal constraints also fed into the challenge to maintain the rail networks. Approximately 5% of the 2018 transport sector budget was earmarked to support initiatives to improve the rail networks. The lack of an efficient railway network hampers growth in other key economic sectors such as agriculture and energy.

The aviation sector is experiencing various challenges including financial constraints and old air traffic control equipment which needs upgrading or replacement. These challenges pose safety and security concerns. The state-owned national carrier Air Zimbabwe is facing massive debt. This is hindering the airlines ability to secure potential investment.

Challenges in the energy sector. Zimbabwe has experienced significant electricity shortages, mainly due to aged infrastructure dating back to the 1950s that has lacked sustained maintenance and recapitalisation over the years. Three of Zimbabwe's smaller power stations are oldest and are generating electricity way below capacity. Lack of regular maintenance particularly during the Lost Decade accelerated deterioration. Hydro-dependency in the midst of erratic weather patterns is placing increasing pressure on electricity supply – this is not unique to Zimbabwe but requires careful risk management going forward. Zimbabwe imports electricity to cover shortfalls. However, due to financial constraints, importing is not seen as a sustainable option. In 2011, approximately USD 40 million was disbursed by the GoZ for the energy programmes to rehabilitate the Hwange, Kariba South and small thermal power stations. But due to a variety of challenges, the programmes resulted in unsustained marginal gains in power generation.

There is no clear policy on energy mix, however, the sector is developing a Renewable Energy

Policy. Energy shortfalls in the electricity and petroleum sub-sectors result in dependencies of energy imports from neighbouring countries. Independent Power Producers (IPPs) can ease the supply constraint however there have been concerns from IPPs around economic instability and financial de-risking. In addition, there is uncertainty about the financial position and stability for off-takers as the national utility is not credit-worthy. Electricity prices are not cost-reflective and continue to undermine the cost of electricity generation, transmission and distribution. ZPC and ZETDC have been operating at a loss over the past seven years due to ever-increasing debt and low equity funding.

Challenges in the water and sanitation sector. In the past decade, the water supply and sanitation systems in many urban and rural areas in Zimbabwe have deteriorated and water-dependent businesses have been adversely affected by shortages. Sewerage systems have experienced large-scale blockages, water treatment plants are dysfunctional and lack chemicals; and many distribution systems have fallen into disrepair. The failure of the electric power system to provide a regular and reliable supply of electricity has compounded the problem of operating the water supply and sewerage systems of urban areas and has contributed to collapse of the system. Erratic water supply has led to decreased industrial production and breakouts of water borne health crises exacerbated by overstretched systems. The country's economic crisis has limited the Government's financial capacity to allocate funds to the water sector. In addition, ZINWAs collection of levies and fees through the Water Fund has been limited. This has limited the authority's ability to undertake their mandate to build, operate, upgrade and maintain water infrastructure. In the absence of the water resources development, the potential of key sectors may not be realised. Commissioned projects for water infrastructure often experience cost over runs due to a lack of detailed project preparation and due diligence during the feasibility

stage of projects. This also speaks to capacity and skills shortage. Furthermore, water tariffs are not cost-reflective; local authorities are unable to recoup revenue from water tariffs that are commensurate with the cost of construction, upgrading, extension and/or maintenance of water infrastructure.

Challenges in the ICT sector. In the past, investment into ICT has not been a priority. Government is yet to fully embrace ICT within its own operations as most of its operations are not digitised. While government is prioritising an increase in ICT literacy, Zimbabwe is still behind the curve in terms of ICT related skills. Zimbabwe's e-readiness is ranked at a very low 124 out of 139 developing countries. The lack of infrastructure in rural areas is widening the urban-rural digital divide where parts of the inlands are on 2G or lower while the urban areas are on 3G and some parts on 4G. As a landlocked country, Zimbabwe is dependent on access to undersea cables through third parties. This adds to the cost of delivering cost-effective mobile and internet access to Zimbabweans. Cyber security policies are non-existent which presents huge concerns of digital information safety.

2.3.2. Key Cross-Cutting Challenges

The Report has undertaken an examination of the development of basic infrastructure for the transport, power, water and sanitation, and information and communications technology sectors in the past decade, as well as the management of the services associated with this infrastructure. A number of basic findings have emerged from the assessment:

- The sustained deterioration in the quality of infrastructure assets stemmed from very inadequate levels of public expenditures for routine and periodic maintenance of the infrastructure networks.

- There have been multiple policy reforms aimed at stimulating the economy, however, implementation plans are not clear.
- Where services are provided by parastatals, prices have been kept low, and as a result, the economic costs of the deterioration have emerged in the form of large and, in some cases, unsustainable operating losses.
- The deterioration in the physical infrastructure has been accompanied by lack of progress in building institutional capacities for management and regulation of the basic services associated with these networks. Problems in this area stem from a disjoined approach to regulation and oversight among the ministries responsible for these sectors, compounded by a substantial loss of skills in the public workforce.
- The deterioration in Zimbabwe's basic infrastructure in the past decade has had a serious impact on other productive sectors of the economy and on the level and quality of services to the public at large.
- The country's perceived risk has decreased private sector appetite to invest in the country as well as decreased donor level engagements due to arrears.
- Lastly, there is an urgent need to restore the human capacity abilities. The tough economic conditions led to a significant "brain drain" or skilled workers out of Zimbabwe. The loss of skilled workers is exacerbated by the low levels of training and capacity building particularly within the scope of undertaking, overseeing and managing large infrastructural projects.

2.3.3. Low Levels of Maintenance

Low levels of periodic and routine maintenance over the past two decades have been the main cause of the deterioration in the quality of the basic infrastructure of the country. Lack of routine maintenance of the four sector's infrastructure over the past decade also contributed substantially to the deterioration of assets and the resulted in large backlogs of capital outlays required for rehabilitation. Subject to the availability of adequate levels of funding, the proposed rehabilitation plan for the decade ahead would restore these assets to full working condition. The challenge will be to ensure that there is adequate provision for maintenance of these rehabilitated assets.

3. AN ACTION PLAN FOR INFRASTRUCTURE

3.1. KEY ELEMENTS OF THE PROGRAMME

3.1.1. Priorities for the Programme

The proposed Action Programme for Infrastructure for the decade ahead is comprehensive and ambitious. Its aim is to rehabilitate and upgrade the bulk of the basic infrastructure assets of the country in the coming decade and reinforce the existing integration of Zimbabwe's infrastructure network with the other countries of the Southern Africa region.

The key features of the proposed programme for 2019 –2030 are as follows:

- Rehabilitation of the national power grid and by 2030 addition of new generation capacity required to sustain strong economic growth;
- Rehabilitation of a large part of the national road network in poor to fair condition;
- Rehabilitation of the railways network and restructuring of the industry through the unbundling of the NRZ into a privatised railway services company and the award of concessions for freight and passenger services on the entire rail network;
- Early action to upgrade the status of air traffic communications and safety in Zimbabwe to a standard consistent with the requirements of the ICAO;
- Substantial investment in storage and transport of water resources to meet increased demand from agriculture, industry and households;
- Rehabilitation of the existing water supply and sanitation infrastructure and

improvement of services in urban and rural areas;

- Development of a national communications grid for ICT based on a fiber optic network linked to the submarine cables now in place along the eastern seaboard of Africa. The grid would lay the foundations for a major expansion in access to reliable communications at reasonable cost for a majority of Zimbabweans, the business community, government and civil society;
- A substantial programme of institutional reform and strengthening that includes measures to streamline the regulation of basic infrastructure services, promote private investment in infrastructure assets and services, as well as training and other capacity building measures to expand the skills required within the public sector for continued effective oversight and management of the basic infrastructure of the country.

3.1.2. Programme Expenditures and Funding Development expenditures

Annex Table 7 provides a summary of the sources of funding or the costs of the proposed capital expenditure programme during the decade. The total cost is put at about USD 34 billion at 2017 constant prices, including USD 8 billion of private investment in upgrade of existing infrastructure and new capacity. The water supply and sanitation and resource management, would require an outlay of USD 3.67 billion for capital works and related technical support. The power programme would require about USD 1.14 billion, the transport sector requires approximately USD 28.56 billion of which most is required in the road sub-sector. The communications sector would require about USD 412 million, primarily to the creation of

a national fibre optic backbone network. Not included in these estimates is USD 43 million for routine road maintenance.

Successful implementation of the proposed programme will bring a range of benefits to Zimbabwe, including improved transport modality and lower costs for the movement of cargo domestically and internationally, reliable supplies of electricity, improved access to low cost communications networks, and improved access to safe water and improved sanitation in both urban and rural areas. Indirect benefits include an improved environment for tourism and business activity in general. A high proportion of these expenditures will be for civil works that includes the supply of materials and provision of construction-related services. The proposed programme is therefore expected to provide an important stimulus for economic growth in Zimbabwe in the decade ahead.

Funding arrangements for development expenditures. Table 3 provides a summary of the funding arrangements proposed for the programme. The state enterprises involved with service provision in these sectors would account for USD 1.5 billion of the total requirement of USD 34 billion. Private sector would account for 23% at USD 7.9 billion. The national government and local authorities would account for a further USD 20.7

billion, with donors providing the balance of about USD 3.7 billion. Assuming an arrears clearance process is initiated in the near future, and full donor support is restored, the proposed infrastructure programme would require a majority of the bulk of the donor funds be allocated to water and roads.

Two important issues emerge from this funding proposal. First, a substantial part of the cost of rehabilitating the national road network stems from secondary and tertiary roads that are the responsibility of local authorities. The amounts required for rehabilitation of these networks are almost certainly well beyond the financing capacities of these local authorities. If the rehabilitation is to go forward, it is likely that the national government budget would have to make provision for transfers to these local authorities for road rehabilitation, particularly in the early years. Second, the state enterprises are called upon to provide about USD 1.5 billion of funding, USD 806 million of which is for the water sector. If these large investments are to go forward, it will be essential to undertake financial restructuring of the state enterprises concerned before serious negotiations with potential private investors can be successfully concluded.

Table 3: Zimbabwe Funding Arrangements for Proposed Infrastructure Programme (in USD millions)

Sector	National Budget	State Enterprises	Local Authorities	Donors	Private	Total	Share (%)
Water Supply and Sanitation and Resource Management	1 146	806	51	1 073	593	3 670	11%
Power	-	396	-	264	478	1 139	3%
Transport	9 586	261	9 730	2 348	6 634	28 558	85%
<i>Roads</i>	9 586	-	9 730	2 268	6 337	27 921	
<i>Rail</i>	-	180	-	80	140	399	
<i>Civil Aviation</i>	-	81	-	-	157	238	
Communications	208	-	-	-	204	412	1%
Total	10 940	1 463	9 781	3 685	7 909	33 779	
<i>Share (%)</i>	32%	4%	29%	11%	23%		

Source: Annex Table 7

Increased emphasis on routine maintenance. A key part of the proposed Action Plan includes concerted efforts to strengthen funding provisions in the public sector for routine maintenance of infrastructure assets already in good condition and those that are being rehabilitated in the decade ahead. Failure to increase maintenance budgets will repeat the cycle of the past decade.

3.2. HIGHLIGHTS OF THE SECTORAL PROGRAMS

3.2.1. Water Supply and Sanitation

The Action Plan for water resource management and delivery of water and sanitation services has three main components: (i) the complete rehabilitation of urban and rural networks; (ii) expand access to improved water to meet SDG targets (iii) implement institutional and commercial measures to ensure efficient operations in water service provision.

Storage and transport of water resources. The emphasis at this stage is on strengthening capacities for water resources management and the further development of the country's water resources to meet existing and future demand and reduce Zimbabwe's vulnerability to hydrological and climatic vulnerability. Full rehabilitation and development of the basic infrastructure for water storage and transport will take much of the decade ahead to complete. Once the basic infrastructure is in place, the emphasis would then shift to management of these resources and facilities. The key elements of the proposed programme are as follows:

- A programme of analytical studies, technical support, and capacity building for institutions with responsibilities for water resource management;
- An inspection programme for all of the major dams in the country to assess risks to public safety, extent of water losses, and extent of siltation;

- A rehabilitation programme to remedy deficiencies in existing water storage and transport infrastructure. This component of the programme would include rehabilitation of existing dams, water transport facilities such as canals and pipelines, and treatment plants
- Drilling and hydrological investigations and expansion of hydrological stations to provide basic information for improved management of national water resources;
- Expand the availability of raw water with completion of dams whose construction was discontinued in the past decade because of funding shortages, new dams and water transport facilities, and new treatment plants;
- Increased commercialisation of ZINWA operations to ensure full recovery of the costs of supplying raw and treated water for agricultural, household and industrial use.

The total cost of this programme is put at USD 2.2 billion for the decade as a whole. About USD 820 million of the programme would be funded from the national budget, ZINWA and international donors. Private investment in the range of USD 1.38 billion is proposed for new investment in dams and water transport facilities under PPP arrangements with ZINWA.

Water supply services. The proposed Action Plan for provision of water services has three key objectives: (i) to complete the rehabilitation of the existing urban and rural networks within the next four years; (ii) to expand access to improved water in urban and rural areas and meet the SDG targets by 2030, or sooner if the required funding is available; and (iii) to implement a range of institutional and commercial measures that strengthen implementation capacities within the sector and improve the financial performance of the entities responsible for the delivery of water services. The capital cost of the proposed programme for water distribution is estimated at about USD 860 million (at 2017 prices), including

USD 325 million for rehabilitation of existing facilities. The bulk of the funding for the programme would come from the national government, international donors, and municipalities that are service providers. Modest provision is also made for the entry of private sector suppliers of water services.

Sanitation services. The proposed Action Plan for sanitation has four key objectives: (i) to complete the rehabilitation of the existing urban and rural network of sanitation facilities within the next four years; (ii) to expand access to improved sanitation facilities in both urban and rural areas, with particular attention to reducing open defecation in rural areas; (iii) to implement institutional reforms that will strengthen coordination and implementation of sanitation programs and will expand financial support for the programme; and (iv) to expand the on-going hygiene education programs for urban and rural communities. The capital cost of the sanitation programme is estimated at about USD 980 million (at 2017 prices), including about USD 440 million for rehabilitation of existing urban and rural facilities, including rural latrines. The bulk of the funding for these capital expenditures would come from the national budget and the donor community, with modest contributions by the municipalities responsible for service provision.

3.2.2. Electric Power

The proposed Action Plan for the electric power sector has a number of objectives: (i) complete the rehabilitation of the generation, transmission and distribution network; (ii) meet existing and projected future demand for power, make substantial new investments in generation capacity and expand the capacity of the transmission and distribution network; (iii) implement a programme for demand side management to ensure more efficient use of power supplies among consumers; (iv) improve the financial performance and commercial orientation of the power utilities with adjustments in pricing policies that ensure that the

cost of power supply is fully recovered from consumers; (v) implement a comprehensive programme of financial restructuring for the transmission and distribution utility (ZETDC) to ensure that it has the capacity to enter into power purchase agreements with private suppliers of electricity; (vi) attract additional international investors to operate as IPPs within Zimbabwe; (vii) strengthen the enabling environment for private investment in the power sector; and (viii) strengthen the existing regulatory arrangements for the electric power sector as part of the ongoing preparation of a new regulatory agency for the entire energy sector in Zimbabwe.

As indicated in Table 3 the total cost of the proposed power programme is USD 1.14 billion, which includes almost USD 480 million of private investment in generation and other facilities.

3.2.3. Transport Sector

The total capital expenditure requirement of the road, rail, and aviation sub-sectors is approximately the range of USD 28.6 billion at 2017 constant prices.

Rehabilitation of the road network. The key objective of the rehabilitation programme for the transport network is to improve the quality of the three critical transport modes, namely: road, rail and aviation. This will, as a result, improve service levels for business and communities throughout the country by improving access to transport and lowering its current high cost. The total cost of rehabilitation is estimated to be about USD 27.3 billion, with the bulk of the funding required for tertiary roads. Given the magnitude of these requirements relative to the GDP of the country and its financing capacities, it is proposed that the rehabilitation of the road network is executed as soon as 2019 with a focus on ‘quick win’ and priority projects as outlined in TSP and TMP. In addition, clear priorities will need to be established for the programme, especially for the tertiary

roads of some 37,000 km, or about 60% of the entire network.

Action plan for road transport. The road transport chapter proposes a five point programme for recovery and reform in the road sector: (i) rehabilitation of the entire road network over the period 2019-2030; (ii) expansion of network capacities in areas that are most important for access to markets and services by rural communities and rural business activities; (iii) strengthening of financial and institutional capacities for regular maintenance of the network and for oversight of the road transport industry, (iv) implementation of reforms in the roads sector to align Zimbabwe more closely with the requirements of the SADC Protocol on Transport, Communications and Meteorology, to which Zimbabwe is a signatory, (v) implementation of reforms that address road safety. The mobilisation of funding for these programmes will be a major challenge. The proposed Action Plan sets out a number of funding proposals for cost recovery for road users.

Rehabilitation and restructuring in the railways sector. There has been substantial deterioration in the railway network of Zimbabwe in the past decade. The problems with the infrastructure stem from aging track, including insufficient ballast, rail wear, deteriorating earthworks, and rail signalling and communications with obsolete equipment and lack of spare parts. Rolling stock suffers from low availability and utilisation and, as a result, the railway is not able to meet current demand for freight services. The cost of rehabilitating the infrastructure network is estimated at about USD 400 million at 2017 constant prices. The cost of upgrading and replacing the rolling stock is estimated at USD 145 million at 2017 constant prices. A fundamental question for the railways sub-sector is whether the rehabilitation can be funded and whether such funding arrangements are sustainable. The position taken in this Report is that one or more private concessions could make a

substantial contribution to rebuilding rail services in Zimbabwe. However, this is dependent on necessary reforms being executed to unbundle the NRZ which operates as both regulator and operator. The restructuring of NRZ would result in the formation of two new companies: (i) the Railway Infrastructure Company of Zimbabwe (RICZ), a state-owned company that would own the track and related infrastructure and would be responsible for its operation and maintenance; and (ii) the Zimbabwe Railway Services Company (ZRSC) which would be a private company that would operate as a freight and passenger service concessionaire on the entire public rail network. Concessionaires would pay maintenance and concession fees to RICZ for the maintenance and operation of the network.

A programme for civil aviation. The passenger growth has steadily improved in comparison to the decade before that was marred by the economic decline of the past decade. The number of passengers declined from a peak of 2.6 million in 1997 to a low of 846,000 in 2009, improving to 1.66 million by 2017. The deterioration in the financial position of the CAAZ has hampered growth in the sub-sector. CAAZ essentially is the only source of funding for the upkeep of aviation facilities in Zimbabwe. As a result, the ability of Zimbabwe to meet international air safety and communication requirements has been eroded and rehabilitation of airport facilities has been postponed.

The Civil Amendment Act, 2018 legislates that the airports and aerodromes owned or leased by CAAZ under Statutory Instrument 193 of 2003 are to be transferred to and vested in the Airports Company of Zimbabwe (ACZ). One of the major challenges associated with the restructuring of CAAZ stems from the need to strengthen its financial position. The financial position of the authority has remained weak. CAAZ has struggled to service its loans.

A four-pronged approach is proposed for the Civil Aviation Action Plan for the decade ahead:

- Complete the substantial rehabilitation and upgrade of aviation infrastructure at the airports controlled by CAAZ/ACZ.
- Improve airspace management, safety and security and airport operations and the role private sector participation can play.
- Continue to liberalise the air transport market and decide way forward for national flag carrier, Air Zimbabwe.
- Launch a privatisation programme to attract much needed private sector funding for rehabilitation and upgrade of airport facilities to accommodate the projected growth in passenger and freight movements.

A key objective of the proposed Action Plan is to meet the minimum requirements of International Civil Aviation Organisation (ICAO) and European Union Air Safety Committee within the next 5 years.

3.2.4. Information and Communications Technology

The proposed ICT programme has the following key objectives: (i) a structured economic direction pertaining to the multicurrency uncertainty and scarcity of the US Dollar; (ii) addressing the fragmented nature of the regulatory authorities (POTRAZ and BAZ). Key elements of the proposed programme include the following:

- The development of a cyber-security network
- Expand the submarine network infrastructure from the current foundations already in place, thereby laying the basis for rapid expansion within the country to access to low cost

communications with regional partners and with the international community.

- Open the domestic market to increased competition by removing limits on the numbers of network licenses, encouraging entry of additional service providers, and removing restrictions to allow operators to buy backbone services from and sell services to other operators. These moves will help consolidate traffic and provide incentives to upgrade networks to fiber optic cable and thereby reduce communication costs and improve service quality.
- Set clear and realistic targets for universal access to the communications network, including access for communities that are disadvantaged or isolated.
- Consolidate the existing duplication of regulatory and oversight responsibilities shared by the Broadcasting Authority of Zimbabwe (BAZ), and the Postal and Communications Authority (POTRAZ) by creating a single regulatory authority for the ICT sector. With appropriate use of technical services and support, amend and strengthen the regulatory framework, amend licensing rules and their enforcement, and improve information collection and evaluation by the integrated single regulatory authority.
- Government and non-government entities would collaborate to broaden the range of e-applications that are currently available throughout the country. The programme would expand the existing range of e-government applications, and promote development of additional applications for the business community, for health, education and other institutions, and for the population at large.

Almost two-thirds of the population would have access to voice communications by 2020, compared with about one-third at the present time.

This growth is in line with the projected increase in the electrification rate for the country as a whole by 2020. The penetration rate for mobile phone use of 57 accounts per 100 people in 2020 would put Zimbabwe at a level roughly comparable with the current rate for middle income countries around the world. The penetration rate for fixed line accounts, on the other hand, would be low relative to current rates for middle income countries in other regions of the world. Access to internet and broadband services in 2020 would be comparable to current penetration rates for other middle income countries. Achievement of these targets would transform access to media and communications throughout Zimbabwe, especially when accompanied by increased competition among service providers and lower overall costs for access to these internet and broadband services. The effects would be profound since it would lay the foundations for widespread access to information in urban and rural areas, including education and health services in schools and community centres in rural communities, and improved access to information about market opportunities for farm products and other rural-based production activities.

3.3. IMPROVEMENTS IN THE OPERATING ENVIRONMENT

3.3.1. Overview

As Chapter 2 indicates, there is a strong link between the improvement in infrastructure services and economic growth. However, a strategy that focuses only on rehabilitation and maintenance of the basic infrastructure of Zimbabwe is unlikely to be sufficient for a transition to sustained strong economic growth. There is a clear need to improve the operating environment for provision of infrastructure services if the proposed USD 7.9 billion of private investment required for improved capacity in power generation and for upgrade and new capacity in rail services and airport management is

to be mobilised. In particular, there are three closely related sets of concerns that will require early attention. These are:

- Strengthening the policy framework for private investment in infrastructure services under partnership arrangements of one kind or another with government entities;
- Technical and financial restructuring, including privatisation, of certain departments and state enterprises that are likely to enter into partnerships with potential equity investors, or that will need to go to the financial markets for long-term funding for infrastructure projects; and
- Strengthening the legal, regulatory, and administrative environment applicable to the provision of infrastructure services.

The position taken in this Report is that the above-three issues will need to be acted upon prior to the completion of negotiations with potential private investors in PPP-type arrangements that will be required for the proposed infrastructure programme.

3.3.2. Private Investment and Public-Private Partnerships

At the present time in Zimbabwe, the private sector is most active in providing road transport services and communications. A substantial part of the road transport services are provided by domestically owned entities, but because of its central position in the regional road network, service providers from other countries — especially South Africa — are also important. The bulk of the airlines services are provided by international carriers from other countries. Service provision in the power sector is dominated by government-owned parastatals, as is the case for railway services. In the case of water and sanitation, involvement by the private sector is

very limited as most service provision is provided by municipalities and other local authorities.

There were a number of initiatives in Zimbabwe in the 1990s aimed at expanding the role of the private sector in the provision of infrastructure services, but these were largely inconclusive. The most prominent example of the use of PPP-type arrangements from that period was the private concession that began providing rail services in 1998 on 385 km of track between Bulawayo and Beitbridge (BBR). On the policy front, the “Public-Private Partnerships Policy and Guidelines,” published in 2004, presents the Government’s approach to collaboration with the private sector for infrastructure provision. However, this policy statement and guidelines have not been translated into a legal and regulatory framework for PPP-type arrangements. Government has renewed its interest in expanding the role of private sector provision of transport services, development, and ownership of transport infrastructure. A key objective is to mobilise private sector funding to compensate for the severe constraints on the availability of public funding for the rehabilitation of the infrastructure network and for the large backlog of required periodic maintenance.

- As noted elsewhere, this Report proposes new private investment of USD 1.375 billion for the storage and transport of water, the most important component of which is the proposed 400 km pipeline from the Zambezi River to Bulawayo that is estimated to cost USD 1.2 billion. Successful implementation of PPP arrangements for the water sector will require close attention to take-or-pay arrangements that will be attractive to potential private investor;
- In the case of the power sector, about USD 1.14 billion will be required for new generation, transmission and distribution capacity in the decade ahead. This would be done under a PPP arrangement in which

private investors would build and operate individual generation plants and sell power to the national grid under take-or-pay contract arrangements with the ZETDC;

- In the case of the railways sector, the programme calls for the long-term contracts with concessionaires to provide passenger and freight services on the mainline public rail network and, subject to further analysis, on some or all of the spur lines. As noted earlier, the proposed new parastatal, RICZ, would be responsible for the operation and maintenance of the public network, while the concessionaires would be responsible for the provision of freight and passenger services and would own the rolling stock required for these services;
- In civil aviation, CAAZ would transfer its existing responsibilities for regulation of the aviation industry to a newly created regulatory authority for the transport sector. CAAZ would then assume a singular role of regulator. Concessionaires would be contracted to operate the airports under the ACZ mandate.

Mobilisation of investment from private sources will be a major challenge for two reasons. First, there is no clear legal and regulatory framework in place for these types of investments; and second, partnerships with the government in water storage and transport, power, civil aviation, and railways — the main areas where private investment is to be mobilised — will involve dealings with the parastatals that currently own these types of infrastructure assets and, with the exception of the BBR concession, have monopoly arrangements with respect to service provision. As the consideration below indicates, the current financial position of these parastatals is unsatisfactory. In their present financial condition, it is unlikely that they could form successful partnerships with private investors. From the perspective of

potential private investors, the combination of the unsuitable legal framework, uncertainty about the regulatory environment, and the weak financial position of the public partners translate into a high degree of risk and uncertainty about the attractiveness of these PPP opportunities. This Report therefore calls for the early launch of a comprehensive programme that addresses these concerns.

3.3.3. Restructuring of State Enterprises

In addition to the role of regulatory agencies, POTRAZ, BAZ, and ZERA, seven state enterprises play important roles in the provision of infrastructure services in Zimbabwe. These are the ZESA Holdings⁹, NRZ, CAAZ, Air Zimbabwe, Tel One, Net One and ZINWA, most of whom have been identified as candidates for restructuring. If there is to be sustained progress in rehabilitating and rebuilding the infrastructure assets and services of the country, there is a clear need for early action on the financial and technical restructuring of these enterprises. Potential private investors in water storage and transport, power generation, railways, and airport concessions will require financially sound public partners for the types of PPP arrangements currently envisaged by the Government. The restructuring process will have to be undertaken on a case-by-case basis, with close attention given to the full range of stakeholder interests, including, for example, the manner in which staff redundancies will be managed. Long delays in restructuring the SOEs that are potential partners with private investors in PPP-type arrangements will simply delay efforts to upgrade and increase capacities in key infrastructure areas such as power generation, railway services, and airport capacities and services at key tourist destinations in Zimbabwe.

The proposed action plan for state enterprise restructuring set forth in this Report for each infrastructure sector is as follows:

Water supply. A key objective is to enable ZINWA to construct and rehabilitate water infrastructure, with particular emphasis on the network of dams throughout the country, and to provide water supplies consistent with specific quality standards. The proposed restructuring for ZINWA would involve the recapitalisation of the company and separation of its current responsibilities for regulation to an independent regulatory authority for water and sanitation;

Electric power. No restructuring is recommended for the energy utilities, however, emphasis is placed on improving the financial and technical capacity of the ZPC and ZETDC;

Transport sector. As noted earlier, the NRZ would be split into two separate companies: RICZ would be the owner and manager of the railway infrastructure, and ZRSC would be a privatised company that would provide passenger and freight services on the entire rail network in competition with other concessionaires. In the case of CAAZ, it would assume the singular role of regulator of the aviation sub-sector. The restructured CAAZ would aim to attract a strategic investment partner that would inject additional equity into the company. It would be responsible to the provision of airport services at the airports currently managed by CAAZ. In the case of Air Zimbabwe, the proposal is modelled along the lines of the privatisation of Kenya Airways in 1995-96. It would aim to bring in another international airline as a strategic investor, with the latter holding a substantial portion, but not necessarily a controlling interest in the company;

Telecommunications. Both Net One and Tel One would be privatised by private sale of government shares to domestic and or international strategic investors that have an interest in expanding their role as service providers in the ICT sector.

⁹ ZESA Holdings is a parent company to ZPC, ZETDC, ZESA Enterprises and Powertel.

Chapter 5 sets out a clear timetable for implementing these restructuring and privatisation programmes. The key point is that they all need to be completed within the next three years to lay the foundations for the proposed build-up of private investment in new capacity and improved service provision by entities such as ZETDC and ZINWA that would remain as publicly owned companies.

3.3.4. Strengthening the Institutional and Regulatory Environment

Reconsideration of regulatory arrangements. The Action Plan calls for important institutional changes in the regulation and oversight of infrastructure services. In the case of water and sanitation services, the proposed programme for water supply in urban and rural areas includes a range of measures aimed at strengthening the policy environment and building institutional capacities for service delivery. There is an increasingly important need to strengthen regulatory arrangements for the sector. A strong case can be made for the creation of an independent regulator for oversight of water resource management and provision of water and sanitation services. The activities associated with an enhanced regulatory capacity would include, for example, assessment of current pricing and cost recovery arrangements in urban and rural areas and establishment of tariff guidelines and performance benchmarks for service providers. The latter would cover three broad areas: (i) service coverage and quality, including such things as quantities of water delivered on a per capita basis and responses to customer complaints; (ii) financial performance which would include preparation of audited accounts for urban suppliers, standard financial ratios, cost recovery, and collection of accounts receivable; and (iii) operational efficiency which would include standard measures such as the amount of non-revenue water used, staffing efficiency, and maintenance performance.

In the case of the power sector, Zimbabwe does not have a clear policy on renewable energy described in its Energy Policy or the Energy Regulatory Act, 2011. The current energy mix is heavily dependent on coal and hydropower. The Ministry of Energy and Power Development and ZERA is developing a Renewable Energy Policy that awaits cabinet approval as at the time of writing. The policy seeks to diversify energy uses to renewable sources. A renewable energy feed-in tariff framework has been developed although remains to be implemented.

The changing role of the government in the transport sector, with increasing participation by the private sector, calls for early reconsideration of arrangements for regulation of transport services. In the case of the transport sector, the Report proposes the creation of a regulatory authority for each sub-sector, namely: roads, rail and aviation. Under the proposed strategy, the Government would retain ownership of the transport infrastructure and therefore would have the ultimate responsibility for its upkeep. New legislation would be required to create the proposed independent regulatory authorities. Careful consideration of the degree of independence, autonomy, expertise, and accountability for the authority will be required.

In the case of the ICT sector, a number of issues and concerns about the regulatory environment for ICT services have emerged in recent years and have become more pressing since the creation of the Ministry for Information and Communications Technology. First, the Ministry does not have formal oversight of the two regulatory bodies active in the sector. Second, no laws govern cyber transactions in the following areas: digital signatures; contracts made over the internet; a framework covering issues of convergence of telecommunications, broadcasting, and computing. The Minister for Information and Communications Technology has committed to enact laws that control and manage online transactions. Third, both POTRAZ and BAZ regulate ICT activities.

There is overlap and duplication of functions between these agencies, and the fragmented nature of these arrangements impedes efficient development and harmonisation of efforts. Both POTRAZ and BAZ manage radio frequencies and regulate electronic transmission of information and data. International trends recommend one national body to coordinate ICT related issues at national level, a situation that is in line with convergence of technologies. Wastage of both financial and human resources stems from the current overlap in responsibilities and duplication of effort results. The ICT Ministry and other stakeholders advocate the merger or convergence of BAZ into POTRAZ for better coordination of activities in the ICT Industry. Fourth, though there is some degree of infrastructure competition in the telecommunications sector, the creation of effective competition among backbone network operators is needed. This lack of competition is constraining investment in high-capacity networks and preventing the market from achieving economies of scale.

It also has a knock-on effect in the providers (ISP) and the data services market as a whole. Fifth, the existing framework does not address adequately the emerging regulatory issues that arise from impeding transition to a fiber optic backbone network for the country. With the rapid development of high capacity backbone networks in the Southern Africa region, Zimbabwe has the opportunity to improve substantially its communications services and lower the cost of these services. At the present time, the small amount of backbone network already established is used mainly to provide backbone services for the operator's own retail customers, most of whom are mobile subscribers. Wholesale markets in backbone capacity do not exist in Zimbabwe at this time. Sixth, where fiber backbone network development has taken place in Zimbabwe, it has been concentrated in urban areas and on interurban routes, leaving smaller towns and rural areas dependent on low-capacity wireless

backbone networks. A new ICT Bill has been drafted, but it does not spell out how the various ICT Acts would relate to each other or even indicate which ones would be repealed.

An important principle for the design of these regulatory authorities is that it would have access to its own funding sources and not be reliant on budgetary transfers from the national government. The most common approach, to impose fees on the regulated industries or the consumers of regulated services, would be mandated to generate its funding requirements from a range of user fees in the road, rail, and aviation industries. Other sources of revenue could include charges for various services: for example, in the aviation sector, aircraft registration fees, fees for the examination and registration of pilots, and various other licensing activities.

The other aspect of regulation that requires further consideration concerns issues that emerge from increased regional integration of economic activity. The quality of regional transport infrastructure is critical for linking land-locked Zimbabwe to regional markets within Africa and to international markets. This is particularly the case for Zimbabwe's links to South Africa. Over the past two decades, there has been a dramatic increase in the importance of Zimbabwe's trade with South Africa, which has increasingly replaced international markets for Zimbabwe's exports and imports.

Regulatory and administrative hurdles continue to inflate costs and prolong delays for freight movements along the strategic road and rail routes used by Zimbabwe. Delays at border crossings and ports increase substantially the time required to transport goods to and from Zimbabwe and to transit the country. In the case of air transport, even with a strong recovery in tourism in the decade ahead, the size of the Zimbabwe market will remain small. These realities point to the need to develop regional hubs that serve multiple countries.

Another important institutional change in the transport sector concerns the DoR. The proposed programme calls for transformation of the DoR into an autonomous road agency responsible for procurement of services from the private sector, rather than continuing with the current practice of relying on in-house execution of works. This change would help build the substantially larger construction and maintenance capacities that will be required in the decade ahead. An enlarged private sector capacity in these areas will also benefit the urban councils and RDCs that face large construction and maintenance programmes, but are currently hampered by a lack of force account capacity and limited supply of

3.4. IMPLEMENTATION OF THE PROPOSED PROGRAMME

One of the key points about the proposed Infrastructure Action Plan for the decade ahead is that the funding requirements are very large. These funding requirements exceed the financial capacities of any one group of stakeholders involved with infrastructure services in Zimbabwe. Successful implementation of the proposed programme will require a partnership that involves the National Government, state enterprises and local governments with responsibilities for infrastructure services, the donor community, and private investors.

Successful implementation requires that the proposed Action Plan be implemented in a carefully phased manner. The immediate priorities are threefold: (i) move ahead with rehabilitation programmes as quickly as funding and institutional capacities permit; (ii) enter into an arrears clearance process with the international financial community as early as possible; and (iii) lay the policy, regulatory and institutional foundations required for a subsequent successful build-up in private investment in new infrastructure capacity and in the private provision of infrastructure services. If these elements of the framework are

put in place in the next two to three years, the prospects for mobilizing the private investment required for expansion of infrastructure capacity and service provision in the decade ahead will be enhanced considerably.

Without early progress on the operating environment for infrastructure service provision along the lines discussed elsewhere in this Chapter, potential private investors will be uncertain about the manner in which the existing incomplete framework for private investment in infrastructure will evolve. This continuing uncertainty will heighten investor perceptions about the risks involved in making major new commitments in Zimbabwe. Comparable investment opportunities elsewhere in the region and in other parts of the world will be viewed by potential investors as more attractive.

4. SUPPORT FOR INSTITUTIONAL REFORM AND REGULATION

4.1. THE SETTING

4.1.1. Regulatory Reform for Infrastructure: The Challenge Ahead

A strong sustained improvement in the quality and quantity of infrastructure services in the decade ahead will require a substantial increase in private investment in infrastructure assets and services, especially in electric power, railways, civil aviation, and ICT. It will also require significant progress in restructuring the parastatals operating in the infrastructure sectors. This combination of events raises a range of key policy issues related to the regulation of public and private services in these sectors. At present, regulatory entities monitor civil aviation, electric power, and ICT services. There are no formal regulatory agencies for water and sanitation services or road and rail transport.

The reality is that the regulatory environment for infrastructure service providers in Zimbabwe is deficient. The 2017 Global Competitiveness Report ranked Zimbabwe 108th out of 138 countries included in the survey, with Zimbabwe property rights ranking second last out of the 138 countries.

4.1.2. Importance of Strengthening the Institutional and Regulatory Framework

AfDB (2018) reports that an “*inappropriate regulatory framework limits private sector participation in infrastructure funding*”. One of the important areas to address in the medium-term is the strengthening of the Zimbabwean regulatory framework. There is importance in instituting reforms that will promote economic growth. On the technical side, regulation needs must employ solid methodological tools with resulting decisions clearly communicated to the business community and public at large. On the political side, regulation

requires a degree of autonomy from government interference while remaining accountable to society. Kilishi A.A. (2017) states institutional reforms have, over the years, become almost necessary for financial and other forms of assistance from international financing institutions. Kilishi finds that that sub-Saharan countries that pursue some form of political institutional reform, as Zimbabwe did in 2009, experienced lower growth and investment. This is in comparison to the countries that embarked on gradual economic reforms that led to economic growth.

International experience suggests that an essential element of an effective regulatory framework for the development of adequate backbone infrastructure in a liberalised competitive environment is to place the responsibility for regulation in an agency with the required independence, autonomy, expertise, and accountability. The standard recommendations for the creation of a regulatory agency are straightforward and revolve around the following three broad principles:

- The regulator's sectoral breadth of authority,
- The desirable qualities of a regulator, and
- The division of labour between the regulator and the government.

The regulator's sectoral breadth of authority can be industry-specific such as rail and electricity; sector-specific; or multi-sectoral with a single regulatory agency for all or most infrastructure sectors. In determining the desirable qualities of a regulator, a few minimum requirements must be addressed for regulation to be successful. These include independence with a reasonable amount of

discretionary powers, autonomy and expertise, and accountability. Regulators should have an arm's length relationship with ministries and with the business entities in the sectors being regulated and they must have a degree of discretion in making decisions. The rules pertaining to the role and responsibility of the regulator must be clearly spelled out in the charter or contract that establishes the regulatory agency. Autonomy can be facilitated by ensuring that the regulatory authority has access to its own sources of funding and is not depended on annual transfers from the national budget. In monitoring compliance and enforcement, the regulatory authority must be able to impose penalties according to clearly defined rules.

4.2. REGULATION OF THE TRANSPORT SECTOR

4.2.1. Current Arrangements for Regulation of the Transport Sector

At the present time, civil aviation is regulated by the CAAZ, which is also the operator of airport and navigation services for the industry. Similarly, the NRZ acts as both operator and regulator. In the case of road transport, there is no formal regulatory body. In the event that customers for the road, rail and aviation sub-sectors wish to lodge complaints about the quality of price of services, the only avenue is the Competition Commission. In the case of the roads sub-sector, responsibility for technical standards for road construction and safety rests with the DoR, while responsibility for oversight of the road transport industry is dispersed among several entities.

The constraints on the ability of the Zimbabwe Government to fund the very large backlog of rehabilitation and periodic maintenance required for the transport sector has led to a renewed interest in mobilizing private investment for this purpose. This renewed interest in the role of the private sector in transport services and

infrastructure stems, in part, from the incumbent presidency's narrative of "Zimbabwe is open for business".

4.2.2. The Approach to Regulation in the Transport Sector

This Report calls for the creation of regulatory agencies for each of the transport sub-sectors. Civil aviation and rail sub-sectors already have authorities in place, however the two authorities play the roles of both operator and regulator. It is therefore suggested that the implementation process of the ACZ established under the Civil Aviation Amendment Act, 2018 be prioritised. This would see the CAAZ unbundled into an operator (ACZ) and CAAZ maintaining a strictly regulatory role. In addition, a similar undertaking will be needed in the railways sector. This is to unbundle the NRZ into three separate institutions: an infrastructure company, a railway company that focusses on implementation and the NRZ would maintain its role as regulator of the sub-sector. Furthermore, the effectiveness of a regulator also depends on the clarity with which the sectoral responsibilities have been divided between a regulator and a transport ministry, and with other government agencies.

4.2.3. Possible Next Steps

In the event that the Government decides to set up the sub-sector regulatory authorities for the transport sector, the first step would be the preparation of a detailed business plan. The national Transport Master Plan (TMP) that has been developed will aid in guiding this first step. The follow-up work would include drafting of new legislation for the establishment of the new authorities and companies, along with decisions on the organisational structure of these institutions. The authorities would need a number of support units, including finance, legal, human resources and communications. A substantial amount of work will also be needed on the specifics of the

agency's responsibilities, staffing requirements of each of the units and recruitment, and funding arrangements. An early start on such an initiative would have the advantage of helping lay the foundations for the design of concession contracts in the transport sector and for the reporting obligations of concessionaires.

4.3. REGULATION OF THE ELECTRIC POWER SECTOR

4.3.1. Current Arrangements for Regulation of Electricity Services

Energy regulator. The Energy Regulatory Act of 2011 amended the Electricity Act of 2002 and Petroleum Act of 2006. It provided for the establishment of the Energy Regulatory Authority, ZERA. It has the following core functions and powers:

- To regulate the procurement, production, transportation, transmission, distribution, importation and exportation of energy derived from any energy source;
- To create, promote and preserve an efficient energy industry market for the provision of sufficient energy for domestic and industrial use;
- To promote the procurement, production, transportation, transmission and distribution of energy in accordance with public demand and recognised international standards;
- To promote co-ordination and integration in the importation, exportation and pooling of energy from any energy source in the SADC and COMESA region;
- To exercise licensing and regulatory functions in respect of the energy industry;
- To ensure that prices charged by licensees are fair to consumers in the light of the

need for prices to be sufficient to allow licensees to finance their activities and obtain reasonable earnings for their efficient operation;

- To maintain and promote effective competition within the energy industry;
- To establish or approve operating codes for safety, security, reliability, quality standards and any other sector related codes and standards;

The Act does not explicitly state that the ZERA is independent.

Licenses. The Energy Regulatory Act stipulates the conditions around issuance, restriction, application, renewal, amendment, enforcement and cancellation of licences. Licensing requirements include: no person shall engage in the generation, procurement, distribution, transportation, transmission and production of the declared energy source for gain or reward unless that person is licensed under the purview of the Act.

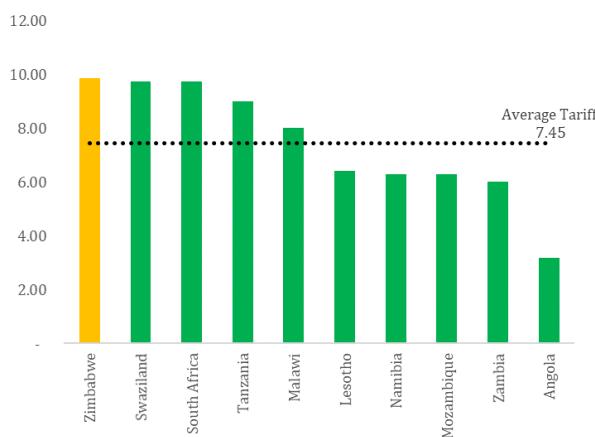
The Act does not stipulate a licence validity period. There is a list of conditions of enforcement and cancellation of a license that is lax. For example, a cause of cancellation is that "the financial position of the licensee is such that it is unable to fully and efficiently discharge the duties and obligations imposed on it by this Act or its license". This is a subjective criterion for an important event like the cancellation of a license.

Competition and market power. ZERA oversees whether electricity services are provided competitively and determines whether a service with fixed price can be provided competitively. Zimbabwe only accommodates for private sector participation in generation activities. The Zimbabwe Electricity Distribution and Transmission Company is licenced to distribute and transmit power to energy users and the

Zimbabwe Power Company (ZPC) is licenced to generate power for the country.

Regulation of power tariffs. The regulator is also responsible for setting tariffs. ZERA is responsible for defining the pricing methodology and sets prices and tariffs (after consultation with the Minister of Energy and Power Development). Formally, tariffs are to be set on a cost-recovering basis and should be revised annually. However, the last review of the tariff schedule was in 2013. In the same year, a tariff code was developed to ensure prices charged by licensees are fair to the end consumers while also ensuring cost recovery. The tariff code guide should be amended to be in line with the Energy Regulatory Act as it still refers to the Electricity Act of 2002 which does not recognise the Rural Electrification Fund. Tariffs have been kept lower than their cost-recovery value due to resistance to tariff increases from various users. As of 2018, the average tariff was 9.86 US cents per kilowatt hour (kWh). A cost-reflective tariff is 12.85 US cents per kWh. Tariffs in other parts of the region range between 3 and 9.86 US cents per kWh (see Figure 8). The implication is that the present economic signals to potential private investors in power generation in Zimbabwe are poor.

Figure 8: Average Tariff for Regional SADC Countries (in US cents per kWh)



Source: Southern African Power Pool Annual Report 2016

4.3.2. Measures to Strengthen the Regulatory Environment

Zimbabwe has not had a clear policy on renewable energy described in its Energy Policy or the Energy Regulatory Act. The current energy mix is heavily dependent on coal and hydropower. The Ministry of Energy and Power Development and ZERA is developing a Renewable Energy Policy that awaits cabinet approval as at the time of writing. The policy seeks to diversify energy uses to renewable sources. A renewable energy feed-in tariff¹⁰ framework has been developed although remains to be implemented.

4.4. REGULATION OF WATER SUPPLY AND SANITATION SERVICES

As Chapter 6 indicates, access to improved water resources has declined during the past decade, together with the capacity for management of water resources. There has been deterioration in the quality of water due to poor sewage treatment and conveyance. The decline of the sector has been accompanied by lack of regulatory resources and intermittent changes in the policy and institutional environment for the water sector.

4.4.1. Current Arrangements for Regulation of the Sector

Regulation of water supply and sanitation services is dispersed among various acts of Parliament. The Water Act regulates the management of water resources, while the regulation of water and sanitation services is guided by other Acts (including the Mines and Minerals Act of 1961, Urban Councils Act of 2015, Rural District Councils Act of 1988, and Environment Act). In addition to the Acts that govern water resources in Zimbabwe, the water policy of 2012 outlines the protracted

¹⁰ REFIT is a policy instrument that mandates power utilities operating the national grid to purchase electricity from renewable energy sources at a pre-determined price so as to stimulate investment in the renewables sector.

water resources and sectoral development with the key highlights:

- The nation's water resources are vested in the State;
- There will be equal access to water by all Zimbabweans as a basic right, regardless of economic and historical status;
- Decision making on the development, management and use of water resources shall be undertaken at the local level, through the creation of catchments and sub-catchments councils;
- The water resources of the nation shall be developed and utilised in line with the principles of integrated water resources management;
- The Water Act vests the Minister of Water Resources Development and Management with the development of policies to ensure the availability of water and its equitable and efficient allocation, subject to quality and environmental requirements. The Minister regulates quality and consumer-protection standards for water supply provided by any person and ensures that affordable clear water reaches underprivileged communities.

Although the Water Act does not make reference to issues of regional integration, the water policy addresses this. Of particular importance for Zimbabwe is the fact that more than 70% of the water resources are in shared river basins. There is scope for integrated planning and management of shared water resources that can be built on the existing regional water course commissions (the Zambezi Water Course Commission, Limpopo Water Course Commission, and the Mozambique-Zimbabwe Water Course Commission).

The Act creates a Water Fund to clean up pollution and alleviate environmental effects associated with

water. The main source of funds is fees imposed to permits to discharge or dispose wastewater. It would appear that a substantial portion of these funds have not been used for the intended purposes, resulting in some disgruntlement among those paying the fees and fines.

Water resources are viewed from a complete hydrological perspective; groundwater and surface water are to be treated as part of a unified hydrological system;

- There was to be equitable access to water for all legitimate users in catchments. Water was no longer privately owned, and water rights were replaced by water use permits. Permits would be issued for a limited period and could only be renewed subject to water availability and evidence of efficient use;
- Increased emphasis on demand management to ensure sustainability of the water resource;
- Development of financing mechanisms for water resources development through the recognition that the water sector contributes to public health and economic growth;
- Greater consideration of environmental aspects of water use, with more control over pollution and the adoption of the principle that the "polluter pays."
- Increased emphasis on integrated land and water use planning;
- Strategies for dealing with shared trans-boundary water;
- The decentralised stake-holder Catchment Councils and Sub-Catchment Councils would have more say on water allocation and general water management on a day-to-day basis.

Zimbabwe National Water Authority. Prior to the Water Act of 1998, the Zimbabwe National Water Authority Act of 1996 had led to the establishment of the ZINWA, whose responsibilities were as follows:

- Providing water to the nation in a cost-effective manner.
- Ensuring the equitable accessibility and efficient use of water resources.
- Minimizing the impacts of floods and droughts.
- Assisting catchment councils in their functions.
- Providing technical assistance, training and consultancy on a cost recovery basis.
- Operating and maintaining water works in order to provide water in bulk to local authorities and reticulated water to consumers on behalf of local authorities who lack the capacity to provide this service.
- Undertaking research, developing databases and producing maps.
- Promoting co-operative management of internationally shared river basins.
- Advising on water policy and national standards on: water resources planning, management and development dam safety hydrology and hydrogeology water pricing and policy.

ZINWA continues to hold residual obligations on raw water (to farmers and towns) and clear water (to end-users in small towns, rural and growth areas). ZINWA operates at the national level in the development of small and large dams, and boreholes that are sources of raw water for the urban, rural and mining water supplies, as well as agricultural irrigation water. It also develops and

operates distribution systems for some urban and rural water supplies. The treatment and distribution of water to clear water reservoirs is also the responsibility of ZINWA.

ZINWA and other operators need a permit to extract and use water, and dispose of wastewater. The Minister may also issue regulations regarding permits (issue, amendment, or withdrawal) and the fee charged to permit holders. The permits last for 25 years and may be renewable. These permits are for own use and sale, in which case the permit must include such authorisation.

The Environmental Management Act was promulgated in 2002. It provided for the establishment of the Environmental Management Agency (EMA) whose responsibilities included: (i) providing for the sustainable management of natural resources; (ii) protecting the environment; (iii) preventing pollution and environment degradation; (iv) preparation of a National Environment Plan and other plans for the management and protection of the environment; and (v) establishment of an Environmental Fund.

4.4.2. Transition to a More Effective Regulatory Environment

The foregoing series of legal and institutional reforms have had substantial implications for the development of the regulatory environment for the supply and use of the country's water resources. Unfortunately, the economic deterioration of the past decade, compounded by the substantial loss of skills in the sector as a result of migration out of the country, severely hampered the further development of the regulatory environment for the four distinct areas of service in the sector: (i) water resources management; (ii) rural water supply and sanitation; (iii) urban water supply and sanitation; and (iv) irrigation.

As things now stand, although there are a number of Acts which contribute to water management, there is no unified Act¹¹. As Chapter 6 indicates, there is overlap in the roles of the agencies that participate in the sector and there has been deterioration in coordination arrangements. The National Water Policy has endeavoured to recommend the synchronisation of the aforementioned independent Acts which underpin this sector. In addition to this, there is a call for the exploration of various waste management technologies which will mitigate the deposition of water into rivers and dams. Institutional arrangements and a clear allocation of duties need to be developed, in addition to clarification as there are conflicting roles between ZINWA and local authorities related to mandates and ownership of water supply infrastructure.

The key issue for Zimbabwe at this juncture is the choice of the set of rules and organisations that will set, monitor, enforce, and change allowed tariffs and service standards for water and sanitation service providers. The Water and Sanitation Regulation Commission is still to be developed and there is a need for a rigorous analysis of the extent of centralisation or decentralisation of arrangements for service provision is still pending, along with questions about the extent to which private utilities and service providers will be encouraged in the decade ahead.

International experience with regulation of water and sanitation services. There is an extensive literature on the various approaches regulation of water services have adopted in developed and developing countries. As Groom et al (2006) have noted, there are a number of general lessons from international experience with the regulation of water and sanitation services. These include the following:

- Economic regulation should be clearly defined. While there is overlap with other functions (for example, consumer dispute resolution and social policy), the domain of economic regulation should be kept narrow, clearly specified and distinguished from policy and governance functions.
- Designing effective regulation starts with an identification of the WSS objectives and a careful consideration of both the extent to which regulation can facilitate achievement of these goals and its attendant costs.
- WSS services typically require economic and technical regulation, but it is not necessary that all regulatory functions be undertaken by a stand-alone regulatory body. Legal rules and instruments can be used to set key regulatory parameters, especially in the case of privately-owned water utilities. Assignment of functions will typically take account of a country's social, political, and legal traditions; the capability of existing agencies; and potential impacts on sector reform programmes. In the case of the WSS sector, there is no single "best practice" model for the allocation of functions to agencies or instruments.
- Where in-country capacity is scarce, there may be opportunities to use existing organisations, international panels of experts, or regional bodies.
- Where legal and governance traditions are supportive, as is the case in Zimbabwe, contracts can be an effective regulatory mechanism. However, if these are to be combined with the creation of regulatory agencies, care must be taken to avoid inconsistencies.
- International experience suggests that economic regulation can function well for extended periods without a "regulator." In

¹¹ Zimbabwe National Water Policy. 2012. Ministry of Water Resources Development and Management.

such cases, the regulatory mechanism may be a contract with a privately-owned service provider, a process for decision making by a department or minister, or a performance contract/license with a publicly owned service provider.

4.4.3. Policy Issues Related to the Design of a Regulatory Framework

A number of key decisions about the overall objectives for the supply of water and sanitation services, including the manner in which the services will be provided, are required before definitive positions can be taken on the most appropriate arrangements for regulation of these services.

The range of issues includes the following:

- The extent to which services will be provided by privately operated utilities. For these types of services, there are two distinct traditions with respect to regulation: one that relies on courts or arbitrators to fulfill the regulatory functions when the parties cannot agree; and the other that relies upon government-established regulatory agencies. The approach taken to regulation of such private services will depend on whether the government retains ownership of the assets with service provision provided by private suppliers under contract arrangements; or whether the assets of the utility are owned by the investors;
- The manner in which tariffs will be set and periodically adjusted. Most successful WSS programmes have used a cost building-block approach that sets average prices or revenues on the basis of forecasts of reasonable costs by broad categories (operational expenditures, depreciation or renewal expenditures, and return on assets). Because it is forward looking, it provides incentives for a utility to improve its efficiency, and because it is reset on the basis of utility-specific costs, it provides some assurance that the utility will be able to recover reasonable costs (including the cost of capital);
- The approach to be taken in the event that the bulk of the WSS services continue to be provided by national government or local government utilities. As the experience of Zimbabwe indicates, government provision of WSS services is no panacea for acceptable levels of service. In some countries, governments have established independent regulators for their water utilities. These arrangements can increase transparency, reinforce incentives for utilities to operate within a framework of good governance, and create more political space for tariff increases. But reviews of international experience indicate that the approach is not without difficulties. Much depends on: (i) the overarching sectoral objectives; (ii) the extent of separation between governance, policy and regulatory functions; and (iii) institutional and capacity constraints within the country.
- The role of regulation in improving wastewater services in the decade ahead. International experience points to the fact that wastewater services often lag well behind access to water services. There are strong public health benefits from providing wastewater services, but their provision by a centralised network can be prohibitively expensive. Improving wastewater services may be a matter of improving or extending existing small-scale systems: for example, septic tanks, latrines, and small-scale local systems. In these cases, economic regulation may not be critical, but centralised environmental regulation may be necessary to ensure that

health objectives are achieved. Recovery of the full costs of sanitation services may not be possible, or desirable (because of the community health benefits). There may therefore be a role for government subsidies in the provision of wastewater services.

4.4.4. Possible Next Steps

The position taken in this Report is that in the decade ahead the emphasis would be on the decentralised provision of water and sanitation services, either by municipalities themselves or under contract arrangements with private providers. More work is required on the details of an appropriate regulatory framework that would support this model for service provision. The proposed Action Plan therefore includes funding for a detailed assessment of these options.

4.5. REGULATION OF COMMUNICATIONS SERVICES

4.5.1. The Setting

The legislative framework for regulation of ICT. Four separate pieces of legislation have a bearing on the regulatory environment for the Information and Communications Technology industry in Zimbabwe. These are the Postal and Telecommunications Act (chapter 12:5), the Broadcasting Services Act of 2001, the Interception of Communications Act (chapter 11:20) and Competition Act (chapter 14:28). At present, regulation of the ICT sector is apportioned amongst the BAZ, Zimbabwe Media Commission (ZMC) and the POTRAZ.

POTRAZ is accountable to the Minister of Information Communication Technology and Cybersecurity, while BAZ and the ZMC report to the Minister of Information, Publicity and Broadcasting Services.

Table 4: Summary of POTRAZ and BAZ Responsibilities as Regulators

Postal and Telecommunications Authority	Broadcasting Authority of Zimbabwe
<ul style="list-style-type: none"> Ensuring the provision of sufficient domestic and international telecommunication and postal services throughout Zimbabwe 	<ul style="list-style-type: none"> Planning and advising on the allocation and distribution of the available frequency spectrum, for which purpose it shall have regard to the provisions for the planning of broadcasting service bands.
<ul style="list-style-type: none"> Ensuring that any person by whom any telecommunications or postal service falls to be provided is able to provide these services at rates consistent with the provision of an efficient and continuous service and the necessity of maintaining independent financial viability. 	<ul style="list-style-type: none"> Advising the Minister on the adoption and establishment of standards and codes relating to equipment attached to broadcasting systems.
<ul style="list-style-type: none"> Promoting the development of postal and telecommunications systems and services in accordance with practicable recognised international standards and public demand. 	<ul style="list-style-type: none"> Receiving, evaluating and considering applications for the issue of any broadcasting license or signal carrier license.
<ul style="list-style-type: none"> Exercising licensing and regulatory functions in respect of postal and telecommunications systems and services in Zimbabwe. 	<ul style="list-style-type: none"> Monitoring tariffs charged by broadcasting licenses with a view to eliminating unfair business practices among such licensees and to protect the interests of consumers.
<ul style="list-style-type: none"> Establishment of standards and codes relating to equipment attached to telecommunications systems. 	<ul style="list-style-type: none"> Advising the Minister on ways of improving and promoting a regulatory environment that will facilitate the development of a broadcasting industry in a Zimbabwe that is efficient, competitive

	<p>and responsive to audience needs and the national interests.</p> <ul style="list-style-type: none"> Exercising licensing and regulatory functions in respect of the allocation and use of satellite orbits and the radio frequency spectrum in Zimbabwe. Securing that reasonable demands for postal and telecommunications services are satisfied. Promoting the interests of consumers, purchasers and other users. Maintaining and promoting effective competition between persons engaged in the provision of postal and telecommunications services and other connected services. Monitoring tariffs charged by cellular telecommunication, postal and telecommunication licensees with a view to eliminating unfair business practices among such licensees. Promoting and encouraging the expansion of postal and telecommunications services. Advancing technology relating to postal and telecommunication systems and services. Representing Zimbabwe internationally in matters 	<p>relating to postal and telecommunications systems and services.</p> <ul style="list-style-type: none"> Encouraging diversity in the control of broadcasting services. Ensuring that Zimbabweans have effective control of broadcasting services or systems. Ensuring the role of broadcasting services and systems in developing and reflecting a sense of Zimbabwe identity, character and cultural diversity. Promoting the provision of high quality and innovative programming by providers of broadcasting services. Encouraging providers of commercial and community broadcasting services and systems to be responsive to the need for a fair and accurate coverage of matters of public interest and for an appropriate coverage of matters of local significance. Encouraging providers of broadcasting services and systems to respect community standards and values in the provision of programme material. Ensuring the provision of means for addressing complaints about broadcasting services. Ensuring that the providers 	<p>broadcasting services places a high priority on the protection of children from exposure to programme material which may be harmful to them; and</p> <ul style="list-style-type: none"> Establishing, approving and controlling a national telephone numbering plan for the purpose of ensuring that telephone numbers are allocated in an efficient and non-discriminatory way. Promoting and controlling the provision of international transit series in Zimbabwe. Advising the Minister on all matters relating to postal and telecommunication systems and services. Monitoring and track the use of the broadcasting service bands. Generally, to advise the Minister on all matters relating to broadcasting systems and services; Carrying out any function or act as may be prescribed by the Minister
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Source: POTRAZ, BAZ

The Access to Information and Protection of Privacy Act provides members of the public with the right to records and information held by public bodies. It makes public bodies accountable by: (i) giving the public the right to request correction of misrepresented personal information; (ii) preventing the unauthorised collection, use, or disclosure of personal information by public bodies; and (iii) protecting personal privacy. It also provides for the regulation of the mass media and establishes a ZMC whose purpose includes the following:

- To uphold the freedom of the press.
- To promote and enforce good practice and ethics in the press, print and electronic media, and broadcasting.
- To ensure that the people of Zimbabwe have equitable and wide access to information.

- To ensure the equitable development of all indigenous languages spoken in Zimbabwe.
- To comment on the implications of proposed legislation or programmes of public bodies on access to information and protection of privacy.
- To comment on the implications of automated systems for collection, storage, analysis or transfer of information or for access to information or protection of privacy.
- To inform the public about this Act.
- To engage in or commission research into anything affecting the achievement of the purposes of this Act.
- To conduct investigations in terms of Part IX to ensure compliance with the provisions of this Act.
- To receive, evaluate for accreditation and consider applications for the accreditation of journalists.
- To review the decisions of public bodies.
- To bring to the attention of the head of a public body any failure to meet the prescribed standards for fulfilling the duty to assist applicants.
- To authorise a public body, at the request of its head, to disregard requests that would unreasonably interfere with the operations of the public body.
- To monitor the mass media and raise awareness of the mass media.
- To register mass media in Zimbabwe.
- To investigate complaints against any journalist or mass media service in terms of Part VIIA.

- To make regulations in terms of section 91.

The ZMC is under the control of the Minister of Information, Publicity and Broadcasting Services, with the Minister responsible for appointing all ZMC Board members and setting their terms of office — arrangements that leave the ZMC open to political interference. In fact, media registration and accreditation of journalists have been contentious issues for ZMC in the past, with representatives of the media accusing the government of actions aimed at controlling both local and international media.

The Interception of Communications Act provides for the lawful interception and monitoring of certain communications in the course of their transmission through a telecommunication, postal, or any other related service or system in Zimbabwe. It also provides for establishment of a Communications Monitoring Centre. Enforcement of this Act now rests with the Ministry of Information and Communications Technology. There has been criticism of the Act by the media watchdog body, the Media Institute of Southern Africa to the effect that the Act does not contain basic safeguards against the invasion and unwarranted intrusion into privacy as found in countries with similar Acts.

4.5.2. Emerging Issues for ICT Regulation

Issues and concerns about the regulatory environment for ICT services that have emerged in recent years are currently still of concern. The Media Institute of Southern Africa (MISA) represented in Zimbabwe describes the existing legal and regulatory framework as “one of the few in the region with virtual government monopolies in broadcasting and fixed telephone service provision.” The ICT Act has been drafted, but it does not spell out how the various ICT Acts would relate to each other or indicate which ones would be repealed. There currently are no laws that govern national cybersecurity and cyber transactions in digital signatures, contracts made

over the internet, and a framework covering issues of convergence of telecommunications, broadcasting, and computing. The Ministry for Information and Communications Technology is currently deliberating the Computer Crime and Cybercrime Bill drafted in 2017 which may underpin laws pertaining to the control and management of national cyber activities.

The main objectives of the Bill are:

- Providing a legal framework for the criminalisation of computer and network related offences.
- Criminalising certain illegal content in line with regional and international best practices,
- Providing the necessary specific procedural instruments for the investigation of such offences and define the liability of service providers.

First, provisions of The Bill is divided into 6 parts, namely; (i) Preliminary matters, (ii) specific offences, (iii) jurisdiction, (iv) admissibility of evidence, (v) procedure and, (vi) liability of service providers.

Secondly, the Bill avoids over-legislating and facilitates both technological advancements and new and innovative developments in fighting cybercrime.

Thirdly, both POTRAZ and BAZ currently regulate ICT activities. There is overlap and duplication of functions between these Agencies and the fragmented nature of these arrangements impedes efficient development and harmonisation of efforts. Both POTRAZ and BAZ manage radio frequencies and regulate electronic transmission of information and data. They each require resources from Government to perform most of their functions, including human resources with similar qualifications. International trends recommend one national body to coordinate ICT related issues

at national level, a situation that is in line with convergence of technologies. Wastage of both financial and human resources stems from the current overlap in responsibilities and duplication of effort results. The ICT Ministry and other stakeholders advocate the merger or convergence of BAZ into POTRAZ for better coordination of activities in the ICT industry.

Fourth, although there is some degree of infrastructure competition in the telecommunications sector, the creation of more effective competition is needed among backbone network operators. Lack of competition is constraining investment in high-capacity networks and preventing the market from achieving economies of scale. It also has a knock-on effect in the ISPs and the data services market as a whole.

Fifth, the existing framework does not address adequately the emerging regulatory issues that arise from the impeding transition to a fiber optic backbone network for the country. With the rapid development of high capacity backbone networks in the Southern Africa region, Zimbabwe has the opportunity to improve substantially its communications services and lower the cost of these services. In many parts of Sub-Saharan Africa, and in Zimbabwe, the prevailing regulatory environment does not actively encourage the development of such backbone networks, and in many instances, these frameworks actively constrain efforts to do so. In some cases, mobile operators are allowed to build their own backbone networks for provision of services to their retail customers, but are prevented from selling backbone services to other operators on a wholesale basis. This form of regulation actively constrains the development of a market in backbone network services. Such restrictions also limit opportunities for taking advantage of economies of scale in network infrastructure and reduce incentives for private investment in high capacity backbone networks. As a result, in Zimbabwe and elsewhere, mobile operators have built their own networks that operate parallel to

each other and there is very little consolidation of traffic onto core backbone networks.

Sixth, where fiber backbone network development has taken place in Zimbabwe, it has been concentrated in urban areas and on interurban routes, leaving smaller towns and rural areas dependent on low-capacity wireless backbone networks.

4.5.3. Guiding Principles for Design of the Regulatory Agency

In many parts of the world, the substance of ICT regulation has evolved rapidly in recent decades in response to advances in communications technologies. The liberalisation of ICT markets has stimulated cumulative interacting innovations in products, services, and technologies with a general convergence or blurring of distinctions between platforms, products, and services in an IP or net-centric world. These developments necessitate some form of regulatory response either to support or impede them.

Responsibilities of the regulator. Often there are sector-specific regulators, general regulators (such as competition authorities), and special agencies or ministries charged with specific tasks (such as spectrum management), that all share common duties. The UN Task Force on Financing ICT has noted that the most important duties of the regulator(s) include: Implementing the authorisation framework that provides opportunities for new companies and investors to establish ICT businesses. Simple authorisation procedures tend to maximise new entry;

- Regulating competition (including tariffs) involving the effective enforcement of fair and equitable competitive market principles, restraining the power of dominant suppliers, and levelling the playing field for new entrants.

- Interconnecting networks and facilities. Normally transparent rules are established for interconnecting all types of traditional and new communications networks and associated cost-based payments;
- Implementing universal service/access mechanisms to ensure the widespread (and affordable) diffusion of ICT;
- Managing the radio spectrum effectively to facilitate new entrants and new technologies; this is particularly relevant to new broadband wireless opportunities such as Wi-Fi and Wimax;
- Establishing sufficient safeguards to ensure that consumers, particularly children, are protected against bad business practices, cybercrimes, and violations of data privacy;
- Minimizing the burden and costs of regulation and contract enforcement.

All of the above continue to evolve and to present new challenges in the context of market and technological developments, especially the growing availability of broadband and the increasing prevalence of convergence. Many countries have adopted consumer protection regulations specifically designed for ICT customers, which are enforced by the ICT regulator and/ or a designated consumer protection agency. The Australian Communications and Media Authority (ACMA) has instituted measures to protect consumers' interests in the Internet Age by investigating complaints about online content and gambling services, encouraging the development of codes of practice for ISPs, and educating the public about internet safety and privacy risks, particularly for children.

To better adapt to the new converged landscape, governments have also been developing coherent national broadband strategies as a vital component of overall deployment and access to broadband services. For instance, those OECD countries

leading in broadband penetration rates have typically established national broadband policies. These countries include Korea, Denmark, the Netherlands, Sweden, Finland, and the United Kingdom.

The role of the regulator in broadcasting is similar to some of the functions of the ICT regulator, such as allocating and managing the radio spectrum, licensing service providers, and ensuring universal access. But broadcasting regulators have additional duties regarding the social and cultural impact of the sector. They are also charged with overseeing content and ensuring diversity, protecting minors, the right of reply, and so forth. Furthermore, if there is a Public Service Broadcaster (PSB), the regulator performs some form of oversight of it and private channels.

The proliferation of broadband and the digitalisation of content are bringing about a profound and rapid transformation of the media/content landscape, which may change regulatory functions. Russia, for instance, has issued several Internet Protocol Television (IPTV) licences. It is quite common for a radio "chat show" to take a call from someone living overseas and listening to the programme on the internet. Both the Russian TV and the chat show channels are licenced but many service providers are not. The aggregate audience for the unlicensed, self-produced content exceeds that of traditional broadcasters in some countries. The explosion in content provision is a huge challenge to content regulation; it is made even more difficult because a large proportion of the content may originate in other jurisdictions. As "mass markets" retreat, it will be necessary to reconsider the regulation of national broadcasting institutions and thereby the functions of the regulator. Where PSBs, cable and satellite channels remain in a strong position, the regulator(s) will have a role to play in the application of competition policy, including merger control. This competition policy issue centres on the relationship between dominant/non-dominant

access providers and dominant/non-dominant content providers.

Regulators can also play a key role in increasing confidence, reducing risk, and encouraging investment in the ICT sector overall. In particular, regulators are able to play a role in investment by: (i) lending financial support through "stimulus packages" and public private partnerships; and (ii) lowering the costs of doing business by deferring licence fees and taxes, as well as implementing rules that enhance efficiency.

Measures to ensure an independent regulatory authority. According to the Association of African Communications Lawyers (AACL), in a liberalised environment the concept of regulatory independence is paramount for a country that desires to realise key socioeconomic objectives. The AACL define an independent regulator as one that is: (i) independent from those it regulates; (ii) protected from political pressure; (iii) given full ability to regulate the market by making policy and enforcement decisions; and (iv) adequately funded from reliable and predictable sources.

The UN Task Force on Financing ICT supports the introduction of independent regulators, linking such independence to growth in the market. It observed that: "The introduction and strengthening of independent, neutral sector regulation has helped to reinforce investor confidence and market performance, while enhancing consumer benefits."⁸ The rationale for establishing independent, often sector-specific, regulatory institutions is based on ensuring non-discriminatory treatment of all players in the liberalised market. At the outset of the transformation process the pre-existing monopoly structure allows for discriminatory behaviour. The emphasis on non-discrimination arose from four sources which, in part, reflect different constituencies in the market. These four broad imperatives are to ensure that:

- Cooperation is enabled in a competitive environment to ensure that a level playing field exists between unequal entities in the marketplace.
- All equipment suppliers are treated equally where the market is dominated by a single buyer with strong pre-existing relationships with suppliers.
- All new entrants and investors in the telecommunications service sector are treated equally by the dominant competitor, who will be a supplier of inputs (e.g., interconnection) to the businesses of the new entrants.
- All customers have a “voice” and their complaints and interests receive an adequate response.

Independent regulators are expected to be subject to government oversight and a system of checks and balances. Effective regulation that supports sustainable investment requires some independence from political influences, especially on a day-to-day or decision-by-decision basis. The regulatory body must be an impartial, transparent, objective, and non-partisan enforcer of government-determined policies by means set out in controlling statutes of the regulator, free of transitory political influences. The regulator should also be independent from the industry that supplies ICT services.

The regulator should implement the policy of the government and only make decisions that are within its legal authority. However, regulators need insulation from political intervention, so that the regulatory process is not politicised, its decisions are not discredited, and the policy of the government is implemented. A balance is needed to ensure that the regulator is both independent and responsive to the broad policies of the government. Several formal safeguards have been employed to achieve such a balance, including:

- Providing the regulator with a distinct statutory authority, free of ministerial control.
- Prescribing well-defined professional criteria for appointments.
- Involving both the executive and the legislative branches of government in the appointment process.
- Appointing regulators (the Director General or Board/Commission members) for a fixed period and prohibiting their removal (subject to formal review), except for clearly defined due cause.
- Where a collegiate (Board/Commission) structure has been chosen, staggering the terms of members so that they can be replaced gradually by successive governments.
- Providing the agency with a reliable and adequate source of funding. Optimally, charges for specific services or levies on the sector can be used to fund the regulator to insulate it from political interference through the budget process.
- Exempting the regulator from civil service salary limits to attract and retain the best qualified staff and to ensure adequate good governance incentives.
- Prohibiting the executive from overturning the agency's decisions, except through carefully designed channels such as new legislation or appeals to the courts based on existing law.

Accountability, transparency, and predictability. The independence of the regulator must be balanced with accountability. In addition to independence, an effective regulator should demonstrate other characteristics, including accountability, transparency, and predictability.

These traits should be enhanced by a clear division of responsibilities between the ICT regulator, ministries, and other regulatory agencies, such as the competition authority or radio spectrum management body where relevant.

The regulator's authority provides it with significant power to redistribute income among different constituents in the economy. Therefore, safeguards are required to ensure that the regulator does not become corrupt or inefficient. Citizens and regulated firms must know who is responsible for a decision and the reasoning behind the decision. Interested parties must be able to provide relevant input to a decision through consultation processes. They must be able to obtain redress easily and quickly when the regulator has acted arbitrarily or incompetently. These types of safeguards produce a balance between independence and accountability. Examples of such safeguards are as follows:

- Publishing the statutes of the regulator that clearly specify the duties, responsibilities, rights, and obligations of the regulator, as well as differentiating between primary and secondary regulatory goals where there are multiple goals.
- Ensuring that the decisions of the regulator are subject to review by the courts or some other non-political entity although some "threshold" should be established to deter frivolous challenges that simply delay the implementation of decisions.
- Requiring the regulator to publish annual reports on its activities and requiring a formal review of its performance by independent auditors or oversight committees of the legislature.
- Establishing rules for the removal of regulators if they show evidence of misconduct or incompetence.

- Allowing all interested parties to make submissions to the regulator on matters under review.
- Mandating that the regulator publishes its reasoned decisions.

Transparency in interconnection, authorisation and licensing practices, and universal service obligations is a specific requirement of the World Trade Organisation (WTO) and a general requirement of the EU regulatory package. Transparency entails the regulator making available all relevant information in a timely fashion. Transparency enhances the confidence of interested parties in the effectiveness and independence of the regulator and strengthens the legitimacy of the regulator. Consequently, all regulatory rules and policies, the principles for making future regulations and all regulatory decisions and agreements should be a matter of public record. ICT regulation is an important policy issue, and all citizens need information about the policy to evaluate the performance of government.

Transparency is an important contributor to good governance in general. Importantly, transparency reduces the probability that interested parties, especially those adversely affected by a regulatory decision, will believe that decisions are biased, arbitrary, or discriminatory. The reasoning behind regulatory decisions, including the principles and evidence that guided them, will be apparent when they are clearly presented in the public record. Discriminatory or corrupt decisions will become evident and more difficult to substantiate once transparent processes are in place. A successful market that attracts investors requires a predictable regulatory process. Independent regulators are predictable if they adhere to the rule of law. The most important features of the rule of law are respect for precedent and the principles of stare decisis, particularly in common law jurisdictions. Respect for precedent means that regulators do not reverse policy decisions unless there is evidence that those decisions have led to

significant problems or that new circumstances warrant a change in the rules. The principles of stare decisis require that cases with the same underlying facts be decided in the same way every time. This is of particular relevance in the resolution of disputes. Adherence to these principles enhances confidence in and the credibility of the regulator and reduces regulatory risk, which reverberates positively with investors. Division of labour between regulator and government. As noted earlier, one of the issues related to regulation of the ICT sector is the lack of clarity about the division of responsibilities among existing regulatory entities and the various government agencies with responsibility for ICT policy and services.

Convergence and regulators. Platforms fulfilling different functions have traditionally been regulated differently for many reasons. For example, telecommunications has been regulated in a different manner than broadcasting. In the context of convergence, where a single platform is capable of delivering all forms of electronic communications, should separate regulatory bodies merge or remain distinct institutions? Or should there be one regulator for platforms and another for content?

Converged regulators — with responsibilities for media and content as well as ICT services — face a daunting challenge by taking on extensive, and often complicated, workloads. However, in a converged environment, traditional telecommunications regulators may struggle to resolve certain issues, such as consolidation between media content and telecommunications service providers. Further, the absence of a converged regulator allows for the possibility of unequal regulatory treatment of different platforms delivering overlapping content or unequal regulatory treatment of different content delivered over any platform. Here there is the issue of technology-neutral regulation, meaning that the regulatory treatment of a particular service, regarding authorisation, spectrum,

interconnection, universal service, and numbering, is the same irrespective of the technology used to deliver it. Convergence poses challenges to both the structure of regulatory bodies and the instruments they use.

4.5.4. Creation of a Single Regulatory Authority

The position taken in this Report continues to advocate that serious consideration should be given to liberalisation of the communications industry, along with restructuring and privatisation of parastatals that currently provide ICT services in the domestic market. Once the decision to liberalise the market has been taken, the next step is to provide an appropriate regulatory framework and institution(s) to implement the decision. This Report proposes the creation of a single regulatory authority for the communications sector in Zimbabwe. The convergence of POTRAZ and BAZ is proposed to ensure better coordination of the ICT industry in a rapidly changing ICT environment. International trends point to the benefits of one national body to coordinate ICT related issues at national level, a situation that is in line with convergence of technologies.

The policy should recognise the importance of conceiving a legislative framework that deals with aspects of individual privacy, security, cybercrimes, ethical and moral conduct, encryption, digital signatures, intellectual property rights, and fair-trade practices. These issues used to be addressed and administered under several acts of parliament, but now there is a need for one regulator. There appear to be differences within government on how these issues should be addressed in the ICT Bill.

Since legal and regulatory frameworks dictate how people access and use ICTs, they create an environment in which people intersect with ICTs. Where that environment is limiting, the full potential of ICT is not realised and this problem

manifests itself in various ways through an inefficient telecommunications sector, poor services offered to consumers, and stifled growth of the ICT sector, among others. The use of ICTs may actually promote existing imbalances in society if the frameworks are not responsive to such imbalances. Certain sectors of society, namely the poor, aged, women, and those living in disadvantaged communities or rural areas (no infrastructure to access ICTs) remain untouched by ICT.

One of the key constraints on the development of the market in backbone network services in Zimbabwe has been difficulty in enforcing contracts and service level agreements owing to lack of an instrument which could be used for the courts to enforce legal actions. To enable legal measures in the market, the regulatory authority to be formed could improve the situation through several measures, such as:

- Establishing clear regulations on interconnection at the backbone level.
- Amending licenses to increase the enforceability of such rules, if necessary.
- Setting out effective quality controls and clear dispute resolutions procedures.
- Collecting accurate quality of service information to facilitate market functionality and dispute resolution.

A competitive regulatory environment needs to be combined with targeted pro-poor policies, clear and enforced legal frameworks, and licenses for operator and service providers, including obligations to contribute to services in disadvantaged areas.

Possible next steps. There is no simple sequencing for the drafting and adoption of the proposed regulatory framework since several issues must be addressed simultaneously.

Interconnection, universal access and service, regulatory processes, means of dispute resolution, market definition methodologies, licensing/authorisation procedures, and tariff-setting principles all need to be resolved in a fairly compressed period. Furthermore, most of these issues interact with, relate to, or rely on the other components of the body of regulations. The body can then be amended in light of market and technological developments. A start may be made with issues related to the regulatory agency, the characteristics that enhance its legitimacy, and the functions performed by the regulator and others, as well as the supporting legal environment. The next step would be to address regulatory issues related to authorisation and competition, interconnection, universal access, the radio spectrum, and finally, the impact of new technologies.

5. EXPANDING PRIVATE SECTOR ROLES IN INFRASTRUCTURE

5.1. A TRANSITION TO PUBLIC-PRIVATE PARTNERSHIPS

5.1.1. Mobilisation of Private Investment Faces Major Challenges

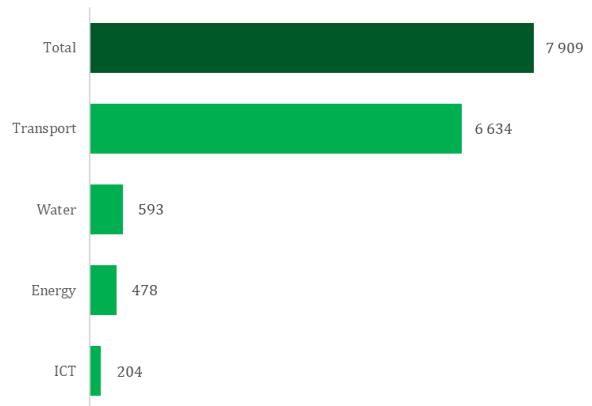
Full implementation of the proposed Action Plan for Infrastructure will require substantial investment by the private sector in new infrastructure capacity, especially in power generation, telecommunications, roads, railway, aviation, water and sanitation services. As Chapter 3 indicates, a total of about USD 7.9 billion of private investment is required for full implementation of the proposed programme. The mobilisation of this amount of private funding presents a major challenge for the country.

A number of key issues need to be addressed at the outset if there is to be a successful outcome. First, the operating environment for private investment in infrastructure services must be improved. Private investors will not join PPP arrangements unless the perception about the investment climate is positive. At present, Zimbabwe ranks very low on most international business environment indices. Improvement of the investment climate will require actions on several fronts. The Government will need to ensure that policies are formulated and implemented in a consistent and predictable manner in order to improve investor perceptions about Zimbabwe, especially with respect to safeguarding property rights.

In view of earlier experience in Zimbabwe with land policies, there were concerns in the private sector that part of foreign-owned businesses could be seized without compensation. Another concern relates to Bilateral Investment Promotion and Protection Agreements (BIPPAAs) that have been signed by the Zimbabwe Government. The

Agreements commit Zimbabwe to the protection of investments under international law. They contain clearly defined and enforceable property rights and disciplinary measures for breach of investment. In May of 2010, for example, a BIPPA between the governments of Zimbabwe and South Africa was ratified. It seeks to create favorable conditions for investments for South African investment in Zimbabwe. Anecdotal evidence suggests that South African investors remain skeptical, citing Zimbabwe's past poor record of adhering to international agreements. In rebuilding these relationships, the Government will need to demonstrate a commitment to upholding the rule of law and respecting property rights. These commitments will need to be communicated assiduously to the international investment community. A number of other issues will need to be addressed as part of the programme of rebuilding investor confidence in Zimbabwe. These include the dominance of state enterprises in service provision; and the poor performance by public sector service providers. Figure 9 provides an overview of the funding requirements for the private sector for each of the infrastructure sectors in order to implement the proposed Action Plan.

Figure 9: Summary of Private Sector Investment Requirements, 2017 constant prices, USD million



Source: Author estimates

5.1.2. Dominance of State Enterprises in Service Provision

A total of seven state enterprises have a direct role in the provision of services in the basic infrastructure sectors reviewed in this Report. These are the ZINWA in the case of water; ZESA Holdings¹² in the case of electricity; the NRZ, CAAZ and Air Zimbabwe in the provision of railway and civil aviation services; and Tel One and Net One in communications.

With the exception of communications, where there is substantial private sector service provision, and air travel where Air Zimbabwe competes with other regional and international carriers, the remaining state operated infrastructure services face little or no private competition. ZINWA has a monopoly in the provision of raw water and clear water for small towns and rural areas. Other public entities have a monopoly in providing clear water and sewerage services for urban centers, including for example, the Harare and Bulawayo Water Authorities.

In the case of electricity, ZPC and ZETDC have a monopoly in the generation, import and distribution of electric power as there are only very small private generation capacities in the private sector that are designed to meet private demand. Except for some 385 km of rail service operated by the Beitbridge Bulawayo concession under a 30-year BOT arrangement, the NRZ has a monopoly on the provision of rail services in the country. CAAZ is responsible for the eleven major international and domestic airports that account for the bulk of the traffic in the country. Tel One has a state monopoly on the provision of fixed line communications services.

5.1.3. Poor Performance by Public Sector Service Providers

The performance of a number of these public enterprises deteriorated over the past decade and by 2007-08 several were failing to deliver services, while at the same time most constituted a major burden on the public accounts of the country. Figure 10 provides a summary of the financial performance of these enterprises in 2015 (and 2014 for ZESA).¹³ For the group as a whole, a net loss of USD 60 million was registered for 2015. Tel One recorded a net profit of USD 5 million. The other five parastatals had a combine loss of USD 66 million. Earnings of the parastatals before interest, taxes, depreciation, and amortisation (EBITDA) was also in the red at a loss of USD 8 million for the year as a whole. However, ZINWA, Tel One and Net One all registered a positive EBITDA but the overall indicator remained negative due to the negative EBITDA registered by the NRZ of USD 46.6 million. These enterprises have infrastructure assets whose value at historical cost is in the range of USD 3.6 billion. Under normal circumstances, spending on routine and deferred maintenance of these assets would require outlays in the range of USD 150-200 million a year. For much of the past decade, these enterprises operated with large negative cash flows and limited access to the imports of spares and equipment needed for maintenance and rehabilitation of these assets.

The lack of maintenance for a decade or more resulted in a steady deterioration in the ability of many of these enterprises to provide basic services. The inability to generate cash flow was compounded by government policy of setting prices for many basic services well below the cost of service provision, but not compensating the enterprises for these public service obligations. This was particularly the case for electric power, and passenger services provided by the railways.

¹² ZESA Holdings is a parent company to ZPC, ZETDC, ZESA Enterprises and Powertel.

¹³ Note that financial information for Air Zimbabwe was not available and has therefore not been included within this analysis

The end result was a large build-up in accounts payable to private suppliers, other public enterprise service providers including those involved with infrastructure service provision, and substantial tax arrears with the National Government.

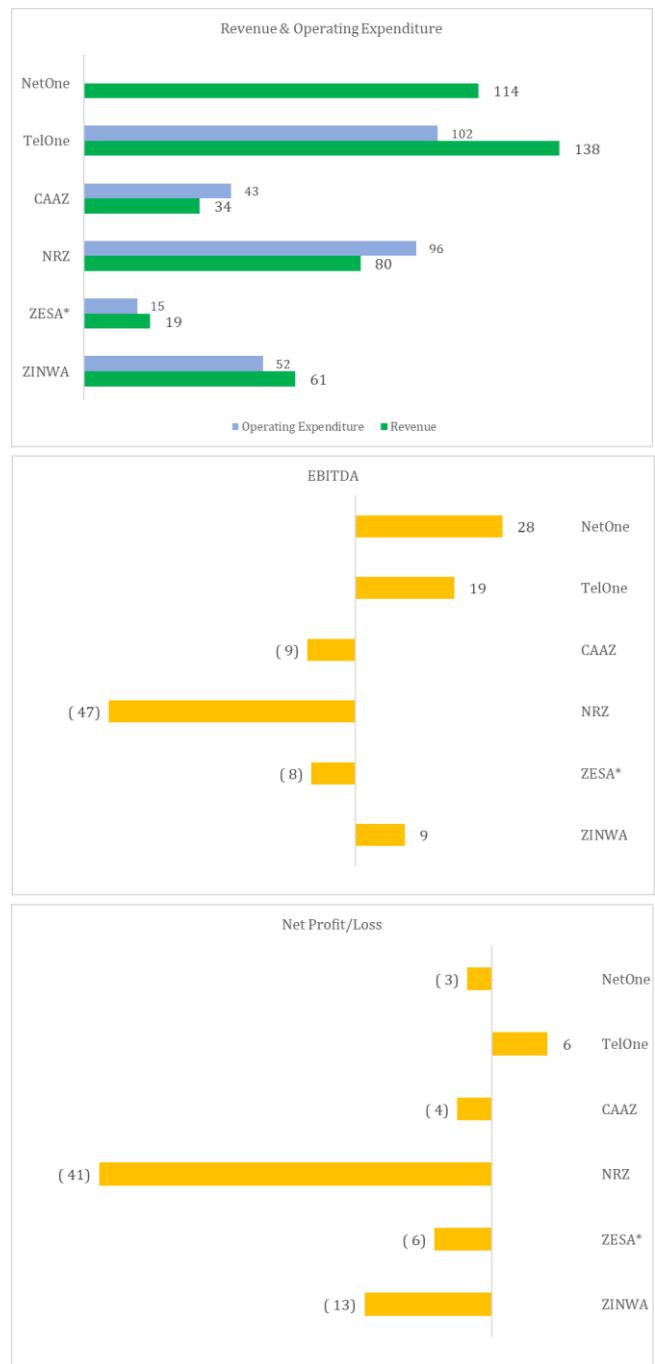
As Table 4 indicates, by end 2015 these parastatals had current liabilities of USD 1.2 billion.

At end 2009, accounts receivable of these nine enterprises stood at USD 800 million. The average collection period for these receivables stood at 180 days, the lowest being 70 days and the highest being 360 days. There is scope for netting out some of the network of obligations within the public sector; for example, at end 2009 these nine parastatals had deferred tax obligations to the National Government of some USD 446 million. At the same time, various national and subnational public entities have accounts payable to the power utilities, and the power utilities themselves have substantial accounts payable and receivable with each other. The long-term debt obligations of the group also mounted as failure to make service payments resulted in a steady build-up in arrears. In the case of CAAZ, for example, the original amount of long-term loans contracted with foreign suppliers was USD 110 million, but, with no service payments on the debt, the arrears due to creditors now add another USD 90 million to the outstanding obligations.

5.1.4. Strategy for Accelerating the Transition to PPPs

Full implementation of the proposed Infrastructure Action Plan in the decade ahead will require mobilisation of about USD 7.9 billion of new investment by the private sector, most of which will require PPP arrangements of one kind or another.

Figure 10: Financial Performance of Infrastructure Service Providers, USD million, 2015 and 2014 (ZESA)



Source: Infrastructure service providers

*ZESA's financial statements are only available until 2014

Note: Missing information for NetOne Operating Expenditure and all financial information for Air Zimbabwe

To lay the foundations for successful mobilisation of these funds, the Government will need to act on three inter-related fronts:

- Subject all of the parastatal infrastructure service providers to technical and financial

- restructuring, the details of which vary among these enterprises;
- Strengthen the role of regulatory authorities in each of the infrastructure sectors, with emphasis on increased independence of these bodies; and
 - Finalise PPP legislation and operationalise the implementation of PPPs that will be required for this programme.

At end 2009, accounts receivable of these nine enterprises stood at USD 800 million. The average collection period for these receivables stood at 180 days, the lowest being 70 days and the highest being 360 days. There is scope for netting out some

of the network of obligations within the public sector; for example, at end 2009 these nine parastatals had deferred tax obligations to the National Government of some USD 446 million. At the same time, various national and subnational public entities have accounts payable to the power utilities, and the power utilities themselves have substantial accounts payable and receivable with each other. The long-term debt obligations of the group also mounted as failure to make service payments resulted in a steady build-up in arrears. In the case of CAAZ, for example, the original amount of long-term loans contracted with foreign suppliers was USD 110 million, but, with no service payments on the debt, the arrears due to creditors now add another USD 90 million to the outstanding obligations.

Table 5: Assets and Liabilities of Infrastructure Service Providers, USD, 2015 and 2014 (ZESA)

Parastatal	Assets			Liabilities			Equity
	Current	Non-current	Total	Current	Long-term	Total	
ZINWA	67 069 452	2 086 088 576	2 153 158 028	84 870 345	29 207 846	114 078 191	1 966 508 071
ZESA*	34 278 610	29 280 031	63 558 641	50 949 962	-	50 949 962	25 754 916
NRZ	116 260 969	531 800 926	648 061 895	247 392 415	106 228 627	353 621 042	294 440 853
CAAZ	33 839 098	447 443 820	481 282 918	172 489 030	254 166 463	426 655 493	54 627 426
Air Zimbabwe	**	**	**	**	**	**	**
TelOne	160 780 193	317 520 125	478 300 318	458 473 282	118 788 237	577 261 519	(98 961 201)
NetOne	56 478 000	274 020 000	330 498 000	150 593 000	177 289 000	327 882 000	2 616 000
Total	468 706 322	3 686 153 478	4 154 859 800	1 164 768 034	685 680 173	1 850 448 207	2 244 986 065

Source: Infrastructure service providers

*ZESA's financial statements are only available until 2014

**Missing information

Table 6: Accounts Receivable for Infrastructure Service Providers, USD, 2015 and 2014 (ZESA)

Parastatals	Total Due (USD million)		Impairments
	Related Party	Other	
ZINWA	56 429 074	63 865 282	104 641 122
ZESA*	18 751 322	1 917 247	3 160 636
NRZ	33 361 776	17 504 049	14 262 622
CAAZ	6 131 054	670 938	**
Air Zimbabwe	**	**	**
TelOne	195 327 883	9 388 262	272 746 072
NetOne	**	**	**
Total	310 001 109	93 345 778	394 810 452

Source: Infrastructure service providers

*ZESA's financial statements are only available until 2014

**Missing information

5.1.5. Strategy for Accelerating the Transition to PPPs

Full implementation of the proposed Infrastructure Action Plan in the decade ahead will require mobilisation of about USD 7.9 billion of new investment by the private sector, most of which will require PPP arrangements of one kind or another.

Restructuring of state enterprises. The restructuring of state enterprises has been identified in the Transitional Stabilisation Programme as one of the priorities for the medium-term. The need for reform of the public enterprise sector is an issue of long standing with a track record in terms of progress that has left much to be desired. Zimbabwe's institutions and procedures for restructuring/privatisation and infrastructure development were developed in an ad hoc manner, are cumbersome, and in terms of public transparency requirements leave much to be desired. Many of the existing policies and legal frameworks were developed during the period of state intervention, and hence do not reflect the current context in which public private partnerships are to be given a role. It is extremely unlikely that large amounts of private investment can be mobilised for public-private partnerships as long as the current unsatisfactory financial and commercial status of many of the parastatals persists. The position taken in this Report is that substantial financial and technical restructuring of these parastatals must be undertaken prior to concerted efforts to mobilise the private investment required in the decade ahead. In recognition of this reality, the Government announced a privatisation plan in January 2018.

Strengthening the regulatory framework

Chapter 4 makes clear, there is a compelling case for strengthening the regulatory environment for infrastructure service provision in an environment in which there is need for movement away from service provision by state monopolies to public-

private partnerships. The Report therefore calls for clear separation of regulatory functions from service provision and the location of these regulatory functions in independent regulatory authorities.

Strengthening the framework for public private partnerships. Full implementation of in this Report is that the bulk of the USD 7.9 billion of private investment required for new capacity in infrastructure services in the decade ahead will have to be mobilised through the private sector. Some general principles will therefore need to be established to guide the design of the privatisation arrangements in ways that allow compliance with the indigenisation law. As the subsequent discussion indicates, it is very likely that there will be a variety of models adopted for these privatisation programmes that will range from continued public ownership of infrastructure assets, with private involvement under management contracts, concessions, or variations on these commonly used techniques. In other cases, there may be outright sale of the equity of the state enterprise concerned. In some instances, the government may retain a portion of the voting stock of the company and in others it may dispose of its entire equity interest. A variety of techniques can be used to ensure compliance with the requirements of the indigenisation law. These will center on the proportions of voting and non-voting stock to be issued by the privatised company and the extent to which government equity in the existing state enterprise can be converted into voting or non-voting stock at the time of privatisation and then transferred at a nominal purchase price to mutual funds or other entities on behalf of indigenous Zimbabweans.

5.2. RESTRUCTURING STATE ENTERPRISE PARTNERS

The proposed programme for the parastatals involved in service provision (as identified in this Report) in the infrastructure sector would all

undergo substantial financial and technical restructuring, the specifics of which will vary among these enterprises.

The design and implementation of the state enterprise restructuring programme can draw on the extensive international experience with privatisation of state entities over the past two decades. The challenge is to put the lessons from experiences elsewhere into practice, reforming the sector through both divestiture and non-divestiture methods, in light of the tension between purely economic and wider social goals. The review of this experience undertaken by the UNDP (2009) suggested that the results of past privatisation programmes around the world were often sub-optimal, especially with respect to infrastructure. Where competitive markets operated, the outcomes were generally superior to those achieved during the pre-reform period. One important lesson from these experiences is that restructuring should not be pursued in a wholesale manner, but rather on a case-by-case basis. The tables below provide an overview of the current and non-current liabilities within the parastatals.

5.2.1. Zimbabwe National Water Authority (ZINWA)

At end 2015, ZINWA had assets of about USD 2.1 billion, of which USD 120 million were accounts receivable, and liabilities of about USD 114 million, of which USD 110 were accounts payable. In 2015, revenues were about USD 61 million, with an EBITDA of USD 9.3 million. However, a net loss of USD 13 million was registered, largely because of a charge against income for some USD 104 million of impaired accounts receivable. As Chapter 4 indicates, the proposal is to strengthen the regulatory capacities within the water sector by creating an independent regulatory authority. This would allow for the transfer of the current limited range of regulatory responsibilities held by ZINWA, thereby allowing the parastatal to focus on service provision of raw water and perhaps clear water as

well for some communities. With increased emphasis on restoring the commercial and financial capacities of the parastatals, the financial restructuring of ZINWA would be primarily concerned with a reduction in accounts receivable to 30 days or thereabouts. It is important to note that since 2017, ZINWA has embarked on implementing interventions to increase collections, this has resulted in a significant increase in collection rates in 2017.

5.2.2. Zimbabwe Electricity Supply Authority (ZESA)

No restructuring is recommended for the energy utilities; however, emphasis is placed on improving the financial and technical capacity of ZESA. In 2014, ZESA Holdings generated USD 61.2 million in revenue through its four subsidiaries. ZESA also registering a negative EBITDA of USD 8 million and an overall net loss of USD 6 million. One of the biggest challenges for ZESA in the past decade has been non- payments on the foreign and domestic loans used to fund expansion and rehabilitation of the power network. At end 2014 the total amount of liabilities was USD 51 million, USD 20 million in accounts receivable with USD 3 million in impairments.

5.2.3. National Railways of Zimbabwe (NRZ)

As Chapter 10 has outlined in some detail, this Report proposes a vertical restructuring of NRZ along the following lines. A new state enterprise would be created as the owner of the entire railway infrastructure network (except for the Beitbridge-Bulawayo concession). The new state enterprise would own, operate, maintain, and rehabilitate the existing railway track, communication and signaling systems, and electrification of the rail network. It would not have any ownership interest in locomotives, rolling stock and coaches, or in related facilities such as maintenance shops and so on.

Table 7: Current Liabilities of Infrastructure Parastatals, USD, 2015 and 2014 (ZESA)

Parastatals	LT Loans Due	Accounts Payable		Other	Total
		Related party	Other		
ZINWA	25 839 330	84 869 936	409	-	110 709 675
ZESA*	7 118 318	1 142 492	29 441 295	-	37 702 105
NRZ	53 084 849	234 581 293	3 294 474	1 780 742	292 741 358
CAAZ	159 422 891	11 350 124	65 438	1 650 577	172 489 030
Air Zimbabwe	**	**	**	**	**
TelOne	175 756 878	65 977 949	62 791 712	-	304 526 539
NetOne	**	**	**	**	**
Total	421 222 266	397 921 794	95 593 328	3 431 319	918 168 707

*Source: Infrastructure service providers***ZESA's financial statements are only available until 2014****Missing information***Table 8: Long-term Liabilities of Infrastructure Parastatals, USD, 2015 and 2014 (ZESA)**

State Enterprise	Long-Term Loans	Deferred Taxes	Other	Total
ZINWA	25 839 330	-	75 940 282	101 779 612
ZESA*	-	2 577 762	-	2 577 762
NRZ	25 440 103	63 898 852	-	89 338 955
CAAZ	130 894 823	35 731 575	87 540 065	254 166 463
Air Zimbabwe	**	**	**	**
TelOne	47 834 103	69 895 542	1 058 592	118 788 237
NetOne	177 289 000	16 792 000	-	194 081 000
Total	407 297 359	188 895 731	164 538 939	760 732 029

*Source: Infrastructure service providers***ZESA's financial statements are only available until 2014****Missing information*

In the face of financial constraints facing the NRZ, the Government announced in the MTP its intention to proceed with the restructuring of NRZ. The restructuring of NRZ would result in formation of two new companies: the Railway Infrastructure Company of Zimbabwe (RICZ) and the Zimbabwe Railway Services Company (ZRSC). The working assumption is that the Government would retain ownership of the track and related facilities and would therefore be responsible for the design, funding, and implementation of rehabilitation and maintenance programmes. The suggested Railway Infrastructure Company of Zimbabwe (RICZ) would be responsible for the maintenance and operation of the railway infrastructure with exception to the Beitbridge-Bulawayo concession. In 2015 the NRZ registered a loss of USD 40 million with total liabilities of USD 353 million and USD 292 in accounts payable.

5.2.4. Civil Aviation Authority of Zimbabwe

The first step in the proposed restructuring of CAAZ would involve splitting off its current regulatory responsibilities and moving these to the proposed new regulatory authority for the transport sector. This includes a detailed indicative financial plan for the civil aviation part of the new regulatory authority. With the transfer of these responsibilities for regulation of the civil aviation industry in Zimbabwe, attention would then turn to the restructuring required for the residual CAAZ organisation.

For the purposes of this Report, the new company is called the Airport Services Company of Zimbabwe (ASCZ). As Chapter 11 discusses in some detail, the ASCZ would continue to own the airside infrastructure at all the airports in Zimbabwe currently managed by CAAZ. It would

also provide landside services at some of these airports. Two of the international airports, Victoria Falls and Buffalo Range, would be candidates for PPP arrangements that would have one or more concessionaires operating these two airports. There are several possible approaches to the design of the financial structure of ASCZ. One is that the government continues to own all equity in the company. Another would be to seek partial privatisation of the company by bringing in a strategic partner that has experience with the operation of airport concessions in other countries. In the case of the Victoria Falls and Buffalo Range concessions, decisions would be required on whether the ASCZ would be a minority shareholder in these two concessions. To strengthen the balance sheet of the proposed new airport services company, the Report proposes that the existing USD 159 million of LT loans held by CAAZ be transferred to the proposed Special Purpose Vehicle that would hold loans from public and private creditors that is in arrears. This action would strengthen the balance sheet of ASCZ and make it a much more attractive partner for potential private investors interested in operating airport concessions in Zimbabwe.

5.2.5. Air Zimbabwe

Air Zimbabwe faces uncertainty around its future with respect to the imminent restructuring plans into Zimbabwe Airways. The national carrier has gone through multiple restructuring exercises dating back to pre-independence. However, the core challenges persist and pertain to Air Zimbabwe's inability to attract passengers and cargo. The Airline currently carries almost 180,000 passengers (2017 figure) a year and has been operating at a loss for many years. In the short term, the Airline should focus its efforts on optimising routes to reduce operating costs and replace aging, high cost planes used on domestic routes with smaller planes that will operate with higher load factors. In the medium term, Air Zimbabwe should seek to convert a substantial

portion of accounts payable to medium- or long-term debt through refinancing. Such an arrangement would provide Air Zimbabwe with the funds required to meet all of its overdue obligations for accounts payable and restore services that can generate revenue.

In 2018 the parastal was placed under financial administration. Plans are currently being drawn up for the restructuring of the organisation and a financial turnaround plan.

5.2.6. TelOne and NetOne

The Report proposes the full privatisation of both TelOne and NetOne. One possible option to consider is the merger of these two state enterprises and their sale as a single entity. The total assets of the two companies at end 2015 were about USD 808 million, with liabilities at USD 904 million, largely because of the low profitability of NetOne. In 2015, these two enterprises had revenues of about USD 251 million. At end 2015, they had a combined total of USD 86 million of deferred tax obligations to the government and long-term liabilities of USD 295 million. The attractiveness of these two enterprises for full privatisation would be further improved if the government were to act to reduce the USD 204 million of accounts receivable for TelOne (information for accounts receivable for NetOne is not available). Other actions to be considered include a write-off of the USD 86 million in deferred tax obligations, and transfer of the LT loans in arrears to the Special Purpose Vehicle to be set up by the Government.

5.3. BUILDING THE FRAMEWORK FOR PPPS

5.3.1. An Historical Background

There were a number of initiatives in Zimbabwe in the 1990s to expand the role of the private sector in provision of infrastructure services, but these

were largely inconclusive. The most prominent example of the use of PPP-type arrangements from that period was the private concession that began providing rail services in 1998 on some 385 km of track between Bulawayo and Beitbridge.

PPPs failed to take off in Zimbabwe for a number of reasons, including investor perceptions of high political risk, lack of political commitment, lack of clear legal and policy frameworks, lack of financial resources within the government, currency risk, lack of expertise and capacity within the government, and lack of policy consistency. In 2004, the Government revisited the issue and in December 2004 issued a revised policy statement for the use of PPPs in various sectors to promote economic growth through collaboration with the private sector in the provision of infrastructure.¹⁴ The goal of the policy document was to “promote sustainable economic growth and development through mutual collaboration between government and the private sector in the efficient management and operation of infrastructure and other development projects in the country.” The document provided a framework for private sector participation to “take care of the interests of all stakeholders, including service providers and consumers.” It provided for several forms of public private partnership, including management contracts, leasing, concessions, and “new entry” through de-monopolisation. PPPs were envisaged in a wide range of sectors, including transportation, water, telecommunications, and energy. The document provided guidelines for the approval of projects identified by government agencies and project promoters, including a tendering process for the selection of the private sector partner and rules governing unsolicited proposals emerging from the private sector’s own initiatives. Tax incentives are provided for investors engaged in approved Build Operate Transfer (BOT) schemes. Other incentives were to

be provided on a case-by-case basis, including duty exemptions. The remittance of dividends and disinvestment proceeds was to be in accordance with Exchange Control Regulations.

A review by the UNDP in 2008-09 concluded that there was a continuing lack of a clear legislative and regulatory framework for PPPs.¹⁵ The report went on to say that for PPPs to realise their full potential in Zimbabwe the guidelines developed in 2004 needed to be revised, since these did not cover in a comprehensive way the legal and operational modalities of the programme. Capacities within the public sector to carry out the necessary due diligence work are also limited. The registration, conduct of feasibility studies, and project procurement are done haphazardly, added to which the necessary human and financial resources to manage the programme are not in place. According to the UNDP at that time, committees responsible for PPP processes were not functioning, and as a result, there was some risk that sub-optimal concessions could be concluded that would ultimately lead to lengthy renegotiations.

Two examples of successful PPPs thus far are:

- **Plumtree-Bulawayo-Mutare Highway rehabilitation project in 2014.** This project was implemented by South African construction company, Group Five and fund by the Development Bank of Southern Africa (DBSA). This project was for the development of a toll road and cost USD 206 million. The project was completed a year ahead of schedule with high quality standards that matched a reasonable budget.
- **Chisumbanje Ethanol Plant Project in 2013.** This project was undertaken by

¹⁴ Government of Zimbabwe (2004), Public Private Partnerships Policy and Guidelines. Harare, December 2004.

¹⁵ UNDP (2009), Restructuring Public Enterprises and the Rehabilitation of Infrastructure in Zimbabwe. Comprehensive Economic Recovery in Zimbabwe Working Paper Series, UNDP, Zimbabwe, Working Paper 8, 2009.

Green Fuel and Agricultural and Rural Development Authority (ARDA). It is another success story that was completed ahead of schedule in 2013. This was a larger project in terms of quantum, the cost amounted to USD 600 million.

5.3.2. Current Status of the PPP Framework

A renewed push for use of PPPs. Following the formation of the Inclusive Government (IG) in early 2009, there was renewed interest in the use of PPP arrangements for infrastructure services. The government recognised that the lack of clear guidelines and transparent processes would continue to hinder any investment into Zimbabwe and will hamper the implementation of PPPs. The STERP of March 2009 recognised that it has become necessary and prudent to adopt PPP guidelines to provide the public and private sectors with step-by-step guidance on the preparation, approval and implementation of PPPs. Shortly after the formation of the IG, a series of initiatives were undertaken by the new government to address these concerns.

Between 2009 and 2010 the Government held a range of PPP workshops in which the need to speed up the setting of the policy and institutional framework for PPP. The government has since drafted the following documents:

- Public-Private Partnership Policy 2010;
- Public-Private Partnership Guidelines 2010;
- Public-Private Partnerships: Legislative Review for Zimbabwe 2010; and
- Institutional Framework: Public-Private Partnerships 2010.

There remains no PPP legislation, a Bill was drafted in 2010 but has not been promulgated.

There are three major motivations for moving to much greater use of PPP arrangements in Zimbabwe. These are:

- The investment requirements for the rehabilitation and expansion of infrastructure in the decade ahead are well in excess of the amount of public resources that will be available for these activities during that period;
- The presence of private providers of services under competitive arrangements will help lower the costs of service provision for the economy as a whole and for services beneficiaries; and
- The presence of substantial private service capacities will help offset inadequate technical and management capacities in the infrastructure sectors that have been exacerbated by the very large emigration of skilled labor out of Zimbabwe in the past decade.

The legal framework for PPPs. One of the above-mentioned government reports provides a detailed assessment of the current legal framework that is applicable to PPPs (Government of Zimbabwe, August 2009). An important conclusion of this paper is that at present there is no legislation that pertains specifically to PPPs in Zimbabwe. The concessions that have been implemented to date have all been undertaken within the framework of existing procurement laws. The paper identifies the various pieces of legislation that have a direct or indirect bearing on the use of PPPs as an instrument for forming public-private partnerships. These include the Procurement Act, the Income Tax Act, the Indigenisation and Economic Empowerment Act, the Reconstruction of State Indebted Insolvent Companies Act, the Zimbabwe Investment Authority Act, the Urban Councils Act, and the Rural District Council Act. The report then identifies the following three options for moving forward with the development

of a legal framework for PPPs: (i) make use of the current legislation; (ii) draft a new Act specifically for PPPs; and (iii) draw up a specific set of regulations under the Procurement Act or the draft Public Finance Management Act. The proposal of the paper is to adopt the third option and draw up regulations under the Public Finance Management Act. In making a final decision on these options, several related concerns that affect the timetable for PPPs need to be taken into account. A new regulatory framework after the start of a series of major PPP projects will create serious difficulties for the new regulatory authorities, especially if the provisions of the PPPs are at odds with the regulatory structure on such matters as competition and/or pricing policy, or technical standards for service delivery by suppliers. The reality is that the proposed new regulatory regimes for infrastructure services will also require new legislation. With these concerns in mind, the position taken in this Report is that work should proceed as a matter of priority on the necessary acts for the proposed new regulatory authorities, together with a new comprehensive Act for PPPs.

First, as noted earlier, it is very unlikely that any major PPPs can move forward until after the formal launch of the arrears' clearance process. Prior to this happening, the continued accumulation of arrears on public and private creditors' accounts will make it very difficult for interested private investors to mobilise the large amounts of debt financing that will be required either on a corporate basis or with the use of non-recourse or limited recourse loans by the international banking community. At this stage it is not clear when the arrears clearance process may be formally launched.

The second concern is that it is essential that the revamp of the regulatory framework proposed in Chapter 4 is put in place before entering into individual large PPP contracts with investors. Introduction of the PPP Bill after the start of a series of major PPP projects will create serious difficulties for the new regulatory authorities,

especially if the provisions of the PPPs are at odds with the regulatory structure on such matters as competition and/or pricing policy, or technical standards for service delivery by suppliers. The reality is that the proposed new regulatory regimes for infrastructure services will also require new legislation. With these concerns in mind, the position taken in this Report is that work should proceed as a matter of priority on the necessary acts for the proposed new regulatory authorities, together with a new comprehensive Act for PPPs.

Recurring issues related to the launch of the PPP programme. These various reviews have, directly and indirectly, also raised a number of basic issues on the approach required for successful implementation of PPPs in Zimbabwe in the decade ahead. These include:

What are the most appropriate formats for private participation in the infrastructure sectors under consideration in Zimbabwe, and what can be said about international experiences and best practice on these choices?

- What are the most appropriate mechanisms for mobilizing the private financing required for various types of PPPs?
- What are the lessons from international experience in managing the fiscal risks that governments may take upon themselves under various types of PPPs?
- What are the most appropriate arrangements for the management of PPP processes from inception to final approval and subsequent implementation?
- How should the management of various phases of a PPP be handled within the government?

- How should re-negotiation of PPP arrangements be managed, in the event that such re-negotiation is required?

There is a substantial body of literature on these issues and the successes and failures with PPPs in various parts of the world over the past few decades. The discussion below draws heavily on Delmon (2009).

5.3.3. Choice of Formats for Private Participation in PPP Arrangements

The experience of the past two decades indicates clearly that there is no universal norm for the most appropriate design of PPP arrangements. As Delmon (2010) has noted, the analysis must be made on a country-by-country, sector-by-sector, and project by-project basis. When seeking private participation to deliver infrastructure services a government agency or state enterprise (the grantor or grantors) has a variety of options for the structure of the project.



PART B: ACTION PROGRAMMES FOR INDIVIDUAL INFRASTRUCTURE SECTORS

6. WATER RESOURCE MANAGEMENT, SUPPLY AND SANITATION

6.1. THE SETTING

Zimbabwe is a semi-arid country heavily reliant on regular rains (generally November to April). Mean annual rainfall is substantial in these months varying from 337mm to 1110mm. Although many rivers in the drier parts of the country are non-perennial, Zimbabwe has made extensive investment in large, small, and medium-sized dams, amounting to over 8000 dams in total. However, though current utilisation is relatively low, the location of existing dams is far from the population requiring water resources. The lack of investment and inability to manage its water resources cost Zimbabwe a significant percentage of its GDP. The country has a forward-looking Water Act and undertook significant reforms to create a Zimbabwe National Water Authority (ZINWA) to manage the national water resources. The water resource sector, however has been adversely affected by the economic downturn which has nullified many of the protracted gains. The regulation of water sources is currently not fully realised, inadequate attention has been given to the maintenance of key water resource infrastructure with a high risk to public safety from the breach of dams, catchment plans are not implemented, and significant pollution has occurred in some major water bodies.

The fortunes of the sector were reversed in the past decade as a result of very limited new investment in services and inadequate revenues of the institutions responsible for service provision that led to a sustained decline in operations and maintenance of assets. The progressive decline in water and sewerage services culminated in a serious outbreak of cholera in the 2018 semi-dry season of September. With over 8,500 cases of cholera and over 80 deaths. International attention has again drawn to the extent of the decline in the

sector, in light of the incident that occurred in 2008 and in 2018. The result is a large-scale mobilisation of humanitarian assistance to expand recommended cholera response actions to help the country address the immediate risks posed by the cholera outbreak and to support the rehabilitation of water supply and sanitation services in urban and rural areas. The challenge for the decade ahead is to rebuild the existing dilapidated infrastructure.

6.2. CURRENT POLICY AND INSTITUTIONAL FRAMEWORK

6.2.1. Policy Framework for Water and Sanitation

In 2013, The Zimbabwe Government adopted the Water Policy which provides a framework for the management for the country's water resources, and the provision of water and sanitation services. ZINWA, a parastatal agency responsible for water planning and bulk supply currently manages water resources on a catchment basis with involvement of stakeholders in each catchment area. Other responsibilities of ZINWA included: the management of the water permit system; the pricing of water; overseeing strategic water infrastructure investment endeavours; operating and maintaining existing infrastructure; and executing development projects.

While there are a number of Acts which govern the management of water in Zimbabwe, these do not coalesce to form a unilateral direction to the optimum usage and management of this sector. These Acts pertaining to water include the Environmental Management Agency Act of [Chapter 20: 27] of 2002, Urban Councils Act of [Chapter 29:15] 1996, Rural District Councils Act [Chapter 29:13] of 1996, Mines and Minerals Act

[Chapter 21:05] of 1996, Public Health Act and Disaster Risk Management Act of 2011.

Zimbabwe's current water storage capacity is 42 billion cubic litres of water, the demand is whereas the infrastructure available on the, 8000 plus dams is 10 billion cubic litres. As with every sector in Zimbabwe, the water sector cites the lack of investment into infrastructural development, more so due to its highly regulated composition and has resulted in adverse serious health risks. With 70% of the population, ZINWA has cited another challenge being that the available infrastructure is not adequate to supply water to these areas. There is also no data collection apparatuses to assess the accurate state in which water is managed.

6.2.2. Institutional Arrangements for the Sector

The institutions of the water and sanitation sector are organised by law and policy according to their responsibilities for service provision. The four distinct areas of service and related institutional arrangements:

- Water resources management;
- Urban water supply and sanitation;
- Rural water supply and sanitation; and
- Irrigation.

The water sectors also has goals for the sustainable utilisation of water resources in order to improve the following:

- The economic resuscitation of the country
- Equity in access to freshwater by all citizens of Zimbabweans
- The efficient use of water among competing uses
- Provision of affordable and sustainable WASH services

- Environmental protection
- Protection of water sources, including safety of the country's dams and ground water
- Consumer and institutional viability in the water sector
- The administration of the Water Act and Water Policy.

6.2.3. Management of Water Resources

Figure 11 sets out the organisational arrangements for the principle institutions with responsibilities for the management of water resources in Zimbabwe. For the purposes of managing the nation's water resources, Zimbabwe is divided into seven catchments that are based on the six major river basins in the country. Each catchment is administered by an elected catchments council, with technical support from ZINWA. The Minister for Lands, Agriculture and Rural Resettlements serves as the overseer of and provides guidance on policy matters.

The Department of Water Resources assists the Ministry to carry out the following statutory functions:

- Development of water policies, laws and regulations and general directions to guide the orderly and integrated planning of the nation's water resources to ensure their optimum development, utilisation and protection;
- Ensuring the availability of water to all citizens for the primary purposes with due regard to environmental requirements;
- Ensuring the equitable and efficient allocation of available water to all users;
- Giving effect to any international water agreements to which Zimbabwe is party; and

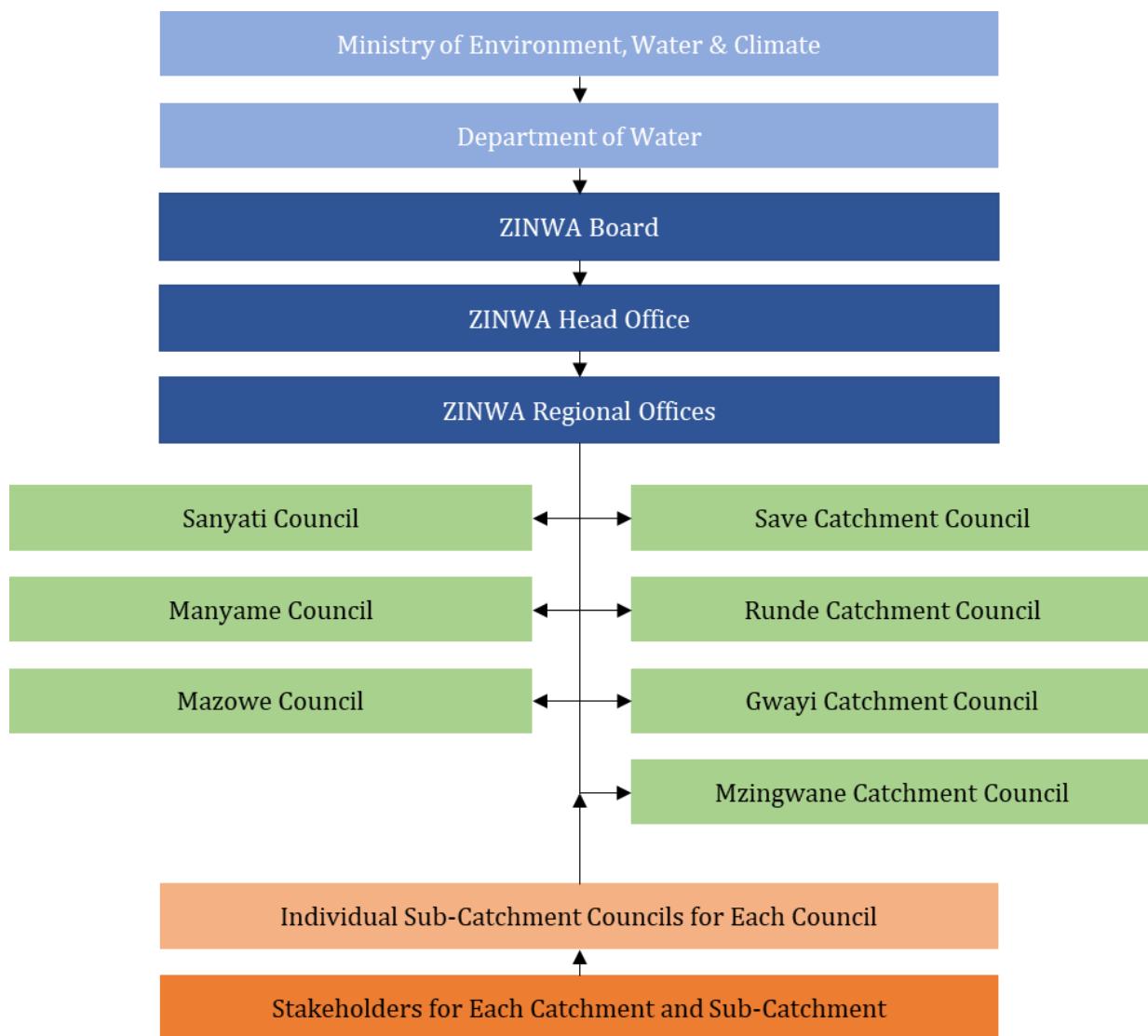
- Fixing the criteria for water allocation and the issue of permits by Catchment Councils.

The main responsibilities of the Zimbabwe National Water Authority (ZINWA) are as follows:

- To advise the Minister on the formulation of national water policies and standards;
- To exploit, manage, and conserve water resources in order to ensure security of supply and to facilitate equitable access to water by all sectors, and its efficient utilisation, while minimizing the impacts of drought, floods and other hazards;

- To provide specialist advice and technical assistance to local authorities and catchment councils in matters concerning the development, management and environmental protection of water resources;
- To provide design and construction services for new works and to operate and maintain water supply facilities owned or managed by ZINWA;

Figure 11: Institutional Arrangements for Management of Water Resources



Source: Ministry of Environment Water and Climate

- To carry out and publish hydrological and geographical surveys, including water related research, for the purposes of planning, development, and exploitation of water resources; and
- To undertake the joint management of international water resources, as directed by the Minister.

ZINWA's head office is located in Harare and it has a branch office in each of the seven catchments headed by a Catchment Manager. The multidisciplinary staff of the latter is responsible for the statutory functions of ZINWA. The staff typically includes expertise in hydrology, hydrogeology, water supply and quality, and administrative support.

Each Catchment Council (CC) is established by a statutory instrument under the Water Act. The councils are composed of representatives of those sub-catchment councils in each catchment. The Catchment Manager's office provides technical and secretarial services to the respective catchment councils.

The main responsibilities of each council are:

- To prepare a Catchment Outline Plan (COP) for its river system;
- To determine and grant water use permits under criteria set by the Ministry of Environment, Water and Climate;
- To regulate and supervise the exercise of rights to, and use of water in respect of its river system; and
- To ensure proper compliance with the Act and to supervise sub-catchment councils.

The sub-catchment councils (SCC) are established by the Minister through a statutory instrument under the Water Act for any part of a declared river system that falls under the catchment council.

The SCC is the operational arm of the CC. Its main function is to regulate and supervise the exercise of rights to water within the area for which it was established. It also performs any other functions that may be conferred upon it in terms of the Water Act.

The stakeholders comprise the water users, members of government departments with legal responsibilities in the management of natural resources, and private organisations that represent interests in the basin or otherwise have a direct stake in water management in the catchment. The SCC is elected from representatives of water users.

Zimbabwe is bordered to the north by the Zambezi River and to the south by the Limpopo River, both of which flow through Mozambique to the Indian Ocean. Figure 9 describes the main river systems in Zimbabwe. These major river systems form the basis for the above-mentioned seven catchments of the country: Save, Runde, Mzingwane, Gwayi, Sanyati, Manyame, and Mazowe. These major rivers feed into either the Zambezi or the Limpopo rivers.

Urban Water and Sanitation Services. The major urban areas are divided up into the following 30 administrative units: (i) 2 cities, (ii) 10 municipalities, (iii) 8 town councils, (iv) 6 city councils and (v) 4 local boards. Each entity has a statutory requirement to provide water and sanitation services to their communities. ZINWA has supply responsibilities for water and sewerage in some of the smaller towns, but for other towns, the ZINWA's responsibility is restricted to bulk water supply, with the local council responsible for distribution and billing. In addition, ZINWA has supply responsibilities for 534 "ZINWA Stations" supplying small settlements that may comprise growth centres, health centres, and small units at border crossings, National Parks, and police posts in strategic locations.

Table 9: The Major Rivers that Serve Zimbabwe

River	Description	Countries
Catchment Areas Feeding the Zambezi River		
Zambezi River	The fourth largest river in Africa. Rises north-western Zambia with a basin area of 1 390 000 sq. km and is 3540km long.	Zambia, Angola Namibia, Botswana, Zimbabwe and Mozambique
Gwayi River	Rises northwest of Bulawayo and flows northwards 400km to enter the Zambezi in Devil's George upstream of Lake Kariba.	Zimbabwe
Mazowe River	Rises north of Harare and flows north-eastwardly, forming part of the border with Mozambique then confluencing with the Zambezi River	Zimbabwe and Mozambique
Manyame River	Formerly the Hunyani, Manyame is a tributary to the Zambezi River. It rises in Waddilove, SE of Chitungwiza and drains first into the Chivoro reservoir, then Lake Manyame, forming a confluence with the larger Manyame then flows into Cabora reservoir on the Zambezi. It is said to be the most important river in Zimbabwe	Zimbabwe and Mozambique
Sanyati River	The Sanyati rises in Mashonaland East just North of Chivhu. It runs approximately north westward. Its confluence is with Mupfure River. After approximately 500km, the Sanyati flows into lake Kariba, making it part of the Zambezi Basin	Zimbabwe
Catchment Areas Feeding the Limpopo River		
Limpopo River	Rises in central southern Africa, 1750km long with a drainage basin of 415 000 sq. km.	South Africa, Botswana, Zimbabwe and Mozambique
Mzingwanwe River	The Mzingwangwe is a major left-bank tributary of the Limpopo River. It rises near Fort Usher and flows into the Limpopo River, downstream of the mouth of the Shashe River and upstream the Bubye River mouth	Zimbabwe
Runde River	The Runde, formerly called the Lundi River is a river in south eastern Zimbabwe. It is a tributary to the Save River, rising 60km east of Bulawayo and flows 200km to the Limpopo River	Zimbabwe
Save River	Rises 80km south of Harare and flows 400km from the Highveld to its confluence with the Odzi River. It is joined by the Runde River at the Mozambican border	Zimbabwe and Mozambique
Shashe River	Rises south west of Francistown, Botswana and flows into the Shalimpo Tran frontier conservation area. It is a major left-bank tributary of the Limpopo River.	Botswana, Zimbabwe and South Africa

Source: ZINWA

78% of the households in Zimbabwe have access to an improved source of water. By definition, improved sources of water comprise (i) piped water; (ii) public taps; (iii) stand pipes; (iv) tube wells; (v) boreholes; (vi) protected dug wells and springs; (vii) rainwater; and (viii) bottled water - if this water source for cooking and handwashing is from an improved source. Of these, 97% is

concentrated in the urban areas, with 69% supplied in the rural areas.

When regarding sanitation in Zimbabwe, 4 in 10 households used improved sanitation facilities. By definition, improved sanitation facilities include non-shared toilet of the following types. (i) flush or pour flush into a piped sewer system, (ii) septic tank or pit latrine, (iii) Ventilated improved pit

latrines or Blair toilets; (iv) Pit latrines with a slab. The most commonly used improved toilet facility is the pit latrine in Zimbabwe. Of these with improved facilities, 32% use them at their own dwellings, 58% used facilities located within the compound and 10% use it elsewhere.

Rural Water and Sanitation Services. Over the past two decades, there have been changes in responsibilities for various aspects of the supply of rural water and sanitation services. As things now stand, there appear to be overlapping responsibilities and lack of clarity among the various entities now involved with service provision. The key entities active in rural water and sanitation are the National Action Committee (NAC), the Rural District Councils (RDCs), the District Development Fund (DDF), and the Water Environmental Sanitation Working Group (WES).

Because eight ministries are involved in the cross-cutting nature of water and sanitation, the former MWRDM was made Chair of the NAC and supported by a Secretariat. The NAC's responsibilities include the review and approval of all rural water and sanitation project proposals and plans originating at district level, setting of policies and standards for the rural water and sanitation sector, and formulation of strategies for the delivery of rural water and sanitation projects.

RDCs are responsible for all development activities in their districts. They are required to ensure the right to access to basic water and sanitation services, and formulate development plans that integrate water and sanitation services. RDC Water and Sanitation programmes are funded through the Department of Infrastructural Development Services (DID) of the Ministry of Local Government, Urban and Rural Development. They co-ordinate the activities of NGOs in the districts, and liaise with the District Development Fund on development and maintenance needs.

District Development Fund is responsible for the development and maintenance of non-commercial

water supplies in communal and resettlement area and research and development of appropriate technologies. Development funds for water and sanitation are channelled to the RDCs through the Rural Capital Development Fund (RCDF) for minor activities. Major capital items are funded through the Public Sector Investment Programme (PSIP).

With the re-engagement of the donor community in support for water and sanitation in recent years, there was need for coordination of donor activities. The Water Environmental Sanitation Working Group was established in 2008. It is coordinated by UNICEF and includes private sector representatives. It helps to facilitate a coordinated and collaborative humanitarian response, resource mobilisation, networking, and sharing of information and lessons learned. The primary focus of WES is rural communities, but its activities include support for urban activities. The main objective of the Working Group is to ensure coordination of all humanitarian-related water and sanitation interventions being implemented by donor-supported NGOs. It ensures that the NAC and UN country team are kept informed about these activities, and it promotes linkages with other relevant sector working groups, especially those responsible for health, HIV/AIDS, food security, agriculture, and nutrition.

Irrigation Services. The Ministry of Lands, Agriculture and Rural Resettlement has overall responsibility for development and implementation of irrigation policy and services. Responsibility for various aspects of irrigation services is shared among units within the Ministry, as follows:

- The Department of Research and Extension Services (AREX) provides extension services to all irrigators and its research section is responsible for soil surveys and testing for irrigation development;
- The Agricultural and Rural Development Authority (ARDA) is a parastatal agency

responsible for the operation of government-owned irrigated estates and farms. It works closely with the Department of Irrigation

- The Grain Marketing Board (GMB) is a parastatal agency in charge of marketing the country's strategic crops. All controlled crops such as maize and wheat from irrigation schemes are sold to the GMB at regulated prices. The GMB also administers the government input credit scheme for irrigators
- The Department of Irrigation (DOI) is a new department which was initially in the Ministry of the then Rural Resources and Water Development (MRRWD) and was recently moved over to MAMID. The Department is mandated with all the irrigation activities in the country which include planning, identification of schemes, designing, construction, operation and management of existing irrigation schemes.

6.3. WATER RESOURCES AND RELATED INFRASTRUCTURE

6.3.1. Water Resources of Zimbabwe

Zimbabwe is heavily reliant on surface water, with the scarcity of ground water. According to Food and Agriculture Organisation (FAO) estimates, internal renewable ground water resources are estimated to be 11.26 billion cubic metres per year with renewable ground water resources at 6 billion million cubic metres per year.

After allowing for an overlap between surface water and groundwater resources estimated at 5 billion m³, the total renewable water resources produced annually in Zimbabwe is estimated at 12.26 million m³ (Table 10).

On a per capita basis, the total available renewable resource was 785.7 m³ and the total withdrawal

was 337m³. Zimbabwe's available resources are low relative to many other sub Saharan African countries; for example, Mozambique which had available resources of 5,208 million m³ in 2002. Zimbabwe's rate of withdrawal of 280 m³ per capita, is higher than the per capita withdrawal rate for other sub-Saharan countries, but this withdrawal rate is very low in comparison with other parts of the world. As with other SSA countries, utilisation of renewable water resources in Zimbabwe is low, as reflected by the fact that only 5% of Zimbabwe's cropland is irrigated.

The overall groundwater resource of Zimbabwe is small when compared with estimates of surface water resources, mainly because the greater part of Zimbabwe consists of ancient igneous rock formations where groundwater potential is comparatively low. According to the FAO, the estimated available groundwater potential is between 1 and 2 million cubic metres per year.

Four aquifer systems of relatively high groundwater potential are known. These are:

- The Lomagundi dolomite aquifer which occurs northwest of Chinhoyi, about 120 km northwest of Harare;
- The Forest sandstone which occurs in the Save, Limpopo, and Zambezi basins;
- The Kalahari sands which are widespread in the southwestern part of the country and where exploitable groundwater resources are related to the thickness of the sands; and
- Alluvial deposits which occur mainly in the Save valley where they form a local aquifer, along the Zambezi, Manyame, and Musengezi rivers.
- Given the limited potential of groundwater resources, it is clear that adequate storage in reservoirs is required for the full utilisation of the country's water resources.

There has been an aggressive programme of construction of medium- and large-size dams for irrigation, water storage and other purposes. Funding shortfalls in the past decade have resulted in cessation of ongoing construction work. Dams can be owned by commercial companies, local

authorities and ZINWA. The owners have a responsibility to ensure that the dam is maintained and fit for purpose. Extraction of water from dams is limited by the permit, and charges are levied by ZINWA.

Table 10: Water Sources and Uses, 2007, billions of cubic meters

Water indicator	Volume (billions m ³)
Renewable water resources	
Surface water produced internally	11.26
Ground water produced internally	6
Less: overlap between surface and groundwater sources	5
Total renewable resources produced annually	12.26
Plus: surface water entering the country	0
Total renewable water resources available	12.26
Withdrawal of water resources	
Irrigation and livestock	2.93
Municipalities	0.43
Industry	0.22
Total withdrawal	3.57
Per capita indicators	
Total renewable resources per capita per year (m ³)	785.7
Total withdrawal of water per capita per year (m ³)	280

Source: FAO. 2016. AQUASTAT Main Database - Food and Agriculture Organisation of the United Nations (FAO)

There are about 8,000 dams in Zimbabwe, 850 of which have been constructed by the Government. Most of the 1,350 privately owned dams are small. The International Commission on Large Dams (ICOLD) reports a total of 253 large dams in Zimbabwe; 100 of these are owned by the Government of Zimbabwe or government parastatals (including the Zambezi River Authority which owns the Kariba dam); seven are owned by city governments; and 146 are privately owned. As noted earlier, the national and local government own almost 90% of the existing dam capacity of the country, other than that of Lake Kariba which is owned jointly by the Governments of Zambia and Zimbabwe. These publicly owned dams account for most of the stored water supply in the country. Their condition and that of pipelines and canals that carry water from these dams are central to

Zimbabwe's water resource management and supply capacities.

As with other types of infrastructure assets, there has been a lack of maintenance of dams over the past decade. Zimbabwe now faces a situation where there may be a serious public safety risk from breach of some of these dams. The lack of maintenance has also resulted in loss of large volumes of water that in turn have affected services to populations dependent on the supply of water from these dams. Moreover, a high proportion of the medium- and small- sized dams face operational difficulties because of high levels of siltation that, in turn, stem from inadequate attention to sustainable management of watersheds.

Table 11: Dams Classified by Size and Ownership

Type of Dam	Ownership		
	Government	Private	Total
Large	250	10	260
Medium/Small	600	1 340	1 940
Total	850	1 350	2 200

Source: ZINWA

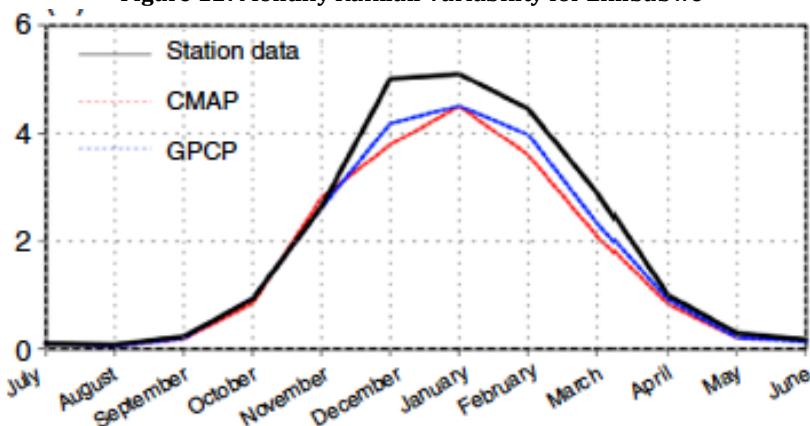
6.3.2. Hydrological and Climatic Variability

Climatic conditions in Zimbabwe are largely subtropical with one rainy season, from mid-November to March, a cool winter season from April to August and the hottest and driest period from September to mid-November. Average annual rainfall is 657 mm, but ranges from over 1,000 mm in the Eastern Highlands to around 300-450 mm in the lowveldt in the south. Rainfall reliability in the country decreases from north to south and also from east to west. Evaporation varies over the country to a much smaller extent than rainfall. Values of net annual pan evaporation range from about 1,400 mm in the Eastern Highlands up to 2,200 mm in the low veldt. Only 37% of the

country receives adequate rainfall for agriculture. For the rest of the country the rainfall pattern is insufficient, erratic and unreliable, making supplementary or full-time irrigation indispensable for successful agriculture. In the drier parts of the country, most rivers are non-perennial. Only the major rivers such as Munyati, Manyame, Mazowe, Save, and Runde are perennial. However, even in dry years these large rivers may dry up in the months of August to November.

A high climatic variability is one of the major challenges facing Zimbabwe in its management of water resources. As noted earlier, Zimbabwe depends heavily on surface water to meet its various requirements. However, rainfall is variable and unpredictable. This hydrological variability is important for Zimbabwe, given the very small share of cropland that is irrigated.

Figure 12 illustrates the monthly rainfall variability in Zimbabwe measured from 3 different sources.

Figure 12: Monthly Rainfall Variability for Zimbabwe

Source: Mamombe, V., Kim, W. and Choi, Y.S., 2017. Rainfall variability over Zimbabwe and its relation to large-scale atmosphere-ocean processes. *International Journal of Climatology*, 37(2), pp.963-971

It is estimated that only 5% of the cropland in Zimbabwe is irrigated. Given the substantial declines in agricultural output in the past decade, and lack of funding for maintenance of infrastructure, it is very likely that the area of cropland that is currently under irrigation has declined from the 2002 level.

Figure 14 shows findings from a study by Mano and Nhemachena (2007) that indicate that climatic variables (temperature and precipitation) have significant effects on net farm incomes in Zimbabwe. The results showed that farms with irrigation are more resistant to changes in climate,

indicating that irrigation is an important option for reducing the impact of further changes in climate.

With only 20% of renewable water available each year being used, it is clear that there is substantial

scope for increased investment in infrastructure to store and transport water. The storage capacity of the country remains underdeveloped.

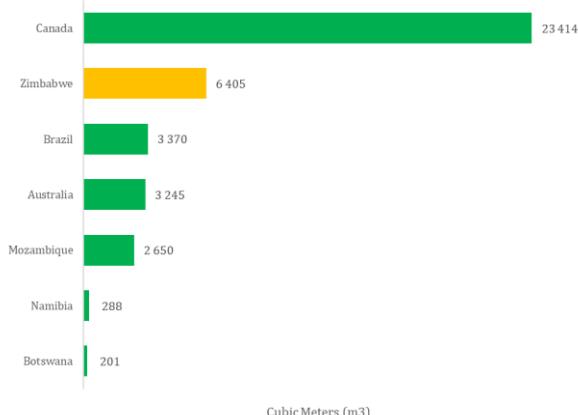
Table 12: Forecast Impact on Net Farm Revenue of Climate Change

Climate Change Scenario	All Farms	Dry Land	Irrigated
Increase in temperature of 2.5%	-31	-17	3
Increase in temperature of 5.0%	-36	-21	-1
Reduction in Rainfall of 7%	-27	-16	-2
Reduction in Rainfall of 14%	-28	-22	-2

Source: Mano and NhemaChena, 2007

Figure 13 shows a comparison of per capita water storage for Zimbabwe of 6,405 m³, this compares favourably to some other developing countries and countries with similar semi-arid conditions such as Australia. However, some other water rich countries such as Canada demonstrate much higher water storage capacity per capita.

Figure 13: Per Capita Water Storage for Selected Countries, 2015, m³



Source: Knoema Corporation, World Data Atlas, 2018

6.3.3. Regional Cooperation on Water Use

The other major challenge for the management of the country's water resources relates to arrangements for sharing the resources of the major basins that serve countries in the southern Africa region. As a land-locked country, all Zimbabwe's major rivers are shared with neighbouring countries. Zimbabwe cooperates actively with other members of the Southern Africa Development Community (SADC) on the shared

management of the region's river systems. The country is a signatory to the Shared Water Course Systems Protocol, which provides the basis for the management of international rivers in SADC. It is also an active member of the Limpopo and Zambezi basin commissions which oversee joint management of these international rivers.

Given the current very low levels of storage capacity per capita in Sub-Saharan Africa, the expectation is that many sub-Saharan countries will want to reduce their vulnerability to hydrological variability through increased investment in infrastructure for storage and transport of water. The challenge will be to strengthen these existing arrangements for managing the international river basins to ensure that increased investment in storage does not cause increased tensions and possible conflict among riparian states.

6.3.4. Pricing Policies for Water Supply

Zimbabwe's domestic inflation rate, standard water prices set by government and sparse investment into this sector remain a primary concern as there is a large gap between the demand for water and its supply. At present, ZINWA's cost of supplying water vastly supersedes the revenue they generate from its customers.

However, the past 18 months has seen an improvement in the financial position of ZINWA.

As Table 13 indicates, total revenue amounted to USD 67.9 million in 2017. With operating expenses of USD 61.4 million, net operating income was USD 6.3 million. As a result, ZINWA had an operating profit USD 1.8 million. Going forward, ZINWA must address three particular financial concerns. The first is that it had some USD 112 million of accounts receivable, including a substantial amount due from public sector agencies. Due to the implementation of pre-paid metering and other revenue collection initiatives, collections were significantly improved in 2017 at USD 72.3 million in comparison to USD 32.6 million in 2016.

Table 13: Income Statement for ZINWA, USD 2017

Item	2017
Revenue	
Water sales	
Clear water	35 629 699
Raw water	11 738 021
Borehole drilling	331 793
Sewage fees	403 712
Connection fees	173 924
Net financing income	759 629
Other operating income	7 414 188
Net movement in allowances for credit losses	11 224 262
Total Revenues	67 695 228
Operating Expenses	
Staff costs	27 628 057
Repairs and maintenance	2 280 782
Chemicals	678 681
Clear water purchased for resale	3 041 853
Electricity	4 213 923
Other operating expenses	23 545 802
Total operating expenses	61 389 098
EBITA	6 306 130
Depreciation and amortisation	(4 537 272)
Net income	1 768 858

Source: ZINWA, *Integrated Annual Report, 2017*

Water tariffs are currently not cost reflective and as a result, spending on the maintenance and refurbishment of infrastructure is below the required levels. The implication is that ZINWA will need to increase the price charged for raw water if it is to cover operating costs that include realistic levels of maintenance spending on water resources infrastructure while at the same time continuing to

generate a financial surplus that would be available to cover some of the capital costs of the programme.

6.3.5. Proposed Action Plan for Management of Water Resources

With a projected 21% increase in urbanisation in the next decade and sustained economic growth, demand for water will continue to grow steadily. The challenge for the decade ahead is to close the gap between water supply and demand through rehabilitation of existing WSS facilities, increased investment in new infrastructure for water storage and transport, and improved conservation of existing resources. These measures will need to be complemented by improved cost recovery in the sector. Without substantial additional investments in water resource infrastructure, including storage and transport capacities, it is very likely that water demand will continue to exceed supply and, as a result, the current unregulated use of water resources will persist.

Future demand for water. Reliable estimates of the current use of water resources for agriculture, mining and industry, and domestic purposes are not available. The annual drawn-down of renewable resources of reported by FAO for 2007 is the most recent information available. There are no up-to-date estimates of water use for irrigation, industry, and households. Nor are there any projections of likely future use. For the purposes of this Report, a very rough estimate of current water use has been made, along with a projection of the growth in use for the decade ahead.

The Report sets out a proposed Action Plan for water resource management in Zimbabwe in the decade ahead. The emphasis at this stage is on strengthening capacities within the sector and the further development of the country's water resources. Once the basic stock of water infrastructure has been developed, the emphasis would shift to management of these resources.

Table 14: Estimated Future Demand for Water, 2015 to 2020

Indicator	2015	2016	2017	2018	2019	2020
Water use						
Agriculture	3.09	3.11	3.20	3.23	3.27	3.31
Municipalities	0.50	0.51	0.52	0.53	0.54	0.55
Industry	0.23	0.23	0.24	0.24	0.24	0.24
Total	3.82	3.85	3.96	4.00	4.05	4.10
Dam capacity						
Existing	9.993	9.993	9.993	9.993	9.993	9.993

Source: FAO. 2016. AQUASTAT Main Database - Food and Agriculture Organisation of the United Nations (FAO) and future projections by the author

The key elements of the proposed programme are:

- A programme of analytical studies, technical support and capacity building for institutions with responsibilities for water resource management.
- An inspection programme for all of the major dams in the country to assess risks to public safety, extent of water losses, and extent of siltation.
- A rehabilitation programme to remedy deficiencies in existing water infrastructure. This component of the programme would include rehabilitation of existing dams, water transport facilities such as canals and pipelines, and water treatment plants.
- Drilling and hydrological investigations and expansion of hydrological stations to provide basic information for improved management of the national water resources.
- Expanding availability of raw water with construction of additional water supply infrastructure, including completion of dams whose construction was discontinued in the past decade because of funding shortages, new dams and water transport facilities, and treatment plants.

Capacity building and technical support. A clear strategy is also required to address the vulnerability of the Zimbabwe economy to water shocks and the constraints to growth and poverty

reduction imposed by an inadequate stock of water infrastructure. A multi-pronged approach to technical support and capacity building is proposed. The Report proposes the preparation of a water resources strategy for the country.

The main thrust of the assessment would be as follows:

- Analysis of future water demands by sector, including specific demands of major new investment projects;
- Analysis of water infrastructure investment needs consistent with the foregoing demand analysis;
- Identification of priority investment requirements and opportunities;
- Financing options for the proposed programme;
- Development of a consensus among stakeholders on the way forward.

The second element of the strategy would focus on a range of interventions designed to strengthen the policy framework for water resources management, including in particular: the revision of the regulatory framework for water resources management that includes processes for permits and standards in construction of dams and other hydraulic infrastructure, dam safety, and water licensing. In the past decade, there continued a regulated yet substantial underdevelopment of the main river basins of the country, including for example, extensive artisanal mining activities

along rivers. These unregulated activities have led to deterioration in water quality and may pose increasingly important threats to ecosystems and human health. Given the magnitude of investments in water resources, consideration should also be given to promotion of possible private investment in major dams and pipelines that would contract with ZINWA for the supply of water.

These policy and institutional initiatives will require support for capacity building. Currently, many water-related policies and programmes are poorly integrated, not well coordinated and failed in their implementation. Capacities for planning, monitoring, and oversight of the water resources sector are weak. The objective of this part of the programme would be to strengthen capacities for water resource development and management, including coordination among agencies within the sector and cross-sectoral coordination, pricing policies for water supply, as well as capacities to monitor water resource use and compliance consistent with the provisions of the Water Act, related legislation and the Water Policy.

A major effort is required to rebuild Zimbabwe's once comprehensive water resource data gathering and monitoring network. Detailed and up-to-date information on hydrological and hydrogeological conditions is essential for effective planning, development, and exploitation of water resources, as well as effective management of water allocations among competing users and monitoring of water quality. The estimates of the possible cost of rehabilitation of the existing dams is based on cost estimates made by the AFDB in 2011, these have been updated into 2017 in order to provide a current cost estimate.

Proposed capital investment in dams has been presented by the Ministry of Environment, Water and Climate, of which the details are contained within the table below. The Ministry has identified 13 key projects that require an investment of USD 2.6 billion and will increase the country's storage capacity by 7.2 billion m³. In addition, several other

projects are also in early concept phase, amounting to an additional USD 4.6 billion and adding a further capacity of 34.9 billion m³.

6.4. IRRIGATION AND INDUSTRIAL USE OF WATER

6.4.1. Exploiting the Potential for Irrigation

70% of Zimbabweans live in the rural areas and are heavily reliant on agriculture for their livelihood. Zimbabwean soils are derived predominantly from granite and are often sandy light textured, and of fair agricultural potential. However, soils with significant clay content and of excellent agricultural potential are also found in all regions of the country, including Natural Farming Regions III, IV and V that receive relatively small amounts of rainfall in most years.

Irrigation is of particular importance for successful crop production in these three regions. Even in Regions I and II, which typically receive larger amounts of rainfall, supplementary irrigation is important because mid-season droughts are common.

The major irrigated crops in the country are wheat, cotton, sugar cane, tobacco, soybeans, fruit, vegetables, and maize. Supplementary irrigation is also used to extend the growing season of certain crops, such as tobacco and cotton. Crops grown under irrigation constitute almost half the total value of marketed production. Crop yields under irrigation are also higher than those grown under rain-fed conditions.

Investment in irrigation facilities has a long history in Zimbabwe. Before independence in 1980 the then government invested heavily in dam construction and irrigation infrastructure, although this mainly benefited large-scale commercial farmers.

Table 15: List of Capital Projects and Cost Estimates, USD million

Project	Cost	Storage capacity	Status
Muda-Nyatsime Dam	122.4	173 million m ³	Planning. Technical Feasibility Study completed
Glass Block Dam	99.8	126 million m ³	Planning. Technical Feasibility Study completed
Nyatana Dam	413.0	3.5 billion m ³	Planning
Mkwashine Dam	70.8	105 million m ³	Planning. Technical Feasibility Study completed
Kudu Dam	612.8	1.5 billion m ³	Planning. Technical Feasibility Study completed
Runde-Tende Dam	376.0	1 billion m ³	Planning. Technical Feasibility Study completed
Gwayi-Umgusa Dam	181.8	195 million m ³	Planning. Technical Feasibility Study completed
Silverstroom Dam	171.0	273 million m ³	Planning. Technical Feasibility Study completed
Lubongo Dam	127.5	TBA after feasibility study	Planning
Mirror Dam	53.5	22.9 million m ³	Planning. Technical Feasibility Study completed
Dnde Dam and Tunnel	123.5	2,29 million m ³	Planning. Technical Feasibility Study completed
Eastbourne Dam	41.0	18.2 million m ³	Planning. Technical Feasibility Study completed
Aberfoyle Dam	80.8	25 million m ³	Planning. Technical Feasibility Study completed
Ampongokwe	4.0	TBA after feasibility study	Planning
Chitse Dam	171.8	273 million m ³	Planning
Sub-total	2 649.7	7.2 billion m³	
Other projects requiring investment	4 589.0	34.9 billion m ³	Planning
Total	7 238.7	42.1 billion m³	

Source: Ministry of Environment, Water and Climate, 2018

From 1980 onwards, the government recognised the importance of extending the benefits of irrigation to the small-scale farming sector. Intensified efforts were made in the first two decades after independence to expand these services. A variety of arrangements have been used for the programme. Up-to-date estimates of the extent of irrigation were not available at the time this Report was prepared. According to the FAO (2005), at the end of the 1990s, the industry was organised along the following lines: (i) farmer-managed schemes accounted for 50% of the number of irrigation schemes in the country; (ii) government-managed schemes accounted for 32%; and (iii), jointly managed schemes accounted for the remaining 18%.

6.4.2. Proposed Action Plan for Irrigation

The MTP emphasises the importance of irrigation. The implication is that wherever possible, agriculture in the country will be irrigation-based. The Government has proposed USD 2.6 billion of

new investment in sole purpose dams for increased water storage capacity as well as some projects that include irrigation schemes in the decade ahead. Some of these projects also include further project development fees.

A number of technical studies of various aspects of water resources management are proposed as part of the Action Plan, all of which have important implications for the design and implementation of the proposed programme for irrigation.

6.5. WATER SUPPLY FOR URBAN AND RURAL AREAS

6.5.1. Increased Access to Improved Water

By 2000, 77% of the rural population had access to improved water supplies, compared with an average of 41% for Sub-Saharan Africa. As

Table 16 indicates, within the Southern Africa region only Botswana and Namibia had 100%

access to improved water in urban areas by 2000. And in the case of rural access to improved water, only Botswana, Lesotho and South Africa had higher levels of access in 2000. These dramatic improvements stemmed from strong government leadership in the sector with support from the international donor community, NGOs, and local stakeholders. During this period, rural water (and sanitation) programmes were funded by bilateral

aid programmes and NGOs under the coordination and direction of the National Action Committee (NAC) that had been created by the Government. Urban programmes were supported by the international donor community led by the World Bank, and were co-funded through the Public Sector Investment Programme (PSIP) of the Government.

Table 16: Drinking Water Access Indicators for Selected Countries, 2006 and 2015 (percentage of total population)

Country	2006			2015		
	Rural	Urban	Total	Rural	Urban	Total
Angola	23	34	27	23	33	28
Botswana	34	86	62	34	86	64
Madagascar	23	58	34	28	64	41
Malawi	58	42	56	70	43	65
South Africa	62	92	80	48	85	72
Zambia	5	72	21	6	6	23
Zimbabwe	58	58	60	55	61	57

Source: UNICEF/WHO, WASH Database, 2018

6.5.2. Collapse of Water Services and a Cholera Epidemic

Over the past decade, there has been a rapid decline in the quality of water services that were provided, along with a reduction in the number of people with access to improved water. There is little to virtually no new investment in service delivery for the sector. Moreover, with only minimal levels of spending on maintenance and repairs, the condition of the existing infrastructure has deteriorated noticeably.

In rural areas, the extent of the decline in service coverage is not known with any degree of accuracy. These various estimates do not give the complete picture about the deterioration. There has also been a significant decline in the quality of urban and rural services (poorer water quality, intermittent supplies, and longer walking distances). The full extent of the deterioration became clear in August 2008 with the onset of the nationwide cholera epidemic that resulted in more than 100,000 cases of cholera and about 4,300 deaths. The national outbreak spread to most

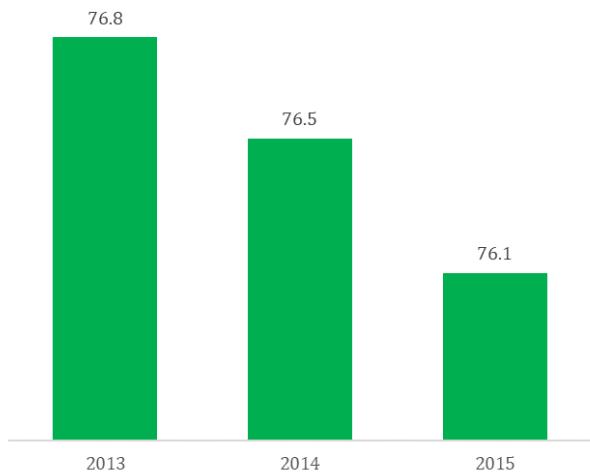
districts in the country and to neighbouring states. In 2018, another national cholera outbreak engulfed Zimbabwe with over 400 cases reported, mostly in the urban areas, a clear signifier of the lack of developmental infrastructure in the sector.

Estimates of the current levels of access to water vary according to the source and timing of the surveys undertaken. Figure 14 reports on estimates made by the UNICEF/WHO Joint Monitoring Programme (JMP). This shows a steady decline in the percentage of the population that has access to improved water from 76.8% in 2013 to 76.1% in 2015.

Rapid assessments of urban services undertaken in 2009 by the donor community give a clear picture of failure of waste water treatment plants, with effluent and raw sewerage entering the rivers and dams.

Lack of water flow led to frequent blockage of the sewerage systems. Water treatment plants were found to be dysfunctional and many distribution systems were found to be in need of repair.

Figure 14: Percentage of Population with Access to Improved Water, 2013 to 2015



Source: UNICEF/WHO, WASH Database, 2018

As service levels deteriorated so too did revenue collections, with unaccounted-for water at 40% to 50% of supply. In rural areas, lack of maintenance and government provision of spare parts meant that an increasingly large number of rural boreholes and wells —the cornerstone of the rural water supply network — stopped functioning.

What is clear at this stage is that without restoration and a strong recovery in the WSS sector, Zimbabweans will continue to face the risk of further cholera outbreaks with more deaths and illnesses, and negative impacts on livelihoods, industry, tourism, food production and agriculture, pollution of rivers and water courses.

6.5.3. An Action Plan for Improved Water Services

The proposed Action Plan for the water services sector has three key objectives: (i) to complete the rehabilitation of the urban and rural networks within the next four years; (ii) to expand access to improved water sources in urban and rural areas and meet the SDG targets by 2030, or sooner if the required funding is available; and (iii) to implement a range of institutional and commercial measures that strengthen implementation capacities within the sector and improve the

financial performance of the entities responsible for delivery of water services.

Building Urban and Rural Infrastructure for Water Supply. A two-pronged approach to rebuilding and expanding the urban and rural water supply network is proposed. A high priority is placed on expanding the on-going programme of support for rehabilitation of the existing urban and rural network. An amount of USD 582.6 million (in 2017 prices) is proposed for this part of the programme which would be implemented as a matter of priority. This programme would replace or rehabilitate existing water infrastructure, including for example, water treatment plants, distribution lines, and boreholes and standpipes in urban and rural areas.

Strengthening Capacities for Service Delivery. The proposed programme for water supply in urban and rural areas includes a range of measures aimed at strengthening the policy environment and building institutional capacities for service delivery. There is an increasingly important need to strengthen regulatory arrangements for the sector. There is a strong case for creation of an independent regulator for oversight of water resource management and provision of water and sanitation services. The activities associated with an enhanced regulatory capacity would include, for example, assessment of current pricing and cost recovery arrangements in urban and rural areas and establishment of tariff guidelines and performance benchmarks for service providers.

The latter would include the following:

- Service coverage and quality, including such things as quantities of water delivered on a per capita basis and responses to customer complaints;
- Financial performance which would include preparation of audited accounts for urban suppliers, standard financial ratios, cost recovery, and collection of accounts receivable; and

- Operational efficiency which would include standard measures such as the amount of non-revenue water used, staffing efficiency, and maintenance performance.

The ambitious programme required to achieve the MDG goals and ensure adequate capacities for acceptable levels of service provision by local authorities will require substantial capacity building. The programme would include the following: (i) improving capacities for investment planning; (ii) project identification, preparation, and management; (iii) developing capacities for sound use of public procurement procedures for award of construction, maintenance, and service contracts; and (iv) strengthening capacities for site supervision of construction and maintenance activities, including the use of private contractors for actual site supervision. With increased emphasis on decentralised provision of urban and rural services, there is also a need for a monitoring and evaluation system at the national level to provide information on a regular basis about progress towards achieving the MDG goals, mobilisation and allocation of funding for various programme components, adequacy of service provision, and so on.

For major urban centres, the Report proposes a transition to the use of independent water utilities for service provision under PPP-type arrangements. Initially, these utilities may be owned by the municipal authorities, but operated on a commercial arm's length basis with management of the utility contracted out to the private sector. At some point, these utilities could be fully privatised. The programme includes provision for funding transaction advisory services required for these activities.

There is also need for clarification of roles and responsibilities for rural water (and sanitation) service provision. A multiplicity of agencies currently share responsibility for these services, including NCU/DID, MLGRUD, MOHCW, ZINWA, and DDF. As noted earlier, this Report supports the

proposal made by the World Bank in 2009 to rebuild the role of the Rural Capital Development Fund (RCDF) as the central vehicle for transferring national government and donor funds to rural water (and sanitation) programmes. Within this framework it proposes that local authorities assume ownership of the rural WSS assets and are then responsible for their maintenance and upkeep. This vehicle has since become the ZimFund which was established in 2010 with financial backing from 7 donors. The fund has disbursed over USD140 million since its inception.

To support these various initiatives, a comprehensive programme of technical support and capacity building is proposed. The capacity building component amounts to USD 60 million (at 2017 constant prices). These include direct support for regulatory reform and capacity building for local government service providers. The proposed programme also includes support for developing a larger role for the private sector in service provision in the sector and for work on the details of a PPP framework for water supply and sanitation services. Once a suitable framework is in place, transaction advisory teams would be required for each PPP project entered into with a private investment partner. The arrangement may range from management contracts, to concession arrangement in which the municipalities retain ownership of assets, to full private ownership of utilities.

6.6. SANITATION SERVICES

6.6.1. Status of Sanitation Services

The development of urban and rural sanitation services also experienced two decades of impressive improvement in access and service delivery, followed by a decade of decline. By 2015, 95.6% of the urban population had access to improved sanitation. In rural areas, 4.8 million people had access to improved facilities, compared with 142,000 in 1980. One of the key

characteristics of the Zimbabwe sanitation service is the high proportion of sewerage coverage compared with most other sub-Saharan African countries. Sewerage services have been under-funded because of low water and sanitation tariffs, low rates of collection of accounts receivable, and weak operational performance.

6.6.2. Major Challenges in the Provision of Sanitation Services

Rehabilitation of the Existing Sanitation Infrastructure. As the earlier discussion of the challenges associated with the rehabilitation of water distribution infrastructure and services indicates, the cholera outbreak is currently being treated. The main challenge for sanitation services, as with water supply, is funding to rebuild the infrastructure and strengthen local government capacities for service delivery.

The required outlay for the sanitation sector is estimated at USD 504.63 million. The working assumption in this Report is that a substantial part of the urban and rural sanitation network requires rehabilitation and or replacement. This is also premised on a steady ramp up of extending sanitation services within the urban and rural population.

Reducing Dependence on Unimproved Pit Latrines. The MDG targets were to attain 89% water coverage and 72% sanitation coverage whereas the government fostered for a more robust target of 100% by 2015 in all subsectors, save for rural sanitation which was projected at 80% of the country by 2015.¹⁶ This did not come to fruition. Table 17 shows that for urban areas access to improved sanitation remained fairly constant between 2008 and 2015, increasing only marginally from 95.3% to 95.6%. However, use of unimproved sanitation increased and at the same time there was a decline in open defecation. For

the rural population there was a decline in improved sanitation, with an increase in the use of unimproved sanitation and a marginal decline in open defecation.

Further progress in reducing reliance on open defecation is not simply a matter of more facilities in rural areas. Experience from other countries indicates that sustained increase in the use of improved facilities must also be accompanied by hygiene education programmes. The World Bank (2002) reports that a study in southern India showed that a large public investment in latrines without accompanying hygiene education led to only 37% of men using facilities despite 100% coverage. Because of its importance in Zimbabwe, the Action Plan includes provision for a continuing hygiene education programme for both urban and rural communities.

Strengthening Institutional Capacities and Coordination. There is a dire need for institutional arrangements for the provision of sanitation services in urban and rural areas to be strengthened. The humanitarian assistance swiftly responded to the cholera outbreak, spearheaded by the UN was able to bring under control further spread of the disease, with close collaboration with the Ministry of Health and Child Care and other NGOs. Arrangements provided the means for a rapid response to the epidemic and consultative efforts assured the international community that possible restrictions were not a necessity.

Close collaborative efforts between government bodies and NGOs are pivotal so as to not detract from capacity building and to ensure curbing future incidences. With 70% of the population residing in the rural areas, equal attention to rural water and sanitation efforts in these areas is as important as developing the sector in the urban areas.

¹⁶ Water Supply and Sanitation in Zimbabwe Turning Finance into Services for 2015 and Beyond

Table 17: Changes in the Type of Sanitation Used in Zimbabwe (% of population access)

Type of sanitation	2008		2015	
	Urban	Rural	Urban	Rural
Improved sanitation	95.3	49.7	95.6	46.4
Unimproved sanitation	2.6	9.7	4.3	14.5
Open defecation	2.1	40.7	0.1	39.1

Source: UNICEF/WHO, WASH Database, 2018

In addition to capacity building, public accountability and credibility of public entities responsible for the provision of sanitation is important for the sector to thrive in both the rural and urban environment, in the medium to long term.

Choice of Targets for Sanitation Services. The targets set in the MDGs before the preceding report in 2011 were heavily reliant on substantial additional capital investments, but the economic uncertainty hindered the national goals for sanitation and water scheduled for 2015. The National Water policy outlines that solely self-funded initiatives into the investment of infrastructure as a panacea for improving the sector, causing regressions as the targets are in all likelihood in need of additional financial support from external resources. The government currently has an aim of embarking on an arrears clearance process with the World Bank and the African Development Bank from whom they owe over USD 2 billion to clear the debt within a year,¹⁷ according to Finance Minister Mthuli Ncube. In the event that they can achieve this bold target, a substantial amount of donor support for improved sanitation services in urban and rural areas would very likely be forthcoming, but until there is clarity on the arrears clearance process, the prospects for substantial amounts for donor support for rehabilitation and expansion are uncertain.

An Action Plan for Improved Sanitation. The proposed Action Plan for sanitation has the following four key objectives:

- Complete the rehabilitation of urban and rural network of sanitation facilities within the next four years;
- Expand access to improved sanitation facilities in both urban and rural areas, with particular attention being given to reducing use of open defecation in rural areas;
- Implement institutional reforms that will strengthen coordination and implementation of sanitation programmes and expand financial support for the programme; and
- Expand the ongoing hygiene education programmes for urban and rural communities.

Improving Infrastructure for Sanitation Services. As with the water supply programme, a high priority is attached to expanding the on-going programme of support for rehabilitation of the existing urban and rural network of sanitation facilities. A programme to expand access to improved sanitation facilities would be launched. The objective would be to have 100% of urban dwellers and 80% of rural inhabitants with access to improved sanitation facilities by 2030. The cost of this expanded access to sanitation facilities is estimated at about USD 504.6 million at 2017 constant prices. Setting the rural service coverage at 80% in 2030 reflects the remoteness of parts of the country and likely difficulties of access. Beyond 2030, the goal should be to provide the remaining 2 million people with access to improved sanitation facilities.

¹⁷ <https://www.iol.co.za/news/africa/zimbabwe-aims-to-clear-world-bank-arrears-in-12-months-17581563>

Strengthening Capacities for Delivery of Sanitation Services. As noted earlier, there are 31 urban centres in Zimbabwe ranging from the major city of Harare to the three small Local Boards. Full implementation of the proposed programme will provide an additional 1.6 million urban dwellers with access to improved sanitation – an increase of 35% over existing levels. A concerted effort will be required in the next five years to build the services capacities of these 30 urban jurisdictions. At the present time, weaknesses in capacities to delivery adequate services are widespread and include lack of financial resources, manpower, technical skills, and equipment. The Institute of Water and Sanitation is running courses for water treatment plant operators and, depending on their skill level, these range from short courses for operators lacking any formal qualifications to two-year diploma courses for qualified staff. With the large increase in the numbers of people with access to improved sanitation, a substantial expansion in these training programmes will be required for personnel responsible for operation and maintenance of urban facilities. When town councils resumed control of sanitation from ZINWA, much technical support was no longer available. The role of ZINWA could be expanded to provide technical support to local governments through the UCAZ and engineering support department. For smaller local councils without well-resourced engineering departments, ZINWA or UCAZ could be contracted to provide engineering support and be remunerated for such support.

Delivery of sanitation to the rural communities is more challenging. The technology is simple, but the introduction (or reintroduction) of sanitation into these communities in a sustainable way is more complex. To construct a Blair VIP requires a variety of materials. The cost of each latrine will depend on distances from the supply centre plus the base unit cost of each item. The financial capacity of rural communities to collect and have delivered the items required to construct a latrine is usually

limited. Cash transfer systems could be used to stimulate interest in the local economy. Such approaches (in partnership with the donor community) use direct payment to individuals within the community to organise and implement the repair or replacement of latrines under the oversight of an NGO. The NGO will pay cash for the functioning latrine. This would be an extension of the “cash transfer” payments already being undertaken in parts of the rural community.

Expand Ongoing Hygiene Education Programmes. The Environmental Health Service of the MOHCW is responsible for all Government-based hygiene education programmes in rural communities. All urban councils have similar departments. Historically, there were only two grades of Environmental Health workers responsible for a range of public health activities ranging from education, enforcement of standards of compliance with the Public Health Act, and testing of water and food. At the District level an Environmental Health Officer (EHO) is responsible for coordinating activities of all the Environmental Health Technicians (EHT) and one EHT is posted to each of the Wards. This requires a staff comprising around 65 EHOs and 2,500 EHTs. There are currently 359 EHTs in the Wards (that is, only 14% of posts are filled in the Wards).

Owing to the chronic shortage of skilled operatives and the urgent need to reinforce the fragile government rural environmental health systems with staff, ECHO financing of €1 million is being used to train 510 individuals as Environmental Health Assistants (EHA). Once they complete the basic first year of college training they will be sent to Wards under supervision to get hands-on experience. After one year’s experience, the EHAs will return to college for a second and third year of training and if successful in the exams, will leave college with a National Diploma in Environmental Health and, subject to opportunity, be promoted to EHT. Further training is possible for EHTs to convert the qualification to Higher National Diploma allowing promotion to the EHO grade. The

MOHCW estimated it costs USD 5,000 per student to train to an EHT over three years, with additional financial resources also required for field test kits and transport in the form of a motorbike. MOHCW advised that a combined field test kit for testing both water quality and food quality was desirable as stored food can cause complications similar to those of water borne diseases.

6.7. EXPENDITURE PROGRAMS FOR WATER AND SANITATION

6.7.1. Development Expenditure Programmes

The proposed programme for water resources and water and sanitation services amounts to about USD 3.7 billion for the decade ahead (Table 18). About half of the proposed programme is for urgently needed investments aimed at improving the supply and delivery of water for agricultural

and industrial use and for use in urban and rural water and sanitation services. The continued rapid growth in urban population and expansion of access to improved water and sanitation services by 2030 is the main driver behind the proposed expenditure of USD 1.09 billion on water and sanitation services. A total of USD 60 million is proposed for capacity building, technical studies, and hygiene education programmes as well.

A rapid build-up in expenditures is proposed for the next five years. The build-up is driven by full implementation of the rehabilitation and replacement programme in water supply and sanitation of some USD30 million over the next five years, and by outlays of USD1.53 billion for new connections. In the second half of the decade, the proposed programme of spending on new water resource storage and transport arrangements is under full implementation.

Table 18: Development Expenditure for Water Resources, Water Supply and Sanitation, USD million (2017 constant prices), 2018 to 2030

Indicators	2018	2019	2020	2021	2022	2023	2024	2025	2026to 2030	Total
Capacity building and support										
Water resources management	-	0.00	0.00	0.01	0.02	0.01	0.01	-	-	0.05
Water supply and sanitation	-	0.00	0.00	0.00	0.00	0.00	0.00	-	-	0.01
Sub-total	-	0.00	0.00	0.01	0.02	0.01	0.01	-	-	0.06
Dams										
Rehabilitation of existing dams	-	0.02	0.02	0.02	0.02	-	-	-	-	0.1
New dams	-	240.9	240.9	240.9	240.9	240.9	240.9	240.9	963.5	2 649.7
Sub-total	-	240.9	963.5	2 649.8						
Water transfer										
Rehabilitation of existing assets	-	0.01	0.01	0.01	0.01	-	-	-	-	0.03
New pipeline and canals	-	0.22	0.22	0.22	0.22	0.22	0.22	0.22	-	1.5
Sub-total	-	0.23	0.23	0.23	0.23	0.22	0.22	0.22	-	1.6
Urban WSS programme										
Water	21.1	21.7	22.2	22.8	23.3	23.9	24.5	25.1	135.4	320.0

Sanitation	21.1	21.7	22.2	22.8	23.3	23.9	24.5	25.1	135.4	320.0
Sub-total	42.3	43.3	44.4	45.5	46.7	47.8	49.0	50.2	270.7	640.0
Rural WSS programme										
Water	15.8	16.4	17.1	17.7	18.5	19.2	20.0	20.8	117.2	262.6
Sanitation	11.1	11.5	12.0	12.5	13.0	13.5	14.0	14.6	82.4	184.6
Sub-total	26.8	27.9	29.0	30.2	31.4	32.7	34.0	35.4	199.6	447.2
Total	69.1	312.4	314.6	316.9	319.2	321.6	324.2	326.8	1 433.9	3 738.7

Source: Author's Estimate

6.7.2. Requirements for Routine Maintenance

The deterioration in the water and sanitation infrastructure over the past decade stemmed from the lack of maintenance of these assets. A central objective of the proposed Action Plan for the decade ahead is to ensure that routine maintenance is undertaken on a regular basis and that funding arrangements for these activities are adequate. For the purposes of this Report, it is assumed that routine maintenance costing estimates undertaken by the AfDB in 2011 remain the anchor point for the costing and time programme. For the purposes of this Report, the costing has been brought into 2017 prices.

6.7.3. Sources of Funding for the Programme

There are three distinct, but closely related, sets of issues related to arrangements for funding the proposed programme for water resources management and water and sanitation services: (i) funding arrangements for capital and recurrent expenditures for water resources management; (ii) arrangements for covering the recurrent costs of water and sanitation service provision by municipalities; and (iii) funding sources for the WSS capital expenditure programme.

Financing the Capital Expenditure Programme for Water Supply and Sanitation: In 2010, a group of donors, in a bid to support priority recovery activities of the Government of

Zimbabwe, decided to create the Zimbabwe Multi-Donor Trust Fund (the ZimFund), as a successor to the Zimbabwe Programmatic Multi-Donor Trust Fund (Zim-MDTF). The African Development Bank (AfDB) was designated to manage the ZimFund. Since 2010, the bulk of the funding for water supply and sanitation services has come from the donor community and NGOs with the ZimFund having invested about USD144 million to date.

South Africa Government financed the emergency rehabilitation works for the water and sanitation infrastructure in Harare. The German Government through GTZ provided funding for the rapid review assessment of eight of the largest urban areas in the country, including Harare, and provided USD 6 million to finance the emergency rehabilitation of the WSS systems in urban areas of Gweru, Kadoma, and Kariba. The Australian Government contributed USD 10.2 million towards rapid assessments, chemical provision, and rehabilitation works for various towns through UNICEF and NGOs and provided USD 4.15 million for further investment in the rehabilitation of the Bulawayo water and sanitation systems and the expansion of the UNICEF programme to include Masvingo. The World Bank committed USD 3 million to finance works for Beit bridge Town and is supporting the Analytical Multi-Donor Trust fund (A-MDTF) which is providing funding for WSS-related technical assistance to Harare City (USD 300,000) and to the Ministry of Water Resources. The AWF financed €2 million for the rehabilitation of water supply and wastewater

systems within Chitungwiza Municipality. The AfDB provided two consecutive emergency relief interventions valued at USD 2 million to help contain the cholera outbreak of 2009 and strengthen the GoZ cholera response plan in 2010.

Donor assistance was also channelled through the Water Sanitation and Hygiene Cluster (WASH) with UNICEF with OXFAM GB as co-leaders. The members of the cluster include UNDP, WFP, WHO, Governmental organisations, and international and local NGOs. The WASH partners are currently concentrating on rehabilitating water points, distributing non-food items, and providing safe water to communities, including drilling of 200 boreholes in urban areas. Training in hygiene promotion has been extensively carried out to help prevent the return of another cholera outbreak.

The proposed water supply and sanitation programme calls for total expenditures of USD 1.09 billion in the decade ahead, including USD 640 million for the urban programme and about USD 447 million for the rural programme. The Action Plan calls for a major expansion in the level of support by the donor community in the decade ahead. As Annex Table 10 indicates, the proposal is for mobilisation of USD 596 million from within the donor community for the urban and rural WSS programmes during 2019 and 2030. This would cover 55% of the cost of the proposed programme.

The programme proposes the establishment of one or more water utilities in the major urban centers of the country under PPP-type arrangements with participation by private investors. A notional amount of USD 62.7 million of private investment is proposed. It is assumed that such utilities would become operational by 2015. As noted above, a substantial amount of work will be needed in the next few years to create the required operating environment for these investments, the details of which are discussed in Chapter 5.

ZINWA would contribute a total of USD 14.5 million for rehabilitation in those towns and

communities for which it is currently responsible for service provision. However, as noted above, this Report proposes that these responsibilities be transferred to other entities, leaving ZINWA to concentrate on the management and supply of water resources in the country. To the extent that ZINWA funds rural components of the programme, responsibility for these activities would be assumed by the RCDF as discussed below.

The municipalities would contribute a modest portion of financing for rehabilitation and expansion in those urban centers not covered by the proposed private utilities. Implementation of these proposals would leave an unfunded amount of about USD 361 million which would be covered primarily by the national budget. For the rural component of the programme, the RCDF would become the mechanism for prioritizing the use of these funds and for their disbursement.

Transition from ZimFund. The ZimFund programme, administered by the African Development Bank will be closing following the conclusion of the current Phase II projects 2017. Current commitments to ZimFund stand at about USD 145 million from which USD 140.86 million has been disbursed by donors into the ZimFund account as an end August 2015. The Fund has played a key role in rehabilitating targeted social infrastructure in the water and sanitation and energy sectors to ensure the country delivers basic services, builds the necessary resilience against shocks and overcomes fragility in the face of serious economic and social challenges that it currently faces. ZimFund was established in 2010 as an emergency response to a severe humanitarian crisis that manifested itself in the deadly cholera epidemic that engulfed the country in 2008/9 and killed more than 4,000 from more than 100,000 affected people.

As ZimFund draws to a close, a new fund is currently being established called the Zimbabwe Fund for Transition (ZimFort). This will enable a transition of the donor community from

humanitarian support towards development support. The necessity for a new development-oriented fund stems from the need for partners to be responsive and remain relevant to the country's changing circumstances. Zimbabwe is gradually transitioning from an emergency/humanitarian mode to a development mode, hence the need to adapt to the evolving situation. The country's adoption of its five-year development strategy, the ZimAsset, signals its readiness and commitment to pursue medium to long term development planning. ZimFund, with its current focus on emergency humanitarian assistance, may not adequately respond to the country's growth and recovery needs.

6.7.4. An Increased Role for the Private Sector

The proposed build-up in the programme for water resources management and urban and rural water and sanitation services offer substantial opportunities for an expanded role for the domestic private sector. About USD 110 million will be required to undertake rehabilitation and maintenance, of which a portion will require civil works for construction of dams, pipelines, and water and sanitation service facilities that includes pumping stations, water reservoirs, sewerage plants, borehole drilling, supply and installation of latrines, and so on. The position taken in this Report is that the bulk of these activities should be undertaken by private contractors. For large civil works projects partnerships between domestic and international contractors would be attractive. Many of the contracts will not be large enough to attract major international contractors and would provide considerable opportunities for local business. In the case of borehole drilling, for example, there is little justification for retaining the continued use of government entities to provide this service. The objective should be to contract out these activities for urban and rural programmes. With the use of competitive tendering processes, a significant domestic

borehole drilling and maintenance industry can be developed in the decade ahead. Larger firms would then have the capability to bid on contracts in other SSA countries as well.

Similar opportunities arise with respect to routine maintenance of these assets. Outlays on maintenance and rehabilitation of infrastructure can be contracted out to the private sector under competitive bidding arrangements. As the discussion in Chapter 3 indicates, the size of individual contracts can be varied to meet the capacities of local firms. Over time, the size of contracts can be increased and, in this way, the capacities of the local industry can grow. Initially, such maintenance contracts may be for a period of 12 months. The duration of these contracts could be extended to two years and then, say, three years. These types of measures have been used with great success in Asia to build the domestic capacities of companies that provide maintenance services.

A third area where there will be substantial opportunities for local business is in billing and collection activities. In urban areas, for example, full implementation of the programme would mean that there would be about 11.6 million people (over a million households), translating into a large number of accounts to be serviced by 2020. Billing and collection on this scale offers considerable opportunities for efficiency gains and cost reductions for municipalities or water utilities by contracting out services to qualified private companies rather than building small units within every municipality.

6.8. MANAGEMENT OF RISKS AND UNCERTAINTIES

A number of risks and uncertainties are associated with the proposed programme for water resource management and provision of water and sanitation services. For the purposes of this Report, these risks and uncertainties can be grouped into three

broad categories. First is the impact of high climatic variability in Zimbabwe on the availability of water and economic performance of the country, and the implementation of measures required to mitigate this risk. Second is the availability of funding for the rehabilitation of existing infrastructure and construction of new facilities, the total cost of which is estimated at about USD 4 billion for the decade ahead. Third are the prospects for building the institutional and human capacities required for effective implementation of the proposed programme.

6.8.1. Hydrological and Climatic Variability

As indicated elsewhere in this Chapter, high climatic variability is one of the major challenges facing Zimbabwe in its management of water resources. The country depends heavily on surface water to meet its various requirements; but rainfall is variable and unpredictable. Only 37% of the country receives adequate rainfall for agriculture. For the rest of the country the rainfall pattern is insufficient, erratic, and unreliable. Many of the rivers in the country are not perennial, and even major rivers may not flow in dry years. The evidence from the past 30 years indicates that hydrological variability experienced by Zimbabwe causes significant economic shocks. There is a strong correlation between rainfall variability and fluctuations in GDP growth. Improved water resources management is therefore critical to the stability and security required for sustained strong economic growth.

Irrigation is indispensable for successful agriculture and significant quantities of stored water are required to meet agricultural and non-agricultural requirements. Currently, the supply of water is not sufficient to meet demand. To meet these existing shortfalls and the expected growth in aggregate demand for water resources, and to reduce the vulnerability of the economy to water shocks, the country will require an increase of some 6 million m³ in the stored water capacity of dams by 2020. A substantial investment in

pipelines and other means of water transport will also be required. The total investment in water storage and transport for the decade ahead is estimated at USD 1.54 billion (at 2017 constant prices).

6.8.2. Mobilisation of Funding for the Proposed Programme

This build-up in maintenance outlays will be essential to ensure that the asset deterioration of the past decade does not recur. The starting point for this part of the programme must be a careful assessment of pricing policy for water and sanitation services and arrangements for cost recovery. The objective would be to ensure that the operations of municipalities and ZINWA generate modest financial surpluses each year that can then contribute to the funding of the capital expenditure programme.

At the present time, average tariffs for water and sanitation services are significantly lower than average production costs in almost all cities and towns. Because of the low tariffs and low collection rates, service providers are not able to cover their costs of basic operations and maintenance, let alone fund renewal and replacement of facilities and system expansion. The price of raw water provided by ZINWA also needs to be reviewed. The proposed Action Plan therefore calls for increases in the pricing of services, including provision of raw water and water and sanitation services for households and business. The programme provides for evaluations of the cost of service provision and the design of appropriate pricing policies. A related issue is the ability of municipalities and ZINWA to ensure timely payments by clients. Anecdotal evidence suggests that many service providers have large levels of accounts receivable. Lack of progress on this front will also undermine the ability of service providers to fund their share of capital expenditures and to meet the costs of routine maintenance.

In the event that price adjustments are not made, and there is lack of progress in keeping accounts receivable at acceptable levels, it is unlikely that the proposed level of donor support will be forthcoming. Proposed capital expenditure programmes would have to be cut. The implication is that increases in access to services will grow more slowly, or even stagnate at current levels. Moreover, there is a serious risk that assets that are rehabilitated will deteriorate through lack of maintenance. This combination of events may also deter private investors because of concerns that the government counterparts in PPP arrangements may not be able to meet their contract obligations.

6.8.3. Building Institutional Capacities

Successful implementation of the proposed USD 3.7 billion programme for water resource management and water and sanitation services for the decade ahead will require a sustained commitment to building institutional and human capacities within the sector at the national and sub-national level of government. It will also require development of private sector capacities for service provision. The existing capacity constraints will need to be addressed in the near- and medium-term to ensure successful implementation of the ambitious programme for the decade ahead. Slow progress in addressing these issues will result in smaller programmes for the supply of water to agriculture, industry and households, lower levels of water and sanitation service provision. It will also increase the risk poor overall economic performance because of climatic variability and associated water shocks.

The proposed Action Plan sets out a wide-ranging and comprehensive programme of capacity building in the decade ahead and proposes outlays of about USD 60 million to fund these activities. A high priority should be attached to the detailed

design of these capacity building programmes, to the mobilisation of the funding required for them, and for their early implementation. It is proposed that the donor community provide the necessary technical support required for this programme and the bulk of the funding.

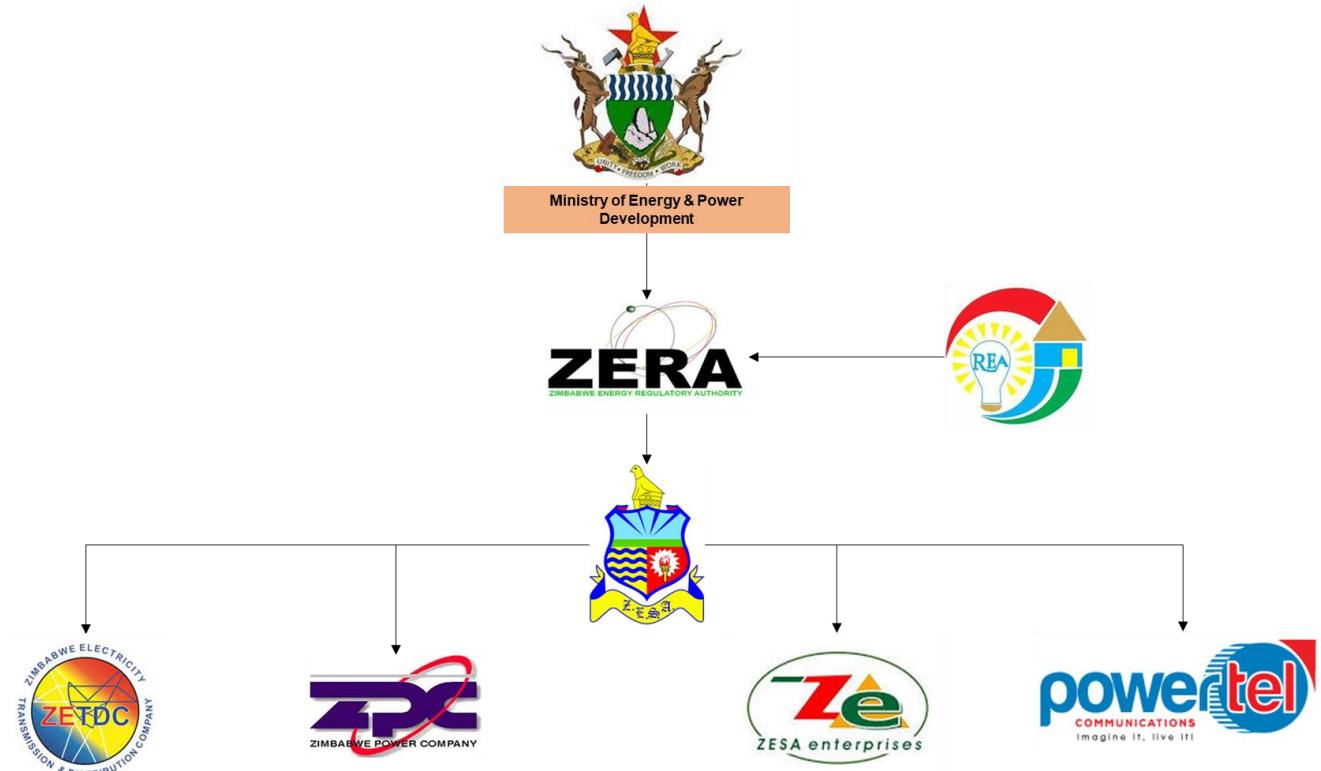
7. REHABILITATION AND RECOVERY IN THE POWER SECTOR

7.1. THE SETTING

The electric power supply in Zimbabwe is sourced from local generation and imports. The domestic generation comes from Kariba Hydro Power Company, Hwange Power Station, Munyati Power Station, Harare Power Station and Bulawayo Power Station. Supplementary power is imported from Democratic Republic of Congo (DRC), Mozambique, South Africa and Zambia. The domestic generation has been limited owing to lack of regular maintenance, however, the extension project at Kariba South Hydro Power Plant has assisted in increasing the local generation capacity. There has not been a supply deficit since 2015 and before that since 2012. Imports spiked in 2015 and 2016 primarily due to domestic generation shortages.

Electricity is fundamental to Zimbabwe's economic and social development. The shortage of power supply affects people's quality of life and business and industrial development, contributing to economic decline. While the supply deficit has improved, the country is still quite dependent on imports from its neighbours to cover for the energy shortfalls. An efficient and viable electricity sector will assist economic stability and growth, given its forward and backward linkages with the rest of the economy. A reliable electricity energy source has a direct bearing on national income, therefore ensuring uninterrupted production is essential for sustained economic growth.

Figure 15: Institutional Arrangements for the Power Sub-Sector in Zimbabwe



Source: Author's illustration

7.1.1. Institutional Arrangements for the Energy Sector

The energy sector in Zimbabwe is supervised by the Ministry of Energy and Power Development (Figure 15). Two significant reforms were undertaken in the early 2000s which included the enactment of the 2002 Electricity Act, and Petroleum Act of 2006. The Energy Regulatory Authority Act, Act No.3 of 2011 (“Energy Act”) brought about the restructuring and unbundling of ZESA (formerly Zimbabwe Electricity Regulatory Commission or ZERC from a vertically integrated utility into separate successor companies under ZESA Holdings. The electricity reforms also included the establishment of a Rural Electrification Fund (REF).

Zimbabwe Energy Regulatory Authority

The Energy Act was enacted as an amendment to the 2002 Electricity Act and the Petroleum Act of 2006. The new Energy Act establishes ZERA as the regulator of the energy sector. ZERA reports to the Minister of Energy and Power Development. The mandate of ZERA includes regulating the entire energy sector in a fair, transparent, efficient and cost-effective manner for the benefit of the consumers and energy suppliers. ZERA also regulates the procurement, production, transportation, transmission, distribution, importation and exportation of energy derived from any energy source.

Zimbabwe Electricity Supply Authority Holdings (Private) Limited

Zimbabwe Power Company: ZPC is a subsidiary of ZESA Holdings and was incorporated in 1996. ZPC is solely mandated to supply electricity to the nation and operates the five power stations in Zimbabwe. Their mandate also extends to construction, owning and maintaining power generation stations. ZPC runs four thermal power plants (Hwange, Bulawayo, Munyati and Harare) and one hydropower plant at Kariba South.

(MEPD). The Ministry supervises the activities of the various specialised agencies and parastatals with responsibilities in the energy sector (see

Zimbabwe Electricity Transmission and Distribution Company: In January 2010, ZETCO and ZEDC were merged into a single company – the ZETDC. ZETDC buys power from ZPC and is responsible for transmitting and distributing electric power and for its sale, including meter reading, billing, cash collection, and credit control of the retail business. It is also responsible for regional trade in power.

Rural Electrification Fund

The Rural Electrification Fund is a statutory body established in terms of the Rural Electrification Fund Act of 2001. While there is a Rural Electrification Agency (REA) in Zimbabwe, the REA is neither recognised within the confines of the Rural Electrification Fund Act nor the Energy Act. The REA was established to be an implementing arm of the REF. The REA is responsible for electricity grid network infrastructure in rural areas¹⁸ to specific Rural Public Institutions (RPI), such as schools, clinics, government offices, and community-initiated projects. The REA hands over the infrastructure to ZETDC to connect the RPI and households to the grid. Thereafter, the ZETDC is responsible for all operation and maintenance of the grid network infrastructure. RPI do not pay for the establishment of the infrastructure. Cost recovery is purely through the Fund. The RPI pay ZESA (specifically ZETDC) for the electricity used at a uniform rate.

The REA is also working on small-scale renewable energy projects such as solar mini-grid, mini-hydro and renewable biomass. There are plans to enact a

¹⁸ The definition of ‘rural’ in the context of the REMP includes all areas that are: (i) not urban in accordance with the Urban Councils Act; (ii) covered by the provisions of the Rural District Councils Act; and (iii) covered by the provisions of the REF Act – Rural Energy Master Plan (2015)

Rural Energy Fund Act that will allow for a broader mandate and incorporate the REA under the purview of the Act.

7.1.2. Policy Framework for the Power Sector

Zimbabwe is a signatory to the SADC Protocol on Energy and one of 12 operating members of the Southern African Power Pool (SAPP). In line with regional trends, the MEPD drafted a National Energy Policy and enacted the Energy Act to synchronise the objectives of the Petroleum Act of 2006 and the Electricity Act of 2002.

The 2012 National Energy Policy (NEP) Paper seeks to promote optimal supply and utilisation of energy for socioeconomic development in a safe, sustainable, and environmentally friendly manner. The policy paper addresses the policy issues related to the current unsustainable operation of the electricity supply industry as well as allowance for private sector participation in the sector.

7.1.3. Pricing Policy for Electricity Services

Pricing policy for electricity services is an important issue in Zimbabwe. The regulatory authority for the sector, ZERA, is responsible for the design of the pricing policy and, after consultation with the MEPD, sets prices and tariffs. Licensed operators may put in an application for tariff review to ZERA for review. The current standard tariff schedule went into effect as of 1 January 2013. The tariff schedule has not changed since as can be seen in Table 19. In 2015, ZETDC applied for a tariff review of 49% from 9.86 US cents per kWh to 14.69 US cents per kWh. Stakeholder consultations were held and it was determined to keep the tariff at 9.86 US cents per kWh.

The tariff structure distinguishes between domestic users who pay a fixed charge and a variable increasing-block charge based on the level of consumption. The first 50kWh per month for all

resident users is subsidised at 2 US cent per kWh. Low demand non-residential users pay a mix of a fixed rate and flat variable rates. High demand non-residential users pay a combination of fixed and capacity charges and a variable seasonal price; the latter includes a standard price and prices for on-peak and off-peak usage. The value of off-peak and standard charges, at 4 US cents and 7 US cents per kWh respectively, are very low in comparison with the average tariff of 9.86 US cents per kWh. Existing pricing policy calls for setting tariffs on a cost-plus basis.

The under-pricing of electricity in Zimbabwe has been a long-standing issue. In theory, tariffs should be revised annually to cover operating costs and some capital expenditures; however, this is not the case. In 2018, the economic cost of service provision is estimated at 12.85 US cents per kWh. The average tariff in the SADC region is in the range of 3-17 US cents per kWh. Provision of low-cost power to Zimbabweans at a heavily subsidised rates has serious consequences for the financial position of the utilities, given that government does not compensate the utilities for these subsidised prices.

7.2. ENERGY RESOURCES AND EXISTING POWER GENERATION

7.2.1. Energy Resources

Fuel-wood remains the primary energy source with 68% of the population depending on wood for fuel. While the sustainable yield of wood can meet Zimbabwe's total fuel needs, continued dependency will put strain on the resource. Zimbabwe is endowed with a wide variety of conventional energy sources for electricity generation, of which the main ones are coal, hydro, and coal-bed methane. Other available renewable energy sources include hydroelectricity, solar radiation, and wind. Hydropower potential on the Zambezi River, is to be shared equally between Zimbabwe and Zambia.

Zimbabwe imports all refined oil products and the bulk of liquid fuels are used in the transport sector. Most imported petroleum products are piped over 280 km from Beira port in Mozambique to the receiving terminal at Mutare in Zimbabwe. 21 km of the pipeline lies in Zimbabwe and is owned by

the GoZ. The oil products are further transported over an extension pipeline 260 km long to the main consumption centre in Harare. The import capacity of the pipe is about 120 million litres per month. The country's main storage depot is located in Bulawayo.

Table 19: Average Prices (US cents per kWh), 2010 – 2018

	2010	2011	2012	2013	2014	2015	2016	2017	2018
Industrial	5.58	7.12	8.41	8.84	8.45	8.97	9.40	8.49	8.04
Domestic	7.37	8.35	10.36	10.40	10.12	9.80	9.98	9.96	9.94
Overall	6.74	8.09	9.82	9.99	9.71	9.91	10.04	9.66	9.61
Approved Average Tariff	7.53	9.83	9.83	9.86	9.86	9.86	9.86	9.86	9.86

Source: ZETDC, 2018

The petroleum sector was deregulated in 2003 and the Government assumed the regulatory function of the petroleum industry. The deregulation also led to the state-owned National Oil Company of Zimbabwe (NOZIM) unbundling into Petrotrade and the National Oil Infrastructure Company (NOIC). In 2006, the Petroleum Act establishing a Petroleum Regulatory Authority. ZERA soon took over the mandates of this Authority with the enactment of the Energy Act. Prior to that, the market was dominated by six players in the downstream activities. The players were the NOZIM, Total, Shell, BP, Mobil and Caltex. Currently, the market is dominated by four key players, namely: Total, Puma, Engen and Petrotrade.

7.2.2. Domestic and Regional Power Generation Capacities

Electricity supplied by ZESA is generated through one hydroelectric station and four thermal power stations with a combined installed capacity of 2,295 MW (Table 21). The power stations include: (1) Kariba South Hydro-Power Station, (2) Hwange Thermal Power Station, (3) Harare Thermal Power Station, (4) Munyati Thermal Station, and (5) Bulawayo Thermal Power Station.

The thermal power stations are all coal fired. Both the hydropower and thermal power stations are very old, some commissioned more than 60 years ago. All five power stations have generated electricity below their capacity over the last decade. The generation capacity of the Kariba South Hydro Power Plant has been increased with the extension of the plant by two units of 150 MW each. The first unit being commissioned in December 2017 and the second in March 2018. As can be seen from Table 21, the average availability of the power stations during the seven years is 77% with a range between 63% and 79%.

ZESA continues to supply domestically generated electricity to NamPower, Namibia. In 2007, ZESA borrowed USD 40 million from NamPower (Namibian Power Utility) to maintain Stage II units (Units 5 and 6) with an agreement that ZESA would service the loan by supplying NamPower with a firm capacity of 150 MW for five years. This supply of power to NamPower continues to put an additional burden on generation shortage for domestic supply.

Zimbabwe is an operating member of the Southern Africa Power Pool (SAPP). Because of its geographic location, Zimbabwe's power network infrastructure is also vital to the movement or

“wheeling” of power to and from neighbouring countries within the pool. Table 20 provides a summary of some SAPP member’s electricity generation statistics.

Independent Power Producers (IPPs). There are currently 12 IPPs registered to generate power in Zimbabwe, namely: Nyamingura Renewable Energy, Green fuel, Riverside Solar PV, Pungwe A, Pungwe B, Pungwe C, Hauna, Kupinga, Duru, Hippo Valley Estates, Triangle Estates and Border Timbers.

IPPs installed capacity of electricity is equivalent to 2% of total electricity generation capacity in Zimbabwe. IPPs sell electricity generated to a licenced transmission and distribution entity, i.e. ZETDC. Zimbabwe has not opened transmission activities to the private sector.

Unsolicited bids are permitted in the energy sector. Bidders must submit a list of requirements needed to process an operation license. The key requirements include the generation capacity of the facility that is to be constructed; details about the off-taker; land use permit; grid impact assessment (feasibility of connecting to the grid) and environmental impact assessment prospectus. Companies with foreign shareholding must get an investment licence from the Zimbabwe Investment Authority. Once all documents are received by ZERA, a detailed due diligence is undertaken and thereafter a public consultation is allowed. Licence fees are based on generation capacity. A licence to generate 10MW or less is USD 10,000. An application fee is charged at USD 2,800 regardless of the project size. Once a license is issued, the operator must adhere to certain conditions upon which non-compliance may result in license cancellation. The operator is required to submit quarterly reports to ZERA.

7.2.3. Status of Current Supply Capacities

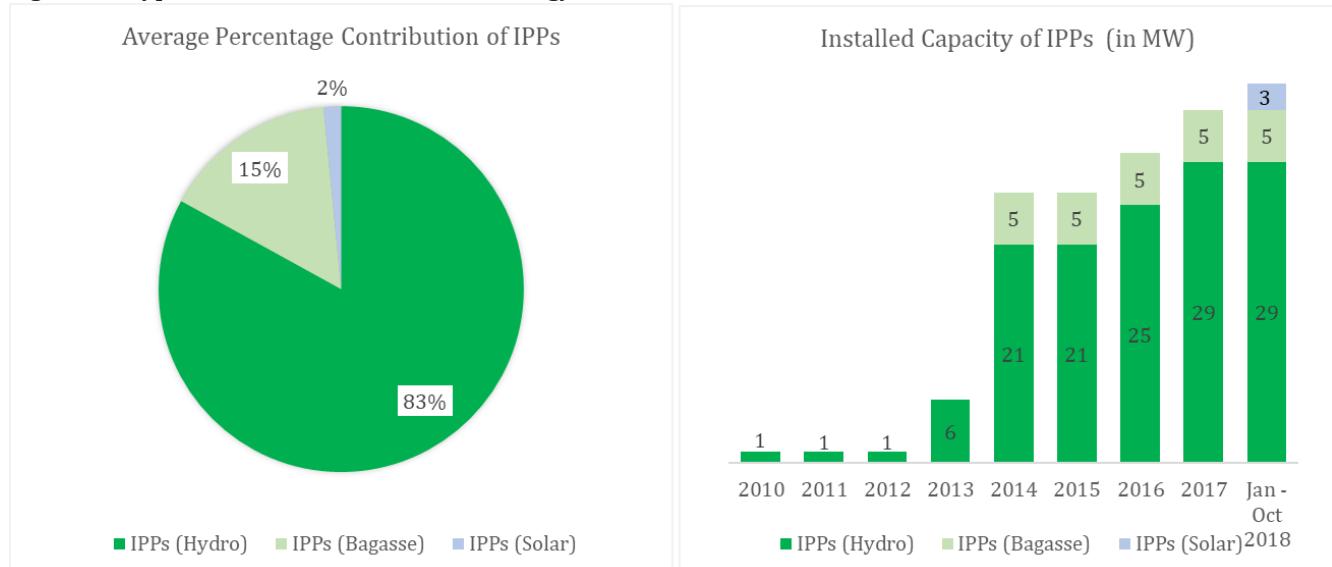
Domestic power generation in Zimbabwe is mainly from Hwange Thermal Power Plant and Kariba South Hydropower Plant. The operation of three small thermal power plants continues to operate at a third of their combined installed capacity. This is due to their high generation cost, and lack of maintenance. Hwange power station, still operates below its installed capacity due to lack of maintenance and old age. Output from Kariba South has improved with the station receiving upgrades and an extension of an extra 300 MW.

7.3. ENERGY DEMAND AND ELECTRIFICATION

7.3.1. Current Trends in Electricity Consumption

Rural Electrification: As of 2018, REA has electrified more than 8,000 rural institutions, including schools, health centres, government offices, businesses, and irrigation schemes in the rural areas covering the eight regions in the country. There are a number of estimates for the current level of electrification in Zimbabwe. The ICDS, 2017 estimates that 28% and 86% of the rural and urban population respectively has access to electricity. Figure 17 illustrates the REAs goal towards attaining 100% electrification rates. By 2030, electrification of rural public institutions is expected to reach 96%.

Figure 16: Types of IPPs in the Zimbabwean Energy Market



Source: ZETDC, 2018

Table 20: SADC Electricity Statistics, 2017

	MW		GWh	
	Installed Capacity	Maximum Demand	Net Imports	Net Exports
Angola	2 210	1 599	-	-
Botswana	892	610	1 207	-
DRC	2 442	1 359	778	50
Lesotho	74	140	175	3
Malawi	366	323	-	-
Mozambique	3 074	1 780	1 004	233
Namibia	508	629	1 337	36
South Africa	46 963	34 122	7 418	15 093
Swaziland	61	232	1 046	-
Tanzania	1 367	1 051	102	-
Zambia	2 878	2 005	2 104	768
Zimbabwe	2 229	1 615	2 569	351

Source: SAPP Annual Report, 2017

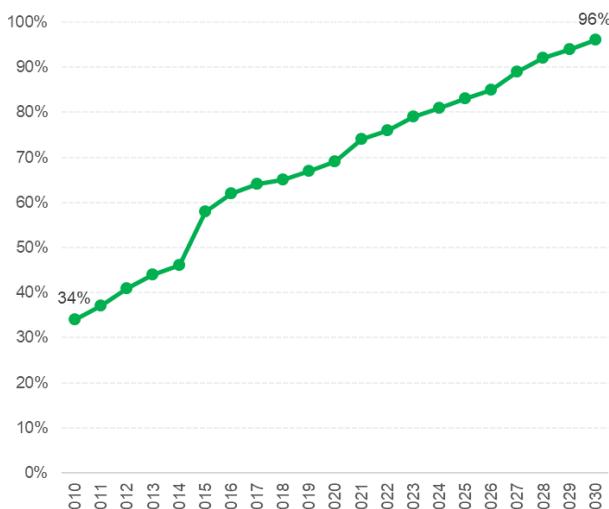
Table 21: Zimbabwe Domestic Power Generation (in MW)

Category	2010	2011	2012	2013	2014	2015	2016	2017	Jan - Oct 2018
Installed Capacity									
Hwange	920	920	920	920	920	920	920	920	920
Kariba South	750	750	750	750	750	750	750	750	1050
3 Small Thermals	325	325	325	325	325	325	325	325	325
Dema	0	0	0	0	0	0	200	200	100
IPPs (Hydro)	1	1	1	6	21	21	25	29	29
IPPs (Bagasse)	0	0	0	0	5	5	5	5	5
IPPs (Solar)	0	0	0	0	0	0	0	0	3
Total	1 996	1 996	1 996	2 001	2 021	2 021	2 225	2 229	2 432
Dependable Capacity									
Hwange	710	710	710	710	710	710	710	710	715
Kariba South	750	750	750	750	750	750	750	750	1050
Small Thermals	110	110	110	110	110	110	110	80	80

Dema	0	0	0	0	0	0	100	100	100
IPPs (Hydro)	1.1	1.1	1.1	6.05	21.05	21.05	24.8	29	29
IPPs (Bagasse)	0	0	0	0	5	5	5	5	5
IPPs (Solar)	0	0	0	0	0	0	0	0	2.5
Total	1 571	1 571	1 571	1 576	1 596	1 596	1 700	1 674	1 982
Available Capacity									
Hwange	710	710	710	710	710	710	710	545	715
Kariba South	750	750	750	750	750	750	750	750	1050
Small Thermals	110	110	110	110	110	110	110	80	80
Dema	0	0	0	0	0	0	100	0	0
IPPs (Hydro)	1.1	1.1	1.1	6.05	21.05	21.05	24.8	29	29
IPPs (Bagasse)	0	0	0	0	5	5	5	5	5
IPPs (Solar)	0	0	0	0	0	0	0	0	2.5
Total	1 571	1 571	1 571	1 576	1 596	1 596	1 700	1 409	1 882
As % of installed capacity	79%	79%	79%	79%	79%	79%	76%	63%	77%
Peak Demand	1 469	1 616	1 546	1 671	1 589	1 512	1 486	1 615	1 724
Supply Deficit (<i>at time of Peak Demand</i>)	560	220	115	0	0	515	0	0	0

Source: ZETDC, 2018

Figure 17: Historical and Projected Electrification Rates of Rural Public Institutions (Schools and Clinics)

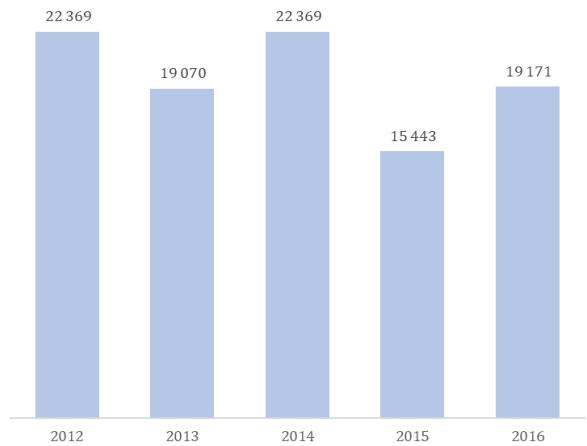


Source: Ministry of Power and Development, 2018

Final connection of all customers is done by ZETDC. Figure 18 presents past trends in customer connections. Total connections to the ZETDC network for the period 2012 - 2016 amounted to 98,442 which is on average 19,684 connections per annum. The number of new connections dipped in 2013 but picked up again in 2014. However, the 2014 figure remained below the annual target of 30,000 new connections. This was mainly due to challenges encountered in the procurement of meters and other connection materials. For a similar reason, the number of new

connections drop in 2015 by 69% to 15,443. The annual target for 2015 was 50,000.

Figure 18: Total New Connections to the ZETDC Network, 2012 - 2016



Source: ZETDC Annual Reports, 2014 - 2016

The energy sector has linkages with multiple sectors and is important for their operations. Trends in electricity consumption for 2014 to 2016 are presented in Table 22. Mining and Industrial sector clients demanded the largest amount of electricity in the country for the years 2014 to 2016.

Table 22: ZETDC Energy Sales by Customer Category

	2014	2015	2016
Agriculture	6%	6%	6%
Domestic Pre-payment	18%	23%	23%
Domestic Metered	9%	5%	5%
Mining and Industrial	44%	41%	40%
Commercial	20%	22%	20%
Other	3%	3%	6%

Source: ZETDC Annual Reports, 2014 – 2016

7.3.2. Rural Electrification Programme

The ongoing Rural Electrification Programme (REP) was launched in 2001 following the creation of the REA. The Rural Electrification Fund Act provides for the funding of the REP through levies, loans, fiscal allocations, grants and donations. At present, the Rural Electrification programmes are primarily funded by 6% levy, levied on all

electricity consumers as well as fiscal allocations. The programme had two complementing components:

Expanded Rural Electrification Programme: seeks to extend the electricity grid into rural areas where all RPI would qualify for 100% capital subsidy. All other rural electrification programmes qualify for 60% capital subsidy.

Electricity End-Use Infrastructure Development: this component endeavoured to empower rural communities socio-economically by promoting productive use of electricity in irrigation and cottage industries. The component did not perform as expected resulting in it being halted in 2013.

Table 23: Sources of Electricity Supply (GWh)

Category	2010	2011	2012	2013	2014	2015	2016	2017	Jan - Oct 2018
Domestic Supply	8 511	9 016	8 966	9 329	9 812	9 269	7 055	7 398	7 402
Imported Supply									
South Africa	-	7	3	-	4	15	1 561	1 994	1 026
Mozambique	1 370	1 368	1 042	1 696	994	606	721	553	398
DRC	-	81	-	-	-	-	-	-	-
Zambia	237	148	69	86	57	-	-	-	88
Other Sources	94	-	-	0	1	14	24	23	14
Total Imports	1 701	1 604	1 114	1 782	1 057	635	2 306	2 569	1 527
Total Supply	10 212	10 620	10 079	11 111	10 868	9 904	9 360	9 967	8 930
Exports and other	988	979	701	1 156	1 231	961	371	351	360
Net power supply	9 224	9 640	9 378	9 955	9 637	8 943	8 989	9 616	8 569
System losses	439	387	376	343	348	251	352	361	336
Available supply	8 786	9 254	9 002	9 611	9 289	8 692	8 637	9 255	8 233
Memo items:									
Losses as % of total supply	4%	4%	4%	3%	3%	3%	4%	4%	4%
Imports as % of total supply	17%	15%	11%	16%	10%	6%	25%	26%	17%

Source: ZETDC, 2018

7.4. MAJOR CHALLENGES IN THE POWER SECTOR

The electricity sub-sector suffers from unsustainable operations owing to continued financial constraints as a result of non-cost reflective tariffs, collection inefficiencies, lack of investor confidence, and perceived risk. The loss of experienced staff in the last decade also contributed to the sub-standard performance of electricity supply industry.

The unsustainable performance of the sub-sector is reflected in the low investment in infrastructure and sub-standard poor delivery of service. A substantially improved performance of the power sector is of fundamental importance for sustained economic recovery in Zimbabwe.

7.4.1. Rehabilitation of the Power Sector Infrastructure

The foregoing trends in electricity consumption underscore the extent to which lack of maintenance and rehabilitation in the past decade has eroded to capacity of the power utilities to meet the demand for power. The rehabilitation of the electric power network is widely seen as a high priority for the immediate future. Improved technical and financial performance by the power utilities is critical for sustained economic recovery. The power utilities face numerous challenges, including security of supply, system reliability, and operational and financial constraints that stem from under-pricing of power services to all categories of consumers.

7.4.2. Balance between New Domestic Supply and Imports

The domestic energy supply is augmented by imports. Since 2010, Zimbabwe has imported on average 16% of its power supply from neighbouring countries (

Table 23). In 2015, decreased water flows at Kariba Dam resulted in less than optimal performance of the Kariba South Station. As Table 21 indicates, a supply deficit of 515 MW was recorded in that same year. Imports increased significantly in 2016 and 2017 mainly due to the drop in the domestically supplied electricity. Imports accounted for about 26% of total supply in 2016 and 2017.

There is a push towards increased regional integration and power purchase agreements across SAPP members that will drive efficiencies. However, increased dependency on imports to cover electricity shortfalls has placed financial strain on ZETDC. The availability of imports is constrained by existing arrears in import payments by ZETDC to suppliers. The continued existence of the arrears has put ZETDC in a weak position to negotiate for future contracts, given that other more profitable and arrears free utilities are competing for the same power. The net effect has been that ZETDC imports what it can afford.

Zimbabwe does not have a policy governing the energy mix in the country. The country is currently in the process of developing the Renewable Energy Policy that will lay out the way forward regarding the use of greener energy sources.

Going forward, it will be of importance for the Government to prioritise the diversification of its energy sources away from dependencies on hydropower, which is highly dependent on favourable rains and coal which is receiving less private sector financing due to commitments to clean energy initiatives (**Box 1**).

7.4.3. Improve the Performance of the Power Utilities

Regardless of the decisions about what is an acceptable degree of dependence on imported electricity supplies, an essential requirement for the immediate future is to restore the two power utilities, ZPC and ZETDC, to financial health. In the

case of ZPC, the issue is to address the current financial problems and through financial and perhaps technical restructuring, and prepare the company for a possible partnership with a strategic investor interested in investment. In 2016, ZPC faced challenges surrounding the shortage of foreign currency in the economy. This impacted on their operations as some equipment manufacturers are not locally based. All equipment therefore is paid in foreign currency.

A key challenge for ZETDC in the near term will be to substantially improve its commercial

performance. As at March 2016, ZETDC owed ZPC USD 668 million. As of June 2018, ZETDC is owed over USD 1 billion by its customers. Local authorities and domestic households owe more than 50% of the debt. This is affecting ZPC's operations and liquidity position with the company struggling to settle its obligations and debts owed to its suppliers.

Box 1: Summary of Multilateral Banks Coal Policies

The move towards greener energy sources has led to many donors and financiers changing their policies on financing of coal-fired power plant projects. Below is an overview of some key policy changes.

African Development Bank (AfDB): The AfDB 2012 energy sector policy states that the Bank will only support coal investments when such finance is determined to have a strong development impact and is also environmentally responsible, among other conditions.

Asian Development Bank (ADB): The 2009 energy policy of the ADB states that the Bank will not finance coal mine development except for captive use by thermal power plants.

Asian Infrastructure Investment Bank (AIIB): The Bank's Energy Sector Strategy released in 2017 does not state any policy with respect to coal investments. The Strategy does state however, that the Bank will cooperate with other MDBs and bilateral agencies on initiatives addressing pollution.

European Bank for Reconstruction and Development (EBRD): The 2013 energy sector strategy of the EBRD states that the Bank will not finance investment in coal except in rare and exceptional circumstances where there are no feasible alternative energy sources.

New Development Bank: There is no clear policy with respect to coal investments, while they do not rule out funding coal projects, it is expected it will be rare.

World Bank: In 2013, the World Bank announced that it would no longer fund greenfield coal projects except under exceptional circumstances. This would include situations where there is a lack of feasible alternatives to coal and an absence of alternative financing for coal power.

Source: IEA Clean Coal Centre, 2017; New Development Bank, 2018; World Bank, 2013; AfDB Energy Policy, 2012, ADB Energy Policy, 2009

Early action to improve the recovery of the receivables would allow ZPC to generate sufficient funds to undertake regular maintenance on the generating plants and hence improve reliability of supply and enable gradual clearance of liabilities. The first phase of the prepayment-metering

project was completed in 2016 with 582,995 clients joining the prepayment platform. USD 43 million was collected through the prepayment platform as at 31 December 2016. Phase II of the project focuses on replacing the remaining post-paid meters and servicing of new connections.

7.4.4. Reduce Under-pricing of Power

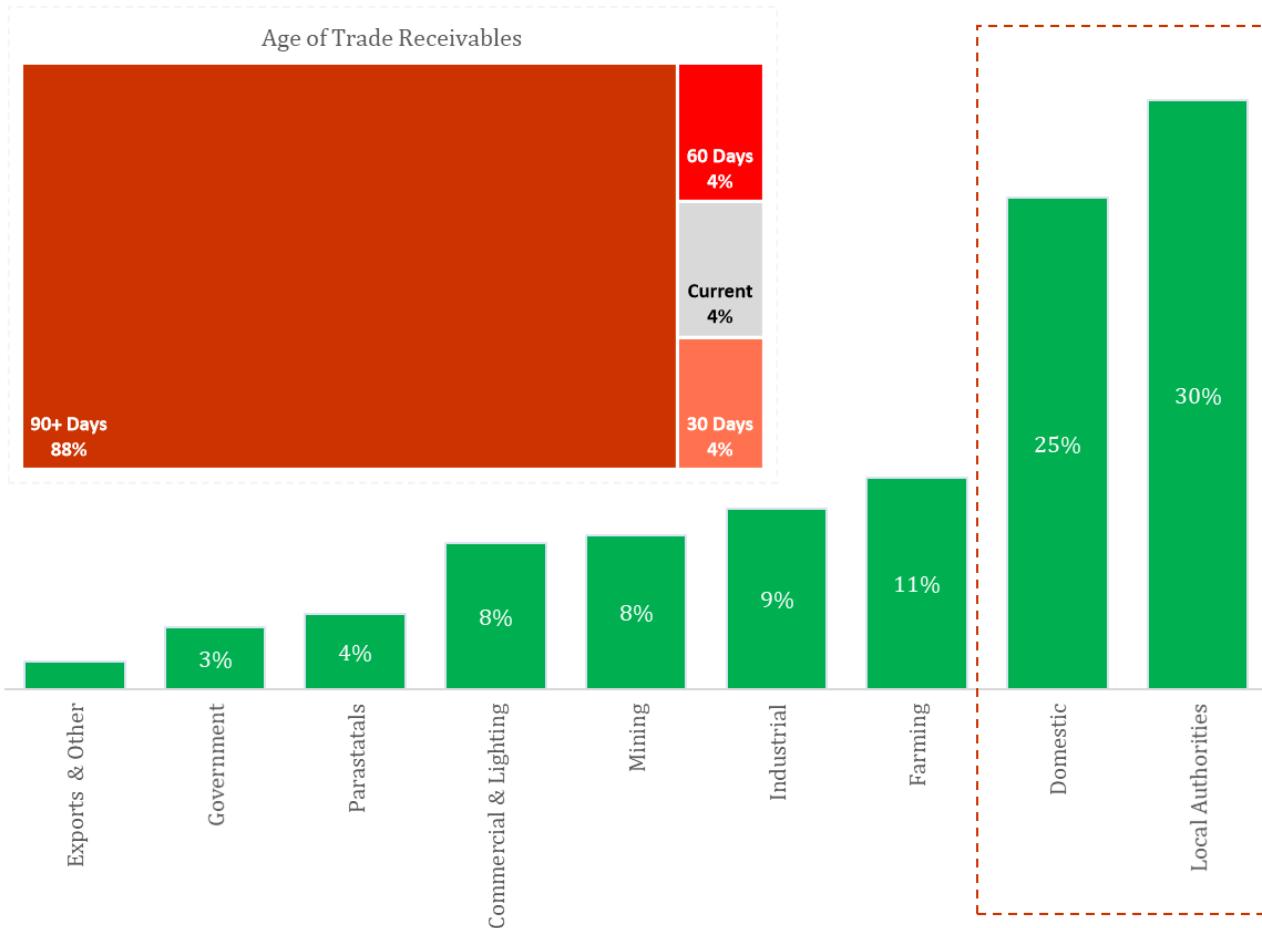
The introduction of cost reflective tariffs will be required to put ZPC and ZETDC on sound financial grounds to become acceptable partners in PPP arrangements. If the financial position of ZETDC is to be improved, adjustments in power tariffs will be essential. The required adjustments will need to cover the entire pricing structure for various types of customers. In the course of reviewing the tariff structure, consideration will have to be given to provision of services for low income households at subsidised rates. The SADC Council of Ministers has given directives for member states to gradually migrate to cost reflective tariffs on the basis of the agreed regional framework in order to attract private sector investment to the region. Zimbabwe has not revised its tariff structure since 2013.

7.5. AN ACTION PLAN FOR THE POWER SECTOR

7.5.1. Rehabilitation and Expansion of Generation Capacity

The five power stations have reached and surpassed their design life of 25 years. Additionally, infrequent and inadequate maintenance on the units affects the stations abilities to generate electricity at their capacities. To address the need for an increase in domestic generation, in 2017, the ZPC drafted a Turnaround Strategies Report.

Figure 19: Trade Receivables Ageing Analysis as at 30 June 2018



Source: ZETDC – Managing Director's Brief – 2nd Quarter 2018

They formulated a project implementation and funding strategy to aid in the successful deliverance of their pipeline projects. ZPC aims to complete a number of projects spanning solar, hydro, coal, coal bed methane, gas and diesel.

ZPC proposed to group projects into 3 clusters, namely:

Committed Projects - These are projects where a substantial portion of the funding has been secured, or funding agreements are now in place. The activities in these projects may be already in execution, (Kariba South Expansion Project has already been commissioned), therefore these need maximum support and need to be given the topmost priority in closing the funding gaps and in ensuring full implementation.

Candidate Projects - These are generally projects with EPC contracts in place, and where some activities are in progress to enable them to be offered to the funding market for lines of credit, ECA and commercial funding considerations.

Prospective Projects - These are projects where there are no existing Engineering, Procurement and Construction (EPC) contracts and are therefore naturally in a position to be deferred until the socio-economic business environment has improved.

7.5.2. Rehabilitation and Expansion of the Transmission and Distribution Grid

ZETDC is responsible for the development, operation, and maintenance of the transmission and distribution network in Zimbabwe. ZETDC has encountered a number of challenges over the past seven years. A key challenge includes foreign currency shortages, which negatively affect the company's ability to procure strategic spares, prepayment meters, transformers and execute of projects. The company has also suffered from cash flow constraints affecting ZETDCs efforts to expand and refurbish the network. This, in turn, resulted in

a high number and long duration of faults, which negatively affected revenue.

Table 24: ZPC Project Prioritisation and Implementation Matrix

Priority	Project	Basis
Committed Projects:	Kariba South Extension (300MW)	This project has been commissioned and is operational. The project brought the Kariba Hydropower Station's installed capacity to 1050 MW.
	Deka Pipeline	Key to the existing Hwange Power Station and the Hwange Expansion project and drawdowns have already commenced on a USD 28.6 million facility.
	Hwange Expansion Project (600MW base load)	Loan agreement already in place, nearing financial closure and project key to adding significant base load to the grid
	Hwange Plant Life Extension (up to 920MW output restoration)	Considered to be a crucial stay-in-business project for ZPC.
	Bulawayo Repowering (90MW)	A USD 87 million line of credit has already been secured and tendering is in progress.
Candidate Projects:	Batoka Project	Has high level of stakeholder support, large capacity and low tariff (between 3.6 and 4.7 US cents per kWh). Commissioning is scheduled for 2024.
	Harare II Power Repowering (60MW)	An EPC Contract is already in place. Afrexim Bank is considering extending a corporate loan.
	Munyati Repowering (100MW)	No contract signed yet. Consider application for a Line of Credit.
	Mutare Peaking Plant Project (120MW)	Key to providing peaking power. An EPC contract is in place. Afrexim Bank is considering extending

		a corporate loan.
Gairezi HydroPower		An EPC contract is in place. Fundraising in progress.
Gwanda Solar Project (100MW)		Indicative tariff is in excess of 15 US cents per kWh. Candidate for renegotiation with the EPC contractor to reduce EPC cost effecting a tariff reduction.
Munyati Solar (100MW)		Candidate for renegotiation as the Gwanda Solar Project.
Prospective Projects:	Insukamini Solar Project (100MW)	Candidate for renegotiation as the Gwanda Solar Project.
	COG Project	Project's main proponent is Hwange Colliery Company Limited (HCCL).
	Coal Bed Methane Project (300MW)	CBM resources not yet proven.

Source: ZPC Turnaround Strategies Report, 2017

Table 26 summarises the transmission and distribution losses over the past eight years. There

have also been cases of transformer vandalism. Measures in the form of anti-vandalism campaigns were taken to address this challenge. Prioritisation of infrastructure rehabilitation, refurbishment and equipment maintenance was meant to reduce network faults. Average arrival time at faults have been recorded to be well below the target. In the second quarter of 2018, the average arrival time was 373 minutes against a target of 270 minutes.

Zimbabwe lies at the epicentre of the SAPP transmission grid, with power from the north to the south through the ZETDC network; hence the need to expand and reinforce the transmission grid to ensure system stability and security of supplies. The ZETDC transmission system provides a wheeling corridor between Zimbabwe and its neighbouring countries.

Table 25: Project to Connect New Power Plants

Project	Expected Completion Date
Connection of Hwange Expansion (600MW)	2020
Connection of Batoka Hydro Plant (1200MW)	2023

Source: ZETDC Annual Report, 2016

Table 26: Distribution and Transmission Losses, 2010 - 2018Q1

Losses	2018 Q2	2016	2015	2014	2013	2012	2011	2010
Transmission Losses (%)	4.06	3.3	2.8	3.8	4.1	4.4	4.0	4.8
Distribution Losses (%)	13.0	15.6	14.6	12.5	12.6			

Source: ZETDC Annual Reports, 2014 – 2016; ZETDC – Managing Director’s Brief – 2nd Quarter 2018

* No information was available for 2017.

As of the second quarter of 2018, 221.8 GWh was wheeled to neighbouring countries. The projects in Table 25 are required to strengthen the grid to meet both internal requirements and enhanced regional trading through increased wheeling capacity.

There is a significant shortage of distribution materials to restore power, improve reliability of supplies, and meet new customer connections due to the challenges listed earlier. Moreover, a number of existing customers are without supply

owing to vandalised distribution materials. ZEDTC will therefore need to procure the necessary distribution materials to extend and strengthen the networks to remove the capacity constraints on the distribution networks.

7.5.3. Commercial Performance of Power Utilities

The commercial performance of ZETDC and ZPC must be improved in the near term if there is to be

an early launch of the proposed rehabilitation programme for the power sector.

Demand Side Management is critical to ensuring end-users are more energy efficient. ZETDC has implemented demand side management (DSM) initiatives in the past seven years with a view to reducing energy consumption and improving the Company's operational performance. The Company is facing serious revenue collection challenges as the majority of customers are failing to settle their bills on time, as can be seen in Figure 19. Almost 90% of the debt owed to ZETDC is older than 90 days. Furthermore, sales are decreasing emanating from DSM initiatives.

The bulk of the funding requirements for rehabilitation may initially have to come from the power utilities with some support from the national fiscus and private sector financing. Consideration should be given to the launch of the following three-pronged programme in 2011 to strengthen the commercial performance of these two utilities:

- Improve collections from ZETDC customers and reduce accounts receivables to less than 60 days, continued implementation of the pre-paid meter programme, upgrade of the existing billing system, and enforcement of the disconnection policy for seriously delinquent accounts.
- Replace the existing tariff structure with one that moves the pricing of power towards full cost recovery, while at the same time preserving price subsidies for low income households. If the average tariff were raised from the current level of 9.86 US cents per kWh to the cost-reflective tariff 12.85 US cents per kWh would aid in improving revenue generation for ZETDC.
- Use the increased revenues of ZETDC to increase spending on the most urgently needed rehabilitation requirements for the transmission and distribution grid, and

reduce its accounts payable (to ZPC) to 30 days. Zimbabwe Power Company (ZPC) received a total USD 162 million from ZETDC as of mid-June 2018. ZETDC arrears to ZPC amounted to USD 710 million by end of the second quarter of 2018.

7.5.4. Institutional Capacity Building Programmes

It has been recognised that the energy institutions require capacity building in order to effectively discharge their responsibilities. Table 27 illustrates the training and development programmes afforded to ZETDC staff. As at mid-2018, none of the staff had undertaken training in performance management, Integrated Results-Based Management (IRBM) and project management.

Table 27: Staff Training and Development as at 30 June 2018

Staff Development	Year to Date
Computer Skills/SAPP Training/ICS	4194
First Aid/Safety Related Training	630
Soft Skills Training for Middle Managers	106
Technical Skills Upgrade	93
Management Development Programme	86
National Social Security Authority – Safety Training	84
Defensive Driving	81
Switching Authorisation	53
Supervisory Management	47
Labour Relations	47
Revenue Protection	39
Customer Care and Induction	36
Human Resources Management	20
Customer Supplied Meter Training	6
Finance Workshop	2
Performance Management Training	0
Integrated Results-Based Management (IRBM) Training	0
Culture Change	0
Commercial Exception Training	0
Secretarial	0
Pre - retirement planning workshop	0
Project Management Training	0
Total No. of Staff Trained	5,524

Source: ZETDC Annual Reports, 2014 – 2016; ZETDC – Managing Director's Brief – 2nd Quarter 2018

Capacity Building. The capacity building programme involves billing and commercial enhancement, training and analytical technical studies. Improvements are needed in meter

reading, billing, revenue collection, cash management, and customer service to improve performance and revenue generation. Increased capacity building and training will provide technical assistance to the Energy Regulator and support ZETDC, ZPC, and REA in their planning and operational activities. There has been substantial loss of technical and financial skills in the sector in the past decade. Enhancing staff effectiveness is a top priority for ensuring effective deployment of the investment projects.

Analytical Technical Studies. There should be training programmes in place to increase ZESAs ability to undertake a number of analytical and technical studies. These studies will provide guidance on the strategies to be followed in the development of the sector and the generation of bankable project documents. The main components of the programme are as follows:

- Need assessment for immediate rehabilitation of generation, transmission and distribution networks;
- Preparation of strategic framework and development programme for the power sector for the short to medium term;
- Feasibility studies for generation and transmission projects;
- Feasibility studies for expansion of the rural electrification programme, including increased use of solar power and other renewable energy sources;
- Institutional and tariff studies.

Transaction advisory services. International experience with PPPs points to the importance of providing adequate funding for expert advisors to help a government or related entity in the development and tendering process associated with the design and implementation of a PPP-type arrangement. These services can be expensive,

however, consultative contracts to facilitate workshops where the private sector engages in capacity building to the contracting authority can be arranged.

7.5.5. Indicative Implementation Plan

Table 28 sets out an indicative set of timelines for implementation of the proposed power sector Action Plan. The programme calls for an early start on addressing the commercial performance of the power utilities. Capacity of the utilities should be a continuous effort over the time period as should routine maintenance to the infrastructure.

7.6. FINANCING FOR THE CAPITAL EXPENDITURE PROGRAMME

7.6.1. Financing for the Capital Expenditure Programme

The total financing required for rehabilitation, extension and upgrade of the generation, distribution and transmission network is estimated to cost about USD 1.2 billion.

The key elements of the funding arrangements are as follows:

- USD 42 million for required distribution projects;
- USD 468 million for the required transmission projects;
- USD 629 million required to connect new projects (Batoka Hydro and Hwange Expansion).

The rehabilitation and expansion of the transmission and distribution grid would be funded primarily by ZETDC. A successful early launch of the power programme depends heavily on the early implementation of measures to improve the commercial performance of the power utilities, as discussed earlier in this chapter.

Table 28: Indicative Power Sector Implementation Plan, 2019 - 2030

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Rehabilitation and Expansion of Generation Capacity												
ZPC Committed projects												
ZPC Candidate projects												
ZPC Prospective projects												
Rehabilitation and Expansion of the Transmission and Distribution Grid												
Minimise transmission and distribution losses												
Increase wheeling capacity												
Routine maintenance												
Implementation of new projects												
Commercial Performance of Power Utilities												
Demand side management												
Billing and commercial management												
Institutional Capacity Building Programmes												
Capacity building												
Technical studies												

Source: Author's Estimates

7.7. MANAGING RISKS AND UNCERTAINTIES

There are a number of major risks and uncertainties associated with the proposed Action Plan for the electric power sector. As with the other infrastructure sectors reviewed in this Report, the risks and uncertainties of greatest interest at this stage relate to the design, funding and implementation of the proposed programme. Of particular importance are the prospects for early action that will improve the commercial viability of the two power utilities.

8. ROAD TRANSPORT SERVICES AND INFRASTRUCTURE

8.1. OVERVIEW OF THE ROAD TRANSPORT SECTOR

8.1.1. The Setting

The 2017 draft Roads Conditions and Inventory Report¹⁹ reports that the Zimbabwean road network is made up of 91,665 km of which more than 4,000 km are unclassified. A further 3,000 km is still being investigated. The road network is classified into four main groups as defined in the 2002 Roads Act:

Regional trunk roads refer to roads that link Zimbabwe to countries within southern Africa. They form about 3% of the total road network.

Primary roads make up 8% of the road network; they link regional roads to urban centres or urban centres to each other or as otherwise classified within the Roads Act.

Secondary roads connect regional, primary, tertiary and urban roads, industrial and mining centres, tourist attractions and minor border posts to each other or as otherwise classified within the Roads Act. They make up 15% of the Zimbabwe road network.

Tertiary road provides access to schools, health centres, dip tanks and other service facilities within a rural district council or connects and provides access to secondary, primary and regional roads within and outside a rural district council area.

8.1.2. Road Transport Industry

Public Transport: A key issue for the transport sector is the extent to which roads support efficient, reliable, and safe transport services for

various kinds of freight, as well as for urban and rural populations. After the urban public transport industry was deregulated in the 1990s, a significant increase in the number of privately-operated public transport vehicles (mostly minibuses) entered the market. The deregulation caused a number of adverse effects, including rapid growth in the number of small public transport vehicles. There is a need for a sustainable urban public transport system. Zimbabwe is yet to implement a Public Transport Policy. A comprehensive policy framework is required, along with a transparent partnership between central and local governments, the private sector and civil society.

The road freight industry. The structural adjustment policies and programmes introduced in Zimbabwe and neighbouring countries in the 1990s had a large impact on the patterns of both trade and transport in the region. Within the Southern Africa region, the north-south corridor that runs through Zimbabwe serves as an intra-regional trade route between Zambia (and further southeast, the Democratic Republic of Congo and western Malawi) and its neighbours, Botswana, Zimbabwe, and South Africa, and as a link to the port of Durban for overseas imports and exports. Beitbridge and Chirundu, are the two main crossings – Beitbridge from south to north and Chirundu into Zambia. However, the Beitbridge and Chirundu border post have been plagued with delays in vehicular and human movement across the border. This has resulted in traffic diversion through Botswana to countries further north. In 2018, government approved plans to seek financing to upgrade the Beitbridge border post.

8.1.3. Legal and Policy Framework

Zimbabwe is a signatory of the Southern African Development Community (SADC) Protocol on Transport, Communications, and Meteorology

¹⁹ The information in the Survey is pending finalisation of data checking and correction by the respective teams.

(1996) that was adopted in 1996. It sets out significant changes to road sector management and financing in the region. The agreement commits the SADC states to the reform of road sector institutions, in particular the separation of responsibilities for funding, implementation, and the commercialisation of road sector activities. A few years after signing the SADC Protocol on Transport, Communication, and Meteorology, the Zimbabwe National Road Administration (ZINARA) and the Road Fund (RF) were established under the Road Act of 2001 which was later amended in 2002 to establish the national road administration ZINARA and the Roads Fund.

The Roads Act provides for road authorities and their functions, and for the planning, development, construction, and maintenance of the road network. This includes the regulation of standards, classification of roads, safety and environmental considerations, control of entry upon roads, and the acquisition of land and materials for road works. The Act covers all regional, primary, secondary, tertiary and urban roads in Zimbabwe, except those in the national parks and wildlife estates. There has not been much progress on further institutional reforms in the roads sub-sector. The policy objectives for the road sector, as set forth in this document, are as follows:

- Provision and maintenance of high-quality road infrastructure.
- Enhance accessibility to centres of economic, social and recreational importance in rural and urban areas.
- Promote interstate trade and smooth flow of transit traffic from neighbouring states and seaports.
- Promote safety on new and existing road network.
- Improve the management of the road infrastructure.

- Promote the safe usage of the roads.
- Minimise detrimental impacts of road construction on the environment.
- Enhance employment creation opportunities and poverty alleviation.

Other key road legislation includes:

Vehicle Registration and Licensing Act of 2001 provides for the registration and licensing of vehicles; provides for the levying of fees in respect of such registration and licensing for the benefit of the Consolidated Revenue Fund and certain local authorities.

Traffic Safety Council Act of 2002 was enacted to establish a Traffic Safety Council of Zimbabwe and to provide for its functions. The Act also provides for the imposition of levies on driving schools and persons who insure motor vehicles.

Toll Roads Act of 2001 provides for the charging, levying and collecting of tolls for the use of vehicles on certain roads.

Road Motor Transportation Act of 1997 provides for the control of certain forms of road transportation; to repeal the Road Motor Transportation Act of 2001.

8.1.4. Institutional Arrangements

The institutional arrangements in the roads sub-sector has not changed much since the enactment of the Road Act. The Road Act establishes four road authorities namely the Department of Roads, District Development Fund, Urban and Rural District Councils to manage the road network as prescribed by the Roads Act. The Rural District Council (RDC) oversees almost 40% of the road network.

Table 29 summarises the road authorities road network.

Table 29: Breakdown by Road Category and Authority

Road Class	DDF	DoR	RDC	Urban Councils	Not stated	Grand Total	% of total
Not stated	807	423	1 932	1 333	2 178	6 674	7%
Regional	0	2 978	5	36	139	3 158	3%
Primary	3 269	3 340	673	49	90	7 422	8%
Secondary	3 616	7 624	2 491	4	61	13 796	15%
Tertiary*	16 092	2 860	30 677	325	843	50 797	55%
Urban	20	367	8 835	597	9 819	19 638	10%
Grand Total	23 784	17 244	36 144	10 582	3 909	91 665	
% of total	26%	19%	39%	12%	4%		

Source: Zimbabwe Local Government Association (ZILGA), 2017

* includes access and feeder roads.

The Act also establishes the national roads agency ZINARA and the Roads Fund. The roles of the road authorities as well as the Ministry of Transport and Infrastructural Development are summarised below:

Department of Roads is housed under the Ministry of Transport and Infrastructural Development (MoTID). The DoR constructs, maintains, rehabilitates all state and trunk roads. The DoR is therefore a major recipient of government funding. The DoR is responsible for 17,243km (19%) of the road network.

District Development Fund is housed under the Office of the President and Cabinet (OPC) as a government department. The DDF maintains all rural roads under its jurisdiction. Its role extends to other activities that include land preparation, rural water supply and irrigation in all the 60 districts of the country. In the past it was mainly funded by donors, but presently, its main source of funding for roads is ZINARA. Although a main stakeholder in roads, DDF is not represented in ZINARA's board. It works closely with the district councils. The DDF has 23,784km (26%) of the road network.

Urban and Rural District Councils are local designated as autonomous road authorities under the Road Act. They have autonomy in the management of infrastructure services in their jurisdiction, but they are subject to policy directives from the minister responsible for local government. The Rural District Councils (RDC) are responsible for maintenance work across all tertiary roads in their jurisdiction. They are responsible for the largest portion of the road network. The RDCs are direct recipients of maintenance funds from the RF and are able to define their own standards for road works. The Urban Councils (UC) construct, maintain, rehabilitate every single road within their jurisdiction in accordance with the road programme approved by ZINARA. The RDCs and UCs have 36,144km (39%) and 10,281km (11%) of the road network under their respective jurisdiction.

There are two other sub-categorised roads, namely tertiary access and feeder roads. These two road categories link rural areas to the secondary road network and are mainly managed by the District Development Fund (DDF) and the RDC.

Zimbabwe National Road Agency (ZINARA) acts as the RF manager. Its operations are controlled and managed by a Board comprising twelve members appointed by the Minister responsible for roads. The functions of ZINARA are defined by the Road Act. They include:

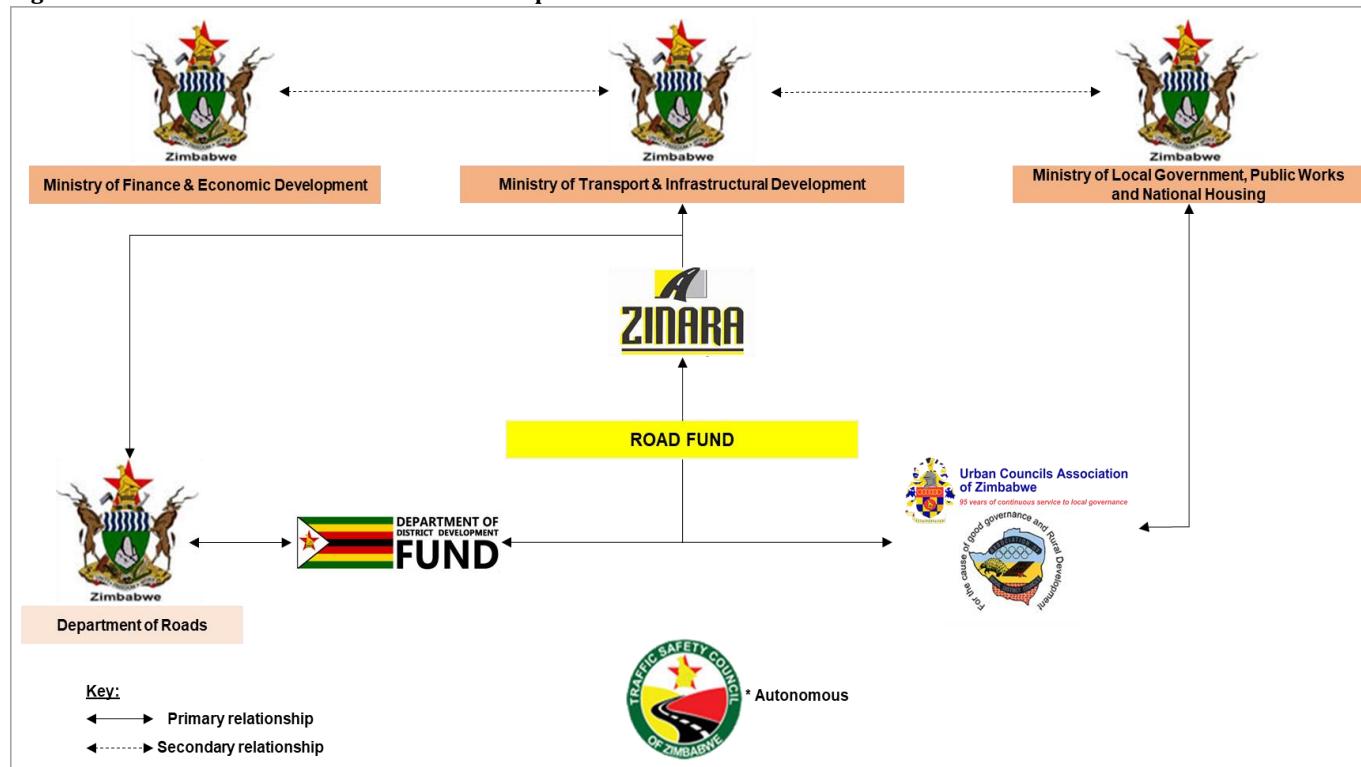
- Set road user charges and collect such charges, fuel levies and other revenue for the RF.
- Allocate and disburse funds from the RF to the road authorities.
- Monitor the use of funds by the road authorities including the implementation of road maintenance works.

- Assist road authorities to prepare road maintenance plans and approve such plans.
- Assist the Minister to set out technical standards for roads and ensure that the road authorities adhere to these.

The **MoTID** formulates transport and infrastructure policies; plans, designs, constructs, maintains road and rail network; ensures compliance with national and international standards (for example, the SADC transport protocol); and approves, monitors, evaluates the implementation of turnaround strategies.

The institutional relationships for the road sector is shown in Figure 20.

Figure 20: Road Sector Institutional Relationships



Source: Author's Illustrations

8.2. CONDITION OF THE ROAD INFRASTRUCTURE

An over-reliance of road transportation infrastructure is accelerating the depreciation of road network which is already in need of extensive

rehabilitation. In 2014, the national vehicle fleet²⁰ was reported to be 1.3 million. The Roads

²⁰ Registered vehicular information is reported by the Central Vehicle Registry of Zimbabwe.

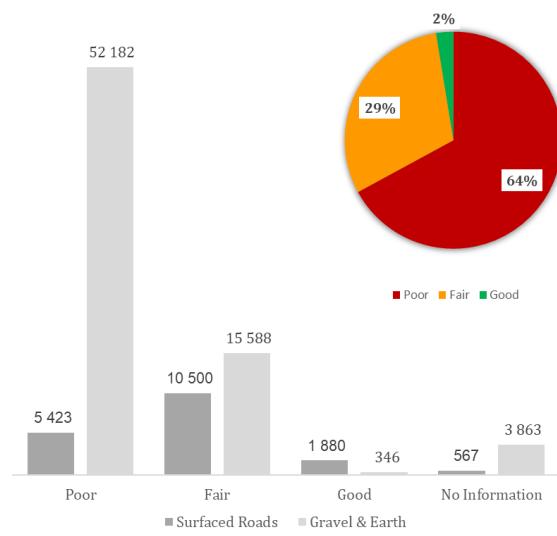
Conditions Report²¹ indicates approximately 30% of the road network being in poor condition. Most of the deterioration on surfaced roads has occurred on the road network in Harare, Mashonaland Central, Midlands and Bulawayo. The Midlands has experienced the most deterioration with more than 70% of the road network in poor condition. Government understands the weight of the challenge to improve the road network. The past coalition Government reiterated their focus to clear the maintenance backlog in primary, secondary and feeder road networks. However, this requires substantial financing. In 2011, the Ministry of Finance and Economic Development MoFandED reported an excess of USD 2 billion would be required to rehabilitate and maintain the primary, secondary and tertiary road networks. The current replacement value of the road network asset is estimated by the DoR to be about USD 5 billion. 87% of the surfaced road network is considered to be in fair to poor condition. The Department of Roads (DoR) has not undertaken a traffic survey since 2004 due to lack of funding and therefore no accurate information on the current road densities across the country. However, some sources estimate areas in and around Harare carry a majority of the traffic movements.

8.3. ROAD SAFETY

8.3.1. Institutional Arrangements

The Traffic Safety Council of Zimbabwe (TSCZ) is an institution that promotes road safety. It was established by the Traffic Safety Council Act of August 2000. There have been no amendments to the Act. The Council is overseen by a Board appointed by the Minister of Transport and Infrastructural Development.

Figure 21: Visual Condition Index (VCI) of Surfaced and Gravel and Earth Roads in Zimbabwe



Source: Zimbabwe Local Government Association (ZILGA), 2017; Annex Table 15; Annex Table 16.

The Board controls and manages the operations of the Council. The functions and powers of the Council include:

- i. promotion of safety on roads;
- ii. publication of the Highway Code;
- iii. dissemination of information on road safety;
- iv. advising the Minister on matters relating to road safety;
- v. control and regulation of driving schools; and
- vi. establishment of standards for testing of persons for the issue of learners' licenses and certificates of competency.

The Council has no powers to enforce safe driving practices or influence engineering design of roads to improve safety. Dialogue between government agencies on road safety is currently achieved on an informal basis, with little coordination on issues such as the linkage between accident rates and road condition, functioning traffic signals, vehicle condition.

²¹ The report was conducted before the heavy rainy season and therefore the road conditions may have changed since then.

8.3.2. Recent Developments in Road Safety

The poor condition of a large part on the road network in Zimbabwe has had direct and indirect impacts on the road transport safety. The TSCZ reports road traffic safety developments. The average number of accidents between 2010 and 2017 was 36,105 and the average number of people as a result of road accidents was 1836. In 2016, the total number of accidents was 38,620 increasing by almost 10% in 2017 to 42,430. The number of fatal accidents also increased from 2016 to 1,358 in 2017, however the number of total injured decreased in 2017 by 8% to 10,489. See Figure 22 below. The TSCZ reports there is no causal relationship between the prevailing road conditions and road collisions. The main causes of the crashes are cited as speeding, vehicle defects, inattention or misjudgement and failure to give way. It is not clear how many of the accidents are a result of drunk driving due to a lack of breathalysers, although there is a spike in crashes in December compared to other months. Zimbabwe does not have a Road Safety Policy in place at present and therefore no comprehensive legal instrument covering all aspects of road safety policy implementation.

While the Council has no power to enforce safe driving practices, they do engage in extensive road safety education and awareness programmes which includes a driver improvement programme. However, its operations are constrained by inadequate funds primarily through the Motor Insurance Levy. Promoting the safe usage of the roads would involve ensuring that road authorities install and maintain appropriate road signs on new and existing roads, encouraging road authorities to install visible road markings and signs that are less prone to vandalism, implementing traffic management measures including traffic signs in line with regional standards, and ensuring that all possible engineering deficiencies on “black spots” are rectified. The TCSZ through its long-standing partnership with CBZ Holdings developed the idea

of a dedicated highway patrol ambulance along the major highways across the country. This will go a long way in reducing potentially fatal traffic accidents through improved response time.

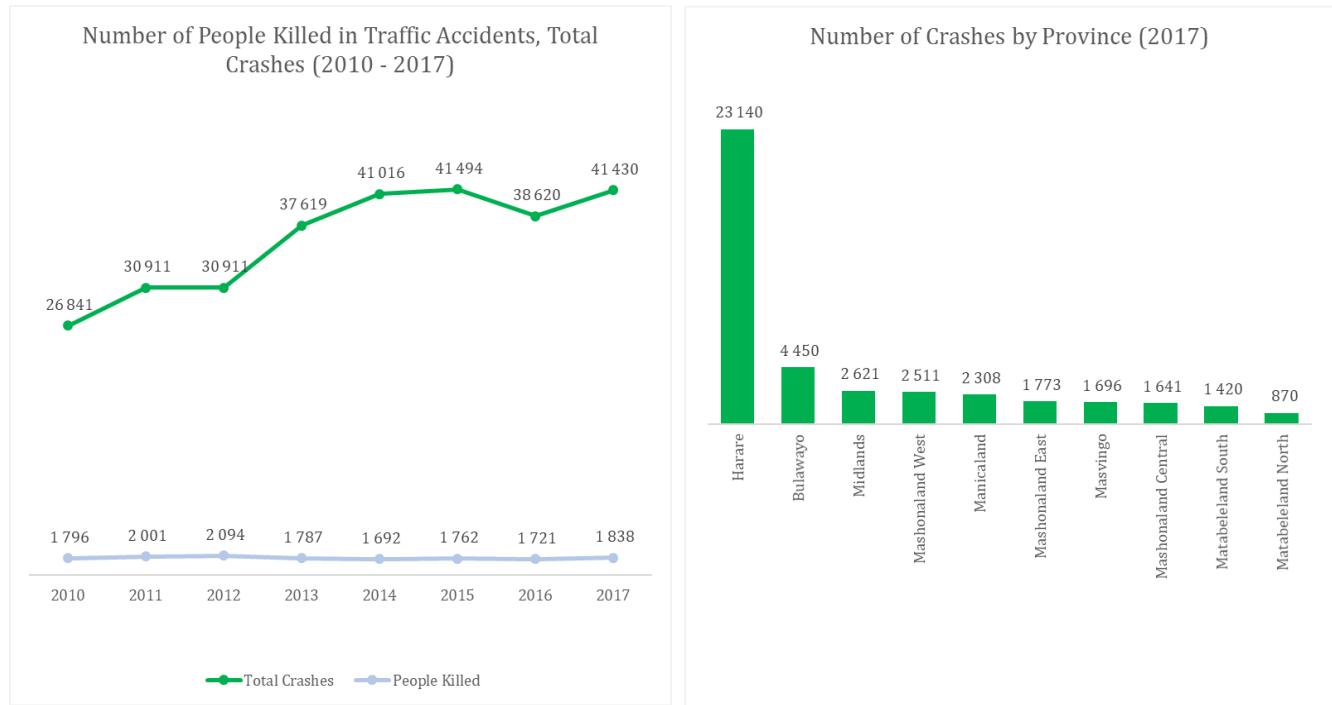
The TCSZ has established a National Road Safety Research Committee as of January of 2018 with representatives from the Council, the Vehicle Inspection Department (VIP) and Zimbabwe Republic Police (ZRP). There however needs to be increased stakeholder buy in for reforms on road safety from key institutions including the Department of Roads and ZINARA. The focus of the committee is to generate requisite road traffic research papers which will inform policy and practice.

8.4. CAPITAL EXPENDITURE PROGRAMMES FOR THE ROADS SECTOR

Given the strategic importance Zimbabwe’s road network plays in linking it with regional neighbour as a key transport corridor, it is important to ensure the asset is rehabilitated and preserved. About 84,000 km of road — equivalent to 93% of the road network²² — is in fair or poor condition and in need of rehabilitation or periodic maintenance. The Action Plan therefore calls for urgent implementation of a programme in the decade ahead that would rehabilitate the road network currently classified in poor condition and reduce the backlog of roads in need of periodic maintenance. But as discussed below, funding constraints could result in delayed implementation of this ambitious plan that, in turn, could have an adverse effect on the economic recovery.

²² This is for surfaced, earth and gravel roads.

Figure 22: Trends in Road Safety in Zimbabwe



Source: Traffic Safety Council of Zimbabwe, 2017 Operations Division Annual Report

8.4.1. Rehabilitation of the Network

Total cost of rehabilitation is high. The unit costs for rehabilitation are dependent on the type of road, namely: gravel, earth and surfaced, and the road's condition. The DoR estimates the unit costs of rehabilitation of the road network to be between USD 200,000 and USD 600,000 per kilometre. The Transitional Stabilisation Plan estimates a portion of the Mutare-Harare-Gweru-Bulawayo dualisation to cost USD 1.2 million per kilometre. This is indicative of the heavy cost burden to rehabilitate the road network. The total cost of rehabilitation is estimated to be about USD 27.3 billion, with the bulk of the funding required for tertiary roads. In its present state, the Zimbabwean economy cannot be expected to support such large investments.

Investment choices should include careful consideration of the relevance of the sector on the performance of the economy as well as the effect of a rebounding economy on the sector itself. Ideally an economic evaluation of the road investment

options should be carried out to determine the optimal investment scenarios. This requires staff to be trained in undertaking extensive financial, economic, environmental and socio-economic due diligence.

A priority, therefore, should be to train staff in doing the respective studies. The pragmatic approach would be to assess broadly the possible benefits and impacts associated with the various technical options. In terms of benefits to the economy, low cost interventions on the highly trafficked roads may yield the most savings to the economy, owing to reduced vehicle operating costs and curtailment of further pavement deterioration that would cost more in the future.

Typically, such interventions would result in high internal rates of returns and net present values. In addition, a cost-effectiveness analysis for low-volume rural roads serving the rural population would result in justifiable investment cost per capita. The foregoing approach is further supported by the Government's agenda to promote

growth in the rural areas with a special focus on agriculture. A robust rural road network would result in higher agricultural production and this would have the desired spinoffs including employment creation, availability of raw materials for the industry and access to amenities such as health, education, and markets: for example, the road network serving the northern and the north-eastern highlands, where significant agricultural activities take place, is of particular importance to the economy.

Priorities for rehabilitation in the near term.

Close attention is also being given to “ongoing” road projects where substantial amounts of work had been accomplished, but could not be completed because of the changing economic circumstances in the past decade. Such interventions have the advantage of preventing further losses through wastage of completed pavement works and providing a higher level of service that reduces operating costs. Equally important is the rehabilitation of damaged sections of the trunk road system starting with uncompleted projects and the completion of the upgrading of unpaved trunk roads to surfaced standards. A priority has also been assigned to uncompleted bridge construction along highly trafficked roads to prevent further loss as the uncompleted works are exposed to the elements.

Government has identified some projects in the TSP to prioritise road development. The District Development Fund (DDF) had ongoing road rehabilitation and bridging works that were stopped after the economic downturn. Prioritised projects include the DDF receiving USD 25 million from the Roads Fund for routine and periodic maintenance as well as bridge repairs; 60 RDCs will also receive USD 32.5 million from the Roads Fund for grading and re-graveling of rural roads.

Road dualisation is also being prioritised with the two key projects in the pipeline, namely: the Mutare-Harare-Gweru-Bulawayo dualisation and the Beitbridge-Harare-Chirundu dualisation

project. The former has commenced with portions of the road already completed. The project is fully funded by Treasury. A new Chinese contractor is being engaged for the Beitbridge-Harare-Chirundu dualisation project.

In addition to the aforementioned, the following targeted roads will be implemented under the DoR with an estimated cost of USD 542 million.

- Matebeleland South Provincial Roads - Gwanda-Maphisa, Maphisa-Mpoengs, Gwanda-Guyu-Manama-Tuli;
- Matebeleland North – Dete-Binga Road and Binga-Karoi Road;
- Midlands - Mberengwa-West Nicholson, Gokwe-Siyabuwa, Kwekwe-Nkayi, Mberengwa-Mataga, Jeka Bridge, Kwekwe-Gokwe and Kawonga Shelvert;
- Mashonaland East - Hwedza-Sadza, Mushandiram Pamwe-Hwedza, Beatrice-Mubaira, Zaire-Chingondo;
- Mashonaland Central - Guruve-Kanyemba, Mt Darwin-Mukumbura;
- Mashonaland West - Golden Valley-Sanyati, Skyline-Mubaira-Chegutu, Alaska-Copper Queen, Kirkman Road;
- Masvingo - Kapota-Zimuto, Chilonga Bridge, Gutu-Buhera, Mhandamahwe-Chivitokwe, Rutenga-Zvishavane, Chartsworth-Gutu, Rutenga-Boli-Chicualacuala;
- Manicaland - Ngundu-Tanganda, Nyamangura Bridge, Murambinda-Birchnough, Nyanga-Ruwangwe, Odzi - Marange-Zviripiri;
- Matebeleland North - Bulawayo-Nkayi, Bulawayo-Tsholotsho, Ingwingwisi bridge.

The objective is to complete the aforementioned priority projects set under the TSP within the next ten years. To meet this objective, the various road authorities would need to successfully engage the private sector.

8.4.2. Periodic Maintenance Programmes

Completion of periodic maintenance on the roughly 26,000 km of road network in fair condition is estimated to cost about USD 589 million in 2017 prices. Without routine maintenance²³, these roads may deteriorate to a level that requires full rehabilitation. The proposed Action Plan attaches a high priority to early implementation of the periodic maintenance programme. Its objective is to ensure that even larger portions of the network do not continue to deteriorate to the point where they require full rehabilitation.

To pre-empt further traffic congestion on sections of trunk roads near major cities, there is need for selective expenditures that increase road capacities in the near term. Decisions on increasing the capacity of existing roads and expansion of the network should be based on these objectives:

- Enhancing accessibility to centres of economic, social, and recreational importance in rural and urban areas. This part of the programme would include upgrading gravel roads linking growth points to major highways and major economic centres to surfaced road standard, linking centres of economic and social activities such as mines, rural health centres, and schools with all-weather roads, and improving road access to major tourist centres.

- Promoting interstate trade and smooth flow of transit traffic from neighbouring countries.

8.4.3. Funding for Capital Expenditure Programmes

Table 30 below provides a summary of the funding requirements of the proposed rehabilitation and periodic maintenance programmes for each of the designated road authorities, the DoR, the UCs, RDCs, and the DDF. The successful implementation of the plan to rehabilitate the road network is highly dependent on the country clearing arrears to be able to securing funding from donors or financing from the private sector.

8.5. MAINTENANCE PROGRAMMES FOR ROAD INFRASTRUCTURE

8.5.1. Routine Maintenance Programmes and Costs

There are currently about 1,900 km of surfaced road and 350 km of earth and gravel road in good condition that requires routine maintenance. This is a mere 2% of the road network. The estimated cost of routine maintenance on roads classified in “good” condition is about USD 43 million in 2017 prices. As noted earlier, one of the major challenges for the decade ahead and the lead up to *Vision 2030* will be to establish arrangements that can ensure that the required levels of funding are available for routine maintenance of the road network.

Routine road maintenance activities (grading, pothole patching, crack sealing, drain cleaning), if carried out regularly and properly, can result in major cost savings. The Roads Condition Survey reports 17% of the sealed road network have edge breaks greater than 100mm. The substantial under-funding of routine maintenance poses a major problem for the country. Lack of routine maintenance for extended periods is increasing the

²³ The Road Act defines routine maintenance as work that is undertaken each year to preserve a road from degradation caused by environmental effects.

share of the network that requires deferred or periodic maintenance, the costs of which are substantially higher. The resulting deterioration in the road network is also adding significantly to the cost of vehicle operations in Zimbabwe, and hence the competitiveness of the country in international markets. The cost to the economy of a poorly maintained road network is the aggregation of all

costs related to longer journey times, higher fuel consumption, damage to vehicles, and accidents. This is in addition to the cost of eventual repairs and the implications of the reluctance of transporters to use such roads.

Table 30: Funding Requirements for the Road Authorities

Road Authority	Total Road Network	Poor Road Network	Fair Road Network	Total Cost of Rehabilitation	Total Cost of Periodic Maintenance
(in km)					(in 2017 constant prices)
Department of Roads	18,818	9,938 (53%)	7,686 (41%)	USD 8.6 billion	USD 173 million
Rural District Councils	36,121	26,655 (74%)	7,963 (22%)	USD 8.1 billion	USD 180 million
Urban Councils	8,194	2,564 (31%)	4,928 (60%)	USD 5.2 billion	USD 111 million
District Development Fund	25,000	18,449 (74%)	5,511 (22%)	USD 5.4 billion	USD 124 million
Total	88,133	57,605	26,088	USD 27.3 billion	USD 589 million

Sources: *Zimbabwe Local Government Association (ZILGA), 2017; National Transport Masterplan; Author's estimates.*

Some routine maintenance of the network has been undertaken in the past 10 years despite economic constraints; however, this has been funded mainly through the fiscus. This is an indication of Government's understanding of the importance to maintain the network and its commitment to the sector.

8.5.2. Funding Arrangements for Maintenance

Between 2011 and 2015, a majority of the revenues came from vehicle licencing with fuel levies trailing slightly behind. Post-2015, toll fees have formed the majority source of revenue to the Road Fund. At the time it was established in 2001, the Road Fund was expected to provide a secure, predictable, and transparent source of funding for maintenance. Revenues for the Road Fund come from fuel levies, road access fees, toll gate collections, transit fees and fees from the issue of

annual vehicles licenses. The funds are disbursed on a quarterly basis to the four road authorities, but funding is dependent on the road authority demonstrating fiscal accountability; programmes being prepared in accordance with the Funding Manual; basis of the class of roads in an area; traffic levels; road age and condition and whether funding is needed for routine or periodic maintenance. The Road Act defines road user charges as:

- Fuel levies;
- Overloading and abnormal fees;
- Heavy vehicle surcharge;
- Transit fees; and
- Vehicle licensing fees.

Figure 23 illustrates the Road Fund's four largest sources of revenue. All other road user charges are grouped under other.

Toll fees: Government introduced tolling in 2009. 22 toll gates were set up across the country. In September 2013, the national road administration took over the toll fees collection from Zimbabwe Revenue Authority (ZIMRA). ZINARA adopted a computerised toll collection system soon thereafter. There are currently 26 operational tollgates in the country. In 2014, the then Ministry of Transport, Communications and Infrastructural Development legislated²⁴ an increase in toll fees. This explains the spike in revenue from tolling from 2014 to 2015 in Figure 23. Thereafter, toll fees have remained the main source of revenue to the fund.

Transit fees: paid by truckers who are either transiting Zimbabwe via the national borders to neighbouring countries or foreign registered truckers coming into the country. The fees are collected by Vehicle Inspectorate Department (VID) on behalf of ZINARA at various border posts or inland VID offices.

Vehicle licence fees: Since 2010, ZINARA has taken over the collection of vehicle licence fees from rural and urban councils. Revenue collected from vehicle licencing is channelled towards periodic and routine maintenance carried out by road authorities.

Fuel levy: it's an important component of revenue towards to the road fund however its overall contribution has declined over the past seven years. This could be due to the low fuel charges.

Other: there are other charges that are deposited into the Roads Fund. They include: abnormal, overload fees, insurance, presumptive tax.

The annual cost of routine maintenance for the entire road network is estimated to be USD 100 million at 2017 prices. Total revenue amounted to almost double this amount in 2017. This indicates

routine maintenance can be fully funded through the Road Fund.

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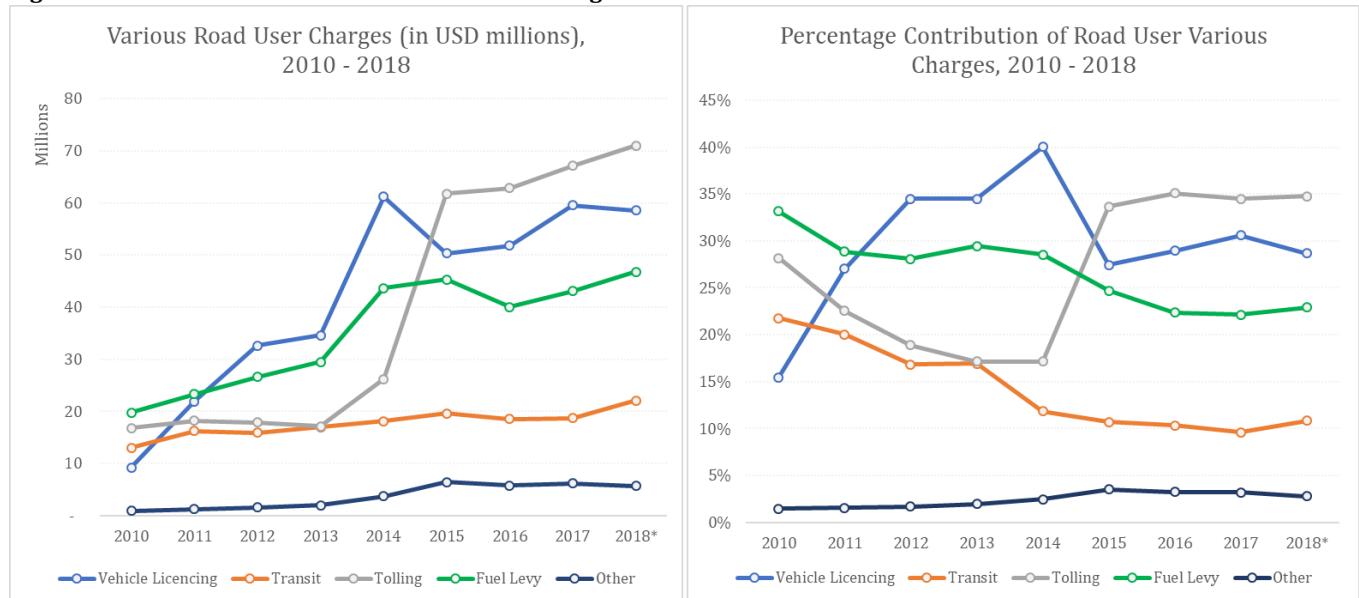
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8.6. INSTITUTIONAL REFORM AND CAPACITY BUILDING

The proposed Action Plan for the roads sector calls for a series of measures aimed at improving the management of the road infrastructure. These include institutional reform in the road sub-sector, strengthening the human resource capacities of road authorities in the planning, management, and maintenance of road infrastructure, and use of appropriate technology to improve the management of road infrastructure through research and development.

²⁴ Toll Roads (Regional Trunk Road Network) (Amendment) Regulations, 2014 (No.5)

Figure 23: Breakdown of the Various Road User Charges



Source: ZINARA, 2018

* estimate

Successful implementation of the proposed programmes aimed at clearing the very large backlog of rehabilitation and periodic maintenance, while also ramping up the scale of the routine maintenance programmes, will exceed current capacities of the various designated road authorities.

A key component of the proposed Action Plan therefore is a series of measures that involve a much larger role for the private sector in construction and maintenance activities related to the road infrastructure.

8.6.1. Institutional Reform in the Roads Sector

As stated earlier in this chapter, there has not been much institutional reform in the road sub-sector over the past decade. There are a number of policy and institutional changes that are required to enhance the sector's ability to undertake projects, oversee and execute road management and effective and efficient use of Road financing from the Road Fund.

Transformation of the DoR into a commercial road agency. A key institutional change required

for successful implementation of the proposed programme in the decade ahead will be the transformation of the DoR into an autonomous agency. The transformation into a commercial road agency its responsibilities to the procurement of services from the private sector, rather than continuing with the current practice of relying on in-house execution of works.

This change would help build the substantially larger construction and maintenance capacities of the private sector that will be required in the decade ahead.

In addition to the aforementioned, there is a need to improve the management of the extensive road network – this is emphasised by the SADC Protocol on Transport, Communications and Meteorology requires Member States to introduce commercial management practices to foster institutional, economic, and technical efficiency in their national road sectors.

Rationalising road financing. Revenue from tolling has been increasing over the years. This is a source of revenue, if effectively rationalised by strategic justifications, can significantly increase revenue that can be ringfenced for road

maintenance and other related road infrastructural projects.

Establishment of a Road Safety Policy. Zimbabwe does not have a Road Safety Policy in place at present and therefore no comprehensive legal instrument covering all aspects of road safety policy implementation.

Establishment of a Road Accident Fund. Such a policy should also seek to compensate victims of road accidents.

8.6.2. Strengthen the Human Resource Capacities of Road Authorities

The significant “brain drain” of experienced road sector professionals from Zimbabwe continues to affect all road sector institutions and the private sector. Areas in which capacity building initiatives will likely be needed include:

- Management of technical assessments and feasibility studies such as bridge inventories and technical surveys, transport studies and master plans, including evaluation of design work required for roads and bridges;
- Management and oversight of prime contractors and quality control inspectors in project funding activities. This will require a build-up in capacities for road rehabilitation contracts, bridge design and construction contracts, management of transport master plans, and so on;
- Oversight of the various environmental and social assessments that will be required as part of the proposed programme to rehabilitate road transport and infrastructure.

The proposed Action Plan therefore calls for an expansion of capacity building programmes for the road transport sector.

8.7. ROLE OF THE PRIVATE SECTOR

8.7.1. Role of the Private Sector in Construction and Maintenance

In the decade ahead, successful implementation of the proposed programme will require an expanded role for the private sector in road construction and maintenance.

The TSP encourages the facilitation of increased private sector participation across various sectors including transport. The process of commercialisation would see road authorities assuming the role of procurement agents for consulting and contracting services, rather than implementers of maintenance and construction works. Sustained development of private sector involvement in construction, rehabilitation, and maintenance of road infrastructure will require increased emphasis on contracting arrangements. In the case of routine maintenance, for example consideration should be given to the use of multi-year contracts for specific sections of the national and urban road network.

Longer-term contracts will reduce unit costs for road maintenance, permit contractors to purchase necessary equipment, and locate staff close to road sections rather than operating only from the major cities. Contractors may also be required to use local communities for appropriate activities such as clearing drains and vegetation. Such contracts would be tendered for domestic and international bidding to ensure competition among contractors. It would also provide useful information about the capacities of individual firms in the construction industry.

Increased use of these types of contracts would require that the Roads Authority has a sufficient number of works supervisors to manage the maintenance contracts and perform regular site supervision of the work to ensure compliance with required standards for road maintenance.

Table 31: Vehicle Classification and Tariff Structure

Vehicle Class	Description	Toll Fees
Motor cycle	Vehicle that has two wheels and includes any such vehicle having a side-car attached thereto.	USD 0
Light motor vehicle	Vehicle whose gross mass does not exceed three tones.	USD 2
Minibus	Vehicle for the carriage of passengers having seating accommodation for not less than eight but not more than twenty-four passengers.	USD 3
Bus	Vehicle for the carriage of passengers having seating accommodation of more than twenty-four passengers.	USD 4
Heavy vehicle	A goods vehicle having a carrying capacity of more than three tones but less than ten tones.	USD 5
Haulage truck	A goods vehicle having a carrying capacity of ten tones or more.	USD 10

Source: www.zinara.co.zw, Accessed: [08.11.2018]

8.7.2. Public Private Partnerships for the Roads Sector

Given the current severe shortage of public funding in Zimbabwe for road rehabilitation and maintenance, there is considerable interest in the scope for the use of toll road concessions operated by the private sector.

The World Bank describes the key issues related to road PPPs particularly around risk sharing (Table 32). Concessionaires consider two key types of risks: traffic risk (i.e. how many vehicles will travel on the road in question) and revenue/collection risk. Shadow Toll structures are seen as transferring traffic risk, but not revenue risk and Real-Tolled structures are usually considered capable of transferring both risks.

Zimbabwe's experience with road sector private concessions has been limited. A consortium negotiated with the Government for several years to upgrade and operate the Harare to Beitbridge road. Road users would pay a toll to the consortium to use the road. After the concession period the road would revert to the government. There were delays in granting the concession. A contractor and financier were eventually found but the contract was subsequently cancelled.

As mentioned above, investors need assurance of financial viability to express interest in undertaking a project. The level of user charges necessary to make the Harare-Beitbridge project financially viable, were perceived high and may reduce the ability of road users to pay. The Project highlights the importance of the link between traffic volumes and financial viability of such projects.

In these circumstances it may be more attractive for Government to finance the road capacity enhancement and rehabilitation work prior to the award of concessions so as to attract more competition and thus ensure better deals for government.

8.8. RISK AND UNCERTAINTY IN THE ROADS PROGRAMME

There are a range of risks and uncertainties, large and small, foreseen and unforeseen that may affect successful implementation of the programme. The risks and uncertainties highlighted below relate to the funding and implementation capacity.

Table 32: Key Issues Related to Road PPPs

	Real Tolls	Shadow Tolls	Availability/ performance base mechanisms
Features	<ul style="list-style-type: none"> Road users pay for use of asset 	<ul style="list-style-type: none"> No actual toll fees are collected from public Concessionaire is paid by authority on road use – the more the road is used the more the concessionaire is paid Usually have banding mechanism, which applies different shadow toll payments to different levels of traffic Common to have 4 bands: Base Case: designed to service senior debt but not to provide return on equity Higher bands: provide a return on equity Top band: usually has a toll rate of zero to cap amount payable to concessionaire 	<ul style="list-style-type: none"> Concessionaire paid for making road available for public use Sometimes mixed with real tolls so that concessionaire pays a non-availability payment to authority for road or lane closures out of toll revenue Amount of deduction/ non-availability payment usually determined by reference to factors including: <ul style="list-style-type: none"> length of project road number of lanes affected duration of unavailability time of day of unavailability
Advantages	<ul style="list-style-type: none"> Zero cost to the Government Government has fiscal space to fund other projects 	<ul style="list-style-type: none"> Where the environment is perceived to be hostile to real tolls, PPP structures can be introduced Prepare way for real-tolled roads in due course by cultivating an industry used to taking traffic risk Multiple sources of funding can be drawn on by government Mechanism of traffic risk transfer should reduce complexity of project and reduce level of due diligence required 	<ul style="list-style-type: none"> Absence of traffic/ revenue risk simplifies project Lower level of due diligence needed Reduces risk on concessionaire – making project cheaper Removes emphasis on monitoring traffic flows during operational period No consumer resistance
Disadvantages	<ul style="list-style-type: none"> High capital construction costs mean that a project's traffic volumes are often considered an insufficient revenue stream 	<ul style="list-style-type: none"> No revenue generation device – total cost of project falls on public purse 	<ul style="list-style-type: none"> Often some form of subsidy/ very long concession period (see grant funding below)

<p>to meet debt service and equity return for sponsors</p> <ul style="list-style-type: none"> • Often some form of subsidy/ very long concession period • Reluctance by investors to become involved – costs will be higher to reflect higher risks • Potential consumer resistance to paying for road use and how to mitigate this 	<ul style="list-style-type: none"> • If traffic volumes are significantly in excess of forecasts, government may find itself paying more “toll” than it budgeted for • Often some form of subsidy/ very long concession period (see grant funding below)
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Source: www.worldbank.org. Accessed: [09.11.2018]

The risks and uncertainties are interlinked in the sense that without funding projects cannot be undertaken, without the requisite capacity to undertake and oversee large road projects funding may be misspent.

8.8.1. Availability of Funding

The first concern about funding relates to the proposed increase in the annual fees for vehicle licenses. A sharp increase in the availability of funding for routine maintenance is central to the strategy for the decade ahead. However, there may be opposition from owners and operators of vehicles to these proposed increases. The users of the primary, secondary, and urban networks are, in effect, taxed to pay for a portion of the cost of maintaining the tertiary network, whose traffic volumes are well below the levels required to generate sufficient funds for routine maintenance of this network. Under-spending on road maintenance represents a major waste of public resources because the cost of rehabilitating road infrastructure is several times higher than the cumulative cost of sound preventative maintenance programmes.

The road authorities will need to implement sound public information programmes that explain the way in which increased user fees will be used to improve road maintenance and in so doing generate savings in rehabilitation, improve road safety, and reduce transport costs in the economy

as a whole. The other concern about the proposed build-up in routine maintenance is the need to ensure that the funds are well used. A sound system of public procurement with competitive award of contracts can help mitigate inefficiencies within public expenditure management systems.

Assuming that Zimbabwe is able to launch an arrears clearance process in the near term and expand its relationship with the international donor community, it may be possible to mobilise the required funding from donors for the road rehabilitation programme of priority projects (that will have significant economic benefits) and quick-wins over the next 10 years.

8.8.2. Weak Implementation Capacities

A range of concerns may arise regarding arrangements for implementation of the proposed programme. These may include problems with the capacities of line agencies to oversee the design and implementation of the programme that, in turn, may result in cost overruns in the programme, delays in start-up and completion of work, or use of sub-standard materials or civil works activities that are not in accordance with the required technical specifications of a project. These shortcomings may result in a waste of public funds, or premature deterioration of roads that are rehabilitated, and sharply higher maintenance costs.

9. CIVIL AVIATION INDUSTRY

9.1. AIR TRANSPORT IN AFRICA

The poor state of land transport infrastructure and freight and passenger services in much of Africa appears to offer a promising opportunity for the further development of air transport services throughout the continent. At this stage, the key policy issues for Zimbabwe are the ways it can benefit from the ongoing liberalisation of civil aviation within the continent called for in the Yamoussoukro Decision of 1999 and the actions it needs to take in the decade ahead to ensure that the benefits of liberalisation are realised.

9.1.1. Trends in the African Air Market

The growth in air traffic across Africa has been increasing. In 2016, Intercontinental passengers accounted for the largest market at almost 50% and regional passengers stood at 26.7%. There are still a limited number of routes being served, however, 24 new intracontinental routes were introduced in 2016, including Harare to Dar es Salaam. The lack of airline route competition has kept costs high. Air travel within Africa generally is considerably more expensive per kilometre flown than intercontinental travel, especially on routes less than 4,000 km. This differential arises because intercontinental routes serve larger markets than international (including regional) or domestic ones and thus have more competition among carriers. In some countries, domestic fares are kept artificially low by subsidised or fixed pricing on some routes.

The African Airlines Association (AFRAA) (2017) reports Ethiopian Airlines and Kenya Airways (KQ) as having the most regional passengers in 2016 with 3.4 million and 2 million respectively. EgyptAir and Royal Air Maroc had the highest intercontinental passengers at 6 million and 4.4 million respectively for the same year. Air Zimbabwe carried almost 195,000 passengers in 2016 with the figure coming down in 2017 to

approximately 180,000 passengers in 2017. The average passenger load factors for African airlines is recorded at almost 70%. Air Zimbabwe is reported to have operated at a passenger load factor of 41.3% in 2016.

9.1.2. Liberalisation of the African Air Transport Market

The move away from a heavily regulated air transport industry to a more liberalised one has allowed for increased intra-African air services. Structural changes in the airline business have been accompanied by changes in the roles of airports in Africa. Cities such as Addis Ababa, Nairobi, and Johannesburg act as gateways to the continent for international traffic and as hubs for its distribution. One of the important consequences of the 1999 Yamoussoukro Declaration, over the past decade, has been the strengthening of a number of African carriers. In addition, continued granting of 5th Freedom²⁵ of Air traffic rights is important for the growth of the intra-African market. In 2017, the African Union (AU) established the Single African Air Transport Market (SAATM) with the aim of creating a single unified aviation market on the continent. Zimbabwe was one of the 11 champion states that signed the initial commitment to a SAATM. As of 2017, there are 21 committed member states.

9.2. OVERVIEW OF CIVIL AVIATION IN ZIMBABWE

9.2.1. Institutional Arrangement for Civil Aviation

In 1999, the Government of Zimbabwe established the Civil Aviation Authority of Zimbabwe (CAAZ)

²⁵ 5th Freedom of Air rights permits an eligible carrier to fly between two other countries on a flight originating or ending in its own country.

through the Civil Aviation Act of 1998. The CAAZ is the main provider of civil aviation services, serving as the regulator of the industry, managing the civil aviation infrastructure, including the main airports, licensing of aircraft carriers and providing airspace management services. In addition, CAAZ acts as an advisor to government on all issues pertaining to aviation. CAAZ also acts in the role of operator. The Civil Aviation Amendment Act of 2018 was enacted to unbundle these two functions. The Act provides for the separation of certain functions of CAAZ to a new entity called the Airports Company of Zimbabwe (Private) Limited. An inter-ministerial committee has been established to evaluate CAAZ finances and assets that may be handed over to the Airports Company of Zimbabwe. The committee includes representatives from Ministries of Finance and Economic Development; Labour and Social Welfare; Transport and Infrastructural Development; Local Government, Public Works and National Housing; State Enterprises Restructuring Agency (SERA); Office of the President and Cabinet (OPC); Zimbabwe Tourism Authority (ZTA) and CAAZ.

9.2.2. Transformation of CAAZ to an Airport Services Company

The Civil Amendment Act legislates that the airports and aerodromes transferred to CAAZ under Statutory Instrument 193 of 2003 are to be transferred to and vested in the ACZ. This extends to all other assets and rights, including related infrastructure of the authority used or otherwise connected with the functioning of those airports and aerodromes; any liabilities and obligations attaching to the aforementioned assets.

One of the major challenges associated with the restructuring of CAAZ stems from the need to strengthen its financial position. The financial position of the authority has remained weak. CAAZ has struggled to service its loans. The 2016 audited financial reveal domestic loans amounting to USD

95.78 million and current liabilities exceeding total assets which caused doubt around CAAZ continuation as a going concern. At end 2016, the bulk of the assets held by CAAZ were airside and landside infrastructure whose historical cost is estimated at about USD 457.7 million.

The other challenge relates to CAAZ continued large operating losses. The Authority's major yardstick for measuring performance is through passenger and aircraft movements. Aeronautical revenues still make up a majority of the revenues generated. Aeronautical revenues consist of landing fees, passenger service charges, aircraft parking and navigation fees. In 2016, they accounted for more than 90% of revenues.

Income from concessions and rents in terminals and other sources is less than USD 6 million for 2016. One of the major challenges for CAAZ and its soon to be successor, ACZ, is to build revenues from concessions and other non-aeronautical services as quickly as possible. The reason is that the International Civil Aviation Organisation (ICAO) requires member states to charge aeronautical fees on a cost recovery and not profit-making basis. Given this requirement, the profitability of airport operations therefore places reliance on the amount of income that can be generated from airport concessions and other services such as car rentals and parking services.

Given these financial circumstances the ACZ may inherit, management should pursue the route of public-private partnerships to expedite completion of the key capital infrastructural projects especially relating to aviation safety. The expectation is that such arrangements will attract private capital for rehabilitation as well as increase the capacity of the new ACZ and its nation-wide airports and aerodromes.

9.2.3. Operationalisation of the Civil Aviation Institutional Arrangements

As mentioned earlier, an Airports Services Company has been established under the Civil Aviation Amendment Act. However, at the time of writing, the company had not become operational. CAAZ would be required to relinquish its duties as an operator and strictly focus on operating as a regulator. The restructured CAAZ would be in charge of promoting, regulating, and enforcing civil aviation and security standards consistent with the requirements of the International Civil Aviation Organisation (ICAO). The key objectives of the authority would be threefold:

- to promote and maintain a safe, secure and sustainable civil aviation environment while adhering to international standards,
- to regulate and oversee the functioning and development of the industry in an efficient, cost effective, and customer-friendly manner, and
- to promote an enabling environment for development of the air services industry.

To exercise its oversight responsibilities for civil aviation, the new regulatory authority could have several technical units for civil aviation, namely, Air Safety Operations, Aircraft Safety, Air Safety Infrastructure, and Aviation Security.

Air Safety Operations (ASO). The ASO would perform oversight on scheduled fixed wing aircraft, helicopters, and flight schools. The unit would also establish testing standards and administer pilot exams. Another important function of ASO would be the flight inspection unit. This unit would calibrate navigation equipment. It would also regulate the medical aspects of airline operations.

Aircraft Safety (AS). The major role of the AS unit would be to license aircraft and perform oversight activities on aircraft maintenance organisations or similar institutions. Other activities of the unit

would include certification, management and standards development, and certification engineering. The unit would also be responsible for aviation environment protection.

Aviation Security. This unit would provide security oversight in various areas. One of the important functions would be to ensure safe transportation of dangerous goods. Other important functions would include the direct oversight of airlines and airports in order to prevent unlawful acts of interference, the training and certification of personnel, and the approval and/or accreditation of training organisations.

Air Safety Infrastructure (ASI). The ASI unit would perform various safety oversight functions in the aviation infrastructure. One of the main duties would be to license aerodromes. In addition, the unit would issue annual licenses to commercial airports after having successfully concluded oversight duties. Communication, navigation, and surveillance oversight would be performed on designated airports of the country.

CAAZ, in its new role, would be mandated to generate its funding requirements from user fees from the civil aviation industry, including, for example, a charge on departing scheduled passengers and a fuel levy payable by the general aviation industry. Other sources of revenue could include various service charges, for example, aircraft registration, examination and registration of pilots, and various licensing activities.

9.2.4. Air Transport Industry

There are over 200 airports and aerodromes spread across the country. The CAAZ operates a network of eight airports in Zimbabwe Table 33. The three main international airports are Robert Gabriel Mugabe International Airport in Harare, Victoria Falls International, and Joshua Nkomo International Airport in Bulawayo.

The design capacity of the three airports is 6.5 million passengers a year. In the early 2000s,

Harare International (as it was then named) was expanded to handle 2.5 million passengers. However, its operations and that of the other major

airports were affected by the poor performance of the economy.

Table 33: List of Airports Owned and Operated by CAAZ

Airport Name	Location	Operating Hours	Runway	Capacity (per annum)
Robert Gabriel Mugabe International Airport	Harare		4725 meters long and 46 meters wide runway. It is capable of handling wide bodied aircraft such as the Boeing 777/B747 or equivalent.	2.5 million
Joshua Nkomo International Airport	Mqabuko Bulawayo		Two runways: 2,588 metres long by 45 metres wide (1,347 metres long by 30 metres wide)	2.5 million
Victoria Falls International Airport	Victoria Falls		4,000m long x 60m wide runway with capacity to accommodate wide body aircrafts, for example; B747-400/B777/A340 or equivalent	1.5 million
Kariba Airport	Northern Zimbabwe close to the Kariba Dam	07:00 – 18:00	1,650 metres long and 30 metres wide and can accommodate aircraft of up to 41,000kg.	
Masvingo Airport	Masvingo	08:00 – 16:00	1726 meters long and 18 meters wide	
Hwange National Park Airport	80km from Hwange		4,600 meters long and 30 meters wide and has the capacity to handle a Boeing 737-200 or equivalent aircraft.	250 passengers per peak hour.
Buffalo Range Airport	Situated between Triangle and Chiredzi.	07:00 – 17:00	1578 metres long and 30 metres wide with a capacity to accommodate aircraft up to the size of a Boeing 737-700.	
Charles Prince Airport	Harare	06:00 to 18:00 hours every day except on Wednesday when the airport operates up to 20:00 hours	Two crossing runways, runway 06-24 which is 1,200 metres long and 17 metres wide and runway 14-32 which is 925 metres long and 18 metres wide.	

Source: CAAZ, 2018

Civil aviation infrastructure in Zimbabwe needs heavy rehabilitation and regular maintenance. Air traffic control and safety remains a concern as equipment is old and in need of replacement. Closely related to traffic surveillance is the capability for aircraft communication to and from the ground – in October 2018, Air Zimbabwe

requested an emergency landing at Joshua Nkomo International. A response was only received once the airline had diverted back to Johannesburg.

The entire airspace of Zimbabwe has not been covered by existing surveillance facilities, and what does exist is deficient. The airspace surveillance equipment is not well maintained across most

airports. Shortcomings in surveillance also raise concerns about search and rescue operations. Weather installations are inadequate, and broadband infrastructure is not available at most airports.

A contraction in demand for air services to and from Zimbabwe contributed to a reduction in the number of international airlines that service the Zimbabwe market. During 1997-2007 more than twenty scheduled airlines discontinued services in Zimbabwe, including major carriers such as Air France (1997), KLM (1998), Lufthansa (2000), Swiss Air (2000), and British Airways (BA) (2007). At the time of writing, 16 airlines operate services to and from Zimbabwe. These airlines include Air Namibia, BA Comair, Emirates, Ethiopian Airlines, Fastjet Tanzania, Kenya Airways, Mozambican (LAM), Malawian Airlines, Proflight Zambia, RwandAir, South African Air Link, South African Airways, South African Cargo, Martin Air Cargo and TAAG Angolan Airlines. In 2010, licenses were issued to Emirates, Fastjet Tanzania, Malawian Airlines, Proflight Zambia and RwandAir. 5th Freedom Traffic Rights were extended to Emirates, Ethiopian Airlines, Kenya Airways, Air Namibia and RwandAir.

There have been five airport infrastructural projects undertaken by CAAZ over the past decade. Two projects have been undertaken at J.M. Nkomo International Airport. The first was commissioned in 2013 to upgrade the terminal building. Funding came from the Ministry of Finance and Economic Development through the Public Sector Investment Programme (PSIP) with a project cost of USD 31 million. The second, commissioned in 2018, entailed construction of sewer ponds with a capital expenditure cost of USD 1.33 million. In 2016, the Victoria Falls International Airport Development Project was commissioned with funding of USD 150 million coming from China Exim Bank through a concessional loan. President Mnangagwa commissioned a project in July 2018 at Robert Gabriel Mugabe International that seeks to increase passenger capacity from 2.5 million to 6

million per annum. The project will include expansion of the international terminal building, a secondary radar system, an airfield ground lighting system and communication systems. Funding of USD 153 million has also been secured from China Exim Bank. Lastly Robert Gabriel Mugabe International Airport is receiving a sewer upgrade with funding of USD 1.82 million from the PSIP and CAAZ.

9.2.5. Air Zimbabwe

Air Zimbabwe is the national carrier and is a State-Owned Enterprise (SOE). It was previously Air Zimbabwe Holdings which was a group of companies made up of five business units, Air Zimbabwe Passenger Co, Air Zimbabwe Cargo, Air Zimbabwe Technical, National Handling Services (NHS), and Galileo Zimbabwe. Air Zimbabwe Passenger is the flagship of the holding company. The airline provided services for domestic, regional, and international destinations.

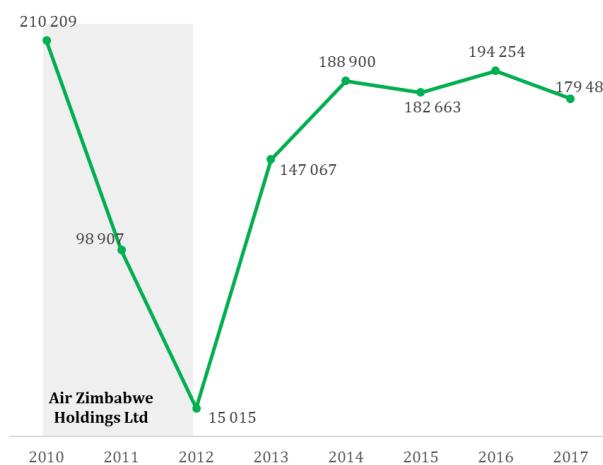
As of 2018, Air Zimbabwe has two operating aircrafts although it has a total fleet size of 10. They are:

- Two Boeing 767-200ER (205 seats) – both aircrafts are almost 30 years old. Only one out of the two are operating.
- Three Boeing 737-200ADV (105 seats) – all three aircrafts are older than 30 years. One out of the three operating.
- Two Airbus A320 (160/150 seats) – the aircrafts are 15 and 21 years old and both are grounded.
- Three MA60 (52 seats) – the three aircrafts are 13 years old and all three are grounded.

Air Zimbabwe covers three domestic routes, namely: Harare-Bulawayo, Harare-Victoria Falls, Harare-Bulawayo-Victoria Falls and three regional routes, namely: Harare-Johannesburg, Bulawayo-Johannesburg, Harare- Dar es Salaam. Air

Zimbabwe faces strong competition with the introduction of low-cost airline carriers. Air Zimbabwe's passenger numbers are not strong and account for on average 12% of total passenger movements into and out of Zimbabwe. Flights were suspended in 2012 resulting in airline seat capacity to reduce significantly.

Figure 24: Air Zimbabwe Passenger Trends (2010 - 2017)



Source: Air Zimbabwe, 2018

In 2011, Cabinet set up an ad hoc cabinet committee to look into the revitilisation of Air Zimbabwe. The Committee was represented Ministers responsible for Transport and Infrastructural Development, Finance and Economic Development, State Enterprises and Parastatals, Tourism and Hospitality, Environment and Natural Resources Management and Industry and Commerce. Around 2012, Air Zimbabwe went through an unbundling from the National Handling Services (NHS) in an attempt to improve the national carrier's operational efficiencies. The following year, the committee made a number of recommendations which included the establishment of a new SOE airline, Zimbabwe Airways. The new airline was registered and obtained an Air Service Act valid for three years ending April 2015. Zimbabwe Airways air service permit has since been renewed and is valid until 2020.

Consultants were hired to develop a business model for Air Zimbabwe which included the

identification of potential strategic partners. Efforts to secure a strategic partner for Air Zimbabwe were hampered by the challenges facing the national carrier, including the inflated debt, a mismatch between its operational fleet size and staff complement, and non-availability of up to date audited financial statements. Below is a list of critical challenges Air Zimbabwe faces:

- **An aging fleet which is very uneconomical in terms of fuel consumption.** Air Zimbabwe is currently servicing domestic and regional flights with the Boeing aircrafts. The carrier is looking into getting the smaller Embraer 145.
- **Air Zimbabwe is heavily reliant on revenue from sales of tickets to cover the cost of its operations.** Approximately 80% of revenue stems from local travelers who predominately paid in Zimbabwe Bond notes. Service delivery by the airline is affected by regular down time of its fleet, which requires frequent maintenance and affects reliability of the service.
- **Under-capitalisation and a debt overhang.** Air Zimbabwe was included under the reconstruction plan that aims to resuscitate the status of various SOEs. Government, as the shareholder, has not invested any capital into the national carrier over the past decade. There have been ad-hoc interventions but not related to recapitalisation. The carrier was granted three years of immunity from its creditors under the Finance Bill of 2012. The ever-growing debt remains a challenge. As of October 2018, the total debt stood at USD 371.75 million of which more than 90% is local debt.
- **A pricing policy that has led to operation of unprofitable routes.** Air Zimbabwe has implemented lower fares in an effort to compete with regional carriers such as SAA

and Fastjet that are gaining market shares on Air Zimbabwe's key routes such as Harare-Johannesburg.

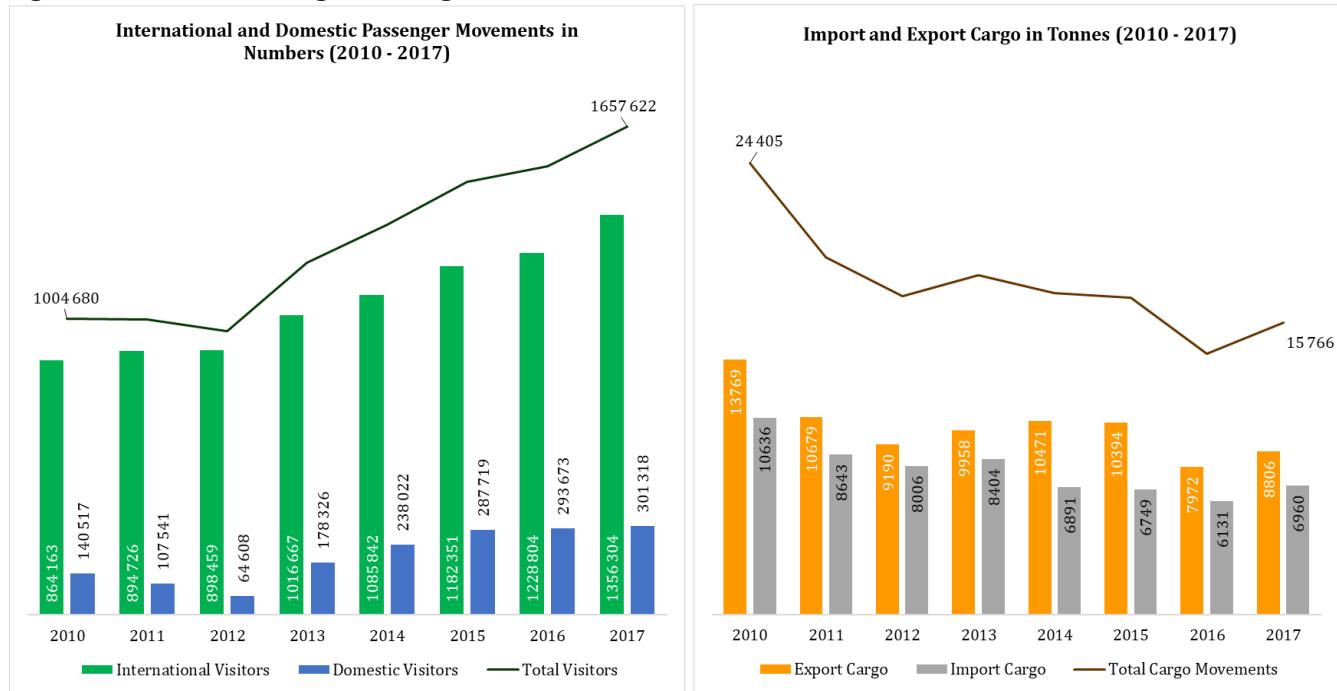
9.3. PASSENGER AND FREIGHT TRAFFIC

9.3.1. Trends in Passenger Traffic and Freight in the Past Decade

Passenger movements have significantly improved over the period 2010 to 2017. Passenger movements increased from just over 1 million in

2010 to 1.66 million in 2017. The J.M. Nkomo International Airport and Victoria Falls International Airport projects commissioned in 2013 and 2016 respectively may have contributed to the increase in passenger movement as passenger movements increase in immediate subsequent years. International and domestic passenger movements have been on the increase over the period 2010 to 2017. Domestic passenger movements took a dip in 2012 but have since steadily strengthened. Cargo movement has been on a decline over the period 2010 to 2017.

Figure 25: Trends in Passenger and Cargo Movements



Source: CAAZ, 2018

9.3.2. Projected Growth in Demand for Aviation Services

Tourism arrivals from not only Europe, the Americas, and Asia but regional African countries are expected to play a central role in the recovery of the civil aviation sector in Zimbabwe in the decade ahead. The Southern African region is seen as very appealing because of its excellent and diverse eco-tourism products, mainly the game parks, historical and heritage sites, and the world's

seventh wonder, the Victoria Falls. However, this is dependent on Zimbabwe taking full advantage of the natural and cultural heritages that the country has to offer.

9.4. ACTION PLAN FOR CIVIL AVIATION

9.4.1. Strategy for the Decade Ahead

The Civil Aviation Authority has emerged from a long period of declining business volumes that stemmed from the decline in passenger and aircraft movements. CAAZ medium to long term strategy may be thwarted by the enactment of the Civil Aviation Amendment Act that establishes the Airports Company Zimbabwe. In the short term, CAAZ should continue to pursue increased growth in passenger movements to steer the business out of its current financial challenges. For the longer term, the ACZ should aim to pursue a strategy underpinned by market growth, new product development, diversification, and introduction of airport concessions through increased private sector participation.

Air transport has become indispensable for the development of the tourism industry. If Zimbabwe is to rebuild its tourism industry in competition with other African states, sustained improvements in air safety and security and in airside and landside facilities are essential. Increased growth into tourism will have multiple forward and backward linkages to other parts of the economy. Additionally, improved aviation services will be central to efforts by Zimbabwe to build exports of a large range of perishable products. High value manufacturers who are dependent on efficient, on-time delivery need effective, reliable infrastructure.

The marketing and growth strategy of CAAZ for the decade ahead will require substantial additional resources to build a sustainable competitive advantage through the provision of world-class facilities, customer service and sustainable infrastructure. Zimbabwe's civil aviation operates in a global industry; hence the airport and air navigation systems have to be of international standard.

A four-pronged approach is proposed for the Civil Aviation Action Plan for the decade ahead:

- Complete the substantial rehabilitation and upgrade of aviation infrastructure at the airports controlled by CAAZ/ACZ.
- Improve airspace management, safety and security and airport operations and the role private sector participation can play.
- Continue to liberalise the air transport market and decide way forward national flag carrier, Air Zimbabwe.
- Launch a privatisation programme to attract much needed private sector funding for rehabilitation and upgrade of airport facilities to accommodate the projected growth in passenger and freight movements.

A key objective of the proposed Action Plan is to meet the minimum requirements of International Civil Aviation Organisation (ICAO) and European Union Air Safety Committee within the next 5 years. Zimbabwe is classified as Category 2 by the Federal Aviation Administration (FAA). A recategorisation to Category 1 would open up Zimbabwe to increased access to the international market.

9.4.2. Rehabilitation of Civil Aviation Infrastructure and New Facilities

The Authority launched a substantial programme of rehabilitation of the civil aviation facilities in Zimbabwe, funded in large part from its operating surplus. Implementation of the programme in the late 2000s was compromised by the subsequent major decline in international and domestic traffic and the erosion of the financial position of CAAZ. Four rehabilitation/upgrade projects have been undertaken since 2010. The largest being the upgrades scheduled for Robert Mugabe International.

9.4.3. Air Space Management, Improved Air Safety and Role of Private Sector

Safety is widely seen as the most notable problem of the African air transport industry. The Yamoussoukro Decision addresses safety and security by setting down several conditions that, if not met, mostly entail sanctions of a bilateral nature: for example, a state entity may revoke, suspend, or limit the operating authorisation of a designated airline of another state entity if the airline fails to meet the criteria of eligibility, which include maintenance standards set by ICAO. In the particular case of Zimbabwe, air traffic control infrastructure, as in other parts of Africa, is deficient. However, Zimbabwe continues to be classified by the Federal Aviation Administration (FAA) as a Category 2 country. A Category 2 rating means that a country does not comply with ICAO aviation safety standards. In 2017, Air Zimbabwe was banned by the European Union Air Safety Committee from flying over the European Union air space. A key objective of the proposed Action Plan for Civil Aviation is to meet ICAO requirements and thereby be reclassified by FAA and EASA as a Category 1 country.

Decisions will be required regarding the desired type of private sector participation in airport management and expansion at airports in Zimbabwe. Private sector participation could involve a private party entering into any part of the airport transport value chain entailing infrastructure and non-infrastructure related activities.

While the civil aviation authority would still maintain its mandate to ensure a safe aviation industry, private sector participation could lend a hand in facilitating easier access to private sector financing and improved operational efficiency. Bankability of an airport project with private sector participation would require assurance of sufficient revenues to cover costs and repay financiers. As noted earlier, without debt

restructuring of CAAZ long-term liabilities, it may be unlikely for CAAZ or the new ACZ to attract potential investors.

9.4.4. Role of the National Flag Carrier

Air Zimbabwe faces uncertainty around its future with respect to the imminent restructuring plans into Zimbabwe Airways. The national carrier has gone through multiple restructures dating back to pre-independence. However, the core challenges persist and pertain to Air Zimbabwe's inability to attract passengers and cargo. The Airline currently carries almost 180,000 passengers (2017 figure) a year and has been operating at a loss for many years.

In the short term, the Airline should focus its efforts on optimising routes to reduce operating costs and replace aging, high cost planes used on domestic routes with smaller planes that will operate with higher load factors. In the medium term, Air Zimbabwe should seek to convert a substantial portion of accounts payable to medium- or long-term debt through refinancing. Such an arrangement would provide Air Zimbabwe with the funds required to meet all of its overdue obligations for accounts payable and restore services that can generate revenue. However, given the state of Air Zimbabwe's finances, access to such term financing may only be possible if the airline can arrange for a guarantee from a credible source.

As air transport routes in Africa continue to open up to increased competition under the Yamoussoukro Decision, the airline will need to enter into some form of partnership arrangement. It has therefore proposed that the search for a strategic investor continue. Such a partnership would give access to modern aircraft, an expanded route network, and a larger market. The objective of such a strategic partnership with an investor would be to attract and boost traffic by building connecting hubs, code sharing, joint loyalty and lounge programmes, and joint branding.

Box 2: ICAO Categorisation

A Category 2 rating means that the country's civil aviation authority (CAA) does not provide safety oversight of its air carrier operators in accordance with the minimum safety oversight standards established by the ICAO. This rating is applied if one or more of the following deficiencies are identified:

- the country lacks laws or regulations necessary to support the certification and oversight of air carriers in accordance with minimum international standards;
- the CAA lacks the technical expertise, resources, and organisation to license or oversee air carrier operations;
- the CAA does not provide adequate inspector guidance to ensure enforcement of, and compliance with, minimum international standards; and
- the CAA has insufficient documentation and records of certification and inadequate continuing oversight and surveillance of air carrier operations.

Indicative Implementation Plan (Table 34) sets out an indicative set of timelines for implementation of the proposed Civil Aviation Action Plan effectively from 2019 through 2030. The programme differentiates between urgent in red, important in orange and continuation of current efforts to maintain or improve. The programme proposes an early start on expanded programmes of staff training, development of standardised documentation for PPP programmes, prioritisation of role of the national carrier and the identification of strategic partnership for the airline. It is critical for the unbundling of CAAZ to be finalised in the next six months to allow the new ACZ to begin operationalisation as it will assume the functions of seeking strategic partnerships for airport management. The National Transport Masterplan can provide a foundation for the development of standardised guidelines for PPP programmes as well as design studies for the rehabilitation and expansion of airports.

Efforts are already being made by Government to improve the strategic airport hub, namely Victoria Falls International and Robert Mugabe International Airports. Subject to the availability of funding from CAAZ, an early start should address

the high priority rehabilitation and upgrade programmes for airport infrastructure at Joshua Nkomo International as well as key domestic airports. These would include implementation of proposed air space management, communications, and safety projects.

9.5. EXPENDITURE PROGRAMME FOR CIVIL AVIATION

9.5.1. Capital Expenditure Programmes

The future development of airport infrastructure and services in Zimbabwe will require a large amount of new capital spending, roughly estimated at about USD 238 million in 2017 prices. The bulk of the new capital outlays would be for the improvement of the Robert Gabriel Mugabe International, Joshua Nkomo Airport and New Beitbridge Airport, the combined cost of which is estimated at about USD 157 million. If international investors can be mobilised for these three projects, the remaining capital spending that would need to be met by CAAZ amounts to about USD 80 million. The Action Plan calls for a high priority to be given to the USD 45 million required

to upgrade air safety and communications equipment in order to facilitate compliance with the requirements of the ICAO and an upgrade by the FAA and EASA to Category 1. The key issue

related to their early implementation is the mobilisation of the funding required for the programme, which is discussed below.

Table 34: Indicative Implementation Plan for Civil Aviation, 2019 – 2030

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Capacity building programs												
Develop staff training programs												
Implement training programs												
Technical studies												
Prepare standardised documents for PPP programs												
Design studies for rehabilitation and expansion of airports												
Review role of Air Zimbabwe												
Revitalise Air Zimbabwe												
Institutional & Policy Enhancements												
Restructure CAAZ & commence operationalisation of ACZ												
Liberisation of air transport market												
Reclassification by FAA and EASA to Category 1												
Public Private Partnerships												
Identification of strategic investor for Air Zimbabwe												
Identification of potential partners for airport management												
Complete negotiations with private sector partners												
Implement partnership arrangements												
Airport improvement programs												
Implementation of air safety measurements												
Maintenance and upgrading of strategically important airports												

Source: Author's Estimates

9.5.2. Funding for Development Expenditure Programmes

As noted above, the total development expenditures for the proposed programme amount to about USD 240 million. The projected cash flow of CAAZ will not be sufficient to cover the total capital investment requirements of the proposed Action Plan. Given the very large competing claims on the national Government fiscus, it is very unlikely that the required amounts will be available from the national budget²⁶. Furthermore, the support for rehabilitation of the civil aviation infrastructure has not been a priority for the donor community. ACZ (if operationalised) would need to mobilise about USD 45 million to cover capital expenditures which relates to the urgently needed actions to improve air safety and communications.

In these circumstances, some form of private participation in airport operations will be required to mobilise the necessary funding for the airport rehabilitation and upgrading programme. A likely option would be a concession arrangement. ACZ would be responsible for the commercial aspects of airport operations will enhance prospects for attracting potential investors including securing the necessary funding for the new capital investments.

9.6. RISK AND UNCERTAINTY IN THE CIVIL AVIATION PROGRAMME

The main risks and uncertainties to be considered are:

- the extent to which CAAZ can implement needed improvements in air traffic control and safety to ensure compliance with ICAO requirements. Concerted efforts to ensure Zimbabwe is reclassified as a Category 1 by ICAO is critical to the growth of the tourism

²⁶ The TSP has listed the procurement of five weather radar systems as a priority with a cost of USD 6.5 million.

industry. Lack thereof would undermine efforts to rebuild the tourism trade and to attract potential private investors.

- prospects for a recovery in tourism and passenger traffic;
- whether measures needed to clean the balance sheet of CAAZ can be taken prior to starting negotiations with potential concessionaires; and
- how quickly the restructuring of CAAZ and by extension ACZ can be finalised. Until there is clarity on these issues potential investors will be deterred by the uncertainty surrounding the nature and timing of the restructuring. Formation of a successful partnership with one or more concessionaires will require a financially sound CAAZ and ACZ.
- Lastly, the risk around the shortages of critical aviation sector skills should not be underestimated. The loss of skills has stemmed from the deterioration in the domestic economy and the inability of CAAZ to provide remuneration packages for skilled staff competitive with those of similar organisations elsewhere in sub-Saharan Africa. A continuation of the current financial difficulties will exacerbate the current problems faced by CAAZ in retaining skilled staff and recruiting new staff with the required skills.

All of these concerns are directly linked to the way in which potential private investors will view investment opportunities in civil aviation in Zimbabwe.

10. RESTRUCTURING AND RECOVERY OF THE RAILWAYS SERVICES

10.1. OVERVIEW OF THE SECTOR

10.1.1. The Setting

The national railway is critical to the growth of the country's domestic, regional, and international trade as it connects all major economic centres and provides transport for bulk raw materials, finished goods, and passengers. As in most other African countries, the Zimbabwean railway system served as a primary conduit for agricultural and other natural resources. Within Zimbabwe, the railway network connects all major mines and heavy industrial plants, as well as major collection points for farms. The railway network also connects Zimbabwe to its neighbouring countries: Democratic Republic of Congo, South Africa, Mozambique and Zambia. The railway network is managed by the National Railways of Zimbabwe (NRZ) and Beitbridge Bulawayo Railway (BBR), a concession.

In the past decade, the capacity of the railway network to provide services has been severely reduced. The deterioration in track infrastructure, signalling, and telecommunication system is due to lack of regular repairs and maintenance resulting from financial constraints on the NRZ. There has also been a number of cases of vandalism and theft. Rehabilitation of the network and rebuilding the services offered by the rail network are therefore major priorities for the country.

10.1.2. Institutional Arrangements

Currently, the only institutions that have a role to play in the railway sector are NRZ, the Bulawayo-Beitbridge Railways (BBR), and the Ministry of Transport and Infrastructural Development (Figure 26).

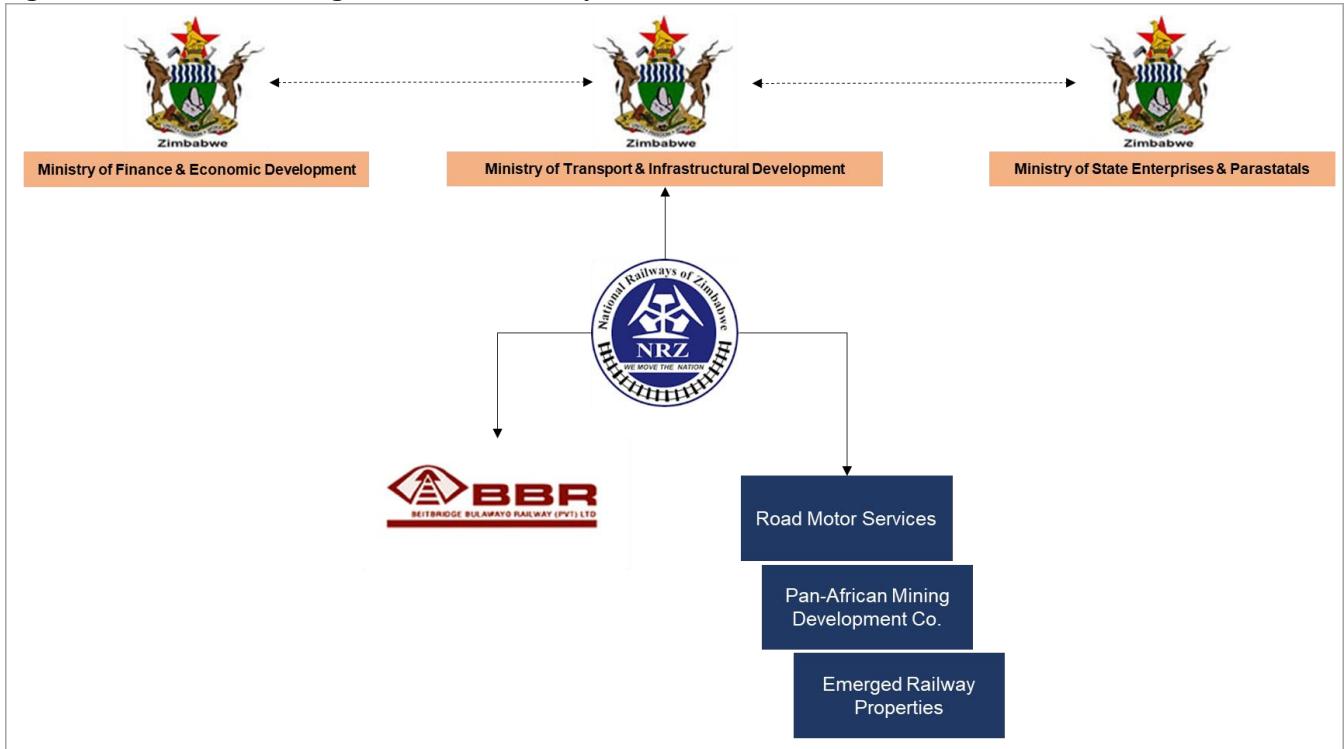
The NRZ is established under the Railways Act [Chapter 13:09]. The functions of the NRZ is for the provision, operation and maintenance of rail, road and inland water transport and pipelines, for the conveyance of goods and other related services within and for Zimbabwe and Botswana.

There have not been any institutional reform initiatives in the railway sector in the past seven years with the exception to recapitalise the NRZ. The Railways Act has not been amended to exclude the mandate of provision, operation and maintenance of road and inland waters. There is no separate regulator for the railway sector and the only recourse for the customers against unfair trade practice or monopoly behaviour by NRZ is to appeal to the Competition Commission.

Zimbabwe is one of the 14-member states that are signatories to the SADC Protocol on Transport Communications and Meteorology. The protocol recognises that transport is key in promoting economic growth and development in the region and calls for increasing private sector involvement in railway investment with a view to improving railway work and service standards and lowering unit costs. Chapter 7 of the protocol deals specifically with railways and Article 7.1 states that:

"Member States shall facilitate the provision of a seamless, efficient, predictable, cost- effective, safe and environmentally friendly railway service which is responsive to market needs and provides access to major centres of population and economic activity."

Figure 26: Institutional Arrangements for the Railway Sector



Source: Author's illustrations

10.1.3. Role of Private Concessions

Until the 1980s, almost all African railway companies were publicly owned corporations, with varying degrees of financial and management autonomy. In many cases, attempts at commercialisation while retaining public ownership were unsuccessful. As a result, concessions were introduced in many countries in the 1990s. Under the most common forms of concessions the state remains the owner of all or some of the existing assets, typically the infrastructure, and transfers the other assets (usually the rolling stock) and the responsibility to operate and maintain the railway to a concessionaire.

The most notable rail concession in Zimbabwe is the 30-year BOT Bulawayo-Beitbridge Railway that operates almost 330 km of the railway track. There has been a desire towards increased privatisation in the railway sector and until recently with the recapitalisation project, not much has been done to increase private sector participation. The

Transitional Stabilisation Programme focusses on introducing the necessary policies and institutional reforms to transform the economy into a private-sector led one. This will require a push to improve the financial performance of the NRZ in order to attract private financing. Since 2002, there have been 12 projects (including BBR) with some level of private sector participation (Table 35).

10.2. FREIGHT AND PASSENGER SERVICES

10.2.1. Freight Services and Prices

Freight services. The main commodities transported by rail are coal, chrome ore, raw sugar, and clinker. Reduced economic activity over the past seven years has had an impact on the utilisation of the freight services provided by the railways. Out of a total fleet size of 166 locomotives, only 60 are operational.

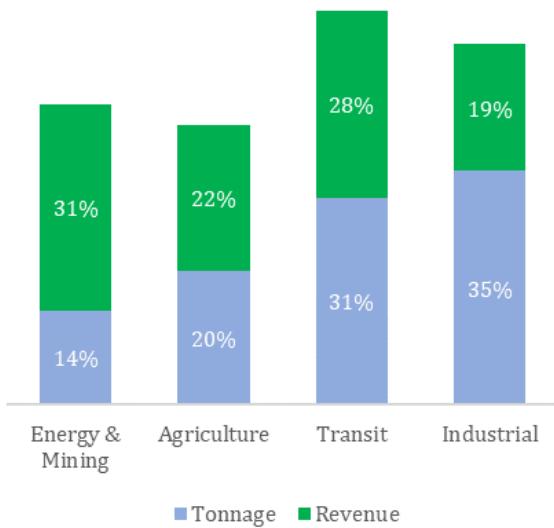
The industrial sector accounts for the largest share of tonnage carried by NRZ – see Figure 27.

Table 35: Private Sector Participation in Railway Projects, 2002 - 2017

Organisation	Date Agreement signed	Resources Proposed	Completed Refurbishment	Extent of Funding
Zimasco Private Limited	2002/11/28	5 x DE 10 locomotives 1 x DE 9 locomotive 100 Wagons	6 locomotives 100 wagons	USD 1,720,000
Hippo Valley/Triangle	2003/12/08	440 Wagons	380 wagons	USD 450,000
NOCZIM	2007/10/03	20 Ethanol Tankers	11 tankers	ZAR1,497,880
FFZ (SGI)	2010/01/27	2 locomotives 31 Tankers	2 locomotives 12 tankers	USD 1 180 000.00
MV Carriers	2010/12/11	29 DSI Wagons	29 DSI wagons	USD 475,897
Sakunda Logistics	2011/12/30	50 Tank Wagons	27 Tank wagons	USD 477,988
Strauss logistics	2012/01/25	60 Tank Wagons	60 Tank Wagons	USD 515,036
Zimbabwe Sugar Sales		2 x DE 10 locomotives 135 wagons	2 locomotives 135 wagons	USD 1,131,000
ZPC		2 x DE 11 locomotives 104 wagons	2 locomotives 104 wagons	USD 1,049,678
Bindura Nickel Corp		2 locomotives 50 wagons	2 locomotives 50 wagons	USD 237,000
BBR	2017/03/07	25 highsided wagons	25 highsided wagons	
SAS Fuel		57 Tankers	10 tankers	USD 150,000

Source: National Railways of Zimbabwe, 2018

Figure 27: Freight Services Tonnage and Revenue by Business Sector



Source: National Railways of Zimbabwe Annual Report 2016

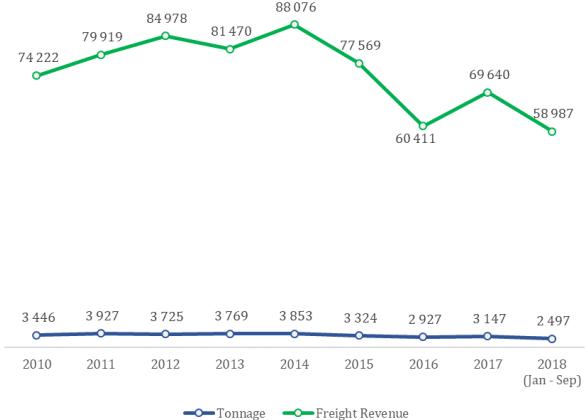
The NRZ has faced many challenges dating back to the 1990s. As a result of the liberalisation of the economy in general and the transport sector in

particular, the trucking sector emerged as a strong alternative mode of transport in direct competition with the railways. NRZ's traffic was further adversely affected by a number of developments beyond NRZ's control, such as the commissioning of an oil products pipeline between Mutare and Harare, discovery of iron ore deposits closer to the steel plant than the original iron ore mines served by the railways, production problems at the steel plant, slow growth of the economy, the closure of the local ferro-chrome industry for a considerable time, and the worsening of the economies of DRC and Zambia with a consequent reduction in long-haul transit traffic.

As a result, freight volumes declined to 9.4 million tons by 2000. The decline in freight has continued in the Lost Decade with about 3.8 million tons being carried in 2008 and only 2.7 million tons in 2009, equivalent to about 15% of the original

design capacity of 18 million tons. As of 2017, freight tonnage from NRZ activities was 3.15 million. Part of the decline in freight, and hence revenues of NRZ, stemmed from the downturn in the economy, but an important part of the decline was due to the railway not being able to carry all the traffic on offer.

Figure 28: NRZ Freight Revenue and Tonnage (in thousands), 2010 - Sept 2018



Source: National Railways of Zimbabwe, 2018

Freight rates. The NRZ freight rates are based on recovery of full cost plus a modest mark-up. Factors such as the type of commodity, its loadability, type of wagon used, and distance travelled have a bearing on the freight cost. As a result, rates for rail freight vary according to the commodity carried, in contrast to road hauliers who maintain a flat rate per vehicle per km, regardless of the commodity carried. Shorter distances typically have substantially higher charges per ton km for rail freight. Medium-distance freight must typically be transported by road to and from railheads, thus adding to the cost of moving such goods and reducing the attractiveness of rail freight services for shorter distances.

The average speed for the freight hauls reported in Table 38 is about 40 km per hour. The World Bank (2010) reports that for rail to be competitive with road freight services, average commercial speeds must be in the range of 30-40 km per hour, which suggests that freight services can compete with the road freight industry, especially in bulk cargo

movement. In general, NRZ's tariffs compare well with those of railway concessions in Sub-Saharan Africa.

Table 36: Average rates for freight services of the main commodities

Commodity	Average Rates (per ton)
Coal	USD 51.22
Chrome Ore	USD 27.86
Raw Sugar	USD 35.49
Clinker	USD 30.11

Source: National Railways of Zimbabwe, 2018

10.2.2. Passenger Services and Costs

NRZ operated mainline passenger services between Bulawayo to Harare, Victoria falls, and Chiredzi and between Harare to Mutare, daily each way, but this was suspended in 2009. As at 2018, NRZ only provides passenger commuter services in Bulawayo.

Table 37 summarises the NRZ routes status.

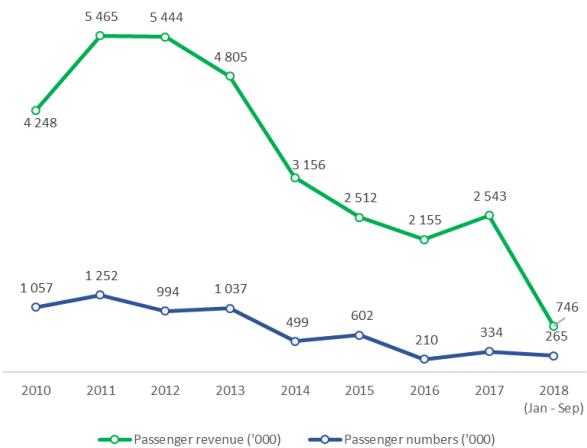
Passenger traffic reached a peak passenger traffic of 17.4 million in 2007. The number of passengers declined to about 265,000 as at September 2018. The commuter traffic has generally been a loss-making activity for NRZ because tariffs fixed by the Government are very low and cover only a fraction of the operating cost, ticketless travel is rampant, and utilisation of resources is also low. The drop-in passenger revenues from 2013 to 2014 were affected by strategic decisions to curtail passenger services in favour of more profitable rail freight business.

Table 37: NRZ Passenger Commuter Routes

City	Route	Status
Harare	City-Marimba	All runs were suspended in 2009 owing to lack of demand from the travelling public coupled with resource constraints by NRZ.
	City-Ruwa	
	City-Tynwald	
Bulawayo	City-Umganwini	Service reintroduced in November 2018 due to demand. The line has been extended to Esigodweni.
	City-Luveve	

Source: National Railways of Zimbabwe, 2018

Figure 29: NRZ Passenger Numbers and Revenue (in thousands), 2010 - Sep 2018



Source: National Railways of Zimbabwe, 2018

10.3. MAJOR CHALLENGES IN REBUILDING THE RAILWAY NETWORK

10.3.1. The Setting

The technical, operational, and financial performance of NRZ has been adversely affected by the macroeconomic instability of the Lost Decade and, in particular, the critical shortage of foreign exchange. With the sharply diminished financial capacities of NRZ, there has been a major deterioration in railway infrastructure and assets as a result of lack of maintenance and periodic rehabilitation of the track. The deteriorating state of the railways infrastructure has, in turn, resulted in accidents and derailments. The absence of a regulatory agency with responsibility for oversight of railway services is seen as a shortcoming in the

sector. The NRZ has also been affected by a substantial flight in key personnel and skills.

10.3.2. Dilapidated Condition of Infrastructure and Assets

Besides the country's economic performance, which had a significant effect on railways, low availability of locomotives and other rolling stock and the old and poorly maintained track have been among the main causes of the decline in service levels of the railway. The substantial deterioration in locomotives, wagons, and coaches over the past decade was the result of inadequate maintenance and non-replacement of obsolete assets that, in turn, stemmed from the weak financial position of the NRZ.

Track: The total rail network managed by the NRZ is 2,627 km of which 229 km or 9% is under caution²⁷. The rail network consists of 1,925 km of main lines supported by 731 km of branch lines – see Table 38. The BBR is a 30-year Build Operate Transfer (BOT) concession that has been operational since 1999. The BBR is responsible for a 385 km long direct line between Bulawayo and Beitbridge. There has been continued deterioration in the condition of the track over the past decade. In 2014, the NRZ despite financial constraints, undertook to re-rail 13 km of the Mutare-Harare railway mainline track, 13 km on the Bulawayo-

²⁷ Apart from sections under caution, some sections of the track require re-ballasting, re-railing, tamping, while yards require sleepers replacement.

Victoria Falls mainline and 21 km on the Nandi- Mkwashine branch line.

Table 38: Rail Network Lines Operated by NRZ

Route	Length	Speed	Description
MAINLINES			
Mozambique Border Machipanda to Harare	Mozambique Border/Machipanda - Mutare: 9.9 km Mutare – Harare: 268.7 km	Passenger at 90km/hr; Freight at 60km/hr	<ul style="list-style-type: none"> • Maximum length of train 132 axles • Maximum axle loads 16 200 wagons (bogies) kg
Harare to Bulawayo	Harare – Dabuka: 310.0 km Dabuka – Bulawayo: 172.3 km	Passenger at 90km/hr; Freight at 60km/hr	<ul style="list-style-type: none"> • Maximum length of train 200 axles • Maximum axle loads 18 600 wagons (bogies)
Mpopoma to Victoria Falls Bridge	Mpopoma-Thomson Junction: 344.0 km. Thomson Junction-Victoria Falls Bridge: 124.4 km.	Passenger at 90km/hr; Freight at 60km/hr	<ul style="list-style-type: none"> • Maximum length of train 152 axles • Maximum axle loads 18 600 wagons (bogies)kg
Somabhula to Chicualacuala and Beitbridge	Somabhula – Chicualala: 398 km. Rutenga - R.S.A. Border: 139.6 km.	Passenger at 90km/hr; Freight at 60km/hr	<ul style="list-style-type: none"> • Maximum length of train 160 axles • Maximum axle loads 18 600 wagons (bogies) kg
Bulawayo to Botswana Border (Plumtree)	Bulawayo - Botswana Border: 112.7 km.	Passenger at 90km/hr; Freight at 60km/hr	<ul style="list-style-type: none"> • Maximum length of train 112 axles • Maximum axle loads 17 200 wagons (bogies) kg
BRANCH LINES			
Chinhoyi Branch: Lochinvar - Zave/Kildonan	165/113 km		<ul style="list-style-type: none"> • Maximum length of train 120 axles • Maximum axle loads 15 200 wagons (bogies) kg
Shamva Branch	117.5 km	All Trains at 40km/hr	<ul style="list-style-type: none"> • Maximum length of train 120 axles • Maximum axle loads 15 200 wagons (bogies) kg
Redcliff Branch	8.7 km	All Trains at 40km/hr	<ul style="list-style-type: none"> • Maximum length of train 120 axles • Maximum axle loads 18 600 wagons (bogies) kg
Masvingo Branch: Gweru - Masvingo	199 km	All Trains at 40km/hr	<ul style="list-style-type: none"> • Maximum length of train 120 axles • Maximum axle loads 16 000 wagons (bogies) kg
Shurugwi Branch	38.5 km	All Trains at 40km/hr	<ul style="list-style-type: none"> • Maximum length of train 120 axles • Maximum axle loads 18 600 wagons (bogies) kg

Zvishavane Branch	21.8 km	All Trains at 40km/hr	<ul style="list-style-type: none"> • Maximum length of train 120 axles • Maximum axle loads 18 600 wagons (bogies) kg
Chiredzi Branch	104.0 km (Mbizi – Nandi)	Passenger at 90km/hr; Freight at 60km/hr	<ul style="list-style-type: none"> • Maximum length of train 148 axles • Maximum axle loads 18 600 wagons (bogies) kg
Chiredzi Branch	34.5 km (Nandi - Mkwashine)	All Trains at 40km/hr	<ul style="list-style-type: none"> • Maximum length of train 184 axles • Maximum axle loads 15 200 wagons (bogies) kg

Source: National Railways of Zimbabwe, 2018

An Infrastructure Condition Index (ICI) is used by the NRZ to rate whether rail infrastructure is good and safe. ICI values range from 1 to 10 with readings between 1 and 3 indicating good and safe infrastructure within the corridor. Readings between 3 and 7 indicate infrastructure that

requires some attention but is still safe provided caution is exercised. However, ICI readings between 7 and 10 indicate infrastructure that has to be attended to immediately and is unsafe for passage of trains.

Table 39: Condition of NRZ Railway Routes in Zimbabwe

Section	Infrastructure Condition Index (ICI)	Status
Northline (Bulawayo - Victoria Falls)	7.45	Unsafe
South East line (Somabhula - Chicualacuala)	6.7	Exercise caution
Bulawayo - Plumtree	5.5	Exercise caution
Harare - Gweru	4.8	Exercise caution
Harare - Mutare	4.15	Exercise caution
Gweru - Bulawayo	3.85	Exercise caution
Gweru - Masvingo	7.05	Unsafe
Gweru - Shurugwi	7.05	Unsafe
Mbizi - Chiredzi	4.65	Exercise caution
Chiredzi - Nandi	4.65	Exercise caution
Rutenga- Beitbridge	6.7	Exercise caution
Lochnvar - Zave/Kildonan	4.55	Exercise caution
Mt Hampden Shamva	6.05	Exercise caution

Source: National Railways of Zimbabwe, 2018

Locomotives and Wagons: Locomotive availability and utilisation are the most critical areas in operations. The locomotive fleet of 166 includes 60 that are not operational. NRZ's entire wagon fleet is over 30 years old. The wagon fleet in 2000 was 10,529, but the availability has deteriorated significantly in the past two decades. The wagon fleet stands at 7,150 as at 2018.

Signalling, telecommunication, and overhead electrification cabling has been cited a major challenge for the railway sector. Much of the

Zimbabwe railway network uses a centralised traffic control (CTC) signalling system, but much of the CTC is inoperative. Old copper wire communications and electrification networks have been vandalised, and the microwave backbone radio network is obsolete or inoperative. A strategy is in place to re-capitalise the NRZ to restore the critical role of rail transport in Zimbabwe.

The re-capitalisation programme targets refurbishment and replacement of NRZ rolling

stock, signalling, ICT and track infrastructure. This will be achieved under a joint venture partnership

arrangement with Transnet estimated to cost USD 408 million.

Table 40: NRZ Locomotive and Wagon Fleet

Wagon type	Age (years)	Fleet size (functional plus non-functional)
HIS	above 35	4537
DSI	above 35	1274
KKM	above 35	412
PNN	above 30	434
TANKS(FUEL)	above 30	493
Total		7,150
Locomotive Class	Age (years)	Fleet size (Locomotive Type)
Mainline	25	12 (DE11)
	36	56 (DE10A)
	above 30	15 (EL*)
Shunt	above 43	64 (DE9A)
	above 52	9 (DE6A)
	above 60	10 STEAM
Total		166

Source: National Railways of Zimbabwe, 2018

* The EL locos are now dysfunctional owing to vandalism of the overhead catenary wires and are stabled while steam locomotives are decommissioned from operations and are now used for rail safari trains.

10.3.3. Financial Constraints of NRZ

The financial problems of the NRZ are one of the major constraints on efforts to rebuild the railway services of Zimbabwe. These difficulties are not new. The NRZ has a long history of operating losses. The NRZ has been operating at a consecutive loss for the years 2010 to 2016 – see

Table 41. The NRZ finances its operations through revenue from passenger and freight services and loans from local financial markets. Average revenue per passenger for the period 2010 – 2017 was 0.19 US cents.

NRZ legacy issues extend beyond debt owed to suppliers to perpetual and inherent labour issues. The parastatal is one of the most saturated and staffed in Zimbabwe resulting in significant staff costs. Staff costs accounted for 93% of total revenue in 2015. To cover the continuing operating losses, NRZ has resorted to commercial borrowings and bank overdrafts. In 2016, the NRZ developed some key strategies to improve operational and financial performance.

Table 41: Summary of NRZ Operating Losses and Staff Expenditures (in USD millions)

	2016	2015	2014	2013	2012	2011	2010
RAIL SERVICES							
Operating Revenue	62.6	80.1	91.2	86.3	90.4	91.6	78.5
Operating Expenditure	84.0	96.2	103.1	100.0	121.1	111.4	81.1
Operating Loss	(21)	(16.1)	(11.8)	(13.7)	(30.7)	(19.8)	(2.6)
Total Staff Cost	57.8	74.3	74.7	69.0	76.7	77.4	60.6
Total Staff Employed (in numbers)	4 870	5 418	6 570	6 547	7 112	7 857	8 646
Average cost per employee	11 873	13 717	11 367	10 538	10 783	9 849	7 009
Salary cost to revenue	92%	93%	82%	80%	85%	84%	77%

Source: National Railways of Zimbabwe Annual Reports, 2011 and 2016

Annex Table 23

They included:

1. Reduction of salary to revenue ratio from over 90% to roughly 60% on the back of cost-cutting measures and an improvement in revenue as highlighted above;
2. Rebuilding customer confidence through Service Level Agreements (SLA) between NRZ and its regular customers which outline commitments to service delivery;
3. Flexibility in pricing tariffs which allows price adjustments as and when necessary to remain competitive; and
4. Sourcing funding for recapitalisation from the Government.

Only item 4 above had been fully realised at the time of writing.

10.4. AN ACTION PLAN FOR THE RAILWAYS SECTOR

10.4.1. Rebuilding Railway Freight and Passenger Services

Achieving increased freight and passenger movement requires action on refurbishment of an adequate number of locomotives and wagons, but if that would take time, lease of locomotives and wagons on appropriate terms or in consultation with the Government, suspension of some passenger services, and improved utilisation of locomotives to at least the highest level achieved in the past. The underlying assumption is that as service capacity and quality improve, the railways will be able to attract freight from the road transport industry because of lower freight rates. In addition, the NRZ has a robust real estate which

contributes to balance sheet if put to good use. NRZ has remained well below their capacity and the introduction of the recapitalisation programme can bring forth private sector solutions to the ailing NRZ.

The recapitalisation of NRZ commenced with the injection of USD 400 million in capital under a joint venture which will enable the parastatal to refurbish existing rolling stock and track infrastructure, including procurement of new assets. The recapitalisation project involves a joint venture (JV) between Diaspora Infrastructure Development Group (DIDG), Transnet and NRZ. DIDG and Transnet formed a JV for financing purposes and they in turn formed a JV with the NRZ. Progress was stalled due to continuous negotiations involving the GoZ and the Government of South Africa. The key issue around debt resulted in the Ministry of Finance and Economic Development agreeing to warehouse NRZ debt for a period. In early 2018, the NRZ took delivery of locomotives, passenger coaches and wagons from Transnet under the recapitalisation plan.

10.4.2. Proposed Action Plan

The proposed programme set out in this Report sets out an Action Plan for the NRZ to successfully implement their project pipeline in the decade ahead. Restructuring of the railways sector will be key to the successful implementation. The key features of the proposed new institutional arrangements are as follows:

- The Railways Act is amended to encompass a sub-sector level authority as well as remove the mandate of road and inland water away from NRZ.
- The Government would continue to own the track and related infrastructure such as signalling, communications, and electrification. A new public entity would

be established and would be responsible for the management and upkeep of this basic infrastructure. For the purposes of this Report, this new state enterprise is called the Railway Infrastructure Company of Zimbabwe (RICZ).

- Concessions would continue being granted for private operation of rail services on the entire network. There would be open access for freight concessions on the entire network. The 385 km of the Beitbridge Bulawayo concession would be excluded from these arrangements because it has exclusive rights to operate on this line for the 30-year life of the concession.
- The existing NRZ would be restructured to become a provider of freight and passenger services. Private equity would be brought into the company at the time of its restructuring. As a commercial company, the restructured NRZ would operate on strictly commercial principles comparable to those of other concessionaires. For the purposes of this Report, the restructured NRZ is called the Zimbabwe Railway Services Company (ZRSC).
- In the case of passenger traffic, the ZRSC would continue to provide existing commuter and passenger services. The concession agreement between the ZRSC and the Government would provide for payment of subsidies for operating losses incurred in the event that passenger tariffs continued to be set by the Government. ZRSC and other concessionaires would be able to operate high-end passenger services catering to the tourism industry.

One of the important advantages of this approach is that such vertical unbundling puts rail transport in a situation that is similar to road transport. Separating infrastructure from services facilitates the entry of more than one operator on a single

route. Direct competition among operators offers the possibility of improvements in efficiency and lower costs. In the case of Zimbabwe, a possible source of competition is rail services offered by neighbouring countries in an environment in which Zimbabwe implements the seamless travel policies of SADC and sets competitive access fees.

10.4.3. Institutional Improvements and Capacity Building

As noted earlier, no one agency is responsible for regulation and oversight of railway services in Zimbabwe. At the present time, the only recourse for the customers against unfair trade practice or monopoly behaviour by NRZ is to appeal to the Competition Commission. The justification for strengthening these regulation and oversight functions will be even greater in the event that private concessions provide a large part of the passenger and freight services in the decade ahead.

In the face of financial constraints facing the NRZ, the Government announced in the MTP its intention to proceed with the restructuring of NRZ. The restructuring of NRZ would result in formation of two new companies: the Railway Infrastructure Company of Zimbabwe (RICZ) and the Zimbabwe Railway Services Company (ZRSC). The working assumption is that the Government would retain ownership of the track and related facilities and would therefore be responsible for the design, funding, and implementation of rehabilitation and maintenance programmes. The suggested Railway Infrastructure Company of Zimbabwe (RICZ) would be responsible for the maintenance and operation of the railway infrastructure with exception to the Beitbridge-Bulawayo concession. The RICZ would be responsible for rehabilitation and maintenance of the railway infrastructure. The proposed new ZRSC would be privatised and would operate as a freight and passenger service concessionaire on the entire national network, other than the Beitbridge- Bulawayo concession, in competition with other concessions.

Zimbabwe will need to create an appropriate regulatory capacity. The guiding principle should be that regulation of the railways services is not complex and has the flexibility to protect the railway's share of transportation markets. The regulatory framework should therefore provide a stable legal and institutional framework and should foster competition and market mechanisms. The main responsibilities of the regulator would include regulating quality (service levels, safety, and environmental and technical standards), controlling monopolistic behaviour, and determining the overall characteristics of the sector's functions consistent with established competition rules, and with antitrust and commercial legislation.

Such an entity would need to have a capacity to impose annual independent financial and operational audits as part of concession contracts. The regulatory body should have the necessary political and technical powers to coordinate and oversee government actions towards private rail operators. Experience from railway concessions in other African countries is relevant here. These concessions typically have a long list of requirements for the concessionaire to meet. Careful consideration will need to be given to the rights and obligations of concessionaires and the RICZ and the related reporting requirements. These obligations should include financial and operational information required for independent annual calculations of concession fees and government subsidies, if necessary, as well as technical matters such as price policy and controls under the contract, arrangements for quality control, and access to infrastructure.

Safety is an important part of operational performance of the railways. Rail travel is safer than road travel, but the rail safety record in Zimbabwe has not demonstrated this. The inadequate safety record stems from obsolete track infrastructure, poorly maintained rolling stock, and lack of operational discipline. An important responsibility of the proposed

regulatory authority would be the formulation and oversight of a range of regulations related to safety and environmental concerns. A range of issues arise in the case of environmental concerns, including, for example, engine pollution, noise, and transport of hazardous materials. Similarly, a range of issues arises with respect to regulation and safety. The definition and enforcement of safety procedures includes a system of operational and technical standards to ensure safety and safe operation throughout the network. In the event that the Government opts for an open access system for provision of rail services, there must be suitable arrangements for a rail track controller to ensure safe coordination among different operators using the same tracks or stations.

A key set of activities are the various technical studies that will be required to initialise the Action Plan, including a strategic plan for the restructuring NRZ and further development of the sector, a business plan for the award of concessions, and a detailed assessment of freight and passenger traffic by route. The TMP already begins to unpack this. The analysis of existing and projected traffic flows will provide insight about those branches that will be profitable and those that may be loss-makers because of a combination of short distances and competition from the road freight industry. The TMP suggests a classification similar to that of the road sector. It is recommended that there be three groups: primary, secondary and other routes. The design work will need to address the profitability of passenger and freight services on these routes. The loss-making branches may not attract the services of concessionaires in the absence of specific conditions in the concession agreements.

10.4.4. Indicative Implementation Plan

Table 42 sets out an indicative set of timelines for implementation of the proposed railways Action Plan. The plan proposes an early start on

restructuring plans for the unbundling of the NRZ and expanded programmes of staff training to build the internal capacities required for effective implementation of the proposed Action Plan. The rehabilitation of the track, beginning with programmes to upgrade track and remove speed restrictions, would be completed over a 12-year period.

The programme for track rehabilitation would have to be coordinated closely with the proposed

programme for DIDG and Transnet consortium as well as the new institutional set up of the railway sector. A key issue that may emerge in negotiations with concessionaires is the amount of track to be rehabilitated prior to a grant of a concession agreement. There may be important implications for the amount and timing of rehabilitation of the additional track to be used by the concessionaires. The possible options for these arrangements are discussed in the section below on risks and uncertainties.

Table 42: Indicative Implementation Plan for Railways Sub-sector, 2019 to 2030

	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Capacity building												
Develop staff training programmes												
Implement staff training programmes												
Technical studies												
Preparation of business plans for RICZ												
Preparation of business plans for ZRSC												
Evaluation of project technical studies												
Institutional and policy enhancements												
Restructuring of NRZ												
Rehabilitation of railway network												
Recapitalisation of NRZ												
Rehabilitation of tracks												
Rehabilitation of signalling, equipment, etc.												

Source: Author's Estimates

10.4.5. Capital Expenditure Programmes

Capital expenditure estimates provided herein are based on the estimated project costs provided by the NRZ required for rehabilitation, repair and acquisition. The proposed pipeline is estimated to

cost the NRZ USD 400 million. Acquisition and refurbishment of locomotives, wagons and coaches is estimated to cost USD 145 million. Rehabilitation of signals, electrical components and tracks is estimated at USD 206 million. Plant and equipment and technology is estimated to cost USD 48.5 million.

Table 43: Summary of Estimated Costs Required for Rehabilitation, Repair and Acquisition

	Number to be Acquired	Number of Refurbishments	Amount (USD Millions)
Locomotives	30	27	94
Wagons	322	500	45
Coaches	-	162	6
Track Rehabilitation	-	-	102
Signal Rehabilitation	-	-	101
Electrical Rehabilitation	-	-	3
Plant and Equipment	-	-	42
Information Technology	-	-	7
Total			399

Source: NRZ, 2018

10.4.6. Funding for the Development Expenditure Programmes

Implementation of the proposed railways programme calls for the mobilisation of about USD 400 million of funding for track rehabilitation and repair and replacement of rolling stock and other equipment and facilities in the decade ahead, as well as for capacity building and studies. There are four potential sources of funding for the railways programme: the National Government; National Railways of Zimbabwe and its successor entities, the Railway Infrastructure Company of Zimbabwe, and the Zimbabwe Railway Services Company; private concessionaires and commercial banks; and the international donor community.

10.5. MANAGING RISK AND UNCERTAINTY IN THE RAILWAYS SECTOR

A number of major uncertainties are associated with the proposed programme for rehabilitation and restructuring of the railways sector, and implementation of the Action Plan must contend with a number of risks. As with the road transport programme, the risks and uncertainties of greatest interest at this stage relate to the design, funding, and implementation of the proposed programme. Of particular importance are the arrangements for restructuring the railways sector, the prospects for growth in demand for rail and passenger traffic, the design of concession arrangements and their attractiveness to potential investors.

The proposed major restructuring of the railways sector involves splitting the NRZ into two separate entities: the Railways Infrastructure Company of Zimbabwe (RICZ) and the Zimbabwe Railway Services Company (ZRSC). Moreover, a regulatory authority is proposed to oversee the provision of railway transport services. Government stated its intent to restructure the railways sector in the Medium-Term Plan however the plan was met by

concerns within various groups. Therefore, for there to be successful restructuring, there will be a need for stakeholder buy-in from different interest groups and at all levels of Government.

Growth in freight and passenger movement is also important for the NRZ to increase its revenue base. In a recovering economy, demand for railways services will continue to outstrip service capacity unless and until there is substantial investment in rebuilding this capacity. Slow progress on rail services will add significantly to challenges associated with rehabilitating the rail network, and will undermine efforts to reduce transport costs and promote domestic and international competitiveness.

The other major concerns are around the importance of the level of debt taken on by the concessionaires. The NRZ is highly leveraged which would expose concessions to the risk of liquidity problems if revenue growth is impaired for any length of time.

Another key issue for the move towards concession-based provision of freight and passenger services relates to competition policy in the provision of these services. The entire rail network (except for the 385 km currently under a 30-year concession with exclusive access rights) should be open to concessionaires who can then compete for freight traffic and high-end passenger traffic. Opposition to an open competition approach could perhaps result in series of monopolistic arrangements in which one or more concessionaires each get exclusive rights for service provision on specific sections of the network. The obvious risk here is that freight rates would be higher than they would be under a competitive arrangement for concessions.

11. INFORMATION AND COMMUNICATIONS TECHNOLOGY

11.1. THE SETTING

There has been a significant proliferation of Information and Communications Technology (ICT) services in sub-Saharan Africa in the past decade. The expansion in ICT services has been dominant in data and voice services with notable growth experienced by the internet mobile networks. Fixed-line telephone services have grown at a much slower rate in comparison with the aforementioned technologies.

Southern Africa has, until recently been heavily reliant on satellites to manage its long-distance telecommunications. With undersea communications cables infrastructure capitalised on and adopted in the region, in line with international trends for the provision of optical fiber broadband internet, fast speed internet services have been utilised with growing demand regionally. Digital telecommunication networks, consisting of domestic and cross-border terrestrial

links and international undersea highways, is recognised worldwide as the main catalyst of development and as an enabler of development which can benefit both corporate and private users. For this reason, broadband network infrastructure projects are particularly relevant for the region and form part of the New Partnership for Africa's Development (NEPAD) agenda in the ICT sector within the Southern Africa region.

There has been a simultaneous push by African leaders to accelerate the development of the communications industry, with some sector developmental programmes in the continent to leverage ICT as a lever to enhance economic growth. The development and adoption of an ICT Masterplan was at the top of the agenda at the African Union (AU) Head of States' Summit in January 2018 with emphasis on the adoption of high-speed internet technologies to accelerate the development of the continent.

Box 3: ICT Developmental Programmes 2012-2022

- The Smart Africa programme was signed in 2013 by African leaders with the goal of accelerating African socio-political development through ICTs at the Transform Africa Summit (TAS).
- Member states signed an ICT manifesto at the 22nd AU Summit in 2014, to leverage ICTs to promote a digital economy in the continent with the support from the World Bank, International Technology Union (ITU) and the African Development Bank.
- The development and adoption of an ICT Masterplan was atop the agenda at the AU Head of States' Summit in January 2018 towards a direction of adopting high speed internet technologies accelerate the development of the continent.
- The European Union in Africa developed a development plan for Africa, prioritising ICT capability building, free and open access to the internet (2014-2018), with emphases on producing ICT graduate and training of women in the sector.
- The UNCTAD, in 2016 presented key sectors and action plans that will see the ICTs being used to attain the UN's Sustainable Developmental Goal for 2030. These are inclusive of mitigating the prevalent social challenges namely poverty reduction, education, gender quality.

The AU suggests that each country in the continent own and operate at least two undersea cables, with the landlocked countries also having alternative route access to the coastline to achieve rapid growth in the sector.

11.2. POLICY FRAMEWORK AND INSTITUTIONAL ARRANGEMENTS

Policy Framework for the Telecommunications Sector. The Government of Zimbabwe (GoZ) approved an ICT sector reform policy in 2016 that calls for universal access to affordable telecommunications and postal services. There was emphasis on the need for improvements in service availability and quality, and the development of new services through infrastructural development, de-monopolisation, privatisation and Public-Private Partnerships (PPPs). The implementation of the policy began with the Postal and Telecommunication Act of 2000. This effectively in-part liberated the monopoly of the Post and Telecommunications Corporation, which was split into three commercial units, the fixed-line telephone provider (TelOne), the mobile cellular company (NetOne), and the public postal operator (ZimPost). This bill also provided for the creation of the Postal and Communications Regulatory Authority of Zimbabwe (POTRAZ), whose purpose is to ensure a level playing field in the sector. Its mandate is to license operators, ensure that the services provided are of an acceptable standard and promote the development of the sector. Its operating budget is funded predominantly through revenues from licensing and levies on the gross turnover of operators in the ICT sector. Those granted licenses are required to contribute to a Universal Service Fund (USF) designed to support the expansion of communications services to under-funded areas.

Institutional Arrangements for the Industry. The GoZ currently controls the ICT regulatory agencies and commissions, POTRAZ, Broadcasting Authority of Zimbabwe (BAZ), Zimbabwe Media

Commission (ZMC) and a number of the dominant service providers in the market. These entities fall under the auspices of the Ministry of Information Communication Technology and Cybersecurity's portfolio. These include TelOne, NetOne, and the Zimbabwe Broadcasting Corporation. TelOne and NetOne are currently fully owned by the government, yet their privatisation was approved by government in 2001. Its then planned equity structure was to leave the Government with 70% shareholding with the remaining 30% be offered to a strategic private partner. Before the creation of the Ministry, responsibility for the Information and Technology Policy and activities in Zimbabwe was fragmented among various ministries, including the Ministry of Science and Technology, the Ministry of Media, the Ministry of Transport and Communications, and the Ministry of Finance. The creation of the new Ministry aimed at resolving a number of the issues related to divided and specialised responsibilities, but part of the responsibilities for ICT policy and programmes remain with the Ministry of Media, Information and Publicity, which oversees some of the regulatory programmes for the ICT sector.

Figure 30 provides an overview of the institutional structure within the ICT sector.

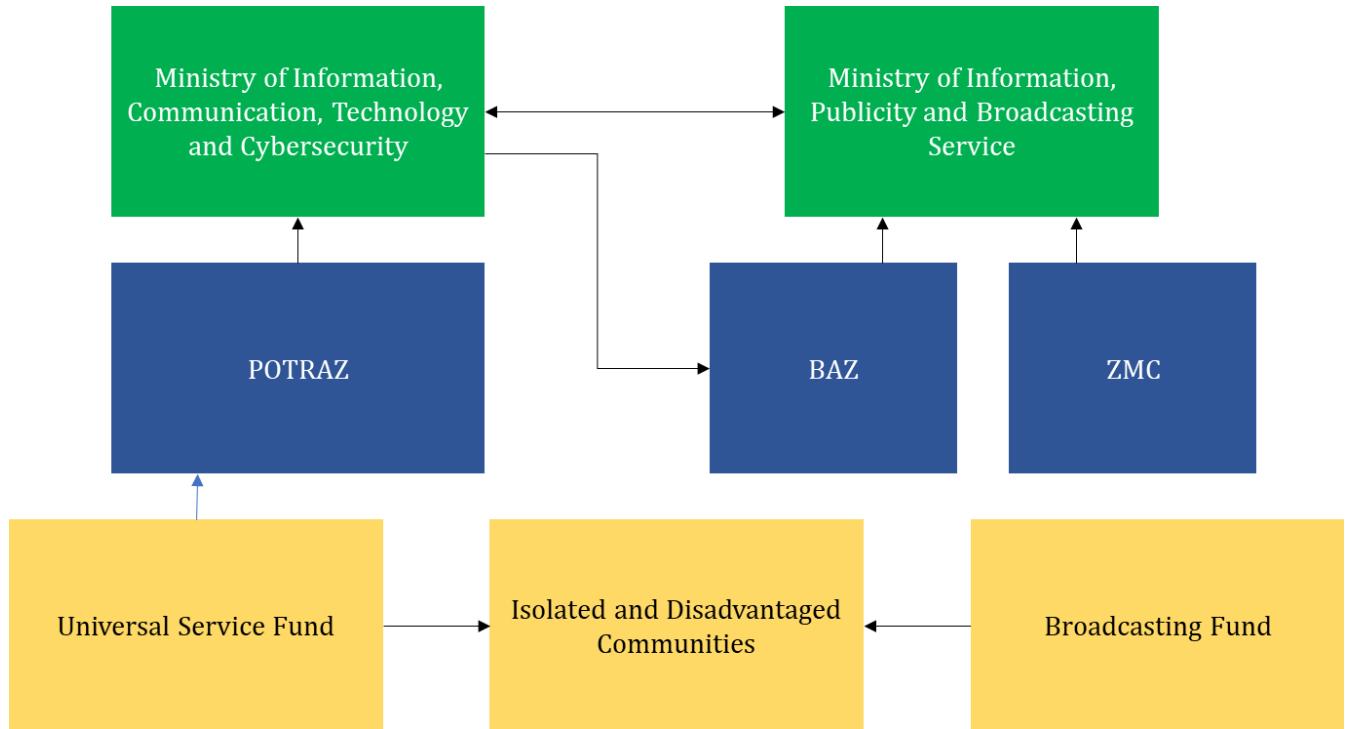
Legislative Framework for Regulation of ICT

POTRAZ is governed by the Postal and Telecommunications Act of 2000 (chapter 12:5), the Broadcasting Services Act of 2001, the Interception of Communications Act of 2007 (chapter 11:20) and Competition Act of 2001 (chapter 14:28). This legislation enables the following regulations for Zimbabwean operators; Interconnection S.I 28 of 2001, International Termination Rates S.I 263 of 2008, Internet Services S.I 262 of 2001, Penalties S.I 162 of 2008, Postal S.I 238 of 2001, SI 11A of 2001 Licensing and Certification, Statutory Instrument 87 if 2015 VSAT Regulations and Sim Registration SI 95 of

2014. At present, regulation of the ICT sector is divided between POTRAZ and the Broadcasting Authority of Zimbabwe (BAZ), with POTRAZ

reporting to the Ministry of ICT and BAZ reporting to the Ministry of Media, Information and Publicity.

Figure 30: Institutional Relationships within the ICT Sector



Source: Ministry of Information Communication Technology and Cybersecurity

The Media Institute of Southern Africa (MISA), Zimbabwe, describes the legal and regulatory framework as “one of the few in the region with virtual government monopolies in broadcasting and fixed telephone service provision.” MISA recommends that the separation of power and authority will help decrease instances of regulatory confusion in cases where one institution oversteps its legal mandate.

BAZ is mandated to establish and manage the Broadcasting Fund (BF) whose main purpose is to provide disadvantaged communities with access to television and radio services and provide funds for the development of Zimbabwe’s film and music industries. The Fund is not required to make its accounts available to the public, so there is no clear record of the extent to which Fund resources have been used in the manner intended. There has also been concerns about BAZ failing to provide

broadcasting licenses to private operators, where licenses are currently with State Owned Companies.

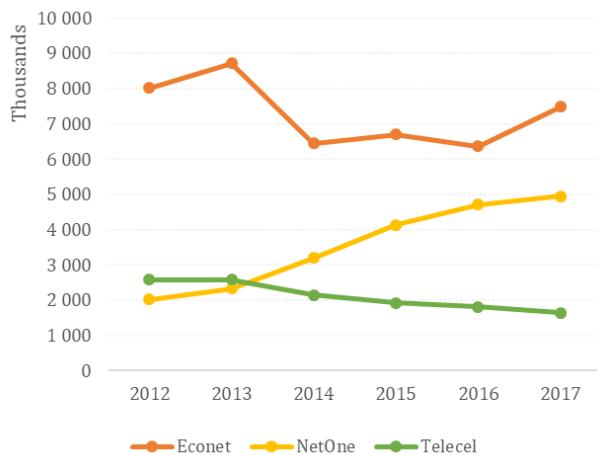
In 2001, the Government announced a policy on universal services that was modelled along the universal service guidelines of SADC and created the USF. Operators contribute 2% of their gross revenue to fund projects in underdeveloped areas. POTRAZ, in turn invests these funds into ICT initiatives. In 2017, POTRAZ invested USD 7.3million of the USF in ICT initiatives, representing a 78% increase in investment from the USD 4 million invested in 2016.

11.3. EXISTING ICT SERVICES IN ZIMBABWE

ICT services have been affected by the political and economic crisis experienced in the past two

decades, as have all other sectors of the economy. The country's economic challenges resulted in near stagnation in the ICT sector, mainly because of foreign currency shortages that hampered efforts to expand and modernise existing networks. Owing, in part, to this crisis, the country has missed the opportunities and benefits that accrued to other countries which harnessed ICTs for the wellbeing of their populations. The benefits that accrued to other African countries, such as the creation of employment, greater social interaction, improved business efficiencies, access to information and knowledge, and widening people's freedoms, largely escaped most Zimbabweans.

Figure 31: Active Subscriber Accounts with Main Service Providers (in Millions)



Source: POTRAZ, 2017

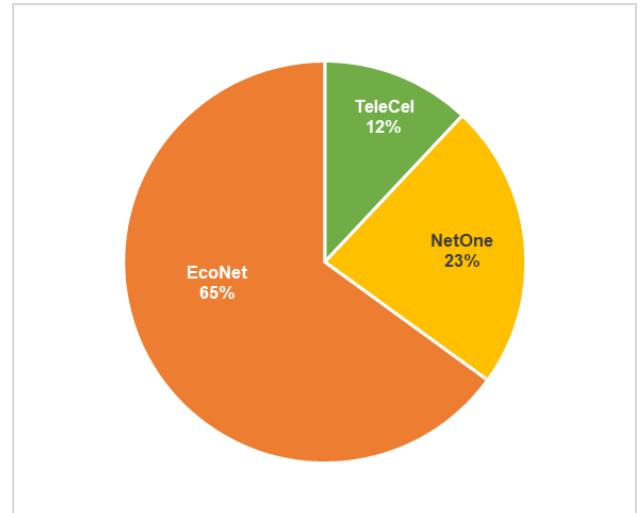
11.3.1. Voice Services

EcoNet is Zimbabwe's leading mobile operator with a market share of over 70%. Zimbabwe's state-owned mobile operators, NetOne and Telecel both of whom are owned by the government occupy second and third place in this sector respectively. Zimbabwe's fixed-line service is still operated by the monopoly operator, TelOne.

There has been a meagre increase in the number of active fixed lines of 0.35% increase in the first quarter of 2018 when compared to the last quarter of 2017. The fixed tele-density continues to stagnate in 2018 from 2017. The relatively low prices for fixed line services has obvious

implications for the financial position of TelOne, the parastatal service provider. POTRAZ has tried to balance the legitimate demands by operators for a tariff structure that ensures their financial viability with an obligation to ensure an affordable service for the consumer.

Figure 32: Active Subscriber Accounts with Main Service Providers



Source: POTRAZ, 2017

In mid-2000 the Government approved a Second Public Fixed Telecommunication Services license for privately-owned company TeleAccess Zimbabwe (Pvt) Ltd. TeleAccess originally aimed to invest up to USD 540 million to set up infrastructure throughout the country, targeting the corporate market, but also offering telephony services with a combination of phone shops and phone booths installed in major stores. The TeleAccess license was not issued until December 2002 owing to a dispute over the license fee proposed by the Government. Eventually, a 20-year license was issued, but this was withdrawn in December 2005 because of failure to achieve the level of expansion required under the agreement. TeleAccess challenged this withdrawal in court and subsequently lost in 2015. The growth of mobile telephony and services has, in the past decade been substantially lower in Zimbabwe than in many other parts of Sub-Saharan Africa.

Mobile cellular subscriptions per 100 inhabitants is 85.2 and fixed-telephone subscriptions per 100

inhabitants being 1.6. There has been growth in the number of base stations per technology. 2G still leads the largest number of base stations of 4,828, 3G with 2,696 and LTE with as little as 951 base stations in the country.

As shown in

Table 44 , Zimbabwe's active mobile subscribers was 11 728 478 as at the first quarter of 2018, a

16.8% decline from the last quarter of 2017. Also declining was the mobile penetration by 18% to 84.6% from 102.7% when regarding the same time period. NetOne lost the largest number of subscribers, with a decline of 46.7%, followed by Telecel with a 12.4% loss. EcoNet's active subscriber base increased from 53% to 65%, representing a 2.2% growth.

Table 44: Active Subscriber Accounts with Main Service Providers, Q4 2017 and Q1 2018

Operator	4th Quarter 2017	1st Quarter 2018	% Change
Econet	7 488 588	7 651 312	2.20%
NetOne	4 957 105	2 634 137	-46.90%
TeleCel	1 646 411	1 443 029	-12.40%
Total	14 092 104	11 728 478	

Source: POTRAZ, 2018

11.3.2. Active Mobile Subscriptions

Growth in the mobile sector continues to outperform that of fixed lines. The fixed tele-density remains at 1.9% with a meagre 0.35% increase from the last quarter of 2017. The least number of active fixed line subscribers are at the rural areas, with 3.2% active lines.

Between 2012 and 2017 the number of subscriptions for fixed lines reduced from 302,000 to 264,000, in contrast, mobile subscriptions increased by 35%. Harare dominates the fixed line subscriber base of 88.1% and 8.7% in other urban areas. The fixed line network continues to be dominated by the government- owned, TelOne. The fixed voice traffic decreased by 15.5% in the same period from 124 million minutes to 105 million minutes.

From the above data, there are continuing sectoral difficulties with service provision. Accurate data on effective demand for telephony in Zimbabwe are not available, but it is clear that all the operators suffered capacity constraints. Demand for telephony far outstrips supply, creating a suppliers' market. Poor service quality, especially network congestion, has been a feature of

telephony in Zimbabwe. The shortage has created a service capacity gap that needs to be addressed.

Figure 33: Subscriptions for Mobile Versus Fixed-Lines (in numbers), 2012 to 2017



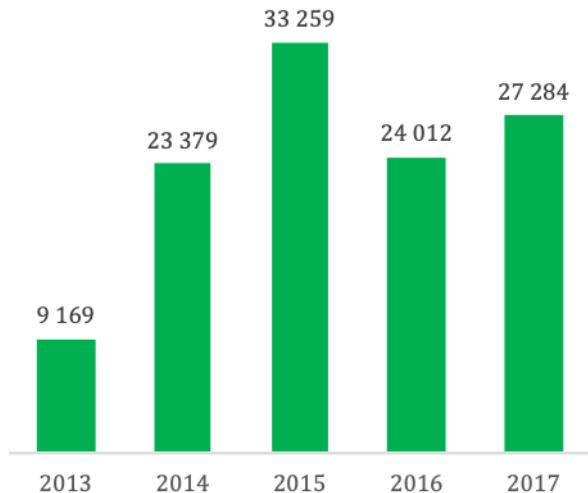
Source: POTRAZ, 2018

11.3.3. Mobile Money

Zimbabwe's multicurrency crisis instigated by the economic crash has prompted the country to leap frog to a mobile money means of exchange. This has led to the proliferation of the now prominent medium of exchange, with all the dominant mobile service providers providing this service. With the uncertainty of the national currency, Zimbabweans are fast adopting mobile money which requires a developed and sustainable information systems

platform for it to thrive in the medium to long term. Figure 34 shows the growth in mobile money outlets between 2013 and 2017, whereby the number of outlets grew from 9,200 in 2013 to 27,300 in 2017. This is indicative of the rapid expansion of mobile money as a currency.

Figure 34: Mobile Money Outlets (in numbers), 2013 to 2017



Source: POTRAZ, 2018

EcoCash owned by EcoNet is by far the largest provider of this service with the most active subscribers, a market share of 96.8%. There are 5 million active mobile money subscribers and is an increase of 6.35% from 4.7 million as at end of 2017.

Table 45: Active Mobile Money Subscribers with Main Service Providers, Q4 2017 and Q1 2018

Operator	4th Quarter 2017	1st Quarter 2018	% Change
Econet	4 574 409	4 847 014	5.96%
TeleCel	79 427	79 643	0.27%
NetOne	52 940	78 968	49.17%
Total	4 706 778	5 005 625	6.35%

Source: Econet, TeleCel and NetOne, 2018

11.3.4. Internet Services

Internet services continue to increase in Zimbabwe with notable strides in the development of infrastructure due to the demand of these services. Commercial services providers have entrenched various internet services as means to stay abreast with current trends. Although by comparison to countries in the region, Zimbabwe lags behind in

the internet speeds and accessibility, there is a gradual increase in the use of internet use.

The main service providers in the Internet service provider (ISP) market are Liquid Telecom, EcoNet, Africom, Aptics, Aqcuvia, Dandemutande, Pecus, Powertel, Telecontract and TelOne. The national internet backbone is currently at 9.6.MB/s in download speed and 7.39MB/s in upload speed as at September 2018.²⁸ Subsequently, there has been consolidation in the ISP market with larger ISPs buying smaller ones to strengthen their positions in an increasingly competitive operating environment. An instance being Liquid acquiring ZOL. There are also a significant number of emerging ISPs based in Harare, Mutare, and Bulawayo. Measuring internet use in Africa is highly speculative. Estimates suggested that by the end of 2007 more than half of the 50 million users were in North Africa and South Africa. By the end of the first half of 2018, the number of internet users in the continent had doubled.

There has been a steady increase in the number of active internet subscriptions between 2012 and 2017. The country had 3.9 million active subscribers in 2012, this increased to 7 million in 2017.²⁹ This amounted to the increased internet penetration by 1.3% to 52.1% from 50.8% recorded in 2017. Although these figures are presented by POTRAZ, it is to note that the ITU presents Zimbabwe's penetration rate at 23.12% when compared to other countries in the region.

11.3.5. Broadband Services

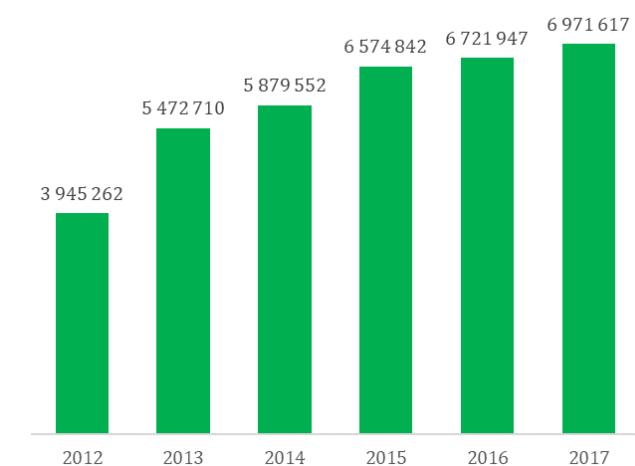
In recent years, there has been substantial progress in providing the eastern Africa seaboard with access to the international submarine cable network. The Southern Africa Telecommunications Association (SATA) Backhaul Links project is closely linked to the Eastern African Submarine

²⁸ Zimbabwe Internet Service Providers' statistics sourced from <https://www.broadbandspeedchecker.co.uk/isp-directory/Zimbabwe.html>

²⁹ <http://www.internetlivestats.com/internet-users/zimbabwe/>

System (EASSy) project which entails the development of an optical fiber submarine cable network with onshore landing points at strategic locations along the entire eastern seaboard. Broadband connectivity system requires the development overhaul transmission system which Zimbabwe as a landlocked country accesses via landing stations, in addition to a submarine cable infrastructure. Zimbabwe has connected the undersea fiber cables through EASSy to the East in Mozambique, WACS along the West Coast to London and SEACOM to the South in South Africa.

Figure 35: Active Internet Subscriptions, 2012 to 2017



Source: POTRAZ

Within Zimbabwe, connectivity to the regional fiber optic network has grown significantly with internet access provider (IAP) companies like Liquid Telecom and Econet at the helm, entrenching over 10 000 km of fiber cables in Zimbabwe. Mobile operators do not require high-capacity backbone networks to carry voice traffic and have developed their own using wireless technologies. Cross border backbone connections into Zimbabwe include the Mozambique connection up to the border near Mutare, the Harare to Plumtree connection operated by Econet, which is fully functional, and the Harare to Zambia connection. Figure 36 provides a comparison of subscriptions and bandwidth between Zimbabwe and other east and Southern African countries.

Zimbabwe has comparable levels of subscribers using the internet, for fixed broadband and mobile broadband, however, lags behind in respect of international bandwidth available per internet user.

International internet bandwidth has increased by a margin from the first quarter of 2017 to 2018. Used incoming international bandwidth increased by 17% to 56 242 Mbps at the beginning of 2018 from 48 017Mbps in the first quarter of 2017. Liquid Telcom has had the largest market share for used capacity with TelOne obtaining second place, with 77.7% and 16.9% used capacity respectively. Revenues generated by the IAPs in the 1st quarter totaled USD 79.45 million, representing a 52.18% increase from 2017. This is indicative of a service that is in high demand and presents an opportunity for investment in the development of infrastructure which can make for the transmission of data services available and efficient.

Status of e-Applications in Zimbabwe. Simply defined, e-government is the use of ICT integrated web-based applications to promote more efficient and effective government, facilitate the accessibility of government services, allow greater public access to information, and make governments more accountable to citizens. The implementation of e-government in Africa, including Zimbabwe, has progressed steadily over the years. Zimbabwe currently has an e-government development index of 0.3696, and ranks 146 out of 193 countries.

In Africa, the top five ranked countries are Mauritius (0.6678); ranking 66 out of 193, South Africa (0.6618); ranking 68 out of 193, Tunisia (0.6254); ranking 80 out of 193, The Seychelles (0.6163); ranking 83 out of 193 and Ghana (0.5390); ranking 101 out of 193.

Challenges cited for lagging behind in e-government includes unpreparedness of government to recognise the immense benefits of a

well-functioning e-government system, inadequate data analysis, open source and cloud technology infrastructure, inadequate human capital, skills and strategic leadership, and customised applications and tools tailored for the Zimbabwean national community.

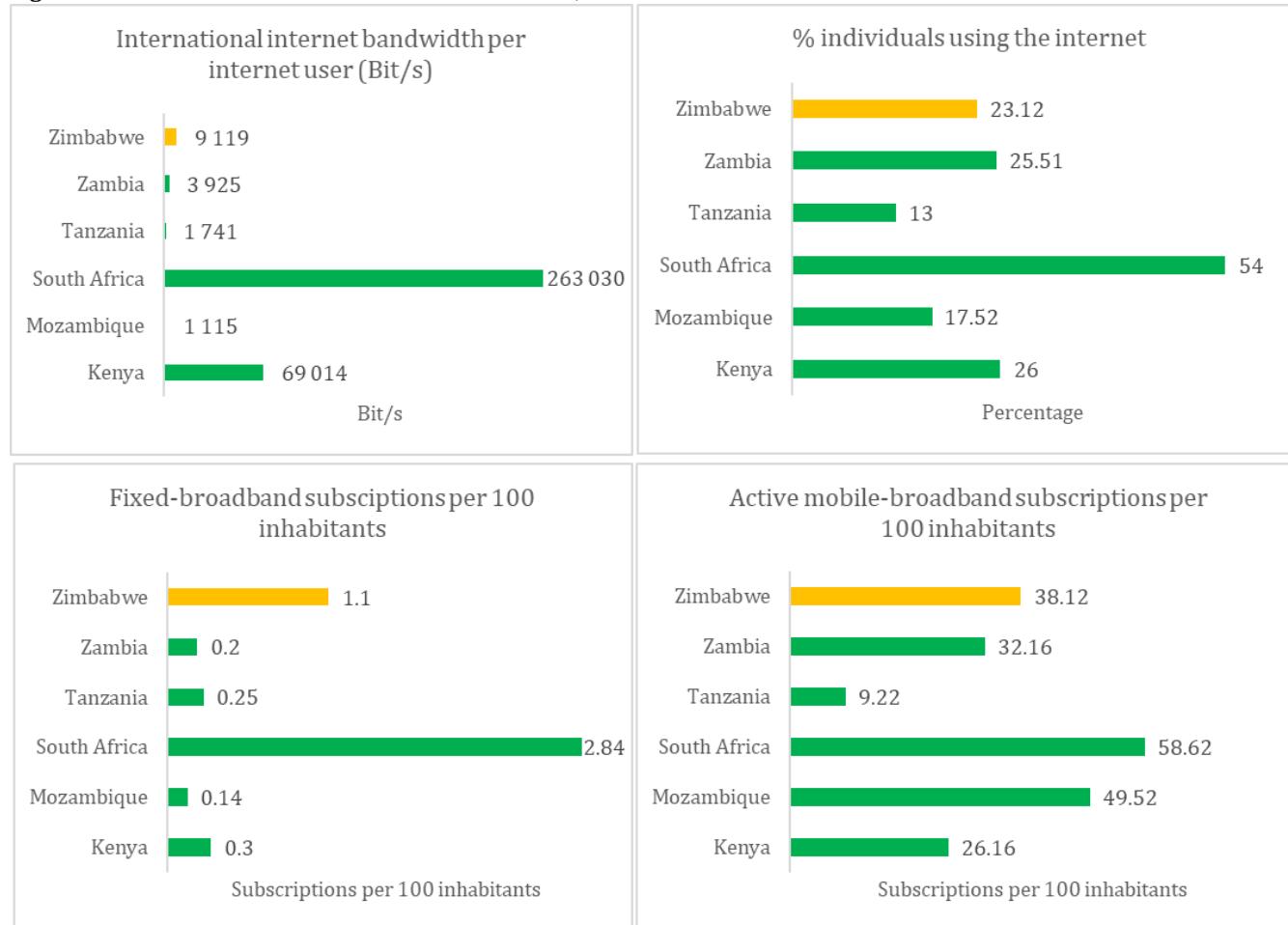
At present, some government websites are either not available or are still running on obsolete templates/designs and have outdated information, thereby making conducting business difficult. Zimbabwe has put in place a number of initiatives to build public interest in and spurring of development in the sector. These initiatives include:

- POTRAZ has, in 2018 launched an ICT Innovation Drive. It seeks to bolster ICT related innovation by offering funding to innovators that are making technical

advancement in various sectors. At the time of this report's compilation, Government had funded 6 programmes.

- The Government in consultative conjunction with institutions of higher learning is finalising the ICT policy on Education as a way to promote interest into information systems with key elements focusing on Digital Access and Inclusion; Professional Development; Digitised Curriculum, Content and Assessment; Learning Models, Communities and Environments; Innovation, Research and Development; and Management and Administration Efficiency.

Figure 36: Indicators for Internet and Broadband Use, 2017



Source: International Telecommunications Union (ITU), ICT Development Index 2017

11.4. MAJOR CHALLENGES FACING THE ICT SECTOR

Overview of the Issues. It is widely acknowledged that ICT infrastructure is a key determinant of development in the knowledge era. The continent continues to lag behind in this regard. For this trend to be reversed, intensifying investment in infrastructure will be a key enabler in this crucial period when Africans need to catch up and capitalise on the opportunities offered by ICTs. Zimbabwe still lags behind other countries in Sub-Saharan Africa in its efforts to take full advantage of the remarkable transformation made possible by ICTs in the past two decades. Like many other countries in the region, Zimbabwe has introduced some degree of infrastructure competition in the telecommunications sector, but the domestic market has not been liberalised to the extent required to create effective competition among backbone network operators. In the absence of further liberalisation, investment in high capacity networks will very likely be constrained. Slow progress on this front will, in turn, constrain the development of ISP and a data market.

Going forward, the agenda for Zimbabwe is similar to that of other countries in the region, the main elements of which are as follows:

- Ensure low-cost international access infrastructure by preventing monopoly control over bottleneck facilities.
- Establish full competition throughout the sector and relieve the government's sectorial stronghold.
- Revise the regulatory framework to accommodate rapid technological change and emerging competition.
- Reform the state enterprises that are involved in service provision in the sector.

- Promote universal access to ensure that ICT availability is as extensive as possible.

International Connectivity and Domestic Backbone Infrastructure. At present, Zimbabwe has discrete communications infrastructure owned by various public and private sector operators. There is an urgent need to harmonise the infrastructure and establish a national communications backbone that reaches all corners of the country. So too, is a need for the convergence of and infrastructure sharing. This would become the highway that facilitates high speed communication for improved and reliable services countrywide. Zimbabwe is mostly connected to the rest of the world through expensive and often unreliable satellite connections with poor quality of service, with broadband trailing behind. Satellite connections provide restricted capacity.

Broadband connections were introduced in 2011 in Zimbabwe. Zimbabwe has recently connected to two undersea cables which provide fast internet. Most operators in Zimbabwe have some form of relationship with the operators of these systems. These submarine cables provide extremely high levels of capacity at significantly reduced costs. The establishment of international fiber optic links to submarine cables, when utilised effectively could transform Zimbabwe's functioning of Government, social inclusion, economic growth, and diversification. Linkages to these networks offer the prospect of sharply lower prices for broadband services in Zimbabwe. (Williams, 2010)

Furthermore, there is insufficient national backbone in terms of coverage and capacity. Numerous operators in Zimbabwe have some national backbone infrastructure and could benefit were they to lease this to other operators. Bottlenecks in this regard is each operator owning backbone infrastructure which is substantially expensive to entrench and have not harnessed the resultant benefits and efficiencies of sharing infrastructure. Network sharing has been noted to be a catalyst for reduced costs of supplying and

operating ICT infrastructure, yet operators have not capitalised on this opportunity, with each not subscribing to the interdependency this convergence strategy, particularly the leading operators. All the operators have identified the urgent necessity of installing significant international broadband access (with at least 2 connections). A collaborative effort between them would provide an optimal solution. However, the operators have failed to reach internal agreement on the development of a domestic backbone network and continue to pursue individual projects in an uncoordinated manner.

As noted earlier, the present development of the communications network in Zimbabwe has a predominantly wireless network to carry voice traffic. These voice services of mobile operators

require much less backbone capacity than broadband data services. The emphasis on wireless backbone networks in Zimbabwe, and elsewhere in Sub-Saharan Africa, stems from these lower bandwidth requirements, combined with the need to cover dispersed rural populations.

Table 46 provides a specification for the optimum backbone technology (as outlined by Williams, 2010), this framework identified the appropriate technology accounting for capacity and distance. If Zimbabwe is to move forward in its efforts to provide broad-based access to ICT services with improved international connectivity, there is a clear need for concerted efforts to build a consensus within the industry on the future design of the fiber optic and wireless broadband networks.

Table 46: Optimum Backbone Technology

		Capacity		
		< 8 Mbps	8-450 Mbps	> 450 Mbps
Distance	< 100 km	Satellite/Microwave	Microwave	Fiber optic
	> 100 km	Satellite	Microwave/Fiber optic	Fiber optic

Source: Williams, 2010

11.4.1. Ensuring Low Cost Access to Infrastructure

The challenge for the Government is to promote private investment that creates the international access and domestic backbone infrastructure. But the development of this infrastructure will not, on its own, guarantee cost-effective services to customers. There are two sets of issues to be addressed for a land-locked country such as Zimbabwe. First, the cost of Zimbabwe's access to the submarine cable network depends, in part, on the cost of transmission through undeveloped terrain and neighbouring countries. In the event that these services are not based on open and competitive pricing, Zimbabwe may face higher costs. The Government has ensured that there is competition among submarine cables and landing stations, given that there is the possibility of multiple entry points for the connectivity cables.

Second, on the domestic front, the Government must promote arrangements that ensure that domestic competition produces low cost access to the national backbone network.

The cost to operators in Zimbabwe of access to global markets via these submarine cables is estimated at USD 500 per MB per month. If these cost reductions are passed on to end users, (including Government) this could produce significant multiplier effects for Zimbabwe, especially where capacity is offered on an "open access" basis. Open access means that whatever legal or ownership structure is used for the infrastructure, all operators and ISPs are guaranteed equal access to the infrastructure, with non-discriminatory pricing and technical conditions. Open access provides for a competitive telecommunications environment for access to and resale of capacity in the country so as to maximise

the impact of such infrastructure on sector development and economic growth.

Revise the Regulatory Framework. Zimbabwe has taken some steps to liberalise the ICT sector and create effective competition in the industry; but more needs to be done if there is to be widespread ICT services available at affordable prices. One of the most important items on the reform agenda is to increase competition through further market liberalisation and reduce significantly government's stronghold for a free market to attract foreign investment. This can be achieved by ensuring that there are no barriers for entrants who wish to compete with the already established operators, affording freedom for existing operators to innovate across a range of services. With the growth and adoption of mobile money in recent years, there is a need to improve the regulatory framework and further development of infrastructure so as to ensure that these avenues are utilised effectively and efficiently. Furthermore, there is a clear need to improve the framework for regulation of the industry to ensure that ICT services are available to all at affordable prices.

The current ICT policy (2016-2020) does not outline possible steps to be taken by all stakeholders involved that ensures that all the targets in the policy are achieved by the time the stipulated timeframe has lapsed. There continues to be an overlap of roles among the ICT regulatory bodies (see Chapter 4); POTRAZ and BAZ and their frameworks do not indicate any collaborative efforts for the attainment of set visions, particularly with regards to the competition and liberalisation. There are no implementation plans presented with the capital costs of programmes outlined in the policy whose sources of financing is proposed to be solely by government. At Present, Zimbabwe does not have a national cybersecurity network which leaves the country vulnerable to national cyber-attacks. It is imperative that developing this infrastructure is done so with urgency. Convergence of telecommunications,

broadcasting, and computing remains a challenge and all operators offer similar services therefore little advances in core competencies and specialised delivery of services.

11.4.2. Reform of State Enterprise Service Providers

The need for reform of TelOne, the state- owned sole fixed line operator, and NetOne, continue to add to the challenges currently facing the Government in its efforts to promote major improvements in ICT infrastructure services. TelOne now plays a relatively small role in provision of telecommunication services as demand for and penetration of the fixed-line has declined significantly over the years. There is an urgent need to diversify its service offering to remain profitable in this highly competitive environment. At a minimum, the services provided by the state enterprises should be subject to the same regulatory requirements that apply to private service providers.

In mid-2010, the Government listed TelOne and NetOne as candidates for privatisation, this is yet to be achieved. Experience from elsewhere in Africa indicates that as governments have reformed the institutions for regulating ICT markets, many have also privatised the state entities that provide services. According to the World Bank, 15 African countries had sold shares in their state-owned telecommunications operator to the private sector.

In December 2016 the Government officially acquired a 60% shareholding in Telecel after two previous shareholders divested their shareholding in the company. However, Telecel still faces numerous challenges as the smallest operator in terms of coverage and subscribers. One of Telecel's biggest challenges is its high debt leverage (70% debt and 30% equity). 70% of their debt is owed to government. In 2018, Government listed Telecel as one of the state-owned institutions that could be privatised.

11.4.3. Promoting Universal Access

Backbone networks are concentrated in urban areas for commercial reasons related to both the demand for services and the cost of providing them. With the majority of citizens concentrated in the rural areas, this implies that a majority still do not have access to effective ICT facilities. The experience in Zimbabwe and elsewhere in Africa has shown that service providers are focused primarily on intra- and inter-urban markets and on commercially attractive cross-border links. A large proportion of the rural population currently does not benefit from this competition as they live beyond the range of these networks and there is no visible interest by operators (government-supported or private) to extend services to more isolated rural areas.

The challenge will be for the Government to decide on targets for universal service coverage. As noted earlier, the USF which was set for related initiatives currently does not meet the need for initiatives to provide the desired universal coverage. The extent to which this Fund has been able to extend services to these communities is unclear. Moreover, experience with such funds in other Sub-Saharan countries indicates that this mechanism has had very limited success, compared with arrangements for service provision that are commercially driven. The alternative would be some form of direct incentives for operators to deliver services to rural areas. These options may involve government financial support and with the current financial shortfall, development remains scant. The options are reviewed as part of the proposed Action Plan for ICT discussed in the Section below.

11.4.4. Building Institutional and Human Capacities

Zimbabwe had a substantial pool of human resources for the ICT sector, but there has been a serious exodus of experts, especially in the field of science and technology. Many of these

professionals and experts have migrated to other countries in the region and overseas. There is a continuous loss of skills to the private sector and the diaspora. The private operators are also losing staff to the diaspora, particularly in South Africa. There is now a serious shortage of professional skills related to the regulation of the ICT industry, at a time when substantial improvements will be required on this front. Many of the faults on the network are induced by manpower shortages. There is a rapid deterioration of network elements due to inadequate maintenance.

Substantial technical support is required to address the wide range of policy issues that are arising in connection with Zimbabwe's efforts to accelerate the development of the sector, while at the same time, attracting private investment and promoting increased competition among service providers. Zimbabwe faces numerous challenges to adopt and adapt E-Government applications and seize the opportunities presented by substantially enhanced ICT capacities, as proposed in this Report.

There is also a need for increased emphasis on development of professional networks that can contribute to the development of policies and programmes for the ICT sector. The networking of trained individuals is critical for organisational cooperation and the development of the sector. There is need for more forums to bring the majority of networking managers together. Although there are IT workshops and exhibitions being held in the country, such as IT Africa and some workshops by the Computer Society of Zimbabwe, most organisations are reluctant to participate.

11.5. AN ACTION PLAN TO ACCELERATE ICT DEVELOPMENT

11.5.1. Strategy for the Decade Ahead

Four main themes have been identified in the analysis of backbone networks and regulatory framework in Zimbabwe. First, the economic direction pertaining to the multicurrency uncertainty and scarcity of the US Dollar is a key factor in the underdevelopment of this sector. Without a clear and conducive economy and currency issues, dire projections on returns on investment can make it difficult to lure investors into developing the sector. Second, the fragmented nature of the regulatory authority (POTRAZ and BAZ who both regulate the ICTs) continues to impede efficient development and harmonisation of efforts. Third, though there is some degree of infrastructure competition in the telecommunications sector, there is a need to create effective competition among backbone network operators. This is constraining investment in high-capacity networks and prevents the market from achieving the economies of scale that can flow from this technology. It also has a knock-on effect in the ISP and the data services markets as a whole. Fourth where fiber backbone network development in Zimbabwe has taken place, it has been concentrated in urban areas and on interurban routes, leaving smaller towns and rural areas dependent on low-capacity wireless backbone networks.

Zimbabwe has provided an ICT policy for the short to medium term of periods 2016-2020 which provides a centralised role and an institutional base from which to direct a sound policy environment for the sector in the national developmental goals. This policy provides a set of targets by which to have completed the various official targets for improved access to communications and technology in Zimbabwe. The policy however does not have, accompanying it, an implementation strategy which regards how to

reach these goals, what resources will be needed and where to obtain them from for its realisation. Achievement of these targets would transform access to media and communications throughout Zimbabwe, especially when accompanied by increased competition among service providers and lower overall costs for access to these Internet and broadband services. The effects would be profound since it would lay the foundations for widespread access to information in urban and rural areas, including education and health services in schools and community centres in rural communities, and improved access to information about market opportunities for farm products and other rural-based production activities.

The penetration rate for mobile phone use of 57 accounts per 100 people in 2020 would put Zimbabwe at a level roughly comparable to the current rate for middle income countries around the world. The penetration rate for fixed line accounts, on the other hand, would be low relative to current rates for middle income countries in other regions of the world. Access to Internet and broadband services in 2020 would be comparable to current penetration rates for other middle-income countries.

Table 47 below provides an indicative timeline for the implementation of the Action Plan, accounting for timelines that are realistic and achievable.

11.5.2. Improve International Connectivity and Construction of Domestic Backbone

From the adopted ICT Action Plan which called for accelerated efforts to access multiple entry points to the backbone fibre optic cables to connect Zimbabwe with the international network of submarine cables, three links have been established, namely EASSy, WACS and SEACOM. These links are connections with neighbouring Mozambique and South Africa. It was proposed that completing the international connectivity and domestic backbone network will be done so by

2015, with a lot of work still needing to be done in this regard.

The immediate requirement for the proposed programme is an agreed implementation plan to ensure reliable and efficient communication and

application of targets outlined in the ICT Policy. The proposed programme can then be implemented in phases by private service providers with government support and under appropriate partnership arrangements with the Government as necessary.

Table 47: Indicative Schedule for Implementation of ICT Action Plan

Program activity	2019	2020	2021	2022	2023	2024	2025	2026-2030
Institutional development								
Create single regulatory authority for ICT								
Finalise and implement cyber-security policy								
Implement competition & related policies & programs								
Design Privatisation programs for NetOne, TelOne & Telecel								
Privatise NetOne, TelOne & Telecel								
Training programs for regulatory personnel								
Enhance domestic broadband backbone								
Design masterplan for enhancement								
Mobilise private sector funding								
Implement investment program								
Creation of universal access								
Set targets for universal access								
Decide mechanism for private sector involvement								
Implement universal access program								
e-Applications								
Ongoing develop e-Government applications								
Ongoing develop e-Business applications								
Develop e-Health and e-Education applications								

Source: Author's Estimates

The private sector players in Zimbabwe have made significant investment in infrastructure pertaining the backbone network. TelOne is charged with the mandate of providing universal access and extending the backbone network on behalf of government, TelOne estimates the cost in the region of USD 400 million. The implementation thereof can be undertaken using a combination of traditional procurement and PPPs.

11.5.3. Promoting Investment and Competition in Backbone Networks

In addition to the expansion of the ICT network for Zimbabwe along the lines outlined above, the critical issue is to open the market to make for an environment that is investor friendly. The growth of ICTs in African countries such as Kenya and Rwanda have been directly linked to creating a competitive environment, lowering barriers to entry, and allowing market forces to determine the pace of growth. Experience in other parts of Africa is clear—competition encourages investment and

reduces access costs for consumers. The telecommunications market in Zimbabwe cannot be said to be competitive with only one dominant player.

The ICT policy calls for concerted efforts over the next five years to ensure there is broad-based competition in the industry that will lead to affordable voice and data services throughout the country. Encouraging effective competition among backbone networks would allow market forces to aggregate traffic onto high-capacity networks, thus reducing costs and stimulating downstream investment and competition among ISPs and other data users. The proposed programme of policy reform to achieve these objectives encompasses removal of regulatory and institutional obstacles, reduction in the cost of investment, removal of political and commercial risks, and promotion of effective competition in the downstream market.

The policy of promoting infrastructure competition to support development of the backbone network

is consistent with the experience of developed countries. Removing regulatory obstacles to investment and competition.

The policy calls for a range of initiatives aimed at improving the regulatory environment in the sector and eliminating obstacles to increased competition and expanded service delivery, some initiatives include:

- **Remove limits to the number of network licenses.** There is little economic justification for limits on the number of licenses issued. Experience also indicates that where multiple licenses have been issued, operators are willing to invest a substantial amount of financial resources in fiber optic cable network infrastructure.
- **Encourage the entry of alternative infrastructure providers into the backbone network market.** Electricity transmission networks pools and railway networks have a major cost advantage in the development of fiber optic backbone networks. In practice, a number of infrastructure companies in Zimbabwe are already laying fiber optic cables as part of their internal communications systems, and many of these cables have substantial unused capacity. By encouraging networks to establish operating companies to run the fiber assets and by licensing them, they can be brought into the formal telecommunications market as providers of backbone capacity. An institutional environment that gives these companies sufficient political incentives and regulatory freedom will allow them to become successful commercial operators.
- Remove constraints on the **backbone services market.** The removal of these restrictions to allow operators to buy backbone services from and sell services to whichever operator they wished. By doing

so, traffic could be consolidated, providing an incentive to upgrade networks to fiber optic cables and thereby reducing average costs and improving quality of services.

- **Improve the regulation of backbone networks.** One of the key constraints on the development of the market in backbone network services in Zimbabwe has been difficulty in enforcing contracts and service level agreements owing to lack of an instrument which could be used for the courts to enforce legal actions. Chapter 4 outlines a revised and detailed programme for reform of the regulatory framework for the ICT industry. To enable legal measures in the market, the regulatory authority could improve the situation through several measures, such as:
 - Establishing clear regulations on interconnection at the backbone level
 - Amending licenses to increase the enforceability of such rules, if necessary
 - Setting out effective quality controls and clear dispute resolutions procedures
 - Collecting accurate quality of service information to facilitate market functionality and dispute resolution.
- **Reducing the cost of investment.** Fiber optic cable networks are usually built along existing infrastructure networks such as roads, railways, pipelines, or electricity transmission lines. Most of the cost of constructing fiber optic cable networks along these alternative infrastructure networks lies in the civil works. These costs represent a major fixed and sunk investment for service providers. The

Government can increase incentives for private investment in backbone networks in three ways.

- **By making rights-of-way readily available to network developers at low cost.** Obtaining these rights-of-way is often very difficult because of the lack of a clear legal framework and the multiple jurisdictions involved. By simplifying the legal process and limiting the fees that can be charged by local authorities for granting rights-of-way, the government can reduce significantly the cost of backbone network development.
- **By providing direct access to existing infrastructure which it owns through state-owned enterprises.** For example, the railway company could partner with one or more operators to build a fiber optic cable network along the railway lines. This approach has been used very successfully around the world to develop extensive backbone networks at relatively low cost.
- **By providing specifically for a backbone network development in the design and construction of other types of infrastructure;** for example, by pre-installing ducting when new roads are built and then leasing these ducts to operators wishing to lay fiber optic backbone networks, the Government can significantly reduce costs.
- **Promote infrastructure sharing where it does not have an adverse impact on competition.** By sharing network infrastructure, builders of backbone networks can significantly reduce costs and make investment in them more commercially viable. This is particularly relevant for fiber networks in urban areas where the revenues generated by such networks are typically low. In some cases, operators have a commercial incentive to enter into these sharing agreements. For example, in South Africa, where there has been extensive fiber optic cable network rollout, operators have entered into a variety of network-sharing agreements aimed at reducing costs and improving quality of supply. However, to avoid an unwillingness by some operators to share, the Government may need to consider the use of legal mechanisms that will facilitate these arrangements without compromising competitiveness in the market.
- **Reducing political and commercial risks.** To reduce political and regulatory risks, consideration can be given to the use of risk guarantees and insurance. Companies operating in risky environments are likely to place a premium on scalability and reversibility in their network infrastructure investment decisions. Scalability means that network investment takes place in small increments, rather than large one-off expenditures. Scalable investments allow operators to expand their network as demand develops, hence reducing risk that networks are over dimensioned. Reversibility reflects the ability of a network operator to reverse investments and sell or reuse capital equipment if necessary.
- **Some types of network investments are more reversible than others.** Microwave and satellite transmission equipment can be moved and used in another part of a network if necessary. Since most of the

- capital cost of a fiber network lies in civil works, such as construction of trenches and installation of ducts, that cannot be moved once built, investment in such networks is largely irreversible. In this case, investment has to be well planned and rolled out in a systematic way to avoid future loss of investment cost and infrastructure by any other construction works along the road or railway lines.
- Another measure to be considered is the reduction of commercial risk through demand aggregation.** Two key risks faced by entrants into any market are the risk that demand does not develop as anticipated and that the cost of obtaining customers turns out to be higher than anticipated. These risks can significantly raise the economic cost of an investment and create a disincentive for operators to invest in infrastructure, particularly in physical assets that may constitute a sunk cost. One way that the Zimbabwe government can reduce these risks is to act as a central purchaser of services on behalf of all public institutions at all levels (including, for example, schools, health centers, and local government). By doing this, operators effectively deal with a single large customer rather than multiple smaller customers, hence reducing commercial risks. Such a strategy or policy has been adopted by various countries where the governments promoted the rollout of high-speed backbone infrastructure by acting as a single purchaser of broadband connectivity on behalf of public institutions, hence reducing operator's risk of investment.
- Promote effective competition in the downstream market.** Network operators and service providers who enter the downstream market (that is, build access

networks and offer services to customers) must either own backbone network or access the network of another operator. The terms under which operators can obtain access to the backbone networks of other operators will have a significant impact on the success of their business and will influence whether effective competition in the downstream market develops. At the same time, the demand created by these downstream operators will affect the financial viability of the backbone networks, since they are the entities that generate traffic and revenues on the network. By promoting effective competition in the downstream market, the Zimbabwe Government will help stimulate backbone network development.

11.5.4. Restructuring of State Enterprises

The position taken in this report is that NetOne and TelOne should be privatised by sale by the government of a substantial stake in these companies to private or international partners that have interest in expanding their roles as service providers in the sector. This proposal differs from the one that was proposed in the preceding Zimbabwe Infrastructure Report which propagated that the Zimbabwean government sell off all their shares to private investment.

A PPP would be a key enabler in ensuring provision of services with standardised tariffs. Currently TelOne is the sole provider of fixed lines and NetOne is lagging behind as number 2 in mobile service provision by a large gap. Concerns by potential investors pertain to the uncertain economic environment.

As the discussion in Chapter 5 indicates, the challenge now is to draw up credible programmes for the privatisation of these two parastatals. Each of these entities might be privatised separately, but the other option to be explored further is to merge

the two parastatals and privatise the resulting company. What is clear is that the two parastatals will have to undergo a significant degree of financial restructuring prior to their privatisation. As Table 48 indicates, they have combined assets of about USD 992 million, and liabilities of about USD 1.1 billion.

A two-pronged approach will be required for the restructuring needed to make the investment attractive to potential private investors. First, there must be a substantial improvement in the collection rate for accounts receivable and elimination of the current policy that prevents disconnection of customers with delinquent accounts.

Table 48: Balance Sheet for NetOne (2016) and TelOne (2015)

Item	NetOne 2016	TelOne 2015
Assets		
Current assets	323 218 000	160 780 193
Non-current assets	190 990 000	317 520 125
Total	514 208 000	478 300 318
Liabilities		
Current liabilities	-	458 473 282
Long-term liabilities	514 329 000	118 788 237
Total	514 329 000	577 261 519
Equity		
Share capital/derived equity	-	32
Reserves	-	(21 694 328)
Retained earnings	(121 000)	(77 266 905)
Total	(121 000)	(98 961 201)
Total Liabilities and Equity	514 208 000	478 300 318

Source: NetOne and TelOne

The second initiative would be to strip long-term liabilities from the balance sheets of the two parastatals and place these in the Special Purpose Vehicle proposed in Chapter 5 of this Report. A revised valuation of the two companies after such a restructuring would then provide a basis for negotiating their sale to domestic or international investors interested in the opportunities for service provision in the Zimbabwe market.

11.5.5. Revision of the Regulatory Framework

As the consideration in Chapter 4 indicates, the Action Plan proposes the creation of a single regulator for the ICT sector. This would involve the merging of POTRAZ and BAZ responsibilities to ensure seamlessness in regulating the ICT sector is realised. In the course of drafting such a bill, it will

be important to deal with various other shortcomings of the existing regulations for ICT activities, including for example, aspects of individual privacy, security, cybercrimes, ethical and moral conduct, encryption, digital signatures, intellectual property rights, and fair-trade practices which could be spearheaded by one centralised regulator. The role of the single regulator is crucial, since the regulator often defines and enforces the terms of access. The decision about whether to regulate directly the terms of access to infrastructure has a major effect on the investment incentives.

11.5.6. Promote Universal Access to ICT Services

Experience from other countries in Africa suggests that the use of state enterprises to extend high-

capacity backbone networks to low density populations in villages and rural communities is unlikely to be successful. South African fixed line operator, Telkom was partly sold to private investors with government having a stake in it, this resulted in the diversification of their service offerings, ability compete freely in a market devoid of institutional hindrances and subsequently registration at the Johannesburg Stock Exchange. This evidences that partnerships with the private sector are more likely to succeed. The World Bank has set out three possible partnership arrangements that can be used to achieve universal access to the network.

- **Competitive subsidies model.** Under this approach, a license to build and operate a backbone network is awarded. The licensee would also be awarded a contract to build out a network of specifications, defined by the Government and meeting its policy objectives. The Government would give some resources to this licensee, through in-kind or cash payments. The contract design would also include the terms on which backbone network services are provided.
- **Shared infrastructure/consortium model.** In this model, private operators form a consortium to build and operate backbone networks in underserved areas. By providing public resources to the consortium, the Government can ensure that the network meets public policy objectives (i.e. concentrating investment into areas that are not served by private operators, ensuring cost-oriented wholesale prices, and ensuring non-discrimination between purchasers of services). All of this regulatory protection can be written into the consortium structure through the leverage obtained by public support to the operator.
- **Incentive-based private sector model.** In Zimbabwe, as in other countries, operators

are required to pay taxes and levies that typically consist of both general taxes, applicable to all companies in the economy, and sector specific taxes or levies. The Government could give operators an incentive to develop backbone networks in commercially unattractive areas by offering to reduce these levies in exchange for the operators meeting specific targets. Ground work to this effect has been spearheaded by leading ISPs like Liquid Telcom and EcoNet. This can be done on a competitive basis, i.e., a limited number of companies are awarded the levy-reduction and they have to compete for it, or it could be available to all. Such “pay-or-play” schemes are not common in the telecommunications sector, but have recently been receiving an increasing amount of attention. A substantial number of rural institutions in the past decade. It has an equally ambitious programme for Phase II which will be implemented in the decade ahead

11.5.7. Development of e-Government and Other Applications

Zimbabwe had taken strides in working on an e-government framework to improve its services as per the proposed 2011 Action Plan. The Government of Zimbabwe has enormous potential for e-Government through application systems like SAP software, civil service payroll, national registration system and pensions processing. Online communication which supports e-business models such as government to business (G2B) and government to customer (G2C) were introduced but due to lack of maintenance, these platforms have outdated information if any at all. Many rural areas in Zimbabwe still do not have access to electricity, making it an impossible endeavour to carve out ICT services in those areas and linking government services to its people. Some of the programmes the government should embark on as a matter of priority include:

- Developing a sustainable e-Government strategy, including, for example, the adaption and strengthening of the legal framework digital signatures and combating cybercrimes.
- Developing and implementing functional and updated websites with communication portals for each government ministry.
- Establishing and linking at least one community information center in each province to government websites/portals for the provision of e-services.

Other areas of concern include:

- Use of e-Government to transform cumbersome public administration and service delivery processes and thereby increase efficiency of government operations;
- Promotion of the empowerment and participation of citizens, thereby contributing to strengthening democratic processes;
- Promotion of increased transparency and accountability, thereby leading to better governance and reducing opportunities for corruption; and
- Promotion of the use of ICT applications in other development sectors (e-Business, e-Health, e-Education), thereby opening opportunities to expand access to social services and promote business opportunities through, for example, online notices on public procurement opportunities.

11.5.8. Institutional Capacity Building and Skills Development

Successful implementation of the proposed Action Plan for the ICT sector will require support for a

number of capacity building initiatives. Key institutional and policy-related activities to be undertaken include the revision of the ICT Policy, the creation of a single regulatory authority for ICT, the design and implementation of policies and programmes to enhance competition, the design and implementation of the privatisation programme for NetOne and TelOne, the preparation of a master plan for the domestic backbone fiber optic network and mobilisation of funding for the programme, and various initiatives aimed at accelerating the development of e-applications for government, business, health and education, and other activities.

These various initiatives will require an early launch of capacity building programmes within the public sector. The proposed new regulatory authority, for example, will require well-trained (and experienced) staff familiar with the wide range of technical matters, including establishment of service standards for the industry and design and enforcement of competition policies. The design of the parastatal privatisation programme and negotiation with potential investors will need to be supported by a team that embodies legal, financial, and technical expertise. If need be, the services of specialists with appropriate international experience will be required for these negotiations. Arrangements for the development of e-applications will also need to be put in place as well.

Increased emphasis within the Government on the use of information and communications technologies will require development of training programmes for the significant number of civil servants that would make use of these technologies or be responsible for their introduction and subsequent management. Given Zimbabwe's loss of these types of technical skills during the past decade, specific training programmes will be needed to rebuild communications technology skills within Government and in the workforce at large. Such initiatives will need to extend beyond the civil

service and will need to involve a variety of educational institutions, including those noted earlier in this chapter that are active in building public awareness and skills.

11.6. CAPITAL EXPENDITURE PROGRAMS FOR ICT

The total cost of the proposed Action Plan is estimated at about USD 413.7 million for the 2018 to 2030 period. This includes USD 6.9 million for institutional initiatives and capacity building and USD 5.3 million for the launch of a series of new e-applications that support the overall policy of promoting universal access in the decade ahead. The main item is the expansion of the fiber optic backbone network, although the private sector has made significant investment in the backbone network, much investment is still required, specifically to extend universal access across the country. Table 49 below shows the estimated investment cost (as provided by TelOne) needed to extend the backbone network in Zimbabwe will require an estimated USD 400 million.

The costing contained within the table below is based on the cost estimates provided by the AFDB in 2011, these costings have been brought into 2017 terms, and updates to the required investment in the backbone network have been made due to the fact that government has invested about USD 98 million over the last decade, however, a further USD 400 million is required.

The cost structure of wireless backbone networks is very different. A much lower proportion of the total costs are fixed with respect to the capacity of the network, so total costs are more directly affected by the volume of traffic carried.

The cost of wireless networks is therefore more scalable. This is an important reason why, in an uncertain market during the early stages of network development, operators are more likely to

invest in wireless-based backbone networks than in fiber-optic networks, even if from an ex-post point of view, it might have been cheaper to use fiber. A consequence of this scalability is that operators are less likely to have excess backbone network capacity than might have been the case if they had invested in fiber networks. This fact has implications for the market in backbone services because the marginal cost of capacity on a network in which there is large margin of spare capacity is much lower than on a network that is scalable. Operators with spare capacity have a strong commercial incentive to sell that capacity and, since its marginal cost is low, any competition among operators could be expected to reduce prices. An operator with a predominantly microwave backbone network, on the other hand, is likely to install the amount of capacity that it requires to meet its own traffic needs. If it were to decide to sell backbone capacity on a wholesale basis, additional capacity would have to be installed. The operator has less incentive to enter into this market and, if so, competition with other operators would be less likely to drive prices down as quickly or as far.

11.7. FUNDING ARRANGEMENTS FOR THE PROGRAMME

The funding requirements for the programme would come from both private investors and government (Table 49). There are a number of options for the design of the financing programme. The actual funding arrangements can only be solidified once procurement and investment models are implemented within the sector. These estimates assume investment-sharing between the public (government) and private sector for investment into the backbone network requirements for the country as well as for the development of e-applications.

Table 49: Development Expenditure for the ICT Sector, USD million (in 2017 constant prices)

Category	2018	2019	2020	2021	2022	2023	2024	2025	2026 to 2030	Total
Institutional development and policy analysis	-	0.69	0.69	2.75	1.37	1.37	-	-	-	6.87
Technical studies	-	0.53	0.53	0.53	-	-	-	-	-	1.59
Connection of backbone network	-	36.36	36.36	36.36	36.36	36.36	36.36	36.36	145.45	400.00
Development of e-applications	-	0.76	0.76	0.76	0.76	0.76	0.76	0.76	-	5.29
Total	-	38.33	38.33	40.40	38.49	38.49	37.12	37.12	145.45	413.74

Source: Author's Estimates

It is important to note that in the case of e-applications it is assumed that the private sector will carry the majority of this investment as a product development and RandD cost, with the public sector procuring services once product development is complete. Another possible implementation option might be for the Government to initiate the rapid deployment of submarine connections by issuing a tender for the construction and operation of the links under a Public Private Partnership (PPP) arrangement. A consortium could be formed to supply and operate the links (within given specifications and on an open access basis). In this model, the Government would contribute funds for the universal access programme. The Government would award the contract to the bidder requiring the lowest government contribution. In this case, a Special Purpose Vehicle (SPV) would be established to construct and operate the infrastructure, in which the Government would have an equity stake and would receive a share of the returns. The advantage of this option is that it leverages relatively small budget supported finance to achieve a much larger investment whilst ensuring open access.

11.8. ECONOMIC IMPACT OF THE ICT PROGRAMME

Although there is still debate on whether growth in ICTs causes economic growth or economic growth leads to ICT growth, some available evidence

suggests that GDP and telecommunications growth have causal effects in both directions.

The economic impact of this proposed programme is expected to be substantial. With respect to mobile telephony, which has greater relevance for Africa, the available evidence suggests that a 10% difference in mobile penetration levels translates to a 0.6% difference in economic growth rates. When the same (Waverman) model was specifically applied to developing countries, it was found that the impact was in fact double the average: a boost in economic growth of 1.2% for every 10% rise in mobile users (GSMA,2007).

Recent studies have concluded that, in fact, the development impact of mobile phone technology is understated by as much as 75%, because analyses have tended to focus only on the direct impact on GDP, and have ignored the indirect impact on downstream industries and consumer benefits.

Considered together, the impact of mobiles on economic development comes to 8% of GDP (McKinsey, 2006; Waverman, Meschi, and Fuss, 2005). Empirical evidence from the East African countries of Kenya, Tanzania, and Uganda shows that in 2006, a 10 % increase in mobile penetration was estimated to have contributed as much as 1.25 % to GDP (Deloitte, 2007).

Table 50: Funding Arrangements for the ICT Sector, USD millions (in 2017 constant prices)

Funding source	2019	2020	2021	2022	2023	2024	2025	2026 to 2030	Total
Government	19.1	19.1	21.2	19.8	19.8	18.4	18.4	72.7	208.5
Institutional development and policy analysis	0.7	0.7	2.7	1.4	1.4	-	-	-	6.9
Public-private investment for backbone network	18.2	18.2	18.2	18.2	18.2	18.2	18.2	72.7	200.0
Public-private investment for development of e-applications	0.2	0.2	0.2	0.2	0.2	0.2	0.2	-	1.6
Private sector	18.7	72.7	203.7						
Public-private investment for backbone network	18.2	18.2	18.2	18.2	18.2	18.2	18.2	72.7	200.0
Public-private investment for development of e-applications	0.5	0.5	0.5	0.5	0.5	0.5	0.5	-	3.7
Total	37.8	37.8	39.9	38.5	38.5	37.1	37.1	145.5	412.2

Source: Author's Estimates

In a GSM Association report in 2008, it is estimated that for every dollar invested in the mobile industry in Africa between 2000 and 2012, USD 0.80 will be earned as tax revenues by governments, with more accruing indirectly. The report argues that lower taxes will increase usage and in turn increase revenues, as more people can afford to be connected. It is further argued that the "dead weight" loss caused by mobile taxation is likely to be more significant when demand is relatively elastic, and when industry has relatively high fixed costs and relatively low marginal costs. Clearly, a case can be made for the growth-enhancing potential of telephony and ICTs in general. A key question, however, is whether this growth generated by ICTs and telephony can be linked to poverty reduction efforts in post-crisis Zimbabwe.

Investment in telecommunications infrastructure, such as backbone infrastructure, is considered part of productive spending, as it has an effect on long-run aggregate supply. Such investments were found to have significant effects on growth. The impact is twice as large for those economies that already have a substantial network infrastructure in place, and/or have achieved universal coverage. A 10% increase in high speed internet connections is shown to result in an increase of up to 1.3% in overall economic growth. The evidence also shows that different ICT technologies have different

impacts on growth, with fixed telephony having the lowest impact and broadband the highest impact. Such evidence suggests that embracing new ICTs could enhance productivity growth and, depending on how the benefits of growth are distributed, could help reduce poverty.

11.9. MANAGING RISKS AND UNCERTAINTIES IN THE ICT PROGRAMME

A number of risks and uncertainties can impede progress towards a well-integrated and competitive communications network in Zimbabwe that is widely accessible. For the purposes of this Report, risks and uncertainty associated with the design, funding, and implementation of the proposed programme are of particular interest. In that regard, the most prominent risks and uncertainties centre on the following aspects:

- Uncertainty involving the absence of a Cybersecurity Network;
- Delays in actions designed to improve the operating environment for ICT services;
- Prospects for early establishment of a unified regulatory authority to facilitate the convergence of ICTs in Zimbabwe;

- The extent to which possible restructuring of NetOne, TelOne and TeleCel will attract private investors;
- The ability to rollout the e-Government platform;
- Extent to which a policy of universal access will be constrained by inadequate access to electricity supply on a regular basis; and
- Shortages of skills required for the implementation of the ICT programme.

Incorporating Cybersecurity into the ICT Policy.

To accommodate the full range of proposals set forth in this Report for the reform of the ICT sector, the current ICT Policy needs further review and modification as the targets outlined for the short to medium term have not been met. Early action on these modifications is required to expedite the implementation of the proposed Action Plan for the ICT sector. Adoption of the current policy without modification would pose difficulties for full implementation of the programme in a timely manner. Moreover, in the absence of a national cybersecurity network, there is urgent need

Strengthening the Operating Environment for ICT. The introduction of advanced IT applications requires an enabling environment of business process change and human resource development, as well as the careful design of appropriate applications themselves. If the applications are to interact with the wider world, a range of technology, financial, and skills requirements needs to be satisfied by suppliers and consumers as well. So too would the successful use of these applications be enabled with a defined and sustained supply of electricity. All too often, these requirements are lacking. It is essential that Zimbabwe is cognizant of these pitfalls as it moves ahead with its ICT programme. Many developing countries still have yet to extend the benefits of well-regulated competition throughout the ICT sector. It is clear that this broader environment

becomes ever more important with the ongoing convergence of technologies in the industry. World Bank surveys of more than 20,000 businesses in roughly 50 different low- and middle-income countries indicated that firms using ICT see faster sales growth, higher productivity, and faster employment growth. At the same time, the record indicates that the introduction of ICTs is highly complex, with evidence from both developed and developing countries alike of significant failure rates.

Establishment of a Single Regulatory Authority.

An early decision on streamlining the regulatory processes and responsibilities for the ICT sector will facilitate implementation of the proposed Action Plan. Delays in key decisions about these institutional arrangements will slow the overall development of the industry and impede its competitiveness with these industries in neighbouring countries.

Privatisation of NetOne, TeleCel and TelOne.

Early action on the manner in which NetOne, Telecel and TelOne are to be restructured and privatised will remove uncertainty about the manner in which fixed line services will evolve and the future role of Government in the actual provision of mobile and landline services. Government relieving itself from the stronghold in this sector could be bolster improvement in the sector as operators could compete effectively without the institutional hindrances of principal-agent interference. A decision to leave the provision of these services to the private sector, and confine the role of Government to regulation, oversight and support for skills development will improve the prospects for additional private investment in the industry. Telecel still lags behind in its market share occupation under majority ownership by the government and as private investors are wary of investing in government owned entities due to operational confinements, privatising Telecel could ensure optimal competition with its sector counterparts.

Rolling out the e-Government platform. There are numerous factors which impede on the effective development and maintenance of the e-government platforms. The lack of technical capacity and awareness of the importance and modalities of keeping websites and systems up to date which as seen the malfunctioning of some websites. Currently, some pending issues affecting an effective e-government platform include;

- The lack of personnel adequately skilled in ICT operations, website design, updating and web administration issues.
- Bureaucracy in getting designs and layouts approved and rolled-out by some ministries
- Resentment and apathy as a result from poor services offerings from existing sites and bad experiences
- Some websites are operating on old designs or outdated with outdated information.
- Most online communications is government to business and government to citizens but no citizens to government platforms currently available.
- There is no institutional policy framework in existence which deals with the development of e-government.

Access to Electricity Services. Electricity plays an important role in all ICT applications. Inadequate power generation and unreliable transmission and distribution capacity have had a direct impact on ICT development strategies in Zimbabwe. There cannot be a meaningful digital revolution if there is no electricity in full supply. Mail servers, web servers, routers, switches, and base stations all need electricity to operate. For full implementation of the proposed ICT strategy, Zimbabwe will need reliable power supplies and broad-based access to these services, including in rural areas.

Availability of ICT Skills. There has been a significant exodus of ICT skills from Zimbabwe in the past two decades. Successful implementation of the proposed Action Plan will require a concerted effort to rebuild these skills in the workforce in general. It will also require a broad-based programme of training for large numbers of civil servants. Delays in developing these training and education programmes will impede full development of the proposed Action Plan and as a result, the gap in ICT services between Zimbabwe and other African countries may persist. This risk highlights the importance of skills development and related business processes within companies and Government, as well as programmes to improve ICT awareness and skills in the workforce at large.

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ANNEXURES

ANNEX 1: MACROECONOMIC DATA

The primary source of the data in Annex Table 1 is the ZimStat 2015 Population Projections Thematic Report. The report highlights three potential scenarios. A low-, medium and high-scenario. The medium scenario is the considered the most probable and it is the scenario which is utilised for projections comparative purposes. The Government's estimate for 2030 under the medium scenario is a population of 18.66 million.

Annex Table 1: National Population Projections by Sex and Year, Zimbabwe 2012 Census

Year	High Scenario			Medium Scenario			Low Scenario		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
2012	6,280,539	6,780,700	13,061,239	6,280,539	6,780,700	13,061,239	6,280,539	6,780,700	13,061,239
2013	6,429,267	6,941,501	13,370,770	6,428,233	6,940,389	13,368,620	6,427,393	6,939,544	13,366,938
2014	6,567,223	7,091,602	13,658,826	6,564,085	7,088,214	13,652,297	6,561,550	7,085,641	13,647,194
2015	6,709,906	7,246,438	13,956,348	6,703,559	7,239,681	13,943,242	6,698,447	7,234,549	13,932,995
2016	6,856,740	7,405,497	14,262,236	6,846,020	7,394,149	14,240,168	6,837,413	7,385,579	14,222,991
2017	7,007,366	7,568,389	14,575,754	6,991,066	7,551,172	14,542,235	6,978,001	7,538,220	14,516,219
2018	7,161,594	7,734,880	14,896,474	7,138,445	7,710,459	14,848,905	7,119,927	7,692,139	14,812,062
2019	7,319,187	7,904,720	15,223,905	7,287,918	7,871,701	15,159,624	7,262,909	7,846,983	15,109,892
2020	7,479,806	8,077,663	15,557,469	7,439,221	8,034,602	15,473,818	7,406,669	8,002,416	15,409,084
2021	7,643,218	8,253,430	15,896,644	7,591,907	8,198,811	15,790,716	7,550,884	8,158,055	15,708,938
2022	7,809,135	8,431,674	16,240,809	7,745,651	8,363,941	16,109,591	7,695,157	8,313,478	16,008,637
2023	7,977,434	8,612,220	16,589,655	7,900,264	8,529,761	16,430,022	7,839,150	8,468,412	16,307,564
2024	8,147,912	8,794,824	16,942,736	8,055,500	8,695,970	16,751,469	7,982,584	8,622,528	16,605,114
2025	8,320,208	8,978,901	17,299,106	8,210,961	8,862,126	17,073,087	8,125,028	8,775,356	16,900,384
2026	8,494,097	9,164,169	17,658,265	8,366,368	9,027,913	17,394,279	8,521,716	9,193,293	17,715,013
2027	8,669,624	9,350,654	18,020,279	8,668,536	9,349,278	17,715,013	8,266,182	8,926,544	17,192,727
2028	8,838,259	9,529,538	18,367,798	8,823,955	9,513,682	18,017,812	8,405,995	9,076,033	17,482,027
2029	9,017,159	9,718,812	18,735,972	8,808,483	9,504,710	18,337,636	8,535,979	9,214,933	17,750,914

2030	9,197,411	9,909,145	19,106,554	8,979,011	9,677,142	18,656,151	8,673,130	9,360,956	18,034,088
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Source: ZimStat, UNFPA, 2015

Annex Table 2: GDP by Industry at Constant Prices (2012), USD million

Industry /Year	2009	2010	2011	2012	2013	2014	2015	2016	2017
Agriculture, hunting, fishing and forestry	1 174	1 259	1 277	1 377	1 341	1 650	1 564	1 503	1 654
Mining and quarrying	560	792	985	1 064	1 188	1 148	1 153	1 200	1 242
Manufacturing	1 157	2 004	2 282	2 404	2 389	2 267	2 272	2 285	2 314
Electricity, gas, steam and air conditioning supply	352	420	447	448	471	496	468	460	478
Water supply; sewerage, waste management and remediation activities	40	45	43	44	37	36	40	39	41
Construction	213	184	305	376	391	418	435	441	458
Wholesale and retail trade; repair of motor vehicles and motorcycles	2 054	2 264	2 362	2 463	2 560	2 624	2 724	2 903	3 138
Transportation and storage	559	577	578	615	658	666	698	706	730
Accommodation and food service activities	484	534	557	581	603	618	642	692	730
Information and communication	657	687	687	733	784	793	832	841	895
Financial and insurance activities	899	666	639	1 137	1 088	924	974	1 020	1 052
Real estate activities	120	128	190	303	305	319	354	400	404
Professional, scientific and technical activities	108	242	280	351	362	359	365	398	399
Administrative and support service activities	92	133	138	131	137	135	137	144	149
Public administration and defence; compulsory social security	345	498	910	1 272	1 280	1 396	1 414	1 507	1 524
Education	359	684	997	1 326	1 509	1 588	1 499	1 335	1 416
Human health and social work activities	70	132	209	279	305	339	379	401	437
Arts, entertainment and recreation	2	3	5	7	7	8	10	12	12
Other service activities	102	191	212	189	180	174	166	167	172

Domestic Services	22	42	42	41	43	44	45	46	50
Less FISIM	-	-	-	-	-	-	-	-	-
	24	49	53	67	75	78	87	91	98
Gross Domestic Product at factor cost	9 344	11 435	13 090	15 073	15 565	15 924	16 083	16 410	17 198
Net taxes on production	113	126	141	171	165	167	168	173	179
Other taxes on production	113	126	141	171	165	167	168	173	179
Subsidies on production	-	-	-	-	-	-	-	-	-
Gross Domestic Product at Basic Prices	9 457	11 560	13 231	15 244	15 730	16 092	16 250	16 583	17 377
Net taxes on products	1 277	1 286	1 439	1 871	1 726	1 779	1 938	1 743	1 811
Taxes on products	1 277	1 286	1 439	1 871	1 726	1 779	1 938	1 743	1 811
Subsidies on products	-	-	-	-	-	-	-	-	-
GDP at Market Prices	10 735	12 847	14 670	17 115	17 455	17 870	18 188	18 326	19 188
Population (millions)	12	12	13	13	13	14	14	14	15
GDP per capita in USD	878	1 041	1 177	1 310	1 306	1 309	1 304	1 285	1 315

Source: ZIMSTAT, Gross Domestic Product 2009 – 2017 Figures (Base Year 2012)

Annex Table 3: GDP by Industry at Constant Prices (Percentage Growth Rates), 2010 - 2017

Industry /Year	2010	2011	2012	2013	2014	2015	2016	2017
Agriculture, hunting, fishing and forestry	7.2%	1.4%	7.8%	-2.6%	23.0%	-5.2%	-3.9%	10.0%
Mining and quarrying	41.4%	24.4%	8.0%	11.7%	-3.4%	0.4%	4.1%	3.5%
Manufacturing	73.2%	13.9%	5.3%	-0.6%	-5.1%	0.2%	0.6%	1.3%
Electricity, gas, steam and air conditioning supply	19.3%	6.4%	0.2%	5.1%	5.3%	-5.6%	-1.7%	3.9%
Water supply; sewerage, waste management and remediation activities	12.5%	-4.4%	2.3%	-15.9%	-2.7%	11.1%	-2.5%	5.1%
Construction	-13.6%	65.8%	23.3%	4.0%	6.9%	4.1%	1.4%	3.9%
Wholesale and retail trade; repair of motor vehicles and motorcycles	10.2%	4.3%	4.3%	3.9%	2.5%	3.8%	6.6%	8.1%
Transportation and storage	3.2%	0.2%	6.4%	7.0%	1.2%	4.8%	1.1%	3.4%
Accommodation and food service activities	10.3%	4.3%	4.3%	3.8%	2.5%	3.9%	7.8%	5.5%

Information and communication	4.6%	0.0%	6.7%	7.0%	1.1%	4.9%	1.1%	6.4%
Financial and insurance activities	-25.9%	-4.1%	77.9%	-4.3%	-15.1%	5.4%	4.7%	3.1%
Real estate activities	6.7%	48.4%	59.5%	0.7%	4.6%	11.0%	13.0%	1.0%
Professional, scientific and technical activities	124.1%	15.7%	25.4%	3.1%	-0.8%	1.7%	9.0%	0.3%
Administrative and support service activities	44.6%	3.8%	-5.1%	4.6%	-1.5%	1.5%	5.1%	3.5%
Public administration and defence; compulsory social security	44.3%	82.7%	39.8%	0.6%	9.1%	1.3%	6.6%	1.1%
Education	90.5%	45.8%	33.0%	13.8%	5.2%	-5.6%	-10.9%	6.1%
Human health and social work activities	88.6%	58.3%	33.5%	9.3%	11.1%	11.8%	5.8%	9.0%
Arts, entertainment and recreation	50.0%	66.7%	40.0%	0.0%	14.3%	25.0%	20.0%	0.0%
Other service activities	87.3%	11.0%	-10.8%	-4.8%	-3.3%	-4.6%	0.6%	3.0%
Domestic Services	90.9%	0.0%	-2.4%	4.9%	2.3%	2.3%	2.2%	8.7%
Services Sector	15.5%	15.1%	20.8%	4.2%	1.7%	2.5%	3.3%	5.1%

Source: ZIMSTAT, Gross Domestic Product 2009 – 2017 Figures (Base Year 2012)

Annex Table 4: Expenditure on Gross Domestic Product at Current Prices USD million - Percent Contribution

Item/ Year	2009	2010	2011	2012	2013	2014	2015	2016	2017
Final Consumption Expenditure	120	111	103	116	105	103	120	112	111
Private Households Consumption Expenditure	103	92	82	90	86	82	97	85	83
Consumption of Private Non- Profit Bodies	7	7	7	6	5	4	5	5	5
Government Consumption Expenditure	9	12	14	20	14	17	19	21	23
Gross Capital Formation	11	15	14	6	9	10	10	10	10
Gross fixed Capital Formation	9	14	13	8	10	10	10	10	10
Changes in Stocks	3	2	3	-2	0	0	0	0	0
Domestic Expenditure	132	127	117	122	114	114	131	122	121
Net Exports of Goods and Services	-32	-27	-17	-22	-14	-14	-31	-22	-21

Exports of Goods and Services	27	33	30	23	21	22	32	39	39
less Imports of Goods and Services	59	59	46	45	36	36	63	61	60
Gross Domestic Product at Market Prices	100								
Net Property Income from Abroad	-18	-13	-13	-12	-10	-10	-17	-17	-18
Primary Income Received from Abroad	2	1	2	2	2	2	3	4	1
Primary income paid abroad	20	15	15	13	11	12	20	21	19
Gross National Income	82	87	87	88	90	90	83	83	82

Source: Ministry of Finance and Economic Development, 2017; Reserve Bank of Zimbabwe, 2017

Annex Table 5: Zimbabwe External Debt Outstanding By Debtor (Including All Arrears), in USD millions

End Period	2009	2010	2011	2012	2013	2014	2015	2016	2017
Long-Term External Debt	4 339	5 010	6 223	6 732	7 495	8 564	8 537	8 656	9 006
Government	4 282	4 868	5 857	6 252	6 493	6 303	6 623	6 735	7 057
Bilateral Creditors	2 213	2 353	3 307	3 397	3 786	3 599	4 071	4 258	4 491
Multilateral Creditors	2 059	2 505	2 550	2 855	2 707	2 704	2 553	2 477	2 566
Private Creditors	10	10	0	0	0	0	0	0	0
Public Enterprises	825	825	1 092	1 198	1 356	1 661	1 220	1 370	1 419
Bilateral Creditors	497	497	711	703	858	1 155	760	779	837
Multilateral Creditors	327	327	382	495	498	506	460	591	582
Private Creditors	0	0	0	0	0	0	0	0	0
Monetary Authorities	140	550	127	125	125	120	110	0	0
Multilateral Creditors - IMF	140	550	127	125	125	120	110	0	0
Private	57	142	366	480	1 002	2 261	1 913	1 920	1 949
Short-Term External Debt	1 348	2 040	1 286	891	1 564	2 394	2 258	2 304	2 292
Supplier's Credits	193	286	134	30	0	0	0	0	0
Reserve Bank	998	1 300	615	615	614	587	587	573	490
Private	156	454	537	246	950	1 807	1 671	1 731	1 802
Total External Debt	5 687	7 050	7 509	7 623	9 059	10 958	10 794	10 960	11 299

Source: Ministry of Finance and Economic Development, 2017; Reserve Bank of Zimbabwe, 2017

Annex Table 6: Zimbabwe External Debt Outstanding by Source, in USD millions

	End of	2009	2010	2011	2012	2013	2014	2015	2016	2017
Total Medium to Long-Term External Debt		4 339	5 010	6 223	6 732	7 495	8 564	8 537	8 656	9 006
Public and Publicly Guaranteed Debt		4 282	4 868	5 857	6 252	6 493	6 303	6 623	6 735	7 057
Bilateral Creditors		2 213	2 353	3 307	3 397	3 786	3 599	4 071	4 258	4 491
Multilateral Creditors		2 059	2 505	2 550	2 855	2 707	2 704	2 553	2 477	2 566
Private Creditors		10	10	0	0	0	0	0	0	0
Private Non-Guaranteed Long term		57	142	366	480	1 002	2 261	1 913	1 920	1 949
Short-Term External Debt		1 192	1 586	749	645	614	587	587	573	490
Public and Publicly Guaranteed Debt		193	286	134	30	0	0	0	0	0
Reserve Bank		998	1 300	615	615	614	587	587	573	490
Private		156	454	537	246	950	1 807	1 671	1 731	1 802
Total External Debt		5 687	7 050	7 509	7 623	9 059	10 958	10 794	10 960	11 299
Gross Domestic Product		8 157	9 457	10 956	12 472	13 490	14 068	14 209	14 165	14 551
External Debt / GDP		69.70%	74.50%	68.50%	61.10%	67.20%	77.90%	76.00%	77.40%	77.60%

Source: Ministry of Finance and Economic Development, 2017 ; Reserve Bank of Zimbabwe, 2017

ANNEX 2: EXPENDITURE PROGRAMME FOR THE ACTION PLANS

The tables included in this Annex provide a summary of the expenditures funding sources for each of the sectoral programmes reviewed in this Report. Annex Table 7 provides a summary of development expenditure with a separation between public and private expenditures. Public expenditures include those for capacity building and technical support as well as capital outlays on rehabilitation and new infrastructure. The definition of public expenditures includes the National Government of Zimbabwe, state enterprises, local governments, private sector and the international donor community.

Annex Table 7: Summary of Sources of Funding for Capital Expenditure Programme (in USD millions at 2017 prices)

	2019	2020	2021	2022	2023	2024	2025	2026 - 2030	Total
Water Supply and Sanitation and Resource Management									
National budget	107	108	109	111	95	96	97	423	1 146
ZINWA	76	76	76	72	72	72	72	289	806
Local authorities	4	4	4	4	4	4	4	24	51
Donors	77	78	79	84	95	96	98	465	1 073
Private investment	48	48	8	48	55	56	56	233	593
Sub-total		317	319	322	324	327	327	1 434	3 670
Electric power									
ZESA	51	51	34	40	40	32	36	112	396
Donors	34	34	23	28	28	23	23	71	264
Private sector	85	85	57	46	46	36	32	91	478
Sub-total	171	171	114	114	114	91	91	273	1139
Roads									
National budget	1 660	1 660	1 113	974	974	782	671	1 753	9 586
Road Fund	1 245	1 245	835	974	974	782	894	2 782	9 730
Private sector	830	830	556	696	696	559	559	1 612	6 337
Donors	415	415	278	139	139	112	112	658	2 268
Sub-total	4 149	4 149	2 782	2 782	2 782	2 236	2 236	6 805	27 921
Rail									
NRZ / RICZ / ZRSC	36	36	18	18	18	14	14	25	180
Donors	16	16	8	8	8	6	6	11	80
Private sector	28	28	14	14	14	11	11	20	140
Sub-total	80	80	40	40	40	32	32	56	399
Civil aviation									
CAAZ / ACZ	16	16	8	8	8	6	6	11	81
Donors	0	0	0	0	0	0	0	0	-
Private sector	31	31	16	16	16	13	13	22	157
Sub-total	48	48	24	24	24	19	19	33	238
Communications									
National budget	19	19	21	20	20	18	18	73	208
Donors	0	0	0	0	0	0	0	0	-
Private sector	19	19	19	19	19	19	19	73	204
Sub-total	38	38	40	38	38	37	37	145	412
Total	4 797	4 800	3 317	3 318	3 320	2 739	2 742	8 747	33 779

National budget	1 786	1 787	1 244	1 104	1 089	897	786	2 249	10 941
State enterprises*	1 424	1 424	971	1 112	1 112	908	1 024	3 219	11 193
Local Authorities	4	4	4	4	4	4	4	24	51
Donors	542	543	388	260	270	237	239	1 205	3 685
Private sector	1 042	1 042	710	838	845	693	689	2 051	7 909
Total	4 797	4 800	3 317	3 318	3 320	2 739	2 742	8 747	33 779

Source: Author's Estimates

*includes Road Fund

ANNEX 3: WATER SUPPLY AND SANITATION

3.A. Growth in Water Demand

Annex Table 8 provides estimated growth for water demand using baseline access numbers provided by the UNICEF and WHO, Joint Monitoring Programme for Water Supply, Sanitation and Hygiene.

Annex Table 9: Indicative growth in water demand

Indicator	2013	2014	2015	2016	2017	2018	2019	2020
Population with access to an improved water source	11 441 735	11 663 079	11 873 694	12 111 167	12 353 391	12 600 459	12 852 468	13 109 517
Consumption per person per day	150	153	156	159	162	166	169	172
Total annual demand (billion litres)	626	651	676	704	732	762	792	824

3.B. Investment Requirements

The possible investment requirements are estimated that are based on the requirements for water and sanitation infrastructure given the current level of access and the forecasted demand growth for water and sanitation services.

Annex Table 10: Estimated investment requirements for the water and sanitation sector (USD millions at 2017 prices)

Indicators	2018	2019	2020	2021	2022	2023	2024	2025	2026 to 2030	Total
Capacity building and support										
National budget	-	0,001	0,001	0,002	0,004	0,002	0,002	-	-	0,01
Donors	-	0,004	0,004	0,008	0,015	0,008	0,008	-	-	0,05
Sub-total	-	0,005	0,005	0,010	0,019	0,010	0,010	-	-	0,06
Dams										
National budget	-	72,27	72,27	72,27	72,27	72,26	72,26	72,26	289,06	794,94
ZINWA	-	72,27	72,27	72,27	72,27	72,26	72,26	72,26	289,06	794,94
Donors	-	48,18	48,18	48,18	48,18	48,18	48,18	48,18	192,71	529,96

Private investment	-	48,18	48,18	48,18	48,18	48,18	48,18	48,18	192,71	529,96
Sub-total	-	240,90	240,90	240,90	240,90	240,88	240,88	240,88	963,53	2 649,79
Water transfer										
National budget	-	0,06	0,06	0,06	0,06	0,05	0,05	0,05	-	0,39
ZINWA	-	0,02	0,02	0,02	0,02	0,02	0,02	0,02	-	0,16
Donors	-	0,03	0,03	0,03	0,03	0,03	0,03	0,03	-	0,23
Private investment	-	0,11	0,11	0,11	0,11	0,11	0,11	0,11	-	0,78
Sub-total	-	0,23	0,23	0,23	0,23	0,22	0,22	0,22	-	1,56
Urban WSS programme										
National budget	-	23,83	24,43	25,0	25,7	9,6	9,8	10,0	54,1	182,52
ZINWA	2,11	2,17	2,22	2,3	-	-	-	-	-	8,78
Municipalities	-	2,17	2,22	2,3	2,3	2,4	2,5	2,5	13,5	29,89
Donors	40,16	15,16	15,54	15,9	18,7	28,7	29,4	30,1	162,4	356,15
Private investment	-	-	-	-	-	7,2	7,4	7,5	40,6	62,67
Sub-total	42,27	43,33	44,41	45,5	46,7	47,8	49,0	50,2	270,7	640,00
Rural WSS programme										
National budget	10,7	11,2	11,6	12,1	12,6	13,1	13,6	14,2	79,9	178,90
ZINWA	1,3	1,4	1,5	1,5	-	-	-	-	-	5,70
Municipalities	1,3	1,4	1,5	1,5	1,6	1,6	1,7	1,8	10,0	22,36
Donors	13,4	14,0	14,5	15,1	17,3	18,0	18,7	19,5	109,8	240,28
Sub-total	26,8	27,9	29,0	30,2	31,4	32,7	34,0	35,4	199,6	447,25
National budget	10,734	107,327	108,373	109,454	110,570	94,970	95,737	96,530	423,061	1 156,76
ZINWA	3,46	75,86	75,97	76,08	72,29	72,29	72,29	72,29	289,06	809,57
Municipalities	1,34	3,56	3,67	3,79	3,90	4,03	4,15	4,28	23,52	52,25
Donors	53,575	77,343	78,286	79,264	84,185	94,902	96,346	97,829	464,941	1 126,67
Private investment	-	48,29	48,29	48,29	48,29	55,46	55,64	55,82	233,31	593,41
Total	69,106	312,382	314,592	316,880	319,248	321,645	324,161	326,751	1 433,893	3 738,66

ANNEX 4: ELECTRIC POWER

4.A. Financial Accounts of the Power Utilities

The power utilities, ZETDC and ZPC, made their income statement and balance sheets for the year ending 2017. These are shown below in Annex Table 11 to Annex Table 14.

Annex Table 11: ZPC Balance Sheet (in USD as at 31 December 2017)

	2017	2016
ASSETS		
Non-current assets		
Property, plant and equipment	1 976 869 891	1 926 589 582
Intangible assets	740 101	1 027 728
Investment in associate	1 694 098	1 209 696
Investment in subsidiary	-	-
Long term investment	14 468 649	1 634 957
	1 993 772 739	1 930 461 963
Current assets		
Inventories	28 893 301	24 778 886
Trade and other receivables	695 115 001	703 206 316
Bank and cash balances	79 271 451	77 582 397
	803 279 753	805 567 599
Total assets	2 797 052 492	2 736 029 562
EQUITY AND LIABILITIES		
Capital and reserves		
Share capital	-	-
Shareholders contribution	532 687 424	532 687 424
Revaluation reserve	778 890 834	778 890 834
Retained earnings	84 481 268	84 481 268
Total equity	1 396 059 526	1 396 059 526
Non-current liabilities		
Loans and borrowings	369 638 653	246 658 192
Deferred tax	366 169 168	370 778 596
	735 807 821	617 436 788
Current liabilities		
Trade and other payables	139 101 773	194 386 766
Current portion of long term loans	425 506 944	421 365 373
Short term loans	10 776 168	20 990 168
Current tax payable	83 858 205	65 620 760
Bank overdraft	5942055	6585733
	665 185 145	708 948 800
Total liabilities	1 400 992 966	1 326 385 588
Total equity and liabilities	2 797 052 492	2 736 029 562

Annex Table 12: ZPC Income Statement (in USD as at 31 December 2017)

	2017	2016
Revenue	384 755 736	418 157 873
Other income	35 236 189	26 652 115
	419 991 925	444 809 988

Expenditure		
Generation of electricity	122 085 033	146 682 987
Transmission of electricity	6 141 397	6 166 079
Staff costs	78 400 739	73 570 557
Depreciation and amortisation	100 798 723	101 540 902
General expenses and overheads	49 960 073	46 122 555
	357 385 965	374 083 080
Operating profit	62 605 960	70 726 908
Exchange (loss)/gain	(13 218 509)	3 064 466
Finance expense	(54 368 686)	(29 860 164)
Share of profits of associate	410 993	95 026
(Loss)/profit before tax	4 570 242	44 026 236
Income tax expense	(2 659 319)	(1 863 555)
(Loss)/profit after tax	(12 229 561)	25 390 681
Other comprehensive income	0	0
Total comprehensive (loss)/income for the year	(12 229 561)	25 390 681

Annex Table 13: ZETDC Balance Sheet (in USD as at 31 December 2017)

	2017	2016
ASSETS		
Non-current assets		
Property, plant and equipment	974 014 901	1 019 967 440
Intangible assets	8 841 468	10 025 645
Held to maturity investment	2 455 342	2 499 325
Unquoted investment	489 660	250 000
Long term trade and other receivables	111 629 764	148 305 224
	1 097 431 135	1 181 047 634
Current assets		
Inventories	51 626 069	50 110 552
Trade and other receivables	582 024 100	631 511 251
Amounts due from related parties	39 726 880	47 754 572
Bank and cash	36 998 234	45 736 513
	710 375 283	775 112 888
Total assets	1 807 806 418	1 956 160 522
EQUITY AND LIABILITIES		
Capital and reserves		
Share capital	-	-
Shareholders contribution	362 590 624	362 590 624

Revaluation reserve	38 491 991	38 491 991
Accumulated loss	(524 898 859)	(524 898 859)
Total equity	225 183 756	225 183 756
Non-current liabilities		
Deferred tax	113 140 463	107 044 352
Long term loans	71 779 476	119 693 194
	184 919 939	226 737 546
Current liabilities		
Trade and other payables	343 842 009	296 742 777
Amounts due to related parties	698 374 950	762 151 343
Current position of long term loans	327 290 656	336 094 859
Deferred loans	28 195 108	28 681 640
	1 397 702 723	1 423 670 619
Total liabilities	1 582 622 662	1 650 408 165
Total equity and liabilities	1 807 806 418	1 956 160 522

Source: ZETDC Annual Financial Statements, 2017

Annex Table 14: ZETDC Income Statement (in USD as at 31 December 2017)

	2017	2016
Revenue	772 699 147	743 940 723
Other income	25 767 898	24 083 097
	798 467 045	768 023 820
Expenditure		
Purchase of electricity	528 972 854	590 488 082
Transmission of electricity	2 595 350	2 647 218
Distribution of electricity	10 335 671	14 610 800
Staff costs	150 004 730	150 801 821
Depreciation and amortisation	78 334 422	82 915 763
General expenses and overheads	91 377 909	103 639 069
Total Expenses	861 620 936	945 102 753
Operating loss before allowance for credit losses	(63 153 891)	(177 078 933)
Net finance (costs)/income	(7 223 299)	3 748 986
Operating loss before tax and allowances for credit losses	(70 377 190)	(173 329 947)
(Increase)/decrease in allowance for credit losses	(4 095 300)	242 605 111
Operating (loss)/profit before tax	(74 472 490)	69 275 164
Income tax (expense)/credit	(6 096 111)	3 043 850

(Loss)/profit for the year	(80 568 601)	72 319 014
Other comprehensive income	-	-
Total comprehensive (loss)/income for the year	(80 568 601)	72 319 014

ANNEX 5: ROAD TRANSPORT

5.A. Road Conditions

Annex Table 15 and Annex Table 16 present a summary of the road condition as presented in the Roads Conditions and Inventory Draft Report for 2017.

Annex Table 15: Visual Condition Index (VCI) of Surfaced Roads by Network Length (km)

Province	VCI (%)					Grand Total
	Poor 0 - 30	Fair 30 - 55	Good 55 - 80	Very Good 81-100	No Info	
Harare Metro	1 505	1 843	203	7	152	3 711
Manicaland	257	1 230	388	-	37	1 912
Mashonaland Central	709	394	55	-	2	1 160
Mashonaland East	180	782	318	-	90	1 370
Mashonaland West	354	1 194	184	5	91	1 828
Masvingo	264	1 035	236	-	4	1 539
Matabeleland North	98	1 909	124	-	121	2 252
Matabeleland South	62	843	258	-	10	1 173
Midlands	1 392	330	41	6	53	1 822
Bulawayo	602	939	54	-	7	1 601
Grand Total	5 423	10 500	1 861	19	567	18 369
% of Total	30%	57%	10%	0%	3%	

Source: Roads Conditions and Inventory Draft Report, 2017

Annex Table 16: Visual Condition Index (VCI) of Gravel and Earth Roads by Network Length (km)

Province	VCI (%) - GRAVEL and EARTH					Grand Total
	Poor 0 - 30	Fair 30 - 55	Good 55 - 80	Very Good 81-100	No Info	
Manicaland	6 481	2 518	86	-	451	9 535
Mashonaland Central	3 364	2 096	25	-	91	5 575
Mashonaland East	6 154	2 479	75	-	818	9 525
Mashonaland West	7 530	2 274	33	8	427	10 272
Masvingo	7 854	1 638	9	-	549	10 050
Matabeleland North	3 634	2 296	62	-	575	6 567
Matabeleland South	8 844	900	-	-	216	9 960
Midlands	7 425	978	32	-	590	9 025
Harare Metropolitan	473	174	14	0	145	806
Bulawayo	425	236	2	-	1	664
Grand Total	52 182	15 588	337	9	3 863	71 979
% of Total	72%	22%	0%	0%	5%	

Source: Roads Condition Survey, 2017

5.B. Capital Expenditures for the Roads Sector

This section presents the capital expenditures for rehabilitation, routine and periodic maintenance of the Zimbabwean road network. The rehabilitation costs for the road network is leveraged from the 2017 TMP based on the extensive estimate exercise undertaken based on engagements with various stakeholders in the road sub-sector as well as Roads Conditions and Inventory Draft Report. Annex Table 17 below presents a breakdown in the rehabilitation cost of the Zimbabwean road network.

Annex Table 17: Proposed 12-Year Road Programme for the Rehabilitation of the Road Network in Zimbabwe (USD millions at 2017 prices)

Category	Road in Poor Condition 2017 (km)	Average Unit Cost (USD millions/km)	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
	Regional Total	922	4.91	680	680	453	453	453	362	362	362	181	91	91	4 530
Primary Total	813		133	133	89	89	89	71	71	71	71	35	18	18	886
Paved	813	1.09	133	133	89	89	89	71	71	71	71	35	18	18	886
Unpaved	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Secondary Total	8 494		827	827	551	551	551	441	441	441	441	220	110	110	5 512
Paved	1 085	0.65	106	106	70	70	70	56	56	56	56	28	14	14	704
Unpaved	7 410	0.65	721	721	481	481	481	385	385	385	385	192	96	96	4 808
Tertiary Total	37 206	0.30	1 663	1 663	1 109	1 109	1 109	887	887	887	887	443	222	222	11 085
Urban Total	7 456		798	798	532	532	532	426	426	426	426	213	106	106	5 319
Paved	2 603	0.71	279	279	186	186	186	149	149	149	149	74	37	37	1 857
Unpaved	4 853	0.71	519	519	346	346	346	277	277	277	277	138	69	69	3 462
*Grand Total	54 892	0.50	4 100	4 100	2 733	2 733	2 733	2 187	2 187	2 187	2 187	1 093	547	547	27 332

* excludes 2,714 km classified as "Other Unpaved".

Source: Author's Estimates; Roads Condition Survey, 2017

The TMP estimates the road authority's road ownership by road type: surfaced, gravel and earth. In addition, the Master Plan further provides the total cost of road rehabilitation and periodic maintenance. The TMP further breaks down how many kilometres of the surfaced and gravel and earth roads are in poor condition. This cost and kilometre breakdown, along with the figures provided in Annex Table 15 and Annex Table 16, provide a premise to estimate the cost of rehabilitation of the primary, secondary, tertiary, regional and urban roads by road authority. This is presented in Annex Table 18.

Annex Table 18: Proposed 12-Year Road Programme for the Rehabilitation of the Poor Road Network by Road Authority (USD millions at 2017 prices)

Category	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
Department of Roads													
Primary	61	61	40	40	40	32	32	32	32	16	8	8	403
Regional	670	670	447	447	447	358	358	358	358	179	89	89	4 469
Secondary	459	459	306	306	306	245	245	245	245	122	61	61	3 059
Tertiary	95	95	63	63	63	51	51	51	51	25	13	13	635
Urban	2	2	1	1	1	1	1	1	1	0	0	0	12
District Development Fund													
Primary	59	59	39	39	39	32	32	32	32	16	8	8	395
Regional	-	-	-	-	-	-	-	-	-	-	-	-	-
Secondary	218	218	145	145	145	116	116	116	116	58	29	29	1 451
Tertiary	536	536	357	357	357	286	286	286	286	143	71	71	3 571
Urban	-	-	-	-	-	-	-	-	-	-	-	-	-
Rural District Council													
Primary	12	12	8.13	8.13	8.13	6.50	6.50	6.50	6.50	3.25	1.63	1.63	81
Regional	1.13	1.13	0.75	0.75	0.75	0.60	0.60	0.60	0.60	0.30	0.15	0.15	8
Secondary	150	150	100	100	100	80	80	80	80	40	20	20	1 000
Tertiary	1 021	1 021	681	681	681	545	545	545	545	272	136	136	6 808
Urban	32	32	21	21	21	17	17	17	17	8.47	4.23	4.23	212
Urban Councils													
Primary	0.89	0.89	0.59	0.59	0.59	0.47	0.47	0.47	0.47	0.24	0.12	0.12	5.92
Regional	8.10	8.10	5	5.40	5.40	4.32	4.32	4.32	4.32	2.16	1.08	1.08	54.02
Secondary	0.24	0.24	0.16	0.16	0.16	0.13	0.13	0.13	0.13	0.06	0.03	0.03	1.61
Tertiary	11	11	7.21	7.21	7.21	5.77	5.77	5.77	5.77	2.88	1.44	1.44	72
Urban	764	764	510	510	510	408	408	408	408	204	102	102	5 096
Total	4 100	4 100	2 733	2 733	2 733	2 187	1 093	547	27 332				

Source: Author's Estimates; Roads Condition Survey, 2017

Annex Table 19: Proposed 12-Year Road Programme for the Periodic Maintenance of the Fair Road Network by Road Authority (USD millions at 2017 prices)

Category	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
Department of Roads	14	14	14	14	14	14	14	14	14	14	14	14	173
District Development Fund	10	10	10	10	10	10	10	10	10	10	10	10	124
Rural District Council	15	15	15	15	15	15	15	15	15	15	15	15	180
Urban Councils	9	9	9	9	9	9	9	9	9	9	9	9	111
Total	49	589											

Source: Author's Estimates; Roads Condition Survey, 2017

Annex Table 20: Sources of Funding for Road Rehabilitation (USD millions at 2017 prices)

Sources of Funding	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
National Budget	1 640	1 640	1 093	957	957	765	656	656	547	273	109	109	9 402
Road Fund	1 230	1 230	820	957	957	765	875	875	875	437	246	246	9 512
Private Sector	820	820	547	683	683	547	547	547	547	273	164	27	6 204
Donors	410	410	273	137	137	109	109	109	219	109	27	164	2 214
Total Programme	4 100	4 100	2 733	2 733	2 733	2 187	2 187	2 187	2 187	1 093	547	547	27 332

Source: Author's Estimates; Roads Condition Survey, 2017

Annex Table 21: Sources of Funding for Periodic Maintenance (USD millions at 2017 prices)

Sources of Funding	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	Total
National Budget	20	20	20	17	17	17	15	15	12	12	10	10	184
Road Fund	15	15	15	17	17	17	20	20	20	20	22	22	218
Private Sector	10	10	10	12	12	12	12	12	12	12	15	2	132
Donors	5	5	5	2	2	2	2	2	5	5	2	15	54
Total Programme	49	589											

Source: Author's Estimates; Roads Condition Survey, 2017

ANNEX 6: RAILWAY SERVICES

6.A. Financial Accounts for NRZ

Annex Table 22: NRZ Balance Sheet (in USD as at 31 December 2015)

	2015	2014
ASSETS		
Non-current assets		
Property, plant and equipment	488 679 167	506 396 853
Investment in joint venture	12 793 550	12942895
Investments	9 875 106	9 875 106
Intangible assets	595 942	668 914
Investment property	1 860 771	1917158
	513 804 536	531 800 926
Current assets		
Non-current assets held for sale	-	361 855
Inventories	67 201 529	64 121 263
Trade and other receivables	54 153 467	50 865 825
Related party receivables	181 174	264 173
Cash and cash equivalents	292 467	647 853
	121 828 637	116 260 969
Total assets	635 633 173	648 061 895
EQUITY AND LIABILITIES		
Reserves		
Non distributable reserve	529 985 148	529 985 148
Accumulated loss	(276 432 288)	(235 544 295)
Total equity	253 552 860	294 440 853
Non-current liabilities		
Loans and borrowings	25 440 103	28 462 997
Deferred tax	63 898 852	77 765 630
	89 338 955	106 228 627
Current liabilities		
Loans and borrowings	53 084 849	47 494 763
Trade and other payables	234 581 293	194 891 833
Related party payables	3 294 474	831 912
Bank overdraft	1 780 742	4 173 907
	292 741 358	247 392 415
Total equity and liabilities	635 633 173	648 061 895

Annex Table 23: NRZ Income Statement (in USD as at 31 December 2015)

	2015	2014
Revenue	80 080 896	91 231 741
Cost of sales	(96 156 343)	- 103 064 756
Gross loss	(16 075 447)	11 833 015
Other income	13 308 203	13 719 015
Share of (loss)/profit from joint venture	(149 345)	139 527
Administrative expenses	(43 756 635)	(38 087 815)
Loss before finance costs	(46 673 635)	(36 062 288)
Finance costs	(8 081 547)	(6 012 298)
Loss before taxation	(54 754 771)	(42 074 586)
Taxation	13 866 778	10 467 368
LOSS FOR THE YEAR	(40 887 993)	(31 607 218)
Other comprehensive income:		
Other comprehensive income for the year, net of tax	-	-
TOTAL COMPREHENSIVE LOSS FOR THE YEAR	(40 887 993)	(31 607 218)

ANNEX 7: CIVIL AVIATION

7.A. Financial Accounts for Air Zimbabwe and CAAZ

Annex Table 24: Air Zimbabwe Income Statement (in USD as at 31 December 2013)

	2013	2012
	USD	USD
INCOME		
Revenue	26047897	12251704
Other income	493451	411929
Total income	26541348	12663633
OPERATING COSTS		
Aircraft maintenance and insurance costs	3472586	5757780
Accommodation and crew expenses	2944132	1185652
Depreciation	8209213	7405060
Employee costs	14569352	18989073
Fuel and oil	12053295	4505858
(Gain)/Loss on exchange rate differences	(242 363)	9862318
Navigation, handling and landing charges	5949770	1407720
Other operating expenses	1107670	5729289
Write down of inventory	4769285	2850570
Total operating costs	52832941	57693319
Loss from operations	(26 291 594)	(45 029 686)
Finance cost	-13235	-30012
Loss before tax	(26 304 828)	(45 059 697)
Income tax credit	-	-
Loss for the year	(26 304 828)	(45 059 697)
Other comprehensive income:	-	-
Total comprehensive loss for the year	(26 304 828)	(45 059 697)

Annex Table 25: Air Zimbabwe Balance Sheet (in USD as at 31 December 2013)

	2013	2012
	USD	USD
ASSETS		
Non current assets		
Property, aircraft and equipment	18,842,186	26,435,120
Current assets		
Inventories	9,964,322	14,352,430
Trade and other receivables	6,530,460	3,349,724
Available for sale investments	4,171	10,249
Bank and cash	2,332,968	2,574,825
	18,831,921	20,287,228
Total assets	37,674,106	46,722,348
EQUITY AND LIABILITIES		
Equity		
Share capital	-	-
Non-distributable reserve	27,619,115	27,619,115
Accumulated loss	(217,429,247)	(191,124,418)
	(189,810,132)	(163,505,303)

Non current liabilities		
Deferred tax		
Current liabilities		
Sales in advance of carriage	1,658,727	2,983,459
Trade and other payables	187,619,388	167,432,921
Provisions and accruals	3,623,827	6,536,078
Suspense balance	27,965,576	27,965,576
Bank overdraft	6,616,720	5,309,619
	227,484,237	210,227,653
Total liabilities	227,484,237	210,227,653
Total equity and liabilities	37,674,106	46,722,350

Annex Table 26: CAAZ Balance Sheet (in USD as at 31 December 2016)

	2016	2015
ASSETS		
Non-current assets		
Property, plant and equipment	457 692 010	437 164 732
Project advance	893 174	926 791 8
Intangible assets	340 125	744 202
Available for sale investments	357 366	266 968
	459 282 675	447 443 820
Current assets		
Inventory	642 425	748 428
Trade and other receivables	10 857 195	6 801 993
prepayments	1 117 504	205 240
Cash and cash equivalents	9 975 935	26 083 437
	22 593 059	33 839 098
Total assets	481 875 735	481 282 918
FUNDS, RESERVES AND LIABILITIES		
Funds and reserves		
Non distributable reserve	28 088 532	28 088 532
Revaluation reserve	107 219 744	136 964 797
Aviation Infrastructure Development Fund	10 245 145	29 086 564
Retained loss	(133 784 224)	(139 512 467)
Total equity	11 769 197	54 627 426
Non-current liabilities		
Long term loans	143 451 997	130 894 823
Medium term loans	95 781 708	87 540 065
Deferred tax liability	65 476 628	35 731 575
	304 710 333	254 166 463
Current liabilities		
Loan interest	48 012 898	49 083 213
Portion of the long term loan	98 840 180	110 339 678
Trade and other payables	16 262 522	11 350 124
Bank overdraft	-	65 438

Provisions	2 280 507	1 650 577
	165 396 108	172 489 030

Total funds, reserves and liabilities	481 875 735	481 282 918
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Annex Table 27: Air Zimbabwe Income Statement (in USD as at 31 December 2013)

	2016	2015
Revenue		
Aeronautical revenue	32 613 931	30 649 399
Non-aeronautical revenue	5 905 894	2 884 560
	38 519 825	33 533 959
Expenditure		
Marketing and promotional expenses	1 064 132	879 599
Administration expenses	22 786 775	26 856 482
Staff costs	16 870 784	14 922 171
Total Expenses	40 721 691	42 658 252
Net Operating profit	2 201 866	9 124 293
Finance costs	6 473 625	6 231 734
Net exchange gains	14 403 734	11 775 106
Surplus/(deficit) before tax	5 728 243	3 580 921
Income tax (expense)/income	-	-
Surplus/(deficit) for the year	5 728 243	(3 580 921)
Other comprehensive income	-	-
Total comprehensive (loss)/income	5 728 243	(3 580 921)

ANNEX 8: ICT

8.A. Investment Requirements

The table below provides an estimate of the investment requirements for the ICT sector. These estimates are based on previous needs identified for the ICT sector, the bulk of which is the connection of the backbone network.

Annex Table 28: Estimates of investment requirements for the ICT sector (USD millions at 2017 prices)

Category	2019	2020	2021	2022	2023	2024	2025	2026 to 2030	Total
Institutional development and policy analysis	0,69	0,69	2,75	1,37	1,37	-	-	-	6,87
Technical studies	0,53	0,53	0,53	-	-	-	-	-	1,59
Connection of backbone network	36,36	36,36	36,36	36,36	36,36	36,36	36,36	145,45	400,00
Development of e-applications	0,76	0,76	0,76	0,76	0,76	0,76	0,76	-	5,29
Total	38,33	38,33	40,40	38,49	38,49	37,12	37,12	145,45	413,74

The table below presents an indicative spread of the potential sources of funding for the investment requirements in the ICT sector.

Annex Table 29: Funding sources for the investment requirements (USD millions at 2017 prices)

Funding source	2019	2020	2021	2022	2023	2024	2025	2026 to 2030	Total
Government	19,10	19,10	21,16	19,78	19,78	18,41	18,41	72,73	208,46
Institutional development and policy analysis	0,69	0,69	2,75	1,37	1,37	-	-	-	6,87
Public-private investment for backbone network	18,18	18,18	18,18	18,18	18,18	18,18	18,18	72,73	200,00
Public-private investment for development of e-applications	0,23	0,23	0,23	0,23	0,23	0,23	0,23	-	1,59
Private sector	18,71	72,73	203,70						
Public-private investment for backbone network	18,18	18,18	18,18	18,18	18,18	18,18	18,18	72,73	200,00
Public-private investment for development of e-applications	0,53	0,53	0,53	0,53	0,53	0,53	0,53	-	3,70
Total	37.8	37.8	39.9	38.5	38.5	37.1	37.1	145.5	412.2

