

Querying institutional support for decentralised urban water: four Australian cases

Daniel Livingston, Nicholas Ashbolt, Hal Colebatch, UNSW, Sydney, Australia

OBJECTIVE

To identify institutional factors that hinder and enable the implementation of decentralised urban water management.

BACKGROUND

The need for more sustainable, secure and diversified urban water supply and management options is widely apparent in Australia, especially with recent droughts. A variety of technical solutions have surfaced, including recycling, desalination, rainwater tanks and demand management.

There are also emerging new paradigms or discourses for water management with sustainability as a central theme. Terms such as 'integrated urban water management', 'water sensitive urban design' are now common. More radical alternatives of 'decentralised sanitation and reuse' and 'ecological sanitation' are less widespread, despite technical advances.

The dominant form of water infrastructure and organisations for over a century has been centralised. Any change toward decentralised alternatives suggests the need for understanding of desirable institutional support for decentralised systems. This has been identified as an area needing further research.



Multiple rainwater tanks are attached to each house at the Payne Rd development (The Gap, Brisbane). There are also three communal rainwater tanks.

METHOD

Four case studies were chosen. Three were examples of decentralised innovation, and the other was a conventional system but where decentralised innovation had been seriously considered. The cases are outlined in the table below.

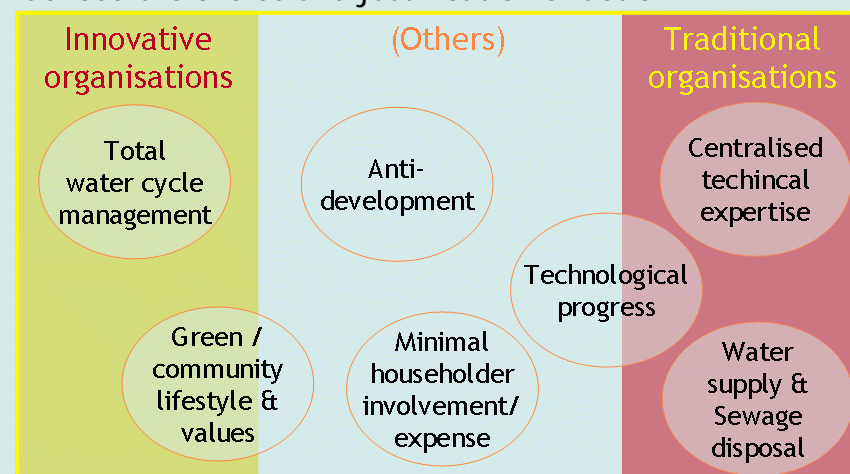
The primary source of data collection was through semi-structured interviews with a total of 79 key stakeholders. Transcripts were analysed to identify the discourses (i.e. values and ideas) held by participants. Interview data was also complemented by written documentation.

Outline of four case studies of (potential) decentralised innovation

Case	Location	Green/brown	Outcome
Bundeena Maianbar Priority Sewerage (1991-2002)	Southern edge of Greater Sydney (NSW)	Brownfield (1200 lots)	Conventional centralised water and sewerage
Pimpama Coomera Waterfuture (2003-)	Northern end of Gold Coast (Qld)	Greenfield (50,000 lots)	Mix of centralised & decentralised
Payne Rd Subdivision (2003-)	The Gap, Brisbane (Qld)	Greenfield (22 lots)	75% reliance on rainwater; greywater
Currumbin Ecovillage (2004-)	Currumbin Valley, Gold Coast (Qld)	Greenfield (144 lots)	Self-sufficient for water

RESULTS & DISCUSSION

Discourses present in the planning of each of the case studies influenced the choice and justification of action.



Discourses & approximate alignment with proponent organisations

The importance of identifying these discourses is that typically one discourse emerged as the enabling discourse, and that discourse was associated with the established values and ideas of the proponent organisation. Where innovation occurred, a new organisation or organisational unit was established where the associated discourse was 'accepted speech'. Scott's theory of institutions as being comprised of cognitive, normative and regulative pillars is a useful explanatory framework. (Scott, W. R., 1995, *Institutions and organizations*, SAGE, Thousand Oaks.) Discourses (ideas and values) of innovation need to have an organisational home. I.e., all three pillars are required for institutionalisation of new ideas, such as decentralised urban water management. Technological advancement alone is insufficient without associated normative, behavioural, and organisational change and support.

IMPLICATIONS

Implementation of decentralised water management represents a significant institutional change, calling for change in organisational structures, understandings and values (as well as technology change). Uptake of decentralised alternatives is enabled by an organisational location where innovative discourses are 'accepted speech'. Such an organisational location requires ongoing collaboration and mutual learning between key stakeholders, including public communities.



FUNDING

- Cooperative Research Centre for Water Quality and Treatment
- Australian Research Council (APA Scholarship)

MORE INFORMATION

Daniel Livingston, PhD candidate
daniel@civeng.unsw.edu.au