

Transition to sustainable stormwater systems: responsibility and planning

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"No one can define [our systems]. That is where we should exercise our judgment: If we were to codify the laws concerning [them] they might soon become a great bondage for us."

Introduction: Sustainable Stormwater system design...



Traditional urban stormwater systems design: *linear, engineered* systems based on *stationary* climate data



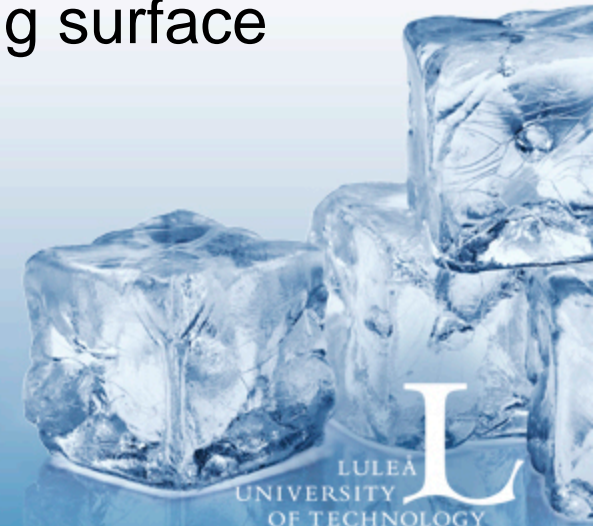
Climate change brings unpredictable variability: stormwater systems must cope



Variable flows are better managed using surface drainage systems



‘Surface’ often prioritized for building



How do we get from 'linear engineered' to 'sustainable' stormwater systems?



(Brown et al, 2011, Natural Resources Defense Council 2006,
[http:// www3.hants.gov.uk/roads/highway-flooding/highways-drainage/urban.htm](http://www3.hants.gov.uk/roads/highway-flooding/highways-drainage/urban.htm))





Some perceived difficulties...

...the words of water professionals in Swedish municipalities



(The following quotations are taken from Cettner et al, 2012)

The 'voice' of stormwater in the planning process:




“...it is [framed in the planning process] as a stormwater collection system...traditionally a pipe issue”




“I...commented...that local solutions [i.e., non-piped] should be used. But in [terms of] the practical implementation I had no control of what actually happened”





The planning process is often about ‘defending’ the water interest and some ‘voices’ can be more dominant than others:




“I feel controlled by the architects’ visions... There is no space for those who deal with water to act. We have to accept the framework and build pipes”






The APWS confines stormwater design to the legal requirements:



“We cannot change our commitment because it is law-bound. The water law tells us what to do.”





Final decisions are made by the planning department, but stormwater is often considered too late in the process:



“Sometimes we just get to hear that a detailed plan is out for consultation”



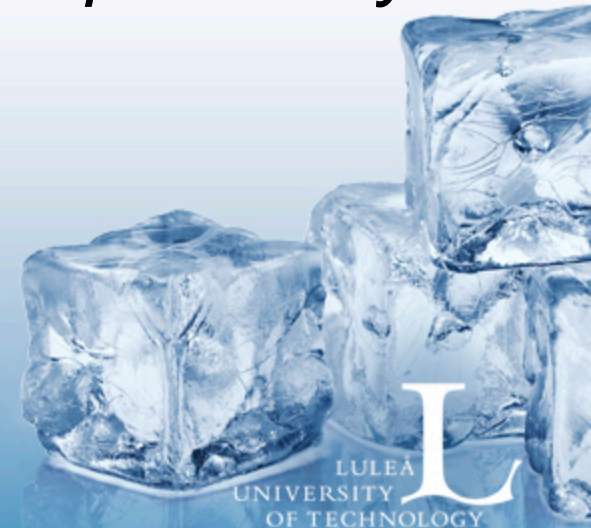
“...the water division must be part of the work [planning]...a wrong decision could mean huge investment”



Responsibility for non-piped aspects of stormwater systems is unclear raising liability issues:



“For...the water division, it is...easy to say that the system is ours with all connections... but beyond the pipe network the responsibility becomes very unclear.”



Barriers to sustainability - individuals' attitudes within the Water Division:



“...there are so many ways out [referring to guidance] that the routine with pipes continues as before...it requires tremendous effort as we are reluctant to change.”





Engagement during the planning process is not always appropriate:



“...some planners want to do the planning on their own...the technical problems [stormwater design] have to be solved later”



Balancing 'voices' and 'power':



“...now the planners propose more wetlands than we do. We can only make wetlands where it’s justified...we have had a real building boom and wetlands have been constructed in...many projects, too many in some places.”





Technological path dependence found abroad...

...The Water Grid (SEQ, Australia):



(images [https:// www.wsaa.asn.au/NewsAndMedia/MemberNews/Pages/SEQWaterGrid.aspx#](https://www.wsaa.asn.au/NewsAndMedia/MemberNews/Pages/SEQWaterGrid.aspx#).
UKDLwMXA_II accessed 9 November 2012)



The drivers for SEQ: in 2006/07

SEQ was in the longest drought period in History:

69% of normal annual rainfall

Dams at 20% capacity

AUS \$9 BN infrastructure project announced:

Dams, desalination plant, treatment plant

(Brown et al, 2011)



What are the reasons for lock-in?

Political risk...

Often 'events' trigger a response

...to meet a *single* future scenario

Politically we must 'take action'

...and 'be seen to be doing something'



What are the reasons for lock-in?

Political risk...



Droughts provoked a 'closed' planning process...

...with little Practitioner input, no public appraisal





What are the reasons for lock-in?

Professional agency fear...

Water experts and professionals must
follow orders...



What are the reasons for lock-in?

Professional agency fear?...



Privately, professionals expressed concern with a solution that only deals with drought

...and, seen as a missed opportunity for long-term sustainable change



Conclusions

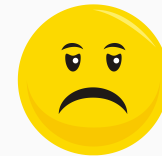
Knowledge &
Experience

Legitimacy



‘Voice’
imbalance

Power



Current
paradigm: best
practice

Urgency





Are we facing a Paradox?

Delivering sustainable
solutions requires
'structure'

BUT...

Sustainable problems
dictate flexibility



With grateful thanks to all the water professionals who so generously shared their experiences and knowledge of stormwater managements



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