



# Urban water security in eThekweni

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uMngeni School of Water Governance Research meeting  
4 May 2016

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# Introduction

- Water scarce context
  - Important to analyse the relationship between water and society in order to enhance water security
- This study
  - Temporally explores urban water security in Durban
    - Achieved by applying the urban hydrosocial transition model over the history of the municipality
  - Based on the focus of my internship at INR
  - Proposed PhD topic

# Conceptual Framework

- Urban hydrosocial transition (UHT) model developed by Staddon and Langberg (2014)
  - Historical geographic framework that can be used to interrogate the complex and changing relationship between cities and water services over time
- Cities are conceptualised as manifestations of successive hydrosocial contracts between agents of economic, political, cultural and technological change (Staddon and Langberg, 2014).
- Analysing hydrosocial contracts between government and the general public provides analytical insights into the social construction and production of water in a given time and space, as well as the ways that this becomes evident to society and the power relations which instigate hydrosocial change (Linton and Budds, 2013).

# UHT Model

- The UHT model is characterised by three distinct phases over time
  - Hydro-precarity (pre-1914);
    - Piecemeal and chaotic local arrangements
  - Hydro-modernism (1914-1992)
    - Mass provision of standardised water supply and sanitation services
  - Hydro-security (post-1992)
    - Mass restructuring in the water services industry -> new roles of the public and private sectors, new technologies and the water needs of the natural environment
- How to apply the UHT model
  - Identify case studies for each phase
  - Identify unique factors
  - Identify underlying drivers of change (critical moments of change)

# Hydro-precarity phase

- History
  - Creation of the Borough of Durban in 1854
  - 7000 settlers and 34km<sup>2</sup> in size
- Initial reliance of water from private wells and rainwater
  - Poor water quality (Brackish)
- Drainage was required in the Eastern Vlei
  - Change in the hydrosocial contract between the municipality and the public
- Local government began to provide water for the general public
  - Public wells (Currie's Fountain 1879) – first water pipe network
  - Plumbing into the Umbilo, Umhlatuzana and Umlaas Rivers (started the reliance on surface water)
  - Free water for residents and industries
- Linked with the ability to secure finance (loans)
  - Three long-standing powerful engineers from the 1880s
    - British educated, continuity in leadership
    - No augmentation plans were rejected between 1880s and 1920s

# Hydro-precarity cont.

- Change in the hydrosocial contract between the municipality and the public cont.
- Growing population
  - Spatial expansion of Durban
  - Greater number of people (South African war 1899 to 1902)
- Re-occurrence of natural disasters
  - Flooding and droughts
  - Incremental development of Durban's water services
- Racial discrimination
  - Blaming of Black and Indians for water quality problems and diseases

# Hydro-modernism

- Context
  - Growing population, spatial increase in the size of Durban, re-occurring natural disasters
  - Resulted in the need for more water from far away
    - 'Plumbing' into the uMngeni River
- Construction of major dams; large aqueducts
  - Centralised approach -> central solution to increase capacity and supply
- Special Works Department in the 1950s and 1960s (capital intensive; large investments; very fast acting)
  - Durban Heights -> constructed the largest covered reservoir in Africa

# Hydro-modernism cont.

- National policies and legislations impacting on the local level (Change in hydrosocial contract)
  - National Water Act of 1956
- Impact of apartheid ideology on water and sanitation provision
  - Inequitable access to water under apartheid/discriminatory practices
  - Water as a 'securitised' resource in South Africa
  - Riparian rights system linked to the ownership of land -> biased towards white farming and industrial interests
- Relationship between the national and local government - strained
  - Establishment of Umgeni Water Board in 1974 (**change in hydrosocial contract**)



# Hydro-security

- Context at the national level
  - Significant shift in the conceptualisation of water in 1993/1994 (change in the hydrosocial contract)
    - Riparian rights were no longer supported
- Change in national legislation and policies
  - Section 27 of the Bill of Rights; White Paper of Water and Sanitation (1994); National Water Act (1998); Water Services Act (1997); Free Basic Water policy (2000); Mbeki's State of the Nation address (2004); commitment to the Millennium Development Goals; Municipal Systems Act (2000)
    - Water belonged to the people
    - Government as the custodian of water
    - Licencing of water (abstraction and pollution)
- The allocation of water
  - Water needed for the Reserve (reflects hydro-security)
  - Water for the poor

# Hydro-security cont.

- Context at the local level
  - Changes in administrative structure
  - New municipal boundaries
    - eThekweni Municipality is approximately 2 297km<sup>2</sup> in size
    - Approximately 3.5 million people
  - White and Bantu Authorities
    - Centralisation under eThekweni Municipality
  - Umgeni Water
    - Spring Grove Dam (hydro-modernism)
  - Urban Development Line in eThekweni
    - Spatial differentiation of services for water and sanitation
  - Urban core versus peri-urban
    - Three different service levels with different technologies (**hybrid system**)
      - Ground tank systems in rural areas
      - Semi-pressure supply received by the household via a roof tank
      - Full pressure water supply fed directly to the household from the supply network

# Hydro-security

- Water re-use
  - Industries
- Most recent moment has focused on the role of ecological infrastructure
  - How the catchment-wide rehabilitation and management of natural infrastructure can improve water security in the city
    - Pilot projects
    - Green Fund project

# Conclusion

- Context has shaped the hydrosocial contract in Durban from the 1850s
  - Durban as a growing city
    - Spatial growth and population increases
      - Needs a greater supply of water
- Incremental development associated with the re-occurrence of natural disasters
- Influence of powerful, long-standing engineers in the local government
  - Impact of National legislation and policies
    - Impacts the local level and shapes urban water security
- Durban has a hybrid water supply system, which is heavily reliant on surface water

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### Acknowledgement

The project is funded by Lloyd's Register Foundation, a charitable foundation helping to protect life and property by supporting engineering-related education, public engagement and the application of research.

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