Financing the transition to a new infrastructure paradigm in fast-growing secondary cities in South Africa

A case study of the Saldanha Bay Municipality

25 February 2016

MCA Urban and Environmental Planners

with Kam Chetty and Strategies for Change

ICLEI Local Governments for Sustainability

UN-Habitat for a Better Urban Future

European Union

URBAN LEADS

URBAN LOW EMISSION DEVELOPMENT STRATEGIES
“Because the majority of the world’s population now lives in cities and because cities are where most resource consumption takes place, the pressures and potentials to find ways to reconcile economic growth, well-being and the sustainable use of natural resources will be greatest in cities.”

The energy transition
The water transition

Source: Armitage, N; Fisher-Jeffes, L; Carden, K; Winter, K; Naidoo, V; Spiegel, A; Mauck, B; and Coulson, D. 2014. Water Sensitive Urban Design (WSUD) for South Africa: Framework and guidelines. The Urban Water Group, University of Cape Town
The waste transition

Glass and tins

Plastic

McLanaghan, 2015
Innovation for transition

**Demand**
- Substantial demand growth anticipated
- Scale of growth very uncertain
- Policy imperatives for equity and sustainability

**Supply**
- Current needs largely met but limited growth capacity
- Fragmented responsibilities and risk sharing
- Grant system not responsive to growth or green needs

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ICLEI Africa, Financing the Transition to a new infrastructure paradigm, 2015
Outline of Report

The report covers:
Secondary cities and municipal sustainability
Gaps in current models of municipal infrastructure provision
Green infrastructure for municipal sustainability
Evaluating green municipal infrastructure
Implementing green municipal infrastructure – financing considerations and options
Key recommendations and questions
Defining green municipal infrastructure

Green Infrastructure is defined as,

“climate resilient infrastructure systems that, all along their life cycle, minimize carbon emission, pollution, the use of energy and natural resources (soil, land, water, and biodiversity) and maximize the provision of services through the protection and restoration of ecosystems”

(Giordano, 2013: 4)
Green Infrastructure is defined as, “climate resilient infrastructure systems that, all along their life cycle, minimize carbon emission, pollution, the use of energy and natural resources (soil, land, water, and biodiversity) and maximize the provision of services through the protection and restoration of ecosystems” (Giordano, 2013: 4)

Green infrastructure is understood to support and enable the green economy (Agbemabiese, DBSA, 2011).
Defining green municipal infrastructure

Minimize the demand for resources and services in the area

(Giordano, 2013: 5)
Defining green municipal infrastructure

Green Infrastructure includes:
- Biological approaches
Defining green municipal infrastructure

Green Infrastructure includes:
- Biological Approaches
- Mechanical Approaches
Defining green municipal infrastructure

Green Infrastructure includes:
- Biological Approaches
- Mechanical Approaches
- Behavioural Approaches

Water Demand Management Campaign, Cape Town
Mutualism and the Nexus:

Using a single approach, in isolation, cannot offer a complete solution.

Work across these three systems in a mutually reinforcing manner (that delivers multiple ecological, social and economic benefits).
Implementing green municipal infrastructure

Minimize the demand for resources in the area

Where resources are still needed, to use them efficiently through improving and greening existing infrastructure

Where new infrastructure is needed, implement green infrastructure
Evaluating Green Infrastructure – Existing tools

<table>
<thead>
<tr>
<th>Envision (USA - Harvard)</th>
<th>Infrastructure Sustainability Rating Tool (Australia - ISCA)</th>
<th>SuRe – The Standard for Sustainable and Resilient Infrastructure (International – GIB)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 credits in 5 categories</td>
<td>Improving the productivity &amp; liveability of industry &amp; communities through sustainability in infrastructure</td>
<td>Sustainable infrastructure chiefly addresses a series of interconnected challenges that will determine the quality of life in the 21st century.</td>
</tr>
<tr>
<td><strong>QUALITY OF LIFE</strong> Purpose, Community, Wellbeing</td>
<td><strong>Categories include:</strong> Management and oversight, Sustainability and resilience management, Stakeholder engagement, Anti-corruption and transparency, Human Rights, Labour rights and working conditions, Customer focus and inclusiveness, Community Impacts, Socio-economic development, Climate, Biodiversity and Ecosystems, Environmental Protection, Natural Resources, Land use and landscape</td>
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<tr>
<td><strong>LEADERSHIP</strong> Collaboration, Management, Planning</td>
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<tr>
<td><strong>NATURAL WORLD</strong> Siting, Land and Water, Biodiversity</td>
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<tr>
<td><strong>RESOURCE ALLOCATION</strong> Materials, Energy, Water</td>
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<tr>
<td><strong>CLIMATE AND RISK</strong> Emission, Resilience</td>
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<tr>
<th>Management and Governance</th>
<th><strong>Management Systems</strong></th>
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<tr>
<td></td>
<td>Procurement and Purchasing</td>
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<td>Climate Change Adaptation</td>
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<tr>
<td><strong>Using Resources</strong> Water</td>
<td><strong>Energy and Carbon</strong></td>
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<tr>
<td></td>
<td>Materials</td>
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<tr>
<td><strong>Emissions, Pollution and Waste</strong> Land</td>
<td><strong>Discharges to Air, Land and Water</strong></td>
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<tr>
<td></td>
<td>Waste</td>
</tr>
<tr>
<td><strong>Ecology</strong> Ecology</td>
<td><strong>Community Health, Well-being and Safety</strong></td>
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<td></td>
<td>Heritage</td>
</tr>
<tr>
<td><strong>People and Place</strong> Stakeholder Participation</td>
<td><strong>Urban and Landscape Design</strong></td>
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<tr>
<td><strong>Innovation</strong> Innovation</td>
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</table>
The changing role of municipalities (a paradigm shift)

**Current paradigm**
No reinforcing feedback loops

- Authoritarian
  - Top-down approaches only

Nature
Ecological systems

Municipality
as an extractive intermediary

Customers
Residents, farmers, businesses, industry

Potential for customers to bypass municipality to obtain services and resources

**Proposed paradigm**
Reinforcing feedback loops present

- Partnership in action
  - A combination of bottom-up and top-down approaches

Nature
Ecological systems

Municipality

Custodians
Residents, farmers, businesses, industry
## Implementing green municipal infrastructure

<table>
<thead>
<tr>
<th>Step 1: Develop an Internal Policy.</th>
<th>Create a policy that is aligned to internal planning documents, especially IDP. and budget priorities.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 2: Design project conceptual blueprint.</td>
<td>Create documentation outlining the design of the project at the level of detail required to gain approval from executive management.</td>
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<tr>
<td>Step 3: Gain executive management approval.</td>
<td>Submit project conceptual blueprint to executive management for approval.</td>
</tr>
<tr>
<td>Step 4: Conduct resource audit &amp; pilot.</td>
<td>Conduct an audit to establish baseline resource consumption. Calculate potential resource savings and other benefits from an engineering and financial perspective. Launch pilot to verify calculations.</td>
</tr>
<tr>
<td>Step 5: Access funding and allocate budget.</td>
<td>Create a funding proposal and approach different funders, negotiate terms and conditions of funding. Submit project plan to executive management for Service Delivery and Budget Implications Plan approval.</td>
</tr>
<tr>
<td>Step 6: Implement the project.</td>
<td>Develop an implementation plan and mobilise resources to roll out the plan, paying attention to SCM, MFMA/PFMA requirements, and monitoring &amp; evaluation processes.</td>
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</tbody>
</table>
## Implementing green municipal infrastructure

### Matrix of Funding Institutions and Financial Instruments

<table>
<thead>
<tr>
<th>Finance Source Institutions</th>
<th>International Climate Funds</th>
<th>Bilateral and Multilateral ODA</th>
<th>RSA Public Sector</th>
<th>RSA &amp; International Private Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial Instruments</td>
<td>Clean Development Mechanism</td>
<td>Bilateral Grants</td>
<td>Intergovernmental Transfers</td>
<td>Grant Funding</td>
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<tr>
<td></td>
<td>Global Environmental Facility</td>
<td>EU/Commission</td>
<td>Local Municipal and Provincial Revenue</td>
<td>Venture Capital</td>
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<td></td>
<td>Global Climate Change Alliance (GCCA)</td>
<td>GTZ, DANIDA</td>
<td>Green Fund</td>
<td>Equity Finance</td>
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<tr>
<td></td>
<td>UNEP and Clean Technology Funds</td>
<td>DFID</td>
<td>Energy Efficiency - Demand Side Management Grants</td>
<td>Debt</td>
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<td>IIPSA</td>
<td>Project Finance</td>
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</tbody>
</table>
Implementing green municipal infrastructure

Example of innovative debt-equity finance model

Contract 1: Service Agreement
Pays regular service charge to pay off capital and interest

Municipality (owner of asset)

Allows the municipality to reduce expenditure on basics services, by foregoing resource consumption and creating alternative revenue streams.

Investment Fund

Funds Upfront Capital

Special purpose entity: Investment fund provides upfront capital through using a mix of equity and debt provided by the fund’s capital partners and other outside banks or lenders

Green Municipal Infrastructure Project

Contract 2: Services Performance Contract

The payment for services delivered is based (either wholly or in part) on the achievement of meeting agreed performance criteria (a share of the resource savings).

Services Company

Reduces risk: Provides the expertise (that the municipality might not have) to design, construct and manage the new technology or system

Must substantially reduce resource consumption and cost
And/or
Must generate revenue

Financing Green Infrastructure
## Summary of the advantages and disadvantages of an SCO

<table>
<thead>
<tr>
<th>ADVANTAGE: SCO</th>
<th>ADVANTAGE: IN-HOUSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Structure contracts, enabling savings to pay for capital improvements</td>
<td></td>
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<tr>
<td>• Provide and/arrange for project financing off the balance sheet</td>
<td></td>
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<tr>
<td>• Guarantee equipment performance and savings</td>
<td></td>
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<tr>
<td>• Cost to implement the project is less</td>
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<tr>
<td>• Exercise greater control of the project from start to finish and hence has more control over the timing of the project</td>
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</tbody>
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<table>
<thead>
<tr>
<th>DISADVANTAGE: SCO</th>
<th>DISADVANTAGE: IN-HOUSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>• SCO conducts an another energy audit</td>
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<tr>
<td>• Experts in a technology and bias to recommend own technology</td>
<td></td>
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<tr>
<td>• Incur additional monitoring and verification costs to confirm energy savings, if a guaranteed savings contract is used</td>
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</tr>
<tr>
<td>• Spend substantial time / resources managing and overseeing the project</td>
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<tr>
<td>• Multiple decision makers could delay the project</td>
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</table>
Implementing green municipal infrastructure

Financing green municipal infrastructure

1. Can the public entity leverage its existing resources to fund the green infrastructure project without raising capital / entering into a loan with third-party financial institutions?
2. Apply for external sources of finance? (Asset-based finance, Services Company, vendor finance, concessionary loans, commercial debt from banks)
3. Determine and cover shortfall (concessionary loans)
4. Need to raise outstanding capital? (debt or equity agreements)

Considerations when wanting to access private funds for green municipal infrastructure:
• the debt capacity of a municipality;
• the level of internal expertise to support funding process;
• the risk tolerance of a municipality;
• the cash flow position of a municipality; and
• the trade-off between accepting greater project risk (taking into consideration financial, operational, technological and performance risk) to reap a greater portion of the benefits (i.e. energy savings, reduce expenditure on basic services and additional revenue streams).
Questions for discussion

Broad impact questions

• How do we understand green infrastructure and are we comfortable with accepting the definition offered by this report?

• If we are greening over time, how do we set our targets? What do we want to monitor and address?

  What are the goals to which we need to aim and how does this translate in a rating tool?

Innovation specific questions

• Service Standards: How do we bring about a different understanding of municipal services that shifts from supply of resources to being an integral part of human-nature support systems?

• Institutional: What skills does a municipality need and how does it need to be organised to enable partnership with nature and residents/business?

• Technological approaches: How do we overcome the risk of new or unknown technology? How do we allow for innovation?

• Funding: How do we manage investor risk?