14th IWA International Conference on WATER RECLAMATION & REUSE

Cape Town South Africa

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Linking policy to local BGI interventions: An analysis of associated policy in Cape Town, South Africa

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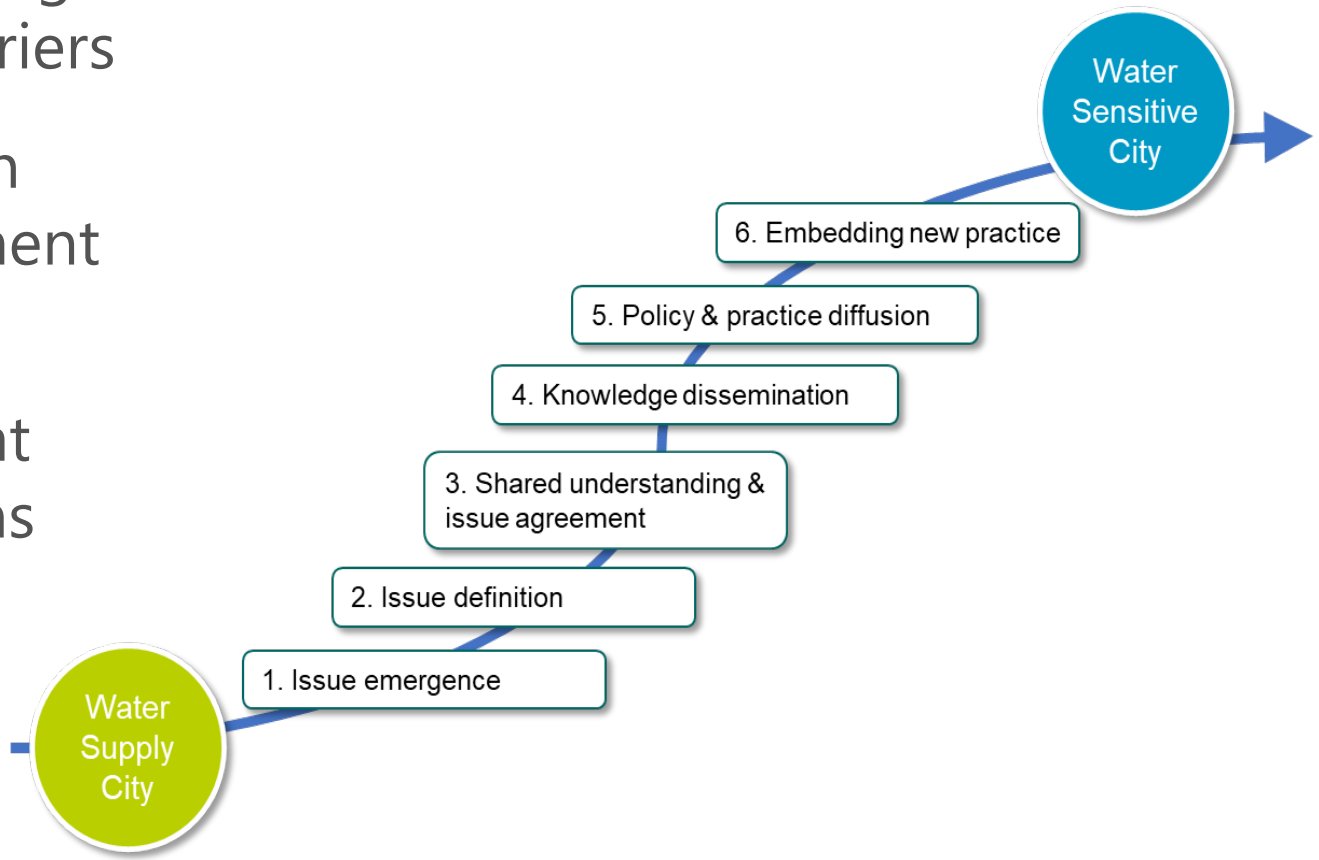
RATIONALE FOR RESEARCH

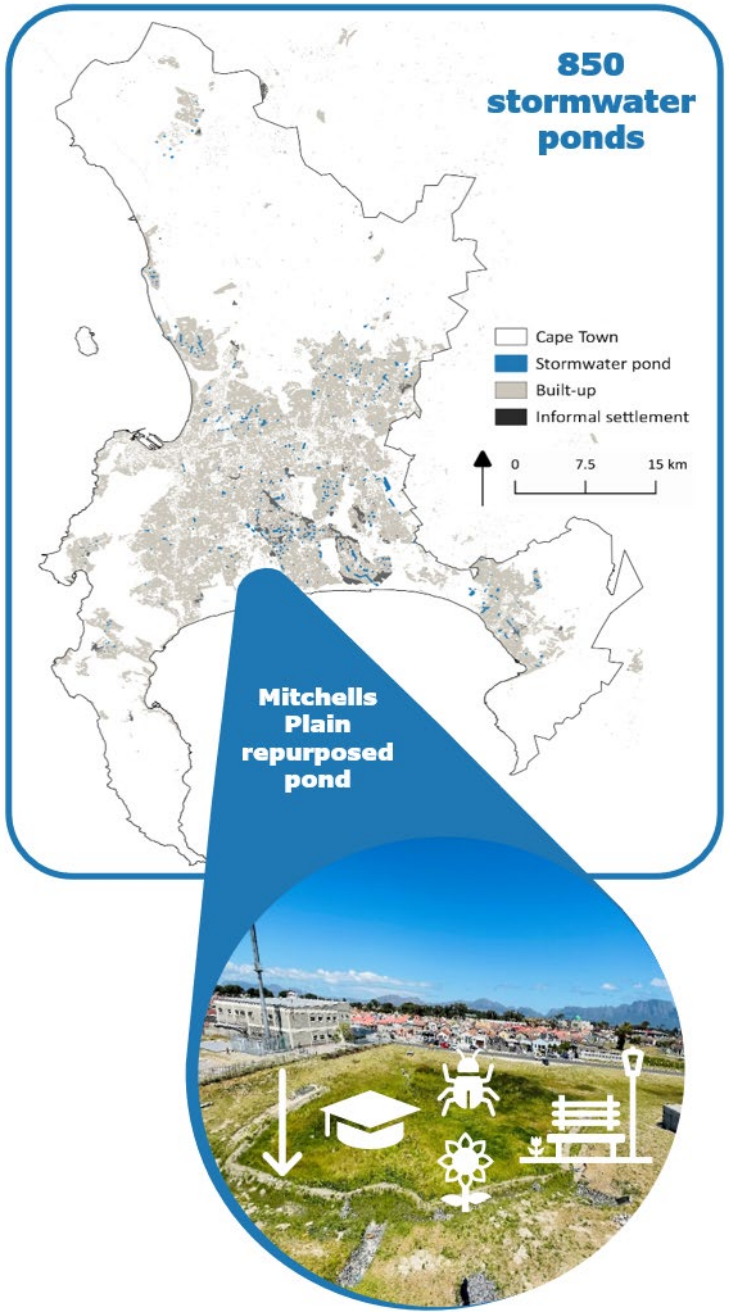
- Water sensitive city transitions (including water reuse) – policy enablers and barriers
- Local level involvement – specifically in respect of maintenance and management of multifunctional spaces
- Institutional and governance aspects at local authority level for WSC transitions



Liveable + Resilient + Sustainable = Water Productive

MAR BGI PROJECT

- WRC-funded "*Implementation guideline for managed aquifer recharge (MAR) in combination with blue-green infrastructure at local settlement level*" - **MAR BGI project**
- Case site from Danida MFA-funded "*Pathways to Water Resilient South African Cities*" - PaWS project
  - ➢ Retrofitted stormwater pond in Mitchells Plain, Cape Town, South Africa



RESEARCH QUESTION / OBJECTIVES

"What are the key implementation lessons learned when repurposing existing stormwater infrastructure to BGI with multiple functions to achieve water sensitive South African cities?"

- Scope, analyse, synthesize current **policy** relating to retrofitting stormwater ponds with BGI to enhance MAR (**WP1**)
- Research on **experiences** of people living alongside such interventions to understand in-situ **barriers and facilitators** to interventions (**WP2**)
- Develop **guidelines** at local settlement level, for implementation of BGI in stormwater ponds with multiple benefits to local residents, while contributing to MAR efforts (**WP2**)

RESEARCH APPROACH

WP1

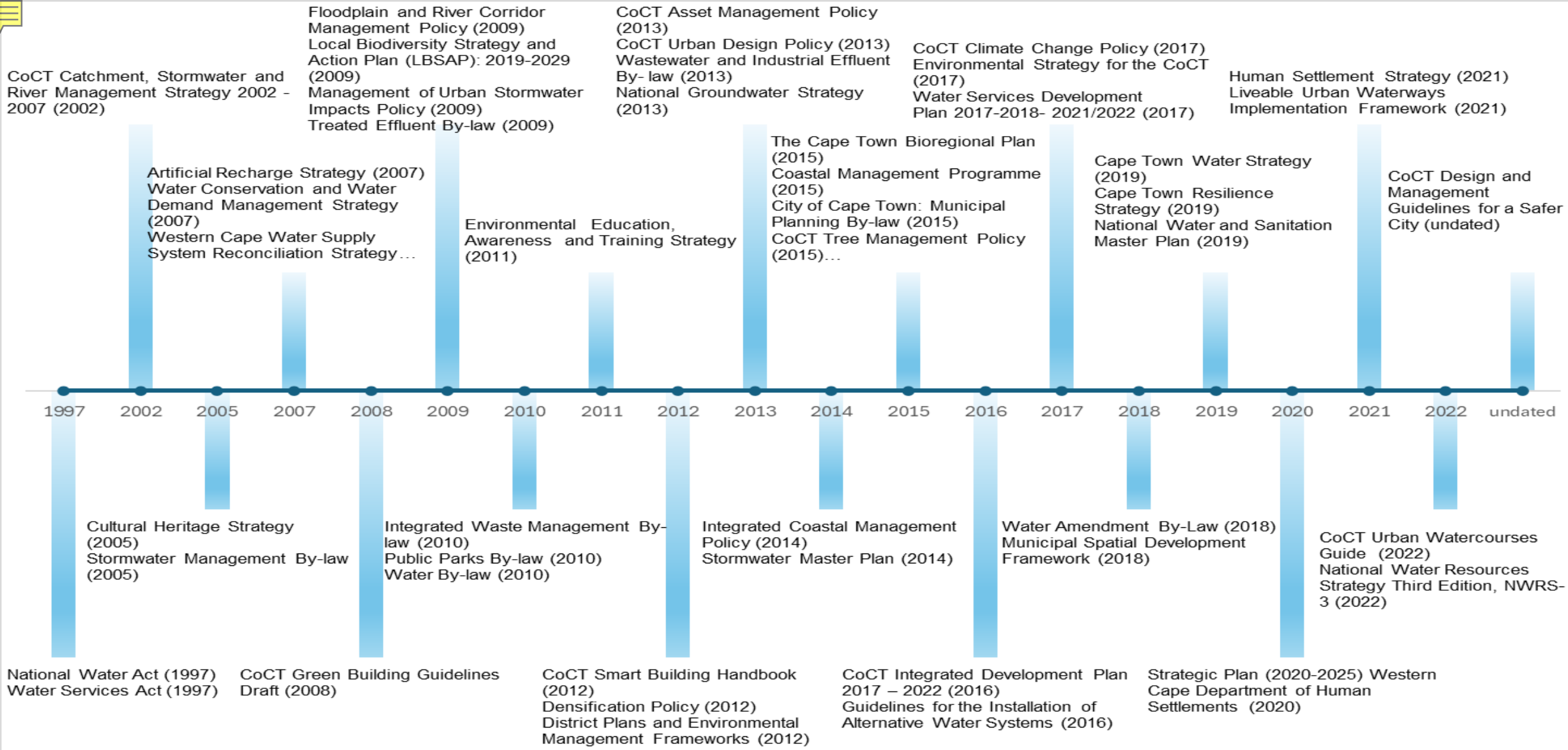
Policy review, scoping, mapping, and analysis

WP2

- Ethnographic fieldwork to explore implementation facilitators and barriers (local community and CoCT)
- Develop guidelines

- Workshops
- Interviews
- Community events/activities
- Focus group discussions
- Participant observation

WP1 Policy Review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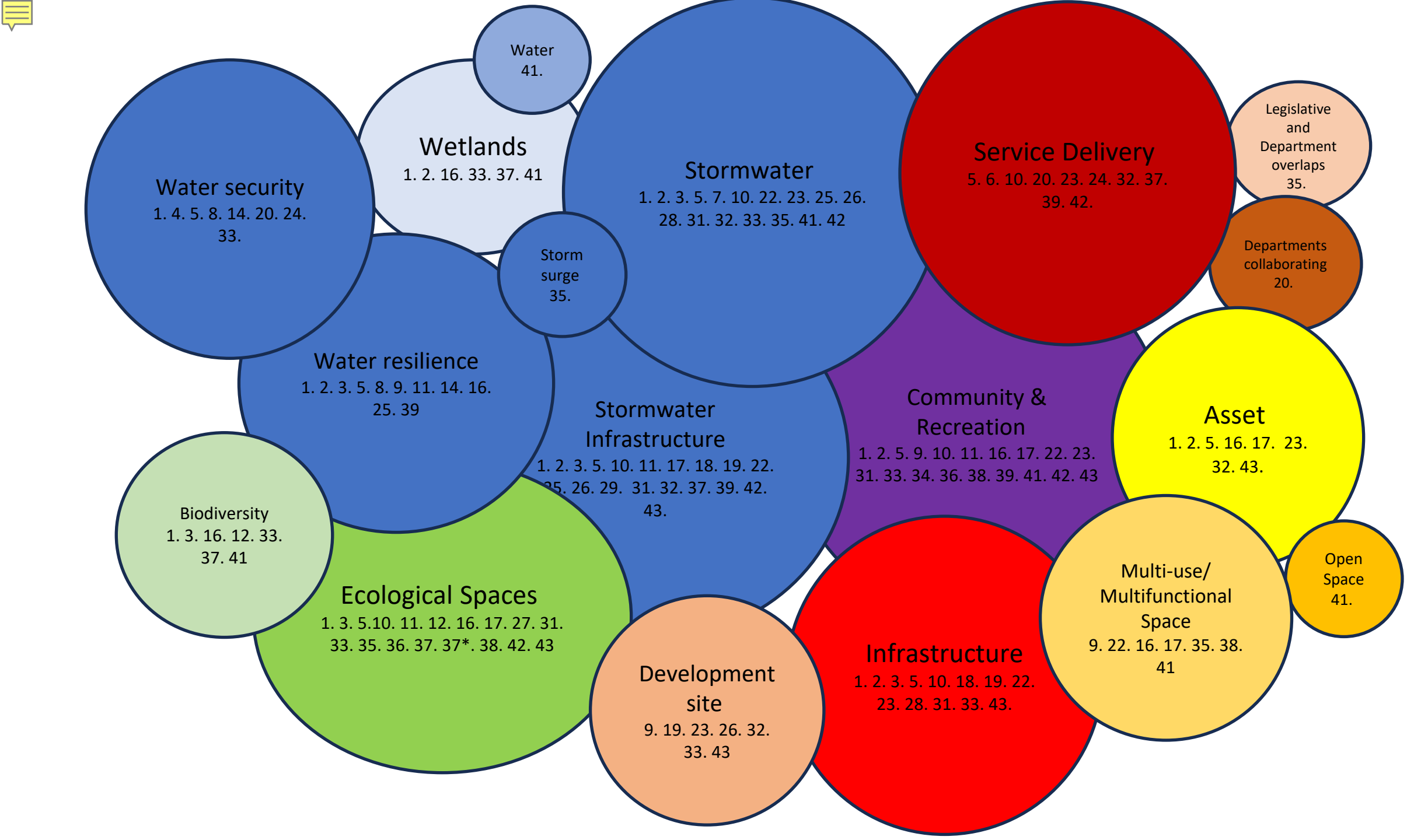
CoCT Catchment, Stormwater and River Management Strategy 2002 - 2007 (2002)
Cultural Heritage Strategy (2005)
Stormwater Management By-law (2005)
Artificial Recharge Strategy (2007)
Water Conservation and Water Demand Management Strategy (2007)
Western Cape Water Supply System Reconciliation Strategy…
CoCT Green Building Guidelines Draft (2008)
Floodplain and River Corridor Management Policy (2009)
Local Biodiversity Strategy and Action Plan (LBSAP): 2019-2029 (2009)
Management of Urban Stormwater Impacts Policy (2009)
Treated Effluent By-law (2009)
Integrated Waste Management By-law (2010)
Public Parks By-law (2010)
Water By-law (2010)
Environmental Education, Awareness and Training Strategy (2011)
CoCT Smart Building Handbook (2012)
Densification Policy (2012)
District Plans and Environmental Management Frameworks (2012)
CoCT Asset Management Policy (2013)
CoCT Urban Design Policy (2013)
Wastewater and Industrial Effluent By- law (2013)
National Groundwater Strategy (2013)
Integrated Coastal Management Policy (2014)
Stormwater Master Plan (2014)
The Cape Town Bioregional Plan (2015)
Coastal Management Programme (2015)
City of Cape Town: Municipal Planning By-law (2015)
CoCT Tree Management Policy (2015)…
CoCT Integrated Development Plan 2017 – 2022 (2016)
Guidelines for the Installation of Alternative Water Systems (2016)
CoCT Climate Change Policy (2017)
Environmental Strategy for the CoCT (2017)
Water Services Development Plan 2017-2018- 2021/2022 (2017)
Water Amendment By-Law (2018)
Municipal Spatial Development Framework (2018)
Cape Town Water Strategy (2019)
Cape Town Resilience Strategy (2019)
National Water and Sanitation Master Plan (2019)
Strategic Plan (2020-2025) Western Cape Department of Human Settlements (2020)
Human Settlement Strategy (2021)
Liveable Urban Waterways Implementation Framework (2021)
CoCT Urban Watercourses Guide (2022)
National Water Resources Strategy Third Edition, NWRS-3 (2022)
CoCT Design and Management Guidelines for a Safer City (undated)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11 KEY CoCT POLICIES – MAR BGI IMPLEMENTATION

Policy document	Link to water resilience, water sensitive cities and MAR BGI	Policy theme / goal
Floodplain and River Corridor Management Policy (2009)	Balancing flood risk, ecological and socio-economic considerations in development near watercourses; Urban activity to be managed for adequate maintenance activities; Promote sense of place and recreation for communities	Environmental management; Stormwater management
Management of Urban Stormwater Impacts Policy (2009)	Stormwater systems planned/designed to support WSD, improve runoff quality/quantity/rate, encourage natural recharge; Guidelines for WSD, criteria for SuDS including in low-income areas and informal settlements; Non-structural measures, incentive schemes, operation and maintenance and monitoring; Water and green infrastructure as municipal assets	Environmental management; Stormwater management
CoCT Urban Design Policy (2013)	Development to protect, value and enhance natural environment through sustainable design; References SuDS and stormwater harvesting; Open space scaled and configured to suit planned functions; Ensure quality urban space	Spatial development & urban design; Stormwater management
Environmental Strategy for the CoCT (2017)	Well managed aquifers; SuDS and wastewater treatment/ recycling – towards WSC; Ecosystem approaches for and low impact urban design; References ecological infrastructure	Environmental management; Climate change
Water Services Development Plan – (2017/18 – 2021/22)	Progressive realisation of CoCT as WSC (climate change as trigger); Integration of natural resources, urban water as a resource; Water sensitive governance; Equity of essential services	Water resilience, water services; Climate change
Local Biodiversity Strategy and Action Plan: 2019-2029 (2019)	Protection and conservation of biodiversity; Identify, enhance, optimise ecological/socio-economic benefits, provide green jobs/skills; Secure formal conservation status, manage, maintain and restore terrestrial and wetland priority sites	Biodiversity protection
Municipal Spatial Development Framework (2018)	Conservation of biodiversity and green space within the urban fabric; Critical Natural Asset areas for CoCT future resilience; Improve ecological health, resilient and efficient water use; Link to District Plans	Spatial development & urban design; Biodiversity protection
Cape Town Water Strategy (2019)	Includes wastewater re-use and aquifer recharge; WSC by 2040; Integration of natural processes in built environment to enhance function, beauty & resilience of CoCT's water landscape; Increase permeability of surfaces, reduce pollution and increase local storage of stormwater (including aquifer storage)	Water resilience, water services; Climate change; Stormwater management
Cape Town Resilience Strategy (2019)	Aquifer recharge; Liveable urban waterways, inclusive urban planning; community capital; Green (adaptive) infrastructure prioritised	Water resilience, water services; Climate change
CoCT Climate Change Strategy (2021)	Water security and drought readiness; Water sensitivity, flood-readiness and storm management; Green economy opportunities; Human and ecosystem health; Improve productivity and resource efficiency; Promote adaptive infrastructure	Climate change; Stormwater management; Biodiv protection
CoCT Urban Watercourses Guide (2022)	Maintenance and rehabilitation to enhance ecosystem services; Healthy and robust indigenous plant and animal communities	Environmental management; Biodiversity protection

GENERAL POLICY REFLECTIONS

- MAR and BGI emerged in policy in CoCT after 2010
- Evidence of policy co-ordination and collaboration between city departments; still in early phases
- Need for collaboration acknowledged in policy; challenges to working together in a holistic manner:
  - Departments have own mandates (sometimes conflicting) to fulfil
  - Different budget and capacity allocations
  - Sources of funding ring-fenced (cannot be mixed)
  - Priorities and political interference
- Community engagement noted as important for success of any intervention aimed at improving management of water and sanitation services, including stormwater

ENABLERS / FACILITATORS OF POLICY UPTAKE

- Water Sensitive City concepts (including SuDS) prioritised in certain policies, e.g.

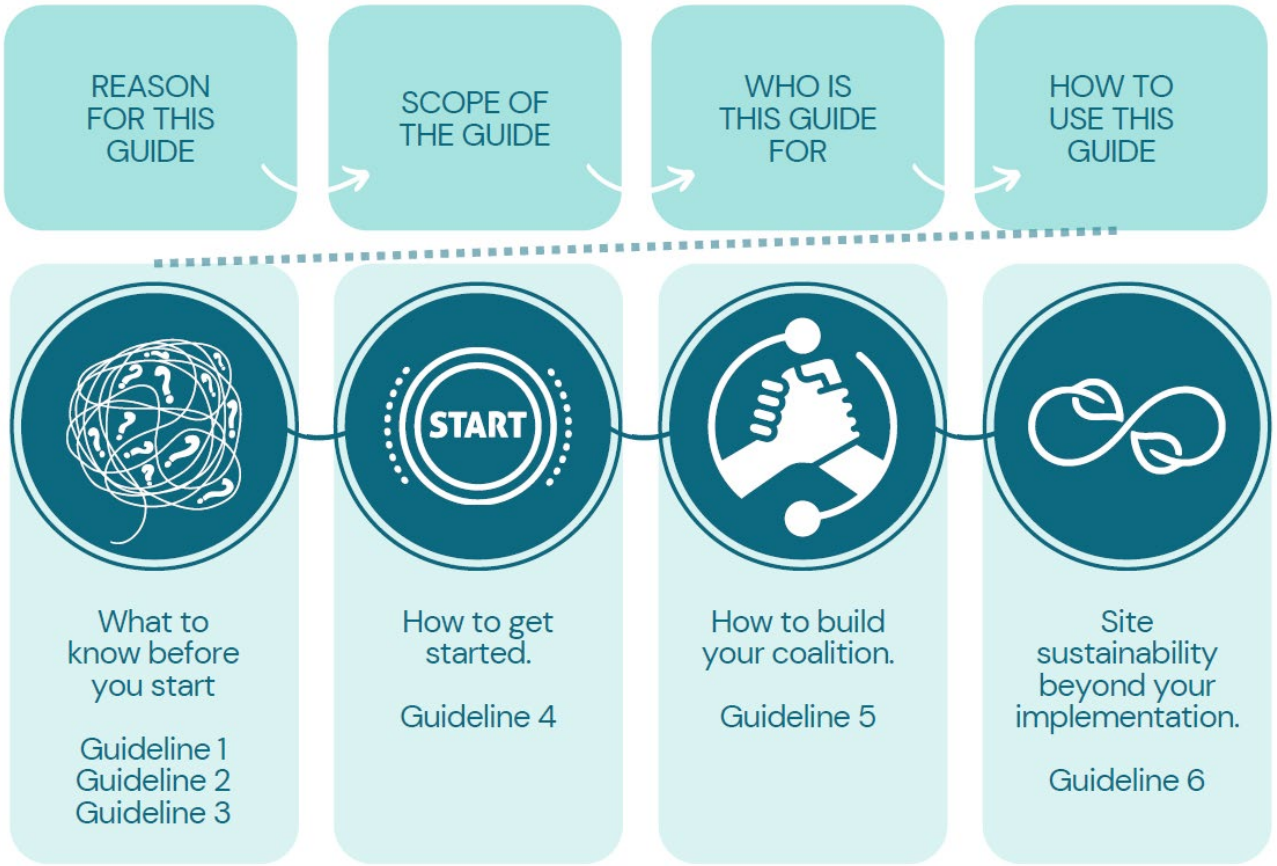
  Environmental Strategy, Cape Town Water Strategy, Floodplain and River Corridor Management Policy, Water Services Development Plan and District Plans

- Most policies acknowledge inequality and spatial disparity in environmental planning where effects of policy and infrastructure failure is felt the most
  - e.g. heavy rains flood homes in townships whilst areas in central Cape Town remain better drained → clear indication of need to address stormwater management infrastructural interventions and prioritise integration of such thinking across other departments such as housing
  - Strong emphasis on Cape Town or Western Cape's landscapes; ecosystems and natural biodiversity mentioned throughout various policies – draw on this to sell BGI as intervention

BARRIERS TO UPTAKE

- Disjointed policies – MAR BGI categorised differently across each
- Policies do not generally support specific stormwater focus; e.g. different policies prioritise multi-use spaces, so narrow focus on stormwater limits usefulness for MAR BGI
- Deconstructing language of policy
- Often do not specifically consider MAR BGI or green infrastructure
- Significant legislative and departmental overlaps within policies
- Stormwater ponds seen as ‘protected infrastructural space’ in policy
- Challenge within City budgets to rectify vandalism or damage (or even regular maintenance) caused to these types of spaces

MAR BGI GUIDELINES – POLICY CONCLUSIONS



Guideline 3: Adhere to relevant legislation, policies and programmes

- Implementing MAR BGI projects requires institutional context supported by strong coherent legislative and policy frameworks
- Legislation and policies depend on BGI selected
- Understanding policy and programme context essential to guide implementation
- Assessment of all aspects of policies, regulations, norms and standards, tariff and pricing is important

RECOMMENDATIONS

- Update policies relating to water resource management (in Cape Town) to include reference to BGI and MAR
- Ongoing training and skills development for national, provincial and local government officials is required around WSC transitions
- Policy co-ordination and collaboration between departments on urban water resilience and the transition to a WSC is required – dedicated integration units or managers with budget line items to support such integration are necessary
- More interventions are required in stormwater ponds located in previously disadvantaged areas – to be planned together with experts and local stakeholders

Thank you for your attention!

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