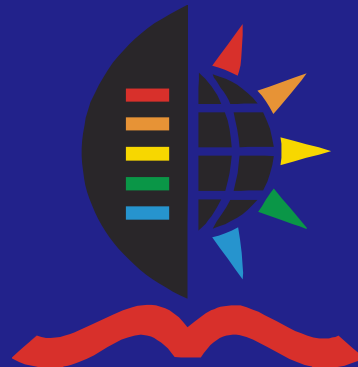


Water Technology Futures in the context of centralised or semi-centralised systems in sub-Saharan Africa:

...is there a silver bullet?

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Backdrop

now

- MDG targets
- rigid discharge standards
- increasing water stress
- energy interruptions
- poverty
- sewage as a problem
- silo mentality
- large centralised systems

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future

- sustainability targets
- risk based approach
- water conservation
- energy production
- food security
- excreta as a resource
- smart cities
- decentralisation



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history

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...the challenges provided by meeting the needs of developing countries will set the new standards ...

Public Health

- faeces contain pathogens
- urine contains nutrients
- eliminate contact between people and excreta (pathogens)
- piped systems faeces
- treatment + pathogen reduction → environment

Mass Roll-out

- prefabrication
- standardisation
- instrumentation, monitoring and telemetry
- provide up-grade options

Upgrade Trajectory

- hand transport
- decentralised partial treatment
- reduced flow
- separated streams
 - grey water (on-site reuse)
 - urine (nutrient recovery)
- beneficial use of nutrients (agriculture)
- low pressure membrane processes
- energy production

No

there is not a silver bullet ...

- circumstances will dictate solutions
 - geography
 - climate
 - density
 - income
 - etc.
- dynamic change
- upgrade trajectory
- beneficial reuse
- sanitation as a business