

Session 6: Water and Energy Security



Consulting Engineers South Africa

INFRASTRUCTURE
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Engineering the Future Now!

A CONSULTANT'S PERSPECTIVE ON SUSTAINABILITY IN THE WATER SPACE

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CAST AND STAGE



- Civil engineering
- Consultant engineer
- Civil servant

Consider challenges from two sustainability perspectives:

1. Our natural and social environment
2. Consulting engineering industry

SUSTAINABILITY

1. Social – communities, inter-generational equity
2. Environmental – we have strong legislation but limited capacity to implement
3. Financial – user pays
4. Institutional – capacitated National and Local authorities



SUSTAINABILITY OF CONSULTING ENGINEERING

1. Expensive software costs
2. BIM, digital and data roles, AI
3. Engineer's purpose is sustainable change
4. I believe engineering will become more complex
5. Experienced engineers will be in greater global demand



FAILING INFRASTRUCTURE AND CLIMATE CHANGE

1. Water particularly sanitation forms the “base load” for Carte Blanche episodes
2. Cater for new growth, O&M but also retrofitting and rehab issues associated with ageing infrastructure
3. SA better positioned than northern landlocked neighbours to deal with climate change

THE LONGER WE DELAY THE HARDER IT IS



We spend a lot of energy plotting where we want to go but need to stop going backwards.

PRIVATE SECTOR INVOLVEMENT

1. Move towards decentralised off-grid solutions
2. Public resource pool gets smaller
3. Not sustainable
4. Cost of marginal improvements versus investing where it makes biggest difference
5. Find a way for private sector to act in terms of greater good, needs to have a financial incentive



MANAGING RISK AND NATURE-BASED SOLUTIONS

1. Standards vs Practical, stepped standards
2. Risk based approach
3. New solutions - recycling of water, recharging of groundwater
4. Nature based solutions need grey infrastructure



CONSULTING ENGINEERING TRENDS

- Challenging infrastructure projects
- Project delivery challenges:
 - Cash flow e.g. long timeframes between bid submission and first payment
 - Clients are PM and compliance focussed which leads to disputes on scope and flexibility to deal with complex challenges on projects
- Diversification of client base from municipal to private and international, which comes at great investment cost
- Skillset of SA engineers internationally recognised
 - SA used as a design centre
 - Brain drain
- Burn out



EISH...WHAT NOW

1. Eco-anxiety

Glenn Albrecht who defined it as "a chronic fear of environmental doom"

2. Public vs private: Optimise intellectual engineering capital in Africa
3. We have to implement the planning but make the right decisions
4. We need an incremental approach "Think Global, Act Local"
5. We are here

The greatest threat to our planet is the belief that someone else will save it