

SUBMISSION FOR THE DIVISION OF REVENUE

2016 / 2017

For an Equitable Sharing of National Revenue





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Submission for the Division of Revenue 2016/2017

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FOREWORD

This Submission is made in terms of Section 214(1) of the Constitution of the Republic of South Africa (1996), Section 9 of the Intergovernmental Fiscal Relations Act (No. 97 1997) and Section 4(4c) of the Money Bills Amendment Procedure and Related Matters Act (No. 9 of 2009).

The Submission contributes to achieving the goals of the National Development Plan (NDP) by addressing intergovernmental fiscal relations (IGFR) challenges associated with public infrastructure management. Given the fiscal constraints that limit the overall *level* of public investment, the need to maximise *efficiency* through better economic growth and *management of investment spending* is a highly relevant policy topic and is addressed in this Submission. Long-term planning and financing challenges, and the lack of a long-term strategic vision have led to inadequate investment in skills, infrastructure and innovation. This has resulted in long-standing structural weaknesses in South Africa's economy. Despite these challenges, South Africa has many assets, including a resilient people, a world-class Constitution, a firmly established and functional IGFR system, and a NDP that sets the broad direction for infrastructure development aligned to the country's 2030 vision. The message of this Submission is that South Africa should build on these strengths and, at the same time, address the inadequate institutional structures that have deterred long-term investment. In this regard, the Submission provides guidance on changes related to infrastructure strategy, delivery and finance that will enable strong growth, employment and poverty reduction, and ensure the future prosperity for all South Africans.

The Commission would like to express its gratitude to all its stakeholders for the invaluable inputs provided during the preparation of the various technical reports that informed this Submission, the Minister of Finance and National Treasury for their support, the South African Local Government Association, the Chairpersons of the Finance and Appropriations Committees in the Provincial and National Legislatures, various technical advisers and the Staff of the Commission.

We, the undersigned, hereby submit the Financial and Fiscal Commission's recommendations for the 2016/17 Division of Revenue in accordance with the obligations placed upon us by the Constitution of the Republic of South Africa.

For and on behalf of the Commission



Mr Bongani Khumalo

Acting Chairperson/Chief Executive,

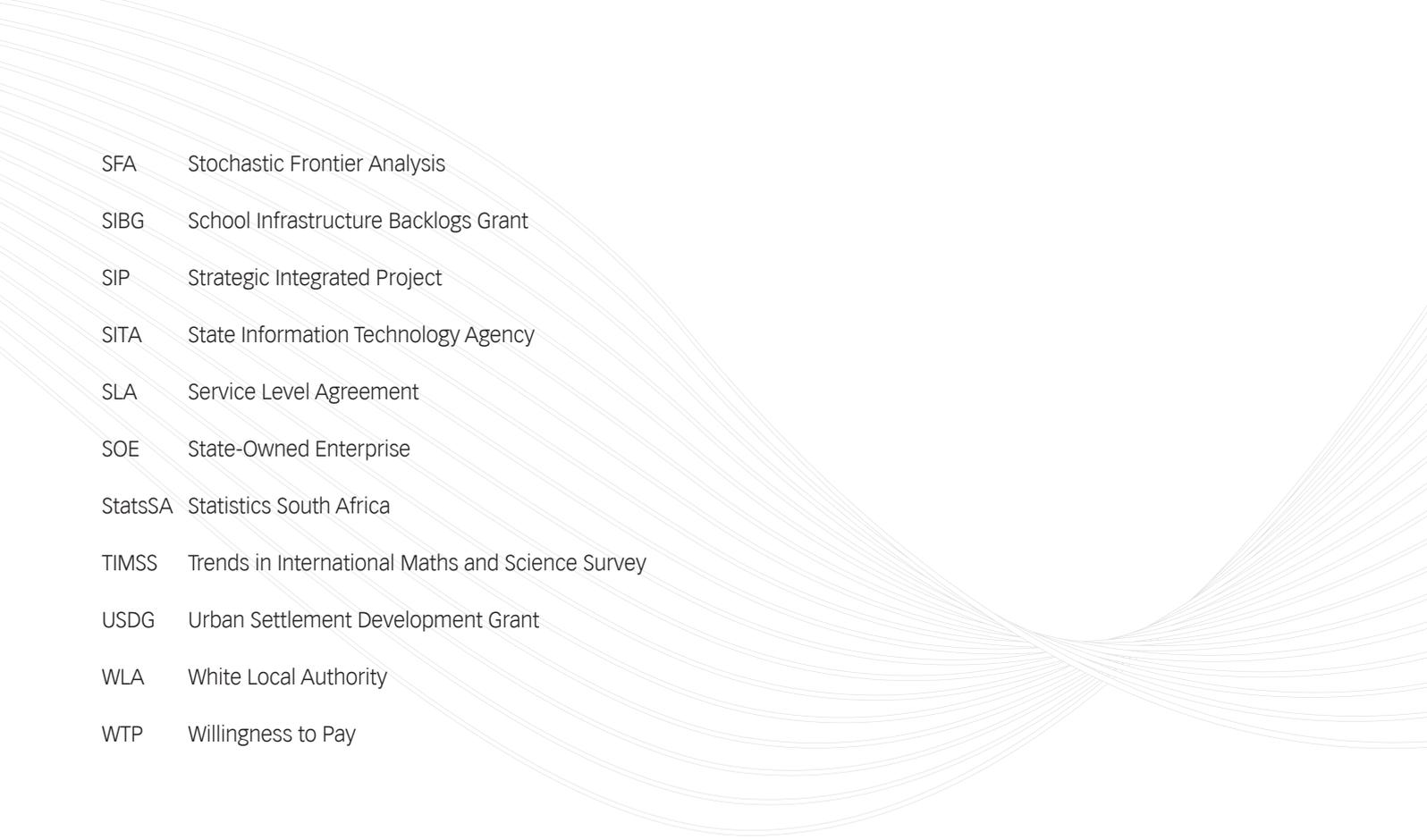
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29 May 2015

ACRONYMS

AsgiSA	Accelerated and Shared Growth Initiative for South Africa
BAU	Business As Usual
BLA	Black Local Authority
BMI-T	BMI-TechKnowledge
BNG	Breaking New Ground
CECD	Centre for Early Childhood Development
CFO	Chief Financial Officer
CGE	Computable General Equilibrium
DBE	Department of Basic Education
DBSA	Development Bank of Southern Africa
DEA	Data Envelope Analysis
DoC	Department of Communications
DPSA	Department of Public Service and Administration
DSD	Department of Social Development
DST	Department of Science and Technology
DTPS	Department of Telecommunications and Postal Services
ECD	Early Childhood Development
EIG	Education Infrastructure Grant
EPWP	Expanded Public Works Programme
FBS	Free Basic Services
FFC	Financial and Fiscal Commission
GDP	Gross Domestic Product
GEAR	Growth Employment and Redistribution
GFCF	Gross Fixed Capital Formation
HFRG	Health Facilities Revitalisation Grant
ICASA	Independent Communications Authority of South Africa
ICDG	Integrated Cities Development Grant
ICT	Information and Communication Technology
IDP	Integrated Development Plan
IGFR	Intergovernmental Fiscal Relations

IMF	International Monetary Fund
INEP	Integrated National Electrification Program
ISDN	Integrated Service Digital Network
KZN	KwaZulu-Natal
MEC	Member of the Executive Council
MIG	Municipal Infrastructure Grant
MPAC	Municipal Public Accounts Committee
MPC	Monetary Policy Committee
MTBPS	Medium Term Budget Policy Statement
MTEF	Medium Term Expenditure Framework
MTSF	Medium Term Strategic Framework
NDA	National Development Agency
NDP	National Development Plan
NGO	Non-Governmental Organisation
NGP	New Growth Path
NHG	National Health Grant
NHI	National Health Insurance
NPC	National Planning Commission
NPO	Non-profit Organisation
OCPO	Office of the Chief Procurement Officer
OECD	Organisation for Economic Cooperation and Development
PICC	Presidential Infrastructure Coordinating Commission
PPP	Public-Private Partnership
PSC	Public Service Commission
RDP	Reconstruction and Development Programme
RHIG	Rural Household Infrastructure Grant
SALGA	South African Local Government Association
SARB	South African Reserve Bank
SCM	Supply Chain Management



SFA	Stochastic Frontier Analysis
SIBG	School Infrastructure Backlogs Grant
SIP	Strategic Integrated Project
SITA	State Information Technology Agency
SLA	Service Level Agreement
SOE	State-Owned Enterprise
StatsSA	Statistics South Africa
TIMSS	Trends in International Maths and Science Survey
USDG	Urban Settlement Development Grant
WLA	White Local Authority
WTP	Willingness to Pay

EXECUTIVE SUMMARY



The idea that governments should invest in public infrastructure, to support production and trade (and thus growth and development), is well established. The argument for public investment rests on the belief that resources allocated to investment translate into an equivalent value of public capital stock, which benefits the private sector and affects overall growth by lowering the cost of production or distribution. In the post-war years (1950s and 1960s), the economic models underlying the five-year plans and industrialisation strategies relied heavily on high levels of public investment. However, South Africa has certain challenges that hinder the effective use of resources for development. South Africa faces shortages in economic and social infrastructure, and government is expected to be the main player in closing these deficits, through enabling public policy, and complemented by private investment and innovation. Investment – in (capital) equipment and in new (technological and managerial) ideas – is a crucial engine of growth. Investing in capital allows firms to incorporate new technologies and to reorganise production processes according to global best practice. Therefore, fostering a supportive environment for investment and innovation is central to having a dynamic and productive economy.

Today, unemployment, poverty and inequality are just as important concerns as they were in 1994. Government has adopted a strategy aimed at ensuring the benefits of growth are shared more evenly across the population. The National Development Plan (NDP) sets ambitious goals for economic progress and encapsulates the role of infrastructure in achieving a common 2030 vision for South Africa. The infrastructure drive is propelled by economic growth imperatives and broader social concerns (to eliminate poverty and reduce inequality by 2030). In line with the NDP, government seeks to kick-start economic growth through investing in public infrastructure, which is an important strategic responsibility shared across different spheres and sectors of government. This shared responsibility makes managing public infrastructure financing and implementation complex, and requires substantial and competent coordination. Subnational governments also need to be able to work collaboratively in designing and implementing investment projects.

The theme of last year's submission was "Balancing fiscal sustainability with socio-economic impact", which is what was needed to address the challenges of potential public debt unsustainability and high levels of poverty and inequality. At the same time, the economy has to grow fast enough to provide the necessary revenue for government's socio-economic programmes. The key is a robust economy able to respond more effectively to shocks and to continue pursuing the NDP goals. A robust economy requires two basic investments, in people (human capital) and in equipment and physical structures (infrastructure), as well as effectively and efficiently delivered public services, at a cost that South Africans can afford. The focus of this year's Submission is the intergovernmental fiscal relations (IGFR) challenges associated with public infrastructure.

The Submission's point of departure is that current infrastructure is both inadequate and inefficient to meet the NDP goals relating to economic growth, poverty, unemployment and inequality. Government's public investments display relatively high inefficiency because of a manifold of reasons, of which the main ones are:

- Limited short-term capital, resulting in inadequate and inefficient infrastructure, but the question is at what long-term cost.
- Large infrastructure projects often require productivity improvements, life cycle asset management, and complex procurement challenges, which can result in significant delays and cost escalation.
- Weak intergovernmental coordination processes, which may lead to delays in both project evaluation and project oversight and implementation.
- Allocating resources to a project is typically a multiyear commitment, which may pose particular challenges in a budget system with insufficient capacity to spend effectively and given a lack of institutional mechanisms to ensure accountability in infrastructure delivery.
- Projects may also be driven by productivity improvements and use of information and communication technologies (ICTs) that, if widely applied, may improve public infrastructure management but is not the case at this stage.

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⁶ For example it sets out to eliminate poverty and reduce unemployment, improve the quality of school education, deconstruct the spatial patterns of the apartheid system, reduce the level of inequality (as measured by the Gini coefficient) from 0.7 in 2007 to 0.6 in 2030, become a less resource-intensive economy, adopt sustainable development practices, etc.

Added to these challenges is that of corruption in public procurement and investment. As the global economy slowed down from 2007/8 to 2012/13, the spotlight again fell on public infrastructure, as an instrument to revive economic activity. South Africa moved towards an expansionary policy of fiscal stimulus, accompanied by the notion of infrastructure-led growth. South Africa already spends significant amounts of money on public investment, but there are problems of quality. Furthermore, despite substantial resources directed at infrastructure, the outcomes have often fallen short of expectations because of poor infrastructure planning and implementation, escalating costs, supply chain management fraud and inefficiency, and inadequate maintenance.

There is a pressing need to harness the power of public infrastructure, given its importance for national development and regional performance. With uncertain future economic prospects and tight fiscal conditions, public infrastructure must be better managed, to achieve the highest value for money and the greatest growth impact from spending public money. Improving the quality of investment governance can help, especially through coordinating investments and building capacity within subnational governments. Levels of public investment are limited by fiscal constraints, and so efficiency needs to be maximised, through better economic growth and investment spending.

This Submission contains analysis and case studies showing the high returns that can result when resources are transformed into assets that support growth and development in line with the NDP. The Submission is structured into three sections. Section I traces major economic and fiscal developments in the past 21 years that affect public infrastructure development, providing a context to the rest of the Submission. It summarises the main economic episodes, policy trends and performance and then goes on to highlight specific problems that continue to beset public infrastructure and are discussed in the rest of the Submission.

The rest of the Submission looks at how South Africa, especially through the IGFR system, can create better conditions for delivering public infrastructure, through designing grants and accountability systems and investing in human capital. Section II examines the grant design and accountability, in particular, South Africa's experiences with direct and indirect conditional grants, and local government's experiences of accountability for public infrastructure delivery. Section III focuses on early childhood development, secondary education productivity and ICT. The Submission contains seven chapters that cover:

- Responding to South Africa Infrastructure Challenges
- Economic Growth Effects of Municipal Capital Spending
- A Review of Direct and Indirect Conditional Grants – The Case of Selected Conditional Grants
- Accountability in Infrastructure Delivery in South Africa: The Case of the Local Government Sphere
- Fiscal Arrangements for Financing Early Childhood Development Infrastructure
- Public Sector Productivity – The Case of Secondary Education.
- Improving Government Operations through Use of Information and Communication Technologies

The Recommendations

Below is the list of the recommendations of the Commission for the 2016/17 Division of Revenue.

With respect to creating conditions for the future prosperity of all South Africans from infrastructure-led growth, the Commission recommends that Government:

1. Develops the National Infrastructure Plan's funding strategy, so that the plan is fully funded to ensure projects are delivered on time and in accordance with the plan. In particular each sector (water, sanitation, electricity, waste management and roads) should ensure that additional funds over and above conditional infrastructure grants are raised to cover additional costs of all existing and future infrastructure plans in the sector. This has to be done in a sustainable and affordable way, and ensure that such expenditures required for the future operations and maintenance of these assets are catered for and any tradeoffs are understood.
2. Redesigns capital conditional grants by (a) allowing for payment of infrastructure upstream costs of provinces and municipalities (e.g. a special fund for feasibility and pre-procurement studies), (b) making capital grants pledgeable where an authority has adopted a well-founded and approved long-term capital strategy and (c) extending the existing incentive/support for long-term capital planning by provinces and municipalities
3. Raises public debt, aggressively using the available borrowing space, to help finance deserving and rigorously appraised infrastructure plans (e.g. based on performance and governance profiles). Municipalities should seek to expand debt financing of capital expenditures, with due regard for prudential benchmarks and ratios to ensure sustainability. The increase in debt levels should not trigger a review of the country's credit rating; well-planned and executed infrastructure ultimately pays its way through higher economic growth, and hence the country need not suffer a credit rating downgrade related to such funding mechanisms.
4. Improves acceptability of the user charge principle for higher levels of infrastructure services by (a) using equitable sharing (conditional and unconditional grants) arrangements to demonstrate better efforts being made to balance consumer's affordability to pay for increased service charges (i.e. water, electricity, transport etc.), (b) undertaking transparent and robust willingness to pay (WTP), (c) making available better data on WTP and affordability, and (d) developing costing models for various services and impacts to demonstrate how such charges could/should be calculated (also determines appropriate level of service).
5. Ensures infrastructure procurement planning, contract award and management work in tandem at the highest strategic level with other elements of infrastructure management to raise efficiency. This can be done through ensuring that all conditional capital grants (e.g. for water, sanitation, electricity, waste management, roads, schools, hospitals and clinics) should not just give money, but make sure through putting in relevant grant conditions that from a human resources perspective all the critical skills in complex procurement, engineering, artisanal and life cycle asset management are there or a plan to source them is in place.

With respect to improving the economic growth effects of municipal capital expenditures, the Commission recommends that:

1. Grant allocations for infrastructure investment reflect the prioritisation (or weighting) of growth-enhancing infrastructure programmes, to enable municipalities to play their (envisaged critical) role in promoting economic development and growth.
2. Government establishes either an incentive grant or a reserve fund, which can be used to assist or reward municipalities. Funds would be for maintaining and renewing infrastructure, to ensure the long-term sustainability of critical socio-economic infrastructure and enhance local economic growth.
3. Government establishes a transitional capacity-building grant to fund technical assistance for building necessary capacity that will enable municipalities to prepare and implement credible infrastructure asset management plans.

With respect to managing direct and indirect conditional grants, the Commission recommends that:

1. National Treasury and line departments consider the use of indirect grants as a measure of last resort while continuing to build capacity in provinces and municipalities.
2. Clear criteria are developed to guide the scheduling and rescheduling of conditional grants, taking into account:
 - a. Historical financial performance
 - b. Non-financial performance
 - c. Time period before converting a direct grant to an indirect grant. The responsible government sphere should be given sufficient time (at least three years) to administer and implement a direct grant before considering conversion to an indirect grant. Such conversion must be implemented through a differentiated approach
3. Comprehensive capacity-building plans are developed, with clearly determined targets and time-frames, in cases where indirect grants are considered as a result of poor capacity within a province or municipality.

With respect to improving accountability on local government infrastructure delivery, the Commission recommends that:

1. National Treasury and the Department of Cooperative Governance develop a framework to guide accountability for indirect infrastructure grants. The framework should identify accountability lines, mechanisms, and enforcement, and spell out the consequences for undermining the accountability arrangements.
2. Accountability structures and infrastructure within the local government are strengthened, and incentives are provided within the existing transfer streams for research and technical support. Committees should be provided with adequate technical and research support, and sufficient resources to engage with and account to the communities. Smaller and adjacent municipalities should endeavour to pull together such support to aid the work of accountability committees.
3. That social accountability is institutionalised (established as a convention or norm in the local government sector) and an accountability framework is developed by SALGA, to guide communities on how to hold local governments accountable. This framework should also contain indicators for rating municipality performance on social accountability in general and infrastructure development in particular.

With respect to fiscal arrangements for financing ECD the Commission recommends that:

1. Government provides a full or partial capital subsidy for constructing and/or upgrading community- and NPO-based ECD facilities, through the municipal infrastructure conditional grant. The funding will facilitate compliance with the required infrastructure norms and standards, ensure that capital expenditure for ECD is carried out through municipalities and minimise inequities in quality standards and service levels.
2. The Department of Social Development introduces a temporary funding programme from within its allocated budget through which self-identified private ECD facilities in poor areas can apply for capital subsidy assistance, on condition that they agree to meet pre-specified deliverables such as enrolment targets, operational sustainability, educational activities and financial accountability.
3. The national and provincial departments of social development develop an ECD infrastructure sector plan, indicating areas that requires urgent intervention, to inform the allocations and investment in ECD infrastructure by the different government spheres and departments.

4. The provincial departments of social development lobby for the ECD infrastructure plan to be incorporated in municipal IDPs.
5. Government makes available technical intermediary services to ECD facilities that are able to build or upgrade facilities on their own.

With respect to measures to improve public sector productivity, the Commission recommends that:

1. A framework on measuring public productivity is developed as a first step to benchmark improvements in the public sector over time. Officials should be trained on the concept of public productivity, and productivity measures should be piloted in certain cluster organisations before rolling them out en masse.
2. The Division of Revenue Act implements the finalised framework on measuring productivity. This may require the implementing agent of a conditional grant to report on the attainment of both quantitative and qualitative indicators of an output, including productivity indicators that track improvements of the service over time.
3. Socio-economic programmes of government which improve living standards and income for households are continued, especially those that lead to improved educational outcomes. Such programmes include the school nutrition programme, no-fee school policy, scholar transport, social security grants and public employment programmes. Research shows higher human capital results in improved labour productivity.
4. Government investigates funding and non-funding mechanisms to improve productivity in public ordinary schools. Such mechanisms should involve enhancing governance and accountability in schools through the appropriate appointment of school principals and enforcing norms and standards that principals must adhere to. Teachers should be supported through training, and the performance management system for teachers should be linked to overall school outcomes. e-Education should be explored as a learning platform to provide both teachers and learners with access to new knowledge.

With respect to improving government operations through the use of ICT, the Commission recommends that:

1. The policy and regulatory framework underpinning the ICT sector is simplified, and roles and responsibilities are clearly delineated, particularly for the roll-out of broadband and eGovernment.
2. The department responsible for devising and finalising the eGovernment policy is identified. Finalisation of the policy along with a fully costed implementation plan should be expedited if the NDP goals around eGovernment are to be met within the required time-frame.
3. A fully costed implementation plan is published and made publicly available, to ensure that the NDP goals for rolling out broadband are attained and that sufficient funding is prioritised.
4. eGovernment services are made more attractive to citizens, by offering a wide range of services and ease of access.

PART I

Macro-Micro and Fiscal Aspects of Public Investment Management

Long-term planning and financing challenges, and the lack of a long-term strategic vision have resulted in inadequate investment in skills, infrastructure and innovation. This has led to long-standing structural weaknesses in South Africa's economy, affecting growth. In line with the National Development Plan (NDP), government seeks to kick-start economic growth through investing in public infrastructure, which is an important strategic responsibility, shared across different spheres and sectors of government. This shared responsibility makes managing public infrastructure financing and implementation complex, requiring substantial and competent coordination. Subnational governments also need to be able to work collaboratively in designing and implementing investment projects. There is a pressing need to get the administration and delivery of public infrastructure right because of the importance of public infrastructure for national development and regional performance.

Part I sets the context for the rest of the Submission, looking at the conditions necessary for successful public infrastructure investment, and its potential impacts on economic growth and employment. This understanding is particularly important in a country like South Africa where infrastructure investments are at the forefront of the development agenda. Given the fiscal constraints that limit the overall *level* of public investment, the need to maximise *efficiency* through better economic growth and *management of investment spending* is highly relevant and is addressed in this section. The focus is not only on the macro level but also on municipal infrastructure, in the transport, energy and housing sectors, where problems are relatively well-understood and the potential damage to growth is likely to be more severe. This section contains two chapters.

Chapter 1 outlines and addresses intergovernmental fiscal relations (IGFR) problems associated with public infrastructure management, setting the scene for the rest of the Submission. After summarising the main policy trends and performance of the South African economy over the past 21 years, the five aspects relating to public infrastructure are examined: the type of infrastructure (economic and/or social infrastructure); ways of funding the infrastructure and the impact on growth and jobs; the spheres responsible for the various types of infrastructure, especially the role of subnational governments; reasons for infrastructure investment not delivering economic growth and jobs, given the present configuration; and the conditions required for success. It highlights the specific (economic, institutional and financing) problems that continue to beset public infrastructure and are discussed in the rest of the Submission. The final section of the chapter gives recommendations that set the context underlying the more detailed recommendations in the rest of this Submission.

Chapter 2 is about the impact of public capital spending on economic growth, taking into account the strong interdependence of national, provincial and local government and differences across municipalities. It examines the impact on labour productivity of private and public capital spending on socio-economic infrastructure (such as roads, electricity, and water and sanitation). The results provide fairly strong evidence that public capital has a significant negative effect, whereas private sector activities have a strongly positive effect on labour productivity. This suggests that infrastructure investments by local government are subject to diminishing marginal returns, indicating inefficiencies in the use and allocation of resources. Under South Africa's current economic policy of increasing public capital expenditure, municipal responsibilities for infrastructure investment are set to rise. Therefore, more attention needs to be paid to innovative ways of enhancing local capacity to properly plan for, allocate finance and implement key capital projects.

CHAPTER 1

Responding to South Africa's Infrastructural Challenges

1.1 Introduction

South Africa's fiscal choices since 1994 have contributed to positive gross domestic product (GDP) growth rates, improved welfare and standards of living, and access to bulk economic infrastructure by a majority of the population. The country has made remarkable progress in reducing poverty and inequality but still faces tremendous shortfalls in economic and social infrastructure. In response, the government has adopted a raft of measures. The main pillars of government economic policy, the New Growth Path (NGP), the Industrial Policy Action Plan and the National Development Plan (NDP) are anchored in a significant ramping up of current capital expenditure by the state. In the 2014 Budget, government allocated a total of R847-billion to public infrastructure investment, in particular the transport and electricity sectors. This was revised downwards by R34.2-billion, to R813.1-billion, in the 2015 Budget because of lower-than-anticipated economic growth and the need to contain expenditure.

Infrastructure development is central to the NDP, and so high levels of investment in infrastructure will continue into the foreseeable future. In 2012, the Presidential Infrastructure Coordinating Commission (PICC)² developed South Africa's first National Infrastructure Plan, which identifies 18 strategic integrated projects (SIPs). The SIPs are clusters of infrastructure projects considered as key for promoting economic growth and supporting service delivery to the poor. They cover seven broad types of infrastructure: geographic, spatial, energy, social infrastructure, knowledge, regional integration, and water and sanitation (Table 1).

Table 1. Strategic integrated projects driving the National Infrastructure Plan

Type of Infrastructure	Focus Areas of SIPs
Geographic	Unlocking the northern mineral belt, with Waterberg as the catalyst
	Durban–Free State–Gauteng logistics and industrial corridor
	South-eastern node and corridor development
	Unlocking economic opportunities in the North West province
	Saldanha–Northern Cape development corridor
Spatial	Integrated municipal infrastructure project
	Integrated urban space and public transport programme
	Agri-logistics and rural infrastructure
Energy	Green energy in support of SA economy
	Electricity generation to support socio-economic development
	Electricity transmission and distribution for all
Social infrastructure	Revitalisation of public hospitals and other public health facilities
	National school-build programme
	Higher education infrastructure
Knowledge	Expanding access to communication technology
	Square Kilometer Array and Meerkat projects
Regional integration	Regional integration for African cooperation and development
Water and sanitation	Water and sanitation infrastructure

Source: PICC (2014)

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² The PICC was created with the aim of improving the planning, coordination and monitoring of core infrastructure development in South Africa.

Much is riding on state infrastructure spending being the solution to reducing poverty, inequality and unemployment and generating economic growth.³ The SIPs are expected to contribute significantly to meeting the job-creation targets of five million jobs by 2020 (NGP) and 11 million jobs by 2030 (NDP).

The extensive infrastructure programme is aimed at rectifying inadequate and inefficient infrastructure, and improving and increasing the country's infrastructure network. This infrastructure drive is propelled by economic growth imperatives and broader social concerns (to eliminate poverty and reduce inequality by 2030). In other words, the country faces a triple infrastructure challenge:

- to provide infrastructure that stimulates economic growth and job creation
- to maintain existing infrastructure
- to provide infrastructure and services to the poor in order to eradicate poverty.

The idea of government investing in public infrastructure, to support production and trade, and thus growth and development, is well established. The argument for public investment rests on the belief that resources allocated to investment translate into an equivalent value of public capital stock that, by lowering the cost of production or distribution, benefits the private sector and affects overall growth. In the post-war years (1950s and 1960s), the economic models underlying the five-year plans and industrialisation strategies relied heavily on high levels of public investment. However, South Africa has certain challenges that hinder the effective use of the resources for development. Given these weaknesses and the importance of public infrastructure for national development and regional performance, there is a pressing need to get public infrastructure right.

This chapter outlines and addresses intergovernmental fiscal relations (IGFR) problems associated with public infrastructure management. It begins with a summary of the main policy trends and performance of the South African economy over the past 21 years. It then highlights the specific (economic, institutional and financing) problems related to public infrastructure, as discussed in the rest of the Submission. The aspects examined include: the type of infrastructure (economic and/or social infrastructure); ways of funding the infrastructure and the impact on growth and jobs; the spheres responsible for the various types of infrastructure, especially the role of subnational governments; reasons for infrastructure investment (by type) not delivering economic growth and jobs, given the present configuration; and the conditions required for success. The final section gives recommendations that set the context underlying the more detailed recommendations in the rest of this Submission.

1.2 Economic and Fiscal Outlook Trends

In 1994, government inherited infrastructure that was generally in poor shape. "South African cities were characterised by dire housing and service backlogs, inequalities in municipal expenditure, the spatial anomalies associated with the 'apartheid city, profound struggles against apartheid local government structures, high unemployment and many poverty-stricken households" (Pillay et al., 2006: 2). Post-1994, concerted efforts were made to correct the infrastructure imbalances and to increase access to social and household infrastructure, through providing housing, schooling, health care, and electricity and water connections. Government's strategies and plans have included the Reconstruction and Development Programme (RDP) in 1994, the Growth, Employment and Redistribution (GEAR) programme in 1996, the Accelerated and Shared Growth Initiative (AsgiSA) framework in 2006, the NGP in 2010 and the NDP in 2012. Key policies are contained within the Urban Development Strategy (which was subsequently published as the Urban Development Framework in 1997), the Rural Development Framework, the Green Paper on Development and Planning (1999), the Development Facilitation Act (1995), municipal integrated development plans (IDPs) and the Breaking New Ground (BNG) housing policy in 2004. These policies affect land availability and use, public infrastructure, housing markets and transport systems. In the 2015 State of the Nation address, the President did not deviate substantially from these policy directions, with much focus on improving electricity and energy security.

1.2.1 Economic growth

Between 1990 and 1992, South Africa's economy experienced negative growth because of a combination of domestic protests and industrial action, and international sanctions and slow export demand from major trading partners. As the country moved towards the negotiated and internationally accepted demo-

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³ In its drive to raise employment levels, the South African government has put in place a number of other policies/programmes such as the Expanded Public Works Programme and the Community Works Programme that also affect location and investment.

cratic elections of 1994, the economy began to improve, growing by a modest 1.2% in 1993, followed by four years of 3–4% growth. In 1998, the economy grew by only 0.5% because of the international Asian crisis and high domestic interest rates introduced to combat exchange rate speculation. However, thereafter (until the 2008 international financial crisis) the economy achieved robust growth rates: from 2004 to 2007 growth rates were above 4.5%, reaching 5.6% in 2006 and 2007. Growth began falling in 2008, but the domestic economy only felt the full effects of the international crisis in 2009, when the growth rate was negative (-1.5%). Although South Africa's financial institutions remained stable and robust during the financial crisis, its economy was severely affected by the fall-off in exports that resulted from the recessionary conditions in the major developed economies supplied by South Africa. In 2010 and 2011, the economy recovered slightly, growing at just above 3%, but export demand from developed countries remained slow.

Since 2011, as poor growth continues in developed economies and somewhat slower growth in large developing economies, South Africa's economy has struggled to achieve growth rates much above 2%. The economy grew by 2.5% in 2012 but slowed to 2.2% in 2013 and 1.5% in 2014. Since January 2015, the International Monetary Fund (IMF) has revised downwards its forecast of South Africa's growth rate for 2015 (from 2.1% to 2%) and 2016 (from 2.5% to 2.1%). In its Monetary Policy Committee (MPC) statement in March 2015, the South African Reserve Bank (SARB) revised its forecast growth rate for 2016 from 2.4% to 2.3%. The forecast lower growth is driven largely by domestic factors, which have begun to outweigh global economic trends in influencing economic growth. At least three key drivers explain the stunted short-term growth.

1. The sharp fall in commodity prices, which has reduced growth expectations for the entire sub-Saharan economy. The sub-Saharan economy is forecast to grow by 5.1% in 2016, slightly down from the 5.2% forecast in January 2015, but substantially down on the 5.8% growth forecast a year ago.
2. Increased industrial unrest over the past three years and electricity outages, which threaten to intensify rather than reduce, have dealt a blow to business confidence.
3. A general increase in social instability, manifesting in increased service delivery protests and xenophobic violence especially in 2008 and 2015.

These factors have negatively affected investor sentiment and desire to commit to capital formation.

Seven years after the 2008 global economic and financial crisis, which led to prolonged and previously unforeseen fiscal deterioration and left South Africa with serious challenges, the economy remains vulnerable to slow global recovery and, increasingly, to domestic factors. The most volatile contributions to real GDP growth have come from the mining and quarrying, and the manufacturing sectors, which are the sectors that historically have been most affected by strikes. These manufacturing sectors are important contributors to exports but have been shrinking continuously. Therefore, government needs to monitor closely developments in these sectors, particularly over the medium term.

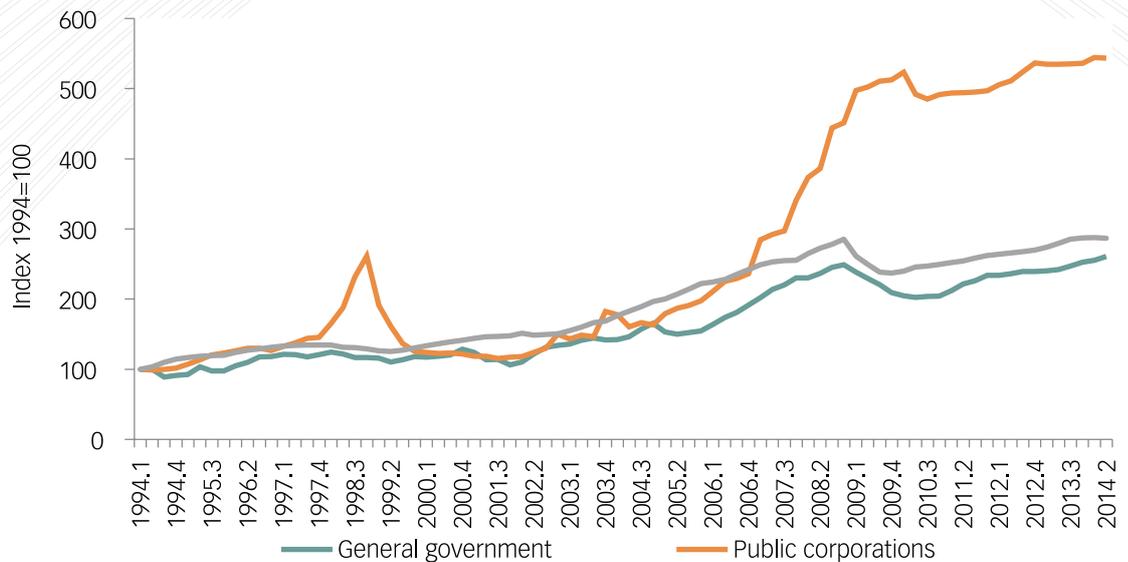
1.2.2 Investment and economic growth

Despite being typically only one-fifth to one-tenth of total spending, investments have a large multiplier effect⁴ and so have a key role to play in the economy. Long-term growth is related to the size of the capital stock, which is simply cumulated investment. Investment spending is the conduit through which interest rates, and therefore monetary policy, affect the economy. A measure of investment is the amount of gross fixed capital formation (GFCF).⁵ Between 1994 and 2014, annual GFCF more than doubled in real terms (Figure 1). Prior to 1994, investment in infrastructure was generally very low (having peaked 1976). During the era of GEAR (1996–2002), public infrastructure investment fell from 8.1% to 2.6% of GDP, as the emphasis was more on fiscal discipline than increasing expenditure. With the AsgiSA plan in 2002, the drive for infrastructure was couched explicitly in policy. Since then, GFCF has increased, even when GDP growth stagnated. Although private enterprise GFCF is highest in value, government GFCF has had the highest growth rates, especially public utility corporations (Figure 1). This surge in GFCF was driven by investments made by state-owned enterprises (SOEs) such as Eskom (for new power generation capacity) and Transnet (for upgrading and expanding rail, port facilities and pipeline infrastructure).

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⁴ The multiplier effect describes how an injection into an economy, such as an increase in investment, creates a ripple effect that increases output etc. in an economy.

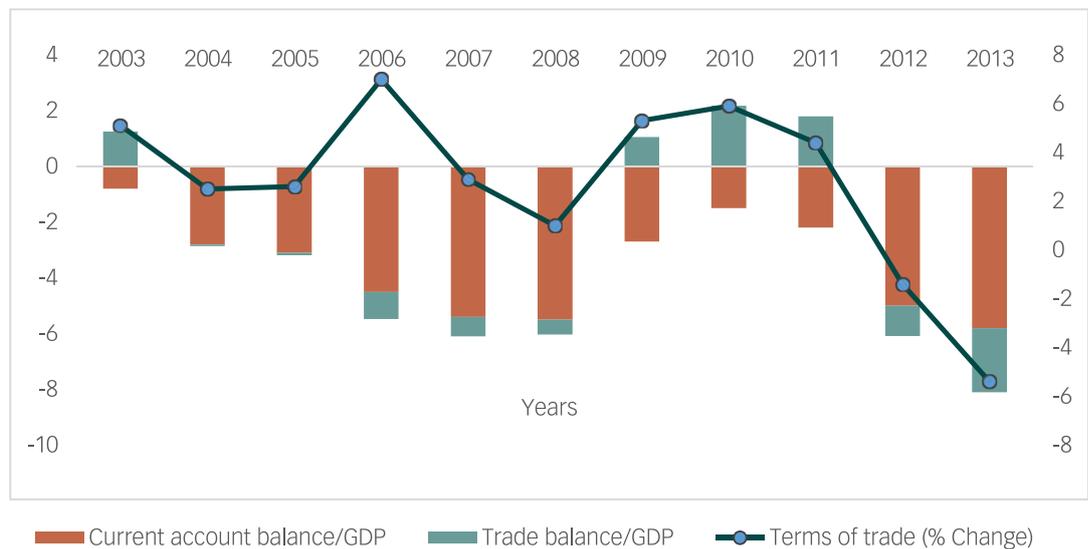
⁵ GFCF includes infrastructure investments, e.g. the construction of roads, railways, schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings.

Figure 1: GFCF by type of organisation (constant 2005 prices)

Note: the rates are seasonally adjusted, indexed 1994=100

Source: Author's computations based on SARB (various years)

The country's weaker terms of trade⁶ have contributed to a wider trade deficit, which has increased the current account deficit.

Figure 2: Terms of trade, current account and trade balance as a share of GDP

Source: Author computations based on SARB (2014)

South Africa is trapped in a cycle of modest growth, high inequality and record unemployment. The official unemployment rate fell from 26% in 2001 to 21% in 2007 and peaked at 25.3% in September 2010. Since the global financial crisis, the number of employed people has remained relatively flat, with a post-crisis peak of 314 000 additional people employed in the third quarter of 2013 (Figure 3). Various supply and demand factors explain the low number of people employed. Inadequacies in education, training, productivity and skill mismatches have been of crucial importance on the labour supply-side. On the demand-side, sluggish

⁶ Ratio of export prices to import prices. Weak terms of trade refers to when a country's terms of trade is less than 100%, i.e. more capital is going out (to buy imports) than is coming in. A result greater than 100% means the country is accumulating capital, i.e. more money coming in (<http://www.investopedia.com/terms/t/terms-of-trade.asp#ixzz3Zj7f1MsO>).

economic growth and labour market regulations have meant inadequate growth that is unable to absorb the growing labour supply. An exceptionally high unemployment rate, and widening differences in labour income and wealth, has resulted in one of the most unequal societies in the world. South Africa's employment rate is very low by international standards, while the poverty rate is relatively high compared to other emerging market economies.⁷

Figure 3: Change in employment (2009–2014)



Source: Author computations based on SARB (2014)

A constrained electricity supply is increasingly slowing down growth and employment creation. Electricity shortages began in South Africa in 2007, as a result of a combination of under-investment in new generating capacity and temporary supply disruptions. The electricity system is constrained because the margin between peak demand and available electricity supply has been precariously narrow for the past few years. Emergencies in electricity supply shortages were initially declared in 2008 and again in early 2014. The most recent electricity shock highlights the need to maintain existing infrastructure and invest in new generation capacity. Without this new capacity, the expansion of investment, particularly in energy-intensive activities such as mining and manufacturing, will be severely compromised. Export revenues will be most affected, as the electricity-intensive sectors of mining and manufacturing account for 85% of total exports.

1.2.3 Fiscal management

Since the advent of democracy, government has done an outstanding job in prudent fiscal management. Deficit levels in 1992 and 1993 were increasing and unsustainable, with the deficit-to-GDP ratio reaching almost 7% in 1993. After 1995, following the initial spending programmes of the newly elected government, deficit levels were close to 5%. From 1997 to 2000, the deficit level reduced steadily under the stringency of the GEAR framework and the fiscally disciplined approach of the finance minister. Up until 2008, deficits continued to be modest, with slight surpluses in 2001, 2006 and 2007, thanks to high economic growth rates and improved tax-collection efficiency. A marginal deficit occurred in 2008, as international growth worsened, and increased in 2009, as the international economic crisis affected growth and employment rates.

Unlike most developing countries, thanks to prudent fiscal and monetary management during periods of growth, South Africa was able to take a countercyclical stance during the crisis. The massive expenditure programmes earmarked for World Cup 2010 infrastructure provided further stimulus. As a result, sub-national governments were broadly shielded from the crisis and did not have to reduce public spending. Thus, on the surface, the government spheres did not appear to carry a severe 'burden of austerity'. However, the countercyclical stance led to rising budget deficits: the public debt-to-GDP ratio increased from 23% in 2008 to over 40% in 2013. For clues about the direction public debt is likely to take, macro-economists often compare the growth in the budget deficit and size of the economy (GDP growth). South

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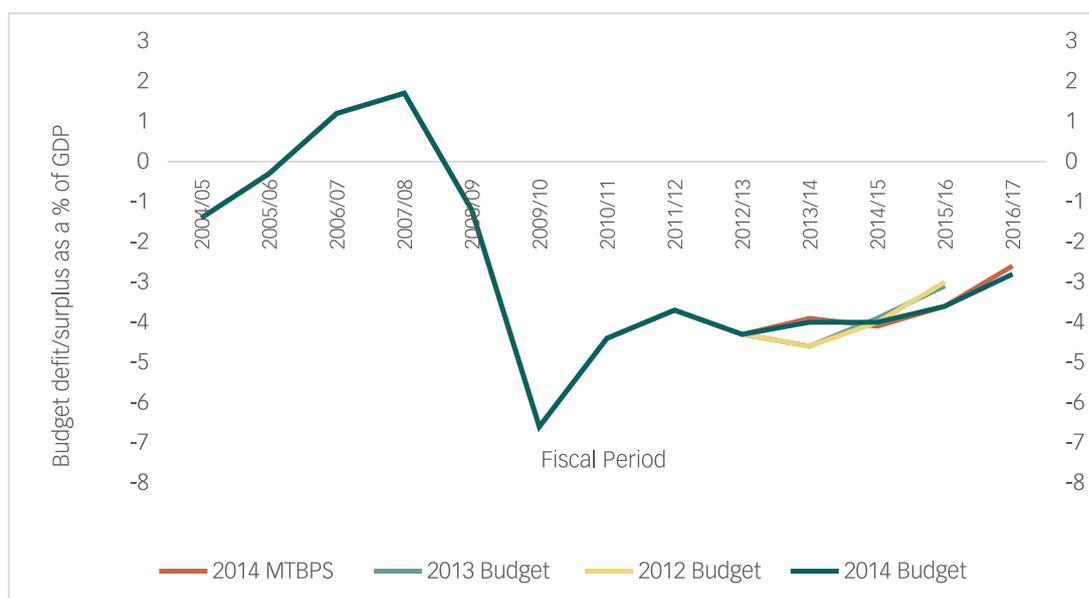
⁷ The percentage of the population that is poor in South Africa is 45,5% translating to 23 million people living below the upper-bound poverty line.

⁸ This is when government's policies work against the economic cycles, i.e. when the economy is in an upswing, government policies are aimed at cooling down the economy; when the economy is in a downturn, government policies are aimed at stimulating the economy. In the case of South Africa, fiscal reserves built up during periods of growth meant the government had money to spend in order to stimulate the economy.

Africa's forecast economic growth for the Medium Term Expenditure Framework (MTEF) period is smaller than that of the budget deficit, which implies that projected public debt will rise faster than previously anticipated. The public debt is now projected to reach 45.4% of GDP by 2016/17, not 44.3% as announced in the 2014 Budget.

The forecasts for the next three years show a downward GDP trend, which implies reductions in forecast growth of government revenue and concomitant increases in the budget deficit. However, the 2015 Budget shows that, to its credit, Government has not deviated far from the planned deficit reduction announced in the 2014 Medium Term Budget Policy Statement (MTBPS), despite the worsened economic environment. Despite South Africa's weak growth, the plan to put the country's public finances on a consolidation path is maintained (Figure 4).

Figure 4: Consolidated fiscal deficit as percent of GDP



Source: Author's computations based on SARB (2014)

In the interest of budgetary stability, the Commission believes that South Africa should continue with the fiscal consolidation.⁹ Relentless negative domestic factors bring substantial uncertainties and downside risks to the economy. This further indicates the need to rebuild the fiscal buffers that helped to moderate the effects of the 2008/09 recession and gave government the necessary fiscal space to act in a countercyclical manner. As noted in the Commission's past recommendations, successful fiscal consolidation requires deciding which components of the budget will be affected and the pace of fiscal consolidation. In this regard, the Commission welcomes the proposed expenditure reprioritisation that cushions the poor and supports government efforts aimed at achieving maximum impact and quality of expenditure. A credible commitment to fiscal consolidation (within the framework of fiscal guidelines) is also needed, as a demonstration of government's ability to control spending pressures, thereby easing the frequency of sovereign debt downgrades. The Commission welcomes government's strong intent, re-emphasised in the 2014 MTBPS, to combat waste, inefficiency and corruption, and notes special provisions to deal with these issues. These provisions should be enforced where applicable.

1.3 Infrastructure Definition, Classification and Trends

While the term infrastructure is widely used, especially in policy circles, surprisingly no standard, universal-ly accepted definition of infrastructure exists, although numerous indicators for infrastructure do. Without a clear-cut definition of infrastructure, the process of making meaningful comparisons is complicated and does not assist effective policy formulation. The diversity within the three spheres of governments and public entities adds further complications.

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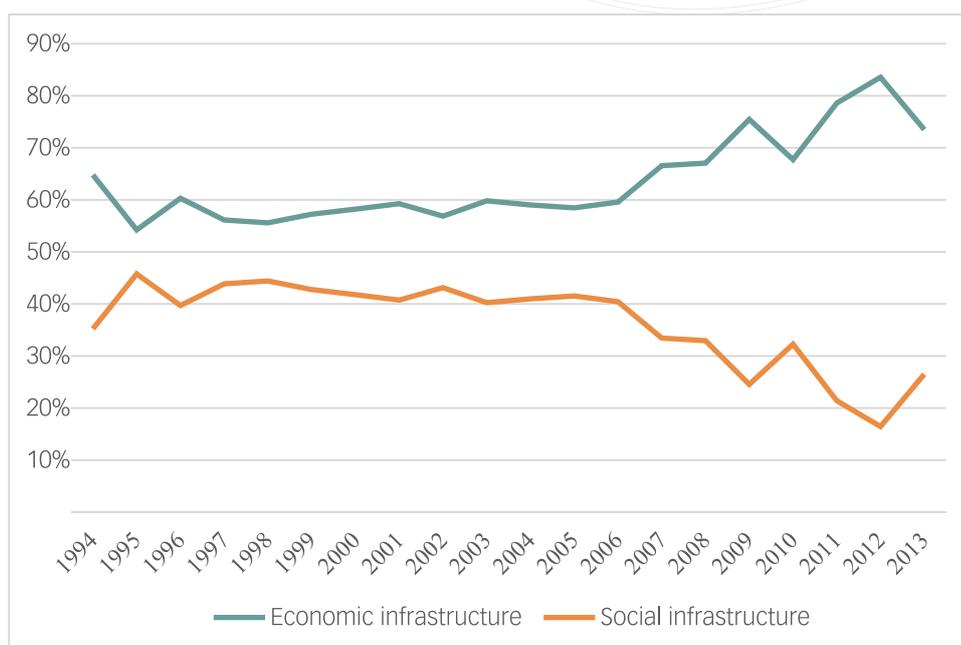
⁹ Fiscal consolidation refers to the use of tax increases and/or government spending cuts to reduce government deficits and lower government borrowing.

Definitions and/or classifications are made for particular purposes in mind. The infrastructure classification implied in the literature shows a useful distinction between economic and social infrastructure. For the purpose of this Submission, infrastructure is used as a heterogeneous term, including physical structures of various types used by many industries as inputs to the production of goods and services. This description encompasses social infrastructure (such as schools and hospitals) and economic infrastructure (such as network utilities). Network utilities include energy, water, transport, and digital communications, which are essential ingredients for the success of the NDP and, indeed, a modern economy.

The SARB publishes official infrastructure figures, specifically the economic infrastructure component of GFCF for general government and public corporations¹⁰. StatsSA publishes the national accounts data and, until the late 1980s and 1990s, published data relating to infrastructure (e.g. rail, roads, ports, air travel, and telephones). In the South African national accounts, public economic infrastructure includes transport, communication, power, water and sanitation systems, while social infrastructure includes schools and hospitals.

As Figure 5 shows, between 2010 and 2013, economic infrastructure as a percentage of GFCF increased from 68% to 73%, while social infrastructure declined from 32% to 27%. The increased economic infrastructure took place in tandem with targeted growth in public infrastructure investment. However, the decline in social infrastructure's share of GFCF highlights the need for more social infrastructure investment, to address the above-mentioned developmental challenges.

Figure 5: GFCF by type of infrastructure



Source: Author's calculations based on SARB (2014)

Table 1 illustrates the real growth rates in infrastructure allocations by sector. Of the total R813-billion allocated to public infrastructure over the next three years (2015/16–2017/18), 77% is for the transport (R339-billion), energy (R166-billion) and water and sanitation (R117-billion) sectors. The upgrading of courts, police stations and correctional facilities is driving growth in the justice and protection services sector, while plans to modernise the electronic document management system used by the Department of Home Affairs explains much of the growth in the central government, administration services and financial services sector.

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¹⁰ Examples of public corporations are Transnet (transport services such as rail and air), Eskom (electricity), and (until its listing in March 2003) Telkom (telephone services). These have been reclassified, from general government to public corporations.

Table 2. Real growth in allocations to public infrastructure investment by sector

	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
R billion	Outcome			Estimates		
Energy	75.1	69.5	69.2	71.1	56	39.2
Water and sanitation	22.6	26.2	34.8	37.3	39.8	40.3
Transport and logistics	69.5	76.4	93.7	104.3	113.5	121.4
Other economic services	8.9	11.8	17.5	15.4	15.5	14.7
Health	9.7	10.6	9.7	9.3	9.9	10.3
Education	9.8	12.3	13.5	14.5	14.5	14.8
Other social services	10.7	10.3	11.5	10.6	11.3	11.6
Justice and protection services	4.4	4	3.9	4.5	5.2	5.5
Central government, administration services and financial services	6.9	5.8	8.6	6.9	7.7	8.2
Total	217.7	226.9	262.4	274	273.3	265.8
Real year-on-year growth						
Energy		-10.40%	-3.80%	-0.50%	-23.50%	-31.90%
Water and sanitation		12.30%	28.10%	3.80%	3.70%	-1.60%
Transport and logistics		6.40%	18.50%	7.90%	5.70%	4.00%
Other economic services		27.60%	43.80%	-14.80%	-2.50%	-7.40%
Health		5.80%	-11.70%	-6.90%	2.80%	1.20%
Education		21.00%	6.00%	4.20%	-2.90%	-0.80%
Other social services		-6.90%	7.60%	-10.80%	3.30%	0.60%
Justice and protection services		40.80%	-6.50%	13.20%	11.00%	2.20%
Central government, administration services and financial services		-14.70%	43.10%	-22.00%	8.50%	3.60%
Total		0.90%	11.70%	1.20%	-3.10%	-5.30%

Source: Author's calculations based on National Treasury (2014)

A concern is that Statistics South Africa has stopped publishing certain data on infrastructure, while a number of implications have relevance for policy.

- Based on continued delays in key projects such as Medupi and Kusile, the Commission would advise caution over optimistic forecasts. To be reliable and realistic, budgets need to adequately factor in past performance when determining future projections.
- Given budget constraints and the need for infrastructure investments to provide value for money and efficiency, maintaining statistics on infrastructure utilisation is important. This can be done by creating an index of physical infrastructure capital stock, for example:
 - o Classroom or school building per capita, to gauge the need for additional buildings.
 - o Capacity use of railroad and road infrastructure, computed as different measures of rail infrastructure¹¹ per ton of freight and road infrastructure (both paved and unpaved) per vehicle.

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¹¹ Rail infrastructure measures include railway lines, locomotives and coaching stock.

1.4 Implications of Infrastructure Financing on Growth and Jobs

An important topic is the links between public infrastructure financing, growth and employment across the country and regions. Modelling the impact of scenarios on investment rates, growth and employment addresses the issue of how to finance the required infrastructure scale-up.¹²

The simulated investment programme is split into three components (i) investment in government sectors (e.g. education, justice etc.) that increase the capital stock of public sectors, (ii) investment in infrastructure (e.g. roads, harbours, airports) that does not increase the capital stock of any sectors in particular and can be considered a public good, and (iii) investment in productive sectors (e.g. the energy sector) that increase the capital stock of a given sector.

The policy simulations thus take into account the effect of infrastructure investment on the productivity of other sectors. For example, the construction of a bridge is investment in infrastructure that will have an impact on other sectors, if the use of this bridge reduces travel time. Similarly, government investment in building a road or renovating a harbour will have an impact on other sectors, as their transport margins will decrease and they will be able to trade more using the same quantities of labour and capital. Government investment can also increase private capital stock. For instance, government investment in a nuclear plant increases the capital stock of the electricity/energy sector. The model allows the government to intervene in the public and private sectors of the economy.

A variant of the model is used to analyse how an increase in public investment affects economic growth. At its core is the Ramsey optimal-growth framework, oriented towards constraints that government faces in financing infrastructure expenditures.¹³ Table 3 shows the impact of increasing public spending for three years (2015, 2019 and 2025) for three financing methods: direct tax, indirect tax and debt financing.

Table 3. Impact of increased public investment on macroeconomic variables (% deviation from BAU¹⁴)

	Direct tax financing			Indirect tax financing			Debt financing		
	2015	2019	2025	2015	2019	2025	2015	2019	2025
GDP	0.02%	0.15%	0.17%	-0.22%	0.16%	0.26%	0.02%	0.15%	0.17%
GDP deflator	0.02%	-0.34%	-0.27%	-0.22%	-0.33%	-0.25%	0.02%	-0.34%	-0.27%
Real GDP	0.00%	0.49%	0.44%	0.00%	0.49%	0.51%	0.00%	0.49%	0.44%
Real consumption	0.07%	0.30%	0.37%	-0.09%	0.23%	0.37%	0.07%	0.30%	0.38%
Real investment	-0.21%	0.89%	0.51%	0.46%	1.12%	0.79%	-0.25%	0.88%	0.51%
Debt	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.17%	-0.15%
Gov. expenditures	0.73%	0.07%	-0.07%	0.76%	0.06%	-0.10%	0.73%	0.08%	-0.08%
Increase in tax rate	0.34%	-0.03%	-0.11%	0.13%	-0.01%	-0.04%	n.a.	n.a.	n.a.

Source: Author's calculations based on South African dynamic CGE model.

In the short term (2015), to finance the additional spending, government will need to raise income tax by 34%. If government chooses to finance new spending through indirect taxation, an additional tax of 13% on all commodities will be necessary to keep the deficit constant. Impacts on real GDP in the short term are negligible (0% in 2015) but are positive in the medium to long term (49% increase by 2019). This is because spending on investment leads to increased infrastructure and economic output. In fact, under a rigid deficit, taxes would eventually go down, as a result of greater production in the economy.

To examine the sustainability of increasing public spending, the debt-to-GDP ratio was calculated over the next 60 years (Figure 6). As the GDP grows over time, a constant deficit translates into an improvement of the ratio. More surprisingly, the greatest improvement happens in the debt-financed scenario. If tax rates are kept the same throughout the period (2011–2059), government revenues increase in the longer term,

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¹² Typical to other developing countries, there is a shortage of capital finance available to fund public infrastructure at all levels. Resource constraints will, therefore, require trade-offs between competing national goals. Spheres of government and their entities have some scope to expand their own financing of capital expenditures through improved operating performance. Options previously discussed by the Commission include: improving expenditure efficiencies (informed by ongoing expenditure reviews) and debt collection efficiencies, etc. Private funding will need to be sourced for some of the required infrastructure investments, although this needs to be better managed to avoid the negative experiences of Gauteng e-toll roads and electricity generation.

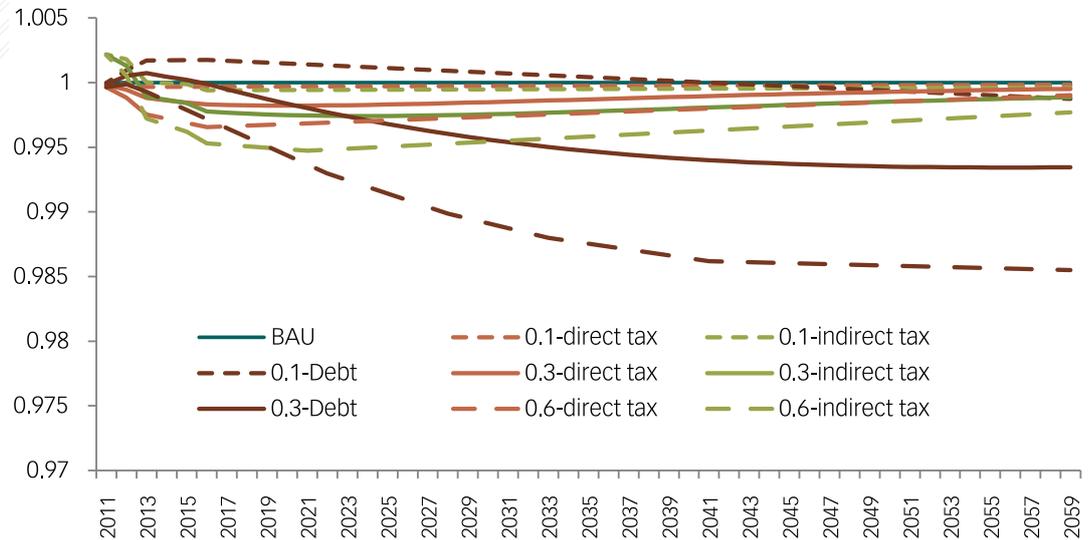
¹³ For more details, refer Mabugu et al. (2013).

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¹⁴ BAU = Business As Usual in macroeconomic terms is here taken to mean the natural trend of the economy and economic policy.

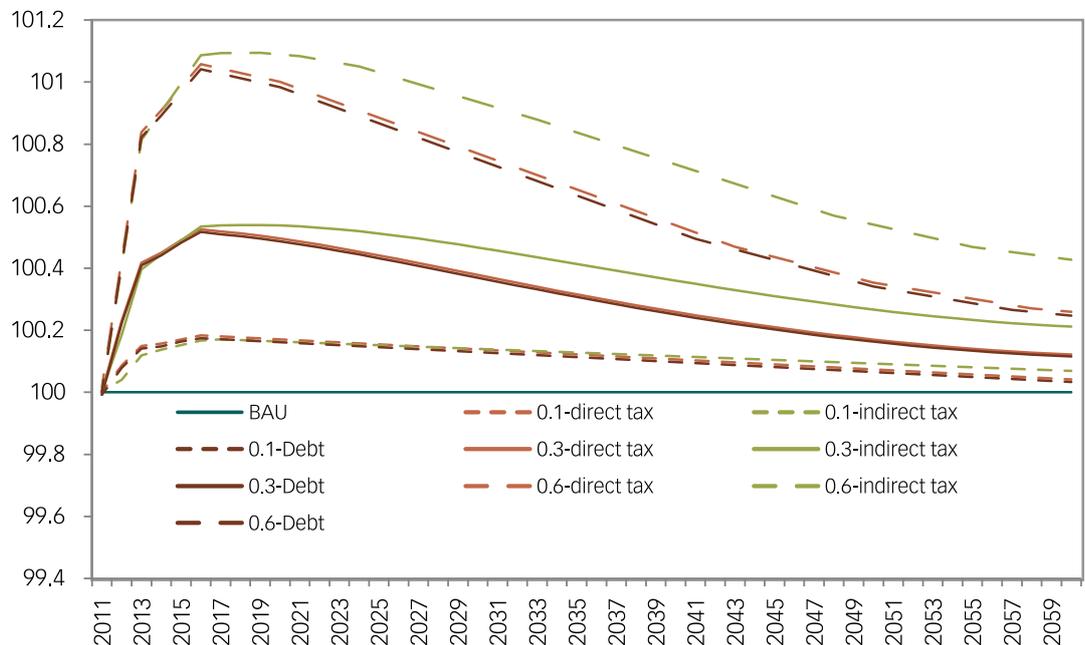
allowing for a smaller deficit in the future. To test the robustness of these findings, the simulation was run again to see how increased public investment affects GDP under the three financing methods, using values of 0.1, 0.3 and 0.6 for the impact such expenditures have on total factor productivity in South Africa (Figure 7). Whatever the financing method used, the results are similar for all three values (within a range of less than 1%).

Figure 6: Impact of increased public investment on debt-to-GDP ratio (BAU = 100)



Source: Author's calculations based on South African dynamic CGE model.

Figure 7: Impact of increased public investment on GDP (BAU = 100)



Source: Author's computations based on South African dynamic CGE model.

In the current constrained fiscal climate, it is very tempting to treat public investment as an 'adjustment variable'. As finances are tightened, cutting public investments may be seen as a viable fiscal consolidation effort. However, as shown here, public investment represents a growth-enhancing form of public expenditure, and so reducing public investment at a time of sluggish growth is potentially costly.

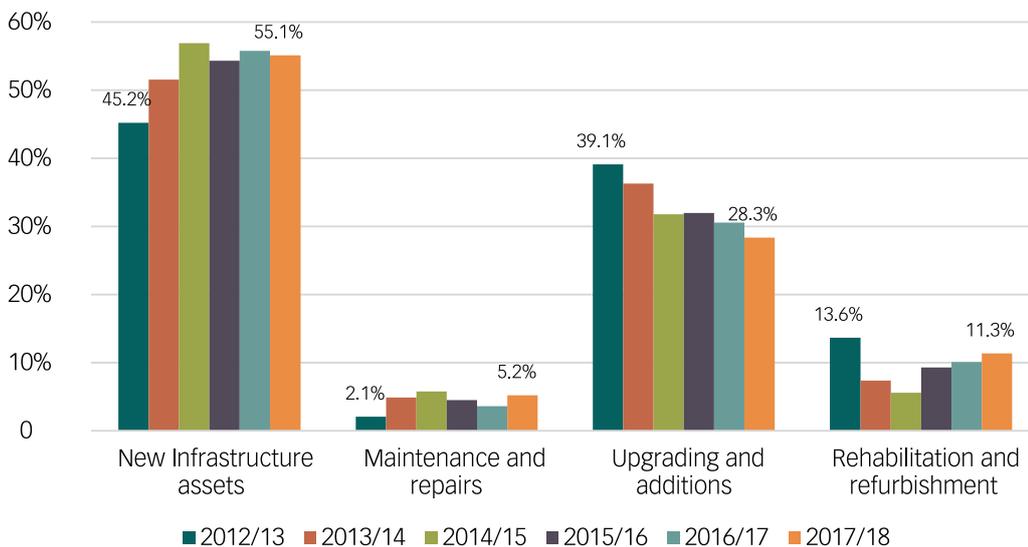
The focus now moves to government infrastructure spending and the effect of alternative financing arrangements on employment, both in the short and longer term. The investment plan discussed above is not able to generate enough activity in the economy to reduce unemployment substantially. When the increased infrastructure investment is financed through an increased deficit, GDP improves and unemployment reduces. When financed by tax increases, the implications for unemployment diverge. Financing the investment through increased VAT is pretty harsh on the economy, as everyone is affected, and is not 'pro-poor' because all households (including the poor) are hit by an increase in VAT. An intermediate solution could incorporate a combined burden sharing between households and firms. Alternatively proceeds from a VAT increase could be recycled back directly to poor households as discussed in Mabugu et al. (2015). These findings have immediate policy implications.

The modelling results show a strong relationship between economic growth and public infrastructure investment that is financed through debt. Ultimately, bridging the capital finance gap will require accelerated economic growth. Once growth gets going, financing a higher level of service provision will become self-financing, as infrastructure that supports accelerated growth will lead to government receiving higher taxation revenue. This suggests a sequencing that runs from debt to infrastructure, to growth to tax revenues, and eventually higher service provision. In the short term, the scope appears limited for expanding national grants through aggressive tax reforms that raise available revenue, but will become feasible again after accelerated economic growth.

There are few simple answers to South Africa's weak economic growth rate and associated unemployment and poverty rates. The core requirements for more rapid and sustained growth are greater saving, investment, more productive use of capital by better skilled workers, and moderate unit labour costs. The issue of productivity is crucial. Higher labour productivity will increase the labour intensity of the economy as a whole. However, to get stronger growth in productivity requires wide-ranging changes to policies and incentives, including better management, skills development, research etc. (see Section 1.5 as well as Chapters 6 and 7).

Finally, maintenance and efficient use of existing infrastructure might be more important than building new infrastructure but is often assigned less priority. Figure 8 shows that by the end of the 2015 MTEF period, 55% of resources allocated to infrastructure investment will be for new infrastructure. The balance is allocated to repairing, rehabilitating and upgrading existing infrastructure.

Figure 8: Share of infrastructure spending by type



Source: Author's calculations based on National Treasury (2014)

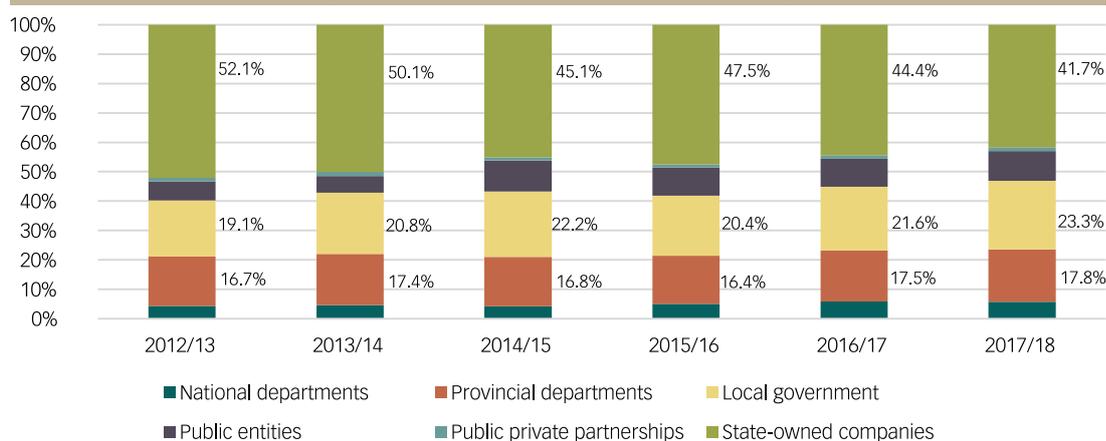
Whereas spending on repairs and maintenance only reaches 5.2% by the end of the medium term, this does reflect an increase relative to the 2.1% allocated to this item in 2012/13. Existing public capital stock is degrading rapidly, while the three spheres of government rush to identify new infrastructure investment projects. Unlike politically visible expenditure items such as public sector wages, maintenance can be deferred (initially) without obvious signs of deterioration. However, if maintenance continues to be

postponed indefinitely, the structural integrity of the asset declines quickly. Therefore, closing the 'infrastructure gap' entails more than simply increasing new public investment. The failure to address this 'recurrent cost', or the problem of deficient operation and maintenance expenditure, will have powerful macroeconomic consequences, especially for the sustainability of growth and jobs.

1.5 Institutional Architecture Underpinning Infrastructure

The quality of governance and the institutional architecture have a major influence on public infrastructure outcomes. Government spheres and entities face a range of common challenges when managing public investment. The responsibility for investing in new and existing infrastructure is a concurrent function and lies with all three sphere of government, including state entities. Over the 2015 MTEF period, SOEs and local government account for just under 70% of all public investment in infrastructure (Figure 9).

Figure 9: Responsibility for public infrastructure spending



Source: Author's calculations based National Treasury (2014)

The issue of concurrency lies at the heart of sharing responsibilities for public infrastructure across levels of government and entities. Insufficient financial resources at subnational levels, to finance and implement municipal investment plans, are seen as major obstacles. Furthermore, poor financial management performance and unmet service delivery targets associated with municipalities (and SOEs) bring into question their ability to effectively drive South Africa's infrastructure-led growth. The principle of self-determination at subnational level will always clash with the need for economies of scale and efficiency. This is something that fiscal decentralisation will have to take into consideration in the future. More asymmetric and differentiated approaches will be called for, and powers will need to be devolved according to the eventual economic benefit.

South Africa's other institutional challenges, which impede effective use of resources for development, include:

- Large infrastructure projects often require critical skills in engineering, artisanal, life cycle asset management, and complex procurement management whose shortage can result in significant delays and cost escalation
- Weak intergovernmental coordination processes, which can lead to unstructured and disintegrated approach with poor project evaluation, oversight and implementation.
- Allocating resources to a project is typically a multiyear commitment, which may pose particular challenges in a budget system with insufficient capacity to spend effectively and given a lack of institutional mechanisms to ensure accountability in infrastructure delivery (see Chapter 3 and Chapter 4).
- Projects may also be driven by productivity improvements and use of ICT technologies that, if widely applied, may improve public infrastructure management but is not the case at this stage (Chapter 6 and 7).

Project complexity, and weak management and accountability systems create conditions for corruption to flourish, often to the point where large volumes of public money are diverted to private accounts, with no public asset created and none of the expected benefits from the original project achieved. The Commission here proposes that procurement planning, and contract award and management are treated as critical parts of public infrastructure management, as opposed to a standalone procurement function/process.

Conceptually, integrating procurement with public investment should be about capturing the potential efficiency gains through coordinated management within a framework. A welcome step has been the introduction of built environment performance plans in order to incentivise integrated planning and implementation within municipalities, as well as the implementation of government's infrastructure plan (a key priority over the medium term). More efficient procurement processes should be implemented, while ensuring adequate checks and balances are not compromised in the process. In this regard the Commission welcomes the release of the Supply Chain Management (SCM) Review by the Office of the Chief Procurement Officer (OCPO) and supports reforms proposed by the OCPO aimed at modernising SCM in the public sector, reducing corruption in both public and private sector, accelerating service delivery and reducing costs. Project management and infrastructure planning are two crucial areas for infrastructure development. In addition, procurement processes need to be integrated with upstream project planning and budgeting and downstream contract and project management coordinated. Indeed, this integrated approach, which infuses performance within procurement, is better aligned to the evolving government-wide performance and outcomes-oriented approach. However, such an approach also requires high levels of coordination and skills.

Much will depend on the capacities available (or that can be developed) at the subnational level, either through learning by doing, and sister/brother link-ups with more successful such entities elsewhere in the country. South Africa's rapid urbanisation will be a key test of those capacities, especially with regard to urban infrastructure development, including transport, sewage, water and sanitation. IGFR are likely to work best when the central government takes an active interest in strengthening institutional frameworks at the subnational level, i.e. supervising programme implementation and holding subnational bureaucracies accountable. This complements the mandates of Outcome 9 of the Medium Term Strategic Framework (MTSF) and SIP 6 of the PICC and the Inter-Ministerial Task Team on Service Delivery. Good coordination will be needed among all these initiatives and spheres of government, and the establishment of the PICC in 2012 is a critical success factor in the roll-out of infrastructure in a coordinated and prioritised manner. The success of the PICC and these various initiatives will have to be continuously assessed and streamlined where necessary to ensure accelerated roll-out of the various SIPs.

1.6 Bringing It Together – Approaches to Funding Infrastructure

The very nature of infrastructure provision means that capital expenditure generally occurs long before services are provided and charges can be collected. This time difference, between the infrastructure expenditure and the receipts, results in a funding gap that needs to be financed.

Infrastructure differs from other types of capital investments in various ways that are important for its funding:

- Infrastructure investments are typically big and capital-intensive.
- Infrastructure requires significant up-front funding, whereas the returns on the investment accrue over very long periods of time.
- Infrastructure investments typically generate positive externalities, i.e. more often than not, the social returns exceed the private returns of an infrastructure project.

As a result, private financing and provision of infrastructure is difficult, which is why, historically, infrastructure investments have been provided by the public sector, public-private partnerships (PPP), or regulated private entities. Infrastructure investments are further complicated by the need to evaluate the broader social returns against funding costs and fiscal consequences. Infrastructure investments are not fundamentally aimed at boosting revenues and often have a high social return. This presents government with a dilemma (especially when the fiscal environment is deteriorating and the economy slowing down): the trade-off between positive social benefits and negative fiscal consequences. Equity and efficiency also need to be balanced, given the pressing need for economic and social infrastructure to support economic development in line with the NDP.

An enhanced institutional architecture is needed, to govern infrastructure strategy, delivery and finance. A set of complementary institutions are required and illustrated further in Chapters 4–7. Broadly speaking, investment in public infrastructure can be financed by:

- Public sector through revenues or savings, or
- Capital markets through borrowings or equity contributions from the private sector.

As shown in Table 4, there are three broad approaches to funding infrastructure: namely general budget appropriations, PPPs and development contributions. Table 4 does not rank the different funding approaches but describes the most appropriate situation for each approach. The choice of a funding approach will depend on various factors, including the type and timeline of the infrastructure being funded, and the level of government or sector involved.

Table 4. Strengths and weaknesses of different funding instruments

Funding methods	Strengths	Weaknesses	Most appropriate situations
General budget appropriations	<ul style="list-style-type: none"> Increased scrutiny, which promotes accountability and transparency for using public funds. Low transaction costs compared to most other financing methods. 	<ul style="list-style-type: none"> Cash available to build the asset is uncertain, as non-discretionary spending could take priority. Inefficient, as may reduce incentives to explore other, more efficient funding options (e.g. user charges). Full public funding could reduce scope to allocate project risks to those best able to manage them. 	<ul style="list-style-type: none"> Depends on whether the project is funded through taxes, borrowings or user charges, and on willingness to pay for higher level of service.
Taxation revenue	<ul style="list-style-type: none"> No impact on credit rating. Fairest means of financing infrastructure, as national and provincial tax distributes the cost of infrastructure broadly. Local government taxes can harness increased property value from infrastructure provision and spread costs across generations that benefit from the infrastructure (e.g. assuming rate hikes are permanent) and across all property owners within a specific area. 	<ul style="list-style-type: none"> Taxes can distort economic outcomes and do not merely redistribute money and resources. Tax has little impact on encouraging efficient use of infrastructure services. Taxation revenue may vary according to government policies and macroeconomic conditions (e.g. business cycles). 	<ul style="list-style-type: none"> Most suited for infrastructure projects with broad-based benefits that are realised over the short to medium term.
Borrowings	<ul style="list-style-type: none"> Can be used to accelerate or bring forward delivery of key infrastructure projects. Lower cost of capital compared to private sector financing. Cost of infrastructure aligned more closely to the benefits that accrue over time, improving dynamic efficiency. 	<ul style="list-style-type: none"> Can be used to accelerate or bring forward delivery of key infrastructure projects. Lower cost of capital compared to private sector financing. Cost of infrastructure aligned more closely to the benefits that accrue over time, improving dynamic efficiency. 	<ul style="list-style-type: none"> Projects where benefits outweigh the costs (leads to improved macroeconomic efficiency). Projects with long-term benefits, as debt can be viewed as a tax on the future generations (i.e. allows for benefits and costs to be matched over time). Projects that cannot be done on a commercial basis and where debt can be funded from the operating budget.
User charges	<ul style="list-style-type: none"> Equitable, as based on the user-pay principle to fund infrastructure. Efficient, as encourages best allocation of resources through efficient pricing. 	<ul style="list-style-type: none"> Demand for goods and services may vary from that anticipated, thus affecting financial returns. Difficult to achieve efficient pricing: users charges are usually set too high (e.g. monopolies) to encourage optimal use, or too low to cover the cost of capital. Possible high administration and political costs. 	<ul style="list-style-type: none"> For projects where there is a link between the service provided and the fee charged for the service. Some examples are road projects and maintenance funded through vehicle registration fees.

Funding methods	Strengths	Weaknesses	Most appropriate situations
Development contributions	<ul style="list-style-type: none"> Proposed by the Commission in 2011 for the financing of dense and compact cities. Possibly more politically acceptable than higher taxes or user charges. Contributions coincide with the required infrastructure investment, typically at development or construction stage. Efficient, as includes infrastructure costs in the price of land (whether passed backwards to the seller or forwards to the buyer). The price signal improves allocative efficiency and encourages the development of land that is relatively low cost to develop. 	<ul style="list-style-type: none"> Less scrutiny of projects as no public funds involved. Government has to fund the difference between infrastructure cost and development contributions. Transaction costs can be high, if complex contribution system or long negotiations/disputes. Charges affect resource allocation, so discourages development in locations where service provision would be expensive. Strong incentive for developers to focus on lower cost areas. Split incentives, between developers who want to provide minimum infrastructure and government planners who want to overbuild infrastructure. Government planners more likely to allow greenfield developments to fund infrastructure build instead of consolidating urban development. 	<ul style="list-style-type: none"> Used for land development such as greenfield sites, usually in high-growth regions where the cost of providing services is low.
Public private partnerships (PPPs)	<ul style="list-style-type: none"> Increased provision of infrastructure without additional government borrowing or debt. Efficient, as risk is allocated to where best managed; incentive to deliver project on time when cash flow generated is required to repay debt; bundling all activities (from design to maintenance) aligns incentives for low cost construction, thereby minimising lifetime costs of operations. 	<ul style="list-style-type: none"> Less scrutiny of projects as no public funds involved. Reduced accountability to Parliament and public. Cost of capital could be higher than traditional financing because of complex project financing arrangements involved. High transaction costs associated with contractual development. Longer lead times due to the time associated with tendering and contract development. 	<ul style="list-style-type: none"> Used to accelerate or bring forward the delivery of a wide range of key infrastructure projects. South Africa has used PPPs to build and fund hospitals, correctional facilities, wastewater treatment facilities, communication networks, schools, and tollways (Gauteng Freeway Improvement Project).
Business Improvement Districts	<ul style="list-style-type: none"> Effective, as raises finance voluntarily that is used for specific means Efficient because funds used for specific projects that individual businesses would not be able to afford. 	<ul style="list-style-type: none"> Fees raised may not be used for specified purposes and cost of provision may not be kept under control, leading to increased fees. 	<ul style="list-style-type: none"> Relevant only to local government-provided infrastructure. For service or infrastructure improvements within a particular district, above and beyond what is already provided by the municipality.

Source: Adapted by Financial and Fiscal Commission from Chan et al. (2009) and ACG (2011)

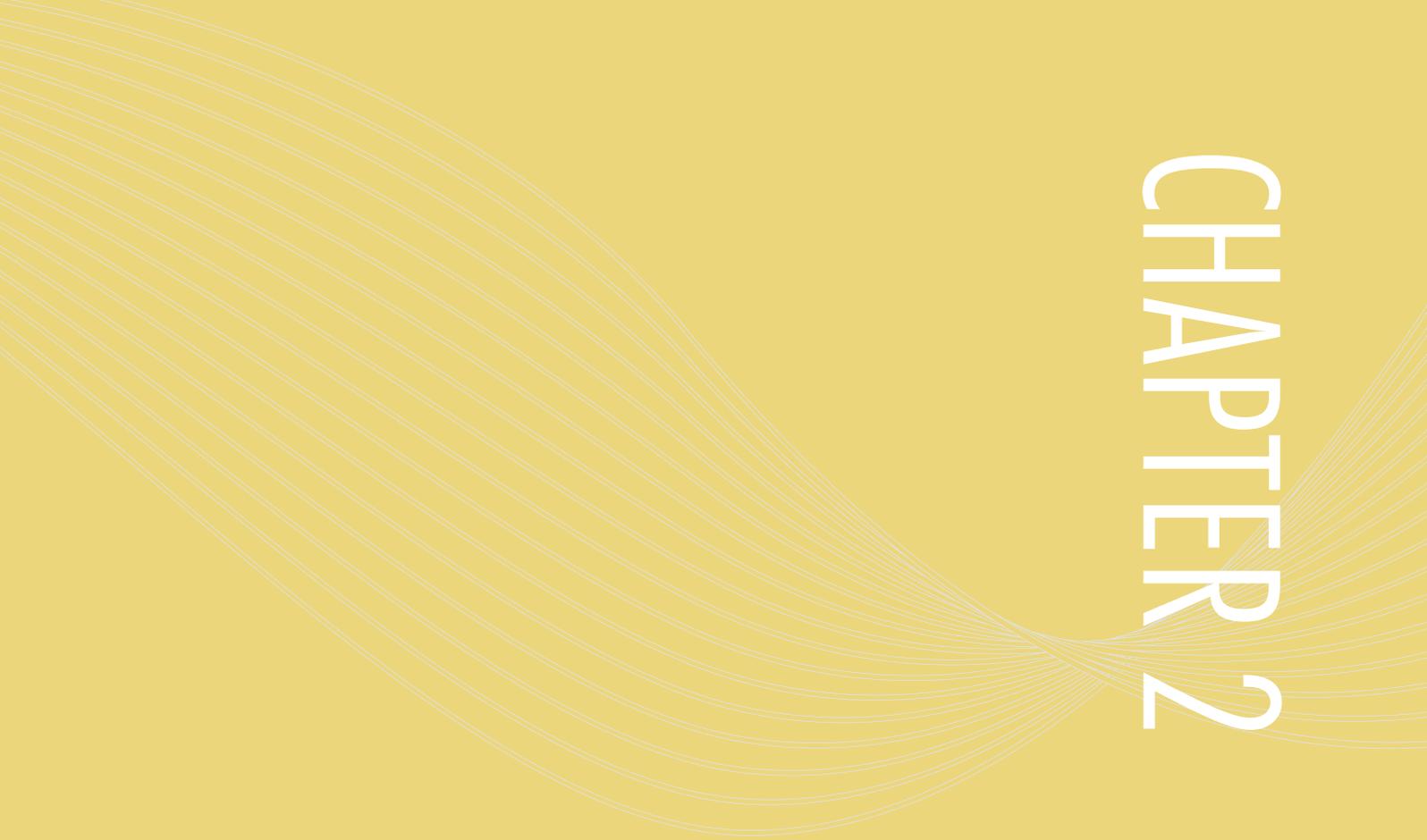
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¹⁵ Development contributions as well as a number of alternative funding approaches to those outlined above including (a) Specific-purpose securitised borrowing, (b) Certificates of Participation or lease revenue bond, (c) value capture levy, (d) specific purpose levies, (e) Growth area bonds and (f) Business improvement districts exist.

1.7 Recommendations

With respect to creating conditions for the future prosperity of all South Africans from infrastructure-led growth, the Commission recommends that Government:

1. Develops the National Infrastructure Plan's funding strategy, so that the plan is fully funded to ensure projects are delivered on time and in accordance with the plan. In particular each sector (water, sanitation, electricity, waste management and roads) should ensure that additional funds over and above conditional infrastructure grants are raised to cover additional costs of all existing and future infrastructure plans in the sector. This has to be done in a sustainable and affordable way, and ensure that such expenditures required for the future operations and maintenance of these assets are catered for and any tradeoffs are understood.
2. Redesigns capital conditional grants by (a) allowing for payment of infrastructure upstream costs of provinces and municipalities (e.g. a special fund for feasibility and pre-procurement studies), (b) making capital grants pledgeable where an authority has adopted a well-founded and approved long-term capital strategy and (c) extending the existing incentive/support for long-term capital planning by provinces and municipalities
3. Raises public debt, aggressively using the available borrowing space, to help finance deserving and rigorously appraised infrastructure plans (e.g. based on performance and governance profiles). Municipalities should seek to expand debt financing of capital expenditures, with due regard for prudential benchmarks and ratios to ensure sustainability. The increase in debt levels should not trigger a review of the country's credit rating: well-planned and executed infrastructure ultimately pays its way through higher economic growth, and hence the country need not suffer a credit rating downgrade related to such funding mechanisms.
4. Improves acceptability of the user charge principle for higher levels of infrastructure services by (a) using equitable sharing (conditional and unconditional grants) arrangements to demonstrate better efforts being made to balance consumer's affordability to pay for increased service charges (i.e. water, electricity, transport etc.), (b) undertaking transparent and robust willingness to pay (WTP), (c) making available better data on WTP and affordability, and (d) developing costing models for various services and impacts to demonstrate how such charges could/should be calculated (also determines appropriate level of service).
5. Ensures infrastructure procurement planning, contract award and management work in tandem at the highest strategic level with other elements of infrastructure management to raise efficiency. This can be done through ensuring that all conditional capital grants (e.g. for water, sanitation, electricity, waste management, roads, schools, hospitals and clinics) should not just give money, but make sure through putting in relevant grant conditions that from a human resources perspective all the critical skills in complex procurement, engineering, artisanal and life cycle asset management are there or a plan to source them is in place.



CHAPTER 2

Economic Growth Effects of Municipal Capital Spending

Economic Growth Effects of Municipal Capital Spending

2.1 Introduction

Following decades of under-investment and neglect, a generally held view is that South Africa's planned, infrastructure investments will play an important role in boosting regional development and productivity (Kumo, 2012; National Treasury, 2014). However, the relatively poor service delivery across many municipalities has cast doubt on whether municipal infrastructure spending can create a sufficient foundation for regional economic growth. Potholed roads, crumbling water infrastructures and health concerns over poor sewage systems have become frequently discussed issues in South Africa. In recent years, citizen protests have been about failing service delivery, not the lack of access to services, as was the case during the early years of democracy. Municipalities are under-spending significantly, on both asset renewals and maintenance, and do not have the capacity to implement effective mechanisms for planning and delivering vital infrastructure (Kuye and Ajam, 2012). Given this under-spending of infrastructure budgets, providing additional funding is unlikely to have any meaningful impact. Indeed, in its 2014/2015 Submission on the Division of Revenue, the Commission argued that increased funding for infrastructure would have limited value, as first the quality of the existing regulatory regime and poor municipal asset management and provision needed to be addressed (FFC, 2013).

This chapter investigates the effects of public capital expenditures on growth, using South African municipal data. South Africa's three spheres of government (national, provincial and local) operate within a quasi-federal structure, which is intended to foster a spirit of mutual cooperation and to facilitate the alignment of policy, legislation and overall service delivery programmes.¹⁶ The strong interdependence of the three government spheres implies that policy decisions often involve trade-offs, between ensuring sufficient resources for each sphere to fulfil its constitutional mandate(s) and allocating scarce resources to the sphere best placed to implement expenditure (and public investment) programmes that will have the strongest impact on growth and development. This, coupled with very different socio-economic and institutional variables across municipalities, gives rise to interesting differences in the effects of growth-enhancing expenditures across time and local jurisdictions.

After providing an institutional background and some details of municipal spending on infrastructure, the methodology used is explained. The results are then presented, followed by concluding remarks and recommendations.

2.2 Institutional Background and Municipal Infrastructure Investments

Transforming and establishing local government structures was a considerably more drawn-out process than for the other spheres in South Africa's intergovernmental system, reflecting efforts to overcome the legacy of apartheid. Pre-1994, the formal practice of racial segregation found expression in race-based municipal authorities, whose primary function was to create and perpetuate local separation and inequality. Under the Group Areas Act of 1950, South Africa's towns and cities were divided into areas exclusively owned and occupied by a designated race group. The apartheid system of local government segmented the country's regions according to how and where the public sector delivered goods and services, creating great inequalities in access between well-resourced white areas (or suburbs) and poor black communities (Smith and Vawda, 2003).

Most of the country's white population lived in urbanised neighbourhoods located around areas of relatively lucrative commercial activities. These areas were under the jurisdiction of White Local Authorities (WLAs), which had powers to levy property rates and charge trading services (on the provision of electricity, water and sanitation). WLAs generated over 90% of revenue from own sources and allocated most of their revenues to funding parks, libraries, schools and public facilities, creating model environments not even found in more developed countries (Zegeye and Maxted, 2003).

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¹⁶ The 1996 Constitution of South Africa stipulates a unitary system of governance in which the national and subnational (i.e. provinces and local governments) units operate not along hierarchical lines, but function as distinct, interdependent and interrelated "spheres".

In South Africa's non-white areas, especially those designated as African communities, administrative powers were vested in Black Local Authorities (BLAs).¹⁷ However, perceived as apartheid institutions designed to entrench segregation, BLAs lacked legitimacy among the (black) communities they were intended to serve. The ability of BLAs to develop revenue was severely limited by apartheid restrictions on economic development in black areas, the lack of socio-economic infrastructure that could generate service fees and the payment boycott (of rents and service charges). As a result, BLAs generated very little own revenues and gained a reputation as beleaguered institutions that lacked the capacity to provide critical socio-economic infrastructure and implement efficient financial systems (Shubane, 1991).

Thus, the democratically elected government inherited a local governance framework designed to provide quality services for a privileged minority and to systematically exclude the majority of citizens from owning land in urban areas and accessing basic socio-economic services (such as education and health care). After the 1994 elections, the government embarked on a transition process towards developmental local government that aimed to: (a) establish a more participatory and inclusive system of municipalities, and (b) reform and strengthen the administrative capacity of municipalities, in order to address the apartheid legacies of spatial segregation, inequality and poverty.

To achieve the broad goal of developmental local government, the Constitution assigns substantial powers and functions to municipalities. Like the WLAs in the past, the most important municipal functions relate to the provision of infrastructure to support the delivery of socio-economic services, including water, sanitation, roads, storm water drainage and electricity. To ensure that municipalities have the fiscal capacity to carry out mandated functions, local governments are granted relatively broad revenue sources, compared to provinces. The main revenue sources are property rates and user fees on water, electricity and sanitation services provided by a municipality. The Constitution also entitles municipalities to an equitable share of nationally collected revenues (Bahl and Smoke, 2003).

Two factors have largely shaped municipal investments in social and economic infrastructures: (i) the constitutional mandate that municipalities have a developmental role to play, and (ii) the macroeconomic policies developed by the national government.¹⁸ Following the 1994 transition, the first major economic policy implemented was the Reconstruction and Development Programme (RDP). The RDP proposed a leading and enabling role for the state, and advocated prioritising spending on social development, to meet government's objectives of a more equitable distribution of wealth and the provision of essential basic services (Adelzadeh, 1996).¹⁹ In 1996, the RDP initiative was supplemented with a new policy – the Growth, Employment and Redistribution (GEAR).²⁰

The GEAR reforms were aimed at stimulating economic growth and improving government finances in order to provide the budget resources necessary for targeting poverty alleviation and social development. These policies resulted in increased municipal capital expenditure.²¹ Between 2001 and 2006, capital expenditure increased from R6-billion to R20.9-billion, or an average annual growth of 18.5% in real terms. As Figure 10 shows, infrastructure-related spending was a significant share of total municipal capital expenditure, averaging 60%. Since 2006, government has continued to ramp up public infrastructure investments, as a platform for faster, more inclusive economic growth. With the exception of the immediate periods before and after South Africa's hosting of the soccer World Cup in 2010, growth in municipal capital expenditure has remained positive, and almost all capital expenditures have been (and are) investments in core socio-economic infrastructure.

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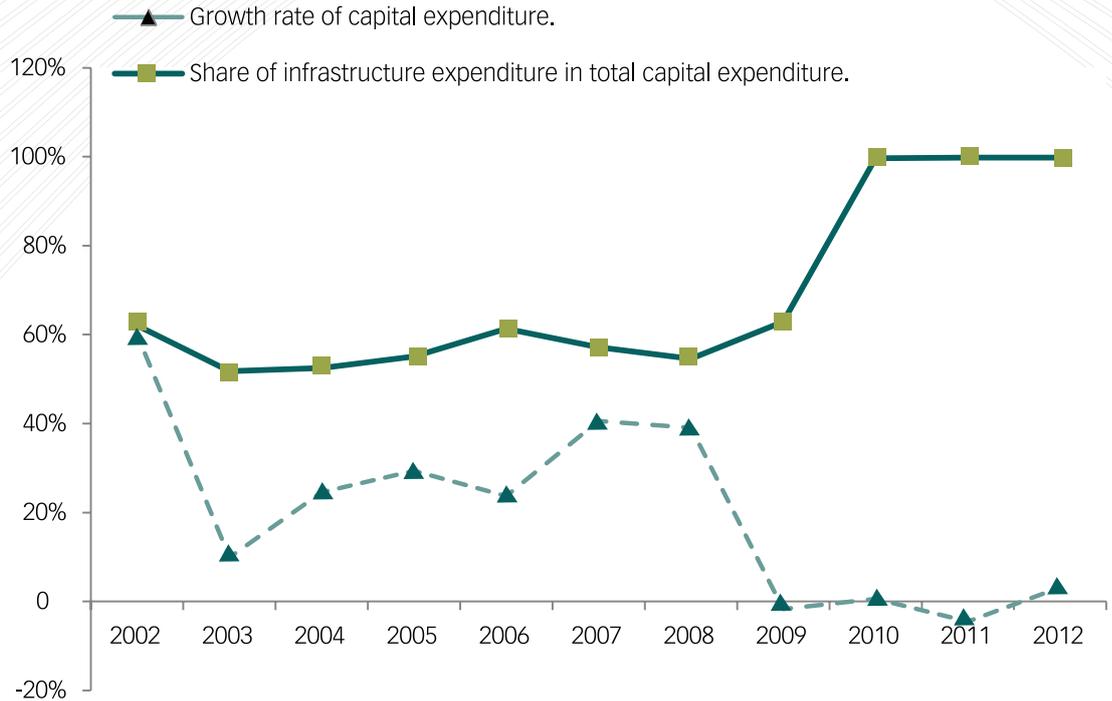
¹⁷ During apartheid, the term 'Black' referred collectively to non-white persons that apartheid legislation radically discriminated against. In the post-apartheid dispensation, the repeal of the Population Registration Act in 1991 and its subsequent replacement by the Identification Act of 1997 removed apartheid racial classifications. However, the Employment Equity Act of 1998, which outlines the transformation of South Africa's social, economic and political institutions, speaks of "designated groups" to include "black people, women and people with disabilities". The Act defines "black" as referring to "Africans, Coloureds and Indians". Hence, this study cannot describe apartheid-era decentralisation and consequent economic effects without recourse to such racial classifications. Their use in this study, however, does not imply their legitimacy.

¹⁸ In South Africa's integrated and cooperative model of federalism, the national government is the dominant sphere responsible for formulating many social and economic policies delivered by provincial and local governments (Smoke, 2001).

¹⁹ Concomitantly, the RDP also advocated a prudent fiscal policy and included strategies, such as tax reform, debt consolidation and the reduction of debt service costs, which were undermining the new government's socio-economic objectives (Faulkner and Loewald, 2008).

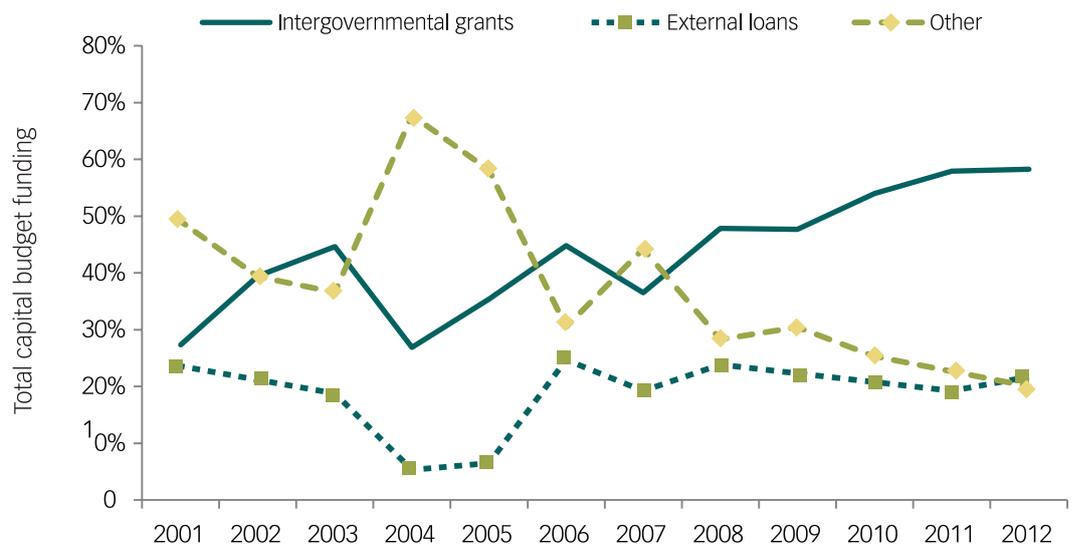
²⁰ The main aim of the GEAR strategy was to transform South Africa into a globally competitive, export-oriented economy. To achieve this, GEAR focused on expenditure restraints (to reduce the deficit-to-GDP ratio and contain the costs of servicing public debt), tight monetary policy (to lower inflation), and tax and trade reforms.

²¹ Municipal capital expenditure refers to spending on infrastructure and non-infrastructure assets. Infrastructure capital expenditure refers to acquiring new assets for delivering services related to water and sanitation, electricity, housing and roads and storm water. Non-infrastructure capital expenditure is comprised of assets such as land and buildings, fleet vehicles, specialised vehicles such as ambulances, and information technology networks that support administrative functions of municipalities.

Figure 10: Trends in municipal capital expenditure

Source: National Treasury (various years)

Since 2006, municipalities in aggregate, have generated almost 75% of their total operating revenues from own sources,²² but most capital spending is financed through intergovernmental grants and external loans sourced from institutions such as the Development Bank for Southern Africa (DBSA). Prior to 2006, municipalities funded, on average, over 40% of their capital budgets through internally generated revenues. Internally generated funds accounted for R17-billion of the total municipal capital budget in 2007, declining to R7.8-billion in 2012. During the same period, intergovernmental grants and external loans became the key sources of capital funds for municipalities (Figure 11).

Figure 11: Contribution to municipal capital funding

Source: National Treasury (2011)

>> ²² It is important to note that there exists a wide variation in the generation of own revenues, from the large metropolitan municipalities that raise nearly all of their revenues from own sources to small, mainly rural municipalities that have very limited fiscal capacity and are solely reliant on intergovernmental transfers.

Two factors account for the decline in municipalities' own contributions to capital expenditure. (1) Municipalities are finding it more difficult to generate surpluses on their operating budgets due to cost pressures that are, to a large extent, the result of having to meet national government's goal of universal access to basic services for all households. Municipalities have to provide free basic services (FBS) in water, electricity, sanitation and refuse services to all citizens, especially those residing in poor households. (2) Municipalities are using the Municipal Infrastructure Grant (MIG)²³ instead of internally generated revenues, and spending these own revenues elsewhere on the municipal operating budgets (National Treasury, 2014). Between 2004 and 2013, MIG funding allocated to municipalities more than tripled, from R4.4-billion to R15.5-billion (about US\$1.5-billion).²⁴

Despite the heavy reliance on national transfers, municipalities retain significant autonomy in planning for and implementing infrastructure programmes. This autonomy reflects the prevailing view that infrastructure grants channelled via the MIG must promote and reinforce the municipality's integrated development plan (IDP), which identifies strategies for addressing service delivery backlogs and socio-economic disparities.

2.3 Methodology

Panel data²⁵ spanning a 10-year period (2003–2013) was used to investigate the productivity and growth effects of municipal infrastructure spending. Table 5 summarises the data used to estimate the productivity effects.

Table 5: Definition of variables and descriptive statistics

Variable	Description	Mean (Std.Dev)	Source
Y	Dependent variable measured as municipal output (or regional gross value added) per worker (in constant 2005 Rands)	148.6 (63.68)	Global Insight
K_g	Per capita municipal spending on public infrastructure (in 2005 constant Rands)	0.34 (0.54)	National Treasury
k_p	Municipal private capital measured as private sector gross value added per worker (in constant 2005 Rands)	530.16 (1932.72)	Global Insight
pop	Municipal population size	210143 (475333)	Global Insight
land	Municipal land size (in square kilometres)	4750.54 (5378.95)	Global Insight
income	Municipal personal per capita income	24388.04 (24019.94)	Global Insight
Unemp	Municipal unemployment rate	0.274 (0.130)	Global Insight

Regression analysis²⁶ was used to estimate the growth effects of municipal infrastructure spending. It took into account municipality-specific effects that could influence growth but are excluded from the explanatory variables. Accounting for such municipal-specific effects helps guard against biased estimates (of the effects of explanatory variables) and invalid empirical results. Table 6 provides descriptive statistics of the dataset used to estimate the growth effects of municipal infrastructure spend.

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²³ Previously fragmented infrastructure grants for municipalities were consolidated into a single conditional grant programme – the Municipal Infrastructure Grant (MIG).

²⁴ Transfers from national government to local government are through unconditional and conditional grants. In terms of the 1996 Constitution, a municipality is entitled to an equitable share of nationally raised revenues to enable it to carry out its mandated functions and provide basic services. Each municipality's equitable share is allocated as unconditional transfers, using the local government equitable share formula. Conditional grants are allocated to municipalities to enable them to deliver on their mandated functions to eradicate backlogs in crucial infrastructure and essential basic services, and to support municipal capacity-building initiatives. Therefore, conditional grants are of two main types: infrastructure and capacity building. The MIG is the largest conditional grant transfer and is allocated using formula that take into account poverty, backlogs, and municipal powers and functions.

²⁵ Panel data (also known as longitudinal or cross-sectional, time-series data) describes a dataset in which the behaviour of entities or economic agents are observed across time. These entities could be states, municipalities, regions, companies, individuals, medical clinics, or countries. Such data is said to be balanced if observations relating to measures for all variables of interest are recorded for each entity in each time period i.e. there are no missing observations.

²⁶ Regression analysis is a statistical process for estimating the relationship between a dependent variable and one or more independent variables.

Table 6: Descriptive statistics

Variable	Mean	Std.Dev	Minimum	Maximum
Regional GDP (Y)	7323567	2.78e+07	119779	3.20e+08
Capital expenditure on:				
Electricity (E)	18341.14	110870	0	2450808
Water and sanitation(W)	23833.9	104152.7	0	2157197
Housing (H)	47239.81	1162280	0	4.16e+07
Roads (R)	23439.08	114237	0	2258531
Repair and maintenance (RM)	38347.39	241731	0	4291519
Other capital (OC)	678694.5	1.61e+07	0	6.87e+07
Operating expenditure (OE)	438459.8	2004564	0	2.70e+07
Equitable share transfers (T)	61528.51	146073.6	1963	2125543
Regional GDP per capita (INC)	24388.04	24019.94	1561	267836
Resident population (L)	210143	475333	6575	4488843

2.4 Results

2.4.1 Productivity effects of municipal infrastructure spending

Table 7 presents the results of the multi-level model. The first column gives results with the explanatory variables excluded, while the second column is the full model that includes all of the explanatory variables.

Table 7: Multi-level estimates of productivity effects of municipal infrastructure spend

Variable	Description	Mean (Std.Dev)
kg	-0.003 (0.01)	-0.004 (0.004)
kp	0.01 (0.016)	0.10** (0.02)
2004 Dummy	0.04*** (0.003)	0.03*** (0.004)
2008 Dummy	0.11*** (0.02)	0.01 (0.02)
2012 Dummy	0.20*** (0.02)	0.20** (0.02)
pop		0.04 (0.03)
land		-0.001 (0.03)
income		0.69*** (0.03)
unemp		0.79*** (0.13)
τ	4.75 (0.08)	-2.52 (0.60)
<i>Random effects</i>		
σ_v	0.122	0.258
σ_ψ	0.351	0.385
σ_φ	0.06	0.03
χ^2	2876	15490.7
Number of observations	2340	2340
Number of clusters	9; 234	9;234

Note: The numbers in parentheses are robust standard errors. (*), (**) and (***) denote statistical significance at the 10%, 5% and 1% levels, respectively. Both models include a dummy variable for each year (2004–2012) to capture the time-specific effects. The data is grouped by 234 municipalities that are distributed across the country's nine provinces.

The results in Table 7 support the hypothesis that a growth in private capital and regional wealth indirectly enhances the productivity of capital and labour used to generate products and services. Private capital stock (represented by kp in Column 2) has a positive and statistically significant effect on the labour productivity: a 1% increase in private capital stock will increase labour productivity by 0.1%. The relationship between municipal per capita income (income) and labour productivity is statistically significant and

positive. The effect on the unemployment rate is also statistically significant: a 1% increase in unemployment will boost labour productivity by 1.2%.

These results can be explained by the dynamics of the post-1994 economy. Following decades of race-based employment discrimination, the demise of apartheid resulted in an increased supply of relatively unskilled labour, in particular an unprecedented influx of African women into the labour market. However, the demand for this labour did not match the supply. Two factors made the situation worse: (i) the shrinking mining and agricultural sectors, which had previously absorbed much of the country's relatively unskilled labour; (ii) the end of international isolation and South Africa's policy shift towards a competitive, export-oriented economy, which required more skills. As a result, unemployment among the less-skilled and/or less-experienced workers ballooned, while higher-skilled workers saw their real wages and productivity increase, as industries and the economy as a whole shifted towards capital- and skill-intensive production methods (Banerjee et al., 2007). The results suggest that the end of South Africa's isolation opened up the economy and allowed domestic industries to adopt global technologies that helped increase labour productivity.

The results provide no evidence of a statistically significant relationship between municipal expenditures on infrastructure and labour productivity during 2003–2012. However, these results are benchmark findings and a first step in the empirical analysis. A potential drawback of multi-level estimates is that other unobservable factors, which influence variable (y), may affect municipal infrastructure spending. Therefore, to ensure the results are not biased or invalid, the estimates take these unobservable factors into account (Table 8).

Table 8: Multi-level model estimates of productivity effects of municipal infrastructure spend

	Fixed Effects	Random Effects
	Model I	Model II
kg	0.59 (0.93)	-0.83*** (0.03)
kp	0.063 (0.05)	0.028* (0.02)
2004 Dummy	0.004 (0.047)	0.07*** (0.034)
2008 Dummy	-0.19 (0.30)	0.32*** (0.07)
2012 Dummy	0.18* (0.35)	0.42** (0.07)
pop	-0.014 (0.15)	0.07*** (0.03)
land	0.043 (0.13)	-0.11*** (0.03)
income	0.71*** (0.09)	0.41*** (0.05)
unemp	0.54 (0.45)	0.77*** (0.19)
τ	-2.73 (1.78)	0.411*** (0.05)
First-stage diagnostics		
Partial R_2	0.09	0.10
AP-F [†]	0.62	8.48
Prob>F	0.43	0.003

Note: The numbers in parentheses are robust standard errors. (*), (**) and (***) denote statistical significance at the 10%, 5% and 1% levels, respectively. Both models include a dummy variable for each year in the sample to capture the time-specific effects.

The results are very similar to those shown in Table 6. The one important difference is that while negative, the effect of municipal infrastructure spending (*kg*) on labour productivity is statistically significant and greater in magnitude. The result suggests that a 1% increase in infrastructure spending by municipalities, will, all things being equal, cause a 0.8% decrease in labour productivity.

2.4.2 Growth effects of municipal infrastructure spending

Table 9 shows the growth effects of municipal infrastructure expenditure. The results can be summarised into two distinct findings: (i) estimates with statistical significance and (ii) estimates with economic significance. Table 9 shows that water and sanitation expenditures, and outlays on repairs and maintenance, are positively correlated with growth: a 10% increase in capital spending on water infrastructure will result in a 0.4% increase in municipal output.²⁷ Similarly, a 10% increase in repair and maintenance outlays will increase municipal output by 0.3%. In terms of economic significance,²⁸ spending on electricity infrastructure positively affects, but spending on housing and roads infrastructure negatively affects, regional economic growth.

The surprising finding, that municipal capital spending on roads and housing negative affect regional growth, attests to the real problems that municipalities have with infrastructure spending. Since 2009, the delivery of integrated housing settlements has been devolved to municipalities. However, this devolution has occurred against a backdrop of affordability and delivery constraints faced by municipalities. These constraints include a shortage of planning and project management skills, as well as weak administrative capacity to take expenditure decisions around housing and roads infrastructure. They limit not only the developmental role envisaged for municipalities but also the positive externalities that may result from the effective roll-out of integrated housing and road infrastructure

Table 9: Fixed effects estimates of productivity effects of municipal infrastructure spend

Dependent Variable: Regional GDP Growth		
	Fixed Effects	Random Effects
	Model I	Model II
Lagged dependent variable	-0.25** (-2.60)	-0.677 (-0.83)
Electricity (E)	1.39 (0.64)	-0.309 (0.758)
Water (W)	4.79** (2.11)	0.203 (0.861)
Housing (H)	-0.925 (-1.08)	0.29 (0.469)
Roads (R)	-0.834 (-0.63)	0.519 (0.65)
Other capital (OC)	-0.831 (-0.38)	-1.13 (-0.97)
Repair and maintenance (RM)	3.14* (1.97)	0.264 (0.21)
Operating expenditure (OE)	-25.165 (-3.20)	-0.167 (-0.12)
GDP per capita (INC)	27.97 (0.66)	-2.58 (-1.02)
Population (L)	51.997 (0.72)	5.68 (2.16)
Constant term (C)	-668	0.496

Note: The numbers in parentheses are robust standard errors. (*), (**) and (***) denote statistical significance at the 10%, 5% and 1% levels, respectively. Both models include a dummy variable for each year in the sample to capture the time-specific effects.

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²⁷ As the estimation is done in log-linear form, one can interpret the coefficient of 4.79 on the natural log of the water variable (*W*) as follows: (a) a 1% increase in *W* will increase growth in municipal output by $4.79/100 = 0.047$ (or 0.05) or (b) a 10% increase in *W* will increase output growth by $4.79 \times \log(1.10)$.

²⁸ In recent years, a number of studies in the social sciences (see for example Ziliak and McCloskey, 2003; McCloskey and Ziliak, 1996; Wooldridge, 2000; Goldberger, 1998) have suggested the importance of viewing a particular statistical or empirical result not only in terms of statistical significance but also in terms of economic significance. According to Steward and O'Donnell (2014), while no universal definition of the term exists, economic significance remains a well-established concept that suggests that, when explaining a set of empirical findings, a researcher needs to take into account issues such as magnitude and the overall implications of the reported correlation or effects.

2.5 Conclusion

This chapter investigated the effects on growth of public capital expenditures using South African municipal data covering the period 2003–2012. The results provided fairly strong evidence that government capital has a statistically significant negative effect on regional labour productivity, whereas private sector activities have a statistically significant, strongly positive effect on labour productivity. The negative effect of municipal public capital spending is of economic significance, suggesting that infrastructure investments by local government in South Africa are subject to diminishing marginal returns, indicating inefficiencies in the use and allocation of resources. Furthermore, the considerable under-spending of capital budgets reflects either a failure to align municipal IDPs with budgets or a lack of capacity to properly plan for and implement critical service delivery programmes.²⁹

While infrastructure spending by many municipalities may be poorly planned, the importance of municipal infrastructure investment should not be ignored based exclusively on this evidence. Capital spending by municipalities can enhance municipal economic growth, depending on the specific function. Spending on electricity, water and sanitation, as well as repairs and maintenance has a positive effect on growth, while spending on housing and roads infrastructure has a negative effect. These results suggest that, with infrastructure investment set to rise, capital spending on water and sanitation, and electricity can spur local economic development. Improving the management of asset registers and maintaining existing infrastructure assets to extend their useful life could also benefit long-term economic growth across the country's municipalities.

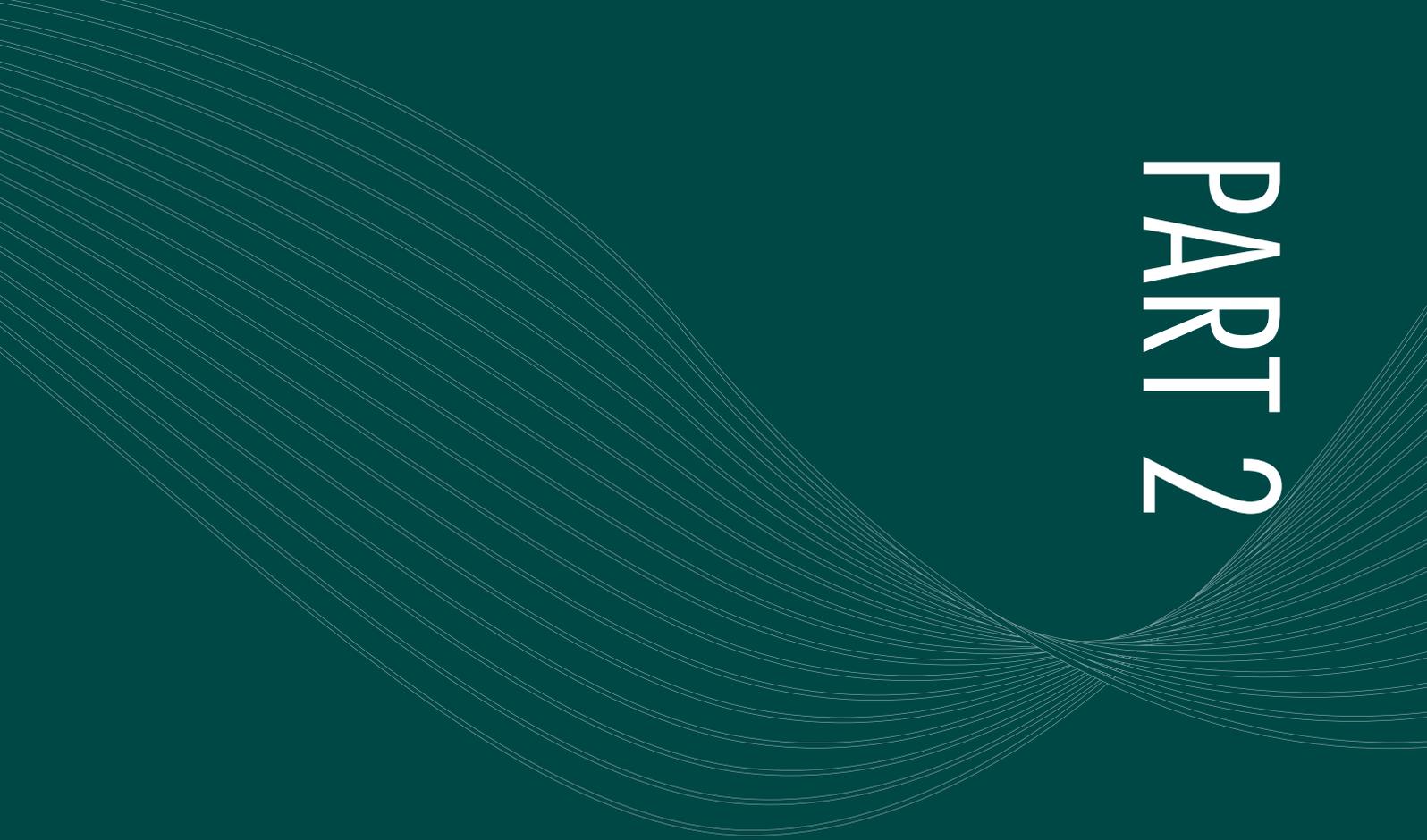
2.6 Recommendations

With respect to improving the economic growth effects of municipal capital expenditures, the Commission recommends that:

1. Grant allocations for infrastructure investment reflect the prioritisation (or weighting) of growth-enhancing infrastructure programmes, to enable municipalities to play their (envisaged critical) role in promoting economic development and growth.
2. Government establishes either an incentive grant or a reserve fund, which can be used to assist or reward municipalities. Funds would be for maintaining and renewing infrastructure, to ensure the long-term sustainability of critical socio-economic infrastructure and enhance local economic growth.
3. Government establishes a transitional capacity-building grant to fund technical assistance for building necessary capacity that will enable municipalities to prepare and implement credible infrastructure asset management plans.

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²⁹ In 2011/12, municipalities under-spent their capital budgets by R14.8-billion (or 32.3% of total capital budgets), compared to R18.9-billion (29.4%) in 2010/11 and R8.5-billion (8.9%) in 2009/10. The 21 secondary cities failed to spend R2.9-billion (44%) of total capital budget between 2009 and 2012. The worst performers were 111 local municipalities that consistently under-spent their capital budgets by more than 30% (National Treasury, 2012).



PART 2

Indirect Grants Proliferation, Design and Accountability in Public Infrastructure Management.

In recent years, conditional grants have been used increasingly as a mechanism to transfer funding to provinces and municipalities for the purpose of achieving particular national government policy objectives. Intergovernmental fiscal transfers are a dominant feature of provincial and local government finances in South Africa. The Commission has a long history of studying the use of conditional fiscal transfers in its various submissions made on the Division of Revenue. The Commission's 1995 Framework Document (FFC, 1995), which played a critical role in the evolution of the current intergovernmental fiscal relations framework, was very emphatic on the need to use conditional fiscal transfers sparingly in order (i) to protect the integrity of the country's intergovernmental fiscal arrangements and (ii) not to compromise institutional accountability flowing from fiscal decentralisation. The Commission's 10-year (2000/01–2009/10) review of conditional fiscal transfers to provincial governments and municipalities found that the application of conditional grants had evolved substantially over time. This evolution occurred often in an ad hoc manner and, in some cases, as a kneejerk response to the perception of failure by municipalities and provinces to prioritise national priorities. During the ten years, some grants merged into the equitable share allocation, others merged with other conditional grants. A few conditional grants were terminated, while others have been in existence for more than five years. The practice of reacting in an ad hoc manner meant that allocations for certain conditional grants have been sporadic and infrequent over the years. Recently, indirect grants are increasingly being used to fund key infrastructures, but no guiding principles or criteria are in place for establishing or rescheduling direct and indirect conditional grants. The most commonly cited justification for the trend is that subnational governments lack the capacity to assume responsibility for the effective management of resources and delivery of services. Reasons given include perceived poor planning, poor financial management and weak technical supervision. More recently, subnational officials have been criticised for being either incompetent or corrupt. Consequently, sector programmes and government's overall policies are being compromised, and so the commitments made to citizens cannot be honoured. This is sometimes perceived as a justification for the increase in indirect grants.

The Commission is sympathetic to some of these reasons and acknowledges the evolving nature of the intergovernmental fiscal system and the need for indirect conditional grants, given the constitutional imperatives in South Africa. In this regard, the tough stance adopted by Government to curtail the rate of growth in indirect conditional allocations in 2015 is welcome. Nevertheless, the Commission's view is that the current unsystematic and unevenly applied approach to introducing, terminating and reviewing indirect grants destabilises the composition and predictability of transfers. This section consists of two chapters that look at grant design and accountability, in particular South Africa's experiences with direct and indirect conditional grants, and local government's experiences of public infrastructure delivery accountability.

Chapter 3 reviews direct and indirect conditional grants and ways of improving the financing of capital investments. Indirect grants are increasingly being used to fund key infrastructures, but no guiding principles or criteria are in place for establishing or rescheduling direct and indirect conditional grants. This chapter considers the funding and performance of selected direct and indirect infrastructure grants, related to education, health, electrification and sanitation infrastructure. The study analyses the grant budgets and expenditure, and compares the infrastructure delivery targets with the actual delivery. The results found that direct grants outperform indirect grants, and that the sanitation indirect grant performance is low. The chapter makes recommendations on the appropriate mix of conditional grants and on some guiding principles for the scheduling of conditional grants.

Chapter 4 look at accountability in infrastructure delivery at the local government level. The government has embarked on a massive infrastructure delivery programme, which must be founded on sound accountability arrangements. When accountability fails, many things can go wrong, e.g. public funds misappropriated or stolen, public officials routinely demanding bribes, public contracts unfairly awarded, and public services poorly delivered or not delivered at all. This chapter evaluates accountability arrangements against the backdrop of the proliferation of indirect infrastructure grants and the under-spending of these grants; diagnoses accountability problems related to infrastructure delivery and funding; and makes recommendations on strengthening accountability mechanisms within the local government sphere. The study is based on secondary data and case studies of nine municipalities, (Mangaung, Waterberg, Westonia, Sol Plaatje, Ramotshere, Mbizana, Newcastle, Stellenbosch and Bushbuckridge), identified through a stratified random sampling technique. The results suggest that the proliferation of indirect grants distorts accountability arrangements. Furthermore, most municipalities may have well-established accountability structures but lack capacity to execute proficiently their accountability role. The support structures are weak because of being understaffed, high turnover and insufficient research capacity. The chapter makes recommendations on these issues.



CHAPTER 3

A Review of Direct and Indirect Conditional Grants – The Case of Selected Conditional Grants

A Review of Direct and Indirect Conditional Grants – The Case of Selected Conditional Grants

3.1 Introduction

Intergovernmental fiscal transfers are a dominant feature of public finance in many countries, including South Africa. This is mainly because in countries with more than one level (or sphere) of government, national government is able to raise more revenue compared to subnational governments. Sections 227(1) (a) and (b) of South Africa's Constitution of 1996 state that local government (and each province) is entitled to an equitable share and may receive other allocations from national government revenue, either conditionally or unconditionally. Conditional grants are either direct or indirect. Direct conditional grants are transferred directly into the bank account of the recipient (for example, to a municipality) and must be used for the stated purpose and comply with stipulated conditions and reporting. In the case of indirect grants, a national sector department or public entity performs a function on behalf of a municipality or province. Thus no funds are transferred to the province or municipality concerned, but any infrastructure developed becomes the responsibility of the relevant subnational government.

In 1998/99, transfers in the form of direct and indirect conditional grants were introduced mainly to ensure adequate funding of national policy priorities. Provincial and local government conditional grants have been key in the funding and provision of infrastructure and reduction of infrastructure backlogs. The share of indirect grants to direct grants is increasing at a phenomenal rate, from 3.9% in 2011/12 to 6.4% in 2013/14, and is projected to reach 8.9% in 2016/17 (Figure 12).

Figure 12: Share of indirect grants to direct grants



Source: National Treasury (2013, 2014)

Municipalities are often better positioned to understand community needs but historically have underperformed in the area of infrastructure development. Therefore, indirect grants are mostly used to fund infrastructure development. While national government's implementation of infrastructure projects, on behalf of municipalities that lack capacity, may ensure that service delivery occurs, it also comes with some risks. These include weakened accountability, and poor budgeting and planning for maintaining the infrastructure delivered.

This chapter review trends and developments in the use of direct and indirect conditional grants, by assessing the funding and performance of specific education, health, sanitation and electricity-related conditional grants. The chapter has the following specific objectives:

- To evaluate and analyse changes in the schedules of conditional grants (direct and indirect) using the funding for infrastructure for schools, health, sanitation and electrification as a case study; and
- To quantify the extent of their growth and analyse their performance to date.

After discussing the methodology, an overview of indirect grants is given. The findings are then presented, followed by concluding remarks and recommendations.

3.2 Methodology

A quantitative analysis of the performance of grants in the water and sanitation, energy, education and health sectors used both a direct measure of service delivery approach³⁰ and an expenditure approach³¹. The performance of these grants was analysed as far back as possible.

The four conditional infrastructure grants chosen – two provincial and two local government – are briefly described in Table 10.

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³⁰ In this approach a share of households provided with a service (infrastructure delivered in this case) and having access to a service is used as an indicator. Furthermore, a discrepancy between annual service delivery targets and the actual delivery over a period of time is used as an indicator for performance.

³¹ This approach entails undertaking expenditure analysis of funds allocated for a function or programme. An indicator to be used in this approach is under-spending. Expenditure performance in terms of comparing budget allocations and expenditure is used.

Table 10. Description of selected infrastructure grants

Sector department	Name of grant	Rationale and brief description
Municipal conditional grants		
Department of Water and Sanitation	Rural Household Infrastructure Grant (RHIG)	Previously administered by the Department of Human Settlements, the RHIG was introduced in 2010/11 to support municipalities in addressing rural basic sanitation backlog. The RHIG has both direct and indirect components.
Department of Energy	Integrated National Electrification Programme (INEP)	The INEP provides capital subsidies to Eskom and municipalities for addressing the electrification backlog of occupied residential dwellings, installing bulk infrastructure, and rehabilitating and refurbishing electricity infrastructure. The INEP has direct and indirect components: direct grants are to municipalities deemed to have adequate capacity; indirect grants to municipalities deemed to lack capacity to implement the electrification programme.
Provincial conditional grants		
National and Provincial Department of Education	School Infrastructure Backlogs Grant (SIBG) and Education Infrastructure Grant (EIG)	The SIBG is an indirect grant implemented by the national Department of Basic Education (DBE) on behalf of provincial education departments. The grant provides funding for the Accelerated Schools Infrastructure Delivery Initiative, which is an ongoing programme aimed at implementing basic safety norms and standards in schools. The EIG is a direct grant to provincial education departments that is used to supplement the school infrastructure programme in provinces.
National and Provincial Department of Health	National Health Grant (NHG)	The NHG is an indirect grant with three components to support: (i) infrastructure projects, (ii) the national health insurance scheme pilot sites and (iii) the roll-out of the human papillomavirus vaccine.
	Health Facilities Revitalisation Grant (HFRG)	The HFRG component is used to accelerate the construction, maintenance, upgrading and rehabilitation of new and existing health infrastructure, and to supplement expenditure on infrastructure delivered through public-private partnerships.

Education (SIBG and EIG) and health (NHG and HFRG) infrastructure grants were chosen because education and health account for the largest share of provincial budgets (more than 40% on education and more than 30% on health). Addressing infrastructure backlogs in these two sectors is a national priority, and a large part of infrastructure is funded through conditional grants. Furthermore, these grants consist of both direct and indirect components. The HFRG is important not only for addressing backlogs but also for implementing National Health Insurance, one of the biggest reforms within the health sector.

3.3 Trends in Indirect Grants Allocations

Table 11 details the total value of direct and indirect conditional grants allocated between 2004/05 and 2016/17. Over this 13-year period, indirect grants grew by 13% in real terms and 19% in nominal terms, significantly outpacing the marginal growth of 0.3% in direct grants.

Table 11. Allocations in respect of direct and indirect grants

	Direct Grants (R million)	Indirect Grants (R million)
2004/05	68 291	1 707
2005/06	25 539	1 753
2006/07	35 065	1 436
2007/08	47 316	2 034
2008/09	60 396	2 418
2009/10	70 800	3 088
2010/11	119 093	2 940
2011/12	95 737	2 770
2012/13	103 529	7 271
2013/14	110 263	8 390
2014/15	118 090	13 139
2015/16	128 853	14 510
2016/17	137 309	14 349
Real annual average growth over the period	0.3%	13.0%

Source: National Treasury (2005–2014)

The monetary value of direct grants may be much greater than that of total indirect grants, but indirect grants are growing at a faster pace. From a low base of R1.7-million in 2004/05, indirect grants are projected to reach just over R14-billion by 2016/17. This is a sign of greater centralisation and control over spending by national government.

3.4 Findings

Table 12 provides a summary of both expenditure performance (financial) and infrastructure delivery performance (non-financial).

Table 12. Summary of financial and non-financial performance of selected infrastructure grants

Sector	Grant category	Financial performance	Non-financial performance	Recent developments
Education	Direct (EIG)	Good	Cannot be directly determined	Average spending was above 100% over three years (2011–2013).
	Indirect (SIBG)	Poor	Poor	Due to poor spending since its introduction, allocation has been reduced in 2015 Medium Term Expenditure Framework. Over three years (2011–2013), spending was at 49%.
Health	Direct (NHG)	Good	Cannot be directly determined – non-alignment of targets and delivery	In 2013/14, the direct component was divided into three grants, for health infrastructure, hospital revitalisation, and nursing colleges and schools grants. Spending was 88% for health infrastructure and 83% for hospital revitalisation.
	Indirect (HFRG)	Poor	Cannot be directly determined – non-alignment of targets and delivery	In 2013/14 spending was at 41.5%. R167-million was converted into direct grants to KwaZulu-Natal and Northern Cape provincial health departments. In 2014/15, an allocation of R262-million was shifted to the direct grant.
Electrification	Direct (INEP)	Good	Good	Over the period 2006/7–2013/14), spending of the indirect component outperformed the direct component. This could be because, unlike many other indirect conditional grants, the grant is spent by an agency (i.e. Eskom) rather than a national department. Similarly, non-financial performance was better for Eskom (indirect grant) than municipalities (direct grant). Most years Eskom exceeded its target for households connected, whereas municipalities averaged just over 83%.
	Indirect (INEP)	Good	Good	
Sanitation	Direct (RHIG)	Cannot be determined (2013/14)	Cannot be determined (2013/14)	The RHIG was an indirect grant since its inception in 2010/11 and did not perform well until 2013/14 when the direct component was introduced.
	Indirect (RHIG)	Poor (but improving)	Poor (but improving)	

Provinces and municipalities appear to be better at ensuring grant funding is spent compared to national government. In some instances, determining the actual performance is difficult because the data relating to targets and actual delivery is either not available or incomplete. However, from available data the following can be highlighted:

- The indirect education grant did not achieve its targets.
- Reporting on outcomes of health grant was not aligned to targets.
- The electrification indirect grant performed better than the direct grant. This could be because a specialised agency is responsible for the delivery. However, municipalities also performed well, achieving 83% of their household connection targets in seven years. This could be because municipalities have been implementing these projects for a number of years.
- The sanitation indirect grant performance varied but has improved. At this stage, it is not possible to comment on the direct component's performance because a thorough analysis still has to be done.

Some of the reasons for the poor performance of indirect conditional grants include:

- a. A lack of capacity even at national level. The lack of capacity in provinces and municipalities is one of the main reasons for national departments implementing indirect grants. Yet, in some instances, national departments do not have the capacity and rely on implementing agents.
- b. Implementing agents do not always have sufficient technical capacity (DBE, 2014).
- c. Poor planning processes, which should include identifying grant beneficiaries (i.e. communities and households).

3.5 Conclusion

Provincial and local government conditional grants are key for funding infrastructure and reducing infrastructure backlogs in various sectors, including education, health, sanitation and electrification. Indirect grants to provincial and local government are increasing and growing at a faster rate than direct grants. No principles or policies exist to guide the reclassification of grants from direct to indirect (and vice versa), despite numerous recent reclassifications. Nevertheless, key aspects, which should guide government in assigning grants direct/indirect status emerged from an assessment of the performance of four grants in the education, health electricity and sanitation sectors. With respect to financial performance, the analysis shows that direct grants outperform indirect grants. The one exception is the electrification indirect grant, which is implemented by an agency and not a national sector department.

3.6 Recommendations

With respect to managing direct and indirect conditional grants, the Commission recommends that:

1. National Treasury and line departments consider the use of indirect grants as a measure of last resort while continuing to build capacity in provinces and municipalities.
2. Clear criteria are developed to guide the scheduling and rescheduling of conditional grants, taking into account:
 - a. Historical financial performance
 - b. Non-financial performance
 - c. Time period before converting a direct grant to an indirect grant. The responsible government sphere should be given sufficient time (at least three years) to administer and implement a direct grant before considering conversion to an indirect grant. Such conversion must be implemented through a differentiated approach
3. Comprehensive capacity-building plans are developed, with clearly determined targets and time-frames, in cases where indirect grants are considered as a result of poor capacity within a province or municipality.



CHAPTER 4

Accountability in Infrastructure Delivery – The Case of the Local Government Sphere

CHAPTER 4

Accountability in Infrastructure Delivery – The Case of the Local Government Sphere

4.1 Introduction

The decentralised delivery of infrastructure in South Africa recognises the key role of subnational governments, especially local government as the sphere closest to the people. In years to come, an even bigger role for local government is envisaged by the National Development Plan (NDP). To deliver infrastructure, municipalities rely heavily on indirect³² and direct conditional grants, which means that municipalities are required to report to the grant provider (national or provincial department) on the spending of such grants. National or provincial departments are responsible for the performance of indirect grants, which are characterised by widespread under-spending.

This chapter looks at local government accountability for the spending of infrastructure conditional indirect grants. These grants drive infrastructure provision and are proliferating, but have high levels of under-spending. The chapter considers:

- How municipal councils can exercise accountability over conditional grants, which is related to where the accountability for the performance should lie: with the grant provider (national or provincial department), the municipality (as recipient of the grant) or both.
- Whether, given the levels of under-spending, councils are failing in their task to hold the executives accountable.
- If accountability lies with the councils, how effective are the municipal accountability mechanisms, such as the Municipal Public Accounts Committees (MPAC) and Audit Committee.

The chapter also makes recommendations on strengthening accountability mechanisms for infrastructure delivery and management within the local government sphere.

Accountability here refers broadly to a range of processes by which individuals or groups of individuals are held to account for their actions or conduct (Glynn and Murphy, 1996). Two elements of accountability are considered: at a basic level, accountability is about giving an account of one's actions, or accounting for spending etc.; more broadly, accountability is requires "a person to explain and justify [...] their decisions or actions" (Corder et al., 1999). Thus the accountability relationship should be understood to be between an actor (accountor) and an accountee, in which the actor has an obligation to explain and to justify his/her conduct and face the consequences.

After discussing accountability arrangements in the local government sector, the methodology and findings are presented, followed by the conclusions and recommendations.

4.2 Accountability Arrangements in the Local Government Sector

Understanding accountabilities in the local government sphere means first understanding who is accountable for infrastructure delivery. Pinpointing the accountability is not easy because the sphere contains many players with various governance and management responsibilities. It is also complicated by the conflation of accountability processes with various socio-political factors (Khalo, 2007) and the concept of accountability, which is fluid. Nevertheless, some local government accountability, both internal and external, can be identified.

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³² Indirect grant refers to a conditional grant that is an allocation in kind for spending by national department on behalf of a municipality or local government.

South Africa's local government fiscal framework is complex, characterised by multiple fiscal accountability connections. For infrastructure delivery, accountabilities range from service recipients to the central government, with in between these two extremes local and provincial governments, service providers,

middlemen, politicians, civil society, independent institutions, etc. Accountability arrangements are both internal and external (Table 13). Internal formal accountability mechanisms include rules and regulations, budgets, performance evaluations, internal auditing, monitoring and incentives. External formal mechanisms include enabling legislation and laws, budget/auditing committees, political and legal oversight bodies, the Office of the Auditor-General and citizens. There are also informal mechanisms, such as professional associations, interest groups and media. Generally, accountability is vertical (i.e. top down) but can be horizontal, and accountabilities may also be one way or two way.

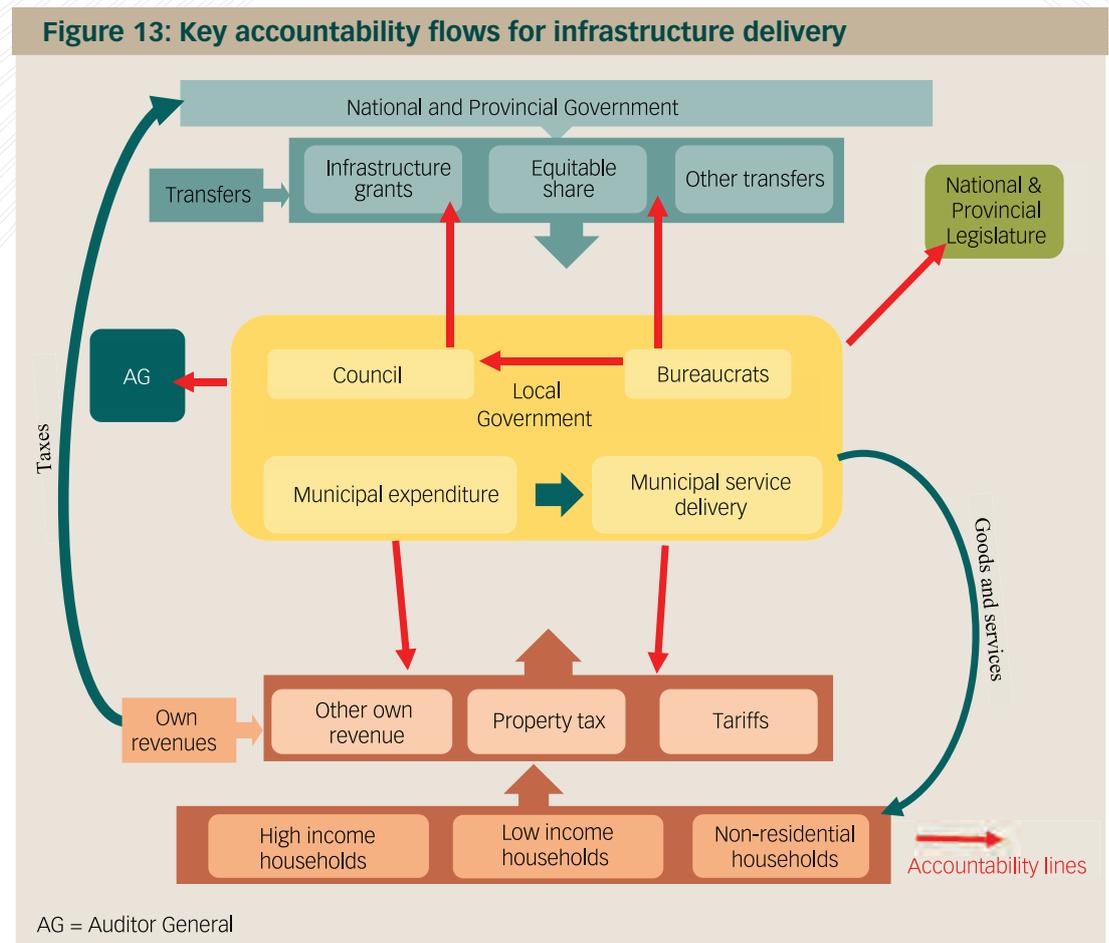
Table 13: Accountability mechanisms in infrastructure delivery

	Internal	External
Formal	<ul style="list-style-type: none"> Rules and regulations Budgets Performance evaluations Internal auditing Monitoring Incentives 	<ul style="list-style-type: none"> Enabling legislation and laws Budget/auditing committees Political and legal oversight Auditor-General Citizen participation
Informal	<ul style="list-style-type: none"> Professionalism 	<ul style="list-style-type: none"> Public scrutiny Interest group pressure Peer review Media scrutiny

National and provincial governments are responsible for providing policy direction and funding, while local government is responsible for governance and for raising own revenues to provide services at the local level. Government policies need to be reflected at subnational levels and funded largely through transfers of public resources from national to subnational government. These transfer payments mean that local government is accountable to national government, i.e. vertical accountability. Local government also has a direct accountability relationship with the public and its constituent communities. In addition to transfers, municipalities provide public goods and services using own revenues raised through various instruments (e.g. rates and local taxes). These revenue sources make the sphere accountable to households and business.

A number of accountability relationships exist within local government: between elected officials and managers, between elected officials and citizens, and between citizens and managers. Figure 13 shows the three forms of accountability: downward/vertical (municipality accountable to local citizens); upward/vertical (municipality accountable to higher organs of state); horizontal (municipality accountable to other municipalities or government agencies such as the Office of the Auditor-General).

Figure 13 provides a bird's-eye view of key accountability flows for infrastructure delivery. Local government is at the centre, as it is assumed to play a significant part in infrastructure spending and delivery.



Accountability in the local government sphere in South Africa is embedded in various pieces of legislation. The general framework for prudent financial management and local government accountability is set by the Constitution (1996). Additional guidelines for accountability are provided in the Municipal Structures Act (No. 117 of 1998), the Municipal Finance Management Act (no. 56 of 2003), and regulations such as the Local Government Municipal Regulations of Financial Misconduct Procedures and Criminal Proceedings and the Municipal Regulations on Standard Chart of Accounts, as well as various National Treasury circulars.

4.3 Methodology

The methodology included both desktop research and fieldwork. The desktop research evaluated accountability arrangements for (and under-spending of) conditional infrastructure grants, while qualitative case studies evaluated the efficacy of accountability mechanisms in infrastructure delivery within the local sphere. For the case studies, the following nine municipalities were identified through a stratified random sampling technique: one metropolitan municipality: Mangaung (Free State); one district municipality: Waterberg (Limpopo); and seven local municipalities: Westonaria (Gauteng), Sol Plaatje (Northern Cape), Ramotshere Moiloa (North West), Mbizana (Eastern Cape), Newcastle (KwaZulu-Natal), Stellenbosch (Western Cape) and Bushbuckridge (Mpumalanga).

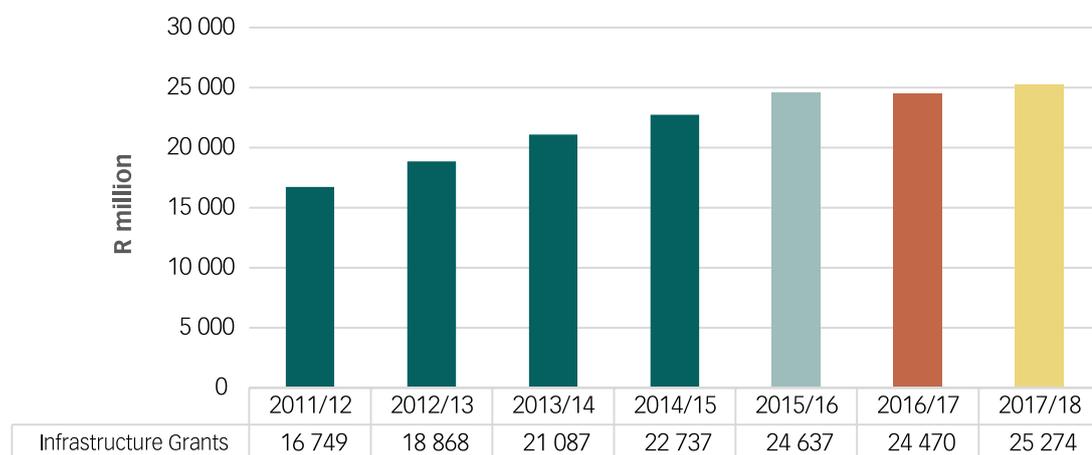
Information was collected from primary and secondary sources within the municipalities. Secondary data was collected from municipal annual reports, research reports and other relevant government and parliament reports. Primary information was collected through interviews and discussions with municipality officials, mostly municipal managers, Chief Financial Officers (CFOs) and planning and infrastructure managers. A total of 49 officials were interviewed in the nine municipalities using a semi-structured questionnaire. Interviews with these stakeholders enabled some triangulation of the results to get a comprehensive picture of both internal and external accountability arrangements. The qualitative analysis focused on emerging themes, patterns and trends.

4.4 Findings

4.4.1 Infrastructure grants and accountability

The local government sphere implements part of the national infrastructure programme, with most municipalities relying on national and provincial transfers for capital investments. As Figure 14 shows, in 2015/16 local government received almost R24.6-billion in direct and indirect infrastructure grants, up from about R17-billion in 2011/12, and is projected to receive R25.3-billion in 2017/18.

Figure 14: Local government infrastructure grants

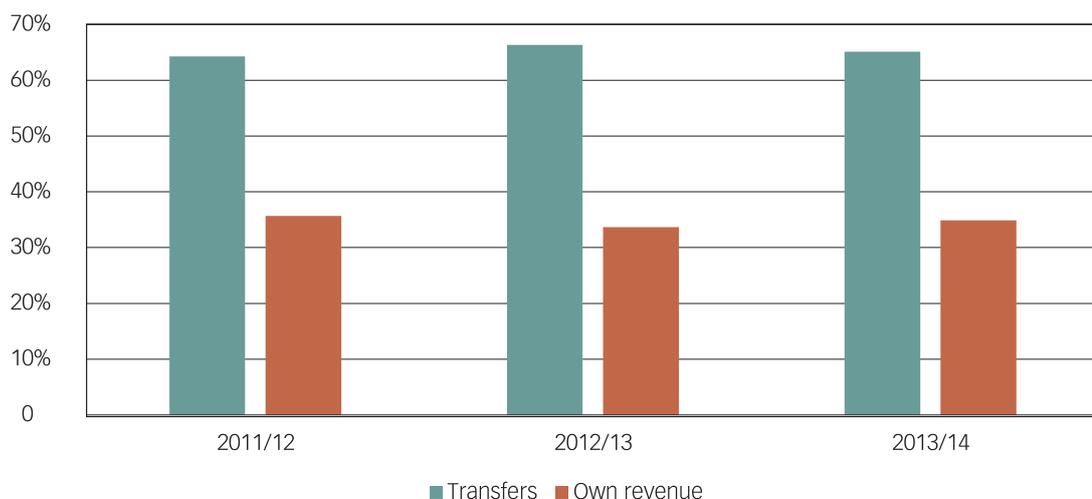


Source: Author's calculations from National Treasury database

Conditional grants and accountability

As conditional grants are the main source of infrastructure funding, respondents noted that the accountability relationship is primarily between local and national/provincial departments. There is very little accountability between municipalities and their communities, which could be explained in part by local government's heavy reliance on conditional grants, resulting in municipalities using little (if any) own revenues for infrastructure funding (Figure 15).

Figure 15: Shares of revenue sources for local government infrastructure



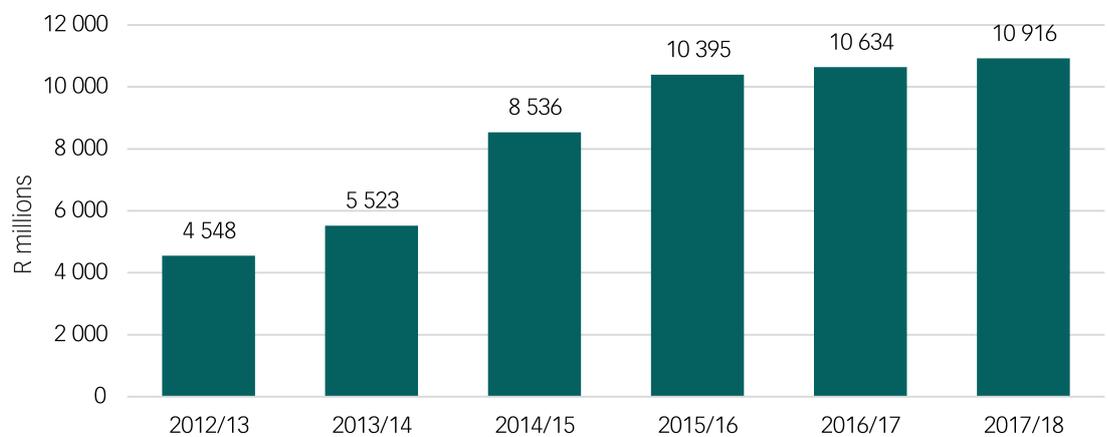
Source: Author's calculations from National Treasury database

National and provincial governments impose the rules and methods of service provision, and provide the bulk of resources. They are more concerned with ensuring legality and financial compliance rules. This suggests that very low priority is given to efficiency, effectiveness, quality and value for money. When the focus is not on satisfying clients by using resources as efficiently as possible, and success is measured by following rules, the result is often a lack of sensitivity to citizens' choices and demands.

Indirect infrastructure grants proliferation and accountability

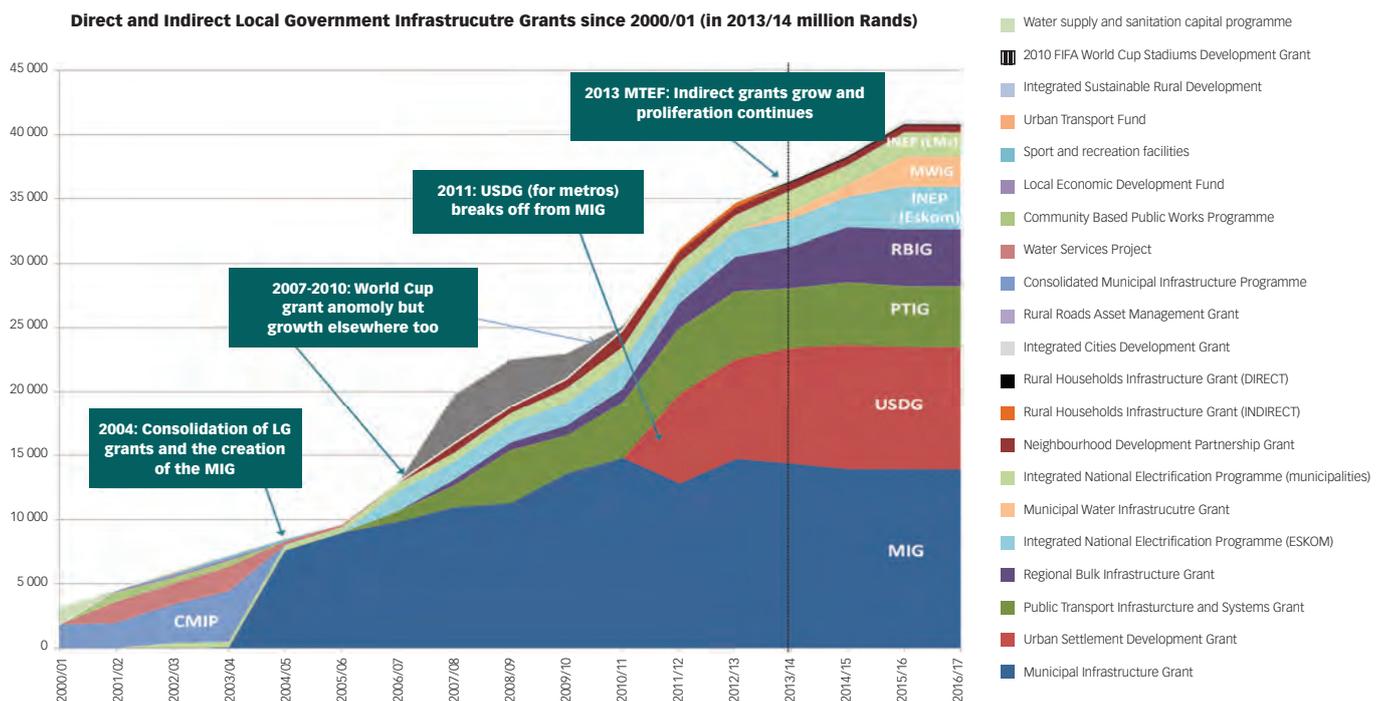
The intergovernmental fiscal system has recently seen a proliferation of indirect infrastructure grants. To meet the demands for new infrastructure, line departments have motivated for the creation of new grants. As a result, there has been a move away from the grant consolidation approach, which was gradually implemented between 2004 and 2010. Figure 16 plots the trends in indirect transfers to the local government sector, while Figure 17 shows the evolution of infrastructure grants. As Figure 16 shows, indirect transfers to local government amounted to R4.5-billion in 2012/13 and are expected to rise to over R10-billion in 2017/18.

Figure 16: Indirect transfers to local government



Source: Author's calculation from National Treasury database

Figure 17: Direct and indirect infrastructure grants



Source: National Treasury (2015)

Table 14. Real growth of local government direct and indirect grants

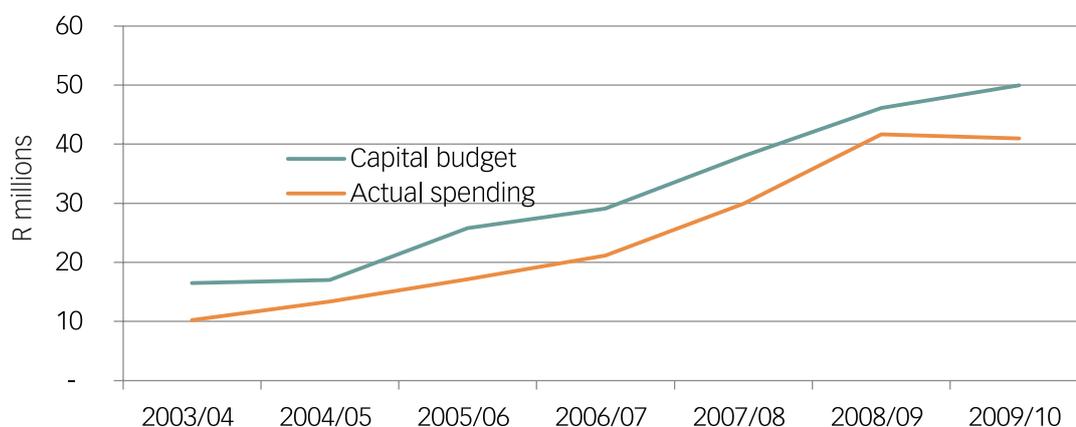
	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	Average growth rate
Direct	10%	88%	17%	-3%	5%	20%	8%	10%	0%	6%	16%
Indirect	12%	46%	31%	29%	-8%	-6%	61%	17%	49%	18%	25%

Table 14 traces the growth rate of indirect and direct infrastructure grants. The average real growth rate of indirect grants (25%) outweighed that of direct grants (18%).

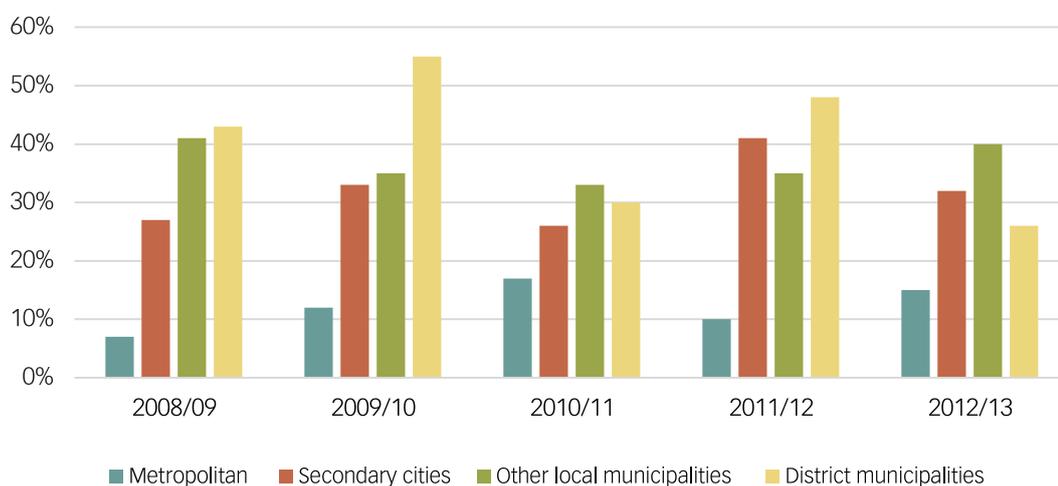
The proliferation of indirect grants does not augur well for accountability relationships in the local sphere. Municipalities surveyed appear clear on accountability lines for direct grants but less so for indirect grants, especially regarding who is answerable for the under-spending of indirect infrastructure grants. Some municipalities (Sol Plaatje, Ramotshere Moiloa, Newcastle, Stellenbosch and Mbizana) suggested that they are sometimes held accountable for poor quality work that is funded through indirect grants and so under the supervision of national or provincial departments.

Under-spending and accountability

As Figures 18 and 19 show, the under-spending of infrastructure grants by local government is a challenge. Capital budgets are funded from own revenues and infrastructure grants. Under-spending on capital budgets is higher among district and local municipalities than among metros and secondary cities.

Figure 18: Capital expenditure under-spending

Source: Author's calculations from National Treasury database

Figure 19: Under-spending on capital budgets by type of municipality

Source: Author's calculations from National Treasury database

Table 15 shows the expenditure performance of direct and indirect grants. The under-spending of indirect grants is greater than that of direct grants. For example, in 2013/14, an average of 92% of direct grants were spent, compared to 83% for indirect grants.

Table 15: Expenditure performance of direct and indirect grants

	2011/12	2012/13	2013/14
Direct transfers			
Local Government Financial Management Grant		96%	98%
Municipal Infrastructure Grant	84%	79%	95%
National Electrification Programme	93%	81%	81%
Public Transport Infrastructure Grant	49%	104%	
Neighbourhood Development Partnership Grant	95%	103%	
Rural Transport Services and Infrastructure Grant	32%		
Electricity Demand-side Management	91%	49%	
Disaster Relief Funds	62%	68%	
Municipal Drought Relief	81%		
		77%	84%
Expanded Public Works Programme Integrated Grant (Municipality)		103%	115%
2010 FIFA World Cup Stadiums Development Grant			98%
Municipal Water Infrastructure Grant (Schedule 5B)			68%
Rural Road Assets Management Systems Grant			95%
Urban Settlements Development Grant		93%	
Average Direct	73%	85%	92%
Indirect transfers			
National Electrification Programme	84%	80%	100%
Neighbourhood Development Partnership Grant	96%	47.5%	87%
Water Service Operating Subsidy Grant	100%		
Regional Bulk Infrastructure Grant	97%	96%	100%
Rural Household Infrastructure Grant	31%	60%	38%
		113%	92%
			78%
Average Indirect	82%	79%	83%

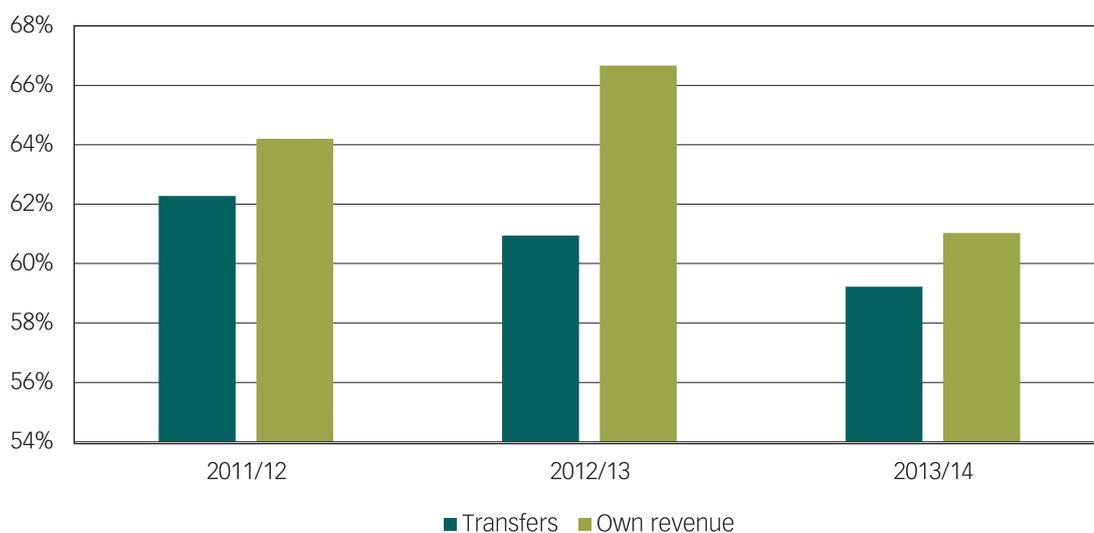
Source: National Treasury (2014)

Reasons for under-spending on indirect grants are many and include: lack of capacity, weak oversight institutions, and poor planning and budgeting. In response, the government has implemented a host of capacity-building initiatives and established various monitoring and benchmarking arrangements.

Yet the question remains who is accountable for under-spending indirect grants. And who is accountable for (and must bear the consequences of) the non-delivery or postponed delivery of infrastructure, which is implied by the under-spending. When spending responsibilities lie with national departments, municipalities cannot be responsible for under-spending on indirect grants. National (or line) departments responsible for these grants have to account to Parliament, and Parliament in turn accounts to the electorate. However, this long accountability loop is often ineffective and results in the wrong parties being held responsible for spending inefficiencies. For example, local government may be held to account for the non-spending of indirect grants (and thus non-delivery of infrastructure) because previously these grants were administered by municipalities, which the communities think is still the case. In contrast, national government departments responsible for under-spending cannot be held to account by municipal councils and are not directly answerable to communities where such infrastructure is destined.

Furthermore, as indirect grants are not municipal own revenue, municipalities may not always pay attention to performance. This may explain why the spending of municipal own revenue is better than that of conditional grants (Figure 20). The implication is that own revenues are spent more efficiently and transparently because taxpayers demand more accountability from the municipality. Therefore, in order to improve local-level accountabilities, municipalities would need to expand own revenue sources, through (e.g.) borrowing.

Figure 20: Average spending as a percentage of adjusted budget



Source: Author's calculations from National Treasury database.

4.4.2 Legislation and accountability capacities in the local government

Legislation is clear: all spheres of government are required to be accountable, transparent and responsive to the needs of the people. Section 152(1a) of the Constitution and Section 51(b) and (i) of the Municipal Systems Act (No. 32 of 2000) are explicit about the need for local government accountability and for establishing accountability structures. South Africa has a number of accountability mechanisms, such as budgets, performance evaluations, internal auditing, monitoring and incentives. Legislation also provides for accountability bodies, such as national and provincial parliamentary committees, political and legal oversight bodies, the Office of the Auditor-General and citizen participation. At national and provincial levels, public accounts committees ensure that, among other things, the executives are held accountable for the effective and efficient use of resources.

Municipal accountability structures

The Constitution (1996) vests both legislative and executive powers of a municipality in the council. A council appoints an executive mayor (or an executive committee) who exercises executive authority.³³ The executive mayor appoints a mayoral committee from among the councillors to assist with proposals and plans, as well as the day-to-day running of the municipality. The mayor is assisted by a mayoral committee, appointed from among the councillors. The executive mayor accounts on behalf of the administration to the council. The Municipal Structure Act (No. 117 of 1998) provides for municipalities to establish two types of committees: Section 79 and Section 80 committees.

Section 79 committees assist council in exercising oversight over the executive. These committees comprise of councillors and, if required can include (i.e. for Audit Committees only), outside advisory experts. Examples of Section 79 committees include the Finance Oversight committee; Municipal Public Accounts Committee (MPAC), and the Audit Committee. The MPAC, established through the Municipality Finance Management Act (No 56 of 2003), is a local version of provincial and national public accounts committees. Its mandate is to hold the executive to account and ensure that municipal resources are used effectively and efficiently. The MPAC examines Auditor-General reports and determines whether municipal funds are appropriately spent. In the case of wasteful, irregular, unauthorised and fruitless expenditures, the MPAC can, if necessary, call the executives to account. This implies that the MPACs play a more significant role in financial accountability than other municipal committees. The Finance Oversight Committee exercises oversight on policy matters, such as pointing out deviations from stated policies. The Audit Committee is another equally important committee in terms of budgetary accountability. Every municipality must have an Audit Committee that serves as an independent advisory body. It is independent because the majority of its members must come from outside the municipality. The Audit Committee must consist of at least three persons, the majority of whom may not be municipal employees and no councillor may serve on the committee. Its main function is to advise the council on the proper financial management of the municipality.

Section 80 committees report to the executive mayor and are usually permanent committees that specialise in one area of work (e.g. energy, finance, housing and social welfare). They are sometimes given the right to make decisions over small issues but do not perform any accountability function as they are part of the executive.

In assessing the effectiveness of accountability mechanisms for infrastructure delivery within local government, particular attention was paid to the committees that deal with infrastructure delivery or spending in one form or another: the MPACs, Audit Committees and Finance Oversight Committees. The assessment was based on five elements of accountability (World Bank, 2008; Horng and Craig, 2008): clear lines of delegation and assignments; adequate funding to accountability structures; performance and skills to do the job; information about performance; enforceability and that there are consequences. Effective accountability also requires enablers, such as: a clear mandate, adequate powers, adequate resources (human, financial, equipment), strong leadership, access to information, skills to interpret and analyse budgets, and financial information (Moeti, 2007).

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³³ The Municipal Structures Act (Chapter 4) provides for two types of municipalities: those with an executive mayor and those with an executive committee. In the latter case the council elects the executive committee and the mayor as its chairperson. In KZN all municipalities have executive committee-type councils. The powers and functions of executive committees are similar to those of the executive mayor.

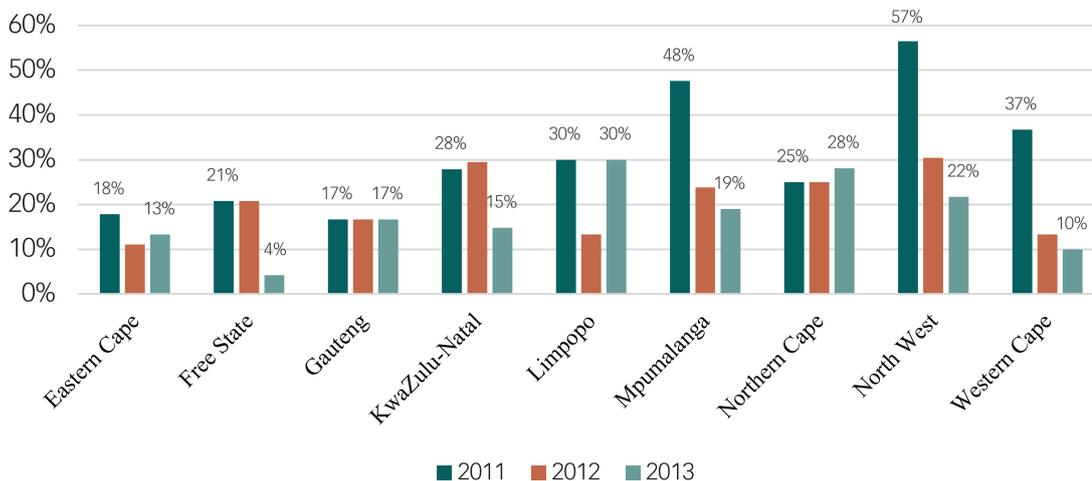
³⁴ Societal accountability refers to actions and mechanisms that citizens, communities and civil society can use to hold public officials and public servants accountable.

All municipalities studied have committees responsible for holding executives to account, with a clear mandate that is spelt out in various pieces of legislation and circulars. However, most of these committees appear to lack capacity and skilled personnel able to scrutinise, interpret and analyse information on fiscal and financial matters. Without capacity, these committees will have difficulty gathering and analysing information that can be used to hold executives to account. The lack of financial resources mean that (i) the committees cannot procure support for distilling essential information necessary to hold the executive to account; (ii) the committees are unable to hold widespread, effective public hearings (i.e. platforms that enable council to account to communities), which results in limited societal accountability³⁴ for the local sphere closest to the people; (iii) committee reports and resolutions are not widely disseminated, further limiting the municipality's societal accountability. These findings corroborate those of Khalo (2007), who identified challenges facing MPACs, including lack of continuity and loss of institutional memory, inadequate powers, limited resources and poor attendance of their public hearings.

Accountability risks

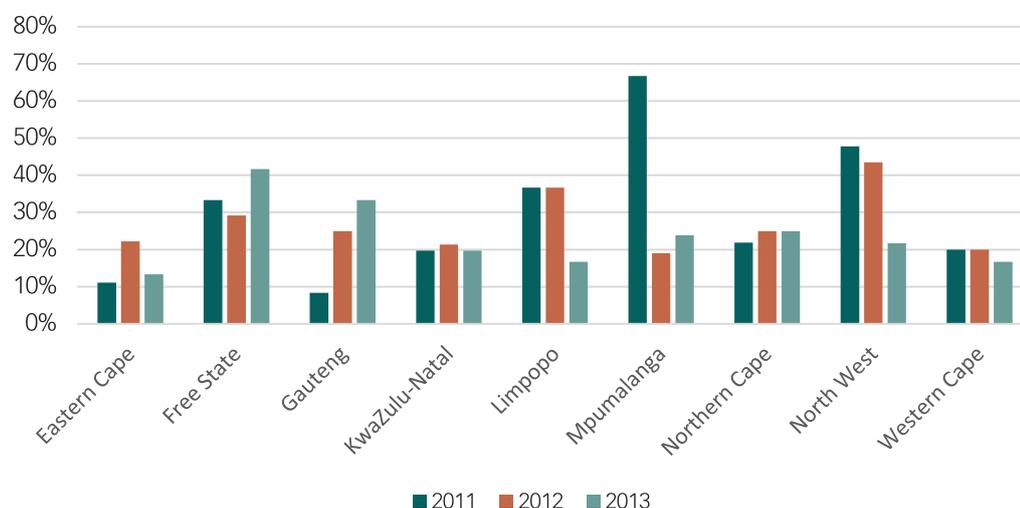
The most significant risks to accountability, as identified by the municipalities surveyed, are the turnover of senior staff and the lack of permanently appointed municipal managers and CFOs (Figures 21 and 22). While still significant in certain provinces (in 2013, nearly a third (30%) of Limpopo municipal managers were 'acting'), the situation has improved. For example, the proportion of 'acting' municipal manager in the North West Province has dropped from 57% in 2011 to 22% in 2013.

Figure 21: Acting municipal managers



Source: National Treasury (2014)

Figure 22: Acting CFOs



Source: National Treasury (2014)

Senior managers are responsible for executing council resolutions, including resolutions related to budgets. Despite the downward trend, the percentage of 'acting' senior managers is cause for concern, given that these officials account to political executives and line departments (for direct grants) on the use of resources. Instability at senior management level contributes to poor quality statutory documents, such as the integrated development plan (IDP), the budget, annual reports and financial statements, thereby diminishing the municipality's ability to account. Another concern is that the acting municipal manager or CFO may shift the blame for underperformance to previous incumbents. Acting managers are also more likely to avoid taking responsibility and to delay making decisions.

4.4.3 Societal accountability and infrastructure delivery

Infrastructure is delivered for citizens and, therefore, their needs should ideally be factored in. Municipalities need to account to citizens regarding infrastructure spending, selection, prioritisation and location. Societal accountability is when citizens hold public officials to account through monitoring their spending patterns, exposing wrong doing, and activating investigations into abuse and misuse of resources. In all nine municipalities studied, citizens are consulted about infrastructure through being involved in the development of the IDP. However, accountability is minimal, as community consultation happens only before the IDP is developed, not when it is in place. In other countries, public officials have to account to communities on budgetary issues in between elections. India and Uganda can provide useful lessons for South Africa about effective and institutionalised societal accountability on fiscal issues (Bjorkman and Svensson, 2009). In both countries, societal accountability is achieved through community monitoring groups, which track expenditures, report on municipal under-spending and check that public funds are disbursed for intended purposes. These community monitoring groups are made up of individuals elected by communities and chosen based on their expertise in different areas of service delivery (ibid).

4.5 Conclusion

Accountability is the cornerstone of development and good governance (NPC, 2011). Local government accountability for infrastructure delivery and spending is complicated by the fact that most infrastructure is funded through direct and indirect conditional grants, rather than own revenues. Accountability for the performance of conditional grants flows from municipal officials to national or provincial departments, with very limited accountability to municipal councils and communities. The proliferation of indirect grants distorts effective accountability within the transfer system. National (or line) departments administer indirect grants but are rarely held to account for under-spending of the grants, while municipal councils are unable to hold national departments to account. Under-spending on infrastructure grants implies forgone or postponed investment, increased backlogs and, ultimately, diminished growth.

Under-spending is more pronounced for conditional grants than own revenues, which suggests that own-revenue spending is more efficient. This is probably because municipal councils are able to hold the executive to account for own-revenue spending. Councils and communities cannot hold national department officials for the under-spending of conditional grants.

Addressing under-spending requires accountability lines to be clarified, those responsible for inefficient spending to be answerable, and sanctions to be imposed. The current framework fails to guarantee accountability, which suggests that, where possible, a shift towards direct infrastructure grants is necessary. An accountability framework should be developed for indirect grants. Such a framework should involve municipal councils (as is the case for own revenues) and should contain indicators for monitoring the grants. Serious consideration needs to be given to a new infrastructure funding framework that will enhance accountability and management of public finances. Accountability could also be enhanced by municipalities expanding their own-revenue sources, including through borrowing. Therefore, strategies are needed to improve the uptake of loan finance and broaden the scope of debt instruments to cater for different municipalities.

Accountability structures are in place in all South Africa's municipalities, but accountability is often seen as simply meeting legal obligations and financial compliance, rather than providing quality and value for money. The structures are insufficiently resourced to ensure that public officials answer for their behaviour, justify and report their decisions, and are eventually sanctioned or rewarded for those decisions. Within municipalities, there is a lack of capacity and skills to monitor and track expenditures and hold executives accountable for under-spending. The accountability structures need strengthening, through research support and technical expertise, so that they can address problems, such as the diversion of public funds for unintended purposes, and general inefficient spending. Although the institutional component of the local government equitable share does provide for some councillor support (and by extension council committees), incentives are needed to be embedded, to encourage municipalities to support properly these committees.

The needs of communities also need to be factored in, as infrastructure is delivered for citizens. The value of community/societal accountability in infrastructure delivery is well documented, as is that fact that

the opportunities for fraud, bribery, embezzlement, corruption and patronage are higher in the provision of infrastructure than for other public goods (Bardan and Mookherjee, 2000). Community accountability makes it more difficult for public officials to divert public resources for undesignated purposes (Ling and Roberts 2014). Despite the high value placed on societal accountability for infrastructure delivery, this study has shown that societal accountability is limited in many municipalities mainly due to inadequate financial and human resources.

4.6 Recommendations

With respect to improving accountability on local government infrastructure delivery, the Commission recommends that:

1. National Treasury and the Department of Cooperative Governance develop an framework to guide accountability for indirect infrastructure grants. The framework should identify accountability lines, mechanisms, and enforcement, and spell out the consequences for undermining the accountability arrangements.
2. Accountability structures and infrastructure within the local government are strengthened, and incentives are provided within the existing transfer streams for research and technical support. Committees should be provided with adequate technical and research support, and sufficient resources to engage with and account to the communities. Smaller and adjacent municipalities should endeavour to pull together such support to aid the work of accountability committees.
3. That social accountability is institutionalised (established as a convention or norm in the local government sector) and an accountability framework is developed by SALGA, to guide communities on how to hold local governments accountable. This framework should also contain indicators for rating municipality performance on social accountability in general and infrastructure development in particular.

PART 3

Improving State Capacity through Education and Productivity Innovations

Upgrading human capital, through quality education, produces two potentially enormous dividends: economic growth and reduced inequality, since the less well-off will benefit from many of the gains from growth. Education and health are important determinants of human capital formation, which is, in turn, important for economic growth and rising per capita incomes over time. As major providers of these public services, governments have a role to play in providing (and increasing the standards) of such services, in order to expand the formation of human capital and future economic growth). This is a particularly important in South Africa where unemployment is high and higher job growth is needed. Schooling has not delivered fully on its promise to be the driver of economic success. Expanding education attainment³⁵, which has been central to educational interventions over the past 21 years, has not guaranteed better economic conditions. What has been missing is attention to the quality of education – ensuring that students actually learn. Improving human capital requires not only access to quality education but also tools of the trade, such as information and communication technology (ICT). With economies becoming increasingly knowledge-based, ICT investment has come to the fore. Like investments in transport and energy, investments in ICT can lead to improved growth, productivity and efficiency.

In previous submissions, the Commission has made recommendations for promoting excellence in higher education and lifelong learning, and for dealing with problems in pre-school education, e-learning and adult skills. This year, the focus is on early childhood development (ECD), public sector productivity and the use of ICT to enhance productivities. Although the main focus is on early childhood and basic education, excellence is needed in higher education and lifelong learning, while longstanding problems in vocational training and adult skills must be dealt with. This section consists of three chapters.

Chapter 5 considers fiscal arrangements for financing early childhood development education infrastructure. South Africa has been at the forefront of developing programmes and policies to meet its constitutional obligations towards children's rights. Despite the robust legislation and policies, ECD remains highly inaccessible, inequitable, and insufficiently resourced. The lack of adequate infrastructure, in particular, exacerbates accessibility problems among the poor children. Public funding for constructing and maintaining ECD infrastructure is limited, unstructured and highly fragmented. The three spheres of government are concurrently responsible for ECD, but none of them has an identifiable and standing budget line item or programme for ECD infrastructure. The fragmentation and lack of funding is attributable, in part, to policy ambiguities and poor coordination between the departments of social development and cooperative governance and traditional affairs, and municipalities. Without a well-coordinated and integrated national ECD infrastructure programme, piecemeal interventions will continue to distort the distribution of funding and reinforce inequities.

Chapter 6 looks at public sector productivity and how to improve it. Secondary education is used as a case study to examine public sector productivity. With the economy growing slowly and tax revenues under pressure, the call is growing for greater accountability on how public funds are spent, especially for sectors such as education that consume a large share of government funds. The chapter evaluates the extent to which productivity in secondary education can be improved. The weak association between the spending of public funds secondary education outputs suggests that non-monetary determinants of productivity or education expenditures are being used inefficiently. Environmental factors, such as the income of households, teacher commitment, socio-economic status of households and school size, all affect efficiency scores. More specifically, simply increasing resources to public schools will not necessarily improve school outcomes. What is needed is to focus more broadly on understanding productivity in the public sector, the measurement of productivity and internal and external factors that influence productivity.

Chapter 7 is on improving government operations through information and communication technologies. Shifting to an eGovernment approach has the potential to improve and expand service delivery, as well as to help overcome the spatial divisions that persist in South Africa. The chapter explores the key barriers that prevent departments/municipalities from treating investment in ICT as a strategic enabler for improved service delivery and efficiency. The methodology entailed a review of key policies and literature, as well as interviews with selected stakeholders. The study found that, despite the progress made by government, the ICT goals in the NDP are unlikely to be met within the given timeframes, as certain areas first need some attention. These relate to simplifying the policy environment and ensuring that implementation is closely aligned to policy goals and objectives. Such issues need to be addressed before focusing on whether ICT is underfunded or not given sufficient prioritisation, as funding should follow function in an effective intergovernmental system.

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³⁵ Educational attainment refers to the highest degree of education an individual has completed.

CHAPTER 5

Fiscal Arrangements for Financing Early Childhood Development Infrastructure

5.1 Introduction

One of classical statutory and public investment function is ensuring adequate provision of quality early childhood development (ECD) infrastructure to house government-subsidised programmes (Sussman and Gillman, 2007). South Africa's obligations to provide child-related services are derived directly from Chapter 2 of the Constitution, in particular Section 28, which prescribes the ethical and legal obligations of the government and caregivers to honour children rights. The Constitution builds on three fundamental principles of children's rights: protection, survival and development. Government has developed legislation, policies and programmes to give effect to the Constitution, most notable the Children's Act (No 38 of 2005) and the National Development Plan (NDP).

Despite the robust legislation and policy underlying the provision of ECD services, the sector remains fragmented and insufficiently resourced to address basic challenges. Parental fees alone cannot cover the cost of delivering high-quality ECD, but the Children's Act puts no obligation on Government to fund early education infrastructure. Nevertheless, such an obligation is implied in Section 227 of the Constitution, which states that the provision of child-care facilities is a concurrent local government function, whereas national government and provinces are responsible for the education and welfare components of ECD services.

Evidence indicates that ECD programmes with the highest infrastructure standards deliver significant and lasting positive behavioural and development outcomes for learners and the economy at large (Azzi-Lessing, 2009; Olds, 2001; Krichevsky et al., 1997). However, the reality is that many ECD centres are unable to meet infrastructure standards. A national audit of ECD centres found that 70% of facilities are unsuited to providing ECD services, and 40% require urgent maintenance (DSD, 2014a). Children are often housed in unsafe facilities that do not have heating, ventilation, sanitation, separate kitchen and administrative facilities, water or electricity (Viviers et al., 2013). The majority of ECD facilities lack necessary resources to build 'fit for purpose' facilities (Illifa-Labantwana, 2011). The lack of funding and high start-up costs deter the establishment of new facilities in poor communities (Viviers et al., 2013) which in turn prevents many ECD facilities from registering and accessing the operational subsidy available from the Department of Social Development (DSD).

As a result, many ECD centres continue to operate illegally, while many children are excluded from accessing quality ECD services needed to develop to their full potential. Unless government takes active responsibility to stimulate investment in ECD facilities, the benefits of early education, which include academic achievement and long-term savings in remedial programmes, will not be fully realised.

The lack of adequate ECD infrastructure results from a combination of factors, including: obscure inter-governmental fiscal arrangements, policy constraints, high construction costs, low income levels, and compliance requirements with infrastructure norms and standards. This chapter evaluates (1) the benefits of public ECD infrastructure investment; (2) existing intergovernmental arrangements for delivering and financing infrastructure, and (3) alternative funding models for scaling up investments in ECD facilities. After describing the methodology, the key findings and results are presented, followed by the conclusions and recommendations.

5.2 Methodology

The study employs multiple research methods, including a meta-analysis to establish the benefits of public investment in ECD infrastructure, unstructured interviews with interest groups, case studies in provinces and municipalities, and a budget analysis of ECD allocations. The case studies evaluate the institutional and fiscal transfer arrangements of government-funded programmes for upgrading ECD facilities in impoverished communities.

5.3 Findings

5.3.1 Benefits of investing in ECD infrastructure

While the benefits of investing in infrastructure are well documented, until recently little attention has been given to the benefits of early education infrastructure on human development and the broader economy. Yet infrastructure serves as the foundation of the entire education value chain (Azzi-Lessing, 2009), and the child benefits both directly and indirectly from investments in early education infrastructure.

Child development pioneers, such as Montessori (1965), have always emphasised the importance of children’s interaction with their environment as the basis for development, and the need for children to play in an environment rich in resources. Certain extreme physical environment elements (e.g. poor ventilation) can have a negative effect on the learners (Higgins et al., 2005). Exposure to chronic noise impairs cognitive functioning and is associated with reading problems, but other physical elements in the classroom improve comfort, leading to better attainment (See Table 16). Evidence suggests that programmes with high quality infrastructure standards produce significant and lasting benefits to children. Cuyvers, (2011) also found a statistically significant variation in satisfaction levels and wellbeing between students attending schools with quality infrastructure and those with poor quality infrastructure. Table 16 shows the result of a meta-analysis on the effects of ECD infrastructure.

Table 16: Meta-analysis of infrastructure effects

	Temperature/ air quality	Noise	Light	Other features	Equipment	ICT
Attainment – improvements in curriculum attainment	Poor internal air quality → poor attainment (Earthman, 2004)	Noise → poor reading scores (Schneider, 2002)	Mixed results	Outdoor spaces → reduced feelings of crowding (Tanner, 2000)	Comfort and better attitude → better attainment	Mixed results
Engagement – decrease in disruptive behaviour	Uncomfortable temperature and poor air quality → distraction	Noise → lack of attention and distraction				
Affect – improvements in self-esteem		Noise → annoyance		Conflicting evidence on ceiling height (Read et al., 1999; Earthman, 2004)		
Attendance – fewer instances of lateness and absenteeism	Poor air quality → poor attendance (Rosen and Richardson, 1999)		Light → improved attendance (Hathaway, 1990)			
Wellbeing - reduction in minor and major ailments	Poor air quality → ill health (Lee and Chang, 2000)	Inconclusive	Light → visual stimulation and improved mental attitude (Earthmore, 2004)		Better ergonomic design → improved wellbeing, (Troussier, 1999)	

5.3.2 Access and condition of ECD centres

Providing adequate investment, which enables children to thrive, is a moral and economic imperative. Many studies have found that relatively low levels of investment during childhood can yield intergenerational economic returns for both individual and the society (Rees et al., 2012). Proper physical infrastructure is necessary for accessing early education in a quality and safe learning environment. The condition of the physical space and the environment can affect the safety, wellbeing and behaviour of children, the conduct of the teachers and, most importantly, the perception and participation of the parents. Indeed, the condition of the infrastructure can be considered as a proxy for the quality of service rendered (DBE et al., 2011).

The national ECD draft policy requires all facilities to have adequate physical infrastructure and to be accessible, i.e. “within safe and reasonable reach” (DBE, 2014: 111). Furthermore, all programmes must be delivered in safe buildings or structures, which have hygienic sanitation facilities, hygienic and safe food storage and preparation areas, as well as indoor and outdoor spaces suited to the provision of relevant programmes. There must also be clean portable water, access to safe energy sources, and the necessary equipment and materials for delivering programme activities (Giese and Budlender, 2011; Martin et al., 2014).

The General Household Survey found that only two million (34%) of the 5.7 million young children aged 0–5 years are cared for in formal ECD centres (StatsSA, 2014). This is partly due shortage of facilities. The remainder typically receive ECD services through informal arrangements, such as home-based care or shorter day programme, home visits, outreach or mobile programmes.³⁶

Table 17: Proportion of children aged 0-4 years in different ECD services (2013)

ECD arrangements	Provinces									
	EC	FS	GP	KZN	LP	MP	NC	NW	WC	South Africa
Grade R, Pre-school, crèche	30.7	49.5	47.4	23.2	36.1	30.7	23.8	29.5	37.3	34.4
Day mother	8.1	12.2	14.7	18.0	11.1	4.2	13.1	4.2	10.4	11.9
Home with parent or guardian	52.5	32.2	33.4	48.2	43.1	56.2	52.9	56.2	42.7	45.4
Home with another adult	6.7	5.2	3.5	10.0	8.4	6.9	8.3	6.9	7.4	7.0
Home with someone younger than 18 yrs.	0.0	0.1	0.0	0.1	0.3	0.0	0.0	0.0	0.2	0.1
Somebody's dwelling	1.3	0.8	0.9	0.4	1.1	1.9	1.5	1.9	2.0	1.0
Other	0.7	0.0	0.2	0.2	0.0	0.2	0.4	0.2	0.0	0.2
Total	100									

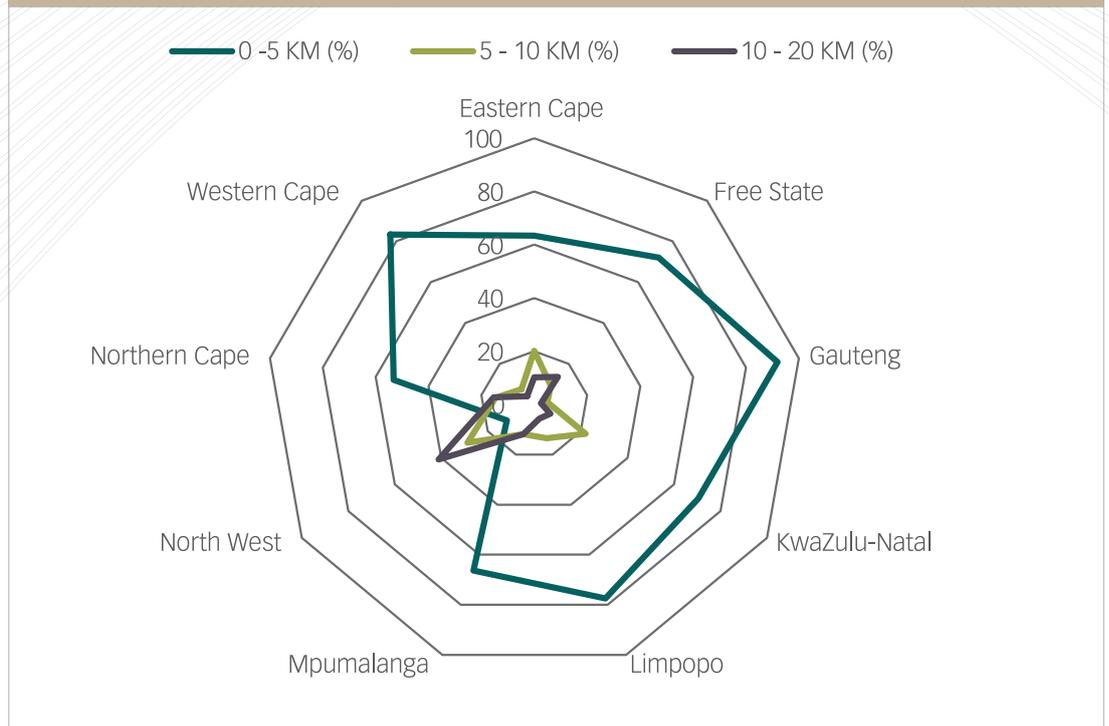
Note: EC: Eastern Cape; FS: Free State; GP: Gauteng Province; KZN: KwaZulu-Natal; LP: Limpopo; MP: Mpumalanga; NC: Northern Cape; NW: North West Province; WC: Western Cape.

Source: StatsSA (2014)

ECD facilities are fairly equitably distributed and close to most children. Approximately 4.8 million (73%) of South African children aged 0–5 years live within a five-kilometre radius of an ECD centre. Gauteng Province and the Western Cape have the highest number, while the North West Province has the lowest number of children living within five kilometres of an ECD centre (Figure 23). However, enrolment figures are not consistent with the high accessibility levels, partly because of delayed attendance, cost factors and prevalence of non-centre based child-care arrangements. Also, as Harrison (2012) concedes, not every child aged 0–5 years should be in a child-care facility because parents and caregivers should be at the centre of child’s development during this period.

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³⁶ Non-centre based facilities generally provide little or no early education activities. Illifa Labantwana found that the majority of ECD facilities in 10 townships focused predominantly on providing a safe place for young children while parents are working.

Figure 23: Child-ECD facility distance radius

Source: Adapted from DSD (2014a)

ECD facilities are generally perceived to be in poor physical condition (DSD, 2012; Illifa-Labantwana 2011) and are housed in community buildings, such as churches and community halls, not specifically built for purpose (Watermayer, 2013). The main infrastructure challenges include insufficient classrooms, no separate areas for cooking, storage or staff offices, and poor basic service amenities. There is also a lack of learning materials and resources, and inadequate security and safety for children while at the ECD facility (DBE et al., 2011). These problems are particularly acute in the rural areas, where most facilities are community-based and self-funded privately or by non-profit organisations³⁷ that lack necessary resources to build 'fit for purpose' facilities (Illifa-Labantwana, 2011).

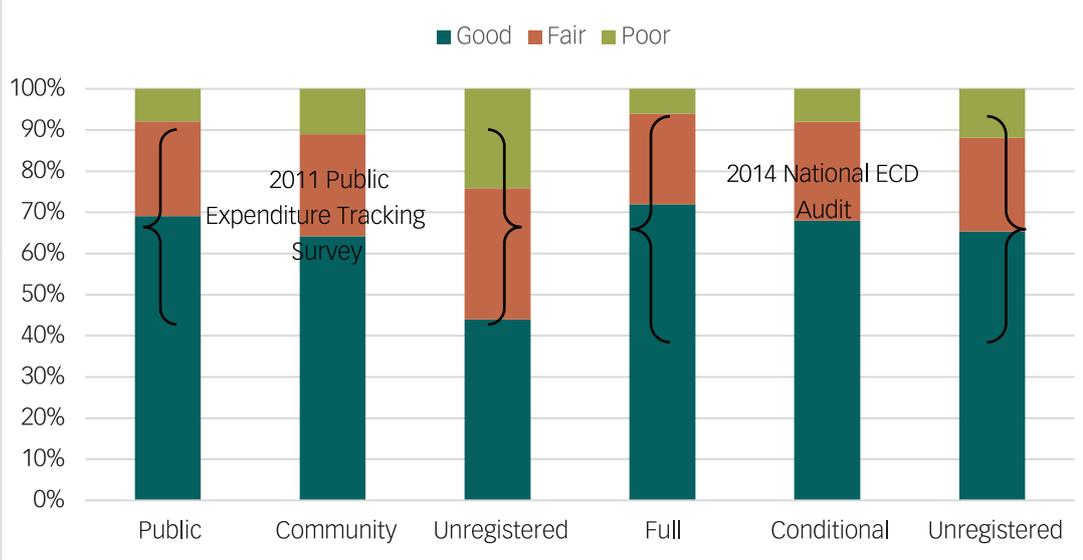
Nevertheless, the 2014 national ECD audit found that facilities improved enormously between 2001 and 2014 (DSD, 2014a). In 2001, more than half of the ECD facilities in five provinces scored below the national average (53%) for access to piped water, flushing toilets and mains electricity (Williams and Samuels, 2001). By 2014, access to basic services had increased to more than 80%, over 90% of facilities had separate kitchen areas, 80% had separate toilets for adults, while 55% had dedicated staff offices. Two independent surveys found that the condition of ECD facilities have indeed improved (Figure 24), with the number of unregistered ECD facilities in good condition increasing from just under 50% in 2011 to 65% in 2014.

Over half of the registered centres (55% of fully and 53% of conditionally registered centres) are housed in formal structures specifically built for the purpose of providing ECD. The rest use community halls, primary schools, houses and garages, and places of worship. A small proportion of centres are housed in informal structures (i.e. buildings made of corrugated iron and wood, or mud and poles), comprising just under 10% of fully registered and 16% of unregistered centres (DBE et al., 2011; DSD, 2014a).

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³⁷ NPOs are largely dependent on donor funding with only 10–20% of required funds coming from government (Illifa Labantwana, 2011)

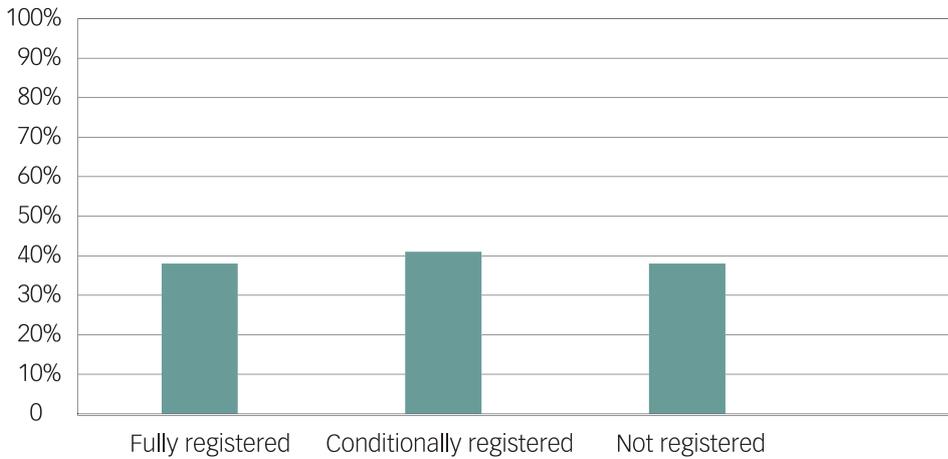
Figure 24: Condition of ECD buildings



Source: Adapted from DBE et al. (2011) and DSD (2014a)

Notwithstanding, their fairly good condition (Figure 24), a significant number of facilities require urgent maintenance (Figure 25).

Figure 25: Facilities needing urgent maintenance in 2014



Source: DSD, 2014a.

5.3.4 ECD policy and division of responsibilities

Internationally, no blueprint policy framework assigns ECD-related functions to the different spheres of government. This is partly because of the multidimensional nature of ECD service. However, the division of tasks and responsibilities have also changed considerably, as a result of the decentralisation and de-regulation of welfare and education policies (OECD, 2000). Provinces and municipalities have increasingly become active in the area of child care, responsible for policy-making, planning and supporting ECD facilities. Policies across the OECD countries emphasise the need for non-profit public ownership of facilities and mixed provision for greater family choice and active role in decision making.

In South Africa, the broader policy framework underpinning ECD provision emphasises integrated and inter-sectoral delivery. The responsibility for delivering ECD is divided across the departments of social development, education, health, as well as local government, with the DSD providing overall policy guide and coordination. According to Schedule 4, Part A of the Constitution, education and welfare services are

concurrent responsibilities of national and provincial government. Part B singles out child-care facilities as being a local government responsibility shared with other two spheres of government. Section 87 of the Children's Act gives effect to the Constitution, stating that municipalities must identify and provide suitable premises for partial care facilities.

However, the policy framework is not clear on whether the role of government is to regulate or implement ECD facilities. Local authorities may have the legislative competence to pass legislation and policy relating to child-care facilities (DSD, 2014b), but funding is not included. The ECD infrastructure policy states that funding of ECD infrastructure by national government is voluntary because government has no expressed or implied legislative duty to provide ECD facilities.

5.3.5 Sources of ECD infrastructure funding

Municipalities interpret the legal framework differently, with some making provision for infrastructure funding, while many others limit their duties to land-use planning and zoning requirements for ECD facilities (City of Tshwane, 2012; Drakenstein municipality, 2014).

South Africa does not have a systematic program to finance ECD infrastructure. Nevertheless, ECD facilities receive funding from a number of sources, including operational subsidies, user fees, donations and fundraising. The bulk of income comes from subsidies (55%) and fees (36%), with the balance being made up of donations and fundraising (predominantly in unregistered facilities). The current subsidy model for ECD does not provide for infrastructure development and maintenance, even though facilities must meet prescribed infrastructure requirements to qualify for registration and the subsidy (Richter et al., 2012). The average monthly subsidy income per child ranges from just R100 to R350, depending on the number of qualifying children and the province. The fees charged are generally too little to finance facilities' capital needs – the average monthly fee per child ranges from R20 in low-income areas to just over R350 in well-off areas. (DSD, 2014a). Table 18 shows the subsidy allocation and distribution by province.

Table 18. Subsidy rate, allocation and beneficiaries by province (2014/15)

Province	Rate per child per day	Allocation per annum	Number of children receiving the subsidy	Total number of children enrolled for ECD
Eastern Cape	15	R227 165 400	57 365	83 613
Free State	15	R181 173 960	45 751	110 275
Gauteng	15	R279 548 280	70 993	168 822
KwaZulu-Natal	16	R364 569 216	86 309	145 169
Limpopo	15	R274 075 560	69 211	147 818
Mpumalanga	15	R193 066 440	48 739	127 685
North West	15	R91 448 280	23 093	73 587
Northern Cape	15	R19 994 080	4 948	31 924
Western Cape	15	R233 640 000	59 000	103 200
Total		R1 864 221 216	465 009	992 093

Source: Adapted from DSD (2014a)

Some ECD facilities benefit from infrastructure improvement initiatives by provinces, national departments, agencies, local government and the private sector, but these programmes are largely unsystematic and not reflected in the annual budget line items. For example, the departments of public works, rural development and cooperative governance and traditional affairs occasionally fund infrastructure through programmes such as Expanded Public Works Programme (EPWP), the Community Works Programme and the Community Rural Development Programme¹⁸. In 2013/14, the social sector EPWP was allocated just under R273-million, while the CPW budget was about R1-billion.

The National Development Agency (NDA) also provides limited infrastructure financial assistance, mainly in the form of mobile ECD trucks. In 2014/15 the NDA spent R6.6-million, or 34% of its total ECD programme budget (of R19.2-million) on infrastructure development, of which 28% was allocated to the Eastern Cape (NDA, 2014). Available information on private sector funding suggests that most companies support formal schools and some ECD centres through their corporate social investment programmes.

The wide variation in funding approaches is evident from Boxes 1 and 2. Most provinces do not have an identifiable programme for financing the construction or maintenance of ECD infrastructure; in exceptional cases, individual authorities may allocate a once-off budget to construct, upgrade or maintain facilities.

Box 1: Provincial ECD infrastructure programmes and funding approaches

ECD infrastructure financing programmes varies markedly across the different provinces. In Gauteng, the province does not provide any form of capital funding to ECD facilities, which are predominantly fee-dependent, private facilities able to raise own capital funding. The Eastern Cape provincial DSD occasionally pays the rents on behalf of ECD centres.

The Western Cape does not have a coherent programme or a standing budget line item for ECD infrastructure but, at the end of the financial year, often allocates funding from the ECD directorate for the upgrading of unregistered facilities. The upgrades are carried out by NGOs such as the Centre for Early Childhood Development (CECD) and Illifa-Labantwana. In 2013/14, the unit made R3-million available for upgrading 300 ECD facilities, assisted by five NPOs to manage the upgrade programme. Upgrades cost between R8,000 and R250,000 and covered the installation of water, septic tanks, and even the replacement of buildings. Mainly community-based centres are eligible for the upgrades, but the CECD found that 91% of facilities they assisted are privately owned. (Atmore, 2014). Over the years, the ECD directorate piloted the construction of four enrichment centres (include crèche, toy library and outreach centre) and transferred the operations of these centres to NPOs. The project has since failed because of the NPOs were unable to sustain the centres, despite paying a small annual rental fee of R100. The ECD directorate also receive an annual donation of R70,000 from the Queen of Monaco, to assist at least one centre a year.

KwaZulu-Natal is the only province that consistently allocates a budget for building, upgrading and maintaining ECD infrastructure, using funds from the provincial equitable share. Between 2009 and 2014, the province spent more than R750-million on ECD infrastructure, with the bulk of the funding going towards constructing new facilities at an approximate cost of R5.3-million per centre. Facilities eligible for upgrades and refurbishment are identified by the provincial DSD and through MECs (Members of the Executive Council) intervention programme. Newly built facilities remain the asset of the department but are operated by NPOs through Service Level Agreements (SLAs). A cause for concern is the lack of integration between the province and municipalities when planning for the construction of child-care facilities.

R'000	2009/10	2010/11	2011/12	2012/13	2013/14
New	60 684	54 192	122 616	125 352	141 021
Upgrades and additions	13 125	18 110	10 115	75 026	36 347
Refurbishment and rehabilitation	3 994		7 178		
Maintenance	6 632	7 345	5 056	20 000	34 414
Total	84 439	79 649	144 971	220 380	211 801

Source: KZN provincial treasury (2014).

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¹⁸ It is not clear whether the department funds construction of new ECD facilities from its own allocations or coordinate funding from relevant department. However the department often put out tenders for construction of these facilities.

Like provinces, municipalities provide limited funding support to ECD, despite being the constitutionally designated sphere of government

responsible for supporting child care facilities to meet minimum infrastructural, health and safety standards, registration of child-minding services, the development of new ECD service provision infrastructure, and the audit and identification of available infrastructure that may be used for expansion of early learning services (DSD, 2014a: 58).

The national ECD policy and ECD infrastructure policy categorically state that municipalities are responsible for providing ECD facilities and connecting them to utility services. However, research shows that only 10% of facilities have ever received support from their local municipality (Sustainable Livelihoods Foundation, 2012).

Box 2: Selected local government ECD programmes and funding approaches

The City of Cape Town has an ECD policy, an ECD land-use policy and an established ECD programme, with 10 staff members, responsible for the capital and operational requirements of both city- and community-owned ECD facilities. The city's capital programme is guided by a needs analysis conducted by the Council for Scientific and Industrial Research. The programme oversees 24 ECD centres owned by the city and a number of ECD Centres of Excellence that support smaller facilities. Each centre costs approximately R8-million and can accommodate 100–250 children. Once a facility is built, the city invites NPOs and community-based organisations to apply to operate the facility. Successful applicants enter into a facility management contract (operational lease), which stipulates the rental fees and conditions under which the facility must be maintained. Operators pay an annual lease fee of R700 but are responsible for the utility fees and minor maintenance; major maintenance is carried out by the city. The city's total ECD capital spending was R7.3-million in 2013/14, R16-million in 2014/15 and R11-million in 2015/16.

The City of Tshwane has 10 ECD centres that are owned and run by the municipality through the Early Childhood Development Institute. The city covers the capital and operational costs, including personnel costs, of these facilities. Other facilities within the city's jurisdiction benefit from a competitive grant-in-aid programme that has been running since 2006. A R100,000 once-off grant is offered to successful applicants that meet the set requirements, which include being in existence for two or more years, being registered as an NPO and enrolling more than 20 children. Use of the grant is limited to training (40%) and educational equipment, food and mattresses. In 2013/14, the city spent a total of R7-million on 70 ECD facilities.

5.3.6 ECD constraints and impediments

The lack of sufficient resources from both government and the community constitutes an important supply constraint. As experience in the Western Cape and KwaZulu-Natal shows, the average cost of a new ECD facility ranges from R5.6-million to R8-million. Most provinces and smaller municipalities are unlikely to afford this within their allocated budgets. However, Watermayer (2013) shows construction and upgrade can be achieved with moderate costs as seen from Table 19.

Table 19: Estimated cost of upgrade and new site developments (2013)

Category 1	Estimated costs
Maintenance or building support to meet DSD requirements	R60 000
Category 2	
Additional major structure (playroom) and building support to meet DSD requirements	R100 000-R200 000
Category 3	
New site development	R200 000

Source: Watermayer (2013).

A number of legislative impediments limit government's ability to invest in ECD infrastructure. Section 93 of the Children's Act broadly stipulate that the MEC for social development may fund ECD programmes (mainly centre based) from departmental appropriations, but the Public Finance Management Act prohibits government from investing in assets owned by communities or private individuals. The newly amended NPO Act allows for members of NPOs to share the assets upon dissolution of the organisation, which is likely to reduce the extent of public investment within the ECD sector because of the potential losses to government.

Another impediment is the lack of coordination and cooperation between the different government departments and spheres, in particular the departments of cooperative governance and of social development, and municipalities.

- The DSD claims that municipalities should be (but are not) funding ECD facilities from their Municipal Infrastructure Grant (MIG), Urban Settlement Development Grant (USDG) and the Integrated City Development Grant (ICDG).
- The South African Local Government Association (SALGA) claims that provincial DSDs do not make the necessary funding allocations to municipalities.
- The Department of Cooperative Governance and Traditional Affairs is of the view that municipal funding anomalies result from the absence of social development sector plans and the lack of participation in municipal IDP planning processes by the provincial social development departments.

5.3.7 Policy contradictions

Despite the evident deficit in ECD infrastructure, the policy on Integrated Delivery of Social Infrastructure and Management identifies ECD facilities as category 2 priority infrastructure, which the DSD has no expressed or implied duty to provide (DSD, 2012).

The ECD draft policy (DSD, 2014b) states that local government's role is to provide ECD facilities, using the MIG and the USDG. The policy further proposes introducing an NPO infrastructure improvement grant, to help NPOs meet the minimum norms and standards, and an infrastructure grant, to help provinces speed up construction, maintenance, upgrading and rehabilitation of new and existing infrastructure. Yet newly constructed facilities will be owned by the DSD. These policy contradictions reinforce the uncertainties over the roles and responsibilities of different spheres of government. The case studies demonstrate that direct ownership of facilities by government may lead to unintended perverse incentives (where operating NGOs underinvest in the maintenance of buildings owned by government) and inequities in service levels between government-owned and other facilities (NGOs and private).

5.3.8 Alternative ECD funding models and delivery approaches.

Despite the legislative and systemic constraints to ECD investments, several financing models are available to government that could help address the capital needs of ECD facilities. The financing models differ according to whether they target the supply or demand side and the respective role played by the public, private and the voluntary sector. Depending on the policy orientation, five different financing models are available (Grunn, 2008):

- (i) Central supply, where national government directly build and own ECD facilities.
- (ii) Decentralised public supply, where municipalities implement projects on behalf of national government through block grants with or without earmarking.
- (iii) Public incentive-based financing, whereby national government reimburses providers of child care in block or per child based on the quality of the facility.
- (iv) The mixed model and market-making, where government stays out of ECD provision and lets parents, NPOs and private providers finance most of it. Government's role is to provide supplementary services, such as matching open places with parents.
- (v) Government provides generous means-tested, demand-side public subsidies to parents, enabling them to buy ECD education at any private ECD facility of their choice.

5.4 Conclusion

The availability of sufficient and quality physical ECD infrastructure is critical for both the wellbeing and cognitive development of the children and the economy. However, only 34% of children aged 0–5 are enrolled in formal ECD centres, which is partly due to a shortage of facilities and to parental decisions to delay the enrolment of their children in ECD facilities. Informal arrangements with little or no education aspect cater for the remaining children aged 0–5. Many facilities may have serious infrastructure deficits, which present potentially health and safety risks to the children, and do not meet the ECD norms and standards for infrastructure, mainly because of a lack of resources and support from government.

However, recent evidence suggests that existing ECD infrastructure deficits are exaggerated, as approximately 4.8 million (or 73%) of children aged 0–5 years live within five kilometres of an ECD centre. Half (50%) of the centres are housed in formal structures built specifically for the purpose of providing early childhood care and development, with access to basic amenities. Notwithstanding this evidence, many ECD facilities are in need of urgent maintenance.

Despite policies that highlight the importance of early education, public sector funding for ECD infrastructure is sporadic, and government's response is largely absent and unsystematic. No coherent framework for financing ECD infrastructure exists, partly because of policy ambiguities over who is responsible – national, provincial or local government – for funding the infrastructure. In general, provinces and municipalities do not have a structured programme or standing budget item for infrastructure. A few provinces and municipalities fund the construction or upgrading of ECD facilities, but only occasionally and using different approaches. These piecemeal interventions distort the distribution of funding and serve to reinforce inequities.

The absence of a public funding programme for ECD infrastructure is also in part because legislation prohibits government from directly funding community and privately owned ECD facilities. KwaZulu-Natal province and the City of Cape Town have been experimenting with alternative funding and delivery models to overcome the legislative hurdles. Possible models include government owning facilities and contracting the operations to community organisations, co-funding facilities (with incentives to meet minimum infrastructure requirements) and a turnkey approach in which NPOs are contracted as technical assistance intermediaries to ECD centres. The lack of funding is attributable to poor cooperation and coordination between the different spheres of government. In other sectors, similar cases of poor coordination have been resolved by developing sector-specific infrastructure plans to guide allocations and investment interventions by the different spheres.

5.5 Recommendations

With respect to fiscal arrangements for financing ECD the Commission recommends that:

1. Government provides a full or partial capital subsidy for constructing and/or upgrading community- and NPO-based ECD facilities, through the municipal infrastructure conditional grant. The funding will facilitate compliance with the required infrastructure norms and standards, ensure that capital expenditure for ECD is carried out through municipalities and minimise inequities in quality standards and service levels.
2. The Department of Social Development introduces a temporary funding programme from within its allocated budget through which self-identified private ECD facilities in poor areas can apply for capital subsidy assistance, on condition that they agree to meet pre-specified deliverables such as enrolment targets, operational sustainability, educational activities and financial accountability.
3. The national and provincial departments of social development develop an ECD infrastructure sector plan, indicating areas that requires urgent intervention, to inform the allocations and investment in ECD infrastructure by the different government spheres and departments.
4. The provincial departments of social development lobby for the ECD infrastructure plan to be incorporated in municipal IDPs.
5. Government makes available technical intermediary services to ECD facilities that are able to build or upgrade facilities on their own.

CHAPTER 6

Public Sector Productivity – The Case of Secondary Education

6.1 Introduction

With the economy growing slowly and tax revenues under pressure, public service productivity is in the spotlight. Productivity improves when services are provided more efficiently and effectively, through either producing the same outputs at lower cost or producing more outputs with fewer resources. Calls are growing for greater accountability from public sectors that consume a large share of government funds, such as education. In 2013/14, the education sector was the largest component in the government budget,³⁹ accounting for 23% of government expenditure. Yet dissatisfaction with education outcomes is widespread, considering the resources consumed and the rising per-pupil expenditure in recent years.

Approximately 75% of the total education budget is consumed at provincial level, with the rest at national level. In terms of Schedule 4 of the Constitution, higher education is the responsibility of national government, while public primary and secondary schools are a concurrent function: national government sets the policy framework, while the provinces take charge of implementation.

Public investment in social infrastructure⁴⁰ such as education brings many benefits to the economy and contributes to economic growth. Increasing productivity in the education sector is important for the long-term health of the economy. Education absorbs a large share of government's wage bill, and so increasing productivity for the salaries paid is important (Boyle, 2006). The education sector also contributes human capital and skills needed to grow the economy, including infrastructure projects. Unproductive spending that leads to poor educational outcomes could weaken the successful implementation of the national infrastructure plan. In addition, education contributes to economic mobility of the poor, a more productive workforce and the introduction of new technologies that may increase productivity. Importantly, education must be of good quality in order to drive economic growth (Familoni, 2004).

The chapter evaluates the extent to which productivity in secondary education can be improved; identifies socio-economic and fiscal factors that may hamper productivity in education, with specific focus on secondary education; and provides fiscal and other proposals to enhance productivity in secondary education and in government as a whole, in order to foster an improved service delivery environment.

After discussing the concept of public sector productivity, the public sector's functional and institutional arrangements of public sector productivity are examined. Having described the methodology used, the key findings are presented, followed by the conclusion and key recommendations.

6.2 Clarifying Public Sector Productivity

Productivity is commonly defined as the relationship between resources and results, or how inputs are transformed into outputs (Gilder, 1975; Bauckaert, 1990; Simpson, 2009). For a government, increasing productivity means expanding services while keeping inputs constant, or delivering the same services with fewer resources – the result is the same: a decline in unit costs. Unlike in the private sector, no single measure captures productivity in the public sector. An emerging understanding recognises that public sector productivity includes efficiency and effectiveness, dimensions that encompass the concept of quality (Hatry, 1978). This understanding also links to the Constitution (1996), which prescribes the efficient and effective use of public resources.

In government thinking on productivity, two common misconceptions often prevail:

- (i) The belief that productivity should be improved largely through cutting costs (e.g. reducing personnel and other inputs) to deliver the same level of services. Not much consideration is given to expanding services – and the quality of services – with the available resources.
- (ii) A mistaken view that productivity can be achieved by driving down costs through substituting higher-quality inputs for lower-quality inputs. Such a strategy may reduce costs but often results in poor service delivery. For example, building schools with inferior-quality materials may cost less but can place schoolchildren at risk, especially where adverse weather conditions may cause structural damage.

Despite the acknowledgement that public productivity includes both efficiency and effectiveness, data and standards for measuring effectiveness are not always available. In practice, efficiency measures are used as a proxy for productivity, although focusing on efficiency alone presents a partial picture of pro-

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³⁹ Total government expenditure is defined as expenditure prior to interest commitments being added to total government expenditure.

⁴⁰ Social infrastructure is defined as a subset of the infrastructure sector and alludes to assets provided in the social services such as education and health (Development Management DPD, 2009)

ductivity. This chapter follows the efficiency approach of measuring productivity, using 'productivity' and 'efficiency' interchangeably.

6.3 Functional and Institutional Arrangements of Public Sector Productivity

In spite of South Africa's complex and sophisticated financial management and accountability framework, public sector productivity is not the responsibility of a single department but is fragmented across government (Table 20). Various departments, including the Department of Public Service and Administration (DPSA) and National Treasury, are looking at assessing public productivity. For example, DPSA (2014) has developed a draft productivity measurement framework for the public sector, while National Treasury has conducted several public-expenditure reviews aimed at uncovering inefficiencies in the system.

Table 20. Roles and responsibilities with respect to public sector productivity

Legislation	Roles and Responsibilities
Constitution (1996) Section 196(4)(b)	The Public Service Commission (PSC) should propose measures to improve efficient and effective implementation of public services.
White Paper on Transformation of Public Service (1997)	All national and provincial departments are expected to set up a transformation unit, with the aim of identifying stumbling blocks to effective service delivery, and making suggestions on how to improve services. The PSC and DPSA are tasked with monitoring overall performance, achieving value for money, and reporting to Parliament on the implementation of the White Paper and batho pele principles.
Public Finance Management Act (1999) Section 38 (b), 45(b)	Accounting officers of national and provincial departments and agencies are accountable for the efficient and effective use of financial and other resources. Government officials are accountable for efficient and effective resource use within their areas of responsibility. National Treasury must enforce effective and efficient financial management, while provincial treasuries perform a similar function at provincial level. Treasuries may also play a facilitating role, in capacitating officials so that they fulfil the requirements, which are meant to ensure that resources are used optimally.
Municipal Finance Management Act (2004) Sections 62(1) (b) and 98(1) (b).	Accounting officers of municipal departments are accountable for efficient and effective use of financial and other resources. Local government officials are responsible for efficient and effective resource use in their domain of responsibility.
Public Audit Act (2004) Section 20 (3)	Where required, the Auditor-General may report on whether the auditee's resources were procured economically and used efficiently and effectively.

Transformation units⁴¹ may be present in many government departments, but most of them have become ineffective. Many have little capacity, lack buy-in from senior management and no longer focus exclusively on effective and efficient service delivery (PSC, 2008).

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⁴¹ Transformation units have changed to batho pele units to facilitate implementing batho pele principles in the public service..

It should be noted that improving productivity is not only about interventions targeting individual employees. Institutional and government-wide factors are equally important, which raises the question of whether a coherent productivity plan for government can be an effective mechanism for synergising interventions at different levels. Table 21 provides a summary of the mechanisms that can lead to improved productivity in the public sector.

Table 21. Mechanisms for enhancing public sector productivity

SOURCE	MECHANISM	BENEFITS	PROBLEMS/CHALLENGES
Infrastructure	Increased public investment in social and economic infrastructure	New investment opportunities and more economic development	Identifying strategically selected sectors of the economy that will yield largest marginal return on public investment. (Familoni, 2004)
	Improved operational efficiencies of state-owned companies that maintain and invest in large-scale public infrastructure projects	Enhanced quantity and quality of such infrastructure, which expands the economy's productive capacity	Maladministration and mismanagement of state-owned companies have a negative impact on economy and the poor. (Familoni, 2004)
Labour	Policies on reducing new hires, strict controls on temporary employees, and central redeployment of employees	Stabilised workforce cost base in the short term. Sends message to organisation to prioritise activities with available resources	Capacity gaps across the organisation. Over time, may create inadequate oversight of key functions or top-heavy management (PwC, 2013)
	Human resource management reforms (e.g. performance management, skills training, workforce planning, control and compensation reform)	Improved staff motivation, skills development, and reduces budgetary slack	If implemented haphazardly, can increase costs without any substantial gain
	Public finance school	Enhanced finance skills in departments	Portability of skills learnt is critical for the training to be effective
Institutional	Application of 'efficiency dividends' across departments	Less expectations of increased funding for the same activity year-on-year, and a continuous-improvement mind-set	Budget flexibility of senior managers removed, as expense control is transferred to the treasury (PwC, 2013)
	Setting up shared back-office service centres	Investment can establish a step change in costs for non-core services in departments	Often established without consideration for the scale required to achieve acceptable rate of return (PwC, 2013)
	Business process re-engineering of administration	Less duplication, overlaps and uncoordinated internal processes	Failure if resistance to change, lack of organisational readiness, no proper champions or integration mechanisms (Mmerekhi and Moruisi, 2013)
	Cutting red tape	Lower transaction costs and shorter turnaround time to deliver services	Challenging decision-making process that requires buy-in at both technical and political level
Government-wide	General review of public policies (audit)	Less bureaucratic complexity by streamlining processes and procedures	Cooperation required from all ministries
	Comprehensive spending reviews	Identification of inefficiencies in service delivery	Coordination required between different levels of government, definition of performance targets and demand for good-quality outcome-focused data
	Introduction of eGovernment portal	Reduced administrative burden	Potential technical constraints, and co-operation required from all ministries and levels of government (Mandl et al, 2008)
	Hard budget constraints and incentive schemes	Reduced budgetary slack and public-sector wages	Potentially politically unpopular, incentive schemes resisted by unions (Borge et al, 2008)

6.4 Methodology

Productivity analysis is still in its infancy in South Africa. However, recent studies have applied Stochastic Frontier Analysis (SFA) and Data Envelope Analysis (DEA) techniques to measure productive efficiency in municipalities (FFC, 2011; Monkam, 2011). In the education sector, Taylor and Harris (2004) evaluated the relative efficiency of ten South African universities. The study found that between 1994 and 1997, overall university efficiency increased marginally, from 86% to 88%, with Potchefstroom University and Rand Afrikaans University being the most efficient.

In this study, a two-stage DEA approach was adopted to measure the productivity of secondary schools, the largest and an important pillar of the South African education system. The data used was from the 2011 TIMSS survey, which is nationally representative and covers Grade 9 learners. The TIMSS survey provides the study variables required for both the DEA and regression analysis. These were complemented with feedback received from structured questionnaires and interviews with key stakeholders. Table 22 presents descriptive statistics of the variables used.

Table 22. Descriptive statistics

		Mean	Std. Dev.	Min
DEA input variables				
Teacher years of experience in mathematics	14.31	9.17	1	43
Teacher years of experience in science	14.08	9.12	1	42
Average class size	42.97	15.78	10	118
DEA output variables				
Pupil maths scores	376.03	80.18	248.55	625.90
Pupil science scores	364.46	100.07	190.58	629.76
Regression variables				
School efficiency score	66.05	15.86	40.42	100
Proportion of schools with moderate to serious constraints in instructional materials (e.g. books)	0.59	0.49	0	1
Proportion of schools with moderate to serious constraints in instructional space (e.g. classrooms)	0.49	0.50	0	1
School location (1=urban, 0=otherwise)	0.47	0.50	0	1
Socio-economic indicator(1=high income, 0=low income)	0.27	0.46	0	1
Teacher absenteeism (1=serious problem, 0=not a serious problem)	0.50	0.50	0	1
Class teachers with at least a degree in either maths or science	0.77	0.42	0	1
School size (enrolments)	865.80	432.76	42	2630

As Table 22 shows, the average secondary school class has 43 pupils, which is better than China (50 pupils) but much higher than the average of 24 pupils for the Organisation for Economic Cooperation and Development (OECD) countries (OECD, 2011). Half of the schools suffer from shortages of instructional materials, e.g. textbooks (59%), or from insufficient instructional space, e.g. classrooms (50%). Teacher absenteeism is also a problem for half (50%) of the schools.

An impressive finding is that the average maths or science teacher has about 14 years of experience, when five years of teaching is considered good experience. However, this finding should be interpreted with caution because (i) the results are only for classes that participated in the test (not the entire school), and (ii) 77% of the classes in the sample were taught by teachers who had at least a first degree in either mathematics or science.

6.5 Findings

6.5.1 Model results

A mean efficiency score of 1 indicates that a school operates efficiently, while a score of less than 1 implies lower efficiency relative to the other schools being evaluated. Of the sample of 210 South African secondary schools, 9% were classified as efficient (i.e. had a score of 1) and therefore produce the highest combination of outputs for any given level of inputs. Half of the schools in the sample had an efficiency score of 0.59 or higher. The mean efficiency score for secondary schools in South Africa is 0.66 with a standard deviation of 0.16. The distribution of the efficiency scores is shown in Figure 26.

Figure 26: Cumulative distribution of efficiency scores

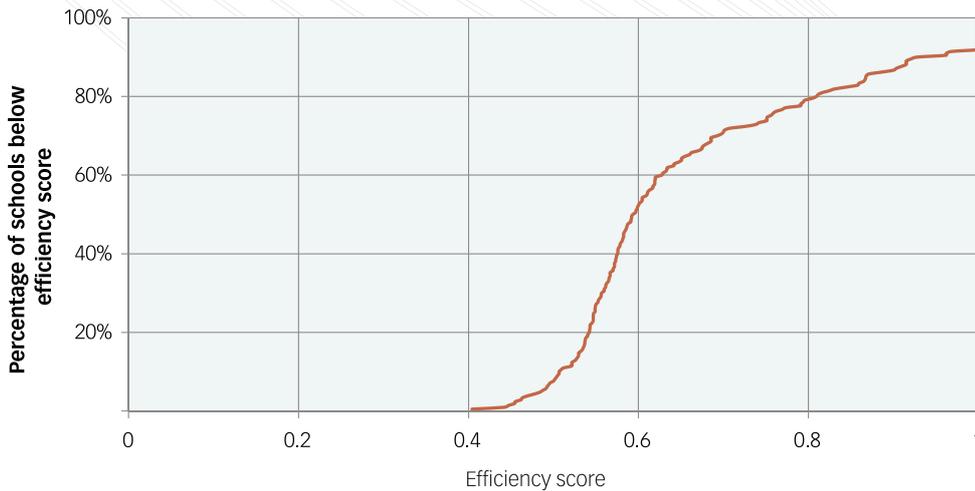


Table 23 presents efficiency scores calculated from the DEA model together with the associated efficiency targets for a selected number of schools in the sample.

Table 23: Selected DEA efficiency scores and target levels

School	DEA score	Maths score	Target	%Δ	Science score	Target	%Δ
H24	1	361	361	0	328	328	0
H42	1	536	536	0	576	576	0
H52	1	346	346	0	326	326	0
H59	1	450	450	0	460	460	0
H62	1	417	417	0	412	412	0
H41	0.9678	515	574	11.46	571	590	3.33
H152	0.9622	587	624.4	6.37	606	629.8	3.93
H22	0.9619	540	577	6.86	570	592.6	3.97
H192	0.9275	539	603.6	11.98	578	623.2	7.82
H210	0.9205	524	576.8	10.08	546	593.2	8.64
H10	0.4551	279	613	119.7	234	628.6	168.6
H13	0.4542	278	612	120.1	230	628.4	173.2
H11	0.4472	266	594.8	123.6	199	605.3	204.2
H9	0.4424	269	608	126	220	628	185.5
H6	0.4042	249	616	147.4	193	628.9	225.9

As Table 23 shows, relatively inefficient schools could still improve their average maths and science test scores using existing resources. Column 2 ("DEA score") shows the efficiency gap and thus the improvement required to achieve full efficiency. To illustrate:

- School H210, which has an efficiency score of 0.92 (92%). This shows that the school has the potential to improve its efficiency by 8% using the same inputs.
- School H24, with an efficiency score of 1 (100%) is fully efficient. The implication is that the school is already efficiently converting inputs to outputs and, therefore, does not have any more scope for improving efficiency, unless funding is increased.

In Table 23, Columns 3 and 6 give the current school achievements (scores) in maths and science respectively. Columns 4 and 8 show the target levels required for full efficiency (given the existing resources) in maths and science respectively. Columns 5 and 7 show the percentage improvement required to achieve efficiency. To illustrate:

- School H210 has a current maths score of 524 but the potential to achieve 577. Therefore, the schools efficiency gap is about 10%.
- School H24, being fully efficient, has an efficiency gap of zero.

A regression analysis was carried out to determine which of the selected variables could drive efficiency. The results are presented in Table 24.

Table 24: Regression results

Variables	coef.	s.error	t statistic	P>t
Instructional materials	-6.9	1.9	-3.6	0.000***
Instructional space	-0.2	1.8	-0.1	0.912
School location	7.3	2.0	3.7	0.000***
Higher income areas	14.3	2.4	6.0	0.000***
Absenteeism	-2.3	1.8	-1.3	0.210
Teaching degree	4.1	1.9	2.2	0.030**
School size	0.0	0.0	0.9	0.394
School size squared	0.0	0.0	-1.5	0.138
Constant	60.5	3.4	18.0	0.000***
log likelihood	150.99			-

Inadequate availability of instructional materials, such as textbooks, has a negative effect on pupil outcomes. At schools with moderate to serious shortages of instructional materials, pupil performance was seven points lower than at schools with few or no shortages. The inadequacy of social infrastructure, such as learning space/classrooms, does not seem to affect performance significantly. However, teacher qualifications do matter. Schools with teachers who have at least first degrees in either maths or science reported better pupil outcomes than schools without any degree holders. This finding is statistically significant and similar to findings by Alexander at al. (2010).

In common with other studies, such as Hu et al. (2009) and Alexander et al. (2010), the school's location and the neighbourhood's socio-economic status significantly affect pupil outcomes. Schools in urban areas recorded higher scores than those in rural areas and small towns, while schools in medium and high income areas had higher student scores than schools in low income areas. These location and socio-economic impacts could indicate the effect of underlying nuances, such as household ability to purchase learner materials and to motivate learners, community involvement in school activities, etc. Such an analysis could be a subject of a future study. The other factors investigated – school size and teacher absenteeism (as a proxy for teacher commitment) – were not found to be significant in South Africa.

6.5.2 Stakeholder inputs

To complement the empirical study's findings, input was obtained from key stakeholders through a structured questionnaire and semi-structured interviews. The stakeholders included senior officials from three provincial departments, National Treasury, DPSA and the departments of cooperative governance and basic education. Questions addressed were:

- Is there a common understanding of public productivity in South Africa?
- How is public productivity measured, and what measures can be taken to improve the system?
- What inefficiencies are in the schooling system and how can they be addressed?
- What steps should be taken to address any teacher inefficiencies in the system?
- Are there any funding/budgetary incentives that could enhance better public school performance?

An overview of the main points raised by respondents are provided below.

The term 'productivity' in the public sector is not well understood in South Africa. This may be because the services produced are often intangible, and assigning these outputs or services any economic value is difficult. A clear and transparent measure of productivity is needed, similar to an internationally benchmarked index used to measure the productivity of organisations. Once such a measure is in place, other improvements can follow, such as redesigning the performance management system, putting in place a more innovative remuneration structure and reallocating resources to areas of need. For implementation, important considerations include training officials intensively to understand the concept of 'productivity' and piloting productivity measures in certain cluster organisations before rolling them out en masse.

Clearly defined systems and processes are needed. These would encourage semi-productive persons to function optimally. Policy disincentives should be introduced for poor performance, and organisations that score below the acceptable 'productivity' level should be penalised through e.g. budget cuts. To address structural capacity challenges, the current funding approach needs to be differentiated, based on an institution's capabilities, and aligned with its priorities, which could either be a subset or the full allocation of the powers and functions outlined in the Constitution.

Critical areas influence productivity in the South African education system. These are effective and sound management, capable teaching staff, and available learning and teaching resources. The broader society, i.e. civil society, also influences productivity, as social issues such as crime, poverty and language barriers often affect learner outcomes. Better school management teams should be selected, and in particular the appointment of the principal should not be solely at the discretion of the School Governing Body. The decision to hire should be based on competence.

Schools could master a particular field of study. Schools perform better if focused in a particular field (e.g. school for accountants, physicians, etc.). This would enable a learner to visualise the kind of career they are working towards and be more motivated in the process.

Government's socio-economic programmes contribute to a more conducive environment for learning in quintile 1–3 schools. These programmes include the school nutrition programme, no fee schools and scholar transport.

Ways to improve teacher performance include:

- Manage the learner-educator ratio, to ensure a better teaching environment and that learners get the attention they need to progress successfully from one grade to another.
- Keep temporary positions to a minimum, as teachers are more likely to be productive in a secure job environment.
- Ensure a pipeline of good quality teachers entering the schooling system, through strengthening programmes that ensure a professional and thorough recruitment process and setting standards against which teachers are held accountable.
- Support teachers through further training, especially in challenging content areas, presentation and resources. Teachers should also be given increased availability to e-resources as this will enhance independent learning and upskilling of teachers and learners alike.
- Address the time-on-task allocation, which is a major inefficiency in public schools. Teachers should come prepared for teaching, and curriculum coverage in all subjects and grades should be monitored.

Interestingly, the challenge appears to be not primarily resources or funding but rather the ethos in schools, which is created by good management and governance.

6.6 Conclusion

The study investigated the extent to which productivity in secondary education can be improved. A two-stage DEA approach was used to measure the productivity of secondary schools in South Africa and complemented with feedback from structured questionnaires and interviews with key stakeholders.

The term 'productivity' in the public sector does not appear to be well understood. Before productivity can be improved, a clear and transparent measure of productivity is needed, similar to an internationally benchmarked index used to measure the productivity of organisations.

There is substantial room for improving productivity of secondary schools in South Africa. Only 9% of the schools included in the analysis were found to be full efficient, and the study found that the schools have the potential to increase mathematics and science scores by an average of 60% and 74%, respectively using existing resources. The most important drivers of school productivity are:

- (i) Availability of learning materials. The finding that learner materials have a positive impact on school outcomes is in line with other studies and concurs with the stakeholder feedback received. It also reinforces previous Commission findings on problems with the provision of learner support materials, especially in rural areas, which is compounded by the limited budget available for non-personnel, non-capital educational inputs.
- (ii) Better qualified mathematics and science teachers. This is particularly important in South Africa where teacher quality is a constant issue, despite significant budgetary allocations to education. Teachers should be supported through further training and be given increased availability to e-resources, to enhance independent learning and upskilling of teachers and learners alike.
- (iii) Socio-economic status. Understanding the various ways in which the socio-economic status affects school outcomes is beyond the scope of this chapter. However, factors such as poor transport and high poverty rates are highly correlated with poor socio-economic status, and could be driving the poor school outcomes. In previous years, the Commission has highlighted the critical role of various government programmes (e.g. national school nutrition programme and school transport) in contributing to better learner outcomes.

Interestingly, inadequate learning space/classrooms did not result in a decline in school productivity. However, the quantity and quality of school facilities may affect learner access and safety, which may prevent many schools from functioning properly, especially in rural areas where large backlogs currently exist.

Funding levels and resources were found not to be the dominant challenge in the schooling system, but rather the ethos in schools created by good management and governance. In this regard, the professional appointment of the principal is critical in developing such an ethos, while the senior management team of a school play an important supportive role. The community should also be encouraged to play an instrumental role in holding the school accountable for its performance.

6.7 Recommendations

With respect to measures to improve public sector productivity, the Commission recommends that:

1. A framework on measuring public productivity is developed as a first step to benchmark improvements in the public sector over time. Officials should be trained on the concept of public productivity, and productivity measures should be piloted in certain cluster organisations before rolling them out en masse.
2. The Division of Revenue Act implements the finalised framework on measuring productivity. This may require the implementing agent of a conditional grant to report on the attainment of both quantitative and qualitative indicators of an output, including productivity indicators that track improvements of the service over time.
3. Socio-economic programmes of government which improve living standards and income for households are continued, especially those that lead to improved educational outcomes. Such programmes include the school nutrition programme, no-fee school policy, scholar transport, social security grants and public employment programmes. Research shows higher human capital results in improved labour productivity.
4. Government investigates funding and non-funding mechanisms to improve productivity in public ordinary schools. Such mechanisms should involve enhancing governance and accountability in schools through the appropriate appointment of school principals and enforcing norms and standards that principals must adhere to. Teachers should be supported through training, and the performance management system for teachers should be linked to overall school outcomes. e-Education should be explored as a learning platform to provide both teachers and learners with access to new knowledge.

CHAPTER 7

Improving Government Operations through Information and Communication Technologies

7.1 Introduction

As economies become increasingly knowledge based,⁴² investment in information and communication technology (ICT) infrastructure has come to the fore. Like investments in transport and energy, investments in ICT can lead to improved growth, productivity and efficiency. An ICT-led approach to public service delivery (also referred to as electronic government or eGovernment) can also result in productivity gains. Innovative use of technologies improves internal functioning and the rendering of services to the public (DPSA, 2012). eGovernment enables public administrations around the world to be more efficient, provide better services, promote social inclusion, better manage natural resources, enhance communication with citizens, and be more transparent and accountable. ICTs are also effective platforms for knowledge sharing, skills development, transferring innovative eGovernment solutions and building sustainable development capacity among countries. According to United Nations (2014), eGovernment can result in new employment, and better health and education.

Table 25 describes some benefits of effective eGovernment implementation, grouped under: (i) direct financial benefits, (ii) direct non-financial benefits, (iii) programme benefits and (iv) good governance benefits.

Table 25. Benefits of effective eGovernment implementations

Type of Benefit	Beneficiaries		
	Business	Citizens	Government
Direct financial benefits	Reducing burden: administrative simplification	Reducing burden: administrative simplification	Realising efficiency savings: freeing resources for public and private innovation
Direct non-financial benefits	Meeting public expectations: improving customer satisfaction and equity; meeting security and privacy concerns; transparency and choice.		
Programme benefits (direct and indirect)	Improving policy effectiveness: achieving overall policy and programme outcomes		
Good governance benefits (indirect for society)	Supporting growth and legitimacy: good governance contributes to a sound business environment and democratic legitimacy; promotion of the information economy; supporting public sector reform; creating business opportunities.		

Source: Western Cape Government (2012)

Based on the above, the following benefits can be expected from effectively deploying an eGovernment strategy:

- efficiency gains, which will free up capacity from back-office to front-office operations
- value for money, from more efficient services
- citizens who feel more connected and engaged with their government
- employees who will have better tools to undertake their jobs and, in so doing, improve the services that they provide
- a leaner public service, resulting in less wastage and a reduced impact on the environment
- a connected service delivery, between departments and levels of government
- an overall enhanced public sector capability.

Notwithstanding the potential benefits, eGovernment does have disadvantages, such as the high costs of changing over to an eGovernment system and the significant resources required to maintain the system. Furthermore, if eGovernment is not viewed as a basic right for all (especially for those living in rural areas), the shift to eGovernment may highlight, and even exacerbate, inequalities in the access to services.

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⁴² For a knowledge-based economy, the generation and exploitation of knowledge underpins economic processes and is the main driver of growth. (El-Sherbiny, n.d.)

For South Africa, eGovernment is particularly alluring, as it can help overcome spatial divisions and build a capable state. ICTs have the potential to innovate service delivery, improve transparency, reduce corruption, grow revenue and/or reduce costs. By reaching poor and rural communities, ICTs can facilitate more inclusive growth and access to service delivery.

The National Development Plan (NDP) sets two time-bound ICT-related goals for Government. (i) 100% broadband penetration by 2020, and (ii) the adoption of a full eGovernment approach by 2030. The NDP (NPC, 2011:170) envisages a “seamless information infrastructure to meet the needs of citizens, business and the public sector, providing access to the wide range of services required for effective economic and social participation – at a cost and quality at least equal to South Africa’s competitors”. Taking its lead from the NDP’s vision of ICT, in 2012 government embarked on a process of reviewing and evaluating the relevance of existing policies, and debating the future developments required within the sector.

The three spheres of government spend significant resources on ICT: R17.5-billion was allocated to ICT-related spending in 2011/12 (Table 26). At local level, the bulk (65%) of ICT spending occurs in urban areas, particularly within the better-resourced metropolitan municipalities, which account for only 39% of the population (BMI-T, 2014). The danger is that the large rural population⁴³ may miss out on the benefits and opportunities of an eGovernment approach to service delivery. Therefore, an overhaul of the prioritisation and location of ICT and additional funding will be required in order to attain the NDP’s ICT-related goals for 2030.

Table 26: ICT spending across the three spheres of government (2011/12)

Sphere	Non-SITA vs. SITA* (Rm)			ICT spend, by service type (Rm)			
	Grand Total	Non- SITA	SITA	Hardware	Software	Services	Telecoms
National	9 299	6 088	3 211	2 255	429	1 371	2 033
Provincial	4 736	3 731	1 005	1 311	389	410	1 621
Local Government	3 533	unknown	unknown				
Total	17 567	9 819	4 215	3 567	818	1 781	3 654

* SITA: State Information and Technology Agency
 Source: National Treasury (2014a,b,c); BMI-T (2014)

Another aspect to consider is that ICT spending is not always viewed as a strategic item capable of improving performance, but as a secondary and/or ‘soft’ budget item. It is considered part of discretionary budget decisions by individual departments and municipalities rather than part of a broader plan.

The chapter’s overarching objective is to identify the key aspects that hamper greater investment in ICT and the adoption of a full eGovernment approach, as a strategic investment that can bridge spatial divisions by improving service delivery efficiencies and reach. The rest of the chapter outlines the methodology used and elaborates on the key findings. This is followed by the conclusion and proposed recommendations.

7.2 Methodology

First, a desktop literature review analysed the institutional arrangements, to identify the potential barriers to adopting an eGovernment approach to public service delivery. The review suggested that regulatory/policy-type barriers are common, which informed the paper’s emphasis on the policy/administrative and regulatory environment that guides ICT developments. To this end, key pieces of legislation, including the 2014 Green Paper on a National ICT Policy and the National Broadband Policy, were assessed to establish whether they incentivise or hinder greater public investment in ICT.

Second, government budgets were analysed to gauge current spending on ICT across the three spheres (national, provincial and local). The budget analysis was restricted to 2011/12 because ICT expenditure is

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⁴³ Which is where the poorest of the poor are located.

not aggregated within government financial reporting. The extent of government's ICT investment had to be ascertained from various sources, which was made more challenging by the lack of clear line items specifying ICT budgets and expenditures.

7.3 Findings

7.3.1 Simplification of the policy environment

Figure 27 illustrates the relationship between ICT and eGovernment-related policies, implementation plans and implementation entities. In 2012, the South African Government embarked on an ICT review process. The ICT Policy for South Africa, currently at Green Paper stage, is meant to be the broad, overarching policy that will set the context and direction for broadband and eGovernment plans. The Broadband Policy was finalised in 2013, and the eGovernment Policy is still in draft form.

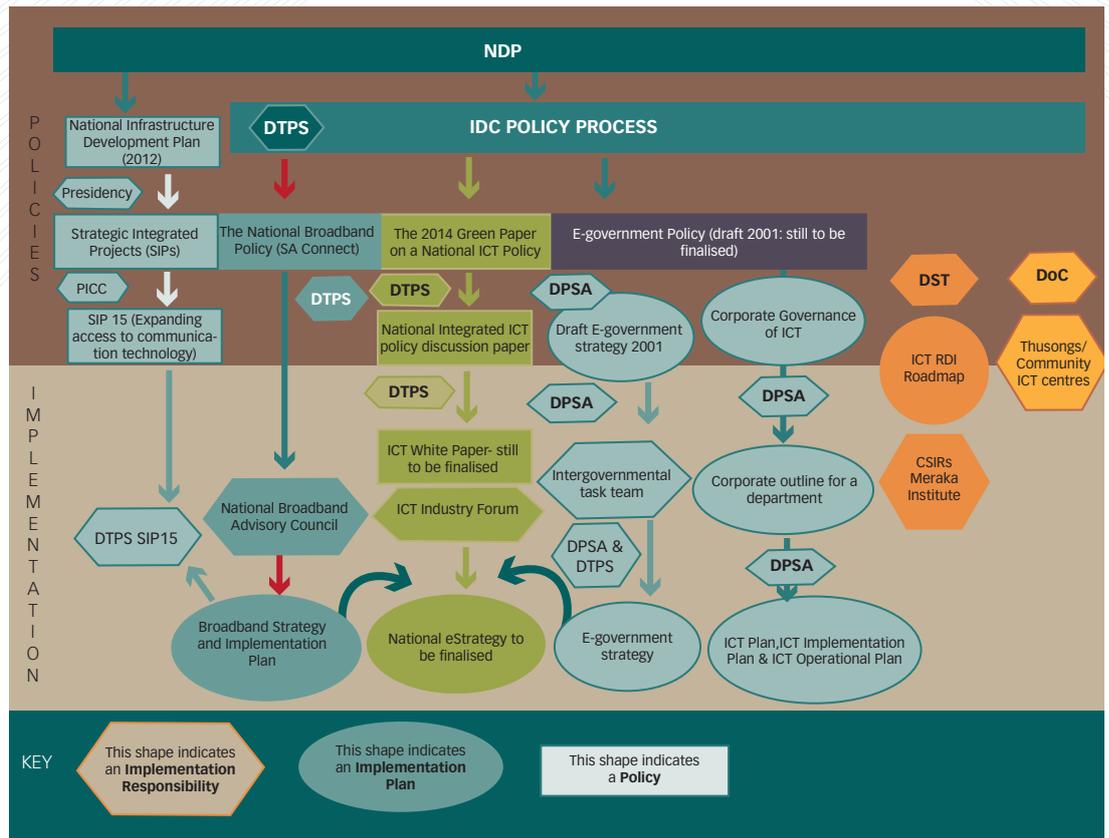
Notwithstanding the policy strides made, the ICT sector involves many role-players, including the Department of Telecommunications and Postal Services (DTPS), the Department of Public Service and Administration (DPSA), the Department of Science and Technology (DST), and various sector departments such as education, health, justice, as well as individual municipalities. In May 2014, the Department of Communications (DoC) was split into a newly created DTPS and a new DoC.

While it is too early to assess their practicality and effectiveness, these changes have resulted in uncertainty over roles and responsibilities. For example:

- The ICT policy process is the responsibility of the newly formed DTPS, but the DPSA, through the Public Administration Management Act (No 11 of 2014), regulates the use of ICT in government and establishes norms and standards around the use of ICT in the civil service.
- Communication policy and strategy is the responsibility of the new DoC but, according to the Electronic Communications Act (No 36 of 2005), the DTPS makes policy and policy directives relating to electronic communications and broadcasting, for example, digital migration.

The reconfiguration of the sector has also raised regulatory oversight issues. The Independent Communications Authority of South Africa (ICASA) is the sector regulator and now reports to the DoC but regulates entities in the DoC and the DTPS. The concern is ICT convergence makes a clear separation of the functions difficult.

Figure 27: ICT and eGovernment-related policies, plans and implementation entities



Source: BMI-T (2014).

7.3.2 Linking policy process and implementation

The ICT Policy aims to (a) encourage the formulation and use of fully costed plans to drive implementation and, ultimately, inform resource allocations; and (b) to ensure that policy uncertainty is minimised. The roll-out of broadband infrastructure is a critical ingredient in the move towards a fully-fledged eGovernment approach to service delivery. Broadband is essential for ensuring that citizens are able to take advantage of e-services. However, the current lack of broadband coverage, particularly in rural municipalities, poses a major obstacle to the deployment of eGovernment services. Many councils in rural areas remain on dial-up or costly integrated service digital network (ISDN) services, as fast and affordable alternatives are not available.

As mentioned, a Broadband Policy has been finalised, but no Implementation Plan is in place. The 2015 Budget allocates minimal funds to the Broadband Implementation Plan: R18-million for research and R1.1-billion for broadband infrastructure, spread over three years. This phase is only for connectivity in certain districts where National Health Insurance (NHI) pilot sites are situated. However, without a Broadband Implementation Plan, an accurate forecast of the total cost to roll out universal broadband is not possible.

Now that the ICT Policy is in place, the eGovernment policy (which has been in draft form since 2001) needs to be fast-tracked, as it sets the scene for the roles and responsibilities of subnational spheres of government. Priority should be given, and funds allocated, to the finalisation of an e-Government policy, strategy and implementation plan, so that Government departments/entities can have a clear idea of their role in shifting to an eGovernment approach to service delivery.

7.3.3 Performance of regulatory/oversight bodies

Two main bodies provide oversight and regulate the ICT sector. ICASA is the sector regulator and derives its mandate from the ICASA Act (No 13 of 2000), the Broadcasting Act (No 4 of 1999), the Electronic Communications Act, and the Postal Services Act (No 124 of 1998). The ICASA Act was amended first in 2006 (to include postal regulation), when the Electronic Communications Act was introduced, and then again in 2013, with the Electronic Communications Amendment Bill 2013.

The role of the State Information and Technology Agency (SITA) is to consolidate and coordinate the state's information technology resources in order to achieve cost savings through scale and to increase delivery capabilities. SITA must also set standards for the interoperability⁴⁴ of information systems between departments and for a comprehensive information systems security environment for all departments.

Both SITA and ICASA have faced many challenges in exercising regulatory oversight and have struggled with a lack of capacity to fulfil their mandates effectively. Allegations of and investigations into claims of incompetence, fraud or corruption also damage their images. For these bodies to provide sound oversight within the sector, it is imperative that they are beyond reproach.

7.3.4 Stimulating demand for eGovernment services

A successful shift to an eGovernment approach to service delivery ultimately depends on improved access (and ease of access) to services. To this end, citizen demand for such services must be stimulated through Thusong centres. The aim of these multi-purpose community centres is to improve service delivery and increase access to government services for the poor and previously disadvantaged. However, the funding and operational responsibility for Thusong centres are unclear. Funding comes from both national government grants and donations, while operational responsibility rests with several national departments, municipalities, the private sector and non-government organisation (NGOs). Furthermore, the centres struggle with connectivity problems, security and maintenance of hardware, inadequate e-skills and operational skills among management, and reluctance of communities to participate.

The Thusong centres should have a higher profile, be clearly branded and be given priority status. The setup of a Thusong centre should be streamlined, with, for example, a designated funding source, clearly determined operational responsibilities, and inter-departmental cooperation. More pressure also needs to be applied to all levels of government to roll out centres and reduce the backlog.

7.4 Conclusion

Significant public resources are being allocated to government's ICT, but the spending is neither coordinated nor strategic. In the past year, the ICT sector was restructured, which resulted in a relatively converged sector being split into two government departments. The restructuring has created uncertainty about the responsibility for various functions. In addition, the policy framework underpinning the ICT sector is not streamlined and consists of multiple role-players and interventions. Key policy framework issues need to be addressed before finalising funding arrangements, as funding follows function in a well-functioning intergovernmental fiscal relations system. It is therefore critical that roles and responsibilities are clarified, so that eGovernment can receive strategic attention and funding, and start yielding the benefits of such approach to service delivery.

Despite government's commitment to specific ICT-related targets, developments and progress to date indicate that these goals will not be reached within the given timeframes. In the interests of achieving these goals, the following recommendations are proposed.

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⁴⁴ Interoperability refers to the ability of systems to work together.

7.5 Recommendations

With respect to improving government operations through the use of ICT, the Commission recommends that:

1. The policy and regulatory framework underpinning the ICT sector is simplified, and roles and responsibilities are clearly delineated, particularly for the roll-out of broadband and eGovernment.
2. The department responsible for devising and finalising the eGovernment policy is identified. Finalisation of the policy along with a fully costed implementation plan should be expedited if the NDP goals around eGovernment are to be met within the required time-frame.
3. A fully costed implementation plan is published and made publicly available, to ensure that the NDP goals for rolling out broadband are attained and that sufficient funding is prioritised.
4. eGovernment services are made more attractive to citizens, by offering a wide range of services and ease of access.

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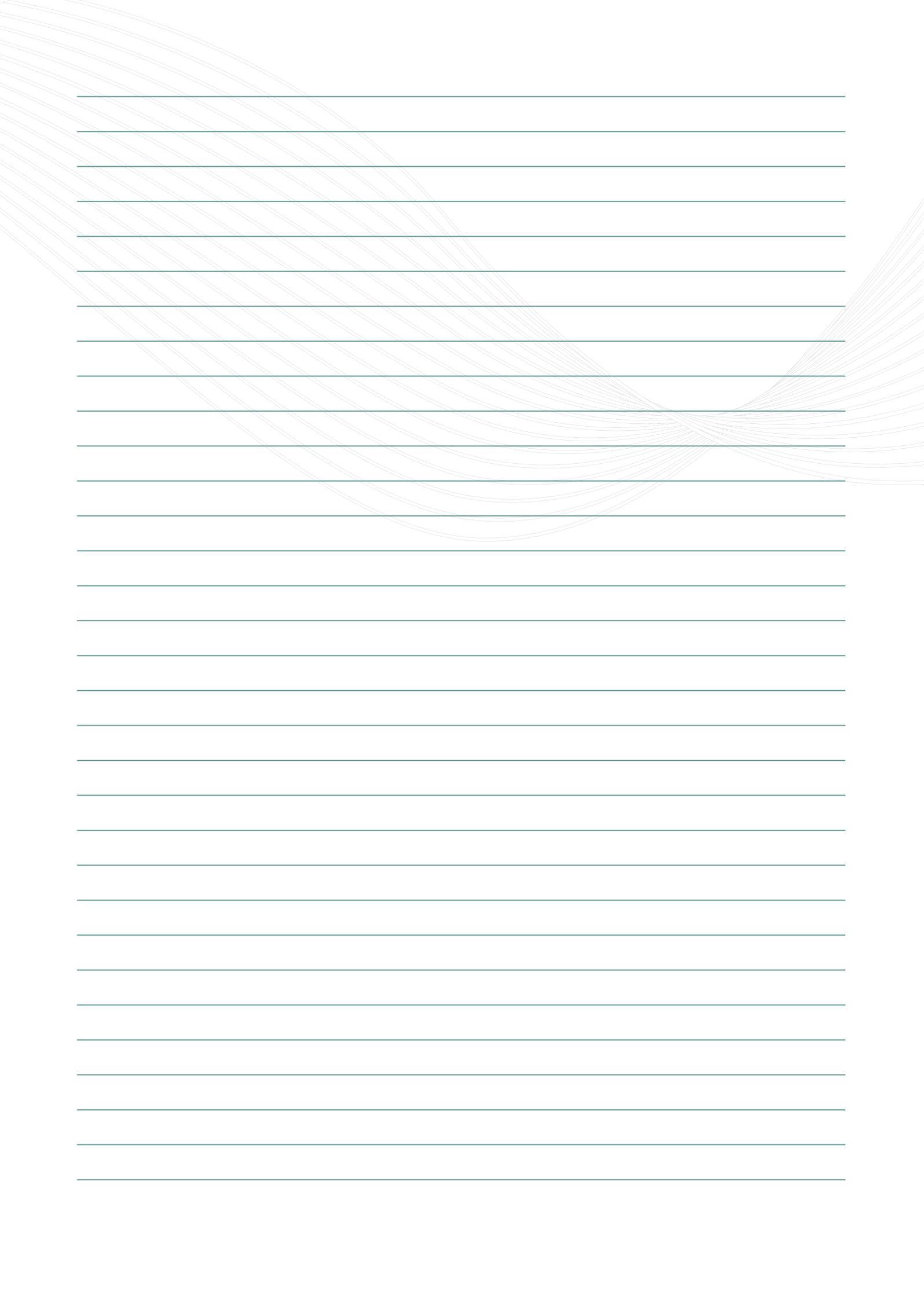
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