

**Evaluation of the Social Spaces of the
Integrated Catchment Management (ICM)
Research Programme**

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1. Introduction

This report is about emergent ideas from the Integrated Catchment Management Programme (ICM) as it reflects on its current engagement strategies and efforts to develop a good social-learning environment. In it we explore the types of social spaces the programme is operating in and make some comments on the kind of engagement activities taking part within these spaces¹.

This is an ‘evaluation’ only in the sense that it utilises a framework that sets out key features of social learning to assess critical factors and explore how these have been addressed. It does not identify winners and losers, or accord scores to the efforts made. The information that forms the basis of the report comes from semi-structured interviews with key stakeholders and research collaborators. These interviewees were asked about their engagement with their constituent communities in the ICM programme and to highlight emerging issues.

2. Background

2.1 Community engagement and the ICM research programme

The Integrated Catchment Management Programme (ICM) is a 9-year programme that commenced in July 2000. Based in the Motueka catchment at the northern end of the South Island of New Zealand, the goal of this programme is to conduct multi-disciplinary research to provide information and knowledge that will improve the management of land, freshwater, and near-coastal environments in catchments with multiple, interacting, and potentially conflicting land uses. The research effort in the programme is a combination of historical land management research, biophysical experimentation, and simulation modelling. Also an important component of the programme is the strand of work it describes as ‘social learning’ – a chance to integrate action-oriented social research into the programme that would explore the potential to improve interactions between science providers and community stakeholders and to maximise the uptake and use of new knowledge and tools developed from scientific research.

To undertake this work the ICM Programme has drawn on the skills of other research institutes in addition to that held in the lead agency, Landcare Research. These are the Cawthron Institute, Ensis (formally Forest Research), the Institute of Geological and Nuclear Sciences (IGNS) and the National Institute of Water and Atmospheric Research (NIWA). In addition the ICM Programme has committed itself to an active partnership with Tasman

¹ At the 2007 ICM AGM, the social spaces framework was used as an evaluation tool for ICM research collaborators to reflect on their current interactions. This was reported on by Will Allen at the 2006 New Zealand Hydrosoc Conference. <http://icm.landcareresearch.co.nz/knowledgebase/presentations/#2007>

District Council (TDC), the unitary resource management agency for the Motueka catchment.

At the commencement of the ICM Programme, the then programme leader, Breck Bowden, outlined the intention to develop a relationship between the programme and its constituent community that would go beyond a mere accountability structure².

It is essential that we develop a means to include communities in the processes of science, management, and policy. After all, our ultimate goal is to solve problems and achieve outcomes that society deems to be important. The ICM approach is ideally suited to this goal because the unit of study – a catchment or basin – always has an associated community of stakeholders, either as residents or users. The challenge is to substantively involve this community in the development of ICM projects and to effectively transmit to them the results of such projects, so the targeted outcomes are in fact achieved.

Breck Bowden (ICM Programme Leader June 2000)

Hence a key component of the ICM Programme has always been to explore new and innovative ways of engagement with its constituent communities. Over time, through the social learning component of the programme, this has developed into a quest for sophisticated interrelationships between science research providers, managers, policy makers and land-users.

2.2 Interdisciplinary, multi-agency collaboration

Despite the recent prevalence of terms such as *interdisciplinary*, *integration*, *stakeholder participation* and even *collaboration* in the environmental science funding arena, efforts to carry out interdisciplinary multi-agency collaborations **and** with a high degree of stakeholder participation are still comparatively in their infancy. Cohen (2001, p. 147), speaking of interdisciplinarity, states that while it has been of interest for many years, is often encouraged and ‘surrounded by enthusiastic expectations’, significant resistance to interdisciplinarity has also been noted. People expect great benefits in such collaborations, particularly through their potential to provide new answers to complex, multi-dimensional problems. However, the process of engagement is culturally and often organisationally unfamiliar. Interdisciplinary collaborations often have a contradictory element to them, where there are high expectations of the *results* of interdisciplinarity yet an apparent resistance to the *process* of interdisciplinarity. Further, unsuccessful interdisciplinary collaborations have been attributed to incompatibilities within the team or between disciplines, including personality clashes and differences in organisational and professional standards (Cohen 2001, p. 148), rather than unfamiliarity with the challenges of working together.

However, the ICM Programme is not only a multi-agency, interdisciplinary collaboration. It also carries with it high end-user expectations of the outcomes of the research and of their involvement in the research process. The context for the ICM research programme is typical of modern environmental problems, particularly ecosystem and catchment-scale management questions. There are many players involved, many perspectives on the situation, and science

² An accountability structure is normally a group of well-known stakeholder representatives who meet annually to bear witness to the progress of research. This approach has been adopted by many research programmes and is more often than not the primary instrument of interaction with end-users.

information alongside other sources of information is subject to diverse and contested interpretations.

Despite the important role that science can play within such complex problem-situations, research agencies are aware that sound technical information is only one factor affecting the way in which decisions on environmental management are made – and it is not always the most significant. Other factors include political judgement, legal or financial necessity, personal or group bias, and commercial or even international pressures. In most cases, the scientific argument for sound environmental management is well founded, but the challenge for science is to raise awareness of this understanding over competing interests.

In response to these issues more emphasis is being placed by science on working with stakeholders to develop information, products and services that are responsive to the needs of users. This is evidenced by funding signals from New Zealand's principal environmental science funding agency (FRST) that highlight the need for science information to be integrated within the decision-making environment and for science research programmes to demonstrate their active participation in this process. For their part, science and science reviewers, have been seeking ways to be responsive to their new and often diverse audiences. Programme proposals are required to detail their interaction with end-users. At the least this requires the involvement of potential users of the research outcomes on project advisory panels, and frequently to be involved in the initial project formulation. Funding agencies require these interactions to be clearly spelt out, funded in the project budget, and shown to be genuine collaborations. This is an emerging area and much is still to be learnt, especially in the area of facilitating productive interaction between different levels of users and different science disciplines.

In summary, the collaboration in the ICM operates at multiple levels, between researchers, between institutions, across disciplines and, critically, between the potential end-users of science and the science providers. It is unquestionably challenging and offers a critical learning opportunity for participants and would-be followers. These levels of collaboration are analogous to what Price (2003) describes as the multiple social spaces within which the process of generating, debating and utilising science knowledge in the programme takes place; these social spaces 'comprise their own unique boundaries, their own narratives, and their own contestations and negotiations'.

3. Objectives

- To explore and evaluate the types of social spaces the ICM programme is working in and the sorts of engagement activities taking place.
- To interview key stakeholders and research collaborators with a view to identifying emerging issues.

4. Main Findings

4.1 Understanding research provider and end-user relationships

A crucial component of examining ICM community engagement is to see it in the context of current issues around research provider and end-user relationships. The apparent gap between the provision of research and the development of new technologies and their uptake and utilisation in real-world problem situations has been troubling funders, science providers and their constituent stakeholders for more than 20 years. Nowhere is this more apparent than in the field of environmental research for environmental problem solving. Simply expressed, the situation is one where potential science clients look to science providers not just to provide information, but to provide it in such a way as to make the resolution of complex problems simply a matter of locating the correct answer. In return, scientists lament the lack of clarity around problem definition from their constituent stakeholders. The relationship between users of science and providers is therefore often characterised by a mutual mystification and ultimately distrust. On the one hand scientists perceive they have provided information yet somehow still failed to fulfil expectations, while end-users struggle to adequately define the parameters of the knowledge they seek from science providers. Critically in current funding environments and administrative structures, neither group holds the responsibility for integrating new science information, alongside that held by managers, landowners and local communities, into a shared knowledge arena that can lead to collective problem-solving.

Despite this lack of a positive remit to undertake such a role, the ICM Programme has decidedly stepped beyond the usual limits of responsibility for a science programme and endeavoured to create a positive social learning environment for science providers and stakeholders.

A social learning environment is characterised by the following key features:

- Established relationships between science providers and stakeholders that foster trust and agree mutual expectations
- Managed opportunities for multi-party critical reflection on specific problems
- Knowledge repository and retrieval systems that extend information and learning beyond core participants
- Progress review and process adjustment

Beyond this, characteristics of a good social-learning environment would include:

- Awareness of the roles of science providers and a general perception of accessibility to science providers.
- Developing capacity for engagement with science among stakeholders. The signs of this would include examples of seeking and utilising science input, and ultimately developing actions based on integration of science into a management or problem-solving context.

4.2 Social spaces in the ICM Programme

We identify four social spaces of engagement in the ICM Programme (Fig 1), each characterised by specific norms of engagement, core relationships and particular intentions. The first three spaces are: the central research collaboration space; the space where research meets real-world problems — here termed ‘the learning space’; and the information-exchange space. Each of these represents domains of information exchange and knowledge development within the ICM Programme and within the Motueka catchment. The fourth space intersects with all other three spaces and represents the interactions between the ICM programme and the wider national and international catchment research and management community.

In the ICM Programme these four spaces all have two-way communication and collaboration links, although the strength of these varies with the character of the space and the nature of the communication activity that takes place in this space. It is the relative strengths of these links that helps define the social space.

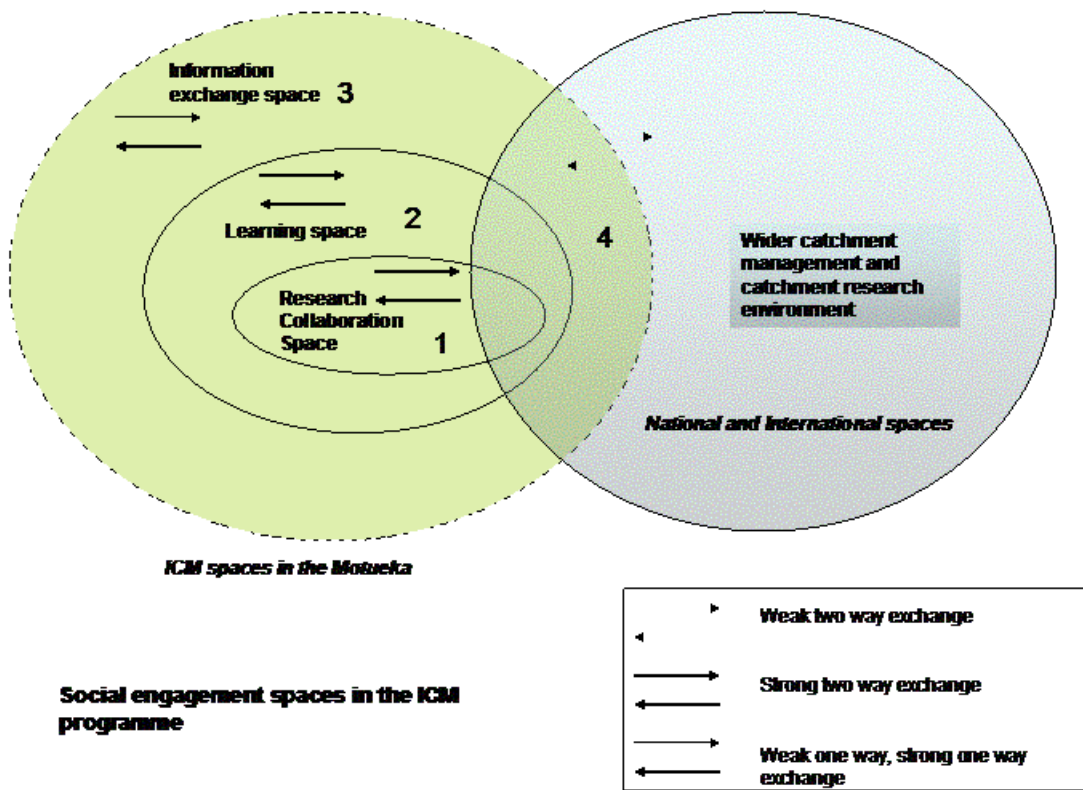


Fig. 1 The social engagement spaces of the ICM programme.

In the remainder of this report we will examine each space in turn, identifying current activities and highlighting areas of particular interest.

4.3 The research collaboration space

This space is shared by all the research partners of the ICM Programme. The goals of the interactions within this space are to promote integrated work across disciplines and between institutions in order to build the research understanding of the catchment management issues of the Motueka.

Work elsewhere suggests a number of criteria for successful collaborations, and interdisciplinary ones in particular (e.g. Wood & Gray 1991; Minnis et al. 1994; Cohen 2001). Minnis et al. (1994, p. C-2) state:

The principals in a true collaboration represent complementary domains of expertise. As collaborators, they not only plan, decide, and act jointly, they also think together, combining independent conceptual schemes to create original frameworks.

In addition, in a recent review of the collaboration process between partners in a multi-party research programme into aquifer protection (IRAP) participants were asked for their views on *what would make a good collaboration*. Their overall comments concluded that a good collaboration was one where there is unique, identifiable and valued contribution from each participant, respect, and trust.

Further to this, participants in interviews made some suggestions about how these factors might be influenced in collaboration and how they manifest.

A good collaboration has...	You can influence these by...	You know you have these when you see...
Unique, identified, valued contribution from each participant	<ul style="list-style-type: none"> • Who you pick for the partnership • Making people aware of the potential contribution of others • Having a 'blueprint' for the whole and identifying how individuals/organisations can contribute 	<ul style="list-style-type: none"> • People know their own role • People know the roles of others
Respect	<ul style="list-style-type: none"> • Having unique valued (etc.) contributions • Seeking to understand viewpoints, roles (etc.) – i.e. putting in practices of respect, e.g. how you run meetings 	<ul style="list-style-type: none"> • Deference to the skills of others • Active seeking of the opinion of others
Trust	<ul style="list-style-type: none"> • Developing the other two factors (unique, valued etc. contributions & respect) • History • Clarity – letting people know what you are doing and why 	<ul style="list-style-type: none"> • Some leeway and acceptance of people's time (etc.) constraints • Not having to resort to 'official agreements' • Comfort in 'disagreement'

Alongside this, characteristics of integrated research are (Allen et al. 2004) that it:

- is problem driven
- develops shared understanding across sectors, decision-making levels and disciplines
- builds on personal relationships
- builds capacity to work together (team building, conflict resolution, etc.), and
- it provides appropriate institutional support for change (science, agency, etc.).

Within the research collaboration space of the ICM Programme there are currently a number of ongoing activities to promote exchange and strengthen relationship-building to develop a collaboration to support integrated science. Critical among these are:

- Shared online workspace in the ICM Programme website
- The annual general meeting
- Common participation in public events (e.g. workshops and the CRG).

At this stage, and in this report, we do not review the effectiveness of these activities in supporting the research collaboration space (this may be appropriate later). However, we can make some observations through the first round of interviews conducted with research partners. Research partners commented on the strengthening of networks between institutions and fellow researchers. They cited examples of being invited to participate in new initiatives that clearly stemmed from the relationships built in the ICM Programme. However, they also identified that few instances of truly integrated research endeavour had taken place in the programme to date. Similarly, while they welcomed the opportunity of connecting with collaborators at the annual general meeting, this once-a-year opportunity was insufficient to build solid connections. In addition, one interviewee commented that taking part in the Community Reference Group meetings had become one of the few opportunities he had to find out what other researchers in the programme were up to.

Questions that would warrant further investigation about this engagement space therefore include:

- *How are we identifying and promoting opportunities for integrated research?*
- *How well recognised and acknowledged are the contributions of all the collaborating partners?*

4.4 The learning space

The ‘learning space’ of the ICM Programme represents the intersection between science and real-world problems. It is this space that is to some extent of greatest interest to a research programme with ambitions to make real contributions to the on-the ground issues. Certainly in the ICM Programme achievements in this space are considered of high importance although we suggest a number of activities that the programme believes are contributing to the development of this space that is, in reality, focused on the information-exchange space.

The learning space is so called because its characteristics are those that enable not just information exchange but knowledge building. In this space the networks and opportunities for dialogue foster a sharing of both science- and non-science-generated information and the development of negotiated ideas. These characteristics include all those inherent in good adult-learning environments, namely, clearly identified issues around which there is bounded conflict and diverse viewpoints, systems thinking, the challenging of existing assumptions, and the ability to integrate new knowledge alongside existing ideas. The functioning of this engagement space depends on high levels of trust, strong networks, but also facilitated

situations that encourage participants to work hard at processing information. It is by definition a space with strong two-way communication and information exchange.

Key engagement activities within the learning space of the ICM Programme include:

- Partnership with the TDC
- The Community Reference Group
- The sector reference advisory group
- Tangata whenua participatory research work
- Workshops, e.g. coastal workshop
- Sediment learning group
- One-on-one conversations between scientists and resource management agency staff, or community members.
- Integrum – the online information exchange site

Again all these activities have not been assessed in depth but some preliminary comments are possible about some of them.

Partnership with Tasman District Council

In the process of compiling this review of the engagement activities in the various social spaces of the ICM Programme, we considered where the programme's partnership with the unitary resource management authority, the Tasman District Council (TDC), might fit. This relationship is undoubtedly critical to the ICM Programme. The TDC is an identified research partner of the ICM Programme and a number of the issues of maintaining and developing the research collaboration space pertain to the relationship between the TDC and the other ICM collaborators, particularly as it pertains to developing and sharing research findings.

However the TDC is an issues-driven management agency and relationships between various personnel and units of the council and the ICM Programme are also part of the 'learning space'.

Making the partnership between the TDC and the ICM a clearly identified and even celebrated part of the ICM Programme represented a commitment to developing a close working relationship. However, ironically the working relationship in the learning space between other agencies not identified as partners, such as Fish and Game, has often seemed more straightforward and successful. Like the engagement activities in all the social spaces of the ICM Programme, historical networks and personalities do influence progress. The staff from TDC engaging with the ICM Programme have changed over the 5 years of the programme. In contrast, the primary contact in Fish and Game has remained consistent and already had some relationship with a number of the ICM researchers, particularly those in the Cawthron Institute. Critically too, relationships between science providers and end-users inevitably rest as much on the end-users' capacity to engage with science and on the providers' abilities to meet the needs of end-users.

In preliminary interviews with a number of ICM Programme researchers, the interactions with the TDC emerged as the issue of greatest interest and concern.

Community Reference Group

When it first began, the ICM Programme chose to establish two novel structures for engagement with stakeholders. These are the annual participatory AGMs and the Community Reference Group (CRG). The CRG is made up of members of the Motueka community,

specifically not representatives of organisations or interest groups, but simply people of the catchment with an interest in the ongoing management of the area.

Activities in this group have included getting researchers to present and discuss their work, and the development of a matrix of environmental influences in the catchment (work which took place over numerous group meetings). The CRG performs a function of raising awareness of the research in the catchment, and promotes accessibility to science among a wider audience than normally would have the opportunity to engage with it. One of the often quoted ‘spin-offs’ of having researchers present their work to a group like this is the subsequent actions taken by local landholders to reduce the impact of stock crossing the Sherry River. One community member of the CRG commented that taking part in the matrix development had forced him to think in new ways. Contacts through the CRG have led to scientists taking part in other community activities. Overall the CRG has clearly had a good impact on building trust between the community and science providers. Participants clearly enjoy the meetings, although sometimes wonder if they are in fact contributing a great deal.

What the CRG has undoubtedly contributed to the functioning of the ICM is a set of connections into the community that have been important starting points for further interaction.

In the interests of finding if the CRG structure is adequate for the remainder of the programme or if more could now be expected of it, it would be worth considering the following questions:

- *To what extent is the CRG fostering links between science and change on the ground?*
- *How would membership and participation in the CRG best promote the goals of linking science and end-users?*
- *What design components of the CRG approach are effective in linking users with research?*

Overall questions for further exploration in this space in general include:

- *To what extent are activities in this space promoting learning, rather than information exchange?*
- *How do we address the timing mismatch between the development of new science and the readiness of end-users to engage on the subject?*

4.5 The information-exchange space

In Fig. 1, working outwards from the core research collaboration space, the outer-circle social space represents the information-exchange space. This area represents a more superficial interaction space between the ICM Programme and the wider community of stakeholders in the Motueka. Unlike the previous two it is characterised by more unidirectional engagement links. In this space information tends to go outwards from the ICM Programme, with far less information coming in. The ICM Programme began with a workshop with participants from a range of potentially interested stakeholder groups including, tangata whenua, recreational and commercial fisheries, land-users, and the principle resource management agency, the TDC. As a second step the programme took the initiative to conduct a survey among these groups and identify key areas for the research programme to concentrate its efforts. This represented a substantial input from the wider community into the planning and development of the ICM research programme. The annual AGMs have attempted to maintain this channel, inviting participation and comments from the wider community on the research programme’s

progress. Realistically, however, the influence stakeholders might have on research directions once a programme of work has been initiated is not great and few in any case have taken the opportunity to contribute in this way.

Unlike the learning space the information-exchange space is about widespread communication of research findings, creating opportunities for people to pick up new ideas, rather than fostering collaborative learning.

It is in this space that awareness of the ICM Programme is promoted. Awareness and recognition of the value of the programme is to some extent reliant on existing networks and to some extent on historical interactions between ICM scientists and the community of stakeholders.

In this space the programme has put some effort into conduits for information dissemination and for promoting awareness of the ICM Programme. These include:

- Public website
- AGM public participation day
- CD Rom
- Scientists participating at field day (etc.) events
- 'Mountains to the Sea' exhibition

Questions regarding the engagement activities within this space that might be worth exploring include:

- *What are the links between raised awareness of the ICM Programme and understanding of ICM science?*
- *Can more two-way information exchange be promoted through any of these activities and would this be desirable?*

4.6 Intersection with the wider catchment management community

As mentioned above the first three social spaces in the ICM Programme discussed here are geographically located in the Motueka catchment. This fourth space represents the area in which the ICM Programme links with the wider global and national community of researchers and managers.

The development of this space, and in particular fostering good two-way information networks, is critical for both current and ongoing development of ICM research.

In some ways the networks into this space might in fact be easier to develop. This wider community is a community based on shared interest and consequently already shares common language with many of the participants in the ICM Programme. This contrasts with the geographic communities, which have different languages and ways of framing catchment management issues.

Five active nodes or links into this wider community are:

- The HELP programme
- The CGIAR Challenge Program on Water and Food (CPWF)
- Landcare Trust, ICM network
- Dr Hans Schrier, Professor, Institute for Resources, Environment and Sustainability, UBC, Vancouver

Questions regarding the engagement activities within this space that might be worth exploring include:

- *What activities are we undertaking in this area?*
- *Are we privileging engagement with the geographic community of the Motueka at the expense of the wider global and national community of interest*

5. Conclusions

In this review we have used social spaces as a way of identifying unique areas of engagement with the ICM Programme. Each of these spaces has particular characteristics and ambitions, and the ICM populates each space with a diverse range of activities.

At the 2006 ICM AGM, the social spaces framework was used as an evaluation tool for ICM research collaborators to reflect on their current interactions and to better understand the diversity of approaches necessary to manage the social processes of integration and collaboration (Allen & Kilvington 2006).

6. Acknowledgements

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