INFRASTRUCTURE AND GROWTH IN ZIMBABWE

AN ACTION PLAN FOR SUSTAINED STRONG ECONOMIC GROWTH

Summary Report
INFRASTRUCTURE AND GROWTH IN ZIMBABWE

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During my visit to Zimbabwe in January 2010, the Government requested the African Development Bank (AfDB) to prepare a major report on the state of infrastructure in the country. The Bank accepted this request, 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. The Bank recognizes 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. It has a mandate from the African Union to implement the infrastructure component of the New Partnership for Africa’s Development (NEPAD), and it hosts the secretariats of the Infrastructure Consortium for Africa and of the African Water Facility.

Shortly after its formation in February 2009, Zimbabwe’s Inclusive Government (IG) approached the Bank to assist and advising on re-engagement with the international community. Within this context, the Bank has been providing technical assistance and capacity building support to Zimbabwe aimed at improving economic governance and effectiveness of public service delivery. The Bank sought to deepen and broaden its analytical knowledge base, which has been depleted during the decade-long economic and political crisis, by undertaking economic and sector work in areas deemed as critical for enhancing competitiveness and public sector effectiveness. This Flagship Report, entitled “Infrastructure and Growth in Zimbabwe”, is part of such analytical work designed to enable the Bank to strengthen its knowledge base in Zimbabwe’s infrastructure sector. The 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 in the decade ahead; (ii) the underlying framework for a major conference scheduled for March 2011 on infrastructure development and related investment opportunities, which would be attended by Government officials, international and domestic private investors, and the donor community; (iii) 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 2011-12; and (iv) a platform from which a strategy for possible AfDB and other donor operations in Zimbabwe can be drawn up.

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 2020, and lays out an action program for achieving these objectives.
that includes policy and institutional reform, capital expenditure programs for rehabilitation and new capacity, and increased resource allocations for maintenance of these facilities. It provides options for financing the proposed program, 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.

The 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 Medium Term Plan, currently under preparation, 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.

Aloysius Uche Ordu
Vice President, Country and Regional Programs and Policy
African Development Bank Group
PREFACE

Economic growth and development cannot be achieved without the availability of appropriate 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 programs to promote sustained and shared economic growth in the country. This has been articulated by the Government in its Medium Term Plan, currently under preparation, Short-Term Emergency Recovery Programme (STERP) and the Three Year Macroeconomic Policy and Budget Framework 2010-2012 (STERP II). 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.

The report provides a detailed assessment of the current status of infrastructure and services associated with water and sanitation, transport, electric power, and ICT in Zimbabwe and their role in facilitating regional integration in the Southern Africa region. The main report is divided into two parts. Part A reviews country context issues, including infrastructure and growth issues in Zimbabwe, and the proposed policy options and action plans that can be pursued by Zimbabwe in order to strengthen the sector. Part B of the report provides detailed data and assessment of the current status of the infrastructure and services in the four infrastructure areas under review. A separate summary report is also available. The full report and a detailed Annex to the report are available online at http://www.afdb.org/en/countries/southern-africa/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 May and November 2010, including a consultative workshop, to forge a consensus on the actions to be taken and to adequately reflect them in the report even though, by necessity, some of the things are left out. In recognition that this report is not an end in itself, the African Development Bank looks forward to continued dialogue to develop bold and new approaches towards addressing infrastructure deficiencies in Zimbabwe.

Ebrima Faal
Regional Director,
Country and Regional Programming,
South African Region I
ACKNOWLEDGEMENTS

The Infrastructure and Growth Flagship Report was prepared by a team of staff and consultants from the African Development Bank (AfDB) led by Ebrima Faal, at the time Lead Economist in the Regional Department – South A. The AfDB staff in the team comprised of: George Honde, Senior Country Economist; Augusto Maquengo, Portfolio Data Analyst; Rhoda Mshana, Economist; and Neema Siwingwa, Economist. Special thanks go to Benedict Kanu, Lead Economist, for his invaluable input. The Team was assisted by consultants namely, Russell Cheetham, Lead Consultant to the Department and prime author to the Report’s sections on infrastructure, Bizuneh Fikru, and Colin Benham. The project also benefitted from the support provided by Damoni Kitabire, Head of the Zimbabwe Extended Mission, and Caleb Makwiranzou, a local consultant who served as a liaison/point person to facilitate communication and follow up of any outstanding issues, including providing maps and photographs of key sectors to be covered in the report. The Report also benefitted from the general direction provided by Abdirahman Beileh, Director of ORSA at the time the project started.

The work undertaken for this Report was initiated at the request of the Government of Zimbabwe. It was carried out under the leadership of Aloysius Ordu, Vice President for Operations I, Country and Regional Programs and Policy, and the guidance of the Zimbabwe Task Team – Bank-wide team charged with overseeing the AfDB reengagement with Zimbabwe. The preparation of this Report also benefitted from comments, insights and generous support of other AfDB staff too numerous to mention, but by this acknowledgement, their contributions are recognized and the team’s appreciation is registered. The team appreciates the strong support of Ms. Kazumi Ikeda-Larhed, Head Partnerships and Corporation Unit of the Bank, and her dedicated staff that raised the Funds needed through the Japanese Trust Fund to make this report possible.

A large number of Government of Zimbabwe and state enterprises representatives also provided extremely valuable inputs and comments at various stages of the Report, including during the Consultative Workshop held on 15 November 2010 in Harare. The list is not exhaustive, but the team is particularly grateful to the following key officials: Honorable Tendai Biti, Minister of Finance, and Mr. W. Manungo, Secretary to the Treasury, Ministry of Finance; Dr. D. Sibanda, Permanent Secretary, Ministry of Economic Planning and Investment Promotion; Mr. J. Mupamhanga, Permanent Secretary, Ministry of Energy and Power Development; Eng. S. Kundishora, Principal Secretary, Ministry of Information and Communication Technology; Mrs. S. Tsvakwi, Permanent Secretary, Ministry of Lands; Mr. P. Mbiriri, Permanent Secretary, Ministry of Transport, Communications and Infrastructural Development; Mr. E. Mutowo, Permanent Secretary, Ministry of State Enterprises and Parastatals; Mr. M. Matsepe, Director - Road Network Development, Ministry of Public Works and Transport; Professor P. Mavima, Principal Director, Office of the Deputy Prime Minister; Mr. V. Guvakuya, Chief Executive, Rural Electrification Agency; Dr. P. Chikumba, Group CEO, Air Zimbabwe; Mr. D. Chawota, General Manager/CEO, Civil Aviation Authority of Zimbabwe; Mr. C. Nduku, Executive Officer, Central Vehicle Registry; Mr. C. Chikaura, CEO, Industrial Development Bank of Zimbabwe; Rtd. Air Commodore, General Manager, National Railways of Zimbabwe; Eng. C.M. Sibanda, General Manager, Postal and Telecommunications Authority; Mr. B. Rafemoyo, Group Chief Executive Officer, ZESA Holdings (Private) Limited; Mr. R. Mubaiwa, CEO, Zimbabwe Investment Authority; Mr. F. Chitikutuku, Chief Executive Officer, Zimbabwe National Road Administration; and Mr. J. Takavarasha, Manager, Zimbabwe National Statistics Agency. The dedication and untiring efforts of staff of the
Ministry of Finance officials, in particular Bothwell Nyajena, in assisting the team throughout the preparation of the Report is highly appreciated.

Ms. Imen Chorfi provided excellent research and logistical support for the project. She painstakingly completed all data used in the report and organized them in the easy to read tables and charts in the Report. We also thank her for meticulously formatting and organizing several versions of the draft document and manuscript as it went through the internal review processes. The valuable editorial assistance of David Driscoll deserve special acknowledgement, as does the AfDB’s Statistical Department (ESTA), which provided the statistics and other background information on Zimbabwe.

The country and regional maps were produced by Knollmaps.com. The maps and diagrams used in this publication in no way imply recognition of any states or political boundaries by the African Development Bank or the authors. One of Zimbabwe’s most renown photographers, Mr. Tsvangirayi, provided most of the images in this report.
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# ABBREVIATIONS

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<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>BAS</td>
<td>Broadcasting Authority of Zimbabwe</td>
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<tr>
<td>TRAZ</td>
<td>Transportation Regulatory Authority for Zimbabwe</td>
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<tr>
<td>AfDB</td>
<td>African Development Bank</td>
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<tr>
<td>BBR</td>
<td>Bulawayo and Beitbridge</td>
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<td>BDCs</td>
<td>Business Development Centers</td>
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<td>CAAZ</td>
<td>Civil Aviation Authority of Zimbabwe</td>
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<tr>
<td>DoR</td>
<td>Department of Roads</td>
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<tr>
<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>ICAO</td>
<td>International Civil Aviation Organization</td>
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<td>ICT</td>
<td>Information and Communications Technology</td>
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<td>IFIs</td>
<td>International Financial Institution</td>
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<td>IG</td>
<td>Inclusive Government</td>
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<td>IPPs</td>
<td>Independent Power Producer</td>
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<td>MDG</td>
<td>Millennium Development Goal</td>
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<tr>
<td>NRZ</td>
<td>National Railways of Zimbabwe</td>
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<tr>
<td>POTRAZ</td>
<td>Postal and Telecommunications Authority</td>
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<tr>
<td>PPP</td>
<td>Public Private Partnership</td>
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<tr>
<td>RDCs</td>
<td>Rural District Councils</td>
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<tr>
<td>SOEs</td>
<td>State-Owned Enterprises</td>
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<tr>
<td>SSA</td>
<td>Sub-Saharan Africa</td>
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<tr>
<td>STERP</td>
<td>Short-Term Emergency Recovery Program</td>
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<tr>
<td>ZERC</td>
<td>Zimbabwe Electricity Regulatory Commission</td>
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<tr>
<td>ZESA</td>
<td>Zimbabwe Electricity Supply Authority</td>
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<tr>
<td>ZETDC</td>
<td>Zimbabwe Electricity Transmission and Distribution Company</td>
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<td>ZINWA</td>
<td>Zimbabwe National Water Authority</td>
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<tr>
<td>ZINWA</td>
<td>Zimbabwe National Water Authority</td>
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<tr>
<td>ZPC</td>
<td>Zimbabwe Power Company</td>
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1.1 BACKGROUND

Zimbabwe is a landlocked country with an area of about 391,000 square kilometers and a population of almost 13 million. 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 decade, 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 ECONOMIC PERFORMANCE

Real GDP growth rates averaged nearly 4.5 percent in 1960-80, reflecting deliberate policies that promoted large-scale investment in domestic manufacturing and agriculture. Since 1980, Zimbabwe’s performance has been mixed, reflecting policy lapses and adverse weather conditions that affected agricultural output (Figure 1). The country recorded its strongest post-independence growth performance during 1980-90 with gross domestic product (GDP) growing by an average of around 5.5 percent, higher than the average for Sub-Saharan African (SSA) countries, while the population grew at about 3 percent. Real GDP growth was, however, characterized by considerable volatility influenced by weather conditions and high levels of foreign capital inflows at independence in 1980. Favorable domestic and external conditions, including the lifting of economic sanctions, stimulation of overall demand in the economy due to redistributive fiscal policies, and the opening up of external markets, fuelled economic activity. However, the high levels of economic expansion during the first few years of independence did not last. Intermittent consecutive droughts and lower demand for Zimbabwe’s exports were largely responsible for a slowdown in real GDP growth.

Economic performance declined sharply during 2000-08 and the incidence of poverty increased owing to economic mismanagement, poor governance and loss of support from the international community. The economic slowdown was compounded by periods of drought and the near collapse of agriculture sector following the expropriation of commercial farm land. As a result, growth declined at an average of 5.4 percent a year during 2000-08. At the same time, the economy was racked with sharp increases in prices. The inflation rate was in triple figures until 2006 when it moved into four digits and then to severe hyperinflation at 108,844 percent in 2007 before peaking at five hundred billion percent at end-2008. It was fueled 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.
1.3 REBUILDING INFRASTRUCTURE FACES MOMENTOUS CHALLENGES

This Report has undertaken a detailed examination of the development of basic infrastructure for the power, transport, 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, especially in power, water and sanitation, and transport;
- Infrastructure services in road transport and communications that are provided by the private sector are now more expensive than in neighboring countries, reflecting in part the economic costs of the deterioration;
- In the parastatals dominated sectors such as power, rail transport, and fixed line communications, services 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;
- Institutional and regulatory inadequacies also resulted in minimal amounts of investment by the private sector in basic infrastructure, despite periodic efforts to attract such investment, for example, in the transport and communications sectors;

![Figure 1. Zimbabwe: Annual and Trend GDP Growth, 1962-2007 (Natural Log Levels)](image-url)

Source: World Development Indicators, 2010
Figure 2. Zimbabwe: Selected Indicators

Real GDP Growth (Annual %)

Inflation, Consumer Prices (Annual %)

Central Government, Fiscal Balance (% of GDP)

Debt service, Public and Publicly Guarnanteed (PPG) Long-Term Debt (TDS, current US$)

Trade Balance for Goods

Current Account Balance

Value of Imports and Exports of Goods & Services

Foreign Direct Investment Flows (US Dollars at current prices and current exchange rates in millions)

• The deterioration in basic infrastructure has, in turn, had a serious impact on other productive sectors of the economy as well as the level and quality of services.

The findings of the Report, the proposed Action Plan for Infrastructure and its financing and proposed institutional and regulatory reforms are summarized below.

Finding 1: The Recovery in Economic Activity since 2009 Remains Fragile

The reforms, in particular the multi-currency regime and the cash budget system, adopted by the Inclusive Government (IG) in March 2009 have helped to restore macroeconomic stability and support an emerging economic recovery. In response to the more stable and liberalized economic environment under the Short-Term Emergency Recovery Program (STERP), real GDP is estimated to have risen by 4.7 percent in 2009 and is projected to grow again by about 8 percent in 2010, compared with a decline of about 14 percent in 2008.

Fiscal discipline was imposed in 2009 through strict adherence to a cash budget system and the halting of the Reserve Bank’s quasi-fiscal activities by the authorities. Although the fiscal position was broadly balanced in 2009, difficult fiscal challenges remain as the wage bill remains unsustainably high and revenue collection is low.

Zimbabwe’s external debt is unsustainable and continues to grow owing to accrual of arrears and new payments of interest and penalty charges on existing payment arrears. The country has made only limited payments on its external debt since 2000 owing to the prolonged political and economic crisis. Its total external debt is estimated at about $5.4 billion by end-2009 (equivalent to about 150 percent of GDP), almost two-thirds of which are arrears to most of Zimbabwe’s creditors. The arrears to international financial institutions (IFIs) had reached $1.4 billion by end-2009 ($0.48 billion due to the AfDB, $0.14 billion to the IMF and $0.74 billion to the World Bank). The country is therefore in debt distress.
Finding 2: Zimbabwe’s Infrastructure Deteriorated Significantly over the Last Decade

In the early 1990s, the coverage and quality of the basic infrastructure of Zimbabwe was among the best in the region. In the past decade, there has been a substantial deterioration in the quality of these infrastructure assets. As things now stand, the amount and quality of the country’s infrastructure is roughly in line with that of other Southern African countries, but as with many other Sub-Saharan countries, Zimbabwe now lags behind most other regional groupings in the world in infrastructure service coverage and quality.

Zimbabwe does have one of the largest road and rail networks in the Southern Africa region. Although airport density is low and the related infrastructure dilapidated, railways, roads, and access to ports are somewhat better relative to conditions in other countries in the region. Access to power, water, and sanitation services is roughly comparable with other countries in the region. In the case of communications, mobile phone densities were among the lowest in the region in 2006, but access has improved sharply in the past few years. Use of the internet per 100 people, on the other hand, was the highest in the region in 2006, perhaps in reaction to inadequate access to mobile voice services.

<table>
<thead>
<tr>
<th>Table 1: Basic Infrastructure Coverage in Southern Africa, 2006</th>
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<tbody>
<tr>
<td><strong>Transport</strong></td>
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<tr>
<td>Road network (km)</td>
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<td>Rail lines (km)</td>
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<td>Percent of roads paved</td>
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<td>Road density for arable land</td>
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<td>Total road density</td>
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<tr>
<td>Aviation passengers ('000)</td>
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<tr>
<td><strong>Electric power</strong></td>
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<td>Generation capacity</td>
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<td>Electricity coverage</td>
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<td>Power consumption per capita</td>
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<td><strong>Communications</strong></td>
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<tr>
<td>Mainline density</td>
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<td>Mobile density</td>
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<tr>
<td><strong>Water and sanitation</strong></td>
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<tr>
<td>Water supply</td>
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<tr>
<td>Access to improved water</td>
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<td>Access to improved sanitation</td>
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Finding 3: Decline in Infrastructure Quality and Capacity

The deterioration in infrastructure over the past decade and the resulting decline in levels of service are summarized in Figure 3. Highlights that emerge from these trends are as follows:

• The share of the total road network of almost 90,000 km in fair to good condition declined from 73 percent in 1995 to about 60 percent for much of the past decade. The additional 12,800 km of road network that was reclassified to poor condition requires complete rehabilitation, the cost of which is about $1.1 billion at 2009 prices;
• Electricity consumption per capita in Zimbabwe was 738 kWh in 1995, when the average for low income countries around the world was 414 kWh per capita and the average for Sub-Saharan Africa was 437 kWh. By 2009 per capita consumption in Zimbabwe had declined to about 600kWh.
per capita, only marginally higher than the average for all of Sub-Saharan Africa;

- Until very recently, Zimbabwe also lagged behind other African countries in the development of the communications sector, especially in voice traffic. In 1995, Zimbabwe had 0.1 mobile phone subscribers per 100 people, similar to the rest of Sub-Saharan Africa. By 2005, the number stood at 5.6 per 100 for Zimbabwe compared to 12.5 per hundred for Sub-Saharan Africa, and 30.6 for lower middle income countries around the world. As Figure 3 indicates, in the past few years, there has been a push to expand access to mobile telephony in Zimbabwe, with coverage standing at 28.4 per 100 by 2009;

- The economic collapse of the past decade also led to very large declines in rail and aviation services. In the case of the railways, for example, freight carried in the mid-1990s was about 14 million tons, equivalent to almost 80 percent of the network capacity. By 2009, the amount of freight carried was 2.7 million tons, equivalent to 15 percent of the original design capacity of the network. Demand for

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**Figure 3: Zimbabwe: Changes in Infrastructure Condition and Services**

- **Road transport**
  - Roads in fair to good condition (%)
  - Bumpy roads as % of total roads
  - Total vehicles per 1,000 people
  - People injured or killed per 1,000 vehicles

- **Rail transport**
  - Freight carried (tons)
  - Passengers
  - Freight as % of total capacity (right scale)

- **Civil aviation**
  - Air traffic arrivals
  - Passengers (right scale)

- **Electric power**
  - Installed capacity (MW)
  - Power consumption (kWh per capita)
  - Available capacity as % of installed (right scale)
  - Household electrification rate (%)(right scale)

- **Water supply and sanitation**
  - Households with access to safe water (%)
  - Households with adequate sanitation (%)

- **Information & communications technology**
  - Mainline accounts per 100 people
  - Mobile accounts per 100 people
  - Internet users per 100 people

Source: World Development Indicators for various years, published by World Bank & Annexes 3 through 8.
rail freight services was substantially larger than the 2.7 million tons that was actually carried. The problem was that the available locomotive and rolling stock capacity was not sufficient to meet this demand.

• By the latter part of the 1990s, the levels of service coverage for water and sanitation were among the highest in Sub-Saharan Africa. The country was widely seen, within Africa and internationally, as a leader in innovation, policy reform and service provision in the water sector. However, the fortunes of the sector were reversed in the past decade as a result of very limited new investment and maintenance for services and inadequate revenues of the institutions responsible for service provision. In 2000, 85 percent of the population had access to safe water and 68 percent had access to improved sanitation. By 2008, access to safe water had declined to 74 percent of the population, and access to improved sanitation stood at 41 percent. This deterioration culminated in a serious cholera epidemic in 2008 that affected more than 100,000 people and killed more than 4,000.

Finding 4: Low Levels of Maintenance is the Main Reason for the Decline

Low levels of periodic and routine maintenance over the past 10-15 years have been the main cause of the deterioration in the quality of the basic infrastructure of the country. This decline is well illustrated by the experience of the transport sector. The current replacement cost of the transport infrastructure and facilities is estimated to be in the range of $12 billion. The current estimated cost of rehabilitating these transport sector assets is about $4 billion at 2009 constant prices. Once fully rehabilitated, a well-managed program of periodic maintenance of these transport assets would require capital outlays of about $550 million a year.\(^1\) The latter, equivalent to 15 percent of current annual GDP, is large relative to the size of the economy and to the amount of funding currently allocated to rehabilitation of the transport infrastructure network. The high cost of rehabilitation relative to the GDP of the country and its related financing capacities poses a major challenge for policy makers.

Lack of routine maintenance of the transport infrastructure over the past decade also contributed substantially to the deterioration in these assets and the current very large backlog of capital outlays required for rehabilitation. As Figure 4 indicates, in 2009 the spending on routine maintenance of transport infrastructure and facilities was estimated to be about $24 million, which was about 16 percent of the required level of annual maintenance.

Subject to the availability of adequate levels of funding, the proposed rehabilitation program 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. This will require a major reassessment of the manner in which maintenance requirements for the transport sector are funded.

\(^1\) This estimate assumes an average life of 20 years for road and civil aviation assets, and 40 years for rail assets.
Finding 5: Costs of Infrastructure Services are High

The direct and indirect costs of infrastructure services are high. In the case of road freight services provided by the private sector, responses from private companies suggest that the average cost of road freight within Zimbabwe is in the range of 10 US cents per ton kilometer. These rates are substantially higher than those that apply on the regional road corridors in Southern Africa, which are typically in the range of 3 to 6 US cents per ton km. However, the indirect costs of transportation can be substantial; for example, there is scope for reducing transit freight rates between South Africa, Zimbabwe, and Lusaka in Zambia. The 2,300 km journey can take as much as nine days for freight traffic, half of which is spent at border crossings at Beitbridge and Chirundu. According to the World Economic Forum (2009), the country’s border administration is inefficient by regional comparison. Clearance by customs and other border agencies is excessively burdensome, costly, and time consuming; for example, it takes 67 days and costs $2,420 to import goods into Zimbabwe.

In other cases where parastatals provide services, prices may be set at low rates but the indirect costs of service provision may be high. These costs arise in a variety of ways, including, for example, from supply problems, such as frequent electrical power outages, dependence on high cost power from private generators, and failure to supply water to firms and households on a regular basis. Systematic data on these types of costs are not readily available, but anecdotal evidence confirms the impact of these failures on costs for firms and households. An indirect measure of these types of costs is suggested by the rankings for Zimbabwe in the African Competitiveness Report of 2009. The quality of electricity supply, for example, has a very low ranking.
One of the major challenges facing the country in the decade ahead is the rehabilitation of the existing economic infrastructure and the addition of new capacity to meet existing and future demand in both urban and rural areas.

1.4 AN INFRASTRUCTURE PROGRAM FOR THE DECADE AHEAD

Based on the findings, the proposed Action Program for Infrastructure for the decade ahead is comprehensive and ambitious. It aims 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 program are as follows:

- **Power**: Full rehabilitation of the national power grid and by 2020 addition of new generation capacity required to sustain strong economic growth;

- **Roads**: Rehabilitation of a large part of the national road network;

- **Railways**: Rehabilitation of the railways network and restructuring of the industry through the creation of a new public entity that would own, maintain, and manage the basic track infrastructure, the restructuring of the National Railways of Zimbabwe (NRZ) into a privatized railways services company and the award of concessions for freight and passenger services on the entire rail network;

- **Civil Aviation**: Early action to upgrade the status of air traffic communications and safety in Zimbabwe to a standard consistent with the requirements of the ICAO, the award of concessions for the upgrade and operation of the Victoria Falls and Buffalo Range airports to promote the growth of tourism, and the rehabilitation and upgrade of the remaining nine airports that would continue to be managed by the Civil Aviation Authority of Zimbabwe (CAAZ);

- **Water storage and transport**: Substantial investment in storage and transport of water to meet increased demand from agriculture, industry and households.

- **Water Supply and Sanitation**: Rehabilitation of the existing water supply and sanitation infrastructure and improvement of services in urban and rural areas to ensure that the MDG goals for the sector are met no later than 2020;

- **ICT**: 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;

• **Institutional and Regulatory Reforms:** A substantial program 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.

### Table 2: Zimbabwe: Development Expenditures for Proposed Infrastructure Program

<table>
<thead>
<tr>
<th></th>
<th></th>
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<tr>
<td>Transport</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Roads</td>
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<td>Communications</td>
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<td><strong>Grand total</strong></td>
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<td>1036.7</td>
<td>1638.1</td>
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</tr>
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Source: Annex Table 2.1.

1.5 **PROGRAM EXPENDITURES AND FUNDING**

Development expenditures: A summary of the costs of the proposed infrastructure program during the decade ahead for capacity building and technical support, rehabilitation of existing infrastructure networks, and increases in network capacity is presented in Table 2 above.

• The total cost is put at about $14.2 billion at 2009 constant prices, including $4.6 billion of private investment in upgrade of existing infrastructure and new capacity.

• The water supply and sanitation program would involve expenditures of about $3.7 billion;

• The power program would require about $4.3 billion, including $2.1 billion of private investment in new generation capacity;

• The transport sector would require a total of $5.6 billion, including about $970 million of private investment in railway and civil aviation concessions;
The communications sector would require about $116 million, primarily to the creation of a national fiber optic backbone network. Not included in these estimates is about $400 million for completion of the rehabilitation program for the tertiary road network in 2021-25;

The bulk of the public expenditures of about $9.6 billion is intended for capital outlays on rehabilitation of the existing infrastructure network;

A total of about $260 million is included for a wide ranging program of institutional and human capacity building and various technical studies and support, especially in relation to the proposed private investments in new capacity for water storage and transport, power generation, railways, and airport services.

**Funding arrangements for development expenditures:** Table 3 provides a summary of the funding arrangements proposed for the program. The state enterprises involved with service provision in these sectors and new private investment would account for $7.1 billion of the total requirement of $14.2 billion. The national government and local authorities would account for a further $4.3 billion, with donors providing the balance of about $2.8 billion. For the program as a whole, the national and local governments would fund about 30 percent of the program, state enterprises would fund about 18 percent, and private investment would account for about 32 percent of the total requirements. The donor community would provide the remaining 20 percent. This level of donor support would require annual commitments of about $275 million a year for the decade ahead. Assuming an arrears clearance process is initiated in the near future, and full donor support is restored, the proposed infrastructure program would require an allocation of up to 40 percent of donor funding for infrastructure programs. The bulk of the donor funds would be allocated to water, power, and roads.
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. The current value of infrastructure assets in the public sector is estimated at about $13 billion at historical cost. The value of public assets in 2020 is estimated at about $20 billion after allowing for new capacity and rehabilitation of currently degraded assets. New infrastructure capacity as a result of private investment in power, railways, airports, and communications is projected to be about $4.6 billion by 2020. (All valuations are at 2009 constant prices.) Box 1 outlines the maintenance requirements for upkeep of these important assets.

1.6 PROPOSED IMPROVEMENTS IN THE OPERATING ENVIRONMENT

An important finding that emerges from the detailed analysis undertaken for this Report is that there is a clear need to improve the operating environment for the provision of infrastructure services if the proposed $4.6 billion of private investment required for new capacity in water storage and transport, power generation and for upgrade and new capacity in rail services and airport management is to be mobilized. 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 privatization, of 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
- Strengthen 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 program.

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<th>Local authorities</th>
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<td>740.0</td>
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Source: Annex Table 2.4.

Table 3: Zimbabwe: Funding Arrangements for Proposed Infrastructure Program (in US$ millions at 2009 constant prices)
Box 1: Strengthening Funding For Routine Maintenance of Infrastructure

- Total public expenditures on routine maintenance of infrastructure assets are estimated at about $330 million for 2010, equivalent to about 2.5 percent of the historical cost of assets.

- The proposed Action Plan calls for a steady increase in public sector allocations for routine maintenance to almost $700 million a year by 2020, equivalent to about 3.4 percent of public sector asset values at that time.

- Maintenance spending by the private sector on newly created assets in the decade ahead would rise to about $220 million by 2020.

- Total maintenance expenditures are therefore projected to rise to about $910 million a year by 2020.

- The public and private sectors are each likely to contract out a large part of these maintenance services. Such contracting will present very substantial opportunities for the development of domestic trade services that can respond to the large increase in this type of business activity.

Zimbabwe: Routine Maintenance Expenditures for Infrastructure (In US$ millions at 2009 constant prices)

Source: Annex Table 2.2.
1.6.1 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 is 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 airline 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 limited as most service provision is provided by ZINWA and municipalities and other local authorities.

There were a number of initiatives 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, the policy statement and guidelines have not been translated into a legal and regulatory framework for PPP-type arrangements. After a long lapse, the 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 mobilize 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.

1.6.2 Private Funding and Sectoral Needs

The bulk of the private funding to be mobilized under PPP-type arrangement will be in four sectors: water storage and transport, power generation, concessions for railways, and concessions for airport services.

- In the case of water storage and transport, about $1.4 billion will be required for new capacity 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 $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 investors.

- In the case of the power sector, in about $2 billion will be required for new generation capacity in the decade ahead. The proposal seeks to have private investors develop the not insignificant domestic energy resources to meet these future generation requirements. 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. As part of the proposed program, the ZPC would be privatized and with a possible international partner, it would also enter into IPP arrangements with ZETDC.

- In the case of the railways sector, the program calls for the long-term contracts with concessionaires to provide rail services on the mainline network and, subject to further analysis, on some or all of the spur lines. A proposed new parastatal would own, operate and maintain the public railways network (see discussion below). 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 (see discussion below). CAAZ would continue to be responsible for the rehabilitation and maintenance of facilities at nine of the eleven airports that it currently operates. Concessionaires would be contracted to operate the remaining two airports (the Victoria Falls and Buffalo Range International Airports).

**Mobilization of $4.6 billion 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 mobilized—will involve dealings with the parastatals that currently own these infrastructure assets and, with the exception of the BBR concession, have monopoly arrangements with respect to service provision. As the discussion below indicates, the current financial position of these entities 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. The Action Plan therefore proposes the early launch of a comprehensive program that addresses these concerns.
1.6.3 Restructuring of State Enterprises

In addition to the role of regulatory agencies, POTRAZ, BAZ, and ZERC, nine state enterprises play important roles in the provision of infrastructure services in Zimbabwe. These are the NRZ, CAAZ, Air Zimbabwe, ZESA Holdings, ZPC, ZETDC, Tel*One, Net*One and ZINWA, most of these entities have been identified as candidates for restructuring.\(^2\)

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.\(^3\) 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 recapitalization of the company and separation of its current responsibilities for regulation to another entity.

- **Electric power.** In the case of ZPC, the preferred option is to privatize the company by private sale of government shares to a strategic partner or joint venture that has an interest and capacity to undertake further investments in power generation under take-or-pay supply arrangements. In the case of the ZETDC, the company would remain as a state owned entity, but would undertake financial and technical restructuring that involved cleaning the balance sheet of the company through the transfer of specific debt obligations to a Special Purpose Vehicle to be established by the Government. ZESA Holdings would also undergo technical and financial restructuring along the same lines, with disposal of non-core assets to private investors.

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• **Transport sector.** The NRZ would be split into two separate companies. One would be a new state enterprise that would be the owner and manager of the railway infrastructure, and the other would be a privatized company that would become a concessionaire that provides passenger and freight services on the entire rail network of some 2,760 km in competition with other concessionaires. In the case of CAAZ, its current regulatory responsibilities would be transferred to a proposed new regulatory authority for the entire transport sector. The commercial arm of CAAZ would be subject to financial restructuring to strengthen its balance sheet and lay the foundations for the formation of concession arrangement for the management of the Victoria Falls and Buffalo Range International airports. 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 nine other airports currently managed by CAAZ. In the case of Air Zimbabwe, the proposal is modeled along the lines of the privatization 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 privatized 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.

A key point with the implementation of the above program is that it needs 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 those entities such as ZETDC and ZINWA that would remain as SOEs.

1.7 **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 program 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, the Government has already decided to create a single regulatory authority for the entire energy sector. Work is underway on the preparation of legislation and regulations for this initiative. A review of existing regulatory arrangements for the power sector undertaken for this Report suggests that a number of enhancements
should be considered. These proposed changes in arrangements for regulation of the power sector could then be included in the new law and regulations for the energy sector.

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 single regulatory authority for the entire sector, including roads, rail, civil aviation, and ports. Under the proposed strategy, the Government would retain ownership of the transport infrastructure and therefore would have the ultimate responsibility for its upkeep. The Action Plan calls for the creation of a separate regulatory authority that would be responsible for the entire transport industry, rather than separate authorities for road, rail, and aviation services. Creation of a single regulatory authority for the transport sector is not uncommon: for example, countries as diverse as Brazil, Argentina, Tanzania, and Singapore are served by authorities with broad sectoral responsibilities for regulation within the transport sector. Given that Zimbabwe has a single ministry responsible for all aspects of transportation, there is merit in having a comparable regulatory authority. This proposed new institution is referred to as the Transportation Regulatory Authority for Zimbabwe (TRAZ). New legislation would be required to create the proposed independent regulatory authority. Careful consideration of the degree of independence, autonomy, expertise, and accountability for the authority will be required; for example, international experience suggests that creation of a regulatory commission with three to five members is preferable to the appointment of a single regulator. A more detailed discussion of the respective responsibilities of TRAZ for the road, rail and aviation industries is discussed in Chapter 4.

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. 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. Chapter 4 includes a detailed assessment of the remaining regulatory issues and suggests how evolving international experience can be used to upgrade the regulation of ICT services.

An important principle for the design of these regulatory authorities is that they would have access to their 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.4 Regulatory and

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4 South Africa now supplies about 60 percent of total imports into Zimbabwe, and now accounts for more than 50 percent of Zimbabwe’s exports (Annex Table 4.5). By way of comparison, South Africa accounted for about 20 percent of Zimbabwe’s imports in 1990, and as recently as 2000 it was a market for only 10 percent of Zimbabwe’s exports.
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. Moreover, within the Southern Africa region there has been only limited progress in implementing the Yamoussoukro Decision of 1999 concerning liberalization of airline services in Africa. 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 Department of Roads (DoR). The proposed program 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 programs, but are currently hampered by a lack of capacity and limited supply of services from the private sector.

1.8 TECHNICAL SUPPORT FOR THE PROGRAM

The Action Plan proposes a program of institutional and human capacity building, technical studies, and services for the infrastructure sectors in the decade ahead. The proposed program is in the range of $260 million for the decade as a whole, with much of the support required in the start-up phase of the program in 2011-13. A substantial amount of support will be required for the development of stronger capacities within the various regulatory authorities already in place or those proposed under the program. The other large claim on funding for technical support will be for teams of specialists that include lawyers, financial specialists, and technicians to advise and assist the government in the design and negotiation of PPP-related contracts, including arrangements for water storage and transport, power generation by private owners under take-or-pay contracts with ZETDC, and concession agreements for provision of railway and airport services.

International experience indicates that successful PPP programs require good public sector management systems, and especially transparent tender processes and enforceable contracts, the use of transactional advisors, minimum political interference, and a relationship of trust between the public and private sectors, all areas in which Zimbabwe could benefit from access to the experience of other countries and best international practices. The total amount of funding proposed for transactions advisory teams in the various sectors is $90 million.5

In the case of the power sector, for example, a total of $110 million is proposed for capacity building and technical support and studies; a total of $60 million is proposed for the upgrade of commercial aspects of the ZETDC operations, including enhancements to billing systems and record keeping in conjunction with a move to installation of a system of prepaid meters aimed at reducing the very high levels of accounts receivable. Transaction advisory services for the privatization of ZPC and the development contracts with IPPs are projected to cost $40 million. Technical studies amount

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5 Experience from the United Kingdom suggests that the cost of these transactions teams are likely to be in the range of 2 percent of the capital costs of the projects. With a total of $4.6 billion proposed for private investment in PPP-type arrangements, the cost of transactions teams could be in the range of $90 million in the decade ahead.
to about $46 million and include $25 million for feasibility studies for new generation and related preparation of PPP arrangements for these investments. The balance of the funding would be devoted to training and capacity building.

1.9 IMPLEMENTATION OF THE PROPOSED PROGRAM

1.9.1 Importance of Sequencing Program Implementation

The very large funding requirement of $14.2 billion for the proposed programs exceeds the financial capacities of any one group of stakeholders involved with infrastructure services in Zimbabwe. Successful implementation of the proposed program 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 programs 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 $4.6 billion of 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, 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.

1.9.2 Overview of Program Implementation

The key elements of the operating environment for infrastructure service provision include the proposed program of reform for the regulatory environment, the commercialization and or privatization of the nine state enterprises involved with service provision, improvements in the legal and regulatory framework for private investment in PPP-type mechanisms, and various initiatives aimed at ensuring that a strong domestic supply response flows from the proposed build-up in infrastructure-related spending (Table 4). The Report proposes that this set of reforms is completed within the next 3-5 years.

The second component of the proposed program is the rehabilitation of the existing infrastructure assets. The Action Plan calls for the rehabilitation of the bulk of the water, sanitation and power facilities within the next three years, subject to the availability of funding for the work required and implementation capacities within the government agencies responsible for these types of initiatives. Rehabilitation of the rail and civil aviation infrastructure would be completed over the next five years. Rehabilitation of the road network will take at least a decade, and in the case of the tertiary network, very likely about 15 years. A clear set of priorities will be required for this extended period of rehabilitation within the roads sector. Chapter 9 sets out guidelines for these priorities. At the same time, the level of financial support for routine maintenance will
grow steadily throughout the decade ahead as the rehabilitation and backlog of periodic maintenance is completed.

The third major component of the Action Program is the $4.6 billion of investment in new infrastructure capacity and service provision by the private sector. In the case of the power sector, long lead times are involved in the construction of new generation plants. Under the proposed Action Plan, the dates for commissioning of the Kariba Plant extension, Units 7 and 8 at the Hwange Thermal Plant, and the greenfield investment in the Gokwe North coal-fired plant, are 2015, 2017 and 2018 respectively. Construction of these plants will require 3-4 years. The implication is that work on the Kariba Plant extension would need to start by about 2012, which is why Table 3.5 includes a start-up for PPP-related investment activities in 2012. The implication is that a well qualified transactions advisory team will need to be in place in 2011.

### Table 4: Zimbabwe: Summary of Schedule of Institutional and Related Activities for Proposed Infrastructure Action Plan

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<td>Strengthens regulatory environment</td>
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<td>Improve operating environment for investment</td>
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<td>Award &amp; implement PPP-related private investment contracts</td>
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<td>Design &amp; launch programs for domestic supply response</td>
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<td>Investment in new capacity</td>
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Source: Estimates by authors based on individual chapters of Report. Note: the Report does not include proposals for investment in new capacity for road networks.

A high priority would also be accorded to increased numbers of communications platforms with links to the global network of submarine cables, and to the installation of a national fibre optic broadband backbone network by 2015. In the case of the railway and civil aviation programs, the proposal is to complete the restructuring of NRZ and CAAZ before end 2012. Assuming that the proposed new law for PPP-related investment activities is promulgated in 2012, work would start on the design and award of concessions for railways and airport services in 2013. Transaction advisory teams for these projects would need to be in place by 2012.

### 1.10 BENEFITS FROM THE PROPOSED PROGRAM

#### 1.10.1 Overall Economic Impact

Successful implementation of the proposed program will bring a range of benefits to Zimbabwe, including improved transport services and lower costs for the movement of cargo domestically and internationally. 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 program is therefore expected to provide an important stimulus for economic growth in Zimbabwe in the decade ahead. Full implementation of the proposed infrastructure program results in average GDP growth of 7 percent a year in real terms for the period, 2011-20. In this case, the GDP of the country would increase from current levels of about $4.7 billion to about $9.5 billion and GDP per capita would increase from about $380 at present to about $600 (all at 2009 constant prices).

Weaker implementation of the program would reduce the overall economic benefits. As Chapter 6 indicates, if only 50 percent of the proposed $14 billion program was implemented, GDP would grow by about 4 percent a year to about $7 billion by 2020 with GDP per capita at about $450. More limited implementation of the program would result in even lower GDP growth rates and slower increases in personal income for a majority of the population and slower progress in creating employment and reducing poverty.

1.10.2 Increased Business Opportunities in Service Provision and Construction

The foregoing discussion about the overall economic impact of the proposed Action Plan highlights the opportunities for development of a wide range of business activities and jobs in the decade ahead. But if there is to be a strong domestic supply response, the Government will need to develop a range of programs to ensure that a substantial part of the benefits do accrue to domestic business and workers.

Table 5 provides a very rough estimate of the composition of the proposed $14.2 billion of development expenditures and the $7.2 billion of maintenance expenditures. The analysis suggests that about $6.4 billion would be spent on labor services under the program in the decade ahead. Assuming about 25 percent of the skill requirements would be met by internationally recruited personnel, about $4.8 billion would be spent on skilled and unskilled labor in the domestic market. This would represent a very substantial injection of wage income into the domestic economy. Assuming about 30 percent of the income was spent on imports, about $3.4 billion would be retained in the domestic economy in the form of savings or expenditures. A strong domestic supply response would ensure that an even larger share of this income does not go to the purchase of imported goods and services.

In the case of expenditures on capacity building and technical services, about $170 million would likely be spent on international and domestic consultants, with the balance going to office costs, travel, communications, and related business expenses. This consultancy program may provide opportunities to attract members of the Zimbabwe diaspora to return, and may support further development of the domestic consultant industry in areas related to infrastructure services. To facilitate development of the domestic consultancy industry, business organizations in Zimbabwe, with assistance from the donor community, might consider development of lists of qualified national firms and individuals whose experience meets stringent international requirements established by donors and other entities. In some cases, it may be possible to encourage the use of sub-contracting to domestic consultants in the event that contracts are awarded to international firms.

The proposed $14 billion of capital expenditures would likely include purchases of about $5 billion of equipment, much of which will have to be imported, and about $5 billion of construction materials, such as quarried materials for road and other construction, cement, asphalt, rebars, lumber and other construction materials, and a wide range of...
fixtures, all of which would offer opportunities for domestic supply.

In addition to the opportunities created by the capital development programs, the Action Plan calls for more than $7 billion of expenditures on maintenance activities in the decade ahead, approximately $2.3 billion of which would be applied to labor services that would include substantial amounts of skilled labor such as electricians and other trade-related skills, as well as semi-skilled and unskilled labor for road maintenance and similar activities.

### Table 5: Composition of Sectoral Expenditures by Type of Expenditure

(US $ millions at 2009 constant prices)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Capacity building &amp; technical services</th>
<th>Capital expenditures</th>
<th>Maintenance</th>
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<tbody>
<tr>
<td></td>
<td>Technical services</td>
<td>Goods &amp; equipment</td>
<td>Civil works</td>
</tr>
<tr>
<td></td>
<td>Materials</td>
<td>Services</td>
<td>Materials</td>
</tr>
<tr>
<td>Water resources management</td>
<td>80%</td>
<td>20%</td>
<td>45%</td>
</tr>
<tr>
<td>Total for 2011-20</td>
<td>44.4</td>
<td>11.1</td>
<td>964.1</td>
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<tr>
<td>Water supply &amp; sanitation</td>
<td>80%</td>
<td>20%</td>
<td>39%</td>
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<tr>
<td>Total for 2011-20</td>
<td>11.2</td>
<td>2.8</td>
<td>601.9</td>
</tr>
<tr>
<td>Power</td>
<td>80%</td>
<td>20%</td>
<td>35%</td>
</tr>
<tr>
<td>Total for 2011-20</td>
<td>124.8</td>
<td>31.2</td>
<td>1460.5</td>
</tr>
<tr>
<td>Roads</td>
<td>80%</td>
<td>20%</td>
<td>50%</td>
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<tr>
<td>Total for 2011-20</td>
<td>11.8</td>
<td>3.0</td>
<td>1805.9</td>
</tr>
<tr>
<td>Railways</td>
<td>80%</td>
<td>20%</td>
<td>10%</td>
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<tr>
<td>Total for 2011-20</td>
<td>7.2</td>
<td>1.8</td>
<td>161.8</td>
</tr>
<tr>
<td>Civil aviation</td>
<td>80%</td>
<td>20%</td>
<td>40%</td>
</tr>
<tr>
<td>Total for 2011-20</td>
<td>1.8</td>
<td>0.5</td>
<td>118.5</td>
</tr>
<tr>
<td>Communications</td>
<td>80%</td>
<td>20%</td>
<td>45%</td>
</tr>
<tr>
<td>Total for 2011-20</td>
<td>6.4</td>
<td>1.6</td>
<td>32.5</td>
</tr>
<tr>
<td>Total</td>
<td>207.6</td>
<td>51.9</td>
<td>5146.2</td>
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</table>

Source: Annexes Tables 2.1 and 2.2 and estimates by authors.

### 1.10.3 Program Support for a Strong Domestic Supply Response

A number of initiatives can be taken by government and business leaders to ensure that the proposed Action Plan does produce substantial benefits for the domestic business community. These actions include the following: (i) improvements in the business environment and information about business opportunities that flow from the proposed program; (ii) programs to ensure that small and medium business entities in Zimbabwe are able to benefit from the program; (iii) measures needed to promote the development of technical skills in the labor market; and (iv) development of contracting arrangements for domestic supply of goods and services for the program.

**Improving the business environment.** As noted elsewhere in this Report, in recent years various international surveys in developing countries have found the business environment in Zimbabwe less favorable than in many other countries. A range of actions might need to be taken by the government to address these concerns. These may include specific actions on areas where Zimbabwe’s ranking is poor; for example, the amount of time required to start a business, and the amount of time required to obtain construction permits.
Support for small and medium business. A range of initiatives can be taken to promote and develop small and medium business entities in Zimbabwe. A widely used approach in other developing countries relies on the use of a network of business development centers (BDCs) throughout the country. These centers provide training and support for small and medium business entities to bid on and implement construction and or maintenance contracts. Training programs offered by BDCs typically include preparation of tender documents, support for preparing applications to the banking sector for working capital loans, arrangements for the lease of equipment, bookkeeping and record keeping.

Development of technical skills for the labor market. The proposed program for infrastructure development will generate a large demand for a wide range of skilled and semi-skilled workers, as well as creating job opportunities for large numbers of unskilled workers. A wide range of equipment operators will be required in the construction, for example, along with electricians, welders, mechanics, and others. The key policy issues here will be the manner in which these people are trained, by whom and at what cost. In the case of equipment operators, it is not unusual for the successful contractor to assume responsibility for hire and training of the personnel required. To meet the demand for skilled trades people such as electricians, surveyors, welders, and so on, the issue concerns the extent to which Zimbabwe has accredited training institutions whose training programs meet specific standards that are consistent with international practice or accredited standards already in place within the country. Closely related to these concerns is the accreditation of those training institutions whose programs do conform to agreed standards for the industry. In the absence of agreed standards and accreditation process, donor support for such capacity building may be considered.

Public procurement of goods and services in the domestic market. A range of initiatives can be taken to ensure that a reasonable portion of the infrastructure-related procurement by government, donors, and the private investors is awarded to qualified domestic suppliers of goods and services. Procurement policies for various parts of the infrastructure program will need to address the following types of issues: (i) the choice of standards for civil works and good and materials.; (ii) to what extent can local materials be used and do their technical specifications comply with contract requirements; the number, size and type of contracts to be tendered and the extent to which locally bid contracts will be geared to contractor capacities within the domestic market.

Further work is required on these types of issues to develop a clear set of policies for promoting local content in public infrastructure procurement. Early consideration could, for example, be given to awarding maintenance contracts to qualified local firms in the various infrastructure sectors, initially for a year or less. As the capacities of these firms increase, consideration could be given to the competitive award of multi-year or so-called “period” contracts for routine maintenance. The size of such contracts could be increased, consistent with the further growth of local capacities. Longer-term contracts that are implemented according to the standards required can help reduce the cost of asset maintenance, and will also permit contractors to purchase necessary equipment and meet the costs of staff training.
Seven Designated Catchment Areas of Zimbabwe
Agro-Ecological Zones of Zimbabwe

Natural Farming Regions

I - Specialized & Diversified Farming Region (>1000 mm)
IIA - Intensive Farming Region (750-1000 mm)
IIB - Intensive Farming Region (750-1000 mm)
III - Semi-Intensive Farming Region (650-800 mm)
IV - Semi-Extensive Farming Region (450-660 mm)
V - Extensive Farming Region (<450 mm)

Legend

SOURCE: Office for the Coordination of Humanitarian Affairs
BASE MAP: Natural Earth & African Development Bank, General Services Dept.
PLEASE NOTE - The boundaries and the names shown on this map do not imply official endorsement or acceptance by the African Development Bank.

Created by Komil Yap Company - Seville WA
Major Dams in Zimbabwe

Legend

- Major Dam
- National Boundary
- Provincal Boundary
- National Capital
- Provincial Capital
- Town, Village

Approximate Scale

Source: Zimbabwe National Water Authority.
BASE MAP: Natural Earth & African Development Bank, General Services Dept.
PLEASE NOTE: The boundaries and the names shown on this map do not imply official endorsement or acceptance by the African Development Bank.
Electric Power Transmission Grid of the Southern African Region

Legend
- Orange: Existing Network
- Black: National Boundary
- Red: National Capital

Approximate Scale
- 0 200 400 600 Kilometers
- 0 200 400 600 Miles

Source: South African Power Pool
BASE MAP: Natural Earth & African Development Bank, General Services Dept.
PLEASE NOTE - The boundaries and the names shown on this map do not imply official endorsement or acceptance by the African Development Bank.
Existing Plants and Energy Potential Sites in Zimbabwe

Legend
- Existing Hydro Power Sites
- Proposed Hydro Power Sites (Bulawayo and Kariba South Extension)
- Potential Hydro Power Sites (Devil’s Gorge, Mpumalanga Gorge & Coenda)
- Potential Mini Hydro Power Sites (Gerezi, Tsanga & Duva)
- Existing Thermal Power Sites
- Proposed Thermal Power Sites (Heange Units 7 & 8 and Gokwe North)
- Proposed Gas-Fired Power Sites (Lupane Gas)
- Methane Gas Fields
- Coal Fields

SOURCE: Zimbabwe Power Company.
BASE MAP: Natural Earth & African Development Bank, General Services Dept.
PLEASE NOTE: The boundaries and the names shown on this map do not imply official endorsement or acceptance by the African Development Bank.

Created by Konis Map Company - Seattle WA
Road Transport Network of the Southern African Region
Existing Railway Network in Zimbabwe

Legend
- Main Station
- Existing Railway
- Regional Road Corridor
- National Boundary
- Provincial Boundary
- National Capital

PLEASE NOTE - The boundaries and the names shown on this map do not imply official endorsement or acceptance by the African Development Bank.
Proposed Expansion of Railway Routes in Zimbabwe

[Map of Zimbabwe showing proposed railway routes]

Legend
- Main Station
- Existing Railway
- Proposed Railway Route
- Regional Road Corridor
- National Boundary
- Provincial Boundary
- National Capital

Source: National Railway of Zimbabwe.
PLEASE NOTE - The boundaries and the names shown on this map do not imply official endorsement or acceptance by the African Development Bank.
Main Airports in Zimbabwe
Quality of African Aviation Oversight

Legend
- Green: Good Oversight
- Yellow: Marginal Oversight
- Orange: Poor Oversight
- Gray: No Data

BASE MAP: Natural Earth & African Development Bank General Services Dept.
PLEASE NOTE: The boundaries and the names shown on this map do not imply official endorsement or acceptance by the African Development Bank.

Created by Krell Map Company - Seattle WA
Existing and Proposed Fiber Optic Network of Zimbabwe

Legend
- Existing Fiber Optic Lines
- Proposed Fiber Optic Lines
- Central Nodes
- Nodes for Municipalities
- Possible Nodes for Local Communities
- National Boundary

SOURCE: POTRAI
BASE MAP: Natural Earth & African Development Bank General Services Dept.
PLEASE NOTE - The boundaries and the names shown on this map do not imply official endorsement or acceptance by the African Development Bank.

Map shows the network connections between various cities and countries, with different lines indicating existing and proposed fiber optic connections.
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