

Stakeholder involvement in Integrated Catchment Management – Motueka, New Zealand

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Introduction

The Motueka Integrated Catchment Management (ICM) project is a New Zealand Government funded research programme developing tools to allow resource managers to manage large catchments (watersheds) effectively. Internationally it is recognised that effective catchment management requires integration of scientific disciplines to provide workable legislative structures and management tools for practical solutions (e.g. Schneiders and Verheyen 1998; Mance et al. 2002). The Motueka catchment in New Zealand (Figure 1) has been chosen as a case study for New Zealand because it is an area of rapid economic and population growth with corresponding environmental pressures. It has a relatively unspoiled environment with land uses ranging from pristine national park to planted pine forest and intensive horticulture, nationally recognised trout rivers, and economically important coastal fish and shellfish resources (including a growing aquaculture industry) off the river mouth in Tasman Bay. More details on the research programme can be found at <http://icm.landcareresearch.co.nz>.

The definition of ICM used in the research programme is as follows:

Integrated Catchment Management is a process that recognises the catchment as the appropriate organising unit for understanding and managing ecosystem processes in a context that includes social, economic and political considerations, and guides communities towards an agreed vision of sustainable natural resource management in their catchment.

Figure 2 illustrates the role of ICM in a resource management framework and how different interest groups fit in. The Motueka ICM research programme has been designed to involve all three stakeholder groups in order to move towards a balanced approach without an innate bias towards biophysical science that commonly dominates this type of research.

Research into the best way to “guide communities towards ... sustainable resource management” provides a major focus of the Motueka ICM research programme. A key part of this is the involvement of all stakeholders in the research, from design through to implementation. Stakeholder engagement is seen as a segment of social learning which can be defined as:

Learning that occurs only when people engage one another, sharing diverse perspectives and experiences to develop a common framework of understanding and basis for joint action.

Three aspects of stakeholder involvement are discussed in this paper. First, the formation of a group from the local community to provide a reference point for the research. This group has provided a guiding role for setting the research agenda, providing a grounding of the research in “real” issues of concern to the community. It also provides a touchstone

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for the scientists to discuss whether their results make sense in a local situation. The second form of stakeholder involvement has been work investigating how resource managers utilise scientific information. This is designed to promote the best dissemination techniques for scientists. The third strand of work discussed is the development of tools to promote stakeholder involvement, particularly for groups of society that may have been historically disenfranchised.

Community Reference Group for research agenda setting

One way to facilitate stakeholder involvement in ICM has been through the establishment of a community reference group (CRG). This group comprises eight residents from throughout the catchment plus up to four researchers and policy makers. The CRG meets four to six times a year. Its role is to act as a sounding board to discuss the research being carried out and ways of applying the new knowledge gained to improve management of the catchment resources.

In a catchment where the research aim is more about protecting existing natural values than repairing damaged ones, one challenge has been to motivate sufficient interest to keep the CRG going. Surprisingly the CRG has more than survived. While some initial participants have left, others have joined and a core group of seven people, of varied interests including farming, managing orchards, recreational fishing and tourism, take part in the meetings.

Several research initiatives have been developed from CRG meetings. Following a discussion about water quality results, landowners on the banks of the Sherry River became aware that their stock crossings were the likely cause of poor water quality in their river. This group of landowners, supported by staff of the council, the NZ Landcare Trust, and ICM researchers, investigated the problem and three of four stock crossings have now had bridges built by landowners with the fourth to be built this year.

One of the most significant outcomes has been the growing confidence and familiarity within the CRG, a key ingredient for learning and change. A second initiative has been group input into an influence matrix model for understanding the important factors that influence environmental outcomes at whole catchment scale (Davie et al, 2004, Cole et al, 2006). The trust built up among CRG members has allowed the free flow of discussion, including direct challenges to the assumptions, structure and usefulness of the model itself. This input, together with the group's observations about what factors most affect the future of the catchment, shows the value of working with 'non-researchers' when building models and reflects the degree of confidence, trust and capacity built over the last three years.

Science uptake by resource managers

The discourse between scientists and resource managers can be likened to conversations between a dog and its owner (figure 3). The owner (in this case the scientist) believes he or she is telling important truths to the resource manager. The resource manager (in this case the dog!) listens but only hears bits he or she understands. In this form of discourse neither party is learning from the other and both are likely to end up frustrated. The social learning is missing.

A piece of work was undertaken to find out what were the main sources of information used by resource managers when making decisions. Through interviews it became clear that the main form of information uptake was through informal learning from colleagues and associates. At the same time staff recognised the importance of frameworks for retaining written information that can be easily retrieved. This type of work has helped the scientists in the research programme tailor their science outputs to obtain maximum

impact with resource managers. To follow this through a workshop was organised for resource managers from throughout New Zealand where a large part of the time was spent on developing informal networks. This was achieved by strong facilitation of the formal workshop time and allowing considerable time for informal discussion, particularly during a day-long field trip into the catchment.

The research into social learning has placed a large emphasis on information dissemination. This started with a dedicated project website, a stakeholder report series and more recently the development of a multi-media information tool for use by resource managers, local community and educationalists. This is the ICM Motueka CD-ROM (see http://icm.landcareresearch.co.nz/icm_motueka_cd-rom.htm for more details). A decision was made to keep the tool in a CD format as internet access within the catchment is often slow and unreliable, making it less appealing to local community.. The CD-ROM is essentially an electronic book which provides distilled information on: the catchment; Integrated Catchment Management in general; and resource management issues at the local and global scale. In future it is envisaged that many of the modelling results from biophysical research in the catchment will be captured in this form. The CD-ROM is being continually updated as new information comes out of the ICM research.

Developing tools for stakeholder involvement

A considerable effort from social scientists at Landcare Research has been made to develop tools that help promote stakeholder involvement. A full list of these tools can be found at <http://www.landcareresearch.co.nz/research/social/>; three are discussed briefly here.

1. *Models for working with iwi.* The indigenous people of New Zealand (Māori) have a strong affiliation with the natural environment and resource management. Despite this, it is only in the last 10-15 years that this has started to be fully acknowledged and full consultation with Māori groups has been undertaken by resource management authorities. Traditionally Māori have been aligned to tribes (iwi) and hapu (sub-tribes based around groups of families). These organisations still exist today and form the basis for natural resource management and the bodies that are consulted over resource management issues. Harmsworth (2001) developed guidelines for research groups wanting to work with iwi. The guidelines focus around themes such as: Initiating, building and maintaining a relationship with iwi (with emphasis on the maintaining of a relationship); the importance of protocols and tikanga (beliefs and customs) in developing relationships; and the importance of fully understanding and characterising Māori issues.
2. *Team evaluation guide.* Kilvington and Allen (2001) have prepared a guide on how the effectiveness of teams can be improved. The guide is intended to direct people's thinking about the key things that make teams work, and whether what they are doing could be improved. The evaluation is not designed to rate how effective each team has been, but to help each of the groups taking part critically reflect on what has been effective for them and what they would like to do differently in the future.
3. *Stakeholder analysis.* Stakeholder analysis is the identification of a project's key stakeholders, an assessment of their interests, and the ways in which those interests affect project risk and viability. It contributes to project design by identifying the goals and roles of different groups, and by helping to formulate appropriate forms of engagement with these groups. The stakeholder analysis guide at <http://www.landcareresearch.co.nz/research/social/stakeholder.asp> provides clear steps on how to carry out a stakeholder analysis and the benefits of doing so.

These types of tools can be used in many different situations but provide clear guides for how to establish and maintain stakeholder involvement in a research programme such as the Motueka ICM programme.

Case study of ICM: the Motueka Water Conservation Order

A case study for Integrated Catchment Management in action and the linkages between community, science and government policy can be seen in the Motueka Water Conservation Order. In New Zealand Water Conservation Orders (WCO) are a form of statutory regime for water bodies of national significance that sit above any local government planning. They are assigned to water bodies with outstanding natural amenity or intrinsic values e.g. fishing, scenery. There are currently 14 rivers and lakes in New Zealand with WCO attached to them. WCOs contain specifications over water allocation, water quality and development of dams etc, designed to preserve whatever values have been identified as nationally significant.

In the case of the Motueka River the nationally important values identified were: wild and scenic; the Karst cave system; and the Brown Trout fishery. In figure 4 the ICM conceptualisation is linked to the WCO application. In terms of the community expectation there were two somewhat conflicting requirements for: protection of the flows for the brown trout fishery; but also an increased demand for water to be used in irrigation. The Government Policy requirement was for a workable management regime that acknowledged each of the conflicting local community expectations. In terms of the scientific knowledge there was a reasonable understanding of flow regimes in the river but a poor understanding of how this related to trout habitat and what an increased irrigation demand would do for the flow regimes. This then set the context for Integrated Catchment Management to operate (Fenemor et al., 2006). Scientific organisations gathered more data to inform negotiations over a workable management regime that acknowledged local community expectations. This was carried out between 1999-2002, the final outcome being negotiated water allocation limits based on the idea of “shared suffering” rather than a minimum flow level. This means that a percentage of the river flow may be allocated for out of stream use (12% of the main stem flow at Woodstock and 6% of the Wangapeka River). This effectively means that as the flow levels drop during a dry summer the amount available for out of stream use decreases accordingly, hence the concept of “shared suffering” between in and out of stream users.

The WCO order provides a case study for ICM over a particular issue. The Motueka ICM research programme is extending this concept to apply to overall management of the catchment, from mountains to the sea. This presents numerous challenges to the relevant stakeholders but through increased stakeholder involvement in the research a way forward is being sought.

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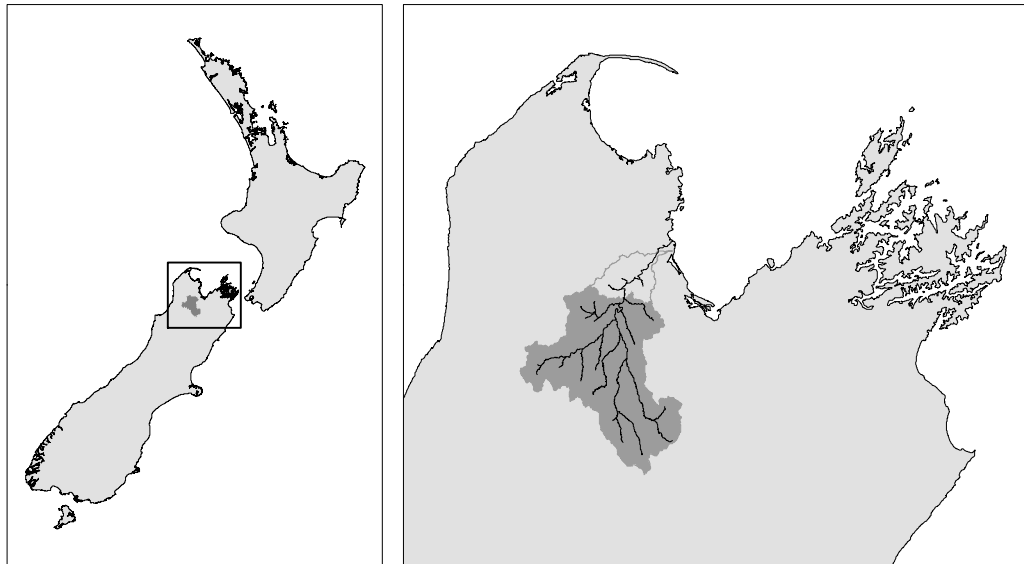


Figure 1: Motueka River catchment, New Zealand. The dark shaded area represents the catchment above the Woodstock gauging station.

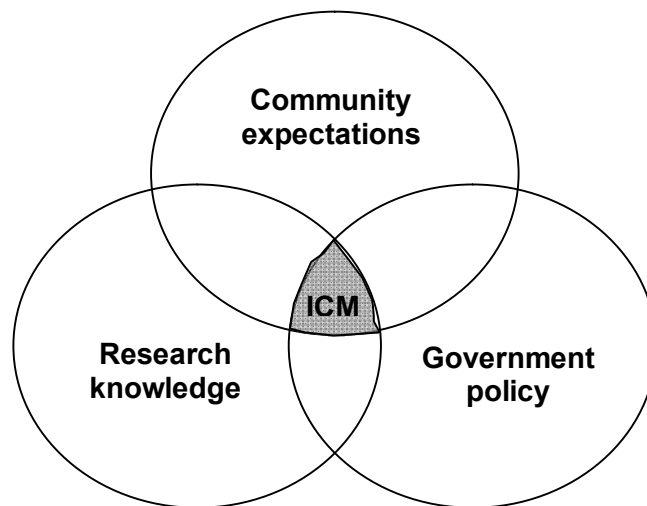


Figure 2: Conceptualisation of where Integrated Catchment Management fits in a resource management framework



Figure 3: The listening conundrum between scientists and managers. Copyright Larsen.

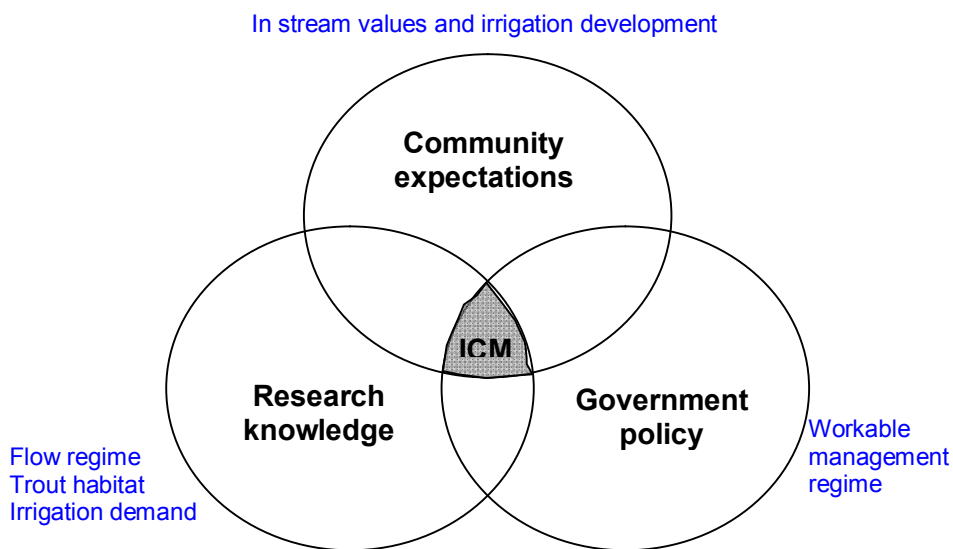


Figure 4: ICM conceptualisation in the context of the Motueka River Conservation Order. The text outside each circle indicates the requirement of each sector.