

Institutions and Decentralised Urban Water Management

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Physically decentralised water management systems may contribute to improving the sustainability of urban water management. Any shift toward decentralised systems needs to consider not just physical system design but also social values, knowledge frames, and organisations, and their interconnections to the physical technology.

Four cases of recent Australian urban water management improvement projects were researched using qualitative methods. Three cases were of decentralised water management innovation. The other was of a centralised system, although decentralised options had been considered. These cases were studied to identify institutional barriers and enablers for the uptake of decentralised systems, and to better understand how emerging environmental engineering knowledge might be applied to overcome an implementation gap for decentralised urban water technologies.

Analysis of each case focused on the institutional elements of urban water management, namely: the values, knowledge frames and organisational structures. These elements were identified through in-depth interviews, document review, and an on-line survey. The alignment of these elements was identified as being a significant contributor to the stability of centralised systems, or to change toward decentralised systems.

A new organisational home for innovative knowledge was found to be common to each case where decentralised innovation occurred. 'Institutional entrepreneurs', strong stakeholder engagement, and inter-organisational networks were all found to be linked to the creation of shared meaning and legitimacy for organisational and technological change.

Existing planning frameworks focus on expert justification for change rather than institutional support for change. Institutional factors include shared understandings, values and organisational frameworks, and the alignment of each factor. Principles for, and examples of, appropriate organisational design for enabling and managing decentralised technological innovation for urban water management are proposed.

This research contributes to the understanding of the institutional basis and dynamics of urban water management, particularly in relation to physical centralisation and decentralisation of urban water management technologies and, to a lesser extent, in relation to user involvement in urban water management. Understanding of factors that contribute to enabling and constraining decentralised technologies is extended to include institutional and organisational factors. New and practical pathways for change for the implementation of decentralised urban water systems are provided.