



Presentation from
**2015 World Water
Week in Stockholm**

www.worldwaterweek.org

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WATER
RESEARCH
COMMISSION

TOWARDS A NEW REALITY FOR SANITATION IN URBAN ENVIRONMENTS

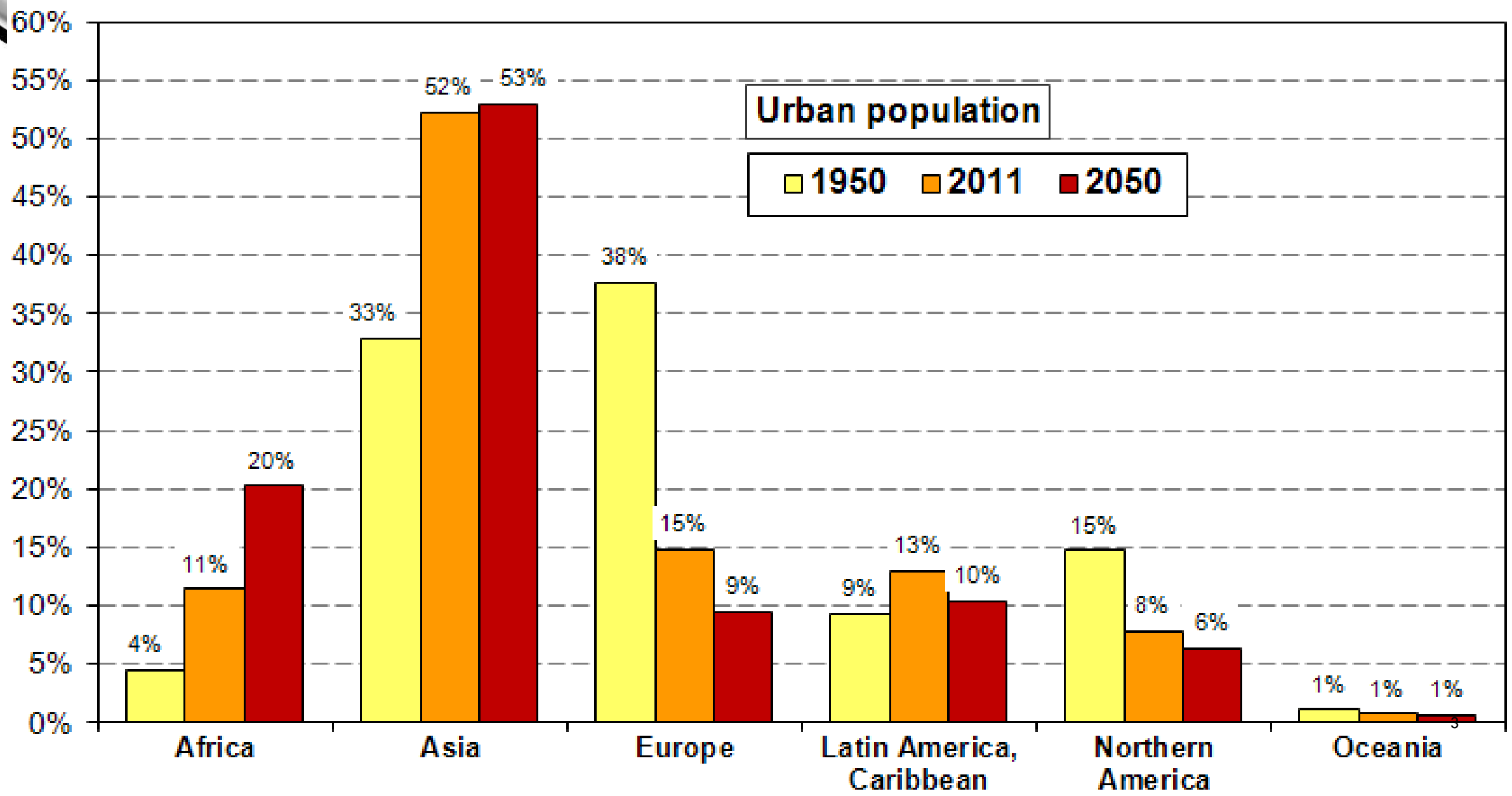
JAY BHAGWAN

EXECUTIVE MANAGER: WATER USE AND WASTE MANAGEMENT

WATER RESEARCH COMMISSION

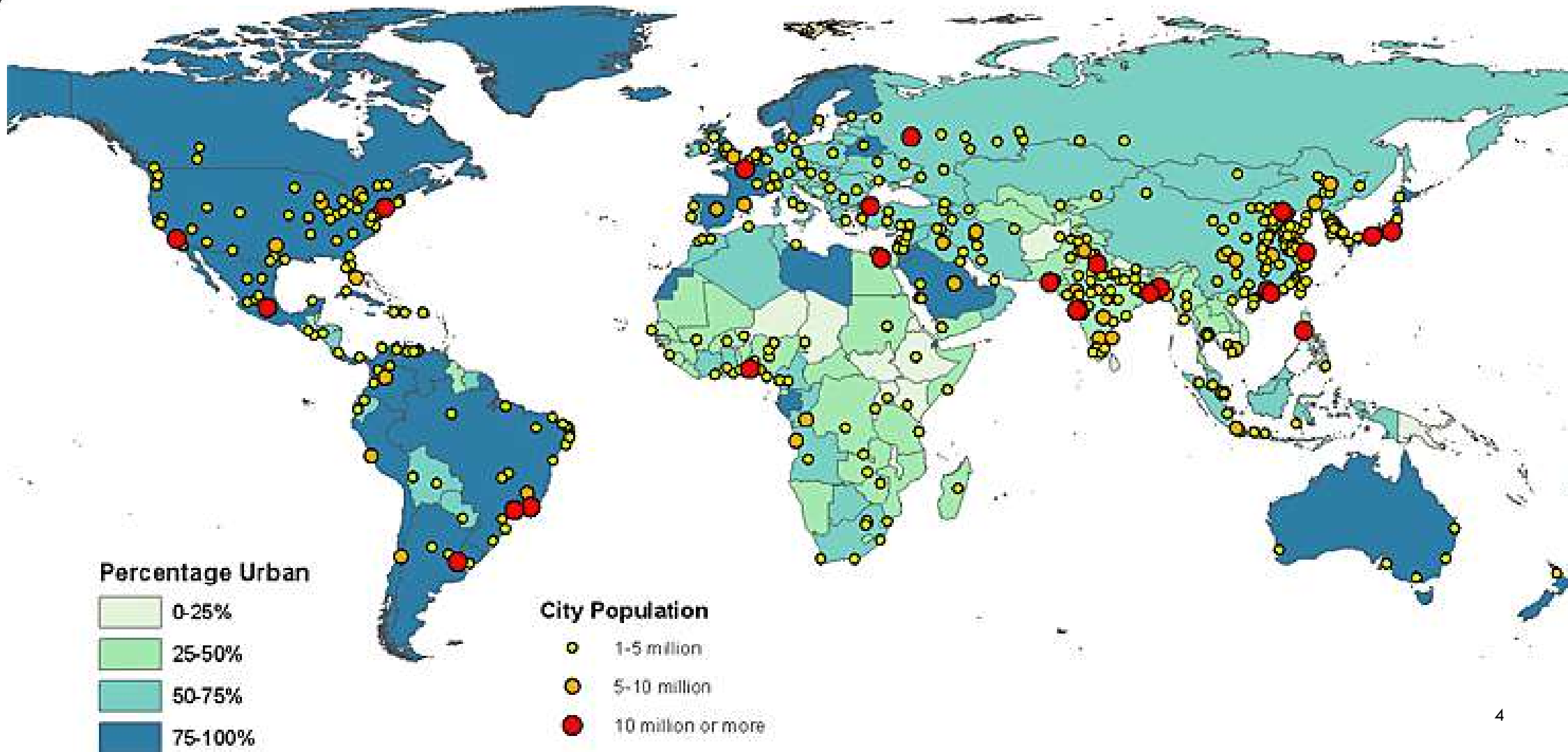
SOUTH AFRICA

STOCKHOLM WATER WEEK 2015

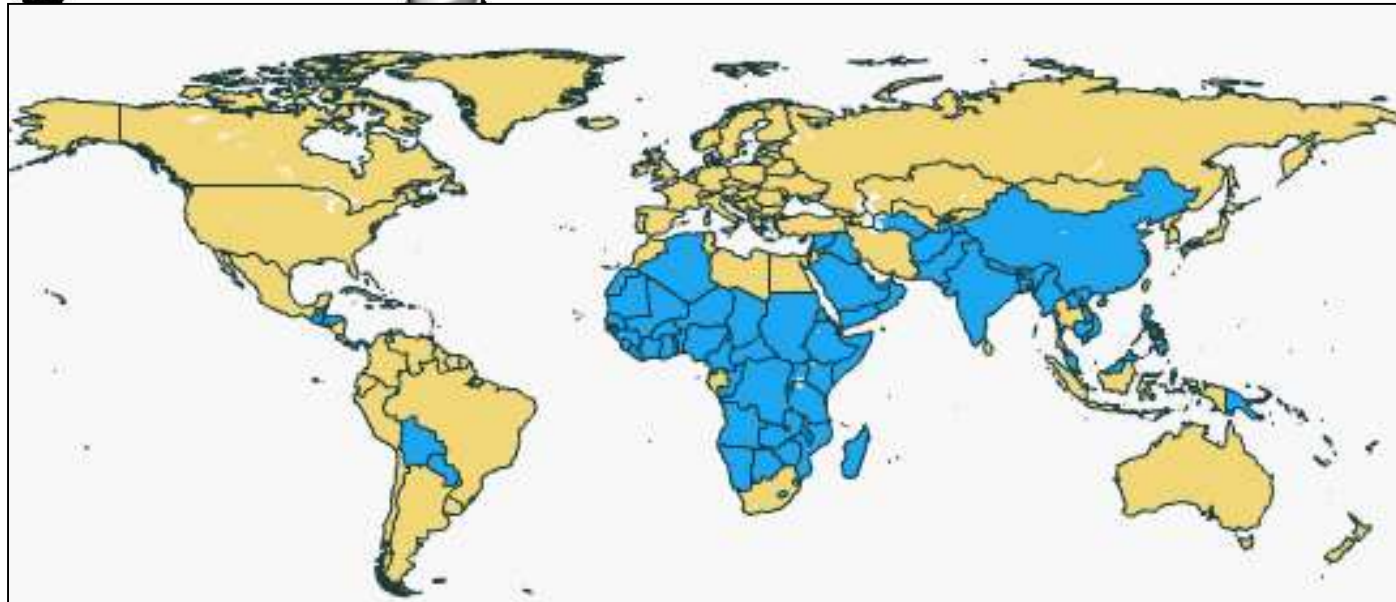


Urban Population (% and agglomerations by size class) – 2011

Highest Urbanizing countries in the world (7/10 are in Africa)

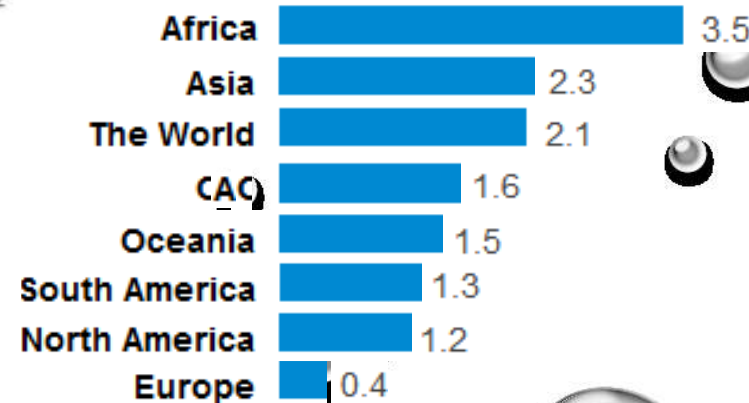


7 out of 10 highest urbanizing countries in the world are in Africa



Below average in **the world**

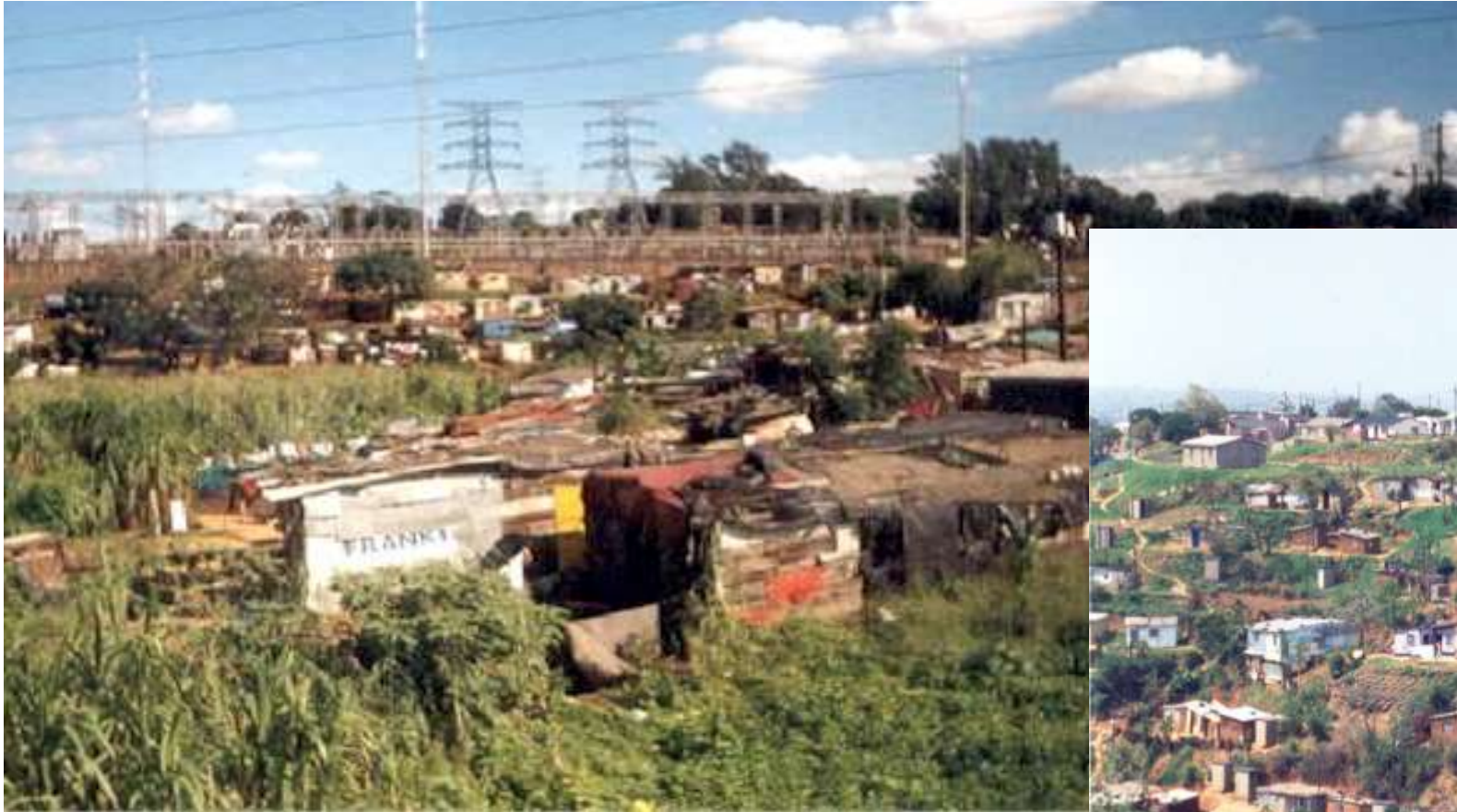
Above average in the world



ETHEKWINI - A MUNICIPALITY OF CONTRASTS



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PROBLEM OR OPPORTUNITY ??????

- **THE WORLD IS RUNNING OUT OF ITS TRADITIONAL SOURCES OF ENERGY, POTABLE WATER AND PLANT NUTRIENTS**
 - WATER RESOURCES ARE DECLINING
 - ENERGY COSTS ARE RISING
 - THE CLIMATE CHANGE ISSUE
- **CURRENT SANITATION TECHNOLOGIES ARE NOT SUSTAINABLE**
 - SOCIETY IS CONDITIONED INTO VIEWING A FLUSH TOILET AND CENTRALISED SEWAGE TREATMENT WORKS AS THE PREFERRED OPTIONS
 - STORM WATER IS SEEN AS A NUISANCE RATHER THAN A RESOURCE



Water Sensitive Settlements (WSS)

1. *'New taps'* (New water resources)

- Water demand management and conservation
- Stormwater / rainwater harvesting
- Treated effluent
- Groundwater
- Desalinated water

2. *'Blue-green infrastructure'* (Water sensitive management)

- Planning & design
- Economic value
- Health impacts
- Ecosystems services
- Social development
- Waterscapes
- Urban rivers
- Urban agriculture

3. *'Adapting to change'* (Building resilience / Governance)

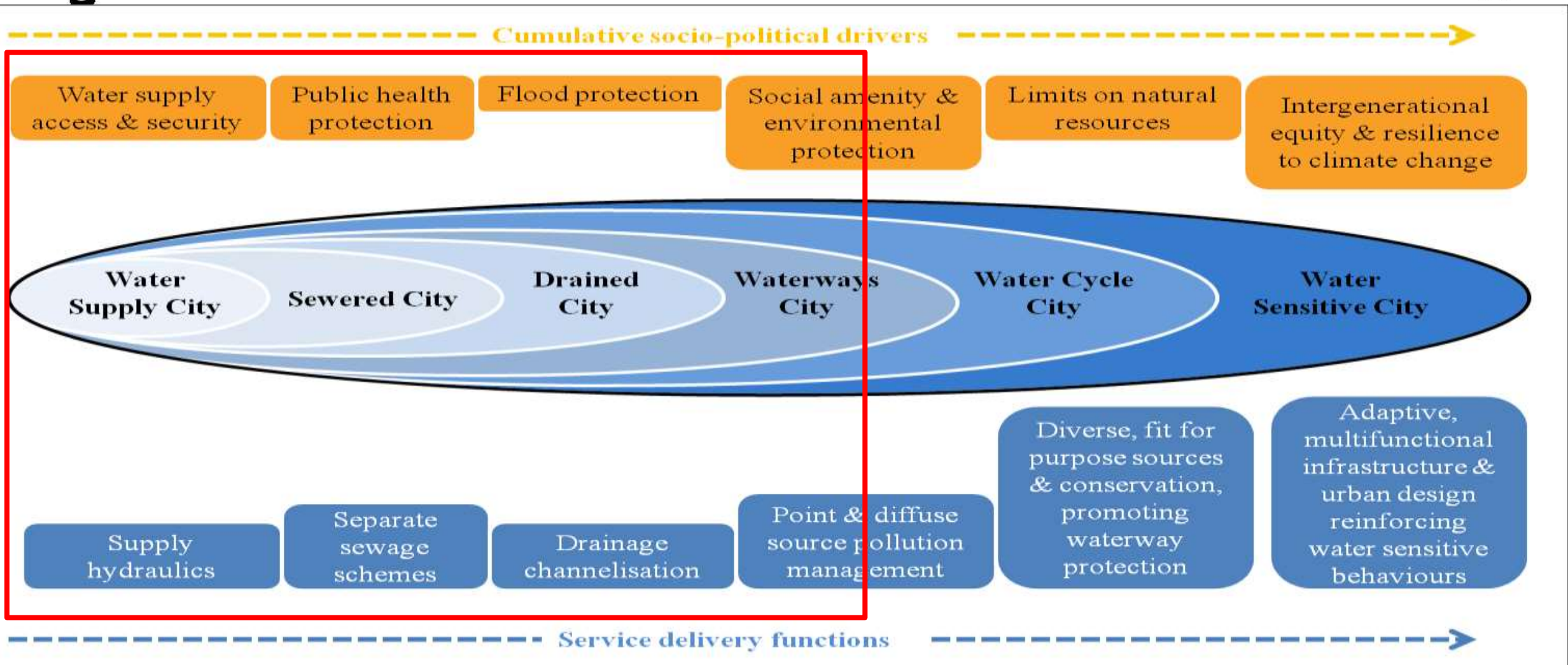
- Resilience
- Strengthening governance
- Learning alliances
- Policy and law
- Communication / Social acceptance
- Management

4. *'Maximising value'* (Maximum value from minimum resource)

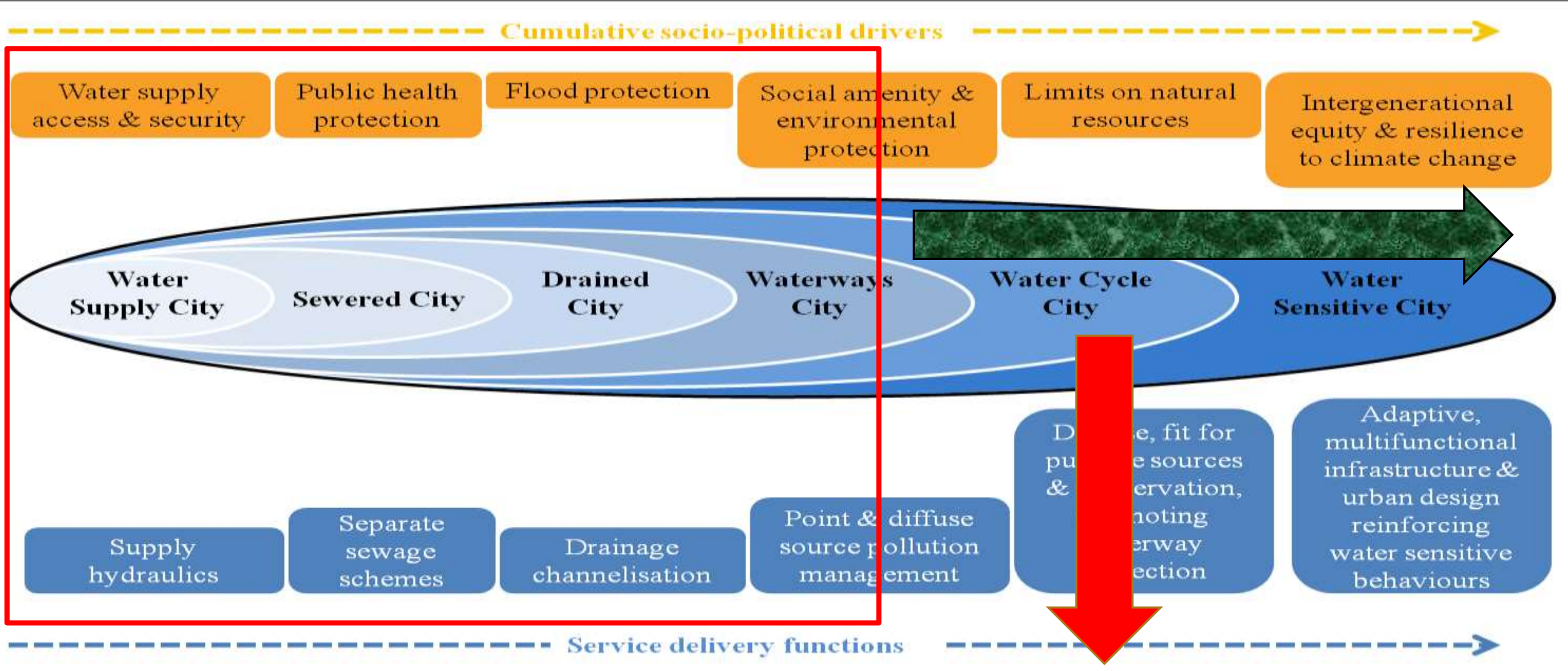
- Source separation
- Centralised vs decentralised
- Towards zero emissions
- Water treatment for purpose
- AMD treatment vs prevention / value recovery
- Integrated treatment
- Resource recovery
- Wastewater biorefineries

Civil Engineering - Environmental Science - Planning - (Construction) Economics - Biological / Molecular Science - Chemistry
Political Science - Geohydrology - Health Science - Sociology - Chemical Engineering - Public Administration - Anthropology

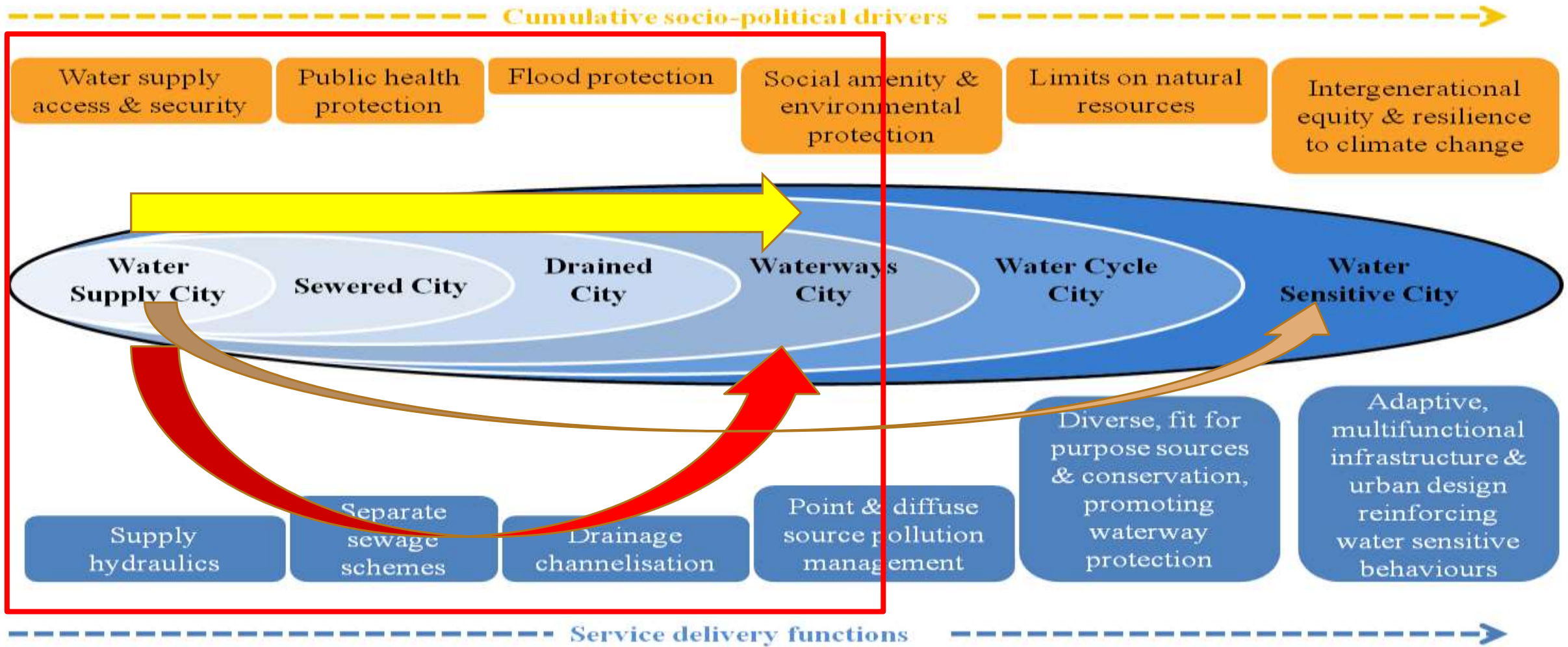
WATER MANAGEMENT TRANSITION STATES



WATER MANAGEMENT TRANSITION IN DEVELOPED COUNTRIES

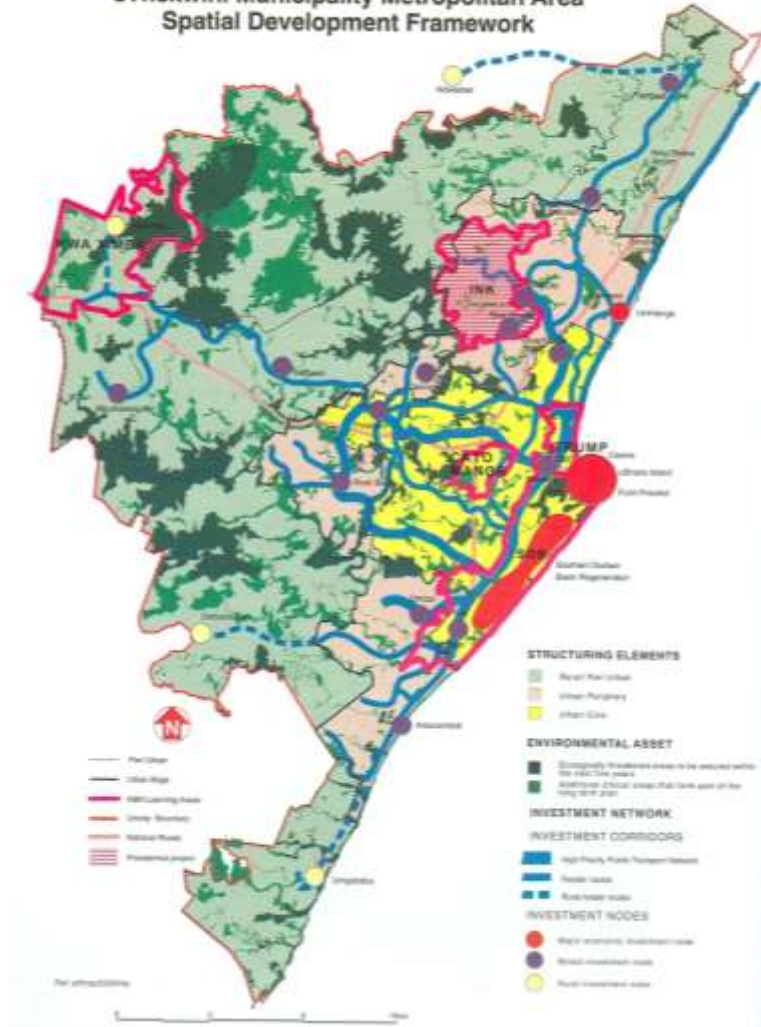


WATER MANAGEMENT IN THE DEVELOPING WORLD

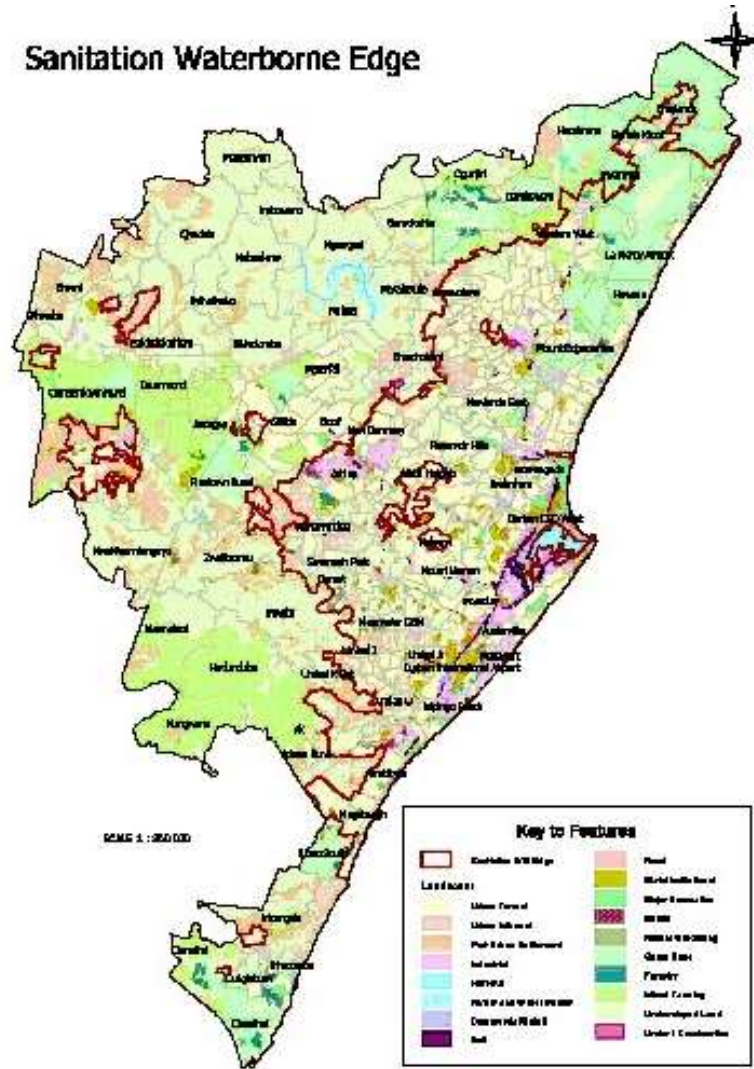




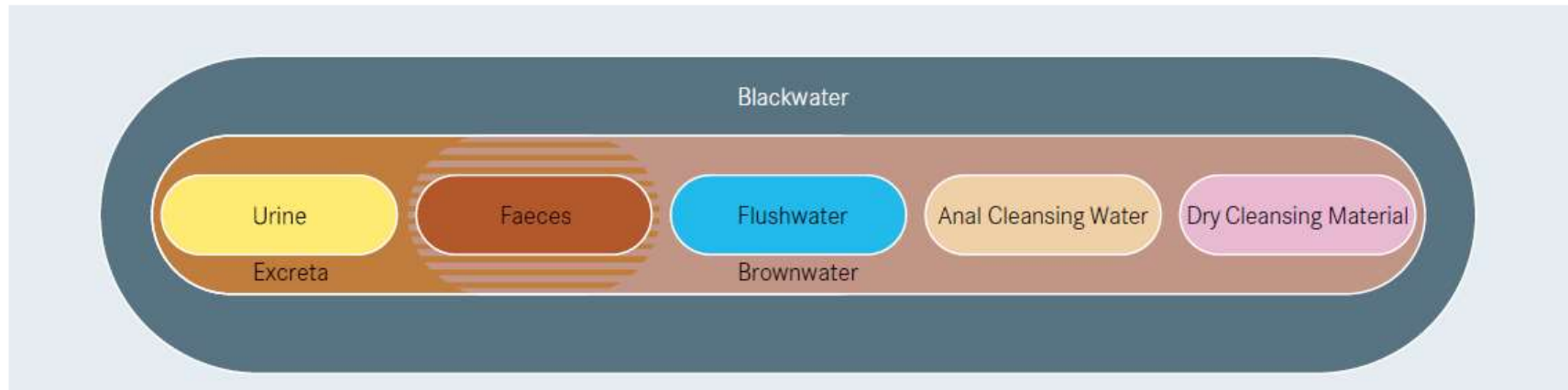
eThekweni Municipality Metropolitan Area Spatial Development Framework



Sanitation Waterborne Edge



GAME CHANGER



Sanitation Value Chain



GAME CHANGERS

WORKING
TOWARDS

A
WORLD FREE OF
**FAECAL
SLUDGES**



IS THIS POSSIBLE ?

NO

- IF WE CONTINUE TO DO THE SAME

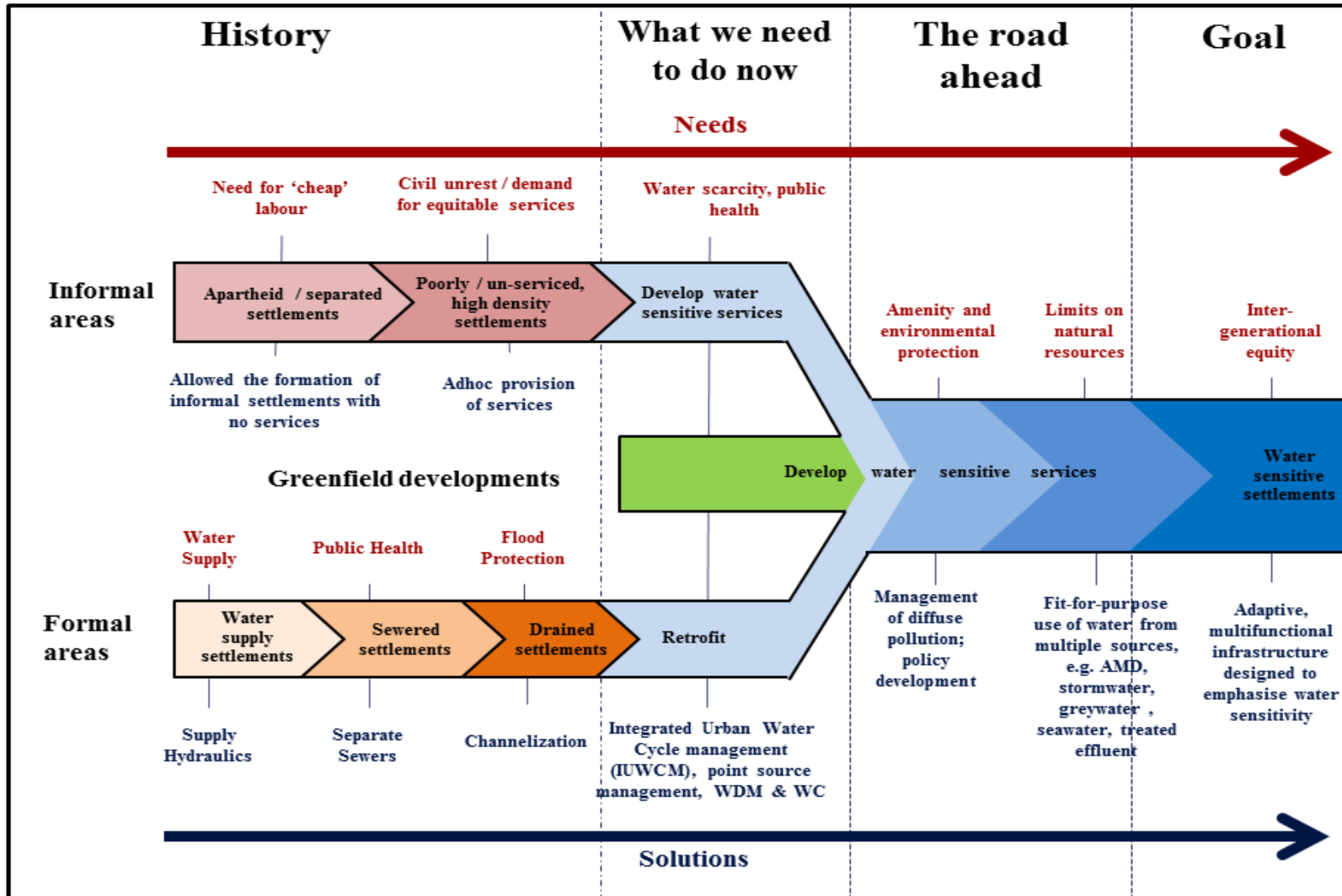
POOR HAVE NO SANITATION MARKET

YES

- IF WE CHANGE OUR PARADIGM –
 - THERE IS NO MORE WASTEWATER AND SEWERAGE
 - BIOLOGICAL TREATMENT IS NOT THE DEFAULT
 - FAECAL SLUDGE IS SEEN AS A RESOURCE – ENERGY, SOIL REMEDIATOR, NUTRIENT ETC.
 - TECHNOLOGIES THAT TREAT AT SOURCE
 - NO SLUDGES PRODUCED
 - LARGE LEVELS OF BENEFICIATION
 - SAME USER CONVENIENCE
 - WATER SAVING AND ENVIRONMENTALLY SAFE.



SA Vision

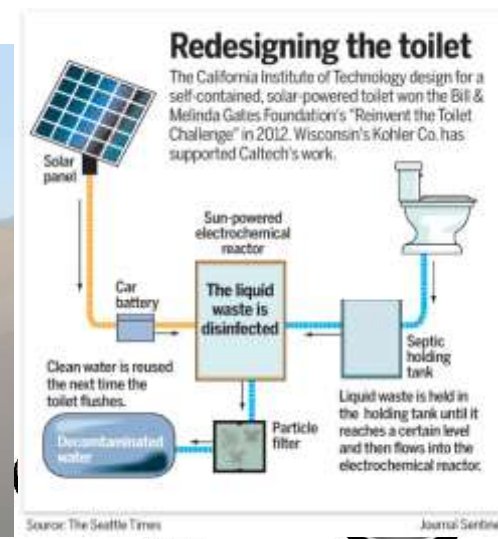
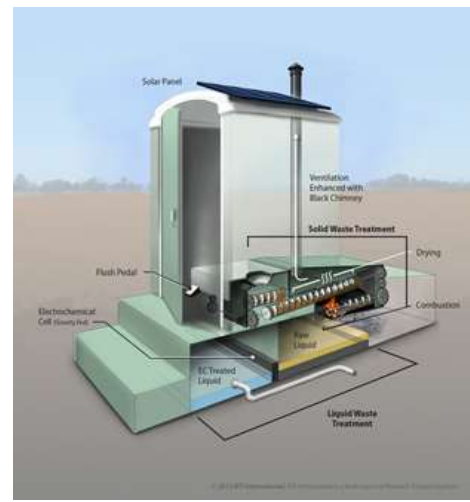
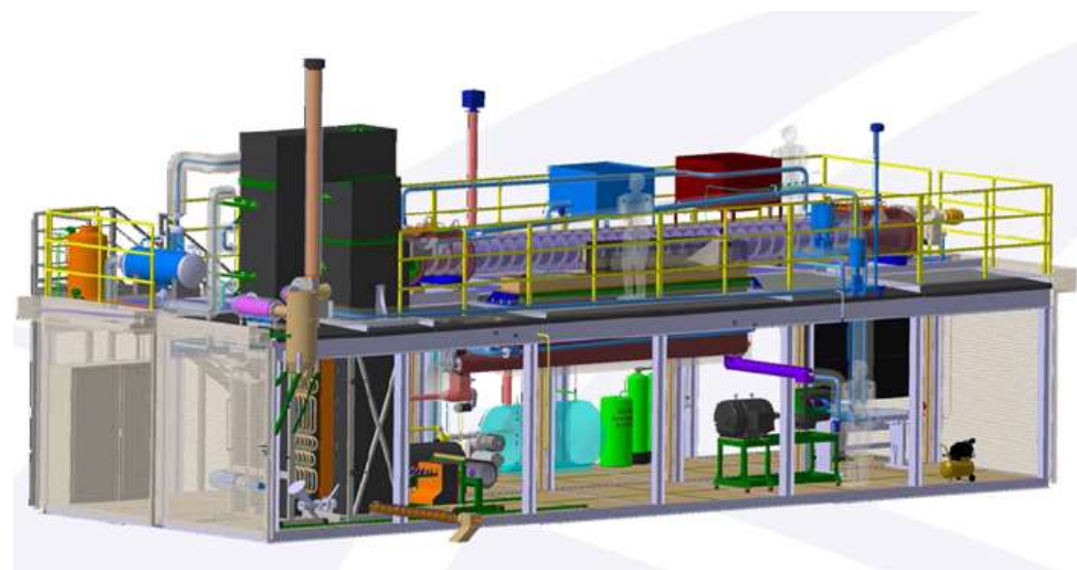


- WSD USES A CYCLIC APPROACH
 - ATTEMPTS TO MANAGE THE INTERCONNECTEDNESS (WATER, SANITATION, ENERGY, FOOD, LIVELIHOODS, ENVIRONMENT AND LAND)
 - HOLISTIC APPROACH
 - RESOURCE EFFICIENCY
 - MANAGING SERVICE AND VALUE CHAINS

Equity
Poverty Alleviation
within a
Developmental state

Figure : SA's transition to Water Sensitive Cities: "Two history's, one future" (adapted from Brown et al., 2009) (WRC Project ; K5/2071)

REINVENT THE TOILET



Conclusions

- There is not one optimal solution for all sanitation situations
- The conventional system is not at all bad for urban areas – but its future is limited
- New technologies cannot solve all challenges but quite some
- The socio-cultural aspects are important
- We need to be thinking of radical complete onsite solutions- recovery reuse and beneficiation



So lets start being disruptive and innovative and think of the future.....

