South African Conversations on INFRASTRUCTURE
ANNUAL COMPENDIUM

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South African Conversations on INFRASTRUCTURE
THE WEALTH OF COMMONS

A COMPENDIUM OF THE INFRASTRUCTURE DIALOGUES
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 2016–2017 is a distillation of those conversations, presenting the key themes and identifying issues that preoccupy all who are constructively involved in improving South Africa’s infrastructure.

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<td>Development Bank of Southern Africa</td>
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<td>DPME</td>
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In 2009, the Development Bank of Southern Africa (DBSA) and the Support Programme for Accelerated Infrastructure Development (SPAID) initiated the Infrastructure Dialogues. From 2011, the Infrastructure Dialogues platform evolved into a renewed partnership between the DBSA, South African Cities Network (SACN), the National Business Initiative (NBI), the Economic Development Department (EDD), and the Department of Planning, Monitoring and Evaluation (DPME) in the Presidency, with Engineering News as Media Partner. Through this evolution, the Dialogues continued to be a forum that provides senior government, private sector and civil society stakeholders with a regular high-level platform for the sharing of views and perspectives on critical issues affecting the infrastructure sector.

This Compendium is the fourth edition of our annual compilations, and provides an overview of the key themes that emerged from the four Dialogues held between June 2016 and February 2017.

Over this period, significant events have taken place in the global and national development space that have influenced the topics and tone of the Dialogues. In particular, we highlight:

- The ratification by Cabinet of the Integrated Urban Development Framework (IUDF), South Africa’s first comprehensive urban policy framework, in May 2016
- The release of the fourth State of South African Cities Report in June 2016
- The promulgation of the global New Urban Agenda at Habitat III in Quito, Ecuador in October 2016

... and much, much more.

These urban themes extend last year’s Compendium theme of “Sustainable Futures” into what we have themed this year as “The Wealth of the Commons”, which emphasises the collective role of all stakeholders in driving the national and local development agendas.

The desired outcome of this Compendium – as with the Dialogues themselves – is to contribute towards an improved climate for policy and decision-making, and strengthened cooperation within this critical sector.

As always, each Dialogue and all of the Compendiums are published on the Infrastructure Dialogues website, which we invite you to visit: www.infrastructuredialogues.co.za

We invite you yet again to read, engage and act.
Since 2009, the Infrastructure Dialogues have provided a forum in which government, the private sector and civil society stakeholders can share views and perspectives on the infrastructure sector. The evolution of the dialogues reflects a growing understanding of the importance of dialogue and partnerships. Early dialogues were concerned with identifying and describing problems, but later dialogues progressed towards understanding what is required to harness the power of infrastructure investment in supporting national growth and development.

Government investment in public infrastructure can support production and trade, thus growth and development, but what emerged clearly through these dialogues is that the answer does not lie with government alone. All stakeholders have an important role to play.

Indeed, the common theme from the past year’s dialogues is the wealth of the commons, and the importance of partnerships that seek ways of working together to deal with the challenges facing the country. It is the antithesis of the tragedy of the commons and
requires greater inclusion and the recognition that we share a common future. The wealth of the commons can only be achieved through balancing conflicting interests, and building a shared vision and objectives through dialogue.

The first dialogue (June 2016) made the case for infrastructure investment as a strategic development lever. Catalytic infrastructure projects can radically activate development, provided the actions and mindsets required for successful outcomes are understood. However, as the September dialogue highlighted, delivering infrastructure and services comes with complexities, especially in sectors such as the water sector. The answer lies in coordinated, multi-stakeholder action and partnerships. There are no simple or singular solutions to solving developmental issues such as public safety, which was the subject of the November dialogue. Developmental outcomes are multi-dimensional, and so a systemic approach is necessary that considers soft issues (e.g. social capital) to be as important as technical interventions. Finally, as the last dialogue of the year showed, infrastructure development is not just about the final designation but is also about the journey. Infrastructure has an instrumental role to play in job creation, as well as enabling the development of job-creating economies. Both job creation and socio-economic development are important.

This Compendium highlights the key themes that emerged and provides a summary of the infrastructure dialogues held in 2016/17.

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In 2015/16, the common thread running through the dialogues was that of sustainable urban futures, reflecting the growing importance of cities for the economy. The key themes that emerged 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.

This year’s main themes show some continuity with last year, but there has been an evolution in emphasis and different framing and experiences. For example, while the need for accurate data is still relevant, it is not one of the main themes this year. The importance of people in development and the need for collaboration were themes that have taken on additional importance, and contributed to the development of this year’s common thread, that of the wealth of commons, which requires building a shared vision and objectives through dialogue. The main themes that became apparent across the dialogues were:

- People at the centre
- Shared understanding and commitment
- Skills development and capacity building
- Collaboration and learning

**People at the centre**

Putting people at the centre refers both to truly involving the community and to incorporating social aspects in developments. When people are involved from the beginning, ideas are jointly developed and a sense of ownership is created. People take ownership when they identify with the infrastructure and the activities that occur within a specific space. In many cases, a paradigm shift is necessary, such as moving from an emphasis on catalytic projects to one on catalytic places and spaces because catalytic investments are about connecting and integrating people.

Nowhere is the importance of community involvement more evident than in the design of public spaces. Where the people who use
the public space are involved in developing ideas and finding solutions, trust is built and the community takes ownership. One example is the Violence Prevention through Urban Upgrading (VPUU) programme’s transformation of an unused and unsafe space in Harare, Khayelitsha, into a well-designed, well-managed, safety-centric place. Comparing the experience of developing the End Street North Park with that of the Yeoville Park and Recreation Centre highlights the value of community involvement. In the first instance, the community surrounding the park and users of the park were involved in the design and planning of a safer park, while in the second instance community engagement was not well planned or well organised. The result is on the one hand a social, inclusive, safe park and on the other an unsafe park and decrepit recreation centre.

### Shared understanding and commitment

The need for a common understanding and commitment by all parties emerged across the dialogues. One example is, “catalytic infrastructure investments”, which mean different things to different parties. For some, catalytic projects are infrastructure investments that are a catalyst for change, while for others they are specifically third-party investments. However, all agreed that catalytic infrastructure is distinct from backlog-reducing infrastructure because it is infrastructure that stimulates development, resulting in both economic and social benefits. Such investments can be the catalyst for transforming the built environment and people’s quality of life, through improved access and services. Infrastructure investments can also be a catalyst for downstream development of industries that create sustainable jobs, if underpinned by a common long-term vision and holistic strategies. There will be inevitable trade-offs between social/ecological benefits and economic/financial benefits.

Integral to achieving a shared understanding is having clearly defined roles for government, the private sector, civil society and communities. Government’s role is one of support, guidance and funding, based on clear priorities and strategic requirements, so other role-players can see where they can get involved. In defining the respective roles, gaps may appear, such as the need for an economic regulator for the water sector, which could facilitate partnerships and forecast future water requirements. When roles are not clearly defined, opportunities for partnerships are missed. For example, water sector infrastructure projects have social and commercial components, which should be financed through (government) budgets and (business) loans respectively if a public-private partnership is to work.

Education and skills training is an area where shared understanding and commitment are critical for the infrastructure sector. Currently the educational system is not producing enough appropriately skilled candidates with workplace exposure. To change this will require cooperation between government, education institutions and industry.
Skills development and capacity building

Without the right skills in the right industries, South Africa will struggle to grow its economy. The lack of capacity and skills is responsible for many of the management issues within local government and for problems with large-scale infrastructure investments. Skills required range from the ability to identify, plan, design, implement and oversee catalytic infrastructure investments, to basic numeracy and literacy. For example, the delay in the completion of the Medupi Project was in part due to insufficiently skilled people in key roles (e.g. supervisors lacked numeracy and literacy). The delay led to increased costs, while only half the expected jobs were creating during the period of construction.

The lack of skills across industries and market sectors is directly linked to South Africa’s high unemployment rate. Some industries have lost their skills base (e.g. steel manufacturing), but mostly the problem is a mismatch between the skills coming out of the education system and the skills that industry requires, most notably technical and artisan skills. Compounding the problem is the limited capacity within SMEs to upskill their often temporary or informal workers, which stifles their ability to create jobs. Even within large companies which have internship programmes, skills are not retained and are subsequently lost because few interns are permanently employed after their internship period (of less than a year) and so are unable to practise the skills learned.

The lack of appropriate skills can be resolved by working to a long-term, well-defined plan, which includes preparing universities and other educational institutions to provide the required skills locally. It will require all role-players to collaborate, with a focus on aligning training to workplace requirements, valuing technical and artisan skills, and enabling employees to gain access to formal skills training.

Collaborating and learning

Sectors and role-players need to talk to and learn from each other. In this way, innovative partnerships can be formed, among all spheres of government and between government and the private sector, as well as between government and citizens, different professions and role-players, and different sectors.

Part of collaboration is learning from projects that work. South Africa has a number of success stories that can provide lessons and be used to harness potential. Examples are the success of the Jozi SME Hubs, which are one-stop shops that support small businesses and would-be entrepreneurs, or the energy sector’s roll-out of renewable energy projects. Successful small-scale projects have the potential to be scaled up and to encourage further projects, beyond the initially targeted communities and sectors.
1. Catalytic Infrastructure: Are our interventions multiplying economic impacts?

The 39th Infrastructure Dialogue began as a theoretical discussion, about what qualifies as a catalytic project. It then developed into a conversation about the actions and mindsets required for successful catalytic projects.

UNDERSTANDING CATALYTIC INFRASTRUCTURE

A common understanding of catalytic investments/development is needed.

The City of Portland (USA) defines catalytic infrastructure as infrastructure that activates further infrastructure development in a radical way that transforms the built environment. Public and/or private projects are planned and designed with the added purpose of causing a complementary development, such as the major rehabilitation of underutilised buildings. Both small and large-scale catalytic infrastructure projects provide the opportunity to deliver a reasonable return on investment, which includes job creation, increased land value, improved transportation and access, and new housing infrastructure.

A COMMON VISION IS NEEDED

"Our problem is that the word catalytic has lost its catalytic nature. In each developmental sphere it means something different."

CATALYTIC INFRASTRUCTURE

"SMALL THINGS MAKING A WHOLE LOT OF THINGS HAPPEN"

Development and mega projects need to 'TALK TO EACH OTHER'

NEED FOR SMART PARTNERSHIPS TO UNLOCK DEVELOPMENT

Government departments and developmental sectors need to interact, plan and cooperate.

TWO TYPES OF INFRASTRUCTURE

1. Backlog-reducing
2. Growth-enhancing

- Government / private sector partnerships
- Unlock development projects that deliver return on investment for corporates involved

UNLOCK CATALYTIC POWER

- Focus on catalytic places and spaces (not only projects).
- Plan well in advance, so the required skills can be developed locally.
- Have a project champion who is proactive, constructive and provides strong leadership.
- Engage communities, bring together like-minded people and ensure customer-oriented outcomes.
- Define the goal and challenge upfront, and involve the right parties from the start.
- Change SA’s regulatory framework so that it can promote economic growth.

CATALYTIC CHANGE – LESSONS CAN BE LEARNED FROM

- Gautrain
- Bus Rapid Transport
- Corridors of Freedom
- JCCI’s Property Incubator
- Energy Renewables Projects

AREAS REQUIRING CATALYTIC CHANGE:

- Energy
- ICT – broadband projects
- Water
- Transportation

“Become personally part of the dialogue and be instrumental in realising the catalytic change needed in your built environment – stimulating growth and future prosperity for the country, for us all.”
Understanding catalytic investments/developments

As South Africa grapples with the problem of low growth, “catalytic infrastructure investments” have become a central plank of government’s economic policy. However, the definitions of catalytic and catalytic investments vary, ranging from specific projects to changes in processes. For example, at National Treasury catalytic investments refer specifically to third-party investments, whereas the Johannesburg Development Agency uses infrastructure developments (such as the Corridors of Freedom) as catalysts for change. There was consensus that a common understanding of catalytic investments/development is needed.

The City of Portland (USA) defines catalytic infrastructure as infrastructure that activates further infrastructure development in a radical way that transforms the built environment. Public and/or private projects are planned and designed with the added purpose of causing a complementary development, such as the major rehabilitation of underutilised buildings. Both small and large-scale catalytic infrastructure projects provide the opportunity to deliver a reasonable return on investment, which includes job creation, increased land value, improved transportation and access, and new housing infrastructure.

The general understanding is that catalytic infrastructure projects should be about people, about creating employment and improving people’s quality of life. Such projects need to have a broader social benefit, not just economic returns. Two types of infrastructure were identified: backlog-reducing infrastructure and growth-enhancing infrastructure, which is of a catalytic nature and should be included in development projects.
The Four Dialogues

Funding catalytic projects

Funding is a core enabler of development projects, and so the role of funders such as the Development Bank of Southern Africa (DBSA) is important. Despite being inundated with proposals, most of DBSA’s projects have not got off the ground. One of the reasons for this is the time and effort required, especially during the conceptualisation stage, to make the project sustainable. To address this, the DBSA seeks smart partnerships to unlock specific projects within specific sectors, such as ICT (broadband projects), water and transportation, that lend themselves to catalytic impact. The energy sector has achieved some success in rolling out renewable energy projects, in large part because of a framework that enables private funding to be channelled into infrastructure.

Unlocking catalytic power

The following can help unlock the power of catalytic projects:

- Focus not on catalytic projects alone but also on catalytic places and spaces that connect and integrate people.
- Plan catalytic infrastructure projects well in advance, so that the required skills can be developed locally.
- Have a project champion who is proactive, constructive and provides strong leadership.
- Engage communities, bring together like-minded people and ensure customer-oriented outcomes. Clarify government’s priorities and strategic requirements, so that the private sector can get involved early on, and risk-sharing among sectors can be agreed upon.
- Define the goal and challenge upfront, and involve the right parties from the start.
- Change the current regulatory framework, so that it can promote economic growth.

Beginning to shape a framework

What emerged from the Dialogue was the realisation that South Africa possesses the necessary depth of knowledge, experience, resources and infrastructure, and that a framework for taking catalytic projects forward is developing. However, everyone will need to pull together, be positive and support each other through the challenges that lie ahead. What began as a theoretical discussion ended with a determination to take the conversation forward, based on the understanding that both large and small catalytic projects can make valuable contributions.
2. Innovative Partnerships for the Future: Water services

The 40th Infrastructure Dialogue examined the complexities of the water sector. It explored ways of bringing together role-players and creating effective public-private partnerships that can produce sustainable solutions for the sector.

INNOVATIVE PARTNERSHIPS – WATER SERVICES

Recognising the water crisis

The current drought has been a wake-up call to South Africa. More than 70% of the country’s rivers are polluted, and grasslands – South Africa’s “water factory” – are rapidly disappearing. Water resources have been neglected and over-exploited, and infrastructure is on average 39 years old. Various issues contribute to this crisis.

- Complexity of water management

Water must be captured and retained at a catchment level (grasslands), and
managed and treated in streams, rivers and dams. Then water services must be provided, through pipes and reservoirs, to households and industries, while managing water losses and consumption. In addition to water supply, wastewater needs to be managed effectively.

- **Low value of water.** The perceived low value of water is evident in the country’s consumption of 12.5 billion litres of water per year, which is high compared to international examples. Of this water consumption, about 13% is lost through leakages.

- **Disconnects within the water sector.** Underlying many of the problems is the unsustainable current silo approach taken towards water management. The disconnect is found in the two “languages” spoken in the sector: cost, profits and losses versus social and ecological systems and infrastructure. Trade-offs will be necessary because infrastructure that best serves the communities and the environment might not deliver the required profits.

**Solving South Africa’s water crisis**

Solving South Africa’s water crisis will require a shift in approach. Strategies are needed not only to avert the crisis but also to enable the implementation of long-term solutions. All spheres of government, business, the private sector and citizens need to share and support a new vision and clear objectives. Integrated and holistic solutions are required, as well as the following:

- **Innovative partnerships.** Partnerships include those among all spheres of government, and among government and the private sector, government and citizens, different professions and skills bases in the water sector, the water and energy sectors, and among all role-players and the water environment.

- **Awareness of the National Water Research and Development Innovation Roadmap.** Water sector research should be an integral part of the vision because future challenges will require different technologies, infrastructure and solutions. Developed by the Water Research Commission and the Department of Science and Technology, this roadmap is centred on water conservation for future generations. Its objectives are to improve coordination through partnership; leverage resources, investment opportunities and shared expertise; and improve skills development.

- **Sufficient and reliable data.** One of the biggest challenges in the water sector is the lack of data, although some pilot projects have successfully used smart meters to gather data. Data on water consumption (usage and losses) is available, but other data (e.g. water management, water quality, infrastructure and real costs) is limited or unreliable. Without proper data, the real issues and root causes of problems cannot be identified. A national hydrological centre would help to address this challenge.

- **Economic regulation.** An economic regulator for the water sector is necessary, to ensure the effective management of supply and demand, costs and pricing strategies. A key role of the regulator could be to facilitate partnerships between the water sector and the energy and food sectors. It could also forecast future water requirements, working closely with planners and developers.
• **Capacity building.** Many of the management issues result from a lack of capacity and skills within local government, especially the skills to identify, plan, design, implement and oversee water projects. Capacity building is also needed across other government spheres and the private sector. What is important is to differentiate between capacity, competence and skills.

• **Reliable operations and maintenance.** The focus needs to be on operations and maintenance, which are significantly underfunded at local level. This is because cities focus on service delivery and the provision of new infrastructure, which is reinforced by the grant funding that is geared towards providing services to poor communities. However, Treasury has shifted its approach to focus more on maintenance and on considering the full lifecycle costs of infrastructure. Municipal managers and decision-makers also need to understand the impact of infrastructure maintenance on the entire value chain.

• **Changing consumer behaviour.** Household consumption of an average 30 kilolitres per month is too high. A mixture of education, incentives and penalties would help consumers understand the value of water. Saving water requires changes in consumer behaviour, an understanding of “fitness for use” (where different qualities of water have different usages) and ongoing infrastructure maintenance.

Government’s role should not be only to manage water consumption but to focus on managing the water supply upstream, to ensure efficiencies needed to save water. These efficiencies can be used to evaluate water projects and to identify and manage potential problems before they occur.

**Financing water infrastructure**

Water sector infrastructure projects require significant investment, but existing financial mechanisms are not ideal for financing projects with commercial and social components. Ideally, the commercial component should be financed through loans and the social component through budgets. Part of the problem is that the roles of government and business are not clearly defined, and the available government grants (e.g. Regional Bulk Infrastructure Grant, Municipal Infrastructure Grant) do not relate to each other. In addition, the complexities of the water sector (numerous interfaces, investors and decision-makers) make large-scale water projects too risky for many role-players. A potential opportunity for private sector partnership could be to assist poor municipalities that need to generate additional funds over and above grant funding.

Incentives could assist in addressing the challenge of financing water infrastructure. Two examples shared at the Dialogue were Costa Rica, where the grant system includes an environmental component, and Kenya, where the Lake Naivasha Payment for Ecosystems Services project gives farmers incentives to manage water consumption and look after the...
environment, thereby increasing catchment yields. South Africa could include such incentives in its water grants to support small projects whose success could encourage other projects beyond the targeted communities.

Related to finance is the issue of non-payment for water, which is linked to the broader issue of managing water sales. Within the free basic water approach, the link between service provider and consumers is broken, resulting in consumers not being accountable for their water consumption levels.

What emerged clearly from the Dialogue is that South Africa’s water sector is operating in crisis mode. Local government needs to tighten processes and systems, embrace innovative partnerships and demonstrate value creation across the water management spectrum. The country has several success stories, which can be shared and used to forge innovative partnerships. These could harness the strengths and experience of all role-players in managing the risks and making the necessary investments in water projects. If not, water will not be available to meet the future demand.
3. Safety in Our Public Spaces: Can infrastructural, social or technological interventions save us, and in what balance?

The topic of the 41st Infrastructure Dialogue was safety in public spaces. After exploring what is meant by quality public spaces and precinct management, it looked at the importance of community involvement and the role of infrastructure and technological development in improving the safety of public spaces. The Dialogue ended with some of the aspects to be considered when developing public spaces.

**SAFETY IN PUBLIC SPACES**

*PUBLIC SPACES are COMMUNAL SPACES*

- shared centres of community life and generators of social inclusion
- Quality public spaces are safe, inclusive, accessible, green and family-friendly.
- Safety is about citizen involvement, interaction and social cohesion.

**DEVELOPING PUBLIC SPACES**

- Community engagement and participation (from planning, design, implementation to maintenance and management)
- Community TRUST, empowerment and ownership
- Sustainable, safe public spaces
- Technology and human intelligence working together (technology effectively combined with actions and enforcement)
- Walkability in public spaces creating inclusivity and social inclusion

**PRECINCT MANAGEMENT**

- Public spaces designed and developed based on where people work, and where and how they live and play
- Guiding principles: mixed used, transit oriented development, walkability, inclusivity and density
- Involvement of public, private and civil society actors
- Community and user input from the start building trust and a sense of ownership, and ultimately safe spaces
- Building trust leading to building pride in areas that potentially bring people together in safe and communal spaces

**PRIORITISING SAFETY OFFERS QUICK WINS THAT CAN TRANSFORM PUBLIC SPACES INTO DYNAMIC SOCIAL HUBS**
Promoting quality public spaces

South Africa’s vision for cities and human settlements is aligned with that of the United Nations, which identifies several desirable characteristics of cities and human settlements. These include prioritising safe, inclusive, accessible, green, quality and family-friendly public spaces. Quality public spaces are founded on participatory and inclusive infrastructure development, maintenance and management. They require accessibility, accountable police services and effective law enforcement.

The Integrated Urban Development Framework defines public spaces as shared centres of community life and generators of social inclusion and cohesion. During the discussion, the issue of “private” versus “public” spaces was highlighted, and how these terms can lead to disengagement of the communities. It was agreed that “communal” spaces would be a better term, as communities would be more likely to take ownership. Such communal spaces include not only parks, libraries and playgrounds, but also roads, streets and pavements.

Designing and managing precincts

Precinct management considers where people work, where and how they live and play. In the design and development of human settlements and public spaces – it is part of the urban development value chain occurring in targeted areas called precincts. An integral part of designing and managing a precinct is ensuring safety.

CASE STUDY: Transforming unsafe parks into safe public spaces

The City of Johannesburg Public Safety Department chose the End Street North Park (in the inner city of Johannesburg) as a pilot study to test a methodology for compiling a safety strategy. The objectives were to determine the requirements for safe parks and open space strategy, to test collaboration in the city, to establish a model for participatory planning, design and implementation, and to physically upgrade the park. People from communities surrounding the park were invited to participate in workshops, which used “Mindcraft”, a virtual video game, as a planning tool. Posters were also put up in parks, for comments by people unable to attend the workshops.

The community identified problems and shared information that was used by planners to ensure an effective design that would enable activities, ensure public safety and have an impact on pedestrian safety in the area. The top five community requirements were: functional and well-maintained toilet facilities, access to water, free access to the park, soccer and other sporting activities, and free WiFi.

People are now using the park, which has become an area for social activities and inclusivity, preventing illegal activities and crime, while promoting public safety.
Precinct management takes place through different legal entities and occurs mostly outside government and among public, private and civil society actors. The role of government is important to understand. Cities can manage their areas at two levels: a portfolio level (looking at their portfolio of emerging, established and declining nodes) and at a precinct level (focusing on several strategic functions). National Treasury (through the Neighbourhood Development Programme, NDP) funds and supports municipalities to establish precinct management plans. It has also established Safe Hubs, in partnership with South African Football Association (SAFA), where the hubs are funded 50/50 by Treasury and the private sector. Treasury's five guiding principles are: mixed used, transit oriented development, walkability, inclusivity and density.

Developing public spaces within settlements is important in cities like Johannesburg, where the density of living is increasing at an alarming rate because of urbanisation and migration. People need spaces where they can socialise, relax and play sports, encouraging social cohesion, social justice and equality. However, as inner cities densify, fewer and fewer open spaces are available and are contested.

Involving the community

Two case studies demonstrate how closely infrastructure design and safety are linked, and how important it is to include users of the public space in the process of developing ideas and finding solutions. Having community and stakeholder engagement from the start of the project builds a foundation of trust and engenders community ownership.

**CASE STUDY: VPUU in Harare, Khayelitsha**

The Violence Prevention through Urban Upgrading (VPUU) programme works in low-income urban areas to improve the quality of life in Cape Town and the Western Cape. In 2006, an unused and unsafe area between the railway station and informal settlement was identified as a space that could be transformed into an urban hub comprising business and retail facilities, as well as a house of learning, a youth centre, a post office and a public square for parking. The needs identified by the community informed the integrated infrastructural planning and implementation. Completed in 2013, the urban hub is an example of a well-designed, well-managed, safety-centric and internalised public space.

**CASE STUDY: Micro-scale transformation of spaces**

Taking the right approach when providing basic infrastructure can have a ripple effect. The installation of a simple tap in an informal settlement can result in improved productivity, social activity and improved quality of life for residents, provided the community is consulted. The first tap was installed using a typical engineering layout but without any consultation with community – it did not serve the community’s needs and was soon broken. After extensive consultation, the second tap was installed and incorporated community needs (different height, with surrounding platform). As a result, residents now use the tap and own the space.
Owning public spaces
An important aspect of safety is owning and managing public spaces, which is not the same as participating in the planning of infrastructure. While infrastructure upgrading and technology may play a role in promoting safety in public spaces, sustainability comes through community empowerment, ownership and equity. Obtaining community input occurs in “invented spaces” (where communities create structures from within), not “invited spaces” (where business and/or government set the agenda that does not allow the communities to provide input). A lack of ownership will lead to public space projects failing. The Yeoville project highlights the importance of building trust through collaboration and engagement from the start, and ensuring community involvement and real involvement.

Developing public spaces
When developing public spaces, the following aspects are important:

- **Community involvement.** Safety is not about security but about citizen involvement, interaction and social cohesion. People take ownership when they identify with the infrastructure and activities taking place in a specific space. Community ownership also helps with managing and maintaining the public spaces. Developing semi-private or semi-public spaces provides opportunities for improving public safety and public areas, and creates additional value for businesses. An example of these spaces is when a coffee shop spills out onto the pavement, and so a private entity now owns a “public” space.

**CASE STUDY: Yeoville Bellview**

The upgrading of Yeoville Bellview and Yeoville Recreation Centre is an example of what happens when there is no community buy-in and ownership. Despite a successful upgrade, by the Johannesburg Development Agency, a decade later the recreation centre is a wreck and the park is unsafe. This was because over time different agencies, each with their own approach, were involved in making decisions about and managing the space. However, the community participation was not well planned nor well organised, and infrastructure design was not based on comprehensive input from the community.
• **Technology and human intelligence.** Technology has a role to play in developing safe public spaces, such as through collecting information, observing human behaviour, and analysing and comparing crime patterns. However, technology is only effective if combined with timely action and enforcement activities, and so human interaction is necessary. Technology can be “central and top down”, such as surveillance by cameras, or “diffused and bottom up”, which is relatively inexpensive and makes people feel more empowered. A smart city can enable bottom-up solutions through small-scale implementation, such as free WiFi in public spaces, so people can use a tracking application on their smart phones.

• **Walkability in public spaces.** Connecting people and communities through a network of walkways, walkable places and walkable neighbourhoods creates inclusivity and social cohesion. National Treasury’s NDP has identified and supports 22 areas that have the potential to be walkable precincts. These precincts are either emerging (township hubs), established (suburban areas such as Sandton) or declining (typically central business districts).

What emerged from the Dialogue was that prioritising safety offers quick wins that can transform communal areas into dynamic social hubs. However, when trust breaks down between community members and those designing and building public spaces, the result is that the community feels limited ownership and therefore a lack of will and agency to protect and feel proud of such spaces. What is needed is to get back to basics, by building trust that leads to pride in areas that can potentially bring people together in safe and communal spaces.
4. Seizing Opportunities: Employment in and through infrastructure in the context of South Africa’s job crisis

The 42nd Infrastructure Dialogue looked at the opportunities for employment created through infrastructure spend, within the context of South Africa’s investment in infrastructure. This investment has not resulted in the expected economic growth and job creation. In 2016, forecast economic growth was low and unemployment remained stubbornly high: the narrowly defined unemployment rate of 27.1% was the highest in 13 years, and more than half (54.2%) the youth was unemployed.

Creating sustainable employment
Infrastructures development offers two types of employment opportunities: (i) through the infrastructure build programme, which is project-based; and (ii) through infrastructure that is a catalyst for the downstream development of manufacturing and business opportunities that create jobs. The first type creates relatively short-term jobs, whereas the second type creates permanent and long-term employment, i.e. sustainable employment.

The Renewable Energy Infrastructure series of projects created many jobs during the construction phase, but these construction jobs were obviously not permanent. Creating sustainable employment requires more than budget allocations and debt guarantees infrastructure projects; it requires holistic thinking and strategies, with a long-term vision and permanent employment opportunities from the infrastructure services as the primary objective. From a planning perspective, government must, therefore, consider transforming the current de-centralised economic structure into a more vertically integrated market structure that fosters industrialisation for large-scale infrastructure programmes.

Addressing the skills challenge
To stimulate employment through infrastructure development, South Africa must first address skills shortages and skills transfer. Without the right skills in the right industries, economic growth will not be possible.

The high unemployment rate is directly linked to the lack of skills across industries and market sectors. Some industries have been obliterated (e.g. steel manufacturing), resulting in the loss of a valuable skills base. Other reasons include:

- Gaps in the training system, as the educational system does not cater for skills training or expose students to craftsmanship. As a result, the youth are not interested in learning trade skills and consider a university degree as the ultimate achievement.
- Lack of the right skills with the necessary accreditation, despite the technical vocational and education training (TVET) colleges. This is because of poor linkages with industry and thus a lack of knowledge of the skills required by industry.
INFRASTRUCTURE SPEND CREATES EMPLOYMENT OPPORTUNITIES

Infrastructure build programme (project-based) creates short-term employment

Infrastructure that is a catalyst for downstream development (e.g. manufacturing) creates sustainable employment

EMPLOYMENT VIA NEW BUILD

- Dams and water supply
- Construction
- Roads & rail
- Taxi and transport services

SUSTAINABLE EMPLOYMENT THROUGH INFRASTRUCTURE

- Tourism & rural development
- Retail, shops & services

Example of infrastructure and industry development

The right balance and trade-offs between:

- Labour intensity
- Maintenance
- Metro Public
- Automation
- New Build Rural Private

Requirements

- Vision and leadership
- Education and development of the right skills to deliver on infrastructure projects
- Localisation and capacity development for SMEs

The Four Dialogues
• Revolving door internships and learnerships. Despite a huge number of internships and workplace skills training in larger organisations, companies rarely offer permanent employment to interns at the end of their internship (that lasts a year or less). As a result, young people are trained but are not able to put the skills learned into practice and so lose the skills.

• Insufficient capacity within small and medium enterprises (SMEs). SMEs are considered key employers of the future, but they do not have the time nor funds to upskill their employees.

To address the skills shortage will require focused skills training that is aligned to workplace requirements, the re-establishment of a culture of craftsmanship that is valued, and more opportunities for the poor to gain access to formal skills training.

The lack of skills acquisition within the construction industry limits economic growth. If skills gaps are not closed, employees are unable to move to higher-level jobs or are insufficiently skilled for their current jobs. For example, the delay in completion of the Medupi Project, a mega-construction project, was in part because of insufficient skilled people in key roles (e.g. supervisors lacked numeracy and literacy skills). The delay led to an escalation in costs and negatively affected economic growth, while the R1-billion invested in the project resulted in the creation of just 1000 jobs for the period of construction, half what the industry was looking to achieve.

Government has committed to substantial infrastructure spend over the next four years (a budget increase of about 7%). These infrastructure projects should include plans for training and upskilling entry-level workers (so they can be employed in higher level jobs once the projects are completed) and possibly for regulations for the sub-contractors used by the four big construction companies (to ensure sustainable employment and the necessary skills training).

Seizing employment opportunities
If South Africa is to seize the employment opportunities offered by infrastructure development, certain elements must be in place.

• Vision and leadership. The driving force is a clear vision and strong trustworthy leadership, which does not currently exist. Without such a vision and leadership, the many sound policies, strategies, plans and projects will not be implemented in a way that generates employment and moves the country forward.
• **Education and skills training.** Without the right skills to deliver on infrastructure projects and improved maths and science skills, unemployment will remain high and the economy will continue to deteriorate. The country’s educational system is not producing enough appropriately skilled candidates who have had workplace exposure. Education policies and curriculum need to be reformed, through cooperation between government, education institutions and industry. Vocational and skills training needs to be promoted.

• **SME development.** SME development is important because 90% of new jobs will come from SMEs. However, SMEs are not empowered and their development is stifled because the big corporations that subcontract construction projects to SMEs do not have the capacity to transfer skills. South Africa needs creative solutions to bridge these gaps. One example is the Jozi SME hubs or one-stop-shops for development where businesses can access business opportunities and resources, and obtain referrals to services providers and financial institutions. These hubs have over the past five years assisted more than 24 000 small businesses throughout the seven regions of Johannesburg. This concept could grow and become a model for other cities.

Getting the balance right
South Africa faces unique challenges and so needs to get the balance right in various areas.

• **Labour intensity versus automation/new technologies.** The right balance between labour-based manufacturing and automated production needs to be determined, with an emphasis on labour-intensive operations because of the high unemployment rate. However, business tends to shy away from labour-intensive operations in a country where labour has a voice and strikes occur regularly. Business and government together should continue to seek solutions to solve labour issues, since business understands that the only way the economy will grow is if people are employed and skilled. New technologies can bridge the infrastructure gap and create new job opportunities in alternative market sectors. For example, East Africa is looking at using drones to deliver high-priority goods like medicines to rural areas rather than building roads. The main objective should be job creation, and so disruptive technologies that can create new industries should be pursued.

• **Maintenance versus new build.** In some cases, maintaining existing infrastructure is more beneficial than building new infrastructure. It also offers opportunities for skills development and creates sustainable jobs. South Africa needs a paradigm shift, towards prioritising maintenance in budgets and factoring in maintenance cost when planning new build projects. The point is not to replace new build with maintenance, but to find a more balanced solution.

• **Urban versus rural.** The urban-rural dynamics cannot be ignored, as cities struggle to accommodate the influx of people looking for job opportunities in construction, most of which is concentrated in metros. Therefore, South Africa has to plan for and develop appropriate infrastructure in rural areas that will have a long-term impact on job creation and skills development.
• **Public versus private.** The responsibility for tackling unemployment lies with both the public and private sectors. Jobs are outsourced to the private sector, but the private sector no longer offers apprenticeships and often does not have the necessary training credentials. Where work is outsourced, government must ensure that contractors are qualified, skilled, and certified for the job. At the same time, government must bring back basic skills into municipalities and ensure proper skills development and monitoring. The solution is for government to put the structures in place for effective public-private cooperation.

What emerged from the Dialogue was that South Africa must approach infrastructure spending with the objective of boosting sustainable employment. This will require balancing and making tough decisions about the trade-offs between labour and automation, maintenance and new build, urban and rural, and public and private sectors.
Infrastructure investment has the potential to support growth and development, provided all stakeholders are involved – the answer does not lie with government alone. The common theme that emerged is the wealth of the commons, which is possible through working together to deal with the challenges facing the country. This can be achieved only by balancing conflicting interests, and building a shared vision and objectives through dialogue. The importance of people in development and the need for a shared understanding and commitment are crucial. In addition, more appropriate skills development and capacity building are needed, which will require collaboration and learning. These recent Infrastructure Dialogues show the value of open, robust discussions where views and perspectives can be shared and through which innovative solutions can be found. South Africa has the skills and depth of knowledge required to find such solutions, provided everyone is part of the dialogue and understands their role in the realisation of a shared vision.

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Alex Potgieter
Alex is a member partner of the Johannesburg Chamber of Commerce and Industry (JCCI) and the JCCI Sandton Regional Board Member Chairman. He is an Advanced Communications Specialist, Business Development Strategist and Deal Originator that has taken on an Advocacy/ Ambassador role in many corporates and NGO organizations in support of their respective objectives. He is also the President of the South African Business Development Institute. He studied through the South African Air Force and qualified as an Aeronautical Engineer along with additional core subjects taken in the field of Marketing.

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David is an urban planning and development practitioner. He is currently Head of the Neighbourhood Development Programme at National Treasury, where he manages a spatial investment targeting support programme aimed at making South African cities work for people. He has experience in both the public and private sectors and holds a M.Sc. (Real Estate), Cum Laude and a B.Sc. (Town & Regional Planning).

Douglas Cohen
Douglas is Executive Manager: Planning and Strategy – Johannesburg Development Agency. His formal qualifications include: Architecture (BAS – Wits), Project Management (Unisa), Business Administration (MBA – GIBS), Economics and Public Finance (Unisa) and Property Investment (Wits). He is currently completing a Masters in Urban Studies. Douglas’s public service experience in 2005 as a project consultant in the City of Joburg’s economic development unit. From there he moved to SALGA National Office in Pretoria, and prior to joining the JDA Douglas worked in Neighbourhood Development Partnership Grant (NDPG) at National Treasury.

Eddie Rakabe
Eddie is the Programme Manager for the Fiscal Policy Unit at the Financial and Fiscal Commission (FFC). He holds a Master’s in Economic Policy and Development from the University of Johannesburg. His focus areas of research are design of intergovernmental fiscal systems and grants, education, housing and health finance, public expenditure efficiency, and miscellaneous provincial and local government fiscal framework issues. Eddie is also part of the Research Project on Employment, Income Distribution and Inclusive Growth (REDI3x3) (managed by SALDRU), where he publishes occasionally on aspects related to low-income markets, the informal sector, second economy activities and inclusive growth. Before joining the FFC in 2007, Eddie worked at the National Treasury as a policy analyst in the local government Finance Policy unit and as senior economist in the provincial policy unit. He also worked as economist and strategist for the Square Kilometre Area (SKA) project at the National Research Foundation and led several local consulting teams on economic development. In 2004 Eddie received an award in the postgraduate category of the Nedbank / Old Mutual Budget speech competition for a paper on Black Economic Empowerment.

Edwell Gumbo
Edwell is a Master of Business Administration (MBA) graduate from the Nelson Mandela Metropolitan University of Port Elizabeth and currently heads up the Expanded Publics Works Programme unit in the City of Johannesburg’s Economic Development Department. Altogether, he has 15 years’ business experience in the areas of Project Management, Business Coaching, Entrepreneurship, Engineering, Chemistry Education, Leadership and Management in a number of organisations. His recent roles included Mentor
for the Cherie Blair Foundation and Incubation Manager for the Awethu Project. Edwell has featured on a number of radio shows discussing Entrepreneurship and Innovation. He is a firm believer in entrepreneurship and that Africa can turn the corner through looking at problems through a different lens.

Faried Manuel
Faried is the Manager for Metros, Water and Education at the Development Bank of Southern Africa. Faried holds a few degrees in Economics and Econometrics, has worked in the banking and finance environment for more than 20 years and has plied his trade in both the public and private sector banking space. He has structured finance in sectors as diverse as property, infrastructure and aeronautics.

Geci Karuri-Sebina
Geci is the Executive Director of Programmes at the South African Cities Network where she manages the Research programme. Her work focuses on city governance, policy, and planning. Geci has two decades’ experience working and publishing in the fields of urban development, innovation and foresight. Her most recent publication is the book Innovation Africa (Emerald Books, 2016).

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Gillian Maree is an Urban Planner specialising in issues of sustainability, policy, water and biodiversity. She has worked in both the public and private sector with a focus on urban issues particularly as they relate to sustainability, natural resource management, infrastructure, spatial planning and the policy environment. Recent work has brought a strong focus on indicator development and data management and what this means for more sustainable urban areas. Gillian is a Senior Researcher at the Gauteng City Region Observatory (GCRO). The GCRO is a partnership of the University of Johannesburg, University of the Witwatersrand, Gauteng Provincial Government and organised local government.

Johan Lübbe
Johan is a Deal Origination Specialist in the DBSA’s Project Preparation Unit. His responsibilities include the identification, conceptualisation and development of new mechanisms and models to enable and enhance the delivery of infrastructure. Besides his passion for project preparation and creating bankable projects, he has a special interest and experience in the water sector. Johann is a Professional Engineer and holds a Civil Engineering Degree from the University of Pretoria, a BCom (Law) Degree from Unisa and a Master’s Degree in Development Finance Cum Laude from the University of Stellenbosch Business School.

Judy Backhouse
Judy is an Associate Professor in Information Systems at the University of the Witwatersrand. She researchers information systems in Smart Cities, how information informs policy, higher education management and doctoral education. She consults to the National Advisory Committee on Innovation (NACI) and is currently a co-researcher on a project investigating Information Systems for Smart Cities in Africa. She has held academic positions at five South African universities and was Head of School at two. Judy was also the Director for Advice and Monitoring at the Council of Higher Education and held
General Manager positions in the Information Technology industry. Judy has a PhD in Education, an MBA in Technology Management, and an MSc in Mathematics.

Kaemete Tsotetsi
Kaemete is the Chief Director of the Economic Policy Development at the Economic Development Department whose responsibilities include, among other things, coordination of the implementation of the New Growth Path which is an implementation plan of the National Development Plan. Previously he was at Gauteng Department of Economic Development where he worked with the DFIs including DBSA on the identification of the strategic economic infrastructure projects for the province in order to bring its resources in line with the Gauteng Employment Growth Development Strategy (GEGDS). The collaboration with DBSA involved identifying international best practice regarding Strategic Economic Infrastructure and undertaking and supporting programme / project information and conceptualisation up to the stage of preliminary costs and impacts.

Lizeka Matshekga
Lizeka is the Divisional Executive of Agro, Infrastructure and New Industries within the Industrial Development Corporation (IDC). She has extensive experience in the financial services sector, which includes investment banking, treasury, turnaround and restructuring management, BEE financing and post investment management. In addition to her wealth of professional experience, Lizeka is a member of a number of professional bodies and holds Directorship positions of IDC investee companies, GVN (Pty) Ltd, Aerosud and Kalagadi Manganese. Lizeka holds a Masters Degree in Development Finance from the University of Stellenbosch, an Honours degree in Financial Analysis and Portfolio Management from the University of the Western Cape, stock broking Registered Persons Exams. She has also completed the Global Executive Development Program of Gordon Institute of Business Schools (GIBS).

Margo Weimers
Margo is a spatial planner working at the City of Johannesburg Metropolitan Council Department of Public Safety as a specialist project manager. Margo has been involved with the development and implementation of policy and strategy at various levels and worked previously as a spatial planner at the Gauteng Department of Human Settlements and in the City’s Development Planning department. She has worked on a range of subject matter including the development of spatial development frameworks and plans; low cost housing, informal settlement and backyards policy and plans; land development strategies; project planning, development, facilitation and coordination. Her current focus at the Department of Public Safety is to assess and understand the project process for creating public spaces from the design to management and the links between crime and lack of safety.

Maurice Smithers
Maurice is the South African National Coordinator for the Southern Africa Alcohol Policy Alliance. This is a collaborative initiative between seven Southern African countries aiming to build competence on the alcohol situation on both a local and global level, to exchange policy and prevention work experience and to discuss a closer regional collaboration on harmonising and accelerating alcohol policy development. As a long-time local activist and Director of the Yeoville Bellevue Community Development Trust, Maurice has published through the Wits School of Architecture and Planning, Re-imagining Post-Apartheid Yeoville-Bellevue: The journey and reflections of a resident activist / activist resident.
Michael Krause
Michael is a place maker who believes in negotiating solutions to shape urban environments. He studied Urban Design and Spatial Planning at the Bauhaus University Weimar, Germany and in Newcastle upon Tyne, England. From 1995 onwards he worked in Durban South Africa, mainly in informal settlements including Phoenix Settlement – Gandhi’s second Ashram. Since 2006 Michael has led a highly dedicated and transversal team of people that continuously shapes the Violence Prevention through Urban Upgrading (VPUU), an area-based programme that works in low income areas to improve the quality of life in Cape Town and secondary towns in the Western Cape. Michael is the CEO of the VPUU not for profit company, a practice that seeks to combine dialogue between residents, local authorities with appropriate social, economic and cultural solutions to achieve sustainable and safe neighbourhoods on a human scale. For his work he received a merit award at the Lee Kuan Yew World City Prize in 2012. In 2014 The VPUU Handbook was published.

Misaveni Ngobeni
Misaveni is the Director in the National Treasury responsible for the compilation, management and oversight of budget votes for the Departments of Water and Sanitation and the Department of Cooperative Governance and Traditional Affairs as well as 20 related public entities. He has 11 years’ experience in the public sector having worked for Stats SA as economic survey analyst and for SALGA as an Advisor for Municipal Infrastructure and Services. He also has a broader understanding of intergovernmental relations and local government finance policy and the water sector institutional arrangements cutting across the entire water value chain. Misaveni is a research-oriented public finance economist currently finalising a PhD in Public Finance.

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Richard is an Infrastructure Research Specialist at the Development Bank of Southern Africa. He has a MA from the University of Cape Town. At the DBSA he is engaged in research on integrated infrastructure planning to improve the capacity for and execution of durable, economic, efficient, long-term infrastructure provision and knowledge management of the results thereof. Richard is animated by problems of growth, inequality and innovation. He has worked in applied economics in a wide range of sectors.

Sylvester Moepya
Sylvester is a senior manager with Harambee Youth Employment Accelerator responsible for key accounts management work in the broader industrial segment, including Automotive, Manufacturing, Mining, Construction, Transport & Logistics and Power/Utilities sectors. Sylvester’s portfolio also includes developing strategic relationships and interface with the education sector. He has spoken extensively at seminars and conferences on topics unpacking the transitioning of unemployed youth into the formal economy. Sylvester holds a Master of Business Administration (MBA) and currently has embarked on a PhD investigating proxies for core scientific mathematics and the relationship between mathematics and learning potential as a predictor for progression potential in the formal economy.
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 in which 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 of 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.

Engineering News
Engineering News is South Africa's premier source of weekly real economy news on projects, products, policies, personalities and techno-economic progress, covering a wide range of industries, from agro-processing to information technology, mainly in South and Southern Africa. For more details see www.engineeringnews.co.za