

Water Sensitive Urban Design (WSUD) 2

A **multi-disciplined approach** to urban water management that aims to unite the engineering concept of **Integrated Urban Water Management** (IUWM) with the planning concept of **Urban Design** with a view to creating what has been termed '**Water Sensitive Cities**' where the most efficient and effective uses of water are central considerations. ***'WSUD integrates the social and physical sciences'***.

(Wong & Ashley, 2006)

Water sensitivity

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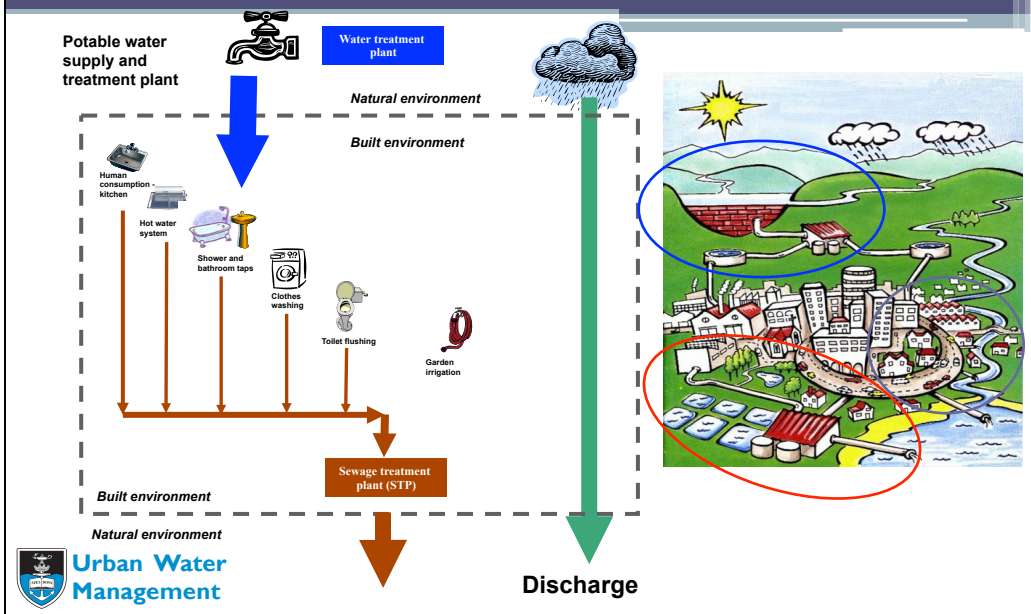
- Water is a finite and vulnerable resource
- Access to water is a basic human right
- Management of water should be based on a participatory approach
- Water to be recognised as an economic good
- Water is essential to sustain the natural environment
- 'Waterscapes' make cities more 'liveable'
- An essential component of 'Green Infrastructure'

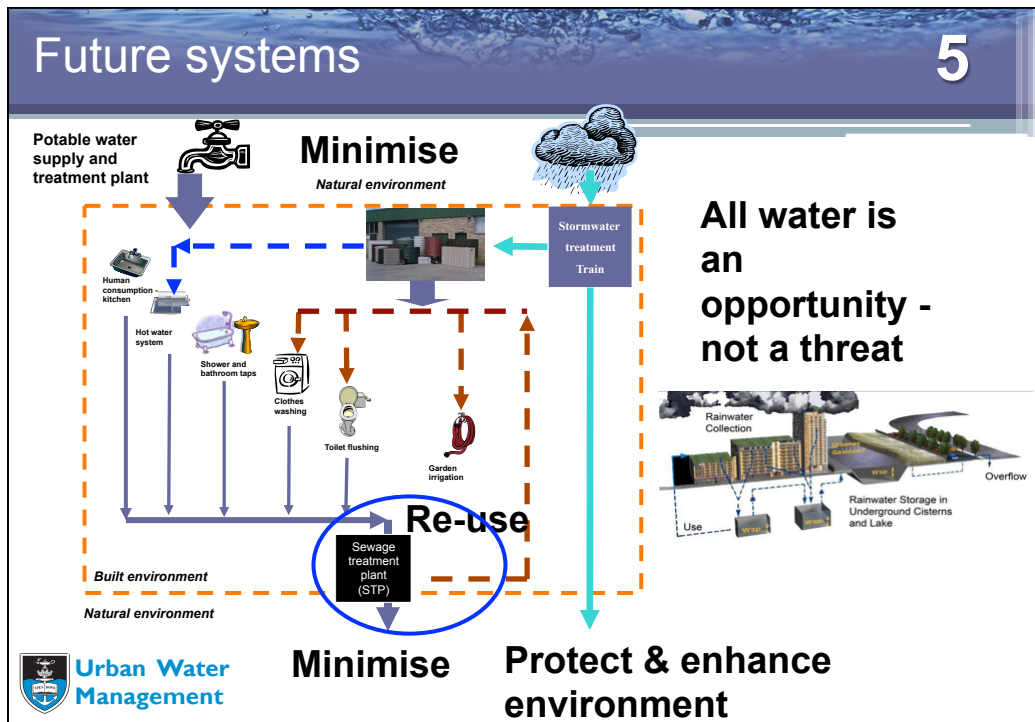
WSUD brings 'water sensitivity' into urban design



Current linear systems

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Added to this... 6

Linking water management with green infrastructure:

1. Climate change adaptation and mitigation
2. Water and flood management
3. Place and community
4. Health and well-being
5. Land and property value
6. Investment
7. Labour productivity
8. Tourism
9. Recreation and leisure
10. Biodiversity
11. Land management

Urban Water Management

Urban Water Management in Singapore

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The four 'taps'

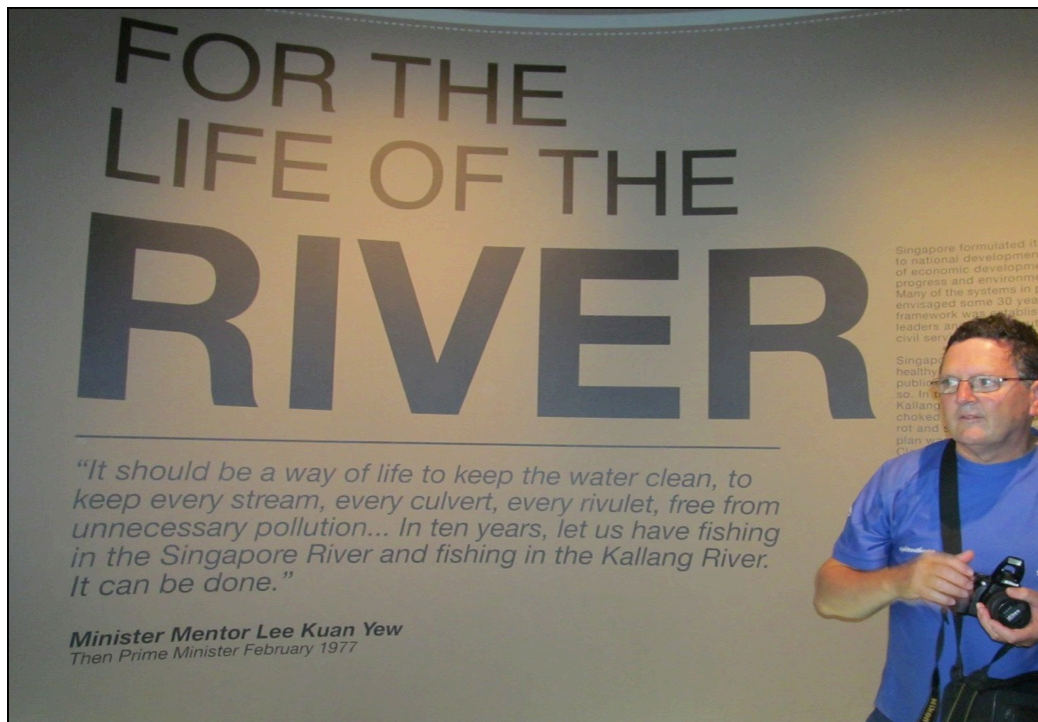
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In a bid to ensure water security, water supply in Singapore is now being diversified. Currently (2013):

1. Imported water from Malaysia (40%)
2. Water harvesting from the local catchments (35%)
3. Treated effluent (NEWater) (15%)
4. Desalinated water from the sea (10%)

The objective is to minimise/eliminate 1. – so as not to be reliant on Malaysia for this critical resource













The SWITCH project

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'Sustainable Water management Improves Tomorrow's Cities Health' (SWITCH):

- EU FP6, € 23M ≈ R1/3 Billion, 5 years
- Innovation in the area of sustainable urban water management
- 33 partner institutions in 15 countries
- 12 demonstration cities

Moving cities towards the **IUWM** paradigm using a model of **stakeholder engagement** that actively encourages active experimentation with new innovations and methodologies (i.e. the '**Learning Alliance**' approach)



SWITCH project examples

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Belo Horizonte – LA generated high level of impact and visibility, WSUD concepts now clearly recognised in the city

(Image courtesy of SWITCH © Alison Duffy)



Accra – improved links and communication between stakeholders in the water sector and provided a platform for strategic planning

Alexandria – well-functioning LA resulted in changes in decision-making towards integrated water management

General summary

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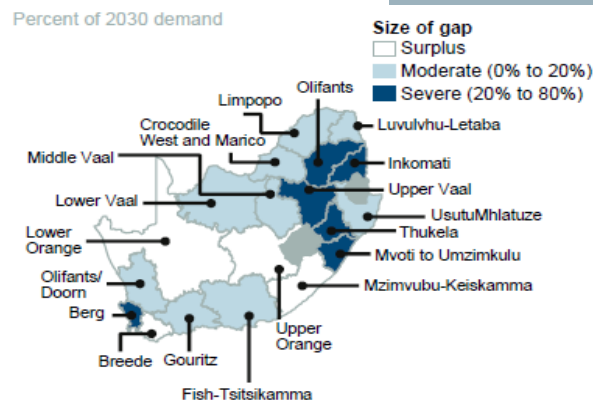
- We now face multiple major challenges - many previously unimagined
- It is possible to do more for less cost by integration and looking for multi-value
- New ideas and tools from around the world are providing the means to quantify the physical, social, environmental and economic benefits
- We need to find different ways of working together



But what about South Africa?



South Africa's impending water 'crisis' 22

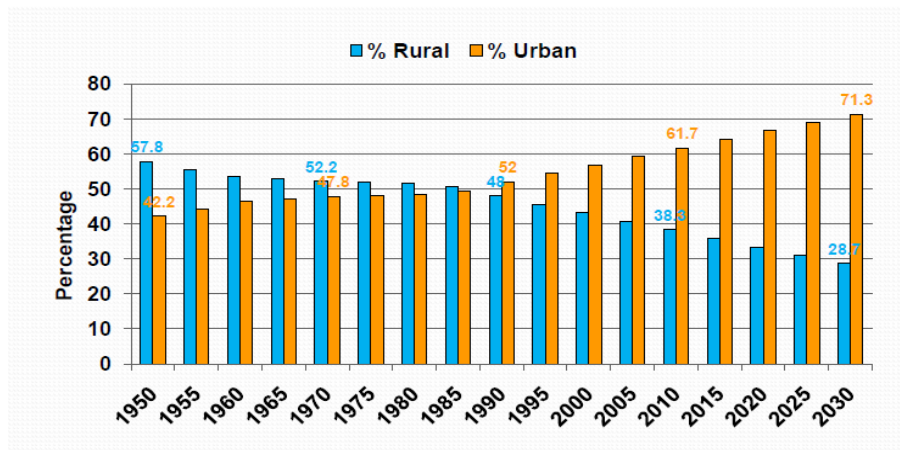


“...the availability of water of acceptable quality is predicted to be the single greatest and most urgent development constraint facing South Africa” (Scholes, 2001)



Urbanisation in South Africa

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Key challenges for South Africa

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- Equity – ‘green’ projects vs. in-situ upgrade
- Mitigation – reduce energy and carbon use
- Uncertainty – flexible solutions
- Adaptability – account for constraints and build capacity



vs.



The good...

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**eThekweni Green
Roof Pilot Project**



Hawaan Estate



**DEADP rooftop
(Cape Town)**




Century City



Grand Parade


The bad...

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Cape Town

<http://www.rrwint.co.za/2010/03/21/aerial-view-of-cape-town-city.html>



Johannesburg

http://www.allposters.com/Leg/Aerial-View-of-Johannesburg-City-Centre-Posters_13027843_.htm



**Urban Water
Management**

And the ugly... 27

Housing

Water Supply

Drainage

Solid Waste

Sanitation

It's pretty obvious here 28

Urban Water Management

What does it mean here?

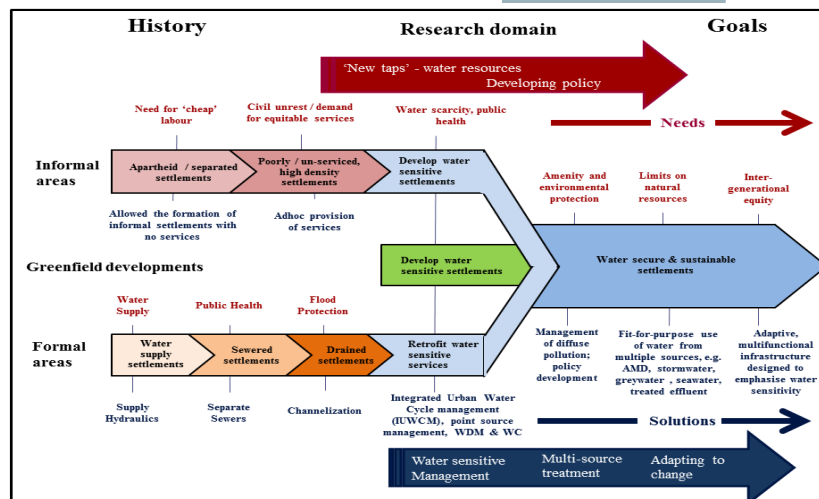
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Urban Water
Management

A transition framework for RSA

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Urban Water
Management

Presentation of benefits of WSUD

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Stakeholder	Area of interest
Politicians	Provision of basic services; job creation
City officials	Costs / ease of maintenance
Private developers	Increased profit / public image
Community groups	Job creation; public health / safety
Environmental groups	Protection of environment
Individuals	Additional costs / benefits per household

Grounding the WSUD concept in SA

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- Tools – guidelines, manuals etc
- Transfer – capacity building
- Tactics – engaging stakeholders
- Trials – pilot implementations



'Agents for change'

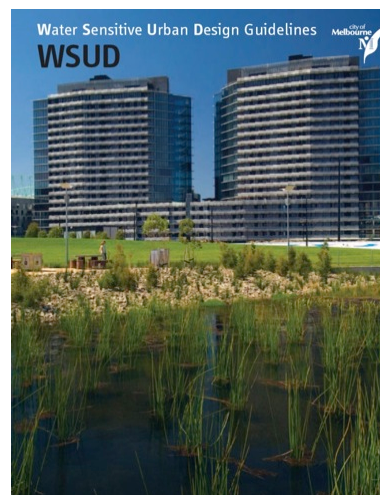
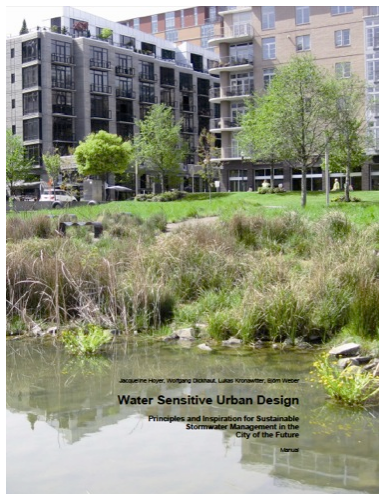
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1. Strategic planning i.r.o. design / regulatory framework / policy
2. Presence of a coordinating body
3. Reliable science and research
4. Evidence base (data gathering) – in respect of 'risk'
5. Environmental expectations
6. Presence of WSUD champions
7. Strategic funding and incentives



What can we use from elsewhere?

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Acknowledgements

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- The Water Research Commission (WRC)
- The National Research Foundation (NRF)
- Various Local Authorities – in particular the City of Cape Town and eThekweni Municipality
- Colleagues in the Urban Water Management (UWM) research unit at UCT
- Richard Ashley (Ecofutures, UK)

For more information, see www.wsud.co.za



Thank you

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