

IAHR/IWA Working Group on Water Sensitive Urban Design:  
Conference Workshop

**INTER-DISCIPLINARY URBAN WATER RESEARCH:  
Lessons in How to Integrate the Social and Physical  
Sciences**

**3 April 2006**

**Convener: Dr Rebekah Brown**

# Workshop Objectives

- 1) To consider why we need to pursue interdisciplinary approaches with advancing sustainable urban water management
- 2) Explore the challenges, and share the lessons, that have been experienced internationally with enabling interdisciplinary urban water research programs
- 3) To promote active and open discussions and improve our capacity for inter-disciplinary thinking
- 4) Facilitate the development of an active interdisciplinary group of professionals contributing to the Working Group on Water Sensitive Urban Design.

# Water Sensitive Urban Design

Water Sensitive Urban Design (WSUD) is a philosophical approach to **urban planning and design** that aims to minimise hydrological impacts of urban development.

Integrated Urban Water Cycle Management based on the philosophy of:

- Potable water conservation
- Wastewater minimisation
- Stormwater management for the protection of receiving waters (quantity and quality)

Integration of water management elements into urban landscape and built form:

- Landuse planning
- Landscape architecture
- Building architecture

# Water Sensitive Urban Design

- **Sustainable Urban Water Management**

- Technology

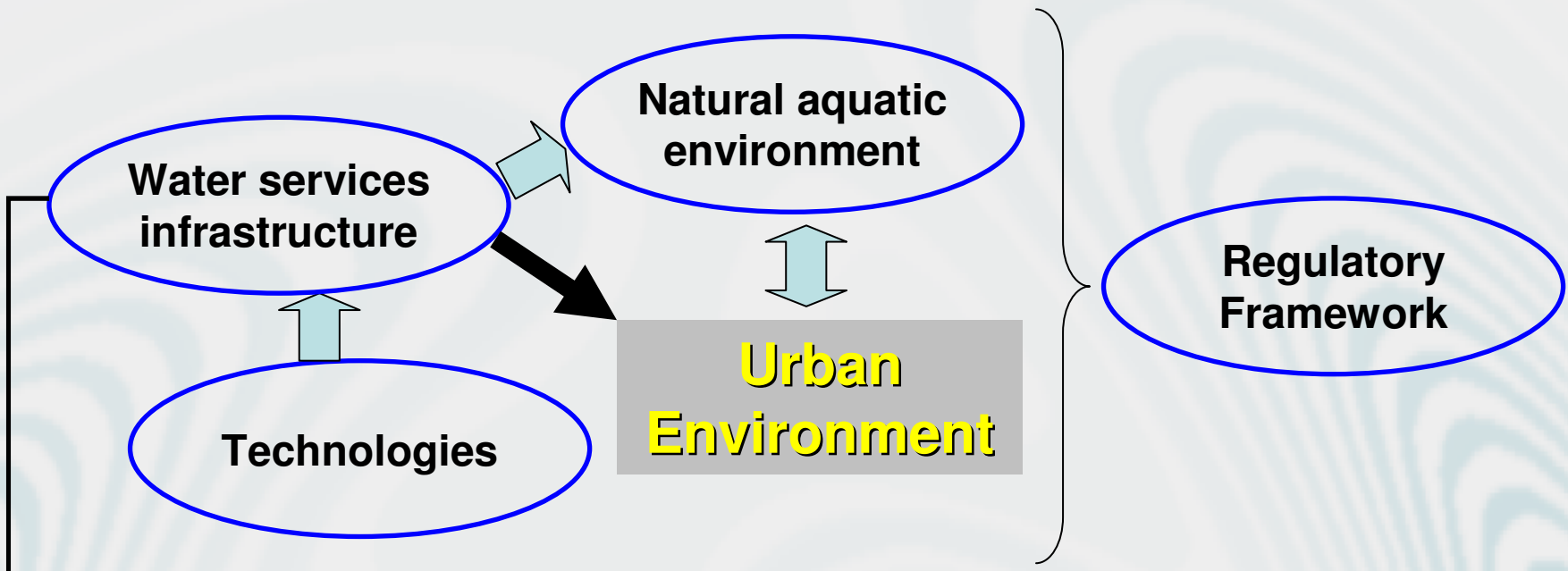
- range of scale – allotment – precinct - regional
- urban water streams - Infrastructure and system management

- Governance

- institutional framework
- institutional capacity

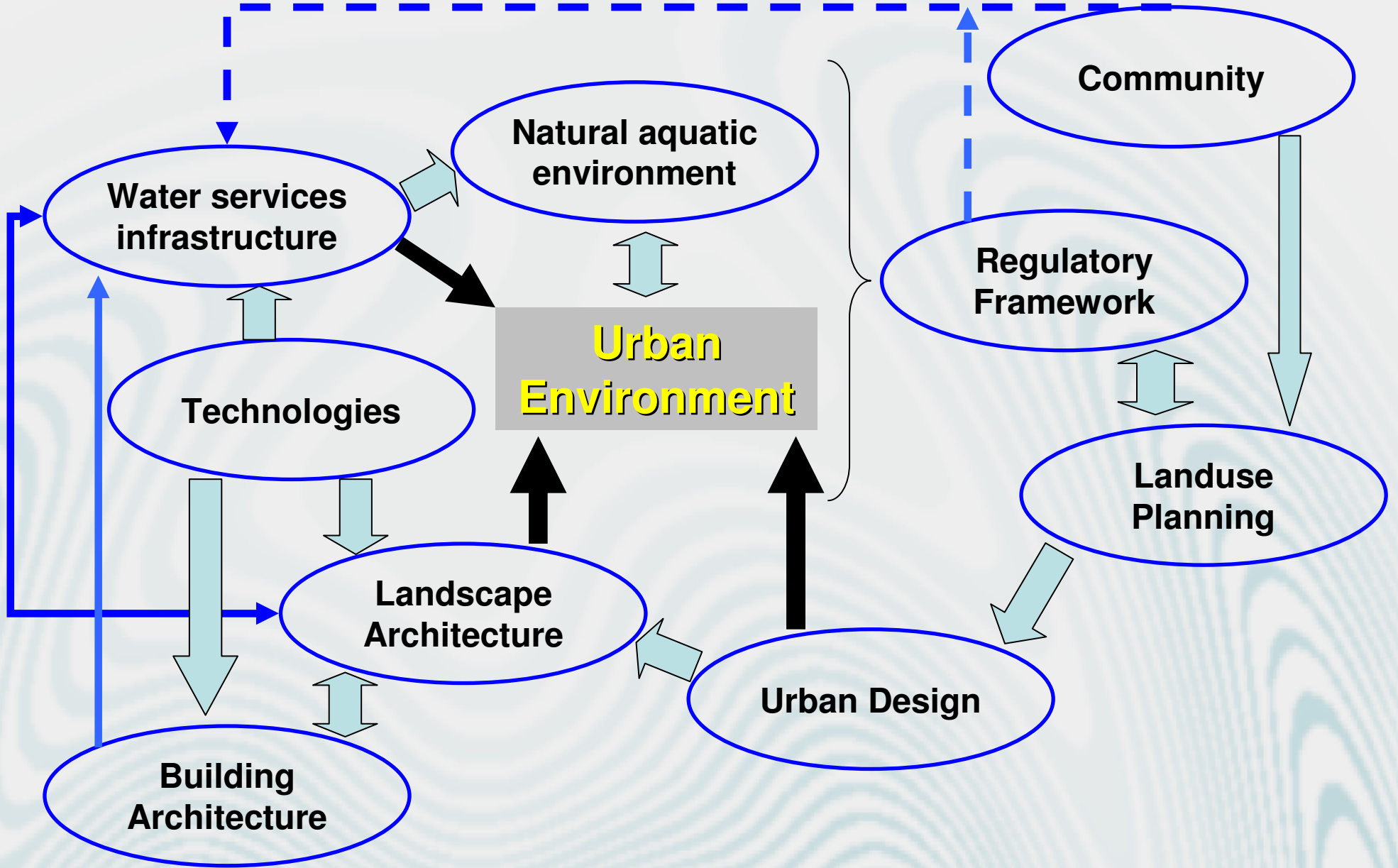
- **Urban Design**

- Urban planning
- Landscape architecture
- Building architecture



Water harvesting, storage, treatment and supply  
Wastewater collection, treatment and disposal  
Stormwater management – drainage, flood mitigation, water quality improvement, environmental protection

# Potable Water Substitution



**Urban  
Environment**

**Community**

**Natural aquatic  
environment**

**Water services  
infrastructure**

**Regulatory  
Framework**

**Technologies**

**Landuse  
Planning**

**Landscape  
Architecture**

**Urban Design**

**Building  
Architecture**

# Emerging Interdisciplinary Research: Physical and Social Sciences

- Social Sciences:
  - sociology, political science, economics, planning, history, policy analysis, community development, psychology, corporate sustainability .....
- Physical Sciences:
  - engineering, chemistry, physics, ecology, biology, geology, environmental science, zoology, horticulture .....
- Inter Physical and Social Sciences:
  - geography, architecture, urban design
  - socio-technical studies (early days .....

# Physical Sciences & Social Sciences

**THEORY:**  
Gravity  
Thermodynamics

**Research Methods:**  
Laboratory Experiments  
Modelling

**Control & Comparison**  
Physical Conditions  
Models

**THEORY:**  
Risk Society  
Communicative Action

**Research Methods:**  
Surveys & Interviews  
Institutional Mapping

**Control & Comparison**  
Theory  
Historical Developments



Technologies

Change Strategies

# Questions for Speakers

- 1) What are the key research objectives/questions that define your project?
- 2) Why are you pursuing an inter-disciplinary approach to your research project? What benefits were/are you envisaging?
- 3) What challenges with inter-disciplinary research have you experienced (or are you experiencing) with your project? Why?
- 4) So far, what lessons (the good, the bad and the ugly!) can you share with others seeking to establish inter-disciplinary projects?

# Workshop Overview

- 10.15 – 10.45: Dr Rebekah Brown  
Introduction & Overview
- 10.45 – 11.30: Dr Liz Sharp  
WaND Program
- 11.30 – 11.45: Morning Tea
- 11.45 – 12.30: Dr Govert Geldof  
Coping with Complexity
- 12.30 – 1.15: Prof Richard Ashley & Rebekah  
Participatory Session
- 1.15 – 2.00: Lunch

# Workshop Overview

- 2.00 – 2.45: Prof Jenny Dixon  
LIUDD Program
- 2.45 – 3.30: Alan Gregory  
Urban Waterscapes
- 3.30 – 3.45: Afternoon Tea
- 3.45 – 4.15: Jonathan Chapman, Gavin Blakey,  
Urban Hydrology
- 4.15 – 4.55: Prof Richard Ashley & Rebekah  
Participatory Session
- 4.55 – 5.00: Dr Rebekah Brown  
Session Closure