

2015
2016

SOUTH AFRICAN CONVERSATIONS ON
INFRASTRUCTURE
ANNUAL COMPENDIUM



infrastructureDialogues

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2015 – 2016

ANNUAL COMPENDIUM

South African Conversations on
INFRASTRUCTURE

SUSTAINABLE URBAN FUTURES



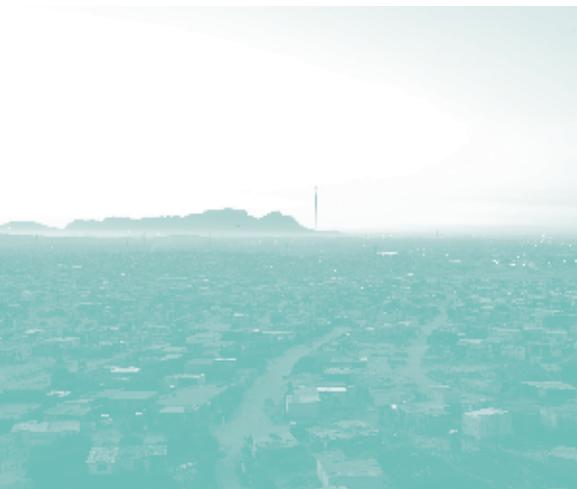


The Infrastructure Dialogues is a high-level platform for stakeholders in the infrastructure sector to discuss and share their views. The value of the Dialogues is enhanced when senior leaders and managers from government, the private sector and civil society continue the conversation once the event itself is over.

Each Dialogue is recorded so that interested people who have not been able to attend in person are able to read a report of the proceedings and join in the conversation. This Compendium of the Infrastructure Dialogues 2015 – 2016 is a distillation of those conversations, presenting the key themes and identifying issues that preoccupy those who are constructively involved in improving South Africa's infrastructure.

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List of Acronyms

ACCSF	African Capital Cities Sustainability Forum
BEPP	Built Environment Performance Plan
DBSA	Development Bank of Southern Africa
DoE	Department of Energy
DPME	Department of Planning Monitoring and Evaluation in the Presidency
EDD	Economic Development Department
GRAP	Generally Recognised Charts of Accounts
IDC	Industrial Development Corporation
NBI	National Business Initiative
SACN	South African Cities Network
SCOA	Standard Charts of Accounts
SPAID	Support Programme for Accelerated Infrastructure Development
SPLUMA	Spatial and Land Use Management Act



Foreword

from the Steering Committee

Topics covered in this Compendium were chosen from suggestions made by the Infrastructure Dialogues partners, together with feedback from participants at Dialogues. They represent some of the concerns these parties face in the infrastructure space, and are an expression of their desire to delve more deeply into these topics; to listen and opine on ways to improve the situation of each particular problem. By hosting dialogues on these topics, the partners aim to strengthen the conceptual bridges between problems that we nationally, and indeed globally, must avoid, such as energy insecurity and dysfunctional urbanisation, in favour of solutions for energy security and sustainable city development.

Recurring themes running through each dialogue were: putting people at the centre of development, collaboration between the public and private spheres, and using data to work smartly. These themes speak to how things need to be done in order to improve performance. A fourth implicit theme is the importance of dialogue in order to hear other perspectives and to voice contributions to collective goals.

The Infrastructure Dialogues partners are gratified that rationale for the Dialogues has been affirmed by the responses of participants over the last year and look forward to convening future Dialogues on vital infrastructure topics.



Introduction

In 2009, the Development Bank of Southern Africa (DBSA) and the Support Programme for Accelerated Infrastructure Development (SPAID) initiated the Infrastructure Dialogues. This forum provides senior government, private sector and civil society stakeholders with a regular high-level platform for the sharing of views and perspectives on the infrastructure sector.

The desired outcome of the dialogues is an improved climate for policy and decision-making, and strengthened cooperation within this critical sector.

Although participation in the dialogues is by invitation per topic, the information is disseminated widely so that all stakeholders can join in the conversation. Each dialogue

is recorded and a report of the discussions, together with supporting documents, is published on the Infrastructure Dialogues website www.infrastructuredialogues.co.za

This Compendium provides an overview of the key themes that emerged from the five dialogues held between May 2015 and April 2016. The Infrastructure Dialogues are jointly hosted by the DBSA, South African Cities Network (SACN), National Business Initiative (NBI), Economic Development Department (EDD) and Department of Planning Monitoring and Evaluation (DPME) in the Presidency.

Topics discussed over the past year ranged from sustainable municipal financing for capital projects to the revitalisation of township economies.

Date	Title	Description
25 June 2015	Securing our Energy Future and Tapping Energy Efficiency as the "First Fuel"	Possible solutions to current and future energy challenges, in particular energy efficiency.
30 July 2015	Towards Sustainable African Cities: Pan-African conversations, processes, experiences, opportunities	The creation of "the Africa that we want": sustainable African cities that promote integration, inclusion and economic growth.
29 September 2015	Township Economies: What is the role of infrastructure in government's strategy to revitalise township economies?	The role of infrastructure in government's strategy to revitalise township economies.
30 November 2015	Africa's Infrastructure Build Programme	A "café table" discussion around financing city infrastructure, water and sanitation, managing risk and resilience, and skills and capacity.
15 March 2016	Financing Government's Capital Programme: Towards sustainable municipal financing for the future	New viable and sustainable financial solutions for municipalities.



The common thread running through this year's dialogues was that of sustainable urban futures, reflecting the growing importance of cities for the economy. Cities are firmly at the forefront of development as the world (and Africa) becomes more urban, and are critical considerations when managing energy in the country. In South Africa, cities are home to about 60% of the population, account for 70% of the country's economic wealth and represent about 40% of total energy

consumed in the country. The tipping point in urbanisation (i.e. when more people will be living in cities than in rural areas) is expected to be reached in 2023 in Africa.

By 2030, Gauteng will be a mega-city region and 11 million more people will live in the country's three major cities: Gauteng, Cape Town and Durban. The question for cities is whether they will be ready to accommodate the additional population.



Key Themes

The themes that emerged across the dialogues were the importance of data and measuring impact, and the need to work together, through meaningful public participation and collaboration among spheres of government and sectors.

1. Progress requires measurement, and measurement requires data

Cities have identified the need for accurate and up-to-date data in many areas, from township economic development, to energy efficiency and infrastructure maintenance. The lack of affordable space is one of the constraints to developing township economies, and yet cities do not have accurate land asset registers. This makes land management in townships problematic. Cities are currently conducting audits to establish asset registers, which are also a requirement of the local government's Standard Charts of Account (SCOA) that will come to force from 2017.

The availability of energy data is also an ongoing problem. Energy efficiency is invisible and elusive, and so measuring energy flows accurately is essential. For instance, South Africa celebrated a 26% reduction in energy intensity between 2000 and 2015 (over double the projected 12%). And yet, although factors such as the impact of rising electricity prices and energy efficiency measures undoubtedly contributed to the reduction, the lack of data is another reason – i.e. the consumption baseline (the year 2000) was not properly defined.

The starting point for any city's development is knowing what infrastructure exists (and in what state it is). Without correct information, municipalities cannot effectively maintain existing infrastructure, which becomes dilapidated, leading to poor service delivery and reduced revenue. Through geomatics, cities can obtain data that provides a firm foundation for infrastructure development and maintenance plans.

2. Collaboration is key

Only through collaboration – of government spheres and of the public and private sectors – can development succeed. Government cannot go it alone. With more than half of South Africa's urban population living in townships and informal settlements, turning these areas into thriving economies is increasingly important. This will require a collaborative approach, from project funding to precinct design, to implementation and maintenance, along with safety and security.

Energy efficiency is an area where government and the private sector, through the National Business Initiative (NBI), have worked well together. Through this collaboration, business and government were able to define their respective roles with regard to energy efficiency. The NBI has identified awareness, maintenance and capacity as the three main business challenges with regards to embracing improved energy efficiency.

A shared vision reduces insecurity, builds trust and ensures greater collaboration between the private and public sectors, by clarifying the



link between infrastructure and value creation (i.e. how the benefit from the rise in values is distributed).

3. People-driven development

Globally, the success of infrastructure projects depends on the extent to which ordinary people are integrated into the development process. When the public is involved in the process, the result is greater acceptance and buy-in. This means incorporating civil society and other constituencies into the process, not simply asking them to agree to terms at the completion of a project, which is currently often the case.

Communities also understand how their neighbourhoods work; the pedestrian flows and how spaces are used. Therefore, their participation is important in developing precinct plans. Participation means recognising active citizenry, which involves investing in building relationships with all constituencies. In South Africa, new engagement mechanisms need to be developed in order to achieve proper community involvement. Local councillors should represent local communities and know their priorities, but for this, civil society also needs to be rebuilt. The focus must be on establishing community groupings that can constructively interact and promote community interests.

Even with intensive engagement and consultation with communities, projects can stall when new groups with new demands emerge after the start of a project (e.g. in

Diepkloof, where a clinic was burned down). This hampers development and requires urgent governance measures. The re-establishment of civil society institutions could strength community engagement. Transparent governance is also imperative to create certainty and attract private investment, as well as simply ensure that projects get completed.



The Five Dialogues

1. Securing our Energy Future and Tapping Energy Efficiency as the “First Fuel”

The 33rd Infrastructure Dialogue focused on the strategic imperative of energy, in particular energy efficiency – the “first fuel”.

Global Energy Context: Climate Change

South Africa has committed to a 34% reduction in carbon emissions by 2020 and 42% by 2025

The South African Energy Context:

South African cities account for:

<div style="background-color: #0070C0; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">70%</div> <p>of the country's economic wealth</p>	<div style="background-color: #0070C0; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">40%</div> <p>of national energy consumption</p>
<div style="background-color: #0070C0; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">5%</div> <p>of national land area</p>	<div style="background-color: #0070C0; border-radius: 50%; width: 40px; height: 40px; display: flex; align-items: center; justify-content: center; margin: 0 auto;">5.2 tonnes</div> <p>of carbon emissions per capita</p>

Inefficient transport systems:

- Transport uses more than **50%** of energy in cities
- **64%** of transport energy is spent on passenger transport
- Of that only **9%** is used in public transport
- **80%** is used in private passenger transport

Current challenges:

- Electricity demand exceeds supply: Load shedding
- Current infrastructure inadequately maintained
- Finite supply of resources
- Increasing costs
- City congestion

Demand will double by 2040 if we continue on our current trajectory. This is untenable and unsustainable.

Future considerations:

- Energy mix: The role and contribution of renewables, nuclear
- City planning around transport nodes
- Role of the digital economy for planning and communication
- Green procurement

Current and proposed energy initiatives:

- Energy Efficiency Leadership Network
- Private Sector Energy Efficiency Programme
- Industrial Energy Efficiency Programme II
- National Energy Efficiency and Renewable Energy Strategy
- National Energy Efficiency Campaign
- Energy Efficient Monitoring System
- Energy efficiency labelling for appliances
- Energy performance certification for buildings
- 12L tax incentive
- Corridors of Freedom
- Private vehicles for public transport e.g. Uber
- Ongoing industry discussions e.g. Infrastructure Dialogues

SA achieved a 26% reduction in energy intensity between 2000 and 2015

Stakeholders committed to collective action

National Government; Public Entities; Local Government & Municipalities; Private Sector; Business Networks; Energy Programmes; Civil Society



South Africa is still in the dark about the importance of energy efficiency, despite government's pledge to reduce emissions by 34% by 2020 and by 42% by 2025. Like the rest of the world, the country is facing an energy crisis. Electricity demands exceed supply (which leads to load shedding), the current infrastructure is inadequately maintained and costs are increasing. The main energy inefficiencies are an over-reliance on energy-intensive industries (especially mining), overcrowded roads and congested cities. Yet car ownership continues to grow faster than economic growth. Cities account for 40% of the energy used nationally, of which half is consumed by the transport sector. Most of this is passenger transport, especially private passenger transport. In contrast, public transport, which is used by 50% of people in metros, accounts for just 9% of the fuel used. If South African cities continue on their current trajectory, energy demand will double by 2040. This is untenable and unsustainable and will mean that South Africa will not achieve its emissions' reduction targets. Cities need to encourage modal shifts (getting people into public transport) and increase vehicle occupancy rates, which could be achieved through smart technology (think Uber). In dealing with the energy crisis, a low-hanging fruit is energy efficiency.

Energy efficiency, or the "first fuel", is about optimising existing systems and putting strategies in place to enable the sustainable management of natural resources. It is estimated that energy efficiency measures can result in a 10–20% reduction of energy use in households, commerce and industry without a loss in output. Between 2007 and 2011,

electricity consumption reduced considerably in absolute terms, shifting from the business-as-usual curve. The decrease was largely driven by the residential sector, through small changes such as using more efficient lighting solutions and solar water heating. It was prompted by price increases of an average 25–30% per year over four years from 2008.

Private sector initiatives

Since 2005, when the first Energy Efficiency Strategy was launched, the NBI has engaged with business, government, Eskom and other key stakeholders about implementing energy efficiency measures. Subsequently, government published the Energy Act (2008) and has put various regulations in place. The NBI has identified a number of business challenges related to energy efficiency. These include a lack of awareness, with many people confusing energy efficiency with energy conservation; insufficient maintenance, which means businesses are not operating at optimal levels of efficiency; and lack of capacity, with small and medium-sized companies not having a dedicated staff dealing with energy efficiency.

In 2011, the Energy Efficiency Leadership Network was formally launched, to develop a road map for improved energy efficiency and appropriate targets in the private sector. Members of the network have access to best practices, technical expertise and an improved understanding of the role of energy efficiency and energy cost savings. Between 2013 and 2015, the NBI's Private Sector Energy Efficiency Programme (PSEE) identified about 6 000 energy-saving opportunities through its work with nearly 4 500 small, medium and large companies.



Government interventions

The Department of Energy (DoE) is developing targets for long-term infrastructure interventions, and considering the energy mix for the future. Some of the initiatives already in place include energy efficiency labelling for appliances, with minimum energy performance standards already introduced on 12 major household appliances. The DoE is also working on a consolidated energy efficiency information system that will record all of the interventions currently being implemented by the various stakeholders. Another focus for the department is capacity building and skills development, in particular to help stakeholders to claim tax deductions that are available for energy efficiency projects. Other stakeholders supporting skills development include the NBI, the National Cleaner Production Centre of South Africa, and the UK and Danish governments.

At local level, the South African Local Government Association introduced the National Energy Efficiency and Renewable Energy Strategy to guide all municipalities across the country. Individual cities are also driving energy efficiency into municipal operations. For example, City Power levies a small charge on its electricity tariff that is used to roll out solar water heaters for low-income housing. From a longer-term perspective, the City of Joburg's planned transit-oriented development – its "Corridors of Freedom" – aims to transform the city's spatial form and, in so doing, save energy. Studies show that developing along corridor nodes (rather than allowing sprawling development) can result in energy savings of nearly 40%.

Tackling the energy challenge

The dialogue concluded with a number of factors that are important for tackling the energy challenge head-on:

- Forward thinking, or planning for the future, so that issues can be identified early and a constant crisis mode avoided.
- Education and awareness, so that everyone understands that energy is not an infinite resource and energy efficiency is the norm.
- Learning by doing, through encouraging participation by all stakeholders.
- Incentives and pricing structures that are easily understood and accessible.
- Collaboration among all role-players is necessary to achieve energy efficiency.
- Building trust between public and private sectors, so that all work together to identify solutions and take action.
- Measurement of energy flows, to provide data that show the effects of energy efficiency projects and guide future plans.
- Innovative communication that takes advantage of the digital economy, e.g. mobile apps that provide consumers with tips to improve their energy efficiency.
- A sound regulation framework, which brings everyone on board and helps in the development and implementation of South Africa's energy vision.
- A proliferation of energy service companies to apply solutions to businesses and households.

South Africa needs to develop sustainable, integrated, resource-efficient and localised energy solutions. It starts with awareness, but

requires acceptance of energy efficiency as the new normal in the way people live, travel and do business in South Africa. Like the rest of the world, South Africa is facing an energy crisis. Electricity demands exceed supply (which leads to load shedding), the current infrastructure is inadequately maintained and costs are increasing. To manage this energy crisis and to prevent the situation from worsening, collaborative solutions and collective action are needed – now.

2. Africa's Infrastructure Build Programme

This Infrastructure Dialogue took place during the Africities conference and was organised as “café-table” discussions, whereby discussions were structured around four issues: financing city infrastructure, water and sanitation, managing risk and resilience, and skills and capacity. In preparation for the discussions, two presentations were given. The first was by Rogier van der Bergh from Urban Dwelling and Design, UN-Habitat. He called for integrated planning and infrastructure provision rather than a project-oriented approach. Based on a shared vision, long-term plans should be developed that are not vulnerable to short-term political pressures. This is what he has been doing in Johannesburg, where he has been working on relating the city's vision and spatial development framework to the appropriate infrastructure development. A shared vision reduces insecurity, builds trust and ensures greater collaboration between the private and public sectors, by clarifying the link between infrastructure and value creation. The second presentation, by Lubabalo Lubyaba of

Engineers without Borders, South Africa, also highlighted the need for a common vision and commitment, as well as the need to leverage what already exists in Africa's infrastructure sector and to show mutual respect, honesty and integrity.

Financing city infrastructure

Skills and capacity are needed to ensure that resources are channelled as required – efficiency is the key. Many financing challenges in cities are linked to their spatial structure, as much has to be spent on linking old “dormitory” suburbs to the cities. Technically good projects can come up against social resistance.





Water and sanitation

An integrated approach and proper planning is needed. Creative financial projects must be found, perhaps with the involvement of the private sector. A discussion about water as a commodity as opposed to a right produced no clear result. Some felt that if water were treated as a commodity, people would be more likely to use it responsibly. One possibility put forward was to treat the supply of water as a right, but once available, water should be sold as a commodity.

Managing risk and resilience

People need to be educated to reduce risks related to civic infrastructure and to look out for those who are vulnerable. In short, what is needed is to identify risks, share findings and find solutions.

Skills and capacity

The challenge of attracting skills for local government is strongly linked to the overall state of the economy. It is a multi-faceted problem that requires a multi-pronged solution. Although importing skills may

temporarily solve the skills shortages, it is not a long-term solution; the ability to manage the skills that are available is often lacking.

Recommendations

- “Shared infrastructure vision, shared infrastructure dialogue, shared responsibility” are needed. There should be increased focus on collaboration in the sphere of infrastructure development between different role-players (financiers, local government, industry etc.).
- Infrastructure development should be better integrated with the broader planning process.
- Dialogue is needed around infrastructure provision at the local, regional and national level in Africa. We need to have voices heard and listened to about infrastructure. These dialogues should be representative and diverse, especially over the whole of Africa.
- We need to learn to live in an increasingly complex society and, in this spirit, we need to reflect upon our cultural habits, especially our patterns of consumption and use of natural resources.
- Those who have left Africa, who would be valuable in this sphere, should be encouraged to return, and we should try and find out why they have not been doing so.
- We need to provide alternatives to migrating to cities. Infrastructure provision must not only focus on cities but also rural local government.



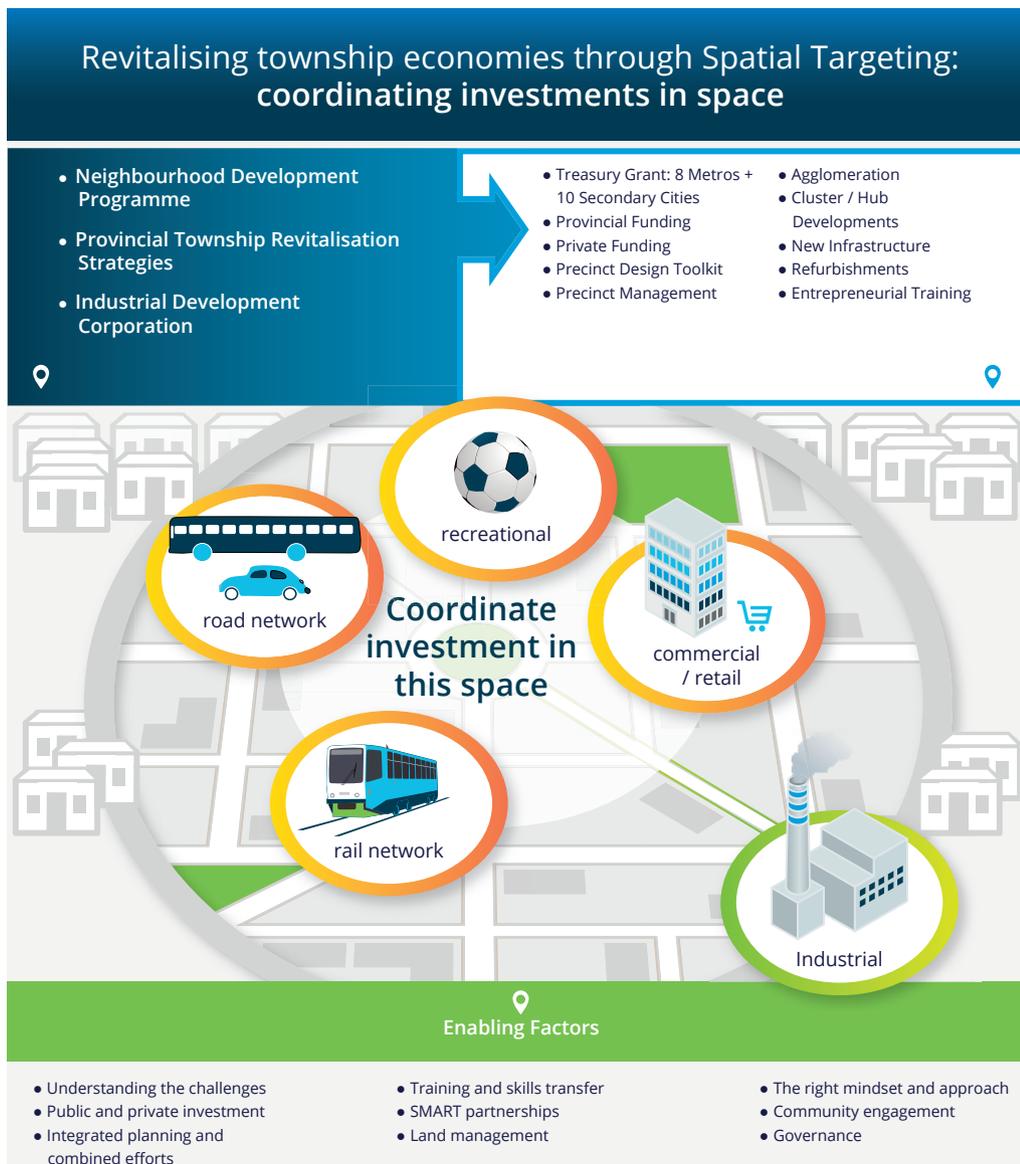
3. Township Economies

This Infrastructure Dialogue looked at how spatial targeting through infrastructure investments can contribute to the revitalisation of township economies.

Although townships contain enormous buying power and offer numerous opportunities for entrepreneurship, their economies are predominantly consumer-driven and have

limited production activities. Investing in townships should be seen as worthwhile, given the volume of end users within these markets, but needs to be coordinated.

Aspects that need to be coordinated include recreational facilities, commercial/retails outlets, industrial developments, as well as road and rail networks.





National government initiatives

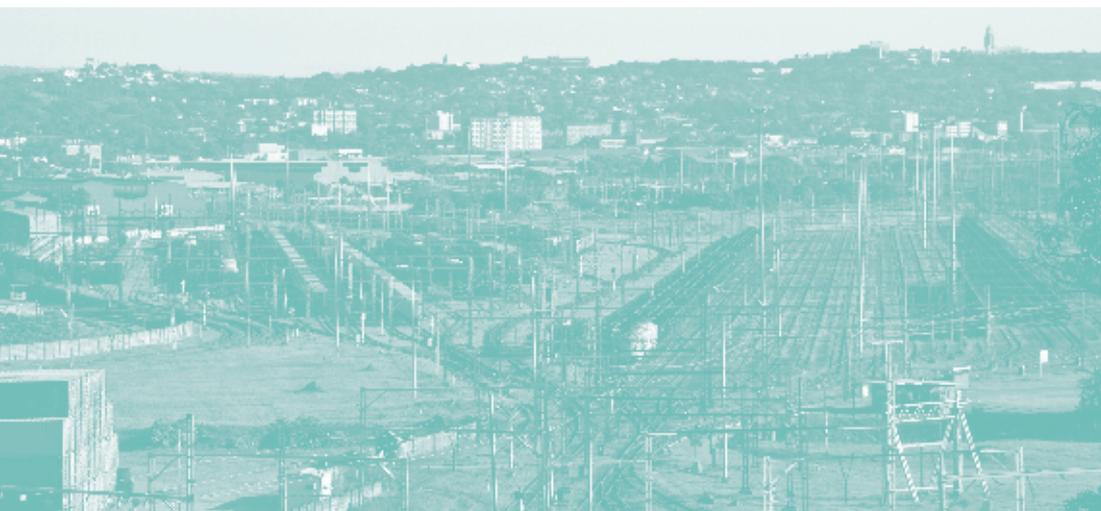
The National Treasury plays a critical role in revitalising and developing township economies, through the funding of infrastructure development and technical assistance. The Neighbourhood Development Programme focuses primarily on spatial targeting in townships, with the main objective of providing better access to goods and services, and jobs within township hubs, as well as job opportunities in cities through cost-effective transportation. Underpinning this programme is the concept of “connected agglomeration” whereby firms benefit from clustering together based on certain factors. The programme helps to identify these factors and potential agglomeration hubs in townships.

In 2011, government adopted the Urban Network Strategy, which revolves around three aspects: public investment (including infrastructure and facilities), private investment in targeted commercial and residential areas (leveraged by public investment), and precinct management (to sustain the investments).

Areas targeted include townships, CBDs, development corridors adjacent to transport routes, and secondary routes providing access to township hubs. The Neighbourhood Development Programme directs its efforts to the eight metros and ten secondary cities. Approximately 90% of the programme is allocated to providing technical assistance, with the balance going to infrastructure development.

Treasury’s approach is based on the Division of Revenue Act and coincides with the built environment performance plans (BEPPs), the goal of which is to optimise the built environment value chain based on five steps: planning spatial targeting, intergovernmental project pipeline, capital funding, implementation and urban management.

The Neighbourhood Development Programme developed a Precinct Design Toolkit that uses a transit-orientated development approach to understand the linkages between facilities (rail, taxis etc.) and major economic generators





in the area. The most effective solution is one that understands pedestrian flows and the ideal pathways and modal facilities, and that creates more space to allow private sector investment. For this, stakeholder participation and cooperation are important. A mixture of businesses is important, and so the toolkit encourages diversity and linkages between large and small businesses. In addition, safe, maintained and vibrant public spaces are incorporated into precinct designs. As precinct management is a new concept, Precinct Management Guidelines were developed and are being piloted in Jabulani and the inner city of Johannesburg. Stakeholders include the public sector (municipalities, provincial governments, state-owned entities and national departments) and the private sector (property owners, banks, tenants and community representatives). The guidelines are directly linked to the Neighbourhood Development Programme, which has established a partnership with the South African Property Owners Association for managing precincts. Other departments (e.g. of trade and industry and tourism) offer incentives that can contribute to the revitalisation of townships. One incentive is the urban development zone tax incentive, which currently applies only to central business districts but could be extended to township hubs.

Provincial government initiatives: Gauteng

To understand the economic circumstances in townships and the challenges faced by entrepreneurs, in 2014 the Gauteng Department of Economic Development conducted a township roadshow that engaged with over 32 000 people. Following the

roadshow, the department initiated a township revitalisation strategy based on eight pillars, of which two address economic issues: infrastructure for entrepreneurship and cluster development. Ways in which government can assist entrepreneurs include developing safe parking areas, user-friendly meeting places, streetlights and support services. The township revitalisation programme focuses on developing and refurbishing infrastructure and on training entrepreneurs, because providing access without knowledge is futile.

At a provincial level, the Department of Infrastructure Development is conducting an audit of all public buildings and land available in townships. One of the needs identified was that of seed funding, and so R160 million has been allocated to a programme aimed at revitalising old township hubs. What is missing is a link between provincial government's activities and national government (i.e. Treasury's Neighbourhood Development Programme), especially as some municipalities might not have the capacity to access national government, but will approach provincial government. Functional links between the two government spheres would help address planning gaps and enable access to be provided in a more coordinated way.

Critical enablers

Another entity involved in developing infrastructure and supporting local economic development is the Industrial Development Corporation (IDC), whose experience shows that developing township economies requires spatial targeting and the breaking down of historical barriers. Critical enablers identified are:



- **Understanding the challenges** facing entrepreneurs at micro and sectoral level. Township offerings in production and service delivery are limited to smallholding agriculture, housing, construction and transportation. The lack of productive activities is in part because of regulatory requirements and space constraints, as a result of townships not having been developed as business centres. There is a dire need for affordable land and for more private sector outsourcing in order to build relations between established and emerging businesses.
- **A combination of public and private investment** in order to achieve effective and sustainable economic development. Private-public partnerships have an important role to play, in particular in areas where markets fail to work. However, as the private sector requires transparency and a level of certainty, good business models and plans must be in place to unlock the return on investment. Banks should investigate different loan-to-value ratios and tailor lending criteria for township entrepreneurs.
- **Integrated planning and combined efforts** in all aspects. These include integrated transport systems that provide access to goods, services and jobs, integrated development plans for business centres in townships and CBDs, and security, safety and good governance.
- **Information, training and skills development**, both for township entrepreneurs and within municipalities. The skills levels within municipalities vary greatly, especially in budgeting and implementation. These much-needed skills could be developed through public-private partnerships.
- **SMART partnerships**, whereby small businesses could cooperate and identify how to contribute to the bigger retail stores. Through cooperation, small businesses that serve similar customers and use similar supply chains could scale up to overcome size limitations, i.e. agglomeration.
- **Effective land management and rights in townships.** Land management is problematic, mainly because of the lack of accurate land asset registers. However, audits are currently being conducted and will provide information for developers. Furthermore, the rights of property owners and property developers need to be understood with regard to new developments and infrastructure change(s) in areas.
- **The right mindset and approach** is needed for entrepreneurs to succeed. Not everyone in a township can start a business, and so plausible entrepreneurs should be identified and assisted.

With more than half of South Africa's urban population living in townships and informal settlements, turning these areas into thriving economies is increasingly important. A collaborative approach is needed, from project funding to precinct design, to implementation and maintenance. Through a collective vision and effort between government and the private sector, townships can become a source of new hope.

4. Towards Sustainable African Cities

In Africa and South Africa, the drive is towards creating liveable, safe and economically thriving cities, as evidenced by Agenda 2063 and city-specific initiatives such as the City of Tshwane Vision 2055. In June 2015, the City of Tshwane hosted the African Capital Cities Sustainability Forum (ACCSF), which comprises 15 African capital cities. The major outcome of the ACCSF was the 2015 Tshwane African Capital Cities Declaration, which confirms the role of African capital cities and the commitment of city leaders to sustainable urban development. Within the context of cities, sustainability indicators include access to water, energy and other resources; effective waste management; efficient transport and urban mobility; connectivity; spatial planning and the reduction of urban sprawl; safety and security; green economy management and reduced carbon footprint.

Achieving sustainable urban development will require adequate infrastructure investment that will ensure cities can leverage resources efficiently and build resilience to the effects of climate change.

Geometrics

The City of Tshwane's 3D mobile mapping pilot project in Mamelodi showed the critical role of geometrics in cleaning up and expanding data, and providing an accurate picture. When the data obtained through the project was compared to the existing data (in the integrated quality management system), discrepancies and missing information emerged. These discrepancies included the incorrect positioning of infrastructure assets, which could have seriously negative consequences for maintenance (e.g. if a fixed asset is shown on the wrong side of a road). Further discrepancies (and duplications) were found as a result of different systems being used to manage the same assets.





Guiding our cities towards having sustainable infrastructure and being low carbon, resource efficient and climate resilient cityscapes.

"How can we support each other if we do not have infrastructure to take us there?"
Dr. Naledi Pandor, Deputy Prime Minister

OPERATIONAL DRIVERS

- Leadership
- Skills development
- Mentorship
- Balance
- Integrated planning
- Land use rights

CRITICAL ENABLERS

- Public participation
- Understand sustainability
- Innovative partnerships
- Understand reasons behind urbanisation
- Green & SMART technology
- New financing mechanisms
- Share learnings

VISIONARY DIRECTIVES

- BEPP
- GRAP 17
- SPLUMA
- SCSA

Information

- Geometrics 3D
- Mobile Mapping
- Analytics

CITY DIRECTIVES

- Agenda 2063
- City of Tshwane Vision 2055
- African Capital Cities Sustainability Forum
- City of Tshwane Declaration

URBANISATION

- Africa: 2020 - 50%
- Globally: 2050 - 70%

Towards Sustainable African Cities - creating the 'Africa we want'

- Liveable
- Connected
- Inclusive
- Economic growth
- Green economy
- Climate resilience

Compliance

National Treasury has introduced a number of outcomes-based programmes that require municipalities to comply with policies and plans. Taken together, they encourage better coordination of built environment activities and higher impact of fiscal transfers. These include the BEPP, Generally Recognised Accounting Practices (GRAP 17), the Spatial and Land Use Management Act (SPLUMA) and the Standard Charts of Account (SCOA). The BEPP promotes integrated planning, which means that infrastructure decisions are no longer made in isolation and/or only to the liking of engineers or property developers, but instead form part of a broader strategic city plan based on spatial, sustainable planning.

- GRAP 17 deals with property, plant and equipment. The Auditor-General requires municipalities to be GRAP 17 compliant, which means that they must have proper asset registers in order to obtain clean audits.
- SPLUMA provides direction for strategic development and infrastructure investment, with a view to ensuring efficient and sustainable infrastructure.
- The SCOA stipulates the manner in which assets are to be classified and maintenance recorded. The SCOA is already a requirement for national and provincial governments, and municipalities will be required to comply by 2017 in order to obtain National Treasury funding.

In demonstrating compliance, municipalities will be driven to take steps to acquire clean and standardised data, which will improve planning and budgeting, maintenance,

infrastructure development and service development. However, this is a cumbersome and costly task.

Spatial transformation enablers

Lessons from African cities over time provided the following enablers for spatial transformation:

- **Defining sustainability:** A holistic definition of sustainability, incorporating infrastructure as an enabler, needs to be central to a framework for city spatial transformation.
- **Innovating through partnership:** This is related to the importance of integrated infrastructure planning, which requires taking a holistic view, with government and the private sector working together. An example cited was Midrand, which offers sustainability for businesses because of its potentially efficient transport system, but not for residential developments, because of the lack of social infrastructure.
- **Understanding urban migration:** It is important to understand why people move to cities, which means engaging with people to determine their real social needs and reasons behind their choices. Social issues, the dynamics of communities and family economic strategies should inform infrastructure development.
- **Incorporating green and SMART technologies:** This will ensure effective mapping, verification and assessment of infrastructure. However, as cost plays a determining role, new ways of implementing and using these technologies are needed, e.g. packaging services for public use based on a pay-per-use principle.



- **Developing new financing mechanisms:** The DBSA may have the capability to evaluate projects, including green financing projects, and access to money, but the programming of money remains problematic; therefore innovative solutions are required.
- **Learning from each other:** The ACCSF is a good start. Barriers between cities and countries need to be broken down, and an environment established where lessons and plans can be shared. While some parts of infrastructure plans are confidential for security reasons, integrated infrastructure cannot be planned without opening access to these plans to the people and organisations engaged in development.

The dialogue also identified some operational drivers: leadership, skills development, mentorship, project prioritisation (balancing what is needed and what is achievable) integrated planning and land use rights. What cities plan and how they implement their integrated development plans will dictate how quickly cities can provide for, protect and nurture their citizens.

5. Financing Government's Capital Programme

Cities must look for new financial models in order to address public finance challenges and have sufficient funds for the required magnitude and speed of development. It is not just about generating more money but about developing innovative financing instruments to channel available capital into infrastructure. Simultaneously it is essential to

prioritise the right developments and improve implementation and productivity. Productivity needs to be enhanced, through public-private partnerships, and services to citizens improved through innovative solutions made possible by technological developments. Any financial and operational solutions need to take into account their impact on long-term economic growth, as well as the potential outcomes for all stakeholders and communities involved.

Scenario planning

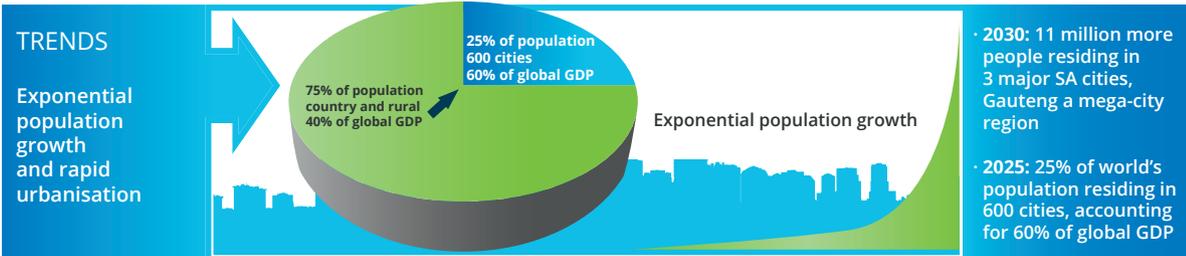
The City of Tshwane developed a conceptual framework based on three scenarios that incorporate fiscal principles and instruments.

- Flat scenario, where existing financing practices stay pretty much the same, and the emphasis is on improving the implementation and usage of existing financial instruments.
- Step-change scenario, where the legislation (not the Constitution) changes to allow differentiation, with the aim of increasing efficiency, enhancing service delivering and improving capacity and local government level.
- Jump-change scenario, where the Constitution changes and taxes are devolved (e.g. new surcharges and wealth taxes), giving city-regions greater autonomy and self-governance.

Fiscal instruments

Compared to other countries, South Africa's financing mechanisms are the most centralised and its administration the most decentralised. This affects implementation and efficiency. For example, since 2000, demand for municipal services (i.e. local government's mandate)

Sustainable financing for progressive inclusive cities



OPPORTUNITY for growth vs. DISRUPTION. A choice requiring a new mindset and innovation



has increased by 43%, but local government received only 9% of divisional revenue. Ideas for increasing local government revenues include:

- Quick wins, through improving revenue collection and debt ratios, and optimising property portfolios through "land value capture" and property transfer duties, among others. Establishing a culture of payment is critical.
- A more progressive grant system, whereby grants are consolidated and

promote integrated planning. A balance between grant funding and own revenue is important.

- New revenue streams, such as tax increases (or a wealth tax) and increasing private sector lending based on innovative fiscal instruments that are independent from lending on city balance sheets. Other suggestions included city congestion charges, new utility charges, and enhanced debt, equity and bond financing.

- Reduction in staff, with the cost savings then re-allocated to infrastructure spending. Since October 2015, significant expenditure cuts through removing non-core staff have been put in place, especially at national and provincial levels.

Issues requiring further debate

Income-generating infrastructure: A new approach is needed, whereby infrastructure generates income. While more funding must be generated, the emphasis needs to be on better infrastructure, i.e. infrastructure that contributes to creating inclusive and sustainable cities, e.g. supporting the development of economic hubs rather than upgrading highways that are in relatively good condition. The biggest challenge for metros is having the financial planning capacity to determine the economic and social impacts of infrastructure. A metro's fiscal capacity is developed when infrastructure such as energy, water and sanitation generates revenue over its lifecycle. Metros cannot rely on the sale of

electricity and basic services alone but need to become more entrepreneurial (i.e. not only resellers of bulk services).

Private sector funding partnerships:

These need to quantify the return on investment and potential future income, as well as offering acceptable risk. The DBSA and other state investment institutions can help prepare projects to ensure bankability and understanding of the risk involved. The Renewable Energy Programme that was facilitated by the DBSA was highlighted as an excellent example of innovative partnership and project preparation. The DBSA was able to demonstrate the financial feasibility and bankability of the project, and, after extensive work, the industry was prepared and a successful renewable energy sector was established.

Policies and guidelines: These are needed to support partnerships and assist role-players in developing new financing mechanisms.



At present, there are no guidelines to assist metros with regards to new technology. Policies should promote alignment and cooperation between metros and provinces.

Collaborative planning and integration:

Interaction, cooperation and alignment is key to the development of effective infrastructure, proper allocation of funds and cost savings. Problems preventing collaboration include a lack of capacity and innovation. Not only should there be alignment, but collaborative planning is critical, involving engineering, financial and technical staff. One suggestion made was that funds should only be made available once all departments, including planners, engineers and financial decision-makers, are aligned.

Involvement of all stakeholders: This means all levels of government, National Treasury, economic institutions, trade unions and the private sector. In specific cases, selected

public groups should be involved in the planning process.

Social and community assets: These assets should be factored into holistic infrastructure development. Important considerations include future access to infrastructure, cost-effectiveness and potential economic growth nodes. Funding of social infrastructure should be through grants, whereas borrowed funds should be used to pay for revenue-generating infrastructure. To ensure sustainability, social and economic infrastructures should complement each other.

Refurbishment and maintenance: Equally important as new infrastructure are regular assessments and refurbishment of existing infrastructure, where cost-effective. This means that proper maintenance plans need to be in place.



Conclusion



South Africa finds itself in the uncharted waters of creating inclusive cities. This can be seen as either an opportunity or a disruptor. The Infrastructure Dialogues show that urbanisation presents an opportunity for inclusive growth, but success in this endeavour will require innovative thinking and collaboration. Metros and cities need to rethink their capital funding and planning, as well as their service provision. All spheres of government, the private sector and communities need to work together and, based on a shared long-term view and objectives, need to find solutions that support inclusive and sustainable urban growth.

Annexure: Infrastructure Dialogue Topics (2009–2016)

Date	Event name
Jun-09	Municipal Infrastructure Investment Framework
Aug-09	Municipal Infrastructure Asset Management
Sep-09	Municipal Infrastructure Capacity
Oct-09	Public Transport
Jan-10	Climate Change and the Effect on Municipal Infrastructure
Feb-10	Infrastructure Legacy
Mar-10	Infrastructure Sector Procurement
Jun-10	The Role of Public Infrastructure in Urban Regeneration
Aug-10	Road Infrastructure
Oct-10	Municipal Water Services
Nov-10	Infrastructure Stimulus Package – Development Outcomes
Jan-11	Municipal Infrastructure Investment Framework – Planning until 2019
Mar-11	Economic Infrastructure – Outcomes
Apr-11	State of Electricity Distribution
Sep-11	Infrastructure Inputs Monitoring Project (IIMP) III
Nov-11	Infrastructure and Greening the Future
Mar-12	Large-scale Public Infrastructure Projects
May-12	Planning for Infrastructure: Partnerships for the future, with reference to affordable housing
Aug-12	Matching SIPS to Skills: Can our infrastructure programme better leverage our skills reality?
Oct-12	Listening, Reflecting and Acting: Seeking lessons from our infrastructure sector performance
Dec-12	Municipal Service Delivery – Improving Quality and Quantity: How do we square the circle?
Mar-13	The State of South Africa within the Global Economy: Implications for infrastructure sector decision-making
Aug-13	Regenerative Cities



Date	Event name
Oct-13	Maintenance of Public Infrastructure
Feb-14	Infrastructure Development Bill
Mar-14	Infrastructure Capacity Support
May-14	Infrastructure after 20 Years of Democracy
Jul-14	Integrated Urban Development Framework
Sep-14	Funding Infrastructure: the Case of Student Accommodation
Nov-14	Localisation: Driving Industrialisation through the National Infrastructure Plan
Feb-15	Municipal Water and Sanitation Infrastructure
Mar-15	Pricing and Paying for Municipal Rates and Charges
Jun-15	Securing our Energy Future and Tapping Energy Efficiency as the “First Fuel”
Jul-15	Towards Sustainable African Cities: Pan-African conversations, processes, experiences, opportunities
Sep-15	Township Economies: What is the role of infrastructure in government’s strategy to revitalise township economies
Dec-15	Africa’s Infrastructure Build Programme
Mar-16	Financing Government’s Capital Programme: Towards sustainable municipal financing for the future

Infrastructure Dialogue Partners

The Infrastructure Dialogues initiative was launched in 2009 as a partnership between the Business Trust and the Development Bank of Southern Africa (DBSA). The Dialogues are now jointly hosted by the following institutions, with Engineering News as a media partner:



Development Bank of Southern Africa (DBSA)

The DBSA is one of several development finance institutions in South and Southern Africa. Its purpose is to accelerate sustainable socioeconomic development by funding physical, social and economic infrastructure. The DBSA's goal is to improve the quality of life of the people of the region. For more information see www.dbsa.org.



National Business Initiative (NBI)

The role of business in sustainable development is becoming increasingly important in helping to sharpen South Africa's competitive edge for the future. The NBI strives to create and support a sustainable, equitable and thriving society that makes South Africa one of the best places to live, work and do business. NBI members have remained steadfast in their support for the organisation and the sustainable development agenda. For more information see www.nbi.org.za.



The South African Cities Network (SACN)

The SACN's programmatic framework encourages cities to define development strategies that adopt a long-term view on urban challenges. The objective of any city development strategy is to ensure an integrated approach to development and economic growth in South African cities. Through its network, SACN promotes an intergovernmental approach to urban governance, and a strategic focus on mobilising city partners. For more information see www.sacities.net.



Department of Planning Monitoring and Evaluation (DPME)



The DPME in the Presidency is mandated to facilitate the development of plans for the cross-cutting priorities or outcomes of government, and to monitor and evaluate the implementation of these plans. This includes implementing interventions to address blockages in delivery, in partnership with delivery institutions. The Dialogues partnership is based on enabling Outcome 6: An Efficient, Competitive and Responsive Infrastructure Network. For more information see www.thepresidency-dpme.gov.za.

Economic Development Department (EDD)



The EDD aims to promote economic development through participatory, coherent and coordinated economic policy and planning for the benefit of all South Africans. It does this by coordinating the economic development contributions of government departments, state entities and civil society; contributing to ensuring the coherence of national economic policies and plans; and promoting government's ability to achieve its goals of advancing economic development with work opportunities. For more details see www.economic.gov.za.

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Tel: + 27 11 407 6471 • Fax: + 27 11 403 5230
P.O. Box 32160 • Braamfontein 2017
www.sacities.net

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