

Session DP UP 2.3a: Innovations in water infrastructure and urban design (part 1)

Date and Time of Session: Thursday, 30 September 2010, 13:00 – 14:45

Short description of the session topic and the objective of the session

Topic: Urban design possibilities for water management in cities in the developed world, including Australia, the EU and the United States.

Objective: Obtain insight in the implications of a water sensitive design effort on urban design, building, site planning and street layout. Provide an overview of best practice case studies.

Session Agenda and Main Speakers

Session chair: Dr. ir. Frans van de Ven, Deltares, the Netherlands.

Main speakers:

- Water sensitive cities: a road map for cities adaptation to climate and population pressures on urban water – Prof. dr. Tony Wong – Chief Executive and Director, Centre for Water Sensitive Cities, Monash University Melbourne, Australia.
- Sense and sensibility in sustainable urban water design – Hiltrud Pötz, Partner opMAAT sustainable architecture an urbanism, Delft, the Netherlands.

Panellists:

- Abby Hall, Office of Sustainable Communities, EPA, USA.

Most exciting insight, moment or outcome

There are already many examples of sustainable architecture and urban designs which have proven to be a profitable solution on the scale of a building or a small neighborhood. Up scaling these examples to a city is still complex.

The most important goal is to create a place people want to live. The best technical solution only remains if it is accepted in social life.

Main conclusions, themes, insights or messages

The ongoing pressure to accommodate growing populations and urbanization focused discussions on the issue of increasing urban densities and associated impacts on the livability of future urban environments. Livability is related to good urban design and sufficient financial investment in public spaces and higher density communities could be build around well design open spaces that serves multiple functions.

Open public space in a water sensitive city has to serve multiple functions. The integration of urban water management solutions into urban design creates climate responsive designs for climate change adaptation and mitigation. Overcoming the loss of arable land and pressures on food production to support a growing population through design of public spaces as productive urban landscapes are also important water sensitive cities concepts, particularly the nexus of water recycling and urban productive landscapes. Public

spaces should thus have multiple ecological functions including water cleansing and recycling, promotion of local energy generation and exploiting the nexus of energy production and production of hot water services for heating and domestic uses, transportation, and providing green infrastructure for biodiversity. Many lessons from natural systems can be learned to enable biomimicry of constructed urban spaces. There are many technical solutions to make the nowadays engineered system of a city functioning as a more natural system.

The presentations showed that sanitary and storm water treatment at the site, electricity generation, district heating, rethinking a fit-for-purpose of multiple water sources for potable and non-potable uses, implementing green walls and roofs can be combined if you take in account local opportunities and functions.

Water sensitive cities are the cities of the future.

Key phrases or quotes

- In nature it looks simple to be water sensitive, in urban design it's a complex simplicity.
- Global warming will result in increases in soil moisture deficit and, coupled with higher rainfall uncertainties, will increase uncertainties and therefore vulnerability in water supply security.
- Urban catchments can be managed as water supply catchments as storm water runoff from impervious surfaces are less vulnerable.
- Innovative technologies are available to cleanse urban storm water runoff when incorporated into public spaces.
- Future cities would need to develop the structural and social infrastructure to function as water supply catchments.
- An integrated approach can improve spatial quality and deliver ecological landscapes for improving climate resilience, environmental protection and livability.