Co-Engineering and Participatory Water Management

Organisational Challenges for Water Governance

Effective participatory water management requires effective co-engineering – the collective process whereby organisational decisions are made on how to bring stakeholders together.

This trans-disciplinary book highlights the challenges involved in the collective initiation, design, implementation and evaluation of participatory water planning and management processes. It also demonstrates how successful management typically requires the effective handling of two participatory processes: the stakeholder water management process and the co-engineering process required to organise this. The book provides practical methods for supporting improved participatory processes, including the application of theory and models to aid decision making. Case studies of these applications from Australia and Europe, with additional examples from all over the world, including Africa, are used to examine negotiations and leadership approaches, and their effects on the participatory stakeholder processes.

This international review of participatory water governance and its organisational challenges forms an important resource for academic researchers in hydrology, environmental management and water policy, and also practitioners and policy makers working in water management.

KATHERINE A. DANIELL is a Research Fellow in the Australian National University's Centre for Policy Innovation. Her work focuses on resolving the challenges associated with implementing multi-level participatory processes to bring about coordinated policy, adaptation strategies and local action for sustainable development. Her other research interests include developing decision-aiding theory for 'multi-accountable' groups and encouraging effective inter-organisational collaborations. She also teaches executive development courses for the Australian National Institute for Public Policy (ANIPP) on multi-level governance. Dr Daniell is a guest editor for the journal *Ecology and Society*, and she has received many awards and honours for her work, including a General Sir John Monash Award, a prize for best paper presentation at the 2011 IAHR World Congress and election as a Fellow of the Peter Cullen Water and Environment Trust.

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Glossary

Commons in the environmental management sense refers to natural assets that belong to or support a group of people; for example, common water, air or land resources.

Messes are dynamic situations that consist of complex systems of interacting and changing problems (Ackoff, 1979).

Non-government organisations (NGOs): this appellation includes citizen or local action groups, as well as not-for-profit local, national and international organisations and associations.

Organisation is considered in the broadest possible manner as a group, association, business, institution, government or any other appellation of at least two people who share something in common (i.e. have the same interest). This can include individual citizens, as they can be considered as representatives of their country or region.

Problem situation can be described as a context in which decisions need to be made.

Stakeholders are considered as people, institutions or organisations that have a stake in the outcome of decisions related to water management, as they are directly affected by the decisions made or have the power to block or influence the decision-making process (Nandalal and Simonovic, 2003).

Stakes refer to the stakeholders' interests or those issues or problems with which they are concerned.

Values are considered to take one of two of the following definitions: firstly, the type of values that are 'held', such as principles, morals, beliefs or other ideas that serve as guides to individual and collective action; and secondly, the type of values that are 'assigned' in reference to the qualities and characteristics seen in objects or people, especially positive characteristics (actual and potential) or those that are considered worthwhile or desirable (Mason, 2002).

Risk in water management can be considered as a function of: hazard; the probability of occurrence or likelihood of certain impacts resulting from a hazard event; and vulnerability defined as the magnitude of potential consequences or impacts resulting from an event's occurrence (Dwyer *et al*. 2004, Standards Australia, 2004; 2006).

Vulnerability (in this definition of risk) is often considered as both a function of susceptibility or exposure to hazards and of resilience, which is defined as the adaptive capacity of systems to respond and cope in the face of hazard events (DIFD, 2004; Dwyer *et al*. 2004; Kundzewicz and Schellnhuber, 2004).