

Chapter 6

Frameworks for seeing across complex social systems

Case Three: The social spaces of the Integrated Catchment Management Programme

Be they processes of erosion, the behaviour of aquifers, or spiritual beliefs about the proper relationship between humans and everything else on this planet, these topics form the basis from which we will generate new knowledge adequate to the tasks at hand.

(Austin 2004, p. 428)

6.1 Introduction

Chapters 4 and 5 present two case stories from work of the Collaborative Learning for Environmental Management Group (CLEM) at Landcare Research. These cases occurred in different contexts (community-based environmental management, and resource use efficiency) and served to illustrate features of applying participatory and developmental evaluation approaches to improve the social learning opportunities in environmental programmes.

Chapters 6 and 7 present a somewhat different pair of stories that are both based on my work as a social researcher within a single environmental research programme, i.e. the Integrated Catchment Management programme (ICM). As in the previous chapters these cases are based on experience of working towards improving the social learning capacity of a collective bent on addressing an environmental concern. The most overt distinctions from the previous cases are the length of time the programme has run, and the often unbounded, mutable nature of the work. This created both opportunities and hurdles, which will be outlined in this chapter.

Significantly the ICM programme is the only example in this thesis where social learning was early on identified as an important part of the overall programme, with a dedicated work stream associated with it. Over time this work developed in two directions in particular: (i) the development and use of frameworks for understanding an interdisciplinary research programme as a social system, and (ii) the design and trial of platforms for dialogue, reflection and systems thinking. The next two chapters explore each of these directions.

Box 6.1 Summary of the ICM Programme, and the Social Spaces Framework evaluation

Location: Mouteka catchment, Nelson region, South Island of New Zealand

Duration: 2000–2010

Synopsis: The Integrated Catchment Management programme (ICM) is a multi-disciplinary research initiative designed to improve the management of land, freshwater, and coastal environments in catchments with interacting, and potentially conflicting land uses. Multiple research and resource management agencies have been involved in the programme. Its distinction as a research programme was its intention to not only provide research information to catchment management agencies, but also to influence the integrated nature of management.

The programme included an objective termed ‘social learning’, and a number of subprojects explored how to support the social learning capacity of the ICM programme system. These can be grouped as two streams of work: (i) the development of frameworks to help the ICM programme understand itself as a social system, and (ii) developing and trialling platforms for dialogue, reflection and systems thinking.

This chapter explores the first of these two streams of work. In particular it reviews the experience of generating the Social Spaces Framework for understanding communication and relationship needs of the ICM programme.

Evaluation activity: In 2006 the ICM programme wanted to review the effectiveness of its efforts to build relationships with different communities of interest. As a researcher within the programme I undertook an evaluation of current and historical activities based on interviews with researchers and stakeholders. This evaluation revealed confusion over the multiple goals for communication and engagement across the programme. In collaboration with Will Allen I subsequently developed the Social Spaces Framework as a way to interpret the diverse ICM communication and relationship needs. This framework was then used in a participatory evaluation exercise with ICM participants.

The social spaces evaluation illustrates the potential benefit of using frameworks to clarify complex interactions, and to enable groups to collaboratively make sense of the social system in which they operate. However, in this chapter the social spaces evaluation is contrasted with a similar exercise conducted in another integrated research programme (Integrated Research into Aquifer Protection – IRAP), where the role of the evaluator was less embedded and which produced different results.

Current status: The ICM programme finishes in June 2010. Signals from FRST (the principal funder of ICM) are that they will not fund further research based on the same format.

Role in project: As one of three initial researchers contracted in the programme to undertake work in the social learning (human dimensions) objective of the programme, I took the lead in the community engagement review, and the development of the Social Spaces Framework.

Sources for case story: Formal reports (Kilvington & Allen 2007); papers & presentations on the ICM programme (e.g. Phillips et al. 2006); project notes; discussions with ICM programme leader Andrew Fenemor and CLEM colleague Will Allen; ICM website <http://icm.landcareresearch.co.nz/research>

Chapter 6 looks at the first of these (see Box 6.1 for summary of case story). In particular it recounts the specific example of the Social Spaces Framework, developed to support the social engagement practices of the ICM programme. In this case story I also compare the development and use of this framework with a parallel initiative used in another integrated research programme, Integrated Research into Aquifer Protection (IRAP). In Chapter 7 I look at the second stream of work, and look specifically at the Watershed Talk project which trialled a platform for collaborative problem-solving.

In each of the case stories I have begun by discussing the specific social learning challenges that emerge from the situation. Chapter 6 therefore starts with an overview of the ICM programme, establishing the context for the work of CLEM members (Will Allen and myself) in terms of the organisations and players, and the dominant espoused theories of how an integrated research programme should operate. Given the more openly articulated social learning aims of the ICM programme I also examine how having social learning as an explicit goal has impacted on the programme. How did people work on this? What has it led to and how has the social learning been assessed? Chapter 7 then concludes with some observations on the shifts in practice and views around social learning during the length of the ICM programme.

6.2 Overview of the ICM programme

The ICM is a 10-year programme which began in July 2000. Based in the Motueka catchment at the northern end of the South Island of New Zealand, the goal of this programme has been to conduct multidisciplinary research to improve the management of land, freshwater, and near-coastal environments in catchments with interacting, and potentially conflicting land uses. The Motueka catchment was chosen for this study 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 plantation pine forests in the hills and intensive horticulture on the flat lands. The Motueka River and its tributaries are internationally recognised for recreational fishing and the coast, off the river mouth in Tasman Bay, is home to economically important fish and shellfish resources including a growing aquaculture industry (see Box 6.2 for a summary of the ICM programme).

Box 6.2 Overview of the Integrated Catchment Management Programme (ICM)

The ICM Motueka research programme is designed to run alongside regional council policy development processes. It includes research into critical biophysical processes across land, water and coastal boundaries; and factors affecting decision making. It has also developed and trialled tools to manage environmental effect and models for reviewing sustainable development scenarios in the catchment (Fenemor 2004).

The work of the ICM research programme relates to five principal themes:

1. **Land** – land use effects on water resources, including surface and ground water
2. **Coastal and marine** – catchment effects on Tasman bay, marine habitat and farming
3. **Fresh water** – water quality and state of habitats, as well as riparian management
4. **Human dimensions** – how Motueka stakeholders manage conflicting resource needs
5. **Integration and modelling** – models to aid understanding of interacting system elements

Landcare Research is the lead agency responsible for running the ICM programme and managing interactions between other research providers, research users and the wider constituency of groups engaged in the programme. The principal programme funder is the Foundation for Research, Science and Technology (FRST).

Around 50 participants from different agencies are regularly involved in the programme, but



the links with sector groups, tangata whenua and the wider Motueka community, which frequently result in attendance at meetings, in-kind contributions to projects, and the sourcing of independent funds to carry out further initiatives, suggests that the network size of the ICM programme is around 150–200 people.

Image source: the ICM programme website
(<http://icm.landcareresearch.co.nz>)

In the ICM programme's promotional material it cites itself as based around a *ridge tops to the sea, collaborative learning approach to enhance sustainable management in the region* (<http://icm.landcareresearch.co.nz>). The programme was thus conceived as a vehicle to make overt the connections between land use and downstream impacts, and to link policymakers and communities with biophysical researchers, economists and engagement and learning specialists.

To undertake this work the ICM programme built a partnership between two principal environmental research agencies –Landcare Research (a CRI) and the independent, Nelson-based, Cawthron Institute. It also draws on expertise from three further research agencies, NIWA (National Institute of Water and Atmospheric Research), ENSIS (a forestry research agency) and IGNS (Institute of Geological and Nuclear Sciences). In addition the ICM programme committed itself to an active partnership with the Tasman District Council (TDC), the unitary resource management agency of the Motueka catchment. It has also developed close relationships with other agencies and community bodies including Fish and Game, the Landcare Trust, Federated Farmers, and MIRMAK (the main iwi resource management agency in the Motueka area)¹ as well as key members of farming, forestry, fishing and marine farming sectors.

In practice a research programme of such scope and scale is comprised of sequential and parallel sub-projects. In the first instance many of these sub-projects have started as discrete science research partnerships between 2–6 technical experts from research agencies, and the TDC (e.g. water quality monitoring of the Motueka and its tributaries in the first two years of the programme). However, over the length of a programme these sub-programme-level activities develop in different directions. They either remain an exploration by researchers who produce outputs primarily in the academic arena; expand the partnership to include other disciplines and expertise; or may extend into the arena of public debate and policy setting. Where this latter development has occurred it has largely been influenced by the extent of the recognised demand for the work and even the political sensitivity of the issue. For example a sub-project on groundwater modelling immediately tapped into a recognised need and work stream within the TDC. Thus there was a clear avenue for setting up a working partnership between the research agencies and the unitary authority. In contrast work undertaken on sediment composition and movement in the Motueka catchment took place against a backdrop of public dispute over decisions to restrict gravel extraction from the river. It was not until some years of working within the catchment – developing networks and establishing trust – that a full stakeholder workshop exploring the implications of the work was undertaken².

¹ MIRMAK (Motueka Iwi Resource Management Komiti) is made up of three iwi groups with interests in the Motueka area – Ngāti Rarua, Te Atiawa and Ngāti Tama.

² The **River gravel and channel dynamics** workshop took place at the ICM programme AGM in 2006, i.e. 6 years into the programme.

As the programme has developed, the sub-projects have become more ambitious and extended to large-scale initiatives with considerable community involvement. An example of this is the combined artist and scientist collaboration – the Mountains to Sea project, which resulted in the Travelling River exhibition in 2004. (Atkinson et al. 2004). Figure 6.1 presents a snapshot of some of the ICM programme sub-projects, illustrating the breadth of work and range of partnerships.

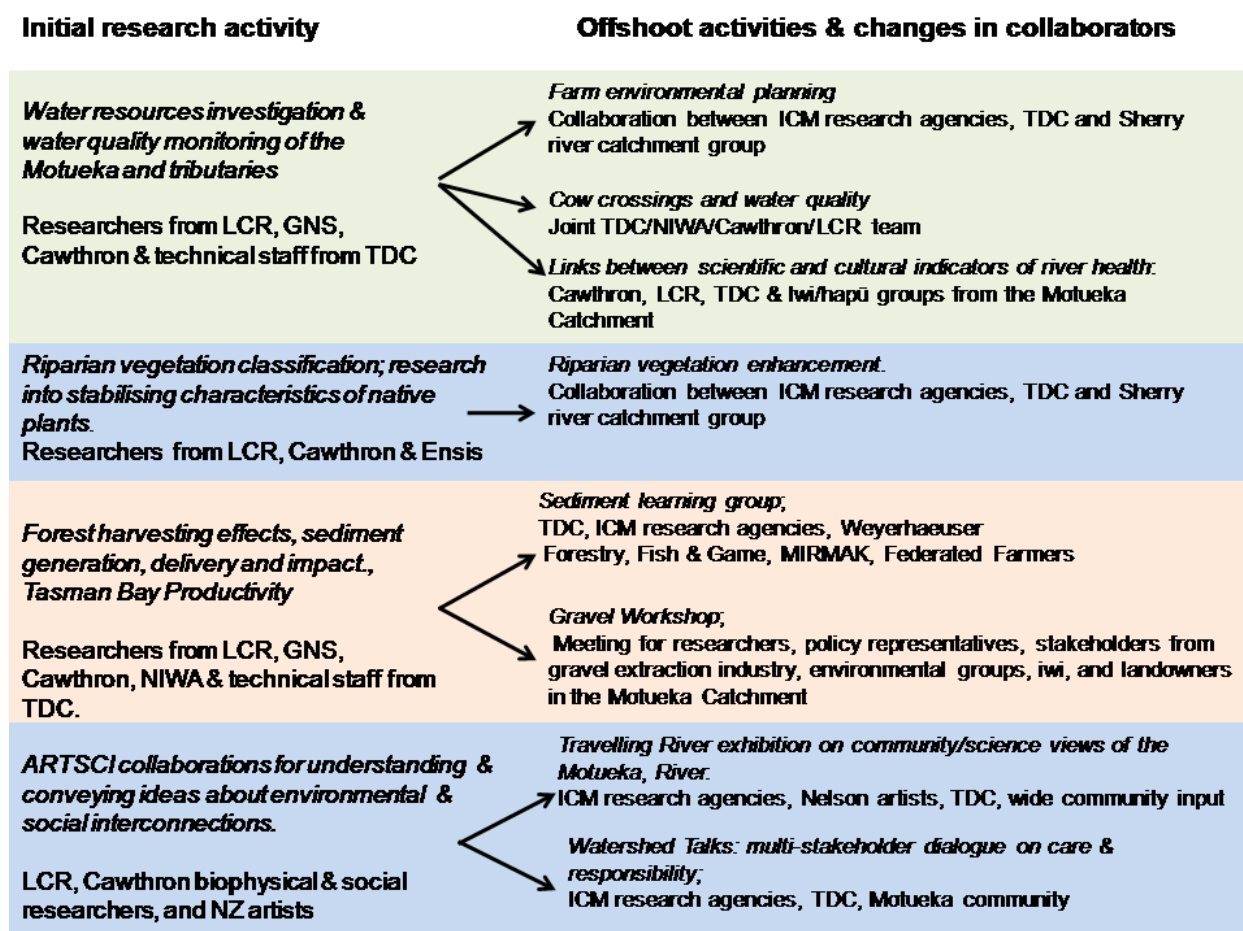


Figure 6.1 Examples of project development in the ICM programme.

6.3 The social learning challenges of the ICM programme

An underlying influence on the design and implementation of the ICM programme has been the topical issues around research provider and end-user relationships. The apparent gap between the development of new information through research and its subsequent uptake and use in real-world problem situations has troubled funders, science providers and their constituent stakeholders for decades (Funtowicz & Ravetz 1993). Nowhere is this more apparent than in

the field of research for environmental problem solving, where the relationship between users of science and providers is characterised by mutual mystification and ultimately distrust. On the one hand scientists perceive they have provided information yet somehow still failed to fulfil expectations of research clients such as environmental management agencies who are seeking not just information but **answers**. Meanwhile end-users struggle to adequately define the parameters of the knowledge they seek from science providers. Critically, under current funding conditions and administrative structures, neither group has 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-solving³.

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 more engaged and responsive research environment for science providers and problem stakeholders. This makes social learning theory highly relevant to the ICM programme's situation and the social learning work stream central to very ethos of the programme. To understand in more detail the nature of the social learning challenge in the ICM programme it is first useful to review the fundamental principles and theories of action which have driven the programme design and operation.

6.3.1 Foundations of the ICM programme

From its inception the ICM programme has had a degree of missionary zeal. Its self-determined remit is probably best (albeit crudely) captured by the expression *to get ICM happening on the ground*. This has entailed the ICM programme in a raft of activities aimed not just at real-world problem solving but at influencing change in policy and planning arenas and in the worlds of

³ This role might be regarded as extension. However, reforms in New Zealand in the 1980s privatised government extension services, which in any case only serve the agricultural sector.

key-resource-using stakeholders. The path to achieving this ambition has rested on a trilogy of core concepts:

1. Integration and systems thinking
2. Interdisciplinary approach
3. Social learning – being, in the first instance, largely defined as *to improve interactions between science providers and community stakeholders, and to maximise the uptake and use of new knowledge and tools developed from the research* (Phillips et al. 2006).

These concepts are central to what would now be regarded as a transdisciplinary approach to research (TDR)⁴. TDR has conceptually evolved in recent years in response to research and problem-solving situations where there is incomplete technical knowledge and a range of actors and interests involved, leading to uncertainty and contention. Principal among the fields of inquiry where this approach has emerged are sustainable management, and environmental health. TDR is an extension of interdisciplinary research in that TDR approaches seek to bring together academic researchers from different disciplines as well as non-academic participants, such as land managers and policymakers, to research for a common goal. As such it is reliant on well-facilitated and framed interactions between researchers and practitioners, including cycles of concept development, practical application, and evaluation, and peer and practitioner review (Cronin 2008). Proponents of TDR argue that this contrasts with conventional research approaches where stakeholders, are typically treated *as passive learners at the feet of the experts* (Haag & Kaupenjohann 2001).

Over the years it has operated, the ICM programme has come to regard TDR as an aspirational if not actual theory of action. However, in the late 1990s when preparation for the ICM programme began, there were few, if any, other environmental research programmes pursuing such an ambitious agenda in New Zealand⁵ and there were no templates upon which to base its structure or programme activities. Early decisions on how to realise the core concepts of

⁴ Integrative sciences, sustainability science, adaptive management, post-normal science, and transdisciplinary science are all terms that refer to science that responds to the challenges of managing risk and uncertainty in researching complex problems (Funtowicz & Ravetz 1993; Gunderson 1999; Gallopin et al. 2001). These developments in science and their association with social learning are discussed in Chapter 2, section 2.2.4.

⁵ This is despite the comparative enthusiastic adoption of the term integrated research, which in practice has largely meant multi-disciplinary research with researchers pursuing related but fundamentally independent disciplinary-based inquiries in a common context.

integration, interdisciplinarity, and social learning were destined to shift over the time of the programme, but were important in setting the context for the programme as a whole and in determining the demands and boundaries of our work as social researchers and engagement specialists within the programme.

Practising integrative science goes beyond the already significant task of enabling cross-disciplinary collaboration, to managing an array of social processes, such as public participation and engagement, multi-stakeholder inquiry, and conflict management. Indeed Klein (2004 in Lélé & Norgaard 2005) describes twin challenges of integration as *horizontal integration* (across disciplines) and *vertical integration* (across experts, policymakers, and community). The challenge for the programme then becomes how to build collective understanding of a complex situation, and enable science information to be useful in a real-time decision-making context.

This represents unfamiliar territory for many research leaders and programme participants. Arguably, at its inception the ICM Motueka programme sought to address the horizontal and vertical integration challenges of the programme through its structural arrangements. In the first instance the programme brought together five research agencies in a collaborative setting. This was already recognised as something of an achievement given the climate for science in New Zealand, (strongly shaped by the reforms of the late 1980s that had set up the research institutes as independent and directly competitive entities). The five institutes had complementary areas of expertise relevant to big-picture catchment management thinking that requires an understanding of natural terrestrial and aquatic processes, and historical and future trends in land use, as well as ability to model and interpret catchment processes⁶. A partnership with the TDC brought with it the necessary intersection with catchment planning and policy development, and connections with other groups such as the Fish and Game linked the programme to sector issues. The programme then built on this multi-lateral cooperation by structuring bodies of research activity that necessitated multi-party collaborations (see Figure

⁶ Dr Breck Bowden was the first programme leader of ICM Motueka, succeeded in 2002 by Andrew Fenemor, formerly with TDC. Dr Bowden was widely recognised for his achievement in establishing a cross-institutional collaborative research programme given the competitive institutional setting at that time. It also represented something of a risk. Efforts by research programmes to integrate knowledge requires some sacrifice of conventional research outputs, in a funding and science career context that still values these achievements most highly.

6.1). In addition the programme ran a strand of work directly working with the iwi of the Motueka region (Harmsworth 2003).

Early initiatives to develop more direct links with the wider community of the Motueka catchment saw the establishment of a community reference group (CRG) and an annual public meeting (AGM) which encouraged participation by sector representatives and community stakeholders. Research programmes that had accountability structures such as advisory groups made up of key stakeholder representatives were common, but the intent of the ICM programme was to develop something beyond this, as indicated by this statement by Dr Breck Bowden (1999), the first ICM programme leader:

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.

This early reliance on setting up the structure of the programme as the primary (almost exclusive) approach to address issues of integration and interdisciplinarity parallels the mechanistic approaches to developing collective capacity for learning and change in the Whaingaroa Catchment Management Project (Case One) and the Target Zero programme (Case Two), i.e. get the right people in the room and the rest will sort itself out! As the programme has developed over the past nine years one of the principal observations has been how complex it has been to maintain and progress the relationships established through the programme structure.

Another outcome of this focus on structure was that the ICM programme membership could be regarded as a group that formed with the primary purpose of wanting to work together. This is opposite to how most groups are formed, where they are drawn together around a particular challenge and the interest in this challenge, coupled with the resources and skills need to address it determine who becomes part of the group (Atherton 2005). Importantly, a group that forms primarily so that they can learn to work together subsequently faces the hurdle of determining what exactly they will work on. This has implications for the group's sense of

identity. Consequently early conversations within the ICM programme commonly included the lament that the Motueka catchment had *no urgent problem* to provide an obvious focus for the new working relationships that the programme had established.

This is not necessarily a problem, indeed there are those who actively advocate a refocus of attention on partnerships, rather than on the outcomes of the projects which draw them together, as a more successful route to long-term capacity development within communities facing significant challenges (Austin 2004). However, this approach does demand extra attention. As Austin (*ibid.*, p. 428) observes:

Approaching community-based research with a focus on partnerships rather than projects requires commitment to relationship building within a context where the exact nature of the problems to be investigated, the most appropriate solutions, and the potential outcomes are not well known in advance. Success requires vigilance in maintaining a loose structure within which participants can emerge as leaders and adjust their level of involvement in relation to competing demands, without hierarchies, formal compensation or predetermined lines of authority.

This links directly to a further issue of importance in shaping the ICM programme and the context for working on social learning, i.e. the degree to which the programme participants were prepared for how differently the ICM programme might operate. Looking back on its early history it is apparent that while the ICM programme declared itself to be an experimental initiative in more engaged research practice, the more radical thinking underpinning this (inherent in notions of transdisciplinary science) was largely unregistered by key programme proponents. This included the idea of constructing self-learning communities of professionals, researchers and lay people which go beyond mere enhanced multilateral conversation (Funtowicz & Ravetz 1993). Instead, despite lofty aspirations, the ICM Motueka programme began life based on a conventional client–researcher model. For example in 2000 Landcare Research undertook a survey of stakeholder opinions regarding priority research issues for land and water management in the Motueka catchment (Bowden & Wilkinson 2000). Albeit a more inclusive assessment than commonly undertaken, this was part of the pervasive idea that socially engaged research means ‘asking people what they want to know the answer to’. In line with this thinking the research–stakeholder partnerships were essentially seen as a more

effective means of technology transfer⁷ based on a one-way flow of information from the researcher to customer.

This had significant influence on the emerging theory of practice for the ICM programme. Rather than concentrating on knowledge integration and how to facilitate this, the programme retained its traditional sense of being primarily an information generator, adding additional functions of ‘on-the-ground problem solver’ and ‘advocate for integrated catchment management’. The programme, therefore, unconsciously conceived of itself as a super entity responsible for delivery on the promise of integrated management of the Motueka catchment, rather than a stakeholder in the catchment management problematique. It saw its role was to provide answers and change behaviour rather than empower others with better knowledge and skills to manage complex cross system decision-making. In practice this led to confusion about responsibilities, which manifest as heated debates at AGMs on the meaning of integration, or how research and management intersected. It also led to undiscerning widespread efforts to communicate on the basis that ‘everyone needs to know about us if we are going to make a difference’.

This confusion faced by the ICM programme in its early days is both understandable and predictable. Concepts of integration and interdisciplinarity test science research programmes, and while many have embraced the concept of integration of disciplines as essential to addressing complex problems, few have cast more than a passing glance at the complexity of social processes that need to be internalised as core components of integrative science programme management. Moreover, to traditional research agencies the process of engagement is culturally and often organisationally unfamiliar. Cohen (2001, p. 147), speaking of interdisciplinarity, states that while it has been of interest for many years, is often encouraged and there are frequently high expectations of the *results*, there is an apparent resistance to the *process* of interdisciplinarity. Furthermore, unsuccessful interdisciplinary collaborations have been attributed to incompatibilities within the team or between disciplines, including personality clashes and differences in organisational and professional standards, rather than an unfamiliarity with the difficulties of working together (*ibid.*, p. 148). Thus the inclusion of a

⁷ Technology transfer is the conversion of scientific or technical knowledge into useful products. It assumes a linear process of knowledge development (from those who know to those who don't) and is generally based on a deficit model of communication (your head is empty, let me fill it up). Technology transfer is still the dominant language used to describe science and science–user relationships in FRST programmes.

work stream focused on social learning was fundamental to developing some clarity around the mechanisms that would drive this new research endeavour.

6.3.2 Social learning theory and praxis needs in the ICM programme

To fulfil its ambitions of being a research programme fully engaged in the practice of learning and change within the Motueka catchment, the ICM programme has theoretical and praxis needs in four main areas:

- Engagement – the ability to manage multiple interests and provide platforms for multi-party critical reflection
- Knowledge production – ways to articulate problems, and assemble and interpret information at a system-wide scale
- Integration – a relationship with key management agencies that provided for structurally open and flexible institutional arrangements around decision-making enabling real-time experimentation and learning
- ICM theory – the ability for the programme to articulate a sense of direction, and to generate both content and process knowledge on integrated catchment management.

Engagement

Planning and managing the social processes of integrated research require an understanding of the steps for engaging participants and for establishing good multi-party communication for information exchange and building new knowledge. At its most simple this is a matter of stakeholder analysis, i.e. assessing the groups or individuals that are related to the project, either because they impact on it or are impacted by it, and from this, clarifying the actions needed to manage the most important relationships (Allen & Kilvington 2009). This can then lead on to design of a communication strategy for the programme.

However, a risk of stakeholder analysis is generating an ‘outsider versus insider’ dynamic in stakeholder interactions. Practice around engagement for social learning does need to include some form of assessment of who to communicate with, when, and how (noting the loaded power dynamics of traditional science–stakeholder interaction platforms such as seminars and meetings). In addition, as science programmes move towards seeing themselves as no longer central to information generation but rather as a stakeholder in the problem-solving situation,

practicalities of engagement also need to include capacity to learn about each other as partners, and to understand respective rights and responsibilities going forward (Guijt & Proost 2002).

Knowledge production

For the ICM programme, knowledge production represents a wide theoretical ground to traverse, as research programmes and researchers themselves understandably believe they have a good grounding in what is knowledge and how to produce it. Discovering that this view is not adequate for real-time, diversely contested problem solving is a fundamental of transdisciplinary research. This gulf in thinking about knowledge production is aptly expressed in this posting on Confluens (the online shared workspace for the ICM programme) by a freshwater ecologist and long-time participant in the ICM programme. Here he comments on papers he has recently read on science and stakeholder relationships noting an important shift in thinking...*from a view of knowledge as a 'thing' that can be transferred to viewing knowledge as a 'process of relating' that involves negotiation of meaning among the partners* (Young pers com. April 2009).

In association with the theoretical challenge of knowledge production the ICM programme faces methodological challenges. These include question such as: What are the most useful forums or platforms for knowledge production? How can these be designed for multiple stakeholders to interpret data? What are the preconceptions of valid knowledge and how can these be examined? And how can we go about explicitly seeking information that you do not expect? (Guijt & Proost 2002). Finally, one of the biggest practical challenges associated with knowledge production in the ICM programme has been gaining access to real-decision-making arena where management agencies are willing and able to work with processes that accept uncertainty, and are flexible to experimentation.

Integration

Integrated research programmes can find themselves perplexed by the very notion of integration. With whom, when, and where should they be concentrating their efforts to enhance dialogue and collective learning? Is it the knowledge that needs to be integrated? Is it our ideas about what makes up a system that need some help? (e.g. by models that link ecosystems and human activities). Is it people that need integrating – their values and views? This theoretical

uncertainty translates to methodological and praxis indecision, where all options appear equally valid but immeasurable in terms of their worth in delivering on the promise of ICM.

Theory of ICM

Integrated environmental research programmes typically span several years. Commonly the overall outcome statement for a programme of work such as ICM will be large in scale but insubstantial (e.g. improved management of the Motueka catchment) and will bear little connection to progress indicators determined by the funding (e.g. papers published, meetings held). In such a long race the ICM Motueka programme has need of theoretical frameworks on which to base long-term decisions, and assess progress. Such frameworks can explain stages of programme development or be used to clarify the role of a research programme alongside others – e.g. outlining how the work of the ICM programme relates to the ongoing management activities of agencies such as the TDC or MIRMAK.

6.3.3 Role for social research in the ICM programme

The four areas of theoretical and praxis need for the ICM have direct parallels with the core elements of social learning outlined in Chapter 2 (learning and thinking, social and institutional arrangements, and group participation and interaction). This would suggest social learning as a useful overall theoretical framework for the ICM programme. However, at the early stages of programme development there was no clear acknowledgement that a theoretical premise was needed for the programme's activities. For a substantive time the vision of social learning held in the programme was 'learning by society' and this was pursued by diverse but fundamentally unidirectional communication mechanisms. Correspondingly, the roles for the core researchers within the human dimensions objective (Will Allen, Garth Harmsworth and myself), although not always stated as such, were largely to improve social engagement and act as intermediaries between the programme and the wider constituency of catchment stakeholders. Even this is probably a more generous synopsis of the mandate for our work which for some years, as with other aspects of the ICM programme suffered from a lack of clarity of what needed to be done.

This is by no means a unique experience. Commonly, social researchers are invited into integrated environmental research programmes to perform some task related to interpreting the social and political landscape of the environmental problem (e.g. researching community values

or views of an environmental problem). This is a natural outcome of research programmes that maintain a separation (based on views about objectivity) between themselves and the problem situation. It is also a consequence of the invisibility of the social processes of knowledge development, or more particularly the lack of awareness of the need for intervention in such process – why would you engage someone to work on something that appears to happen anyway? However, from my experience, one of the critical components of integrated environmental research is the illumination of the social processes involved – a view shared by Austin (2004, p. 428) who writes this job description for the inclusion of anthropologists in complex multi-stakeholder programmes:

Applied anthropologists with an appreciation of multi-disciplinary and inclusive approaches, a healthy respect for the challenges of community work, recognition of the importance of history and an appreciation for patience and simply “hanging out”, can and should play a critical role in these endeavours.

To tackle the social processes of knowledge development often requires a painstaking renegotiation of the role of the social researcher within the research programme, a readjustment of expectations, and an establishment of trust with the research programme participants. This in itself takes time and Austin’s notion of *simply hanging out* comes into play. This is more than mere nonchalance but rather the notion of being around – available for the accidental conversation and the opportunity to present a different point of view.

Summary – the social learning challenge for the ICM programme

The ICM programme’s self-determined task has been not only to provide new information about the interaction of various biophysical processes but also to generate knowledge about **how** integrated environmental management can operate. The strengths of the programme have been the commitment from multiple research and management agencies to the collaboration, and its openness to experimenting with novel structures and approaches to running the task of undertaking integrated research. It also has generated substantial interest among stakeholder across the Motueka catchment, which in turn has presented the programme with new arenas to work in and novel partnerships.

The social learning challenges of the ICM programme reach across all four quadrants of the key elements of social learning identified in Chapter 2 (Figure 6.2). They can be summarised as:

- A relationship with key management agencies that provides for structurally open and flexible institutional arrangements around decision-making, enabling real-time experimentation and learning
- The ability to manage multiple interests and provide platforms for multi-party critical reflection
- New ideas about knowledge production, i.e. how to generate both content and process knowledge on integrated catchment management as well as ways to articulate problems, and assemble and interpret information at a system wide scale
- Ability to articulate a sense of direction for the programme as a whole, and to understand its progress, functioning and relationships with the wider context of the environmental management of the Motueka catchment.

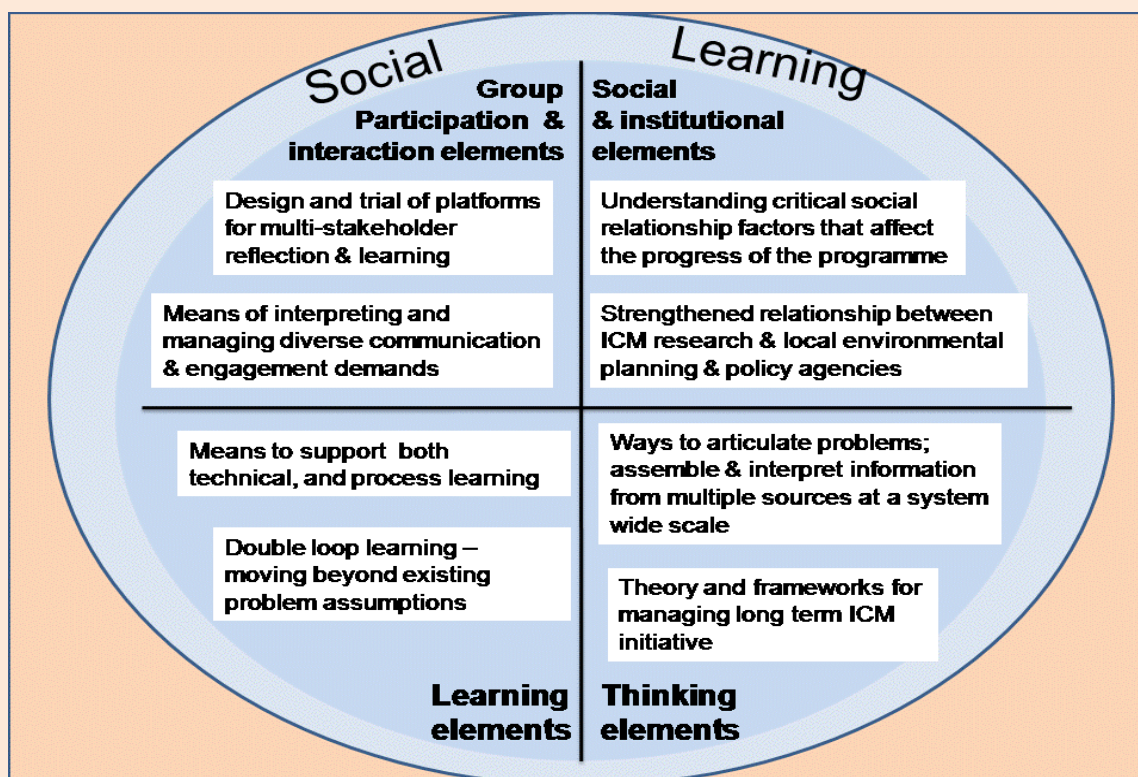


Figure 6.2 Components of the social learning challenge for the ICM programme.

6.4 Supporting social learning in the ICM programme

In the ICM programme the roles of the social process specialists developed over time and included undertaking a number of sub-projects to support the social learning processes of the programme. As the programme continued over many years we were able to learn from situations, and take advantage of new approaches that emerged out of new partnerships⁸. The different activities undertaken to support social learning in the ICM programme were chosen in response to the boundaries and the opportunities created by our developing skills as researchers and practitioners; our understanding of what was needed, and, importantly, the changing mandate for our work, which was renegotiated several times over the life of the programme .

For instance early work in the ICM programme included conducting a stakeholder analysis to help programme participants clarify the many relationships that were part of a multi-stakeholder research programme. This was followed by establishment of the community reference group, to enable the programme to connect with a different set of stakeholders than research programmes normally have access to, and also as a ‘safe environment’ for researchers to trial new ways of relating their work to the practical management context of the Motueka.

At the same time the idea that ICM rested on building a receptive environment (i.e. capacity for social learning) was introduced to programme proponents and participants, and Integrated Systems for Knowledge Management (ISKM)⁹ was officially adopted as a framework for identifying steps associated with building knowledge in a multi-stakeholder situation. Box 6.3 identifies a number of projects aimed at developing some aspect of social learning in the ICM programme. Not all of these projects fulfilled all of their ambitions; however, each contributed to a growing understanding of means to address the social learning capacity needs of the ICM programme.

⁸ A significant example of a new partnership was the opportunity to work with the landscape artist Maggie Atkinson in the Mountains to Sea art–science project (Kilvington & Horn 2006) and in the Watershed Talk project. The value of bringing diverse discipline perspectives into social process work will be discussed in Chapter 7.

⁹ ISKM is a framework depicting key steps in collaborative learning (Allen & Kilvington 2002). See Appendix 8.

Box 6.3 Activities contributing to the social learning capacity of the ICM programme

Annual General Meetings (AGM) were 3-day events that included sessions open to all stakeholders, sector groups, and Motueka residents. They were aimed at reviewing research progress as well as building networks. Each AGM explored different approaches and topics. The **River Gravel (& channel dynamics) workshop (2006)** took place during one AGM bringing together researchers and stakeholders to discuss a controversial issue.

The **Community Reference Group (CRG)** was established as a first point of contact between the ICM programme and the wider Motueka community. Group members were appointed for their interest and knowledge of the catchment (not as representatives), and meetings on a range of topics take place 2–4 times per year.

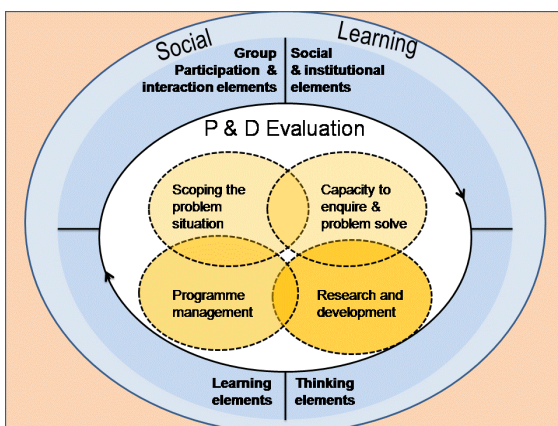
Confluens is an online workspace for ICM staff and associated stakeholder and interest groups. The site has around 50 members and is used to discuss research questions and share progress across disciplines, and practice areas.

The **Mountains to Sea** (2002–2004) initiative was a collaboration of scientists and artists looking into new ways of understanding and conveying ideas about the environmental and social interconnections that shape the Motueka catchment. It was part funded by the Smash Palace Artsci fund (a MoRST & Creative NZ partnership). A significant output of the project was the **Travelling River exhibition** which combined more than 250 community photographs, science images and stories from over 60 residents and researchers in the Motueka catchment. The exhibition was held in two locations during 2004 – the Nelson Suter Gallery and the Motueka Museum. It later led to the **Watershed Talk** project – the trial of a platform for dialogue and problem-solving.

The **Sediment Learning Group** was one of a number of approaches, trialled through the programme, to facilitate constructive interaction that links science, management and policy. The group was made up of researchers and practitioners with an interest in sediment management including individuals from TDC, ICM research agencies, Weyerhaeuser Forestry, Fish & Game, MIRMAK & Federated Farmers. The focus of the group has been on dialogue approaches to develop a shared understanding of sediment management issues.

6.4.1 Evaluation in the ICM programme

An overview of the social learning capacity work undertaken in the ICM programme suggests that the various efforts could be grouped as two related foci of activity: (i) the development and use of frameworks, for understanding an interdisciplinary research programme as a social system, and (ii) the design and trial of platforms for dialogue, reflection and systems thinking.



Frameworks for matching theory to practice, for interpreting events and planning activities, coupled with platforms for reflection and learning, are fundamental ingredients of participatory developmental evaluation. In the Whaingaroa Catchment Management Project (Case One) evaluation was a single event used to assess past activities and outcomes. In the Target

Zero programme (Case Two) the evaluation included both historical and formative components but was still a comparatively discrete event, occurring only through an external intervention not embedded in the programme itself. However, in the ICM programme, evaluation is not undertaken as an independent discrete event; rather, participatory and developmental evaluatory techniques are used as part of a continuous practice of fostering critical thinking, helping people to visualise and analyse across a system, and to find their way through the complexity of their experience. So, using the framework of intersection between evaluation and social learning (see Figure 3.3 repeated here) the activities conducted over the life of the programme contributed to **programme management** (e.g. stakeholder analysis, ISKM framework), supported programme participants' **capacity to enquire and problem solve** (e.g. Sediment Learning Group, Watershed Talk) and contributed to **research and development** of integrated catchment management theory and practice (e.g. Watershed Talk).

The example that will be discussed in more depth here – the Social Spaces Framework evaluation – aided participants in their understanding of the communication challenges of the ICM programme, and allowed them to assess the current contribution of the activities they were already undertaking, and identify gaps and priorities for the future (**scoping the problem situation, & programme management**). The framework itself became an important **research** output of the ICM programme as a means to interpret the complex social interaction demands of transdisciplinary research.

6.5 The Social Spaces Framework evaluation of the ICM programme

As outlined in Chapter 3 (section 3.5.1) frameworks can be used to introduce theories of how events happen, to help reveal the unseen but critical processes going on in a programme, and to create lenses for participants to examine how their system is functioning. However, while a framework can add an additional element to evaluation practice, it is not an evaluation approach in itself. Early in the ICM programme's history the ISKM framework was proposed and loosely adopted as the guiding premise for the overall approach of the programme. No specific assessment process was tied to it; rather, it formed part of the overall conversations about how the programme could operate. A similar use has been made of Olsen's Orders of Outcome framework – a way of assessing progress in integrated coastal management initiatives (Olsen 2003). For a framework to be a useful basis for evaluation it must be linked to a process that drives reflection and assessment. This process can be participatory and dialogic, or independent and expert driven; formative or outcome oriented. However, combining frameworks with evaluation process that are participatory, reflective, and formative can assist programmes in making connections to the important theories that influence their actions.

Frameworks for evaluation can be pre-existing or derived from some process of critique which emerges from the programme itself. There are advantages to either case. The benefit of using existing frameworks is that these are usually tested and developed from empirical work elsewhere that has already proved to be beneficial. However, deriving a framework from within the programme itself has the benefit of a tangible logic that has emerged from the actual experience and context and which can have a more recognisable appeal to programme participants. The checklist evaluation approach used in the Target Zero programme is an example of a framework specifically developed for a programme but primarily based on theory and practice (about groups) from elsewhere. The Social Spaces Framework was developed within the programme and used later as the basis for a participatory evaluation and planning process.

6.5.1 Developing the Social Spaces Framework

The Social Spaces Framework emerged out of a request from ICM programme participants to help interpret actions people had already undertaken to promote community engagement with the research programme. A key component of the ICM programme has been to explore new and

innovative ways of engagement with its constituent communities. Over time, this has developed into a quest for increasingly sophisticated interrelationships between science research providers, managers, policymakers and land-users. One of the learning needs of the ICM programme, then, was to assess its current engagement strategies and efforts to develop a good social-learning environment.

In 2006 I undertook an evaluation project using semi-structured interviews with key stakeholders and research collaborators (Kilvington & Allen 2007). This included researchers from the different institutions involved in the programme, members of organisations such as Fish & Game and TDC, as well as community members who had taken part in various programme events (a total of 10 interviews). Interviewees were asked to comment on their experience of the interactions between players in the ICM programme and to highlight any issues.

This review revealed that a wide range of activities, with multiple actors, were already happening in the ICM programme. It also exposed that, for many of the interviewees, the diverse purposes for engagement were creating confusion. At any one time what were the relationship and communication needs that were most pressing? What need for integrated research was being met by broadsheet newsletters or by one-on-one discussions with policymakers or forestry sector representatives? Without question an enormous amount of interaction and communication was going on, but what was it all leading to? The interviews in the 2006 review identified a clear need to provide some means by which the programme could assess the merit of the actions people had already undertaken and to identify gaps and future needs.

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 undeniably challenging and offers an important learning opportunity for participants and those who would work in this way in the future. These levels of collaboration are analogous to what Price (2003) describes as the multiple social spaces within which the process of generating, debating and using science knowledge in the programme takes place. These social spaces comprise their own unique boundaries, their own narratives, and their own contestations and negotiations.

As an outcome of the 2006 study Will Allen and I generated a map of the social spaces within the ICM programme. We identified four social spaces of engagement in the ICM Programme (Figure 6.3), each characterised by specific customs of engagement and core relationships, and shaped by particular intentions – i.e. what participants in this space expected to get out of the communication and relationships. The first three spaces are:

1. Central **research collaboration space**
2. **Learning space** – the space where research meets real-world problems
3. **Information-exchange space** – the intersection between the programme and the general audience of stakeholders and interested parties in the Motueka.

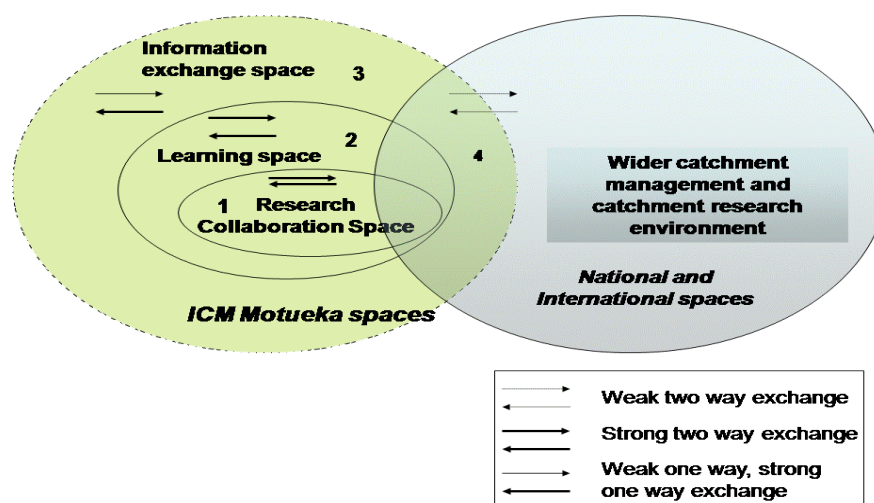


Figure 6.3 Social engagement spaces of the ICM programme.

Each of these spaces 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 denotes the interactions between the ICM programme and the wider national and international catchment research and management community. In later versions of the framework, spaces 1 and 2 were referred to as the ‘science learning’ or ‘interdisciplinary’ space, and the ‘social learning’ or ‘transdisciplinary’ space respectively. This was in recognition that learning, although with different intentions and within different constructs, was a component of both spaces. 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 help define the social space.

In the first instance we used the information from the interviews to populate the map with examples of activities that supported the engagement needs of each social space. However, we considered that the social spaces map would have added value when developed into an evaluation framework to help generate clarity among the programme participants around communication and engagement activities. It was subsequently used in a participatory evaluation exercise during the 2007 AGM.

6.5.2 A review of the social spaces in the ICM programme

Space 1: the research collaboration (interdisciplinary) 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. The focus for the communication and interaction activities in this space therefore is primarily to build a good collaboration environment.

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. Important among these are: the shared online workspace (Confluents); the AGM; as well as common participation by researchers from different disciplines and institutions in research projects.

In the interviews conducted for developing the Social Spaces Framework, ICM researchers commented on the strengthening 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 what they regarded as truly integrated research endeavour had taken place in the programme to date. Principally their ambitions for linking the *physical and the social* meant they were expecting more direct linkages with social researchers on projects. How they expected this to manifest was the bringing together of socio-demographic information (e.g. land use practices of landowners) with biophysical information (siltation and nutrient runoff) rather than working

with social researchers on the process of bringing knowledge together. Similarly, while they welcomed the opportunity of connecting with collaborators at the AGM, this once-a-year opportunity was insufficient to build solid connections. 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.

Out of the initial interviews from the study we identified further questions that would be useful for the programme to explore pertinent to each of the spaces. For the research collaboration space these included: *How is the programme identifying and promoting opportunity for integrated research? How well recognised and acknowledged are the contributions of all the collaborating partners?*

Space 2: The learning (transdisciplinary) space

The learning space is so called because its focus is not information exchange but knowledge building. The distinction between space 1 and space 2 coincides with Van den Besler and Heimeriks' (2001) assessment of the demands of Mode II science where the communication of knowledge within a disciplinary field is expected to differ from the communication of knowledge within a non-disciplinary field. Therefore this space requires the deliberate cultivation of opportunities for dialogue that enable collaborative interpretation of both science- and non-science-generated information, and the development of ideas through negotiation.

The characteristics of activities in this space include all those inherent in good adult-learning environments, namely, clearly identified issues around which there is bounded conflict and diverse viewpoints, the challenging and investigation of existing assumptions, and the ability to integrate new knowledge alongside existing ideas. In addition, given the nature of the basis for inquiry, i.e. the complexity of integrated catchment management, the ability for systems thinking is also important. The functioning of this 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.

The learning space of the ICM programme represents the intersection between science and real-world problems and is therefore arguably of greatest interest to a research programme with

ambitions to make real contributions to on-the-ground issues. Key engagement activities within the learning space of the ICM programme include: the community reference group; tangata whenua participatory research work; multi-stakeholder workshops (e.g. river gravel & channel dynamics workshop); the sediment learning group; in-depth conversations between scientists and resource management agency staff, or community members; Confluens – the online information exchange site. Two activities in this space of particular importance to the ICM programme, and of concern to interviewees, were the partnerships with TDC and the community reference group.

In the review, we concluded that a number of activities that the programme believed were contributing to the development of this space were in reality focused on the information-exchange space. Therefore a key question emerging for discussion in this space was: *to what extent are activities in this space promoting learning, rather than information exchange?*

Space 3: The information-exchange space

Activities in this space are focused on widespread communication of ICM programme research findings to a variety of audiences involved and interested in the environment of the Motueka catchment; coupled with promotion and awareness-raising about integrated catchment management per se. This is primarily one-way communication, i.e. information dissemination, and the challenge of this space is to create a range of opportunities for people to pick up new ideas. This again is influenced by existing networks and historical interactions between ICM scientists and the community of stakeholders. Throughout its 10 years the programme has put some effort into developing conduits for information dissemination and for promoting awareness of the ICM programme. These include the public website, AGM public participation day, the ICM CD Rom, as well as researchers regularly participating in field days.

Questions for this space include: *What are the links between raised awareness of the ICM programme and understanding of ICM as practice? Can more two-way information exchange be promoted through any of these activities and would this be desirable?*

Space 4: Intersection with the wider catchment management community

This fourth space represents the links between the ICM programme and 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. The networks in this space might be regarded as easier to develop than in those associated with the other three social spaces, as the wider ICM research and practice community is based on mutual interest and consequently shares common language with many of the participants in the ICM Programme. This contrasts with spaces 1–3, which are primarily based on their geographic connection, and which consequently are made up of members that have different ways of framing catchment management issues. Four active nodes or links into this wider ICM research and practice community are the HELP programme, the CGIAR Challenge Program on Water and Food (CPWF), the Landcare Trust, and ICM network (Kilvington & Allen 2007).

Questions for this space include: *Is the programme privileging engagement with the geographic community of the Motueka at the expense of the wider global and national community of interest?*

Summary of the social spaces review

During the review of ICM community engagement activities it became clear that any one engagement activity undertaken in the ICM programme might have more than one purpose and conceivably deliver social networking and communication needs identified in more than one space. For instance the Mountains to Sea project and associated Travelling River exhibition were identified as contributing to three spaces: the project developed the collaboration between the biophysical and social researchers in the programme and the artists involved (space 1); the exhibition had wide coverage and reached multiple audiences throughout the Nelson region (space 3); and during the project the social researchers coordinated group reflections on the process of working together resulting in a publication on artsci collaborations (space 2). The Travelling River exhibition was also accompanied by public events where project members facilitated audience reflection on the intersection of views on the catchment that formed the basis of the exhibition (space 2).

However, in our view, ICM programme participants tended to overendow their activities with a sense of achievement. In practice, spaces 1, 3 and 4 were better served by the activities that contributed to them because the communication demands of these spaces more readily fitted with the experience most participants had with traditional research programmes. The learning

space (or transdisciplinary space), in many ways the most critical for delivering on their expectation of integration, was also the most unfamiliar.

6.5.3 Using the Social Spaces Framework in a participatory evaluation

Following the community engagement review a report was produced which outlined the Social Spaces Framework and gave an indication of ongoing significant activities associated with each of the social spaces (Kilvington & Allen 2007). The report was passed on to the programme leader and made available on the ICM website. However, as discussed in Case One (the Whaingaroa Catchment Management Project), this approach to disseminating evaluation findings means that those most informed of the issues across the programme as a whole are the evaluators rather than the programme participants. In our report we had generated questions that could prompt enquiry into different aspects of each of the social spaces to ascertain how well engagement activities were meeting the social networking, learning and/or communication needs. The Social Spaces Framework also raised questions about the distribution of effort across the programme as a whole, i.e. the relative importance of each of the social spaces of the programme and the match to the current spread of activities.

We decided to use the Social Spaces Framework in a participatory evaluation exercise, to ensure wider use of the social spaces concept, to disseminate the information we had gathered across the programme, and to enable exploration of some of the questions the review had raised. The evaluation exercise took place as a workshop within part of the 2007 ICM AGM dedicated to the more introspective aspects of reviewing and planning for the programme. Around 30 people participated, including researchers, TDC staff and members of other local groups associated with the programme. Will Allen facilitated the workshop using a straightforward process of first enabling participants to verify the value of the framework and then use it to interpret the communication and engagement events they had individually and collectively taken part in. Participants broke into groups to work up examples (tell stories) of projects or activities that they thought matched the goals and needs of each of the social spaces, and these were transferred to worksheets (see Figure 6.4).

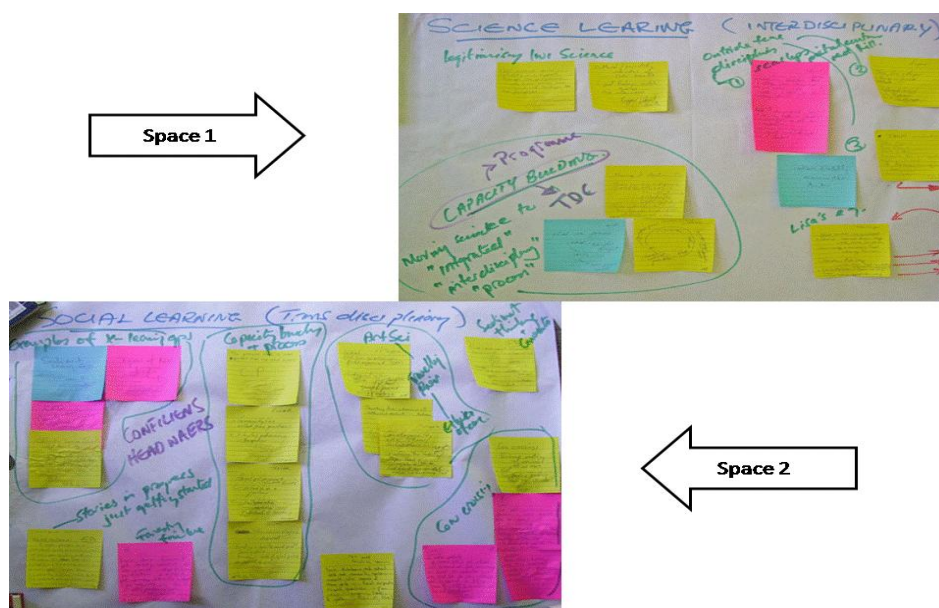


Figure 6.4 Worksheets from the social spaces evaluation exercise at the ICM AGM (2007).

The workshop generated noticeable enthusiasm among the participants; they rapidly became engaged and were clearly taking part in an exercise that had meaning to them. The participatory evaluation based on the Social Spaces Framework was a chance for participants to recognise the value of the work they had done, and to see the inter-linkages and purpose behind events. It also became a way to see across the whole programme, and to make visible the intangible social connections within the programme. Furthermore, the nature of the workshop was such that in itself it contributed to the strengthening of relationships between the ICM programme participants. By founding the workshop around ‘story-telling’ it tapped into the creative contributions of all participants, unconstrained by more formal means of information exchange. A visiting portfolio manager from FRST witnessing the workshop commented on it as being tangible evidence of the successful integrative nature of the ICM programme.

Overall the participatory evaluation exercise showed that the identification of different social spaces within the ICM programme – with different norms of engagement, divergent purposes and emphasis on two- or one-way communication – formed a useful basis to interpret the value of the engagement activities in the programme. One of the advantages of the social spaces model is that it conjures up physical location, which provides a translation of the comparatively ephemeral idea of social norms and practices into a concrete concept. Clarifying the purpose of each social space enabled people to focus on activities that could contribute to its aims.

Through the participatory evaluation participants also increased their knowledge about social systems and interactions.

The Social Spaces Framework evaluation met several of the social-learning-capacity needs within the ICM programme: it highlighted the need for different skills and activities to promote knowledge production; gave form to discussions around how critical partnerships (e.g. with the TDC) could operate; and contributed to the ICM programme's ability to articulate its strategy for communication, engagement and learning. Finally, subsequent presentations of the social spaces work at international forums brought forth interest in incorporating such approaches in other integrated research programmes (Eberhard Braune pers. comm. July 2008)

6.5.4 A comparative framework-based evaluation exercise

In the interests of learning more about the how framework-based evaluations can support the social engagement practices of integrated research programmes, it is worth comparing our experience with the Social Spaces Framework with another exercise conducted at a similar time within a different research programme.

The IRAP programme (see Box 6.4 for summary) and ICM programme are both based on collaborations that operate at multiple levels, between researchers, between institutions, across disciplines and between the potential end-users of science and the science providers. As such they share a common need for understanding, planning and maintaining these relationships and, moreover, for promoting the development and effective utilisation of new knowledge.

As a researcher invited into the IRAP programme¹⁰, one of my primary roles was to provide feedback on the multi-stakeholder collaboration to enable the programme to manage this effectively. As part of this work I followed a similar process employed in the ICM programme. In the first instance I conducted individual interviews with programme members from each of the key research collaborators and primary stakeholders (total of 12 interviews). These were semi-structured conversations designed to illicit issues of importance to the different members in the collaboration.

¹⁰ I was invited to contribute to IRAP by a Landcare Research colleague concerned about challenge the programme might face in delivering the outputs and outcomes desired by the end-user partners. My role did not have overall acceptance in the programme, which proved problematic.

Box 6.4 The IRAP (Integrated Research into Aquifer Protection) programme

The IRAP programme is a FRST-funded programme which started in 2004. It aims to produce nationally applicable tools (decision support systems – DSS) to predict the cumulative effects of changes in land use on groundwater quality at the aquifer scale, and to support decision-making around land management that minimises negative impacts on aquifers.

While IRAP is termed a research programme, and in many ways is managed as such, it is in fact a suite of individually funded programmes organised to work in synergy towards a common goal. It thus brings together research efforts of six separate science providers – AgResearch, Dexcel, Crop & Food Research, Environmental Science Research (ESR), Landcare Research and Lincoln Environmental. A core partner of IRAP is also Environment Canterbury (ECan) and the programme has made considerable effort to build partnerships with two further regional authorities with similar management issues (Environments Waikato and Southland).

The IRAP programme has developed a unique governance model. It has an overall governance group with members of all the key research partners. It also has a science group (analogous to space 1 in the Social Spaces Framework, this is a platform for interchange between the science researchers in the programme) and an end-user advisory group (EAG). This group is made up of stakeholders with an interest in the outcomes of the IRAP programme including representatives from the Waikato and Canterbury regional councils, Federated Farmers, MfE, MAF and others.

Following the interviews, I produced a report that summarised views on the core issues, how interviewees thought the collaboration was progressing and what might be needed to ensure participant contribution, and to build respect and trust amongst the collaborators¹¹. The report discussed aspects of collaboration in multi-stakeholder programmes that the programme members could look to for guidance. Particularly it outlined ISKM as a potential framework for dealing with collaborative processes between science research and other stakeholders.

I presented the report at two meetings of the research and stakeholder groups within the programme. Members of the end-user advisory group showed particular interest in a further evaluation of the programme based on the ISKM structure. In the interests of promoting a more collective appreciation for what was going on in the programme, I designed a checklist evaluation approach similar to that used in the Target Zero programme, in this instance based on the ISKM framework (see Appendices 8 and 9). The evaluation would again be based on a self-diagnosis approach, using the traffic-light scoring system designed for the TZ teams'

¹¹ This report remained an internal document and was not made public.

evaluation (Chapter 5). The checklist evaluation began with identifying the **goals of IRAP**; and then covered four areas of the operation of an integrated research programme based on ISKM.

These were:

1. **Entry and contracting** (who is and should be involved in the programme)
2. **Accessing relevant data, information, and knowledge**
3. **Dialogue and negotiation** (making sense of different contributions from participants)
4. **Implementation and review** (how IRAP's DSS will be maintained and updated)

A final section, entitled **building the climate that makes it work**, covered issues particularly important to the IRAP programme, given their work was to design an implementable model for monitoring nitrate leaching to be used in resource management decision-making. A key concern for the regional authorities involved in the programme was that there would be widespread acceptance of the approach used to make judgments that would affect the farming practices of landowners. Hence a component of the work of the end-user advisory group was to manage the public face of the programme and to build support for the work.

The evaluation exercise was facilitated by Will Allen and myself, and took place during one of the advisory group quarterly meetings. While, it later emerged that some members had gained something from the session (in particular they identified gaps in the programme's activities relating to 'building the climate that makes it work', which they took to the governance group), as facilitators we regarded the exercise as unsuccessful. Participation had been difficult to encourage, and the session was almost without moments of interested discussion, or inspired discovery. The exercise was strongly resisted by one, long-standing, member of the group. As facilitators we reflected on the possible reasons for the failure of the IRAP/ISKM evaluation exercise given its similarity to what we regarded as more successful experiences within the Target Zero programme and the ICM programme. Our reflections suggest three important factors which are pertinent for framework based participatory evaluations. These are: trust among the participants, orientation of the framework, and status of the evaluation within the programme.

The end-user advisory group's membership had recently gone through substantive changes and there were a number of new members for whom this was their first meeting. Although the particular sectors and organisations that made up the stakeholder group were consistent (e.g.

MfE, Federated Farmers), representatives of these organisations had frequently changed, which meant that even though the group had been meeting for some time, it was experiencing a repeat phase of ‘norming’ and there was little established rapport among the group. Rather, many members had barely come to grips with the IRAP programme and its role. This was not conducive to open discussion about how the programme was functioning, and one of the long-standing members, and strong advocate for the programme, clearly viewed the evaluation process as undesirable at this point in time, and indeed questioned its value at any date.

This contrasts strongly with the ICM programme social spaces evaluation where, despite the presence of some outsiders (such as representatives from FRST – the primary funding agency), the evaluation was conducted with a group with strong history and established connection. This ICM programme had also experienced a number of situations where they had debated the value, and direction of their shared work in the ICM programme. Similarly the teams that took part in the Target Zero evaluation generally had a history of working together. Although working with self-assessment-based evaluations can be threatening for even established groups and thus present challenges for facilitators, it is important that there is sufficient trust among the participants to enable them to ask questions, and go beyond glib responses.

The orientation of the evaluation framework can also contribute greatly to its receptivity. Both the Social Spaces Framework and the ISKM Framework offered a theoretical premise for understanding the social processes critical to the success of an integrated research programme. In particular both frameworks, as part of structured evaluations, offered an inquiry into aspects of social learning. The social spaces evaluation draws attention to the notion of fostering social learning as a specific option within the range of engagement and communication opportunities. The ISKM evaluation enquires into practical aspects of interaction between multiple players around the collective development of knowledge (e.g. are the right people involved and how is participation encouraged?).

However, these two framework evaluations differ in their orientation. The Social Spaces Framework evaluation created an opportunity for the ICM programme participants to give meaning to activities they had already undertaken. It can therefore be viewed as ‘success oriented’. This is in line with Cooperrider and Srivastva’s (2001) proposed action-research methodology for supporting organisational change, termed *appreciative inquiry*. This approach

promotes inquiry into attributes of a system that work well as a foundation for future development. Success-oriented evaluation frameworks circumvent resistance to sense of failure or inadequacy which can block active reflection. In later versions of the TZ team's evaluation checklist approach, Will Allen and I introduced the process by encouraging groups to first outline their achievements. This often resulted in groups commenting on how surprised they were at what they had already worked through and created a positive approach to further assessment. In retrospect, given the IRAP group's lack of history with one another and the programme, a more conducive approach to good discussion would have been to start with long-standing group members highlighting the stages the programme had already worked through (e.g. using the timeline approach used in the WCMP case study). This would have encouraged new group members to ask questions and draw out features of the programme with emerging issues in a less overtly critical way.

However, the constraints posed on the facilitation approach chosen in the IRAP evaluation included the status of the evaluation and evaluator (i.e. myself) within the programme. The position and role of social research differed significantly between the ICM and IRAP programmes. Social research in the ICM programme is a dedicated strand of research and as such has an established, if not always well understood, position within the programme. In IRAP, a role for social research, particularly to support collaborative processes was initially negotiated by one of the research partners (Landcare Research) and thus stood outside the overall programme structure. Acceptance of the work in the programme was reluctant. Many of the research collaborators were unconvinced the work was needed and regarded it as imposed. Members of the end-user advisory group were more supportive, viewing it as an opportunity to gain clarity on a programme they regarded as largely dictated by the science research partners. However, overall the environment was hostile, and the work without status in the programme. Programme participants (particularly research partners) found the concept of evaluation for the purposes of self-development rather than accountability unfamiliar. Early conversations with programme participants would often begin with *well you will find this is a very good collaboration because everyone is willing* – implying that they thought I was looking at the programme with a view to passing judgement.

The situation in IRAP again contrasted notably with the ICM programme where, if nothing else, years of rubbing shoulders between the social researchers and the rest of the programme

had built a familiarity and acceptance. In the Target Zero programme the status for the evaluation was influenced by it being a CCC-contracted component of the team training programme. Facing working environments of confusion and suspicion is a common theme for programme evaluators. Pam Oliver (pers. comm. October 2008), long-time evaluation practitioner, even goes so far as to assert that, in her view, *evaluation is an inherently unsafe practice*. It is thus important to ensure the evaluator and evaluations have an acknowledged purpose in the programme.

6.7 Summary – framework evaluation and social learning in ICM

As a multidisciplinary, multi-stakeholder research programme intent on making an impact on real-world environmental problems the ICM programme has core theory and practice needs in engagement, building knowledge, integration, and the theory of ICM. This has direct parallels with the elements encapsulated by the theoretical framework of social learning discussed in Chapter 2. However, despite having an espoused theory-of action based on transdisciplinarity the ICM programme struggled to make sense of the social learning challenge before it.

Work to develop the social learning capacity of the ICM programme has involved two interrelated strands of activity: (i) developing frameworks and participatory evaluation processes – to help articulate the social process aspects of the programme and enable programme participants to pursue actions in line with the programme goals of improving the collective understanding of the system; and (ii) trialling of platforms for dialogue and learning. This chapter has explored the former of these – the experience of developing frameworks and using these as the basis for participatory evaluation exercises, using the example of the Social Spaces Framework and evaluation.

Frameworks are a useful way to help clarify some part of the system – making visible the invisible social processes of the system, while the way in which they are used, such as through workshops or other participatory and evaluator activities, can develop both a shared understanding of the programme among participants, and capacity within the programme for dialogue and reflection. The Social Spaces Framework was developed from within the ICM programme to address specific needs for clarity around engagement and communication activities. It thus had immediate resonance with participants when used in a participatory

evaluation process designed to promote learning across the programme. The comparison of the social spaces evaluation with a parallel experience, using the ISKM framework, in the IRAP programme suggests three important factors for the use of framework-based participatory evaluation: trust among the participants; orientation of the evaluation framework; and status of the evaluation within the programme.