Approaches to resilience-based urban water governance in South Africa - What role does gender play?

Eleventh Biennial Rosenberg International Forum on Water Policy

A/Prof Kirsty Carden, PhD

Future Water research institute, University of Cape Town

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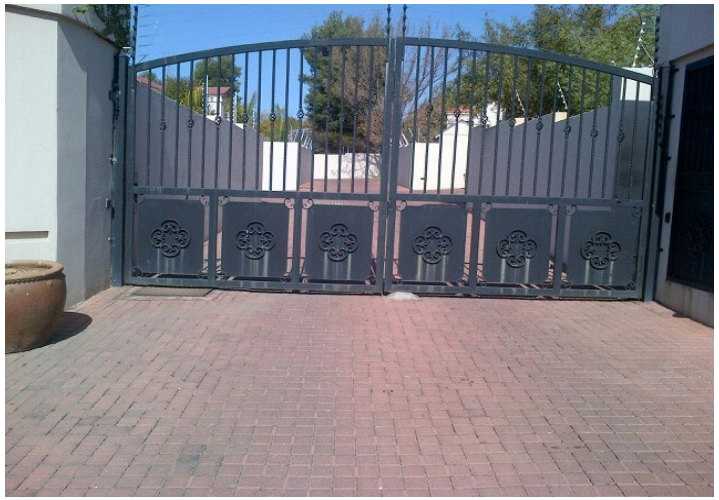
Cumulative impacts of urbanisation and climate change



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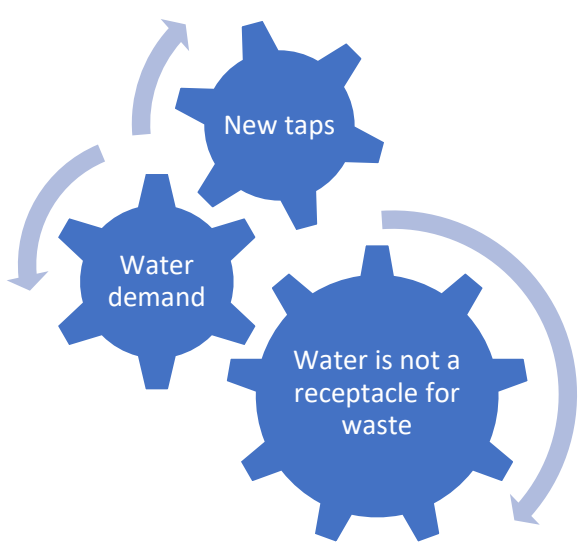
Photos courtesy of Jane Eagle, City of Johannesburg; Neil Armitage, UCT

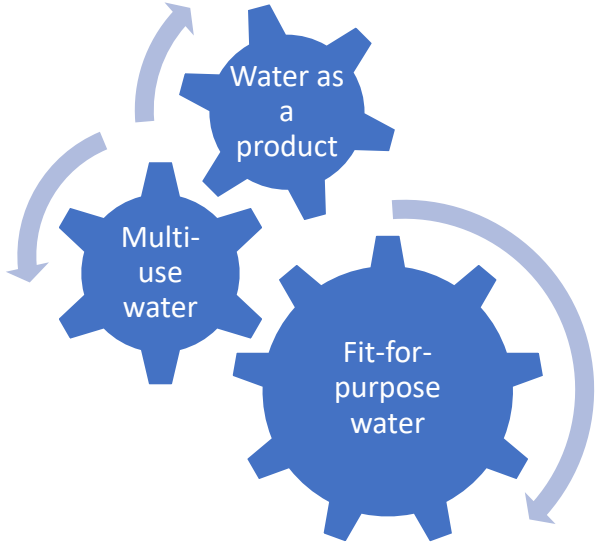
A resilience approach for SA

- Integration across water sectors in response to multiple risks (breaking silos)
- Emphasising links between drought, flood and other water-related challenges
- Harnessing nature as a buffer to hazards (blue-green infrastructure / waterscapes)
- Demonstrating how WSD could improve water quality, water quantity, biodiversity and amenity – i.e., liveability
- Rethinking governance and policy in terms of scale and actors

- **Water Sensitive Design (WSD) / Water Sensitive Cities (WSC)**



New sources



New thinking

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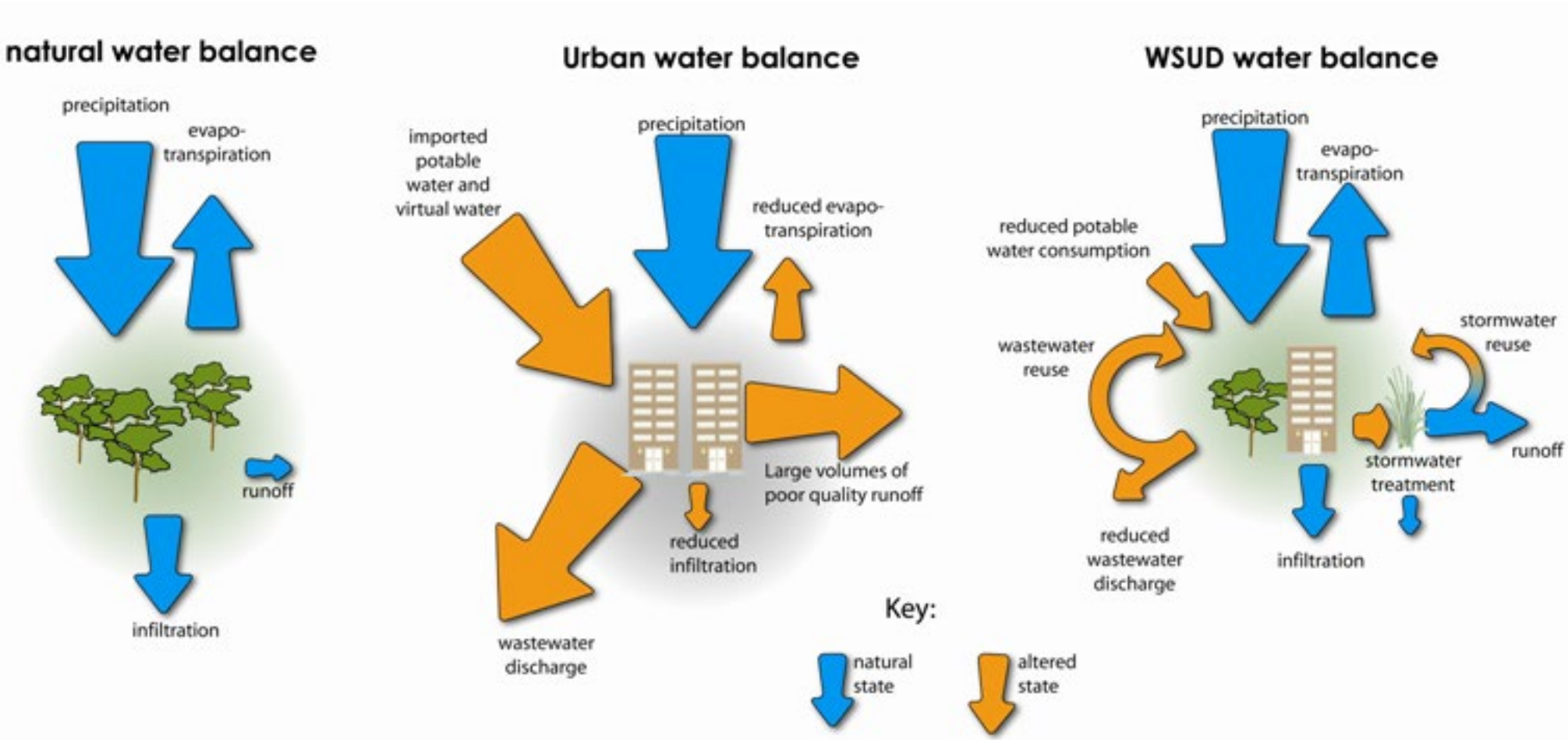
Influence of WSD on urban water cycle



Source: Hoban & Wong (2006)

A Water Sensitive City

"Water sensitive cities are sustainable, resilient, productive and liveable through a combination of physical infrastructure, governance arrangements and social engagement"

WSD is the process,
WSC is the destination

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Source: CRC for Water Sensitive Cities

What can WSD help with?

- Building flexibility & adaptability into water sources - including *"Cities as Water Supply Catchments"*
- Building flexibility & adaptability into sanitation ensuring healthy cities
- Blue-Green Infrastructure, *"Cities providing ecosystem services"*
- Building social and institutional capital, "*Cities supporting water-educated communities*"

Sophisticated, *equitable* and Water Smart City

Better urban water management provides the core for multi-value multifunctional urban spaces that are fit to cope with future challenges

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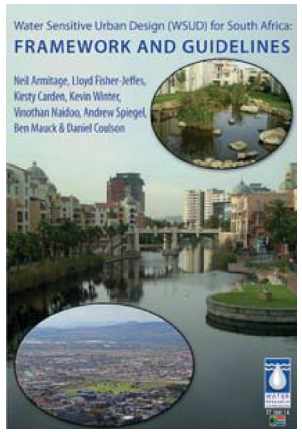
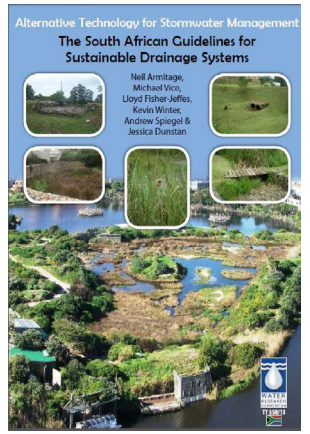
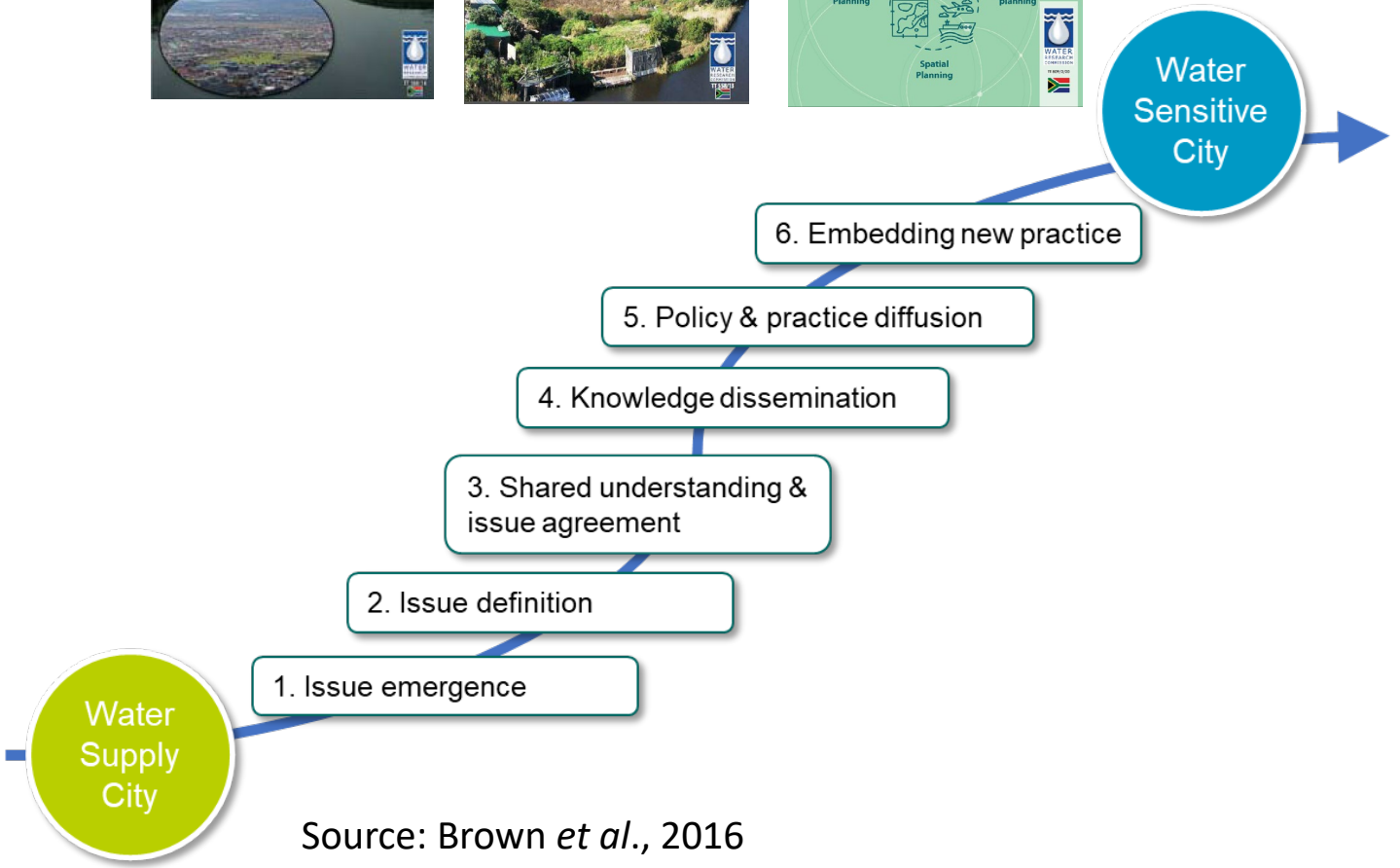
Is there an enabling environment for water resilience?

Grounding WSD/WSC concept in SA

- Incorporation into policy
- Consolidation of knowledge
- Identification and support for champions to drive this space
- Creation of knowledge and data sharing platforms
- Demonstration projects at scale
- Learning alliances







Source: Brown *et al.*, 2016

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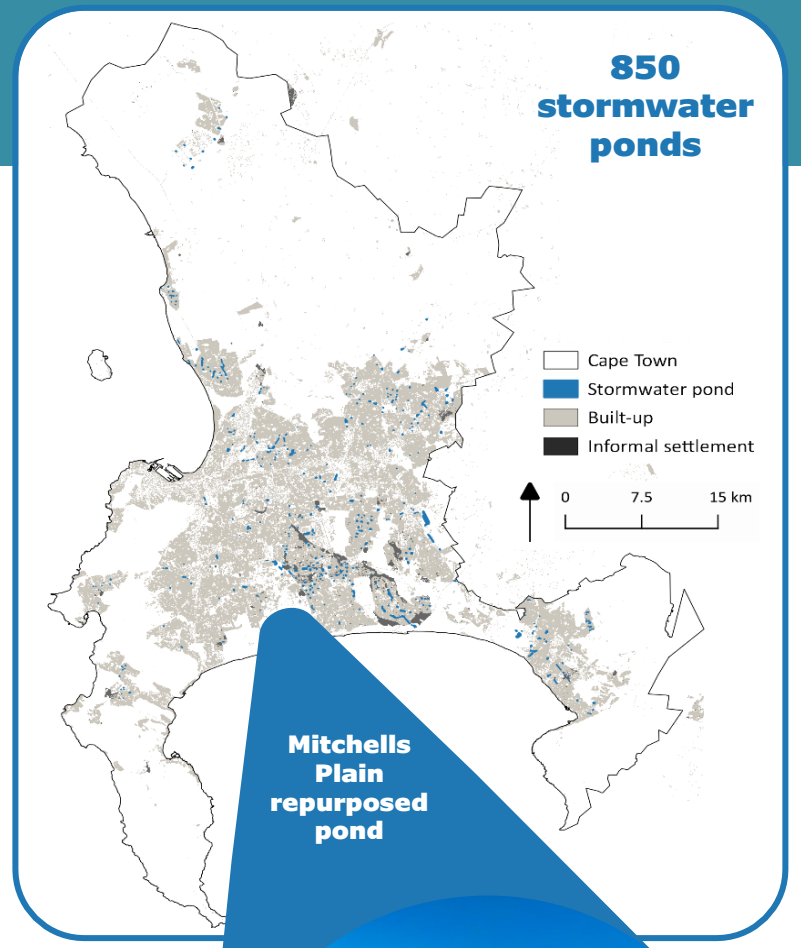
But what role does gender play in this?

- Engineering (and water resource management) still largely male dominated
- Infrastructure design and planning seldom takes women's and children's needs into account
- Water use practices within homes still largely the responsibility and/or interest of women – who are generally not taken into decision-making structures

PaWS project - key elements

Pathways to water resilient South African cities

- Nature-based approaches that link storm runoff and wastewater to water supply
- Water sensitive (urban) design elements and landscape-based solutions
- Integration of built water infrastructure with green infrastructure in a decentralised manner
- Physical and institutional integration pathways (planning, policy)



"to identify opportunities for the physical and institutional integration of hybrid, decentralised Blue-Green Infrastructure into the urban water cycle to accelerate a transition towards water resilience"

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Retrofit of stormwater pond

Completed retrofit

Water enters the pond from the local stormwater drain catchment and flows into the infiltration trench in front of the inlets. This slows down the water so that it can flow through sand and the natural vegetation so that it is cleaned and filtered before reaching the outlet.

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City and local resident workshops and engagement

Visual harvesting for the mural

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Multifunctional infrastructure

Increasing water re-use	Enhancing cultural and heritage associations with water systems	Increasing access to blue-green space
Increasing equity	Reducing the Urban Heat Island effect	Managing water quality
Flood control	Community services connection with water systems	Enhancing biodiversity

Cape Town Water Strategy, 2019

1. **Safe access to water and sanitation for all**
2. **Wise water use** through pricing, regulation, active citizenship, network management
3. **Sufficient, reliable water from diverse sources**: surface, ground, desalination, reuse
4. **Shared benefits & managed risks** from regional water resources
5. **Transition to a water sensitive city**

Commitment 5: A Water Sensitive City

The City will actively facilitate the transition of Cape Town over time into a ***water sensitive city*** *with* ***diverse water resources****, diversified infrastructure and one that makes* ***optimal use of stormwater*** *and urban waterways for the purposes of flood control, aquifer recharge, water reuse and recreation, and that is based on sound ecological principles This will be done through new* ***incentives and regulatory mechanisms*** *as well as through the way the City makes* ***investments in new infrastructure****.*

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www.capetown.gov.za/thinkwater

Policy Themes

WATER

Wetlands (1. 2. 16. 33. 37. 41)
Stormwater (1. 2. 3. 5. 7. 10. 11. 22. 23. 25. 26. 28. 31. 32. 33. 35. 41. 42)
Stormwater infrastructure (1. 2. 3. 5. 10. 11. 17. 18. 19. 22. 25. 26. 29. 31. 32. 37. 39. 42. 43.)
Water resilience (1. 2. 3. 5. 8. 9. 11. 14. 16. 25. 39)
Water security (1. 4. 5. 8. 14. 20. 24. 33.)

INFRASTRUCTURE AND CITY PLANNING

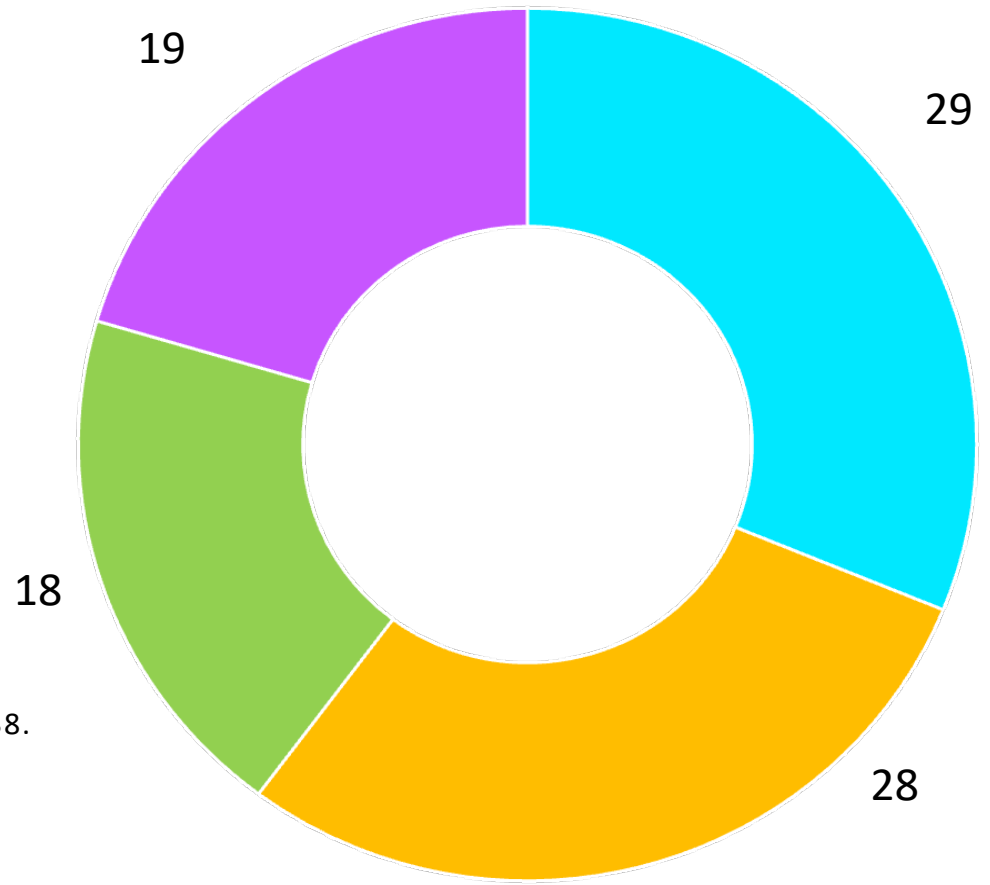
Service Delivery (5. 6. 10. 20. 23. 24. 32. 37. 39. 42.)
Legislative and Departmental overlaps (35.)
Asset (1. 2. 5. 16. 17. 23. 32. 43.)
Multifunctional Open Space (9. 22. 16. 17. 35. 38. 41)
Infrastructure (1. 2. 3. 5. 10. 18. 19. 22. 23. 28. 31. 33. 43.)
Development site (9. 19. 23. 26. 32. 33. 43.)

OPEN/GREEN SPACES

Ecological Spaces (1. 3. 5.10. 11. 12. 16. 17. 27. 31. 33. 35. 36. 37. 37*. 38. 42. 43)
Biodiversity (1. 3. 16. 12. 33. 37. 41)

COMMUNITY AND RECREATION

(1. 2. 5. 9. 10. 11. 16. 17. 22. 23. 31. 33. 34. 36. 38. 39. 41. 42. 43)



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Policy landscape reflections

- Stormwater ponds as protected infrastructural space – but no budget (or cooperation across departments) to secure ongoing BGI.
- Need for external stakeholders to co-operate with state actors in day-to-day management of BGI – but existing policy dos not provide for this (funding or MoAs).
- Policies prioritise assets that have a multi-purpose benefit for the space – important to identify locally-determined uses and functions.
- BGI helps to protect biodiversity and heritage within developmental contexts like the Cape Flats. Policies often recognise stormwater and wetlands as prime assets to be protected under policy conditions - can help facilitate efforts towards BGI.
- Social, environmental and economic benefit to communities is significantly prioritized, should be leveraged for planning new BGI for urban water resilience.

Towards water sensitive (resilient) cities

- Hydrology as first layer within spatial planning
- Thinking about biodiversity, liveability and amenity
- Overall water balance (beyond clean rivers and flood control)
- Influencing government thinking – using the catchment as basis for planning
- Spatial and landscape design responses influencing water use and demand, as well as use of space
- Policy development that considers aspects of dignity, self-assurance and well-being

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Pathways to water resilient South African cities

Ministry of Foreign Affairs of Denmark
DANIDA | International Development Cooperation

University of Copenhagen

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Questions?