Challenges & Opportunities for Water Sensitive Urban Design

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LOCAL SOLUTIONS - GLOBAL IMPACT

Presentation Outline

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About the SA Cities Network

The South African Cities Network (SACN) **Board of Governors** is Chaired by the Mayor of Johannesburg, Councillor Parks Tau and jointly owned by South Africa's largest municipalities, comprised of the following Metropolitan Municipalities:

- Buffalo City Metropolitan Municipality,
- City of Cape Town,
- Ekurhuleni Metropolitan Municipality,
- eThekwini Metropolitan Municipality (Durban),
- City of Johannesburg,
- Mangaung Municipality,
- Msunduzi Municipality (Pietermaritzburg),
- Nelson Mandela Bay Metropolitan Municipality and
- City of Tshwane (Pretoria).

National Government Ministries - Deputy Ministers from COGTA, Transport, Human Settlements, Rural Development & Land Reform, Water &Environment. SALGA has been a member of the Board since inception.

Objectives of SACN Program

The ***SACN*** was established in October 2002 as a joint **knowledge sharing program** of action of the SALGA, in conjunction with the national & provincial spheres of governments, and nine of South Africa's largest municipalities, on issues of urban governance. The objectives of the SACN are, to:

1. **Promote good governance** and management in South African cities;
2. **Analyse strategic challenges** facing South African cities and local government sector;
3. ***Collect, collate, assess, disseminate*** and apply the experience of large city government in a South African context; and
4. **Promote shared learning partnerships** between practitioners and between the different spheres of government to support the management of South African cities

Some Key Research Agenda Issues for Local Government Sector in the next decade (2012-2016)

WORSTREAM I: Acting with a Better Understanding

1. Adopt **urban development policy** regime that seeks to strengthen productive and sustainable urban spaces
2. Provide **local government indicators** that allows better governance & interpretation at varied scales (e.g. ward, region, municipal, city region)

WORKSTREAM II: Changing Built Environment Function

3. Addressing issues of **land and land-use management**
4. Increasing city efficiencies by improving **Public Transport**
5. Using **Human Settlements** to create social cohesion

WORKSTREAM III: Unhesitant in Dealing with Vulnerability

6. Understanding better and improving **local government financing** model
7. Managing better and impacting positively on a **vulnerable natural resource base**
8. Better understanding of and enhancing **rural/urban inter-dependence & interface**
9. Building and **dedicated & focused human capacity** for local government
10. Promoting **socio-political stability**

Rationale for SACN Water Research 2013 – 2016)

- Cities need to appreciate the imperative of water management & resource conservation – water supply constraints in a number of catchments & increasing costs of new sources of primary water supply
- Water is necessary for social and economic development as well as ecosystem services - it is usually national Government that worries about direct consequences of resource over-utilisation.
- Increasing urban population vs coping strategies for water and sanitation services within cities is a critical issue.
- Sustainable, efficient and equitable urban water management has never been as important as it is today.

Focus of SACN Water Research 2013 – 2016)

1. Water availability and use (and setting the scene)

    - examining the amount of water available for use and how a particular city makes use of its water for use.

2. State of water infrastructure

    - State of water treatment and waste water treatment works and storm-water infrastructure and the ability of a city to manage its infrastructure needs

3. Water pricing and revenue, including an analysis of non-revenue water and water losses

4. State of water resources (e.g. rivers, wetlands and dams), including ecosystem health and the value of urban water resources

Water challenges facing SA Cities

- Ascending urbanization with associated demand on infrastructure & services
- Growth in CAPEX to eradicate backlogs, upgrade bulk infrastructure to meet demand, maintenance and to reduce losses
- Infrastructure management (operations management incl asset registers)
- Water losses and non-revenue water - physical& commercial losses are above 20% (high compared to best practice)
- Adequate skills vs retention of existing skills
- Waste pollution - both potable water &waste-water treatment are threatened by unwanted materials
- Limited research and or knowledge on sustainable options

Key factors linked to these challenges

- Institutional changes (political & administrative), coupled with inadequate support from leadership
- Essential water decisions are not taken by water experts but by leaders in government, business and civil society
- Water is essential for achieving sustainable development and attaining the MDGs
- Water is a critical element that connects energy, food and climate change – unless addressed properly, the others will remain affected
- Cities in South Africa are different, physically, geographically, culturally, economically and in many other ways, so each requires a unique approach to resolving its water needs – differentiated approach

Opportunities for WSUD

- WSUD applications are flexible and can be implemented across different types of developments and at different scales, from a standard residential extension or road renewal through to a new subdivision.
- Good planning and design will ensure successful outcomes.
- Some examples of applications include:

  - new or existing roads in large or small development areas

  - drainage systems being upgraded

  - new residential developments – detached housing, medium density or integrated housing

  - existing residential developments – redevelopment and infill areas

  - commercial or industrial properties and estates

  - carparks, driveways and access routes

A residential application for WSUD

One simple solution could be using grey water from the sink for flushing the toilet - saving money and reducing wastewater leaving the house.

Reducing runoff from the roof by blending it with neighbouring ecological system – e.g let it drain into rain garden which soaks up rain so that plants thrive without watering them.

Water efficient appliances & behaviour change (shower over bath, brushing teeth with cup than running a tap).

Water gutters harvest runoff from roofs thus providing a water source on dry days for the garden and washing of cars – save on water bill.

In Conclusion

- WSUD has scope in the South African cities to mitigate some of challenges e.g water losses
- It can also reduce waste-water discharge and re-use of storm-water
- Can be used to push and support innovation around service delivery
- Contributes to sustainable development solutions & community empowerment
- WRC Lighthouse research is welcomed and SACN could assist in knowledge dissemination through its platforms