

TWENTY YEAR REVIEW

SOUTH AFRICA

1994 - 2014



**BACKGROUND PAPER:
INFRASTRUCTURE**



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Disclaimer

The background papers are written by officials in the Presidency and other government departments using inputs from literature reviews, commissioned research, government reviews and reports and roundtable discussions with a range of stakeholders. The views reflected in the background papers do not represent those of the Presidency, but rather reflect authors' views on sector developments.

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Acronyms and Abbreviations

ACSA	Airports Company South Africa
ASIDI	Accelerated School Infrastructure Delivery Initiative
BRT	Bus Rapid Transit
CIDB	Construction Industry Development Board
DBSA	Development Bank of South Africa
DHET	Department of Higher Education and Training
DoE	Department of Energy
DPME	Department of Performance Management and Evaluation
DRC	Democratic Republic of the Congo
FTA	Free Trade Area
GDP	Gross domestic product
ICT	Information and communication technology
IDC	Industrial Development Corporation
IPP	Independent power producer
IRP	Integrated Resource Plan
KWSAP	Komati Water Scheme Augmentation Project
MCWAP	Mokolo Crocodile Water Augmentation Project
MMTS2	Mooi-Mgeni Transfer Scheme Phase 2
MTEF	Medium-term Expenditure Framework
<i>MTSF</i>	<i>Medium-term Strategic Framework</i>
<i>N3TC</i>	<i>N3 Toll Concession (Pty) Ltd</i>
<i>NDP</i>	<i>National Development Plan</i>
<i>NERSA</i>	<i>National Energy Regulator of South Africa</i>
NHI	National Health Insurance
NMPP	New multiproduct pipeline
NPC	National Planning Commission
PICC	Presidential Infrastructure Coordinating Commission
POP	Point of presence
PPP	Public-private partnership
PRASA	Passenger Rail Agency of South Africa
PTIS	Public Transport Infrastructure and Systems (Grant)
RPA	Retail postal agency
RTS	Return to service
SABC	South African Broadcasting Corporation
SANRAL	South African National Roads Agency Limited
SARCC	South African Rail Commuter Corporation
SIP	Strategic infrastructure project
SKA	Square Kilometre Array
SOE	State-owned enterprise
STER	Single Transport Economic Regulator
STS	Ship-to-shore
TRAC	Trans-African Concessions (Pty) Ltd
VIP	Ventilated improved pit (latrine)
VRESAP	Vaal River Eastern Subsystem Augmentation Project

Policy Summary

While South Africa has a relatively good core network of national economic infrastructure, the challenge is to maintain and expand it to address the demands of the growing economy. Government continues to shape the institutional, policy and regulatory environment in order to enable investment, realise the desired efficiencies, improve infrastructure delivery, and contribute to economic growth and employment creation.

An integrated approach to policy, planning and delivery of infrastructure across sectors has never been fully in place, and such an approach is required to ensure effective and efficient infrastructure investment. Important steps in this regard have already been taken, firstly with the NDP setting the basis and giving direction to all infrastructure sectors towards achieving a common 2030 vision for the construction of South Africa's future. Another important step has been the establishment of the Presidential Infrastructure Coordinating Commission (PICC), which brings all spheres of government together in a joint forum for the first time to promote infrastructure coordination and decision-making.

While South Africa is not unique in the dominance of state-owned enterprises (SOEs) in the delivery of infrastructure, principally because network infrastructure creates natural monopolies, the regulatory framework is relatively poor, both in design and implementation. A stronger regulation policy needs to be adopted in the third decade of democracy.

Across all the sectors, challenges in mobilising resources for operations and maintenance, as well as future investments in economic infrastructure, loom large. Planning and budgeting processes for infrastructure have historically tended to neglect operations and maintenance. The mechanisms that are currently in place to finance infrastructure require urgent reform.

There are tensions between the three different streams of infrastructure delivery (maintenance and rehabilitation, addressing backlogs, and responding to new demand) and managers make difficult choices in maintaining a fair balance between building new infrastructure for the many who have no services, and maintaining or rehabilitating infrastructure and facilities for those who already have access to services. A growing economy requires all three infrastructure streams to be implemented simultaneously.

Over the past 20 years, there have been various national initiatives to estimate future infrastructure-related skills shortages and to develop plans to address these shortages. These should be accelerated within the PICC.

The NDP sets the broad direction for the way forward for infrastructure development in South Africa and its crucial role and alignment within the country's 2030 vision. In giving effect to the coordination, collaboration and elaboration of NDP infrastructure imperatives, the establishment of the PICC has a crucial role to play going forward. Through the PICC process, South Africa now has a coordinated National Infrastructure Plan and our infrastructure future will rest on the implementation of the associated strategic integrated projects (SIPs) that form the basis of the plan.

Executive Summary

The high infrastructure investment of the past did not unlock access and opportunity for the population, as infrastructure investment today is intended. The apartheid state made excessive investments in infrastructure that served mainly the white minority and maintained the apartheid state. In making these choices, consumption expenditure on education, healthcare, housing, municipal services and welfare for the majority of the population was sacrificed to facilitate the development of infrastructure for a privileged minority, an extractive economy and a security state. These poor fiscal choices by the apartheid state, contributed to poverty and inequality, and subsequently faced by the democratic state, which are still being addressed today.

Public investment during apartheid peaked in 1976, and declined up to 1994 as public funds were increasingly channelled by the nationalist government towards reinforcing the security of the apartheid state, in response to growing resistance. After 1994, the new democratic government set about reversing the declining post 1976 trend and correcting the imbalances in the infrastructure sector and beginning to focus on reconstruction and development of our country.

Much progress in the delivery of social infrastructure had been made by the end of the first decade of democracy. By 2004, an estimated 1.6 million subsidised houses had been built. About 56 000 new classrooms and 38 000 school toilets had been built, with 2 700 more schools receiving potable water and about 4 000 more schools had been connected to electricity. Health services had reached new areas, with the construction of over 700 new clinics, the upgrading of an additional 212 clinics, the purchase of 215 mobile clinics, and the re-equipping of 2 298 clinics. Three new modern tertiary hospitals with over 2 000 beds had been constructed under the Hospital Rehabilitation and Reconstruction Programme, and R1.6 billion had been spent on 492 projects to improve 141 hospitals. Government had provided a basic water supply to over 9 million more people, access to basic sanitation to 6.4 million more people, and about 4 million more electricity connections had been made to poor households.

By the end of the second decade of democracy delivery of social infrastructure in the development of South Africa has improved as follows:

- In basic education facilities, 84 468 new classrooms and 21 774 ablution facilities have been built. 8 765 schools have been provided with water and 6 434 schools have been provided with electrical connections. Some 2 761 new schools have been constructed.
- More than 1 500 healthcare facilities have been built and existing ones revitalised

- Eighteen new hospitals have been built and more than half of the 400 public hospitals in South Africa had been renovated.
- Some 3.7 million subsidised housing opportunities (including houses and serviced sites) have been provided to the very poor, giving a home to about 12.5 million people.
- Access to a basic level of sanitation increased from just over 50 percent of households in 1994/95 to 83 percent in 2011/12.
- Access to a basic level of clean water increased from just over 60 percent of households in 1994/95 to over 95 percent in 2011/12.
- Access to electricity increased from just over 50 percent of households in 1994/95 to 86 percent in 2013/14.

Indeed one of the most successful programmes in the new South Africa has been the electrification programme which accelerated the electrification of households to the current level of 86% in less than 20 years amounting to in excess of 5.8 million household connections being delivered within state programmes.

Since 2005, 6028MW additional power generation capacity (including the completion of the Return-to-service power stations) has been added but demand exceeds supply, and electricity generation has become a binding constraint in the economy and a barrier to entry to large users that may wish to invest. Two giant coal fired power stations Medupi and Kusile, as well as a pump storage power station (Ingula), are currently under construction.

During the 20 years, a new port was built at Coega and container terminal capacity been expanded at all major ports. However port productivity remains low at about 28 crane moves per hour compared to 40 internationally.

In freight rail transport, coal and ore line capacities have been increased, and general freight tonnages have increased to 208 million tons in 2012. National roads have improved due to toll concessions, but provincial roads have deteriorated as vehicle numbers have expanded due to rising prosperity. Metrorail, SARCC and other public transport were consolidated into Prasa, and a massive rolling stock investment programme is underway. BRT's have been launched in the major cities. A new airport was built in Durban and those in major cities, expanded and improved.

The democratic era witnessed the rapid delivery of water services to the population starting with a high backlog in 1994 of households with no access to basic water services, to a reduced backlog of 4.5% in 2012. The Lesotho Highlands water resources project was completed as well as other key dams and transfer systems – De Hoop Dam, Berg River dam, Vresap pipeline, Mokolo Crockodile phase 1, Spring Grove Dam etc.

The telecommunications sector was modernised with huge public and private investment in cellular infrastructure and access to the majority expanded in telephony, television, postal services and later in data communications. Bridging the digital divide and cost of communication have improved with about 90% of households with access to a cellular phone and over 33% broadband penetration rate. The Post Office has installed an estimated 700 000 new mail boxes around the country, and over 7.4 million new addresses since 2004, giving identity to households.

While South Africa has a relatively good core network of national economic infrastructure, the challenge is to maintain and expand it to address the demands of the growing economy. Government continues to shape the institutional, policy and regulatory environment in order to enable investment, realise the desired efficiencies, improve infrastructure delivery, and contribute to economic growth and employment creation.

South Africa now has a long term National Development Plan (NDP), with a 2030 vision. In terms of the NDP South Africa needs to invest in a strong network of economic infrastructure. SA needs to implement the economic infrastructure requirements of the NDP in order to achieve the vision.

In giving effect to the coordination, collaboration and elaboration of NDP infrastructure imperatives, the establishment of the PICC has brought the political heads of the three spheres of government together for the first time in a joint intergovernmental forum headed by the President. Through the PICC process, South Africa now has a coordinated National Infrastructure Plan comprising 18 strategic integrated projects (SIPs) that together unlock the economic development of SA. The PICC focuses on ensuring that there is adequate coordination of both planning and implementation between the various stakeholders involved in each of the SIPs, monitors progress, and intervenes to unblock bottlenecks. Other focus areas of the PICC include infrastructure skills, supply of materials, localisation, and creating an enabling legislative and regulatory environment for investment in infrastructure.

Infrastructure expenditure is estimated at R847 billion over the next 3 years.

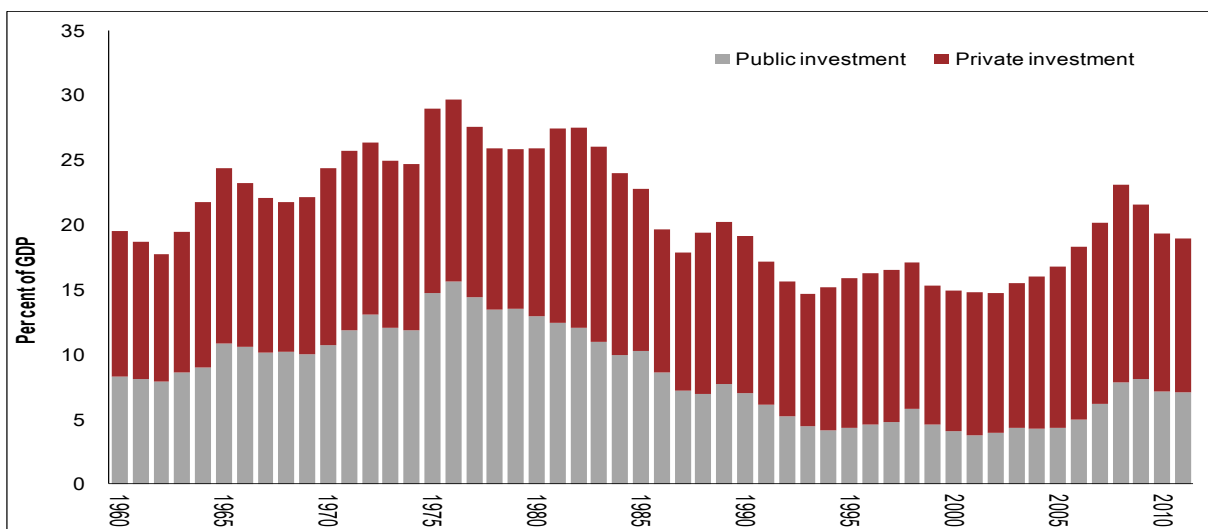
Review

1. Introduction and background

While high levels of public sector infrastructure expenditure were evident during the apartheid years, many of the developmental benefits were not enjoyed by the majority of the population. Investments were made on the back of a consumption expenditure sacrifice of the majority, and were targeted at an extractive economy and a security state. The disproportionately high investments in road-building, over-investment in power capacity, and petrochemical facilities like Sasol, Mossgas and other such choices not only fuelled and secured the apartheid security state, but sacrificed the living standards of the majority and were a contributing factor to the poverty and inequality we are still dealing with. This was exacerbated at the same time by the asset stripping of the majority through the Group Areas Act and forced removals, and the forced resettlement of people in unviable and unproductive areas. This led to the housing and local government service delivery challenges the country is still addressing today.

The high infrastructure investment of the past did not unlock access and opportunity for the majority. It was built on low wages and job reservation and benefited the few, as opposed to society as a whole. While water and power capacity was plentiful, only a small proportion of households had access to water and electricity by the time democracy came, and housing was at a crisis. Infrastructure expenditure by the apartheid state was also not consistent, with a rapid decline in favour of security expenditure after 1976 and 1980, and well into the 1990s, due to increasing resistance against apartheid. (see Figure 1).

Figure 1: Public and private sector capital investment as a share of the GDP, 1960–2010



Source: National Treasury Budget Review, 2013.

While capital expenditure, as a percentage of the gross domestic product (GDP), was higher during the apartheid years than it has been in the 20 years of democracy,

this did not contribute to shared growth, and the developmental impacts of infrastructure expenditure only started to be enabled with the advent of democracy and the economic restructuring that followed. For example, in the early 1990s, it was estimated that only 50 percent of South African households had access to electricity. An estimated 19 000 black schools (86 percent of the total number of schools in the country) and around 4 000 clinics did not have electricity.

2. The journey since 1994

The new democratic government set about reversing the declining trend and correcting the imbalances in the infrastructure sector. It also began focusing on the reconstruction and development of the country. In the post-1994 period, until the early 2000s, government focused on regularising corrupt, inefficient and extractive apartheid budgetary systems and Bantustan finances. More funding was released for infrastructure expenditure. The fiscal reforms and stabilisation ensured more pro-poor consumption expenditure in the 1990s, as well as a greater emphasis on housing and apartheid era backlogs in social infrastructure. These fiscal measures also ensured greater sharing and opportunity within infrastructure expenditure. It assisted in creating the economic boom in which South Africa enjoyed an unprecedented positive economic growth annually, reduced only by the spillover effects of the Asian Economic Crisis in 1997/98, and the 2008 global financial crisis. As can be seen from Table 1, all categories of government expenditure increased significantly after 2000/01. The largest increases include infrastructure, which forms part of the economic services category.

Table 1: Government expenditure (percentage real annual growth)

Percentage growth	1995/96 to 2000/01	2000/01 to 2006/07
Social services	2,1%	8,3%
Protection services	2,6%	5,2%
Economic services	-0,8%	13,1%
Non-interest expenditure	1,6%	8,1%

Source: National Treasury, 2008.

In the early 2000s, the democratic government renewed its focus on economic infrastructure. By then, South Africa had a rapidly growing economy, and rising prosperity was imposing new demands for road, rail and port infrastructure, as well as water, electricity and telecommunications infrastructure. The existing infrastructure was also being utilised by many more people than it had been designed for. This began to underline the need for greater economic infrastructure investment, while still continuing to address apartheid era backlogs in housing and social infrastructure.

In this period, important steps were taken to refocus and reorganise infrastructure planning and delivery. Three-year rolling Medium-term Expenditure Framework (MTEF) budgeting was introduced, which allowed for multi-year planning and expenditure. Budgeting for all spheres of government focused on infrastructure projects and programmes, and large infrastructure grants. The consolidation of the various infrastructure expenditure estimates across the state improved infrastructure accountability, and performance budgeting on infrastructure was accompanied by an expansion in infrastructure budgets. At the same time, important institutions like the Construction Industry Development Board (CIDB) were formed, and the process to draft the Construction Industry Charter commenced. The CIDB, empowered by Treasury Regulations, produced frameworks and initiatives that helped improve public sector infrastructure construction. Many initiatives focused on assisting under-resourced municipalities to improve their infrastructure planning and delivery.

3. Reflection on achievements

Important changes were made in the key economic infrastructure sectors of electricity, transport, water and communications, and many of the successes in these sectors are evident.

3.1 The electricity sector

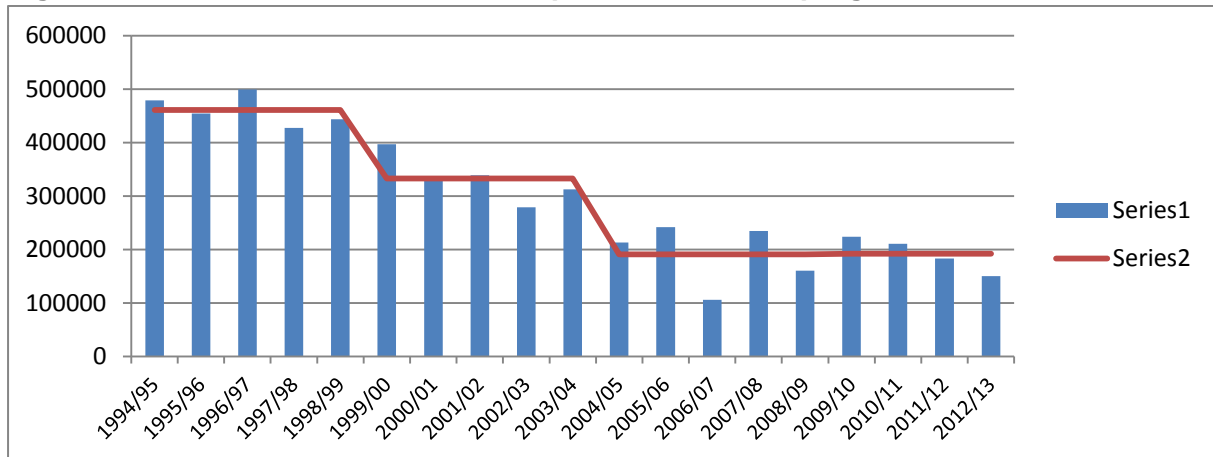
Following the first democratic elections in 1994, some of the major policy and institutional reforms in the South African electricity environment included the establishment of the Atomic Energy Corporation's plant in Pelindaba in 1995, the establishment of the National Electricity Regulator in 1995, the publication of the *White Paper on Energy Policy* in 1998, the transformation of Eskom into a public company, Eskom Holdings, in 2002, the release of the *White Paper on Renewable Energy* in 2003, the promulgation of the National Energy Regulator Act in 2004, the establishment of the National Energy Regulator of South Africa (NERSA) in 2005, the publication of the Integrated Resource Plan (IRP2010) for electricity in 2010, the publication of renewable energy feed-in tariffs in 2009, and the DoE bid process for renewable energy in 2011/12.

In the early 1990s, it was estimated that only about 50 percent of South African households had access to electricity. An estimated 19 000 black schools (86 percent of the total number of schools in the country) and around 4 000 clinics were then without electricity. One of the most successful programmes in the new South Africa has been the electrification programme which accelerated the electrification of households to the current level of 86 percent in less than 20 years.

In the 20 years, Eskom and the municipalities together delivered over 5.8 million connections to indigent households, with significant contributions from the fiscus through the electrification programme administered by the DoE. In the first five year period, (1994/5 to 1998/9), the average number of connections amounted to over

460 000 per annum; in the second 5 year period this reduced to 332 000 per annum; and thereafter in the following two terms, the number of connections averaged just over 191 000 per annum. This is because in the earlier years all the easier household connections had been made from existing networks, and in the later years, connections depended on bulk infrastructure and network extensions having to be made to enable connections in the more remote areas, increasing the costs per connection and resource requirements.

Figure 2: Combined Eskom and municipal electrification programme connections



Source: Department of Energy.

The post-apartheid government inherited a modern generation system, which was largely based on coal, and was able to deliver electricity at very low prices when compared to prices internationally. Consequently, between 1994 and 2002, comparatively little investment was made in electricity generation, given the low growth rates of the past. The unprecedented and rapid post-apartheid growth of the economy defied decades-old planning expectations in the sector and demand rapidly exceeded supply, resulting in a supply crisis in early 2008. To build electricity generation capacity, the Majuba power station was completed in the post-apartheid era.

Since 2005, an additional power capacity of 6 028 MW has been added, including 2 084 MW from two gas projects and independent power producer (IPP) co-generation. Since the beginning of the current administration in 2009, an additional generation capacity of 1 521 MW has been installed, which is mainly made up of previously mothballed superfluous power stations being returned to service (RTS). These were the power stations at Grootvlei (780 MW), Komati (650 MW), Camden (61 MW) and Koeberg (30 MW). Despite the additional capacity that was added, electricity generation has remained a binding constraint in the economy and a barrier to entry to large users who may have wished to invest.

In order to increase the generation of electricity and to open up the economy to large investors, two new large coal-fired power stations, each with a generation capacity in

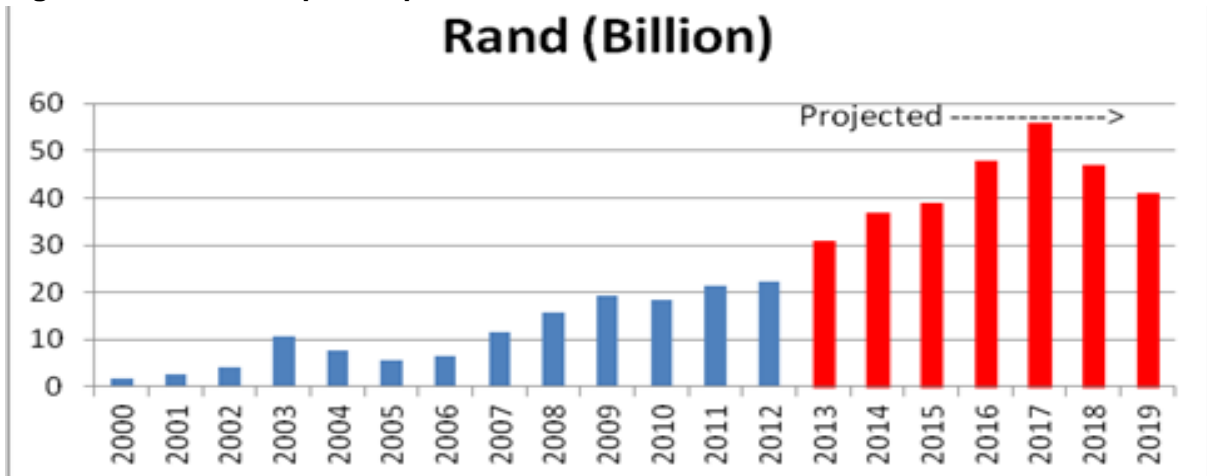
excess of 4 500 MW, are currently under construction. These are Medupi, which is 56 percent complete, and Kusile, which is 24 percent complete. A pump-storage scheme, Ingula, which is 65 percent complete, is also under construction. All stations being returned to service have been commissioned. Renewable energy generation IPPs have been enabled through bids by the private sector. The first round of bidding attracted 53 applications, of which 28 were approved, providing a total of 1 416 MW. Nineteen additional projects were approved in the second round of bidding, totalling 1 044 MW. A third round of bidding to provide 1 166 MW was completed by the end of 2013.

After 1994, the main transmission line infrastructure investments included the Cahora Bassa high-voltage line, which had been rehabilitated by 1997, the Majuba-Pegasus aluminium smelter supply line, strengthening of the connection to the Western Cape with a third 260 km 400 kv line, a new supply line to the Saldanha Steel smelter (Phase 1 of the project required 210 MW of power by August 1997), strengthening of the transmission line from Matimba to Zimbabwe in the North West (a 90 km 400 kv line by November 1997), provision for increased mining demand in the Brits-Rustenburg area (in the Bushveld Igneous Complex), and the completion of the 1999 transmission infrastructure to channel power through Swaziland to Maputo to supply the Mozal aluminium smelter. Since the beginning of the current administration in 2009, 2 741 km of transmission lines have been installed. Cumulatively, since 2005, 4 965 km has been installed. In terms of transmission capacity, this translates to 13 680 MVA since 2009, while 23 815 MVA has been achieved since 2005.

The major drivers of transmission investments have been network links to unserved areas to enable household connections, as well as economic growth, security of supply to the Cape and other internal regions far from coalfields and power stations, external access to generation capacity, and enabling big business/big users (like Alusaf, Mozal) and connecting them to maximise development. Despite the large number of transmission network improvements, more will be needed in future to enable larger numbers of electricity connections to unelectrified households, and to unlock economic growth in undeveloped regions. This is being addressed by the National Infrastructure Plan of the Presidential Infrastructure Coordinating Commission (PICC).

3.2 The transport sector

In order to improve South Africa's exports, freight rail infrastructure was expanded. The capacity of the Orex line (iron ore line) was expanded gradually from about 20 mt in 1994 to around 24 mt in 2000 and 30 mt in 2007.

Figure 3: Transnet capital expenditure, 2000–2012

Source: Transnet annual report.

Such increases were achieved through Transnet's investments in upgrading existing and acquiring additional wagons, and adding passing loops to accommodate additional trains. Since then, a more significant infrastructure investment programme has been initiated, which led to exports being stepped up to 32 mt in 2008 and 45 mt in 2009, with a smaller increase to 52 mt in 2011.

Similarly, in the case of coal, rail infrastructure export capacity gradually increased from 50 mt in 1992 to 70 mt by 2000. Exports dropped between 2005 and 2008, partly due to the global downturn, but also due to maintenance and other operational difficulties encountered by Transnet in maintaining high-capacity utilisation rates. In the case of manganese, which is transported on the general freight line from the Northern Cape to Port Elizabeth, investment in rail infrastructure has only been made more recently to accommodate new manganese mining entrants. Capacity increased steadily from 1.5 mt in 2002 to almost 7 mt in 2011.

The general rail freight business has been steadily improving the internal distribution of goods, as well as the export of finished goods. Tonnages have increased from 177 mt in 2009 to 182 mt in 2011, 201 mt in 2012 and 207.7 mt by 2012/13.

With regard to ports, container freight capacity has increased considerably since 1994. The more significant recent investments include a new container terminal at Ngqura, commissioned in 2009, with a two-berth capacity of 400 000 containers per annum (doubled in 2012 to 800 000 containers per annum), investment in container-handling equipment that is underway with the objective of increasing capacity to 1.5 million containers by 2014, investments that are underway to increase the capacity of the Durban container terminal from 2 million containers in 2009 to 2.9 million by 2013, the acquisition of seven tandem-lift ship-to-shore (STS) cranes, and an increase in the capacity of the Cape Town container terminal from 700 000 to 900 000 between 2009 and 2012. However, productivity at South African ports remains stubbornly low at an average of around 28 gross crane moves per hour, compared to

international standards of around 40 gross crane moves per hour. This needs to be urgently addressed.

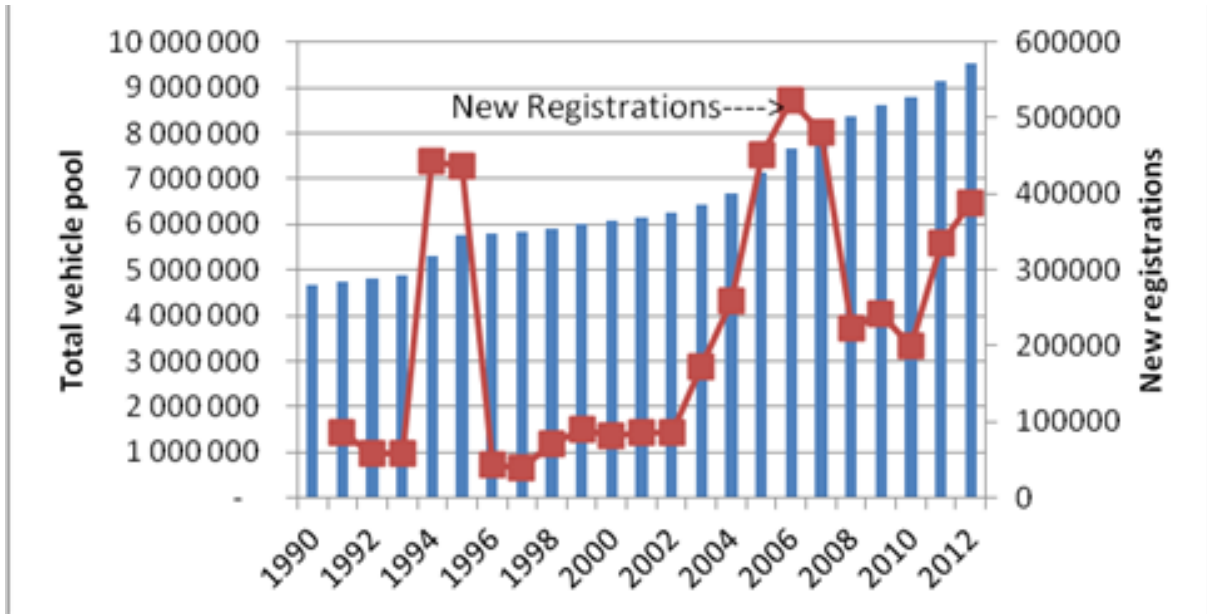
Significant investment has been made in pipeline infrastructure since 1994. One such investment had a regional linkage objective, bringing Mozambican gas into South Africa. This was a joint public-private investment, supporting Sasol. A second investment related to the extension of the existing industrial gas pipeline network, while a third was a replacement investment in the new multiproduct pipeline (NMPP) from the coast to South Africa's industrial heartland.

Significant improvements have been noted on South Africa's national roads. In 1998, the 7 200 km of national roads were absorbed into the newly created South African National Roads Agency Limited (SANRAL). Since its inception, SANRAL has leveraged private investment into road infrastructure by concessioning and tolling specific routes. The Warmbaths toll road was developed in 1994 and, in 1996, the largest toll road project was the reconstruction of the N4 corridor linking Johannesburg with Maputo in Mozambique (R1.4 billion). This was followed by the expansion and tolling of further sections of the N3. The N4 was further extended with the Platinum/Bakwena Toll Road in 2000.

Non-toll roads are funded by the fiscus through annual budget allocations. These activities, which constitute about 81 percent of national roads, are ring-fenced from toll road activities. Some toll roads are under long-term concessions to private parties under public-private partnerships (PPPs). These are the N4 and Platinum Highway N3 Toll Concession (Pty) Ltd (N3TC), the N1/N4 Bakwena Platinum Corridor Concessionaire (Pty) Ltd (Bakwena), and the N4 Trans-African Concessions (Pty) Ltd (TRAC). By 2012, private consortia had financed some R5.8 billion in capital on the project balance sheet for these projects. SANRAL also raises funds for some toll roads on its own balance sheet, for example the Gauteng Freeway Improvement Project. Direct expenditure by SANRAL on non-toll and toll roads has accelerated since 2005. The future development of national roads to meet rising vehicle volumes, as well as rising demand for time-sensitive goods and "just-in-time" production input requirements depends largely on societal acceptance of the user-charge principle for higher levels of service roads in comparison to the standard offering that is paid by the tax base.

In comparison to the country's national roads, the standard of many provincial and local roads has not kept up with the demand (many roads were originally designed for the vehicle population of the minority), and have deteriorated with the increase in vehicle numbers due to rising prosperity, poor maintenance regimes and resource constraints.

Figure 4: New vehicles registered from 1990 to 2013



Source: eNatis

After significant erosion in the commuter rail passenger market share because of the preference for minibus taxis during the 1980s, the use of Metrorail grew steadily from 1993 to 1999, levelling off until 2002, when it again rose significantly. In 2006, the Metrorail commuter rail assets of Transnet were excised and merged with the rail assets of the South African Rail Commuter Corporation (SARCC), and renamed the Passenger Rail Agency of South Africa (PRASA) in 2009. The consolidation of passenger rail assets was completed in 2009, when Transnet’s long-distance/intercity passenger assets (Shosholoza Meyl) were merged with PRASA. Also in 2009, the rolling stock and station property assets of the Shosholoza Meyl were transferred from Transnet to PRASA. In 2010, PRASA embarked on a 10-year capital investment programme to upgrade the signalling systems on the various Metrorail lines, and in 2012, PRASA launched a plan to refurbish and replace its rolling stock.

Other modes of public transport have gained greater impetus since 2005, with the introduction of the Public Transport Infrastructure and Systems (PTIS) Grant. This grant was targeted at improving the public transport infrastructure, with priority being accorded to projects associated with the 2010 World Cup. A large portion of funding support was allocated to the introduction of Bus Rapid Transit (BRT) systems in a number of metros. The Gautrain project was also initiated during this period. The full infrastructure became operational in 2012. The investments in airport infrastructure of the Airports Company South Africa (ACSA) increased modestly in the early 2000s, focusing on the upgrade of airport facilities in Johannesburg, Durban and Cape Town. Investment has accelerated since 2006, the largest investments being for the new King Shaka International Airport in Durban and OR Tambo International Airport in Johannesburg.

3.3 The water sector

In 1994, an estimated 15.2 million people had no access to a basic water supply (defined as 25 litres of safe water within 200 metres of the home), and an estimated 20.5 million people lacked basic sanitation (defined as a household toilet of at least a ventilated improved pit (VIP) latrine standard).

The democratic era witnessed the rapid delivery of water services to the population, starting with a high backlog in 1994 of an average of 46 percent of households with no access to basic water services, to a reduced backlog of 4.5 percent in 2012. The democratic government also prioritised the rapid delivery of sanitation services to the population, starting with a high backlog in 1994 of over 20 million people with no sanitation, to a reduced backlog of about 8.7 million people in 2012. This rapid delivery is corroborated by the census figures, which show that 13.6 percent of households did not have access to basic sanitation in 2001. This figure dropped to 5.2 percent in 2011. Despite the rapid progress, the bucket system, undignified sanitation and reliance on fetching water from streams prevail, and much more will need to be done to eradicate these backlogs and finally free all South Africans from these persisting remnants of a debilitating past.

In terms of major water infrastructure, Phase 1A of the Lesotho Highlands Water Scheme, which was the main resource project executed during the 1990s, began delivering water to South Africa's industrial heartland in 1998. Phase 1B, relating to the construction of the Mphahlele Dam in Lesotho, nearly doubled the flow of water in 2004. In 2002, work commenced on the R1.6 billion Berg Water Project, which involved a new 130 million m³ dam, pipeline and other works in Franschhoek. The project was aimed at augmenting Cape Town's water supply. Water began flowing in 2007. The Vaal River Eastern Subsystem Augmentation Project (VRESAP) was completed between 2005 and 2009, and shifted water from the Vaal Dam to the Trichardtfontein and Bosjesspruit dams. It was initiated as an emergency project in anticipation of a drought in 2007, which would have interrupted water supplies to Eskom and Sasol. This was one of the country's largest water projects at the time, costing R2.7 billion.

The Olifants River Water Resources Development Project (De Hoop Dam) was aimed at supporting mining extraction (particularly platinum) in the Sekhukhune District of Limpopo. It involved the construction of the De Hoop Dam and an extensive distribution pipeline network that would convert the Flag Boshielo and De Hoop dams into a single functioning system, providing an additional 80 million m³ of water per annum. The construction of the De Hoop Dam began in 2007, and it completed in 2013. The Komati Water Scheme Augmentation Project (KWSAP) aims to provide a more secure supply to Eskom's Duvha and Matla power stations in Mpumalanga. It supplements the Komati Water Scheme from the Vaal Eastern Subsystem by about 57 million m³.

Phase 1 of the Mokolo Crocodile Water Augmentation Project (MCWAP) commenced in 2011 and was completed in 2013. Its objective was to augment the water supply to the Waterberg coalfield in Limpopo and to supply the immediate needs of Eskom's Medupi power station, currently under construction. The estimated R1.7 billion cost of the project is to be raised against commercial long-term contracts with Eskom and other water users. In 2011, government approved the implementation of Phase 2 of the Lesotho Highlands Water Scheme, involving the new Polihali Dam, a transfer tunnel to the Muela hydroelectric plant, expansions to the power plant and other infrastructure in Lesotho. The project is targeted for completion in 2020.

In 2011, work commenced on the Mooi-Mgeni Transfer Scheme Phase 2 (MMTS2), involving the new Spring Grove Dam and associated infrastructure to augment the Mgeni River system by 60 million m³ annually to 394 million m³ per annum. The Mgeni system serves five million people and industries in the eThekweni Metropolitan Municipality, the uMgungundlovu District Municipality and the Msunduzi Municipality, and will address future demand growth and droughts. The project cost R1.8 billion and the associated Spring Grove Dam inaugurated in 2013. In 2012, a two-year detailed feasibility study was initiated on the Umzimvubu catchment area Project.

South Africa is a water-scarce country, and like electricity generation, the availability of raw water resources is in many cases proving to be a binding constraint to economic growth. The inability of the water sector to finance major water projects threatens to become a blockage to infrastructure progress going forward. The key to unblocking funding and the development of water infrastructure is to set the sector on a self-sustaining path, with an appropriate pricing strategy, an independent regulator and an infrastructure agency that owns all the raw water infrastructure, collects the raw water revenue, and has a balance sheet that enables borrowing as a public entity rather than on the basis of individual projects. This is an essential enabler for the many billions of rands of water resource infrastructure that is still required, not only to enable universal access of water to households, but also to provide the water that is critical for our economic development.

The value and efficiency of the country's water resource infrastructure also depends on citizens' and government's ability to save water, prevent leakage, eradicate pollution, and operate and maintain wastewater plants to ensure an optimal quantity and quality of water. Relevant institutions, such as catchment management agencies that have already been provided for in water legislation, need to be implemented and funded from raw water tariffs.

3.4 The communications sector

While much was done in the pre-1994 era to develop a communications infrastructure and in setting up broadcast, postal and fixed-line telephone infrastructure, in many respects, these were mainly focused on the minority and

lagged behind global advancements in telecommunications. While the rest of the world had enjoyed television for decades, South Africa only began limited television services, mainly for a white audience, in the mid-1970s, and widespread home satellite systems, internet services and mobile cellular telephony only became a reality with the advent of democracy and the end of the apartheid security state.

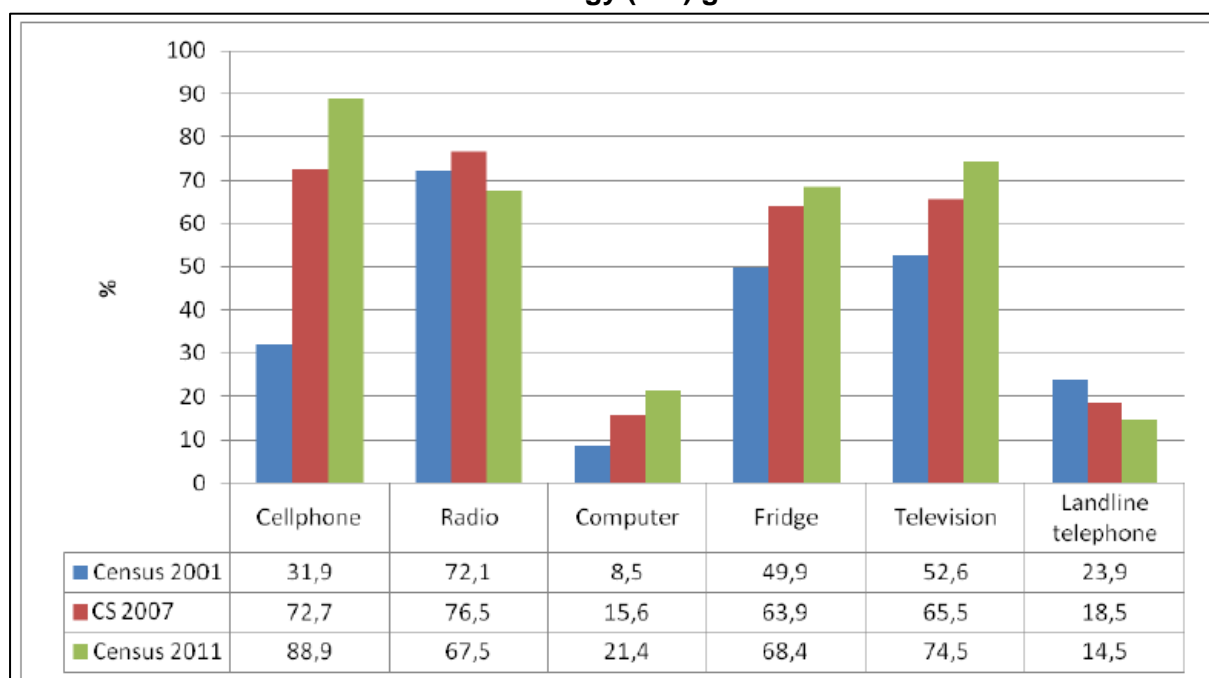
Institutional arrangements in the pre-democracy era were characterised by a few state-controlled organisations like the South African Broadcasting Corporation (SABC), Telkom and postal services, with high levels of state interference and little or no competition. Media independence was non-existent and this was not just limited to state-owned broadcasting. Private sector investment and involvement in the communications sector was almost non-existent. Investment in the sector was limited by government affordability, and access to communication services by the majority was poor.

Post the apartheid era, the broadcasting sector has achieved over 133 community radio stations operational and broadcasting in the various languages of the country, 16 commercial radio licences in operation, 18 public radio stations, 3 public TV channels, 2 commercial channels, and 7 community stations. Radio reaches 88 percent of the population, and approximately three quarters of households have access to television. South Africa is now in the process of making preparations for digital television. In step with global technological advancement, the internet and broadband communication has been encouraged in our open democracy, and broadband penetration is currently estimated at 14 percent over a personal computer, and 15 percent via a cellphone, smartphone or tablet. Overall internet penetration is estimated at over 33 percent.

Census 2011 figures reveal that the proportion of households with access to cellular phones increased from 32 percent in 2001 to about 89 percent in 2011, while landline access decreased from 24 percent in 2001 to 14.5 percent in 2011. Television access similarly increased from 53 percent in 2001 to over 74 percent of households in 2011, with a decline in radio. The increase in computer ownership from 8.5 percent in 2001 to over 21 percent in 2011 is significant, illustrating progress in addressing the digital divide.

Postal services to the majority have also increased. In its first year in power, the democratic government opened at least 70 new post offices and upgraded many others in previously under-served areas. To date, the South African Post Office has one of government's largest infrastructural footprints around the country, with over 2 600 postal outlets, of which 1 170 are in rural areas, as well as visibility in major retail outlets across the country in the form of retail postal agencies (RPAs). Many other postal outlets were upgraded to ensure that they have internet and network connectivity to provide services in a more effective and efficient manner.

Figure 5: Percentage of households owning various household goods, including information and communication technology (ICT) goods



Source: Statistics South Africa

Despite the rapid post-apartheid modernisation, and high levels of private sector participation and investment in the sector, prices have remained above world averages. Digital speeds and service offerings have remained relatively lower. Regulation, therefore, needs to be strengthened, while still maintaining the appetite for greater investment, continued modernisation and greater access to ICT services by the marginalised in bridging the digital divide.

4. Towards improvement

While the different economic infrastructure sectors each have unique challenges, there is a range of issues that are generic.

4.1 Integrating policy, planning and delivery

An integrated approach to policy, planning and delivering infrastructure across sectors is currently not fully in place, and is a recommendation to ensure effective and efficient infrastructure investments.

Infrastructure delivery and expansion requires a policy framework to guide resource allocation across and within sectors and to ensure that such project selections, approvals and decisions, allocations and the sequencing of the expansion of infrastructure are aligned to the broader growth and development path. Within this framework, policies for individual sectors must provide concrete parameters within which implementing agencies can determine and execute their plans. Two problems have persisted over the two decades of democracy and before: first, the absence of

coherent policy in certain infrastructure sectors, and, second, where comprehensive policies are in place, they are not appropriately implemented. A critical point in relation to policy is that it must be credible and create certainty – at least for the next decade – if private investment is to be mobilised and if the desired fiscal stimulation is to be realised in higher growth.

It is not only improved planning within economic infrastructure sectors, but also integrated planning across sectors that will yield more effective outcomes.

Important steps in this regard have already been taken with the National Development Plan (NDP) of the National Planning Commission (NPC), giving valuable direction in all infrastructure sectors towards achieving a common 2030 vision, the establishment of the Department of Performance Monitoring and Evaluation (DPME) to monitor the effective implementation of priority plans, and, most importantly, the establishment of the PICC, bringing all spheres of government together in a joint forum for the first time to promote infrastructure coordination and decision-making, and adopting the National Infrastructure Plan.

4.2 Market structure, regulation and pricing

A challenge shared by the economic infrastructure sectors is that there is a high degree of monopolisation (or markets that are not contestable), resulting in prices that are high in relation to international benchmarks, alongside poor operational performance and asset utilisation. This effectively acts as a constraint to both economic growth and access to these services by poor households and communities.

While South Africa is not unique in the dominance of state-owned enterprises (SOEs) in the delivery of infrastructure – principally because network infrastructure creates natural monopolies – the regulatory framework is relatively poor, both in design and implementation. The rail sector does not have an economic regulator, despite the fact that it is a monopoly, while the failure to effectively regulate overloading in freight transported on roads generates negative externalities in the form of damage to roads, and compromising the safety of other road users. Approved transport policies, like the Freight Logistics Strategy and the National Land Transport Act, have been slow in their application, possibly because they confront the existing paradigm.

The regulation of infrastructure monopolies has also played a role in infrastructure investment. Stronger regulation policy was adopted early on in the first decade of democracy. Putting the energy regulator in place took a further half a decade and it is only over the past five years or so that the regulatory function, operating on a cost-based methodology, is being applied to protect electricity infrastructure users from the unjustified pass-through of costs. Stronger regulation in respect to the infrastructure of transport monopolies was also adopted as policy in the first decade,

but the implementation of this was delayed. It is only the Port Regulator that is in place, with the likelihood of other appropriate economic regulators being set up soon. Work towards the proposed Single Transport Economic Regulator (STER) will partly address this concern.

In the water sector, pricing is such that where costs can be recovered, this is not being done, and there is no independent regulator to manage the challenge of under-pricing, and no entity to facilitate borrowing across the sector for economic development. The Department of Water Affairs (which is effectively the regulator) has, for many decades, set prices that are below cost to maintain the water resources system, let alone allow for further development, and is therefore unnecessarily over-reliant on the fiscus. A key structural contributing factor is that the department is a policy-maker, an implementer and a regulator all at the same time.

Where the legislative foundation for regulation is sound, for example, in the ICT sector, the regulators have not successfully kept prices in line with global trends constraining access and undermining the competitiveness of the national economy. Hence, enhancing the capacity of regulators and giving them the ability to impose sanctions for uncompetitive behaviour must be a policy priority. The existing gaps in the water and rail sectors need to be filled as a matter of urgency. Furthermore, existing regulators must be better capacitated and monitored to ensure that they are not “captured” by specific industry players.

4.3 Financing mechanisms

Across all the sectors, challenges in mobilising resources for both the operations and maintenance, as well as for future investments in economic infrastructure loom large. With regards to fiscal funding, besides the exception of the newly-created Provincial Road Maintenance Grant, there are no dedicated funding streams for operations and maintenance, and planning processes have historically neglected to build these costs into infrastructure plans. The priority is therefore to create ring-fenced resource streams for infrastructure rehabilitation and maintenance, commensurate with infrastructure utilisation, not only as fiscal grants, but within user-charge resources for services provided. For example, municipal electricity charges should ring-fence part of the revenue to budget for the maintenance and rehabilitation of the electricity distribution infrastructure.

More broadly, the mechanisms currently in place to finance infrastructure require urgent reform. Resources are in some cases flowing to the wrong areas. For example, in the case of commuter rail transport, infrastructure is not expanding in tandem with the enormous growth in demand because of financial constraints, in a context where commuter rail transport has substantial benefits for poor households. At the same time, PRASA subsidises long-distance passenger rail at the cost of commuter rail, even though the former cannot compete with road transport. There is value in further interrogating financing sources and mechanisms to determine how

they can be more effectively structured. Particular challenges include the poor performance of provinces in relation to provincial roads and the effective subsidisation or cross-subsidisation of infrastructure services to redress poverty and inequality.

In the case of water, too, there seems to be an unfair cross-subsidisation by taxpayers and households of large-scale industry, mining and agriculture, which together consume the lion's share of raw water. In addition, people pay a wide range of different prices for essentially the same product (raw water), depending on the particular dam or scheme from which it is obtained. In many cases, the price depends on how long ago it was built. Thus, poor people who never had water in the past, have to pay higher prices for water from new dams, although it is the same product produced by old dams. To address equity in the pricing of raw water as a product, as well as funding for development, the water sector needs an appropriate pricing strategy with equitable levelised pricing for various categories of raw water off-take paying their fair share of infrastructure costs,. The sector is further in need of an independent regulator and an infrastructure agency (similar to Eskom) with a balance sheet that enables borrowing as a public entity, and levelised pricing, rather than project financing and project level pricing to consumers.

Criteria for resource allocation must be linked to national objectives, which find expression in the Medium-term Strategic Framework (MTSF), the NDP and the New Growth Path. Hence, while the expansion of the commuter rail system will have a significant impact on poverty and inequality, it requires subsidisation. In contrast, the economic rationale for building a new airport or dam, for example, requires some interrogation as to why these should be subsidised by taxpayers.

In this regard, it is crucial that the infrastructure investments mooted in the NDP and strategic integrated projects (SIPs) are carefully analysed, and a funding framework is developed for all feasible projects, clearly outlining which projects will be financed by the fiscus, the private sector, the balance sheets of public entities, through PPP's and through concessions.

Since 1994, considerable success has been achieved in mastering the art of using private financing for road infrastructure, the Gautrain, hospitals and some head office buildings. However, despite some attempts, there was a failure to replicate this for prison infrastructure, water services, electricity generation, rail, ports and pipelines. The telecommunications sector has witnessed considerable investment by the private sector, which has led to rapid service provision in the sector.

What has also emerged over the 20-year period is that there are limits to the quantum of infrastructure that can be financed through tariffs on existing users. In the case of electricity, pipelines and (recently) toll roads, the fiscus has had to

provide additional balance sheet support through direct capital grants, loans or guarantees in order to avoid sharp increases in tariffs.

Despite these affordability limits and the ability of the state to assist, the advancement and future development of many aspects of our economic infrastructure will depend on the acceptability of the user-charge principle for higher levels of infrastructure services and differentiated high-value products in comparison to the standard offering that is paid by and is affordable to the tax base (for example, Gautrain vs Metrorail). Some differentiation within the user-charge principle is required between “project-internalised user charges” versus “system-wide (levellised) user charges. It does not make sense for a ship to be charged more for using a newly completed berth versus one using an old berth, and so it is fair to distribute the costs of development of the new berth to all berths because the product (or service) to the ship is the same. Yet our dams are financed on a project finance basis, and consumers pay different raw water prices for the same product.

4.4 Anticipated infrastructure expenditure

Infrastructure expenditure is estimated at around R847 billion over the 3 year medium term expenditure framework (MTEF) period. This is equivalent to an average of 6.7 percent of GDP over the same period. Infrastructure for economic services makes up 80.8 percent of the total estimated public sector infrastructure expenditure. Investment in transport and logistics (41.9 percent) remains the largest component of the Public Infrastructure Programme, followed by energy (22.2 percent). Spending on social services, such as health, education and social development, make up 14.5 percent of the total public sector infrastructure expenditure over the MTEF period. Central government and administrative services are budgeted to spend 3 percent over the MTEF.

The bulk of economic infrastructure expenditure is provided by non-financial public enterprises, which are projected to spend a total of R407.5 billion over the next MTEF period. Municipal spending is the second-largest category of expenditure, with a projected budget of R181.6 billion over the same period. Provincial departments have a total estimated expenditure of R130.4 billion over the MTEF period.

Infrastructure financed from the national budget constitutes just over half of the total infrastructure expenditure over the MTEF period. Infrastructure funding from the fiscus relates primarily to national departments, provinces, conditional grants to local government, the government component of PPP projects and capital transfers to extra-budgetary institutions.

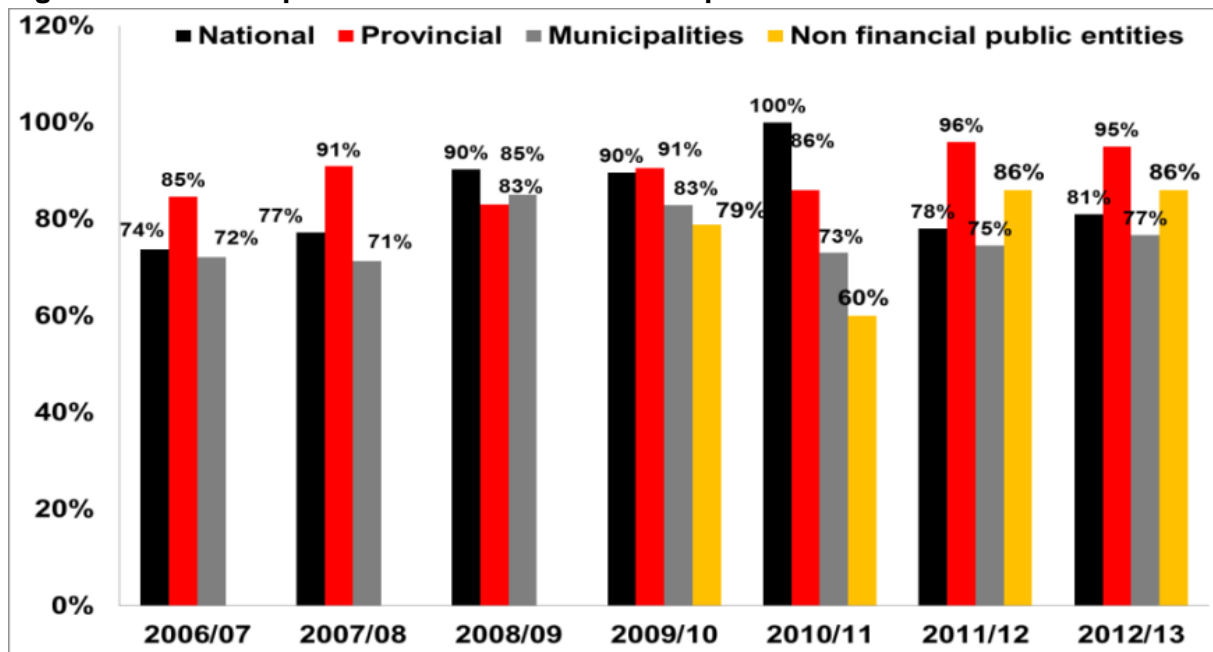
SOEs provide just under half of infrastructure expenditure, and finance their infrastructure programmes from their own revenue and private funding. Government guarantees are extended when necessary to reduce borrowing costs. SOEs source the bulk of their funding from bonds, commercial paper issue, and government

funding and loans. From foreign markets, the funding is mainly from export credit agencies and development finance institutions, such as the Development Bank of South Africa (DBSA), which assist by helping to raise finance or, in the case of the Industrial Development Corporation (IDC), by directly supporting projects.

Social infrastructure, which includes schools, hospitals and housing, are normally funded through taxation and financed from the national budget. Economic infrastructure, such as energy, water, telecommunications and public transport, are mainly paid by raising user charges, which are raised through public utilities. Public goods, which are essential, and for which it is difficult or inefficient to charge users, are also paid for by taxes, such as most local, provincial and national roads.

The historical public sector infrastructure expenditure trends are illustrated in Figure 6.

Figure 6: Historical public sector infrastructure expenditure trends



On average, the public sector spent 78 percent of its infrastructure budget in 2012/13 compared to 81 percent in 2011/12. Of the budgeted amount for 2012/13, R56 billion remained unspent, mainly due to poor planning and a lack of timely decision-making. High spending was observed in provincial departments (95 percent), with progress made in housing, construction works, health and education infrastructure. Non-financial public enterprises spent 86 percent of their budget in 2012/13.

Between 2009/10 and 2012/13, general government infrastructure spending averaged 82 percent, while spending by non-financial public enterprises averaged 78 percent during the same period. Spending by non-financial public enterprises increased from 60 percent in 2010/11 to 86 percent in 2012/13. This increase is a

result of spending by Eskom, Transnet, the Central Energy Fund, SANRAL and PRASA, which together spent R104.6 billion. Municipal spending performance improved from 72 percent in 2006/07 to 85 percent in 2008/09, before declining to 75 percent in 2011/12. Municipalities are owed billions of rands in rates and taxes, which negatively impacts on their budget planning for infrastructure.

While there are some variations in the expenditure performance of the public sector as a whole, it is clear that expenditure levels remained higher over the last two years than they had been in earlier periods, and that the focus on infrastructure delivery by the PICC has the potential to drive greater efficiencies in this regard.

4.5 Institutional frameworks

The current institutional frameworks could be improved to facilitate effective infrastructure delivery and expansion. There are four core challenges:

- The dominance of monopolies in sectors results in outcomes that tend to focus on the position of a specific entity, rather than advancing the national interest and development agenda.
- There is limited coherence and coordination between the three spheres of government, and between government and the private sector.
- Regulation is weak, due to technical and resource constraints.
- In many cases, institutional arrangements constrain investment and create barriers to private sector participation and investment in some sectors.

There is, therefore, a need to continue to focus on addressing these challenges, to enhance engagement with the private sector, and to crowd in resources for development.

4.6 Capacity constraints

Skills shortages are a feature of South Africa's socio-economic landscape. They are not unique to network infrastructure. In network infrastructure delivery, technical capacity constraints are most pronounced at the municipal (water and electricity distribution, and trenching permissions for the rollout of fibre-optic cables) and provincial (provincial roads) levels.

Capacity-building is, however, a long-term endeavour, involving a pipeline that takes a considerable amount of time to yield the required skills. Capacity-building should therefore be planned for at a national level by aggregating current future skills shortages across the various infrastructure sectors. A PICC technical task team is working with the Department of Higher Education and Training (DHET) to map and address these issues.

A separate issue is the internal dynamics within the institutions and entities tasked with the delivery of economic infrastructure. Poor organisation and management of

technical expertise, alongside low morale and political interference, are in some cases diminishing the returns from skilled individuals. In cases where capacity constraints effectively prevent the implementation of the economic infrastructure agenda, the imperative is to source in these skills, as proved to be highly effective in the infrastructure for the 2010 FIFA World Cup.

4.7 Backlogs, rehabilitation and new infrastructure

In all the economic infrastructure sectors, there is a combination of existing infrastructure that requires maintenance, rehabilitation, backlogs that need to be addressed, and new infrastructure projects that need to be implemented. There are tensions between these different streams of infrastructure delivery, and capital budget managers have to make difficult choices between building new infrastructure for the many who have no services, versus maintaining or rehabilitating the infrastructure for those who have it.

A fair balance between these choices has to be achieved, and it would therefore be rational to analyse, plan, and make optimal choices in this regard. In reality, however, the needs of a growing economy will result in the three infrastructure streams (maintenance and rehabilitation, addressing backlogs and responding to new demand) being implemented simultaneously.

It is therefore critical that these delivery aspects are differentiated in implementation plans, prioritised and allocated dedicated resources, and are explicitly disaggregated so that they can be effectively monitored.

5. Conclusion and Way Forward

While South Africa has a relatively good core network of national economic infrastructure, the challenge is to maintain and expand it to address the demands of the growing economy. The economy has already been constrained by inadequate investment, and the ineffective operation and maintenance of existing infrastructure.

There is some concern that the state does not have sufficient institutional or financial capacity to finance and implement the infrastructure investment plans on the required scale. South Africa needs to make large investments to continue to propel economic activity. These need to be made in a structured, considered manner to prevent inappropriate initiatives, protect South Africa's resources and ensure that prioritised investments are efficiently implemented.

Current investment levels are insufficient and maintenance programmes are lagging. Given government's limited finances, private funding will need to be sourced for some of these investments, and policy planning and decision-making will require trade-offs between competing national goals.

The role and effectiveness of sector regulators need to be reviewed. In addition to issuing licences and setting tariffs, regulators need to place more emphasis on stimulating market competition, enhancing efficiencies and promoting affordable access to quality services. This will require capacity-building in regulatory institutions.

Government needs not only to better coordinate collaborative investment by businesses, and provincial and local government into key infrastructure projects, but to shape its institutional, policy and regulatory environment in order to enable investment, realise the desired efficiencies, improve infrastructure delivery, and contribute to economic growth and employment creation.

South Africa now has a long term National Development Plan (NDP), with a 2030 vision. In terms of the NDP South Africa needs to invest in a strong network of economic infrastructure designed to support the country's medium- and long-term economic and social objectives. This economic infrastructure is a precondition for providing basic services such as electricity, water, sanitation, telecommunications and public transport, and it needs to be robust and extensive enough to meet industrial, commercial and household needs.

Over the first five years (2014–2019), movement towards an inclusive and dynamic economy requires that the country should urgently launch the virtuous cycle that will allow it to move to a new growth trajectory. The emphasis on absorbing the unemployed into economic activity and higher mining exports to forge a new path in the economy of the future, implies urgent investments in rail, water and energy infrastructure, alongside regulatory reforms that provide policy certainty. At the same time, the private sector should commit more investments to supplier industries for the infrastructure programme and, in general, economic capacity. Government will commit to ensuring the supply of energy and water is reliable and sufficient for a growing economy, and that the responsibilities of municipal maintenance of distribution systems are appropriately allocated and funded.

Bold steps have been taken by the current administration in placing infrastructure at the forefront of government's agenda to transform the economy and stimulate economic growth and job creation. A Presidential Infrastructure Coordinating Commission (PICC) has been established, bringing key Ministers, Premiers and Metro Mayors for the first time into a joint forum to promote infrastructure coordination and decision making, headed by the President and assisted by the Deputy President.

South Africa now has a coordinated National Infrastructure Plan, comprised of 18 strategic integrated projects (SIPs), which was launched by President Zuma in his State of the Nation Address in February 2012. Plans for future projects and infrastructure initiatives from a large number of authorities such as state-owned

enterprises, national, provincial and local government departments, have been clustered, sequenced and prioritised into 18 the strategic integrated projects (SIPs) that together unlock the economic development of SA and maximise the returns on our infrastructure investment as increased jobs, growth and economic potential.

This will be a continuous process, creating a ‘pipeline’ of projects into the future, giving substance to the infrastructure initiatives in our long term National Development Plan and providing certainty to South Africa’s infrastructure development.

Government’s strategic integrated projects

SIP 1: Unlocking the Northern Mineral Belt with Waterberg as the catalyst

Investment in rail, water pipelines, energy generation and transmission infrastructure will catalyse the unlocking of rich mineral resources in Limpopo, resulting in thousands of direct jobs across the areas covered. Urban development in the Waterberg will be the first major post-apartheid new urban centre and will be a “green” development project. Mining includes coal, platinum and other minerals for local use and export, hence the rail capacity is being extended to Mpumalanga power stations and for export principally via Richards Bay and Maputo (via Swaziland link) in future. The additional rail capacity will shift coal from road to rail in Mpumalanga, with positive environmental and social benefits. Supportive logistics corridors will help strengthen Mpumalanga’s economic development.

SIP 2: Durban-Free State-Gauteng Logistics and Industrial Corridor

This development includes strengthening the logistics and transport corridor between South Africa’s main industrial hubs, improving access to Durban’s export and import facilities, raising efficiency along the corridor, integrating the Free State Industrial Strategy activities into the corridor, integrating the currently disconnected industrial and logistics activities, as well as marginalised rural production centres surrounding the corridor that are currently isolated from the main logistics system, developing a new port in Durban, an aerotropolis at OR Tambo International Airport and the Dube Trade Port.

SIP 3: Southeastern node and corridor development

This includes promoting rural development through a new dam at Mzimvubu, with irrigation systems, and the N2 Wild Coast Highway, which improves access into KwaZulu-Natal and national supply chains, strengthening economic development in Port Elizabeth through a manganese rail capacity from the Northern Cape, a manganese sinter in the Northern Cape and a smelter in the Eastern Cape, as well as a possible Mthombo refinery at Coega and a trans-shipment hub at Ngqura, and port and rail upgrades to improve the industrial capacity and performance of the automotive sector.

SIP 4: Unlocking the economic opportunities in North West

Accelerating identified investments in roads, rail, bulk water and water treatment, and transmission infrastructure will result in reliable supply, meet basic social needs and facilitate the further development of mining, agricultural activities and tourism opportunities, while opening up beneficiation opportunities in the North West.

SIP 5: Saldanha-Northern Cape Development Corridor

This entails developing the Saldanha-Northern Cape-linked region in an integrated manner through rail and port expansion, back-of-port industrial capacity (which may include an industrial development zone) and strengthening maritime support capacity to create economic opportunities from the gas and oil activities along the African West Coast. For the

Northern Cape, it means expanding iron ore mining production.

SIP 6: Integrated Municipal Infrastructure Project

This project entails developing a national capacity to assist the 23 least-resourced districts (17 million people) to address all the maintenance backlogs and upgrades required in water, electricity and sanitation bulk infrastructure. The road maintenance programme will enhance the service delivery capacity, and will thereby impact positively on the population.

SIP 7: Integrated Urban Space and Public Transport Programme

This development includes coordinating planning and implementing public transport, human settlement, economic and social infrastructure and location decisions into sustainable urban settlements connected by densified transport corridors. This project will focus on the 8 largest metropolitan municipalities, as well as on urban transport integration.

SIP 8: Green energy in support of the South African economy

This entails supporting sustainable green energy initiatives on a national scale through a diverse range of clean energy options, as envisaged in the IRP2010, and supporting biofuel production facilities.

SIP 9: Electricity generation to support socio-economic development

This development entails accelerating the construction of new electricity generation capacity in accordance with the IRP2010 to meet the needs of the economy and address historical imbalances.

SIP 10: Electricity transmission and distribution for all

This includes expanding the transmission and distribution network to address historical imbalances, providing access to electricity for all and supporting economic development. Aligning the 10-year transmission plan, the services backlog, the national broadband rollout and the freight rail line development to leverage off regulatory approvals, supply chain and project development capacity.

SIP 11: Agrilogistics and rural infrastructure

This development includes improving investment in agricultural and rural infrastructure that supports the expansion of production and employment, small-scale farming and rural development, including facilities for storage (silos, fresh produce facilities and packing houses), transporting links to main networks (rural roads, branch train lines and ports), the fencing of farms, irrigation schemes in poor areas, improved research and development on rural issues (including the expansion of agricultural colleges), processing facilities (abattoirs and dairy infrastructure), aquaculture incubation schemes and rural tourism infrastructure.

SIP 12: Revitalisation of public hospitals and other health facilities

This initiative focuses on building and refurbishing hospitals and other public health facilities, and revamping 122 nursing colleges. Extensive capital expenditure to prepare the public health care system to meet the further requirements of the National Health Insurance (NHI).

SIP 13: National school-build programme

This includes the establishment of a national school-build programme, driven by uniformity in planning, procurement, contract management and the provision of basic services, replacing inappropriate school structures and addressing basic service delivery backlogs and the provision of basic services under the Accelerated School Infrastructure Delivery Initiative (ASIDI), and addressing national backlogs in classrooms, libraries, computer labs and administration buildings. Improving the learning environment will go a long way in improving outcomes, especially in the rural schools, while also reducing overcrowding.

SIP 14: Higher education infrastructure

This development consists of infrastructure development for higher education, focusing on lecture rooms, student accommodation, libraries and laboratories, as well as ICT connectivity, and the development of university towns with a combination of facilities, including residences, retail and recreation facilities and transport. It has the potential to ensure shared infrastructure, such as libraries by universities, further education and training colleges and other educational institutions.

SIP 15: Expanding access to communication technology

This entails providing for 100% broadband coverage to all households by 2020 by establishing core points of presence (POPs) in district municipalities, extending new Infracore fibre networks across provinces, linking districts. It also entails establishing POPs and fibre connectivity at local level, and further penetrating the network into deep rural areas. While the private sector will invest in ICT infrastructure for urban and corporate networks, government will co-invest for township and rural access, as well as for e-government, school and health connectivity. The school rollout focus was initially on the 125 Dinaledi (science- and maths-focused) schools and 1 525 district schools. Part of digital access to all South Africans includes television migration nationally from analogue to digital broadcasting.

SIP 16: SKA and Meerkat

The Square Kilometre Array (SKA) is a global megascience project, building an advanced radio-telescope facility linked to research infrastructure and high-speed ICT capacity, and providing an opportunity for Africa and South Africa to contribute towards advanced science.

SIP 17: Regional integration for African cooperation and development

This initiative entails participating in mutually beneficial infrastructure projects to unlock long-term socio-economic benefits by partnering with fast-growing African economies with projected growth ranging between 3 and 10 percent. The projects involving transport, water and energy also provide competitively priced diversified, short- and medium- to long-term options for the South African economy where, for example, electricity transmission in Mozambique (Cesul) could assist in providing cheap, clean hydropower in the short term, while the Grand Inga in the Democratic Republic of the Congo (DRC) is a long-term project. All these projects complement the Free Trade Area (FTA) to create a market of 600 million people in South, Central and East Africa.

SIP 18: Developing a sustainable water supply chain: Source to tap to source

This includes the development of a 10-year plan to address the estimated backlog of adequate water to 1.4 million households and basic sanitation to 2.1 million households. The project will involve the provision of a sustainable supply of water to meet social needs and support economic growth. Projects will provide for new infrastructure, rehabilitation and the upgrading of existing infrastructure, and will improve the management of the water infrastructure.

The PICC will make decisions on projects and initiatives, and oversee the attainment of the rollout targets of the SIPs at project level, as well as the enabling factors that will assist the rollout of the National Infrastructure Plan. It will mobilise the institutional and financial capacity needed to implement infrastructure investment plans on the required scale and will ensure that priorities for inclusive growth are addressed; that synergies between different kinds of infrastructure are maximised; that phasing of investments is managed appropriately; and that the costs are minimised and appropriately allocated.

In giving effect to both the NDP and the PICC's National Infrastructure Plan, the 2014-19 Medium Term Strategic Framework (MTSF) incorporates the following imperatives that prioritise and take forward economic infrastructure development as a key focus of government over the next five years:

- Improving regulation, funding and investment
- Ensuring reliable generation, transmission and distribution of energy: electricity, liquid fuels, coal, and gas
- Ensuring the maintenance, strategic expansion, operational efficiency, capacity and competitiveness of our logistics and transport infrastructure: ports, logistics hubs, road, rail and public transport infrastructure and systems
- Ensuring the maintenance and supply availability of our bulk water resources infrastructure: dams and inter-basin transfers, bulk water and wastewater
- Ensuring the expansion, modernisation, access and affordability of our information and communications infrastructure and electronic communication services including broadband, and digital broadcasting
- Coordination, development and implementation of strategic integrated projects (SIPs) in the National Infrastructure Plan

The MTSF sets out government's programme of action for the next term, setting out key action items, targets to be achieved, and allocates responsibilities within the sub-outcomes to departments and entities. It also enjoins the various stakeholders to work together to achieve the economic infrastructure imperatives, as well as other outcomes

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