



**Western Cape
Government**

Economic Development
and Tourism

Green Economy Reference Group 2020

Financial mechanisms and models toward improving economic water resilience

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Department of Economic Development and Tourism

- Green Economy Programme within DEDAT
- Focus of Water Unit is on building economic water resilience in the Western Cape
- Key roles:
 - Host and participate in engagements with businesses and support dialogues between businesses and local municipalities
 - Provide strategic and technical support to businesses
 - Provide business support to develop the water sector
 - Collate and analyse information on business interventions, water savings and/or own supplies and economic impacts
 - Develop, support, co-ordinate and distribute water-related communications materials to businesses
- Undertake key projects and programmes to build economic water resilience

Key projects – 2018/19 and 2019/20

- Economic Water Security Analysis
- Financial Mechanisms and Models Toward Improving Economic Water Resilience (phases 1 and 2)
- Sector and Sub-sector Economic Water Resilience (phase 1 - Agri-processing; phase 2 – Manufacturing)
- Western Cape Water Innovation Network





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FINANCIAL MECHANISMS AND MODELS TOWARD IMPROVING ECONOMIC WATER RESILIENCE

Project overview

- Phase 1 assessed:



- Phase 2 explored 10 municipalities prioritised Central and Klein Karoo, West Coast municipalities
- Selection of municipalities based on:
 - Economic Water Security Analysis
 - Municipal water-risk register
 - Water-tariff structures
 - Presence of key businesses/sectors
 - Proportion of revenue from businesses

Project overview: component 1

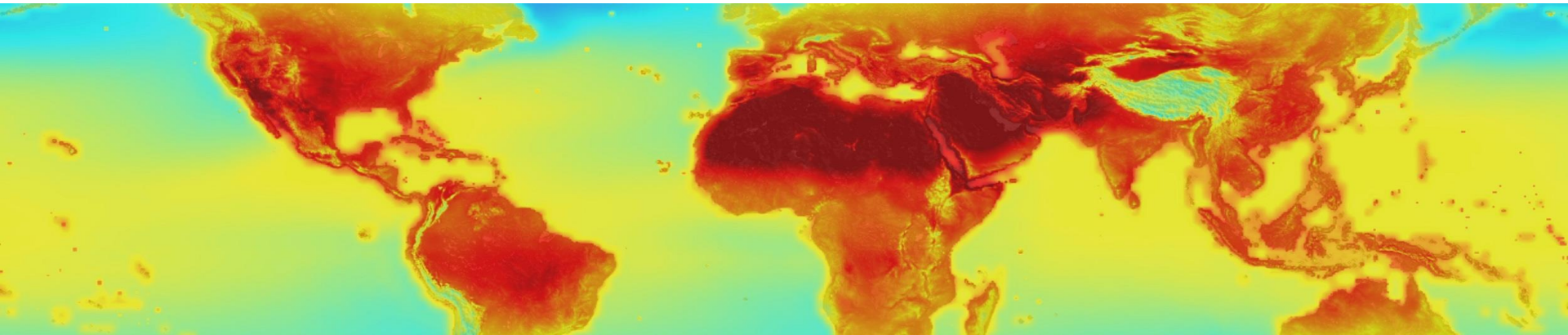
Component 1

The first component aimed to

- Create proposed models for the structuring of hybrid centralised-decentralised water-supply systems (using scenarios and case studies)
- Identify knock-on impacts to municipal revenue and business sustainability in times of plenty of water and water shortages;
- Identify legal and operational contexts under which a decentralised water supply system could work in SA

The assessment was undertaken using two future rainfall scenarios:

- 100 stochastically-generated 10-year projections based on historical rainfall data
- Adverse scenario assuming 20% reduction in average rainfall & 10% increase in variability



Project overview: component 2

Component 2

- Considered the impacts of varied water tariffs & tariff structures on the economic resilience of businesses
- Required modelling of impacts of different levels and proportional breakdowns of fixed charges versus consumption tariffs across variety of scenarios and for the 6 municipalities
- Reporting on potential economic resilience impacts on key sectors

Project overview: component 3

Component 3

- Considered financial mechanisms that might:
 - Enable water projects;
 - Support businesses providing water-related goods & services; and
 - Enable businesses and households to procure goods and services
 - Enable households and businesses to decentralise in a way that minimises municipal revenue loss
 - All municipalities to maintain some level of control over quality of water supply system



Water Supply Mix Options

Four hybrid centralised-decentralised water supply mix options defined:

- **Minimal decentralisation:** No further private alternative non-residential water supplies beyond what already exist
- **Moderate decentralisation:** Mid-way between minimal and extreme decentralisation
- **Extreme decentralisation:** The volume of water currently used by the top 10% of non-residential consumers assumed to be supplied from alternative decentralised sources
- **Maximum treated effluent:** The municipality satisfies the maximum possible demand for non-potable water to non-residential customers from wastewater treatment works effluent.

Options measured across both future rainfall scenarios = **8 scenarios/munic**

General findings – hybrid water supply systems

- Hybrid water supply systems have different impacts at different scales
- Impact of decentralisation on municipal revenue is highly dependent on the municipal customer profile
- The relative state of supply versus demand in the municipality is relevant
- Treated effluent solutions are only applicable in specific cases
- The regulatory environment hinders the development of decentralised supplies but is also inadequate to address the associated risks



Specific project outcomes – Cape Town

	<i>Minimal decentralisation</i>	<i>Moderate decentralisation</i>	<i>Extreme decentralisation</i>	<i>Maximum treated effluent</i>
Mossel Bay	2	1		
Overstrand	1	2		
Saldanha Bay	1	2		
City of Cape Town	1		2	
Drakenstein	1	2		
Laingsburg	2			1

- Minimal decentralisation best option for CCT, Drakenstein, Overstrand & Saldanha Bay
- Given Mossel Bays existing back-up supply options, moderate decentralisation is the preferred option
- Laingsburg has limited options and needs to consider existing, untapped water resources
- This may change under “worst case scenario”

General findings - Tariff and tariff structures

- Cost of water is a small portion of business operating costs
- Restricted supplies and risk of a shortage of supply have far greater economic impacts than increased tariffs
- Fixed costs are a high proportion of municipal costs
- Consumption charges need to discourage inefficient water use
- Availability fees justified to cover some fixed costs in hybrid systems
- 'Bounce-back' phenomenon is poorly understood
- There are options for providing relief to specific businesses, but these are administratively complex and may raise issues of equity

General findings – Financial mechanisms

- Economic water resilience can be achieved through decentralisation, through increasing robustness of centralised systems, or both
- Where decentralised options compete for resources, a policy position needs to be taken
- Municipalities should promote development of decentralised water supplies for use as back-up supplies
 - Through reducing the capital investment hurdle or reducing the cost of supply
- A range of non-financial mechanisms can promote sustainable decentralisation / improved water resilience
 - By-laws for water efficiency in new developments
 - Standards and guidelines for alternative water use
 - Open communication between government and users

Going forward | Value-add

- These findings not prescriptive – just informative
- Can assist in facilitating further exploration of hybrid water supply systems
 - Engage with DLG, DFIs, DBSA etc.
- Findings promote municipal financial sustainability while presenting options to promote economic development / growth
- Opens doors for possible public-private partnerships
 - Co-investment
 - Risk sharing
 - Mutual benefits



Thank You



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BETTER TOGETHER.

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