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Building Capacity for Social Learning
in Environmental Management

Margaret J Kilvington

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Building Capacity for Social Learning in Environmental Management

Margaret J Kilvington

This thesis focuses on the increasingly recognised problem of how to build capacity for social learning into environmental management initiatives that address complex multi-stakeholder issues. It examines the proposition that participatory and development (P & D) forms of evaluation, when integrated into environmental management initiatives, can be a useful vehicle for building this capacity. In doing so it addresses three specific challenges.

The first concerns the competing definitions and purposes of the concept of social learning in the current academic and practice literature. Social learning has emerged as an important concept in the discourse around addressing complex environmental management issues. However, the multiple venues in which social learning appears have led to divergence in terminology, and difficulties for the theoretical and practical development of the concept. The thesis responds to this with an analysis of literature and a synthesis of ideas into a proposed framework for translating this normative concept into practice. This involves four interlinked areas for focusing awareness and developing practice in complex-problem-solving situations:

1. How to managing group participation and interaction
2. How to work with and improve the social and institutional conditions for complex problem solving
3. How to improve the learning of individuals, groups and organisations
4. How to enable systems thinking and the integration of different information

The literature also reveals more has been written about the meaning of social learning, or whether social learning has occurred in any given situation, than about the 'how to' of social learning, suggesting the relationship between practice and theory is incoherent. While new approaches in evaluation offer mechanisms by which the ideas of social learning can become a basis for practice, the second challenge addressed in this thesis is an absence of established connection between social learning and evaluation. The thesis responds to this with an examination of the theoretical and practice literature on P & D evaluation and a proposed match with specific social learning capacity development needs of environmental

initiatives. This involves four arenas in which (P & D) evaluation approaches and social learning can intersect:

1. Scoping the environmental-management-problem situation
2. Supporting the capacity to enquire and problem solve
3. Supporting the management of programmes or interventions in the problem situation
4. Research and development that facilitates the growth of theoretical and practical knowledge about addressing complex-environmental-management situations

The third challenge is the limited availability of case history and practical experience of building capacity for social learning in environmental management contexts, or using P & D evaluation to contribute to improving environmental management initiatives. This thesis examines the practical experience of using P & D evaluation to support social learning through four case stories from the Collaborative Learning for Environmental Management group (CLEM) based at Landcare Research. As these cases were concurrent with this thesis they represented an opportunity to put new ideas about social learning into practice. The cases highlight three factors important to the pragmatic potential of using P & D evaluation to support the social learning capacity of a given situation : (i) the evaluator, their skill, values, and role; (ii) the mandate and location of the evaluation; and (iii) organisational disposition to learning and change. Further guidelines for working with P & D evaluation to support social learning are to (i) find champions who are interested, willing, and able to make change happen within their organisation; (ii) review the social learning challenges of the situation; and (iii) use this contextual analysis to design an appropriate response that can take forward some aspect of the social learning potential of the situation.

Skills, understanding and motivation to work in the field of building capacity for social learning remain a limiting factor in the New Zealand environmental management sector. In conclusion I propose a reconsideration of what is currently regarded as core expertise in environmental management, rejecting the primacy of biophysical science, and planning, and rather seeking proficiency in integration, facilitation, systems thinking and knowledge brokerage. Furthermore, social learning is a sophisticated concept of high practical value. However, to be a conscious framework of use to resolving resource use and environmental management dilemmas there must be greater literacy about the core elements of social learning and their relationship to the problem situation and its practical application requires rigorous attention that is responsive to the individual conditions of the situation.

Key words: social learning, participatory evaluation, developmental evaluation, environmental problem solving, integrated environmental management, environmental policy, environmental planning, capacity development, evaluation practice

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Glossary of terms and acronyms

ACAP	Atlantic Coastal Action Programme
AGM	annual general meeting
ANZEA	Aotearoa New Zealand Evaluation Association
Artsci	abbreviation for projects which unite artists and scientists
CBM	community-based management
CCC	Christchurch City Council
CEMP	comprehensive environmental management plan
CLEM	Collaborative Learning for Environmental Management (LCR group)
Creative NZ	Creative New Zealand – arts council of New Zealand
CRI	Crown Research Institute
CRG	community reference group
DOC	Department of Conservation
DSS	decision support system
EAG	end-user advisory group
ECNZ	Electricity Corporation of New Zealand
ENSIS	forestry research agency (a CRI)
FG evaluation	fourth-generation evaluation
FRST	Foundation for Research, Science and Technology
ICM	Integrated Catchment Management programme, Motueka 2000–2010
IGNS	Institute of Geological and Nuclear Sciences (a CRI)
IRAP	Integrated Research into Aquifer Protection programme 2004–
ISKM	Integrated Systems for Knowledge Management
LAMS	local area management strategies
LCR	Landcare Research (a CRI)
MAF	Ministry of Agriculture and Forestry
MfE	Ministry for the Environment
MIRMAK	Motueka Iwi Resource Management Komiti
MoRST	Ministry of Research, Science and Technology
NIWA	National Institute of Water and Atmospheric research (a CRI)
P & D	participatory and developmental [evaluation]
RMA	Resource Management Act 1991
SMF	Sustainable Management Fund (grant administered by MfE)
TDC	Tasman District Council (unitary resource management agency)
TNS	The Natural Step (a sustainable business framework)
TQM	Total Quality Management (a business management framework)
TZ	Target Zero waste minimisation programme run by the CCC
WCMP	Whaingaroa Catchment Management Project
WE	Whaingaroa Environment (group established from the WCMP)
WEC	Whaingaroa Environment Centre
WMU	Waste Management Unit of the CCC

Chapter 1

Social learning, environmental management and evaluation: the emergence of a research question

1.1 Introduction

Challenges of climate change, drought, sustainable food production and protection of biodiversity are some of the many environmental global concerns which require local and regional responses. They are increasingly recognised as complex or even ‘wicked’ problems that necessitate increased knowledge not only about the problems themselves but about the ways and means to address them. This thesis is fundamentally about the science and art of problem solving in the wide range of contexts in which environmental management professionals find themselves working. Specifically, I look at social learning as one of the emergent frameworks for understanding complex environmental problem solving, and through this study I investigate a potential role for participatory and developmental evaluation in building the capacity to address environmental management problems by supporting the social learning potential of the problem situation.

This focus for this thesis is the increasingly recognised problem of how to build capacity for social learning into environmental management initiatives that address complex multi-stakeholder issues. The proposition it examines is that participatory and development (P & D) oriented forms of evaluation, when integrated into environmental management initiatives, can be a useful vehicle for building this capacity. In doing so it addresses three specific challenges. The first of these is the competing definitions and purposes of the concept of social learning in the current academic and practice literature. The thesis responds to this with an analysis of literature and a proposed framework for translating this normative concept into practice. The second is an absence of an established connection between social learning and evaluation. The thesis again responds to this with an examination of the theoretical and practice literature on P & D evaluation and a proposed match with specific social learning capacity development needs of environmental initiatives. The third challenge is the limited availability of case history and practice experience of either building capacity for social learning in environmental management

contexts, or using P & D evaluation to contribute to improving environmental management initiatives. This thesis remedies this gap by examining the practical experience of using P & D evaluation to support social learning through four case stories from the work of the Collaborative Learning for Environmental Management group (CLEM) based at Landcare Research. As work ongoing in conjunction with this thesis these cases represented an opportunity to integrate new ideas about social learning into practice. In this way this thesis grounds theoretical understanding of social learning within the limitations and possibilities of practice on-the-ground.

The constituency of interest for this thesis is twofold. In recent years the number of authors writing about social learning as either a normative concept or an outcome of various collaborative environmental management activities has swelled considerably. The divergence in their interpretations highlights a need for improved clarity around the concept, and an examination of some of the articulated claims for social learning in practice (Reed 2010). Similarly environmental management professionals in search of guidance in addressing complex, pressing environmental management issues are expressing interest in concepts such as adaptive management and social learning, and in particular seek ways to translate these ideas into practice.

In this chapter I begin with a discussion of the background to this research area, why it is a valid area for enquiry, and the key concepts involved. Following this I present the central argument of the thesis, summarise the scope of the research, and outline the research methodology. The chapter concludes with an overview of the thesis structure.

1.2 Background and key concepts

1.2.1 Environmental problem solving – a changing role for management agencies

Environmental management challenges come in many forms. They include contests over resources, such as competing land use, water allocation, and consumption of non-renewables; or pressures on systems, typified by fluctuating impacts over time, hidden thresholds, and multiple interrelated causes, such as non-point source pollution, biodiversity loss, or climate change (Pahl-Wostl & Hare 2004). Management of these problems is and needs to be ongoing.

However, what compounds the modern environmental dilemma is uncertainty. Information about the problem will most likely be incomplete –some crucial factors may even be undeterminable – and when available it can be debated by different stakeholders on the basis of its relevance or meaning. The proffered solutions to the problem may, when tested, fix one part of the problem only to reveal yet another. Moreover problem situations are frequently subject to multiple and contested values, as stakeholders dispute problem causes and remedies and their role in these, or maybe even the existence of a problem at all (Friedman & Abonyi 1976; Lee 1999).

In addition, the management of environmental problem systems frequently requires a focus of attention at scales and over boundaries of jurisdiction that differ from those of existing authorised management institutions. Accordingly, successful outcomes to environmental problems can depend on the coordinated actions of decision-makers at different levels, from paddock (land managers) to region (policymakers) (Allen 2001). Under such conditions, environmental problem solving becomes not so much a matter of determining the solution as mediating a course between the many possible perspectives. Such a process requires that many viewpoints and sources of information be shared among the different stakeholders concerned, and then integrated to find solutions that will guide the way forward (ibid.).

At the same time, any complex problem system (and these statements could indeed be true of other complex problem systems such as community health or social poverty) cannot be managed by relying on the accumulation of centralised banks of knowledge, and the Solomon-like dispensation of judgments and decisions. As O'Rourke and Eungkyoon (2004) note in their review of regulatory mechanisms to address pollution in the US manufacturing sector, a key limitation of command and control regulatory measures is the inability to gather information on complex and ever-changing industrial practices.

Contrary to the assumption in traditional regulation that the government can know the answer to pollution problems, regulatory agencies rarely have sufficient knowledge or information to deal with rapidly changing technical or managerial problems. Market based mechanisms face similar problems...As a number of analysts have noted, neither command-control nor market based approaches are well suited to institutional learning or adaptation to new information. (O'Rourke & Eungkyoon 2004, p. 191)

While the limitations of applying rational comprehensive problem solving techniques to decentralised environmental issues have long been apparent, alternative processes have been slow to emerge. Pahl-Wostl (2002) provides an example of this in the area of water pollution. She notes successes across industrial nations in Western Europe in implementing measures to address point-source contaminants which contrast markedly with the absence of action in addressing the more substantive impact from diffuse pollution sources across the agricultural sector. However, despite the seeming lack of progress there is growing awareness among environmental management agencies about the limits of their regulatory processes, observing in many cases that regulation is not a linear process where policymakers enforce a particular policy with a distinctive and well-defined effect, rather it is *a learning process where the interaction between policy-makers and stakeholders is as important as the rules themselves* (ESRC 2000).

Keen et al. (2005) sum up the impact of the changes to policy, planning and management as these come to grips with the implications of sustainability and the growing complexity of environmental problems:

Social and ecological sustainability ultimately depend on our capacity to learn together and respond to changing circumstances... [This requires an approach] that goes beyond existing methodologies and the conventional, and problematic traditions they bring with them. (ibid., p. 6)

In essence Keen et al. are observing that the possibility to introduce fundamental change only arises when the causes and assumptions that lead to current conditions can be seen, not just by one group in society but by the many stakeholders whose influence is critical. This clearly requires learning, not just within one sector, or by a single agency, but across groups, within and between organisations. The foremost inference then that can be drawn from the character of environmental problems is that management can no longer be regarded as:

...a search for the optimal solution to one problem but an ongoing learning and negotiation process where a high priority is given to questions of communication, perspective sharing and development of adaptive group strategies for problem solving. (Pahl-Wostl & Hare 2004, p. 395)

This changing context for environmental problem solving, where collaboration, networks and partnerships are crucial, in turn creates pressures for the actors in the system. Local, regional and national government bodies, and even those outside government, find themselves required to perform new and unfamiliar functions; and to engage with communities, stakeholders or sector groups in new ways. The agencies mandated (or obligated in some way) to take action in addressing complex environmental management problems are also changing. While these have traditionally included the different levels of government, NGOs and development agencies, increasingly they include environmental science research programmes.

In New Zealand, as in many other countries, science funding agencies have steadily signalled the need for ‘outcomes’ rather than ‘outputs’ from research in commercial and public good areas alike, in line with a more applied science research model. This shift in policy around science research has been of particular significance to the area of environmental science as it follows on reforms a decade earlier (in the 1980s) which privatised agricultural extension. Where once government extension agents (based in the Ministry of Agriculture) would have taken a lead role in supporting development and change in the agricultural sector, there was now a gap in capacity for the dissemination of ideas not easily marketable as technological innovation, or improvement of production (Allen et al. 2002). While regional councils, as the primary operational environmental management agencies in New Zealand, have worked to fill this gap by supporting various initiatives such as Landcare groups (Ritchie 1995), this has also prompted environmental science research programmes towards an uneasy shift in responsibility, moving from providing information to help solve problems, to providing the mechanisms by which these problems are addressed¹. Consequently many now go to some lengths to ensure end-user involvement in the programme with the hope of greater uptake of the information and technologies being developed.

At the heart of the new challenge for all these agencies responding to the increasing complexity of environmental management is essentially how to develop a structure of learning and collaboration with wider stakeholder communities. For resource management agencies such as

¹ In New Zealand the recognition of a lack of uptake of environmental science has resulted in the Foundation for Research, Science and Technology creating a specific fund – Envirolink – to enable some local and regional councils (those with more limited resources) to connect with research expertise.

regional councils this might take the form of what are termed integrated environmental management, or co-management programmes. For research institutions this means treading the new and unfamiliar territory of transdisciplinary research (Funtowicz & Ravetz 1993; Gallopin et al. 2001; Tress et al. 2005). Literature on the theory of these frameworks abounds (Berkes et al. 1991; Margerum 1999; Cash et al. 2006; Marshall 2008). However, while many authors stress the importance of collective and inter-organisational learning processes in contemporary society (e.g. Knoepfel & Kissling-Näff 1998), others note the lack in existing arrangements and the significant scale of shift that is necessary. Daniels and Walker (1996, p. 72), for instance, observe that the interdependence among *good science, good civic dialogue, good local knowledge, and good learning* has not always been well accommodated by natural resource management organisations and stress the need for environmental management agencies to reinvent themselves to better serve the public interest, with particular emphasis on the need for a learning basis to public participation approaches. Furthermore, while integrated, collaborative, or community-based approaches to environmental problems are increasingly advocated to help address environmental management issues, what agencies are perhaps less conscious of, and less prepared for, is that with these processes comes a significant challenge to their sense of control (Pahl-Wostl & Hare 2004). In other words, they may be asked to sacrifice a system of knowing and informing for one of mutual enquiry.

Recent research into the social processes of environmental problem solving has often been drawn to the largely externalised issue of behaviour change among the wider community than to the collective interactions of agencies and communities. In particular much effort has gone into ‘view’ or ‘attitude’ change as a presumed precursor to ‘behaviour change’. However, inherent in behaviour change to support sustainable management is the cumulative and incremental learning of new ideas (Roling 1993 in Allen 2001) and the trialling and testing of possible approaches (Holling 1978 in Peterson et al. 1997). Facilitating this learning goes beyond the common information dissemination role adopted by agencies such as regional councils. Instead, it requires such agencies to change status in decision-making arenas from educators to facilitators of learning processes and even co-learners (collaborative learners) with a range of communities including scientists and landowners. To achieve such shifts in their own behaviour agencies themselves have the same requirements of a supportive learning

environment needed by those ‘out there in the community’, where learners can confidently expose their vulnerability in ‘not knowing’ and ‘changing their minds’ (Allen 2001).

Furthermore, it becomes apparent that for environmental management agencies to embrace adaptive, learning-based approaches to the complex environmental management issues that are their sphere of responsibility, they require characteristics and capacity across the institution, not just within sporadic pockets or within particular individuals. Such characteristics include being permeable, absorbing concepts and views from outside and building partnership with other stakeholders (Nicholls et al. 2000). Since the nature of adaptive management is experimental and experiential, what is also required is an organisational acceptance of ‘making mistakes’ as a necessity of learning (ibid.).

Factors that work against environmental management agencies developing such characteristics include historical hierarchies and power relationships, public expectations, a growing culture of accountability (O’Neil 2002) and the immediacy of pressures that lead to reactive decision-making. Significant also is the considerable inertia in adopting new policy making structures. To learn to do things differently the learning process itself must be suitable for institutionalising, and must have characteristics that are acceptable and recognisable to agencies and the individuals within them.

1.2.2 Programmes to tackle environmental management issues

Setting up specific programmes, either intervention oriented, research oriented or a mixture of the two, is a common way to carry out what is perceived as a needed change in an environmental problem system. These programmes may be aimed at addressing one or more (rarely all) of the characteristics of environmental problems discussed above. For instance they can be about enabling stakeholders to come together to exchange information and collaborate on a response to a problem situation; undertaking research to improve understanding of the intersecting factors contributing to a problem situation; or trialling the implementation of a designated policy instrument, such as on-farm effluent budgeting as a tool to manage nutrient runoff and water contamination. As programmes are such a critical pathway to improving complex environmental situations it is important to consider some of their common and more

problematic aspects. The comments included here arise from my own observations, and those of colleagues, from interviews conducted through this research and from the literature.

Firstly, environmental management programmes can be almost entirely devoid of any working theory around the processes of social change which they are nevertheless dependent on to meet their objectives. It is not unreasonable to suggest that many environmental programmes do not in fact regard themselves as programmes of social change, identifying more strongly with desires to change the biophysical environment (e.g. improve water quality, or protect biodiversity) or implement new environmental technologies (e.g. divert energy use to renewable sources). They consequently regard the means to achieve these aims as largely a communication challenge. Further, where there is some recognition that processes beyond social marketing are required to initiate changes in target communities this is often accompanied by a search for recipes or standard procedures to guide the change process element of the programme. Failing that, it may be that the programme proponents seek the input of a change specialist upon who will fall the responsibility to drive a process of change largely circumscribed within the existing programme objectives. For instance a programme set up by a local council to ensure planting of indigenous vegetation along erosion-prone coastal land may find it needs to employ a community coordinator to increase volunteer involvement. This is a valid approach to delivering a programme about planting, which will nevertheless maintain a status quo in the relationship between the local council, the community and the coastal area. However, if the wider aim of the project is to achieve ‘community based coastal management’ (as it often is), this requires a more sophisticated understanding about the barriers and opportunities for empowering communities which will at least include some alteration in the way agencies work with communities and view their role in management.

Secondly, and in common with many programmes aimed at some form of social intervention (e.g. youth crime prevention, or community health), environmental management programmes frequently concentrate on outcomes that are large in scale, and future focused (A. Clark, personal communication, October 2009). In many ways this is understandable, as support and funding for these initiatives can often be contingent on the promise of substantive changes in a problem situation. However, what is frequently lacking is a connection between the objectives and activities of the programme and these broader goals. In short the programmes I have

observed can either say what they are going to do (e.g. form a group with 12 community stakeholders; discuss a particular problem; or monitor a particular environmental factor) and what they intend to achieve (e.g. better management of the environmental problem), but are often short of means to connect the two (i.e. in what way will forming a group of stakeholders improve the management of a problem, and what other steps are needed to ensure this outcome?). Such a deficit in programme logic can mean that programme participants and proponents alike find themselves without any way of tracking what stage of the programme journey they are on, whether they are making progress in the right direction or indeed in any direction at all! The programme proponents can find themselves in a predicament when they are subsequently evaluated on their achievements in relation to these large-scale goals, when more realistically the programme could only ever have contributed to improvements in aspects of the problem system.

This highlights a third common problem, the lack of oversight of the problem system that would enable programmes to be recognised as interacting and contributing to a collective system improvement. Understanding the relationship between programmes in terms of how they relate to a whole problem situation enables them to specialise in a more limited range of activities, while making the necessary links to other actions that complement their work. Lack of cogent programme planning is not unique to environmental management and the role of evaluation in supporting the development of programme logic is discussed further in Chapter 3.

My final observation about environmental management programmes relates to the capacity for programmes to monitor their performance in a way that is constructive and contributes to the programme development. Environmental management programmes can be subject to evaluations that appear at the end of the programme and are framed primarily in terms of accountability. Again this not unique and is understandable. These programmes are largely funded through public money for which there is much contest, and there is a need for transparency regarding how they are managed. However, accountability-oriented evaluation, particularly where goals have been only loosely connected to objectives and activities, can end up with the programme proponents and participants trying to justify or excuse the divergent directions the programme has taken. These programmes are often moving into uncharted territory, trying to achieve changes for which there are no clear precedents. In such

circumstances they would be better served by evaluation that is formative², which assists programmes to develop their logic and purpose, enables them to better deliver on their objectives, and moreover increases the store of knowledge about what are key transformational elements in environmental management programmes.

1.2.3 Social learning: an emerging concept

The increased awareness of both the uncertainty and unpredictability that characterises modern environmental management, and the consequent need for agencies to develop new ways of working with communities and sectors that have a stake in the problem situation, suggests that central to the environmental problematique is an increased capacity to learn and adapt. Therefore the ability to more consciously learn their way through problem situations is relevant for environmental management agencies, problem ‘experts’ such as science researchers; as well as land and resource users, and other stakeholders. This can be summarised as a demand for learning at four different levels. Firstly, the problem situations themselves need to be learnt about – what are the boundaries of the problem system, what are the key influences? What do we know about these? Secondly, the solutions or responses need to be tested and learnt about – what are the consequences intended and unintended? Thirdly, the social processes of change inherent in environmental management programmes need to be learnt about – do they involve and motivate people effectively? Finally, the environmental programmes themselves need to be learnt about – how do we move from situation ‘a’ to situation ‘b’ and how can we tell that we are making progress?

In the last decade, social learning has emerged alongside other frameworks that support understanding around the social problem solving processes and knowledge management needs of environmental management. These include adaptive management, collaborative learning, community-based environmental management, and integrated environmental management (e.g. Gunderson 1999; Lee 1999; Margerum 1999; Berkes et al. 1991). Many of these speak to the recognised need for collective and inter-organisational learning processes for resolving complex environmental issues, and also the widely acknowledged lack in existing arrangements discussed above. Social learning has increasingly appeared as an overall framework for

² Sometimes called ‘developmental evaluation’, formative evaluation is aimed at improving how a programme operates – see Chapter 3.

interpreting the demands of complex environmental problem solving. In this thesis, therefore, where I am looking at how to improve the capacity for problem solving I first look to social learning to help understand the nature of the environmental problem solving challenge (Chapter 2). Subsequently, in my analysis of the case stories in this thesis I have taken ‘building capacity for social learning’ as a proxy for ‘building capacity for addressing complex environmental problem situations’.

1.2.4 Building social learning capacity: participatory developmental evaluation

While social learning, as a modern concept relating to environmental management, has been widely examined in a variety of contexts, it has most commonly been treated as an outcome, or phenomenon of problem-solving processes. Indeed a few authors have looked at measuring or assessing social learning as an outcome of community engagement in public planning (e.g. Hayward 2000; Schusler et al. 2003), but fewer have looked at how the social learning potential of any given situation can be improved. An exception would be the doctoral work of Christine King, which has specifically investigated a model and theory for facilitating social learning (King 2000b; King & Jiggins 2002).

Since the fundamental premise of social learning is self-evident in its name (i.e. learning that is social in nature, embedded in social context, and influenced by social arrangements) it is a logical assumption that any capacity building approach needs to be able to contribute to the learning potential and work with the important social conditional elements. However, while I have suggested that the context of environmental management calls for an increased learning capacity at multiple levels, it is questionable whether much appetite for this learning exists, given the tendency for environmental management programmes to be outcome oriented (even constrained to be so by their funding and resource context) and to favour action over reflection. Further, I would argue that environmental management programmes have not always been well served by social research that has taken a ‘post experience’ (ex-post) approach to examining case studies. While these may have built a stock of knowledge based on the successes or failures of practice, which contribute to academic literature, they have not necessarily added value to the way these programmes have been run or the development of expertise in the sector over time. Consequently, developing social learning capacity in environmental management programmes has to work with an existing antipathy towards activities that detract from the

central task, and yet meet the need for increased knowledge and skills set within real-time problem solving contexts.

The central line of reasoning in this thesis rests on the idea that evaluation – particularly participatory and developmental (P & D) oriented approaches – have something to contribute to this challenge of building capacity for social learning. The links between social learning and P&D methodologies are palpable. The principles of each rest in context-based learning practices. However, while social learning is emerging and far from widely or consistently understood (let alone applied), the converse could be said of evaluation practices per se. Evaluation – principally post-event-based evaluation processes – has a long-established institutional role in supporting policy development. Consequently, while the challenges of developing an ‘evaluation culture’ in organisations are recognised widely in the evaluation field (Duignan 2001), there is at least a base level of understanding of evaluation in some form within government organisations generally. In an era that places increasing emphasis on environmental management agencies being responsive and accountable, techniques that contribute to an organisation’s ability to meet these requirements may find some purchase.

My own interest in participatory and developmental forms of evaluation and their relationship to social learning is through their potential to support both reflection and collaborative learning. The role of evaluation (specifically P & D forms) in supporting capacity for reflective and contextual learning for organisations dealing with complex problem solving experiences has been explored in the field of development studies (e.g. Davies 1998). Furthermore evaluation practice and theory has much to say on ways in which particular approaches can be used to provide direction in the overall structure of a programme by offering insight on what is going on, what is meant to be happening, and what actually is, at the same time as enhancing the learning capacity within the programme.

However, social learning is also about social practices and institutional arrangements. Intervention programmes, whether they are discrete projects or long-term endeavours, are a manifestation of existing social norms, and theories of action. In order to build capacity for social learning it is important to also have some influence on these wider social and institutional settings for environmental problem solving. Again evaluation potentially has something to offer

as an accepted format for learning and instigating programme change. Although, the question remains: does evaluation practice actually lead to changes in institutional settings? In Chapter 3 I examine recent developments in evaluation practice and theory for what they may have to offer the challenge of building capacity for social learning and environmental management.

1.3 Thesis scope

The principal question explored in this thesis is ‘what can be learnt about using participatory and developmental evaluation techniques to build capacity for social learning in environmental management?’ To address this question I firstly investigate the literature around social learning and participatory, developmental evaluation. Secondly, I examine four case stories from the work of the collaborative learning for environmental management group (CLEM) based at Landcare Research (a New Zealand Crown Research Institute). I was a researcher with this group, which, from 1997 to 2008, worked as a small social-research-oriented community of practice operating within a much larger agency focused on biophysical research into terrestrial ecosystem management. Thirdly, I compare the understandings gleaned from the literature and cases with experiences of evaluators and environmental management practitioners working across New Zealand.

The thesis therefore contributes to the field of environmental management through two avenues: linking literature and reviewing practice.

1.3.1 Linking literature

Evaluation and monitoring have recognised roles in community development, programme management, and a variety of fields where long-term, complex social change is sought. To a lesser, but increasing extent it has been integrated into environmental management programme initiatives. In this thesis I provide a specific link to the role a subset of evaluation practice and theory (participatory, developmental evaluation) can play in building the social learning capacity of environmental management programme initiatives. To do this, firstly, I review the literature on social learning (Chapter 2) – asking the questions: ‘How is social learning to be understood in the environmental management context? What are regarded as core elements of social learning? and What are the capacity building implications of this?’ Secondly, I examine

branches of evaluation theory and practice that hold most promise for supporting social learning capacity (Chapter 3); looking particularly at advances in response to the perceived need for evaluation to support learning within programmes. In this I am guided by the question: ‘What approaches to evaluation practice can help build social learning capacity in environmental management programmes?’

1.3.2 Reviewing practice

The review of practice in this thesis has two parts. The dominant part looks at four cases where evaluation approaches are used to support learning within environmental programmes (Chapters 4–7). These are not randomly sampled; rather they are the personal experiences of my work with CLEM over the past ten years. As such each case offers a progression of thinking and learning about the potential role of evaluation to support social learning.

A second part of the practice review has been to test ideas of how evaluation practices can work with social learning by talking with environmental management practitioners and evaluators. There have been six semi-structured interviews over the length of the thesis (see Appendix 1) and numerous informal exchanges through attendance at meetings, workshops and conferences, in particular through the ANZEA (Aotearoa New Zealand Evaluation association) network.

1.3.3 Establishing a field of inquiry for this research

The four stories presented in this thesis can be regarded as case studies in that they have distinct boundaries in terms of time, location and participants, but they could also be seen as components of one single case study – the actions, reflections and learning of a community of practitioners (CLEM) whose focus has been to build capacity for social learning in a number of different contexts and through varying opportunities. Consequently, this thesis does not stand alone as a research project; rather it is part of the ongoing and collective experience of CLEM. In this section I will describe the work of CLEM as fundamental background and, in essence, the generator of the field of inquiry for the empirical work in this thesis.

CLEM is a small social research group, working within a larger environmental research institution – Landcare Research (LCR), a Crown Research Institute (CRI)³ whose primary focus is biophysical research on terrestrial ecosystem management. The work of CLEM has emerged from an increased interest in the social aspects of resource management problems. In consequence integrated research across disciplines and including social research components became an increasingly popular genre of research programme. At the same time, the social research within these programmes also changed, and has extended from an almost exclusive focus on descriptive, semi-anthropological understandings of the ‘human dimension’ to an interest in influencing the intersection of science, policy, management and decision-making.

In this context CLEM has negotiated an often tenuous but consistent role over the last ten years, working in a variety of capacities to facilitate and develop understandings around collaborative learning approaches to complex environmental problem solving. The collective work of the group has rested on two premises: (1) that collaborative and adaptive processes are important components of addressing complex environmental management problems; and (2) that an engaged, action-reflection-based (action research) approach is most appropriate to employ to both better understand and support the improved capacity for such processes.

While through its history CLEM has often been without true formal status in the overall organisational arrangements of Landcare Research it has unquestionably worked as a ‘community of practice’ (Lave & Wenger 1991; Wenger 1998, 2007). When I began this PhD the group had a membership of five researchers, employed in various capacities and locations across Landcare Research⁴. They were linked together in a largely virtual organisational structure which crosses existing real boundaries of teams and locations. Indeed, while

³ A CRI is a state-owned, corporate scientific research organisation. Each CRI has a focus on the perceived research needs of a given sector. For Landcare Research this is terrestrial environmental management. CRIs are also charged with promoting the transfer and dissemination of science & technology, i.e. ensuring that research makes a valid contribution to the activities of their target sector.
http://en.wikipedia.org/wiki/Crown_Research_Institutes.

⁴ In the year ending 2008 CLEM was effectively disbanded. Members were relocated to different teams across the organisation, one member had resigned and another taken maternity leave. The website was subsumed within the overall LCR website. With my own PhD work taking me away from the group, the barriers to a functioning community of practice became all but impossible to overcome and CLEM could be regarded to be in abeyance. CLEM website: http://www.landcareresearch.co.nz/research/research_details.asp?Research_Content_ID=38

organisational arrangements and group members' roles have often changed, the CLEM group has remained a consistent home base.

The shared field of concern and distinguishing competence for CLEM members is the theory and practice of collaborative learning, and its application to environmental management. Action research, capacity building, information systems, empowerment, dialogue and participatory evaluation are all mutual areas of interest and practice. Members did not always work together on projects, but relied on opportunities, formal and informal, to discuss experiences and develop expertise. The common tools for collective learning are formal and informal reflection, and collaborative outputs. Because members typically worked independently on projects not conceived or directed by CLEM (and therefore often with tangential goals to those of the CLEM group), opportunities to develop learning and practice in the areas of interest to CLEM have often been surreptitious and opportunistic (even regarded as subversive by some within the wider LCR organisation). The creation of a collaborative learning website has been a focal point for research and project outputs and in itself created a virtual community of interest in the wider national and international arena – in turn strengthening the identity of CLEM.

There are two important aspects to the status and functioning of CLEM (and the work of group members) that have heavily influenced the opportunities for developing a coherent body of research in the field of building capacity for social learning. These are project determination; and the positioning of social research in integrated research. The fortune of all science research, whether social or biophysical, is subject to a mixture of influences. These include the proclivities and priorities of funding agencies; the available skills, networks and interests of researchers; opportunities; and access to cases and data. For any group looking to build knowledge in an area, the task of doing so could be regarded less as a matter of determining when and where to work as responding to the sheer serendipity of these factors coming together in time and space. Over time CLEM members have often been accommodated within research programmes where they have had limited input on location and overall direction of research. To counter the drawbacks of working 'in service' to other research programmes, or as 'jobbing researchers' pulling together short-term contracts which have little to link them together, CLEM members have established an independent research agenda. The compromise for CLEM members then is to undertake work in such a way that it can contribute to this agenda while

meeting required outputs for the overall research programme or contract. This can be tantamount to pursuing multiple and at times conflicting goals, and the success or otherwise of this practice is often dependent on the ability to negotiate with programme leaders. Experience has shown that ‘who you work with’ is a manifestly important criterion in being able to determine useful and productive project direction.

1.3.4 Significant stories – cases of building capacity for social learning

The case stories presented in this thesis have been both opportunities to explore aspects of emerging themes around building capacity for social learning and the progenitors of those themes. In other words we learnt as we went and developed more ideas about what was important and what questions to ask. Combined they represent a rich field to develop skills and ideas around capacity building for social learning. Individually, they are separate cases with differing prospects for what can be learnt.

I refer to these as ‘case stories’ to distinguish them from the formal construct of case studies and the assumption that I would be strictly following the precepts commonly associated with case study research⁵. The main distinction is that the common denominators in each of the case stories is not their context, the methods employed, or even the intended outcomes of the work. Rather each case represents a cycle of learning for me as a researcher within the overall inquiry that forms the basis for the work of the CLEM group. In short I and, via consequent group reflection and analysis, CLEM as a whole learnt something from each case experience about the way in which the capacity for social learning could be developed and supported. This went on to influence our collective research interest and practice.

The case stories used in this thesis are: the Whaingaroa Catchment Management Project (Chapter 4); the Target Zero programme (Chapter 5); integrated environmental research – the ICM and IRAP programmes (Chapter 6); and Watershed Talk – a subproject within the ICM programme. Their relationship to one another and to the development of the emerging areas of enquiry for CLEM is illustrated in Figure 1.1. A brief introduction to each case story follows.

⁵ As outlined by social research methodologists such as Robert K. Yin (1994).

<p>The Whaingaroa Catchment Management Project</p> <p>[1995–1999]</p>	<p>The Whaingaroa catchment is situated on the west coast of the North Island. From 1995 to 1998 a pilot project on community-based environmental management was funded in the catchment with support from the Ministry for the Environment’s (MfE) Sustainable Management Fund (SMF), and the regional environmental management agency – Environment Waikato. My involvement with this project was in the first instance to observe and document the process. I subsequently undertook a goals-free participatory evaluation to meet reporting requirements from MfE.</p>
<p>The Target Zero programme</p> <p>[2000–2002]</p>	<p>Target Zero is an initiative set up by the Christchurch City Council (CCC) to promote and support reduction of environmental impacts by businesses. In the late 1990s, the programme took the form of encouraging industry and manufacturing organisations to set up teams of people to implement waste minimisation efforts across their company. Early on the CCC recognised that the functioning of the teams was critical to the impact of their programme and sought more information about how they were performing. Consequently I was involved in an evaluation of the teams. This evaluation was renegotiated to include a self-reflective development-focused approach that supported teams in their activities as well as assessed how well they were doing.</p>
<p>Integrated environmental research – ICM & IRAP</p> <p>[2000–2010]</p> <p>ICM = integrated catchment management)</p> <p>IRAP = integrated research into aquifer protection</p>	<p>ICM is a 10-year programme that began in July 2000. Based in the Motueka catchment in the Nelson region, 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. Comparatively unique among integrated research programmes has been the inclusion of a substantial strand of work in ‘social learning’. The initial purpose of this work was to improve interactions between science providers and stakeholders and to maximise the uptake and use of new knowledge and tools developed from scientific research. As the understanding of social learning changed over time, two interrelated strands of activity evolved: (1) the introduction of frameworks for seeing across complex systems and (2) the trialling of platforms for dialogue, reflection and systems thinking.</p> <p>Chapter 7 looks at the first of these, reviewing the specific example of the social spaces framework and its use in a participatory evaluation exercise. It is compared with a parallel initiative used in another integrated research programme, IRAP.</p>

**The Watershed
Talk project**

[2007–2009]

Watershed Talk was an action-research subproject within the ICM research programme that designed and trialled a platform for multi-stakeholder dialogue, information sharing and collaborative learning. Participants were recruited from the Motueka catchment, and from a range of backgrounds, to form two groups who would collectively share their knowledge and interpretations of how care and responsibility were manifest in their community and environment. P & D evaluation approaches were fully integrated throughout the project and a number of creative devices (e.g. photography) were used to support individual and group reflection and learning.

To tell these case stories in a way that is meaningful, and which extracts from them critical learning and experience, inevitably involves casting them in a different light to the one in which they were undertaken in the first instance. My methods for doing this are outlined in section 1.4. However, it is worth noting that as I undertook research that has spanned a decade there have been substantial shifts in research focus. To illustrate this Figure 1.1 places the chronology of the case stories against a broad timeline of changes in the overarching themes that occupied the minds of the researchers in CLEM (myself included).

Each of these themes brought with it a particular inclination to the research focus. Accordingly when multi-stakeholder processes were foremost in our minds our interests lay in participatory processes and conflict management. This coincided with my work in the Whaingaroa Catchment Management Project. Moving towards collaborative learning meant an expansion of research interest in group development and the formation of networks, and this influenced the work undertaken in the Target Zero project. Expanded interest in the wider definitions of social learning has brought with it a concern with frameworks for understanding social processes, capacity building evaluation practices and approaches to support reflection, which in turn has influenced work undertaken in the ICM programme. The work for this thesis, which explored social learning theory and practice more fully, was highly influential in the Watershed Talk project. It is important to note that each shift builds on, rather than replaces, previous areas of research interest.

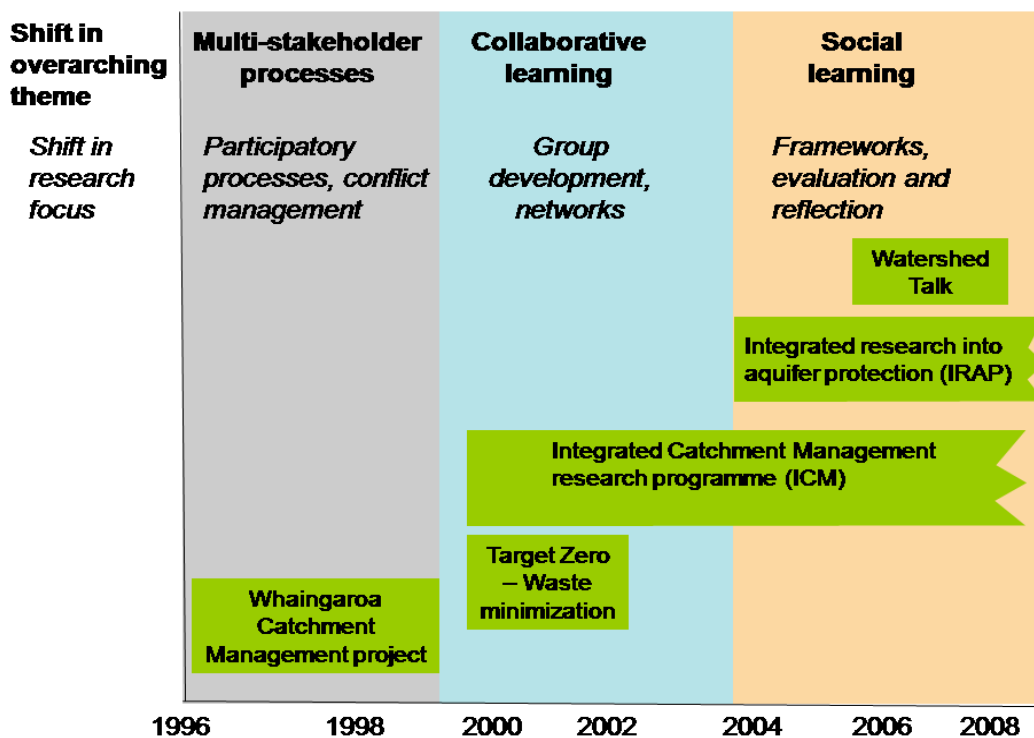


Figure 1.1 Case stories and evolving research focus in CLEM.

1.3.5 Relationship with other work

As mentioned earlier the literature has shown that few people examining social learning and its relationship to environmental management have explored how the actuality of social learning in any given problem situation can be improved. The cumulative action research case study approach in this study is therefore not only contextually unique but makes an uncommon link between theory and practice. However, it is important to clarify what this thesis does not attempt to address. Foremost, although it involves some critique of environmental management programmes as part of the case study analysis, it is not a review of any particular type of environmental management intervention (such as community-based environmental management cf. McCallum et al. 2007), nor is it an assessment of the social learning proficiency or achievement in environmental management programmes or planning settings (cf. Hayward 2000). While evaluation clearly plays a central role in this work it also cannot be regarded as an evaluation thesis in that it does not offer new directions in theory and practice of evaluation per se but rather comments on the issues associated with the location of evaluation in a new role and context. In this it is most closely aligned to PhD work by Irene Guijt (2008) who

has examined monitoring practices to support adaptive management/sustainable living initiatives; and Christine King, who has developed a model and theory of facilitation to support social learning (King 2000).

1.4 Research methodology

Action research forms the overarching methodological framework for this research. In its most straightforward sense, an action research study reviews a problem situation, devises appropriate interventions to change factors in this situation, makes them, observes their impact in situ, reflects on the consequences and revises future decisions and past assumptions (i.e. plan, act, observe, reflect). Action research has emerged as a form of enquiry that links the generation of theory to practice in situations of active intervention to create change (Bray et al. 2000). It naturally lends itself to this research as what I am inquiring into is a practice (specifically my own experiences of using P & D evaluation) and that practice is about influencing a situation (improving the social learning capacity of an environmental problem situation).

Since the aim of action research is to generate strategic improvements in a given situation, extracting general principles for use in the development of theory, the rigour of such research rests on its structured approach, standard of critical reflection and the use of peer review, rather than on being replicable. Consequently declaration of assumptions and existing knowledge starting points, coupled with staggered and purposeful reflection, are fundamental to good action research technique. Dick (1997, 2002) sees the spirals of action research as particularly significant in the question of rigour, noting that each turn of the spiral provides a change to test interpretations of data so far developed as well as the assumptions that guided action.

I have drawn particularly on action-research methodology described by Jean McNiff and Jack Whitehead as ‘action research for professional development’ – designed to formalise practitioner learning around their practice (particularly for use in education and teaching) (McNiff 2002). In this approach, the idea of self-reflection is central. While it rests on a basic problem solving process of identifying a problematic issue, imagining a possible solution, trying it out, evaluating it (did it work?), and changing practice in the light of the evaluation, it becomes research when the assumptions, purpose and values associated with the issues are

exposed and data are gathered and used as evidence to track and assess progress. It is an intentionally incremental approach to building understanding and changing practice, relying on cycles of action and reflection so that the practitioner's actions embody the learning, and the learning is informed by the practitioner's reflection.

Specifically I have incorporated two methodological devices derived from McNiff's work (2005). The first is the reflective questioning technique employed in my review of each case story. In each of the cases I use a standard set of four questions (derived from McNiff 2005) to reflect on what occurred and the significance of this. In addition two further questions were added to test the cases against ideas derived in Chapters 2 and 3 respectively (see Table 1.1). These questions were asked upfront to set the context for the further four.

Table 1.1 Questions for case stories

Questions from McNiff (2005)	Schema of questions for case stories
<i>What did you do?</i> <i>What happened?</i> <i>What did you learn from this?</i> <i>What is the significance of this?</i>	<i>What is the social learning challenge of the situation?</i> <i>What aspect of social learning was supported by the evaluation?</i> <i>What evaluation approach was chosen?</i> <i>What happened/results/outcomes?</i> <i>What was learnt?</i> <i>What is the significance of this?</i>

The second methodological device is the use of 'critical friends' and 'validation groups'. McNiff (2002) describes critical friends (also termed colleagues or learning partners) as someone whose opinion is valued and who is able to critique the work, helping to evaluate its quality and helping the researching practitioner see things in a new light. A validation group is drawn from the professional circle associated with the work, and may not be entirely familiar with the research but is able to make professional judgements about validity and offer critical feedback. In this thesis I have used colleagues from CLEM and others who I have worked with in the case studies (particularly Will Allen, Chrys Horn and Maggie Atkinson) as critical colleagues. The idea of a validation group I have interpreted more widely and used the following: the online Intsci dialogue site (http://learningforsustainability.net/research/intsci_subscribe.php); participants at ANZEA

conference and local group meetings; and interviews with evaluators and environmental management practitioners (see Appendix 1).

1.4.1 Learning cycles

While learning cycles are an important part of the action-research approach they are neither succinct nor particularly edifying to read about. In this thesis I have therefore presented my research in a predominantly linear format, starting with an outline of the problem statement, drawing together a review of relevant theory, examining empirical work, and ending with discussion and conclusions. For transparency in methodology I will briefly outline the six principal cycles of research and learning that sit behind this account (see Figure 1.2).

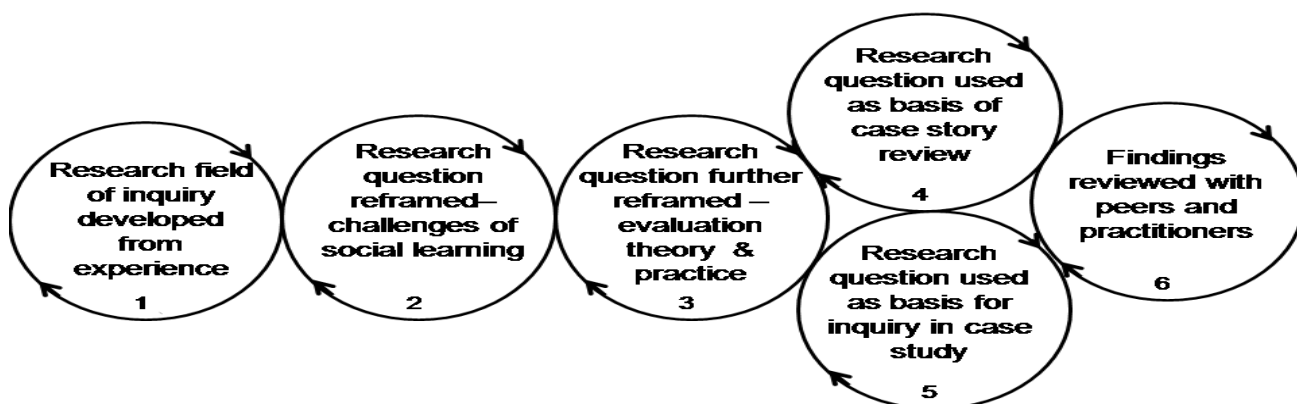


Figure 1.2 Learning cycles in the research process.

Cycle 1 represents a series of reflections on the cumulative and generalisable understandings from work undertaken through CLEM. It has formed the starting point for this work, i.e. what more could be learnt about building capacity for social learning in complex environmental problem situations, and in particular the part that participatory developmental evaluation processes might play in supporting this?

Cycles 2 and 3 both represent engagement with the literature. In the first instance this was the literature on social learning itself. In exploring what had been written about social learning I searched for definitions of social learning, and related theory; contexts where the idea of social

learning was being used, and the purposes to which it has been put. I looked into what was regarded as core components of social learning, and the challenges and opportunities for those engaged in facilitating social learning. What emerges from this review is a strong set of common ideas around social learning in environmental management, and elucidation of the theoretical and praxis needs of working with the concept. These formed the basis for cycle 3 – a review of what evaluation theory and practice might have to offer the demands of building capacity for social learning. To constrain the wide range of options to consider in the substantive field of evaluation, I chose to look at evaluation developments that were associated with three broad trends:

1. Expansion of the core drivers of evaluation from client concern with accountability and information generation to evaluator interest in learning and organisational change
2. Expansion of focus from producing evaluation outcomes that are valued and used to developing evaluation processes that are valued and used
3. Increased cognizance of the power issues and potential for learning and development associated with evaluation knowledge

Cycles 4 and 5 are the analysis and reflection on each of the four case studies. Collectively this can be regarded as a meta-analysis of four evaluation projects. In each case the evaluation methodologies used to support the social learning potential of the situation differ. However, the analysis of each case follows a common format outlined above (Table 1.1). Thus each case story begins with an analysis of the critical factors that frame the social learning challenge. Then I outline the way evaluation was designed to contribute to building capacity for social learning and consequently what evaluation approach was chosen. Following this I examine how the evaluation process was implemented, and the outcomes from this (intended and unintended). Finally it examines what was learnt and the significance of this for understanding how evaluation can support social learning in environmental management.

Cases 1 and 2 (Whaingaroa and Target Zero) have both been assessed entirely retrospectively, using a mixture of existing material generated during the project and, in the case of Whaingaroa, a subsequent meta-analysis that included a critique of the Whaingaroa evaluation

(Greenaway et al. 2003a, 2003b). Cases 3 and 4 have been conducted simultaneously with the work of this thesis, and Case 4 particularly presented an opportunity to further emerging ideas. The final cycle – cycle 6 – represents the reflection on the learning from the case studies as a whole. This includes discussion with other practitioners (Appendix 1) and a return to the literature. The practitioners I interviewed were not randomly selected. The field of practitioners in evaluation and environmental management is vast, although the field of those who combine the two is not. What I was seeking were the experiences of those at least broadly familiar with the concepts of social learning and deliberately using practices they believed were contributing to it. This is effectively a purposeful sampling approach where I selected participants who could confirm, contradict or elaborate on the findings from the research.

1.5 Chapter outline

Chapter Two – Social learning and environmental management

This chapter examines the theoretical basis, core concepts, varying contexts, and potential value of the social learning concept. In it I outline how social learning has emerged as a useful framework for understanding the social process demands inherent in the management of complex environmental issues. I propose that social learning can be regarded as a set four core elements: social and institutional elements; elements of group participation and interaction; elements that are critical to learning; and elements of thinking. From reviews of current literature on social learning I also conclude that more has been written about the meaning of social learning, or whether social learning has occurred, than about the ‘how to’ of social learning. Therefore a key question about building capacity for social learning is how to introduce and embed social learning in ongoing and institutionalised processes of decision-making.

Chapter 3 – Building capacity for social learning: What evaluation has to offer

This chapter looks into the literature on evaluation, seeking out particular branches of evaluation theory and practice that hold promise for supporting social learning capacity in environmental management programmes. I first outline what is meant by building capacity for social learning, and then explain why the field of evaluation is relevant to this challenge, and what we might take from developing forms of evaluation in recent years. Finally I propose four

arena where participatory, developmental evaluation approaches and social learning can intersect. These are:

1. Scoping the environmental management problem situation
2. Supporting the capacity to enquire and problem solve
3. Supporting the management of programmes or interventions in the problem situation
4. Research and development that facilitates the growth of theoretical and practical knowledge about addressing complex environmental management situations

Chapters 4, 5, 6 and 7 each cover case stories that explore the potential role of P & D evaluation in supporting social learning in a range of environmental management contexts. Each case differs in perceived problem scope, the system in which it is situated, and the programme of activity aimed at addressing it. In each case I use the framework of ideas about social learning derived in Chapter 2, coupled with a SWOT analysis, as a standard basis to critique their specific social learning challenges. Coupling evaluation and social learning theory in this way tests out the first of the proposed arena of intersection between evaluation and social learning, i.e. scoping the environmental management problem situation.

Case one – The Whaingaroa Catchment Management Project

Chapter 4 – Social learning in community-based environmental management

Case two – The Target Zero waste minimisation programme

Chapter 5 – Critical thinking in teams

Case three – The social spaces of the Integrated Catchment Management programme

Chapter 6 – Frameworks for seeing across complex systems

Case four – Watershed Talk

Chapter 7 – Platforms for dialogue and reflections

Chapter 8 – Discussion: social learning and participatory developmental evaluation

This chapter returns to the core enquiry of the thesis ‘what can be learnt about using participatory and developmental evaluation techniques to build capacity for social learning?’ I report on the general trends in social learning challenge across each of the case stories and comment on the value of the Social Learning Framework / SWOT analysis as a tool for critiquing complex problem situations. Next I present a review of the collective experiences of applying the various P & D evaluation approaches to support social learning across the cases. From this I highlight emergent success or limitation factors for applying P & D evaluation approaches to complex environmental management problem situations. In the final part of the chapter I comment on the value of the case story approach and on future research directions.

Chapter 9 – Conclusions

In this concluding chapter I consider the implications of the research findings for New Zealand environmental management practice. Drawing on the results of the case story research, and the theoretical discussions I take a second look at social learning and its proposed partner participatory, developmental evaluation, asking: ‘What is their potential contribution in both a theoretical and pragmatic sense?’

1.6 Summary

This research looks into the science and art of problem solving amid the complexity posed by tackling global environmental challenges at a local and regional level. More specifically it investigates a means to support the capacity for social learning in these situations through the use of participatory and developmental evaluation. The central question explored in this thesis is ‘What can be learnt about using participatory and developmental evaluation techniques to build capacity for social learning in environmental management?’ To address this I firstly investigate the literature around social learning and participatory, developmental evaluation. Secondly, I examine four case stories from my work with the collaborative learning for environmental management group (CLEM), based at Landcare Research from 1998 to 2009. Thirdly, I compare the understandings gleaned from the literature and cases, with experiences of evaluators and environmental management practitioners working across New Zealand.

Chapter 2

Social learning and environmental management

The notion of sustainability as a social learning process is now pervasive in environmental and natural resource literature. (Tàbara & Pahl-Wostl 2007)

2.1 Introduction

In theory, if not in practice, identification of the need for more effective, adaptive policy in the area of complex problem solving is not new. Authors exploring the theoretical underpinnings of this new approach to environmental problem solving have emphasised differing elements. These include the importance of the cumulative and incremental learning of new ideas (Allen 2001), the systematic trialling and testing of possible approaches through adaptive management (Lee 1993; Gunderson et al. 1995), and the addressing of the social factors that influence the relative power and voice of stakeholders in problem solving (co-management theory) (Berkes et al. 1991; Berkes 2006). More recently the concept of ‘social learning’ has emerged as a possible hybrid of approaches; a meta-framework of the process of engagement, learning and institutional support required for complex environmental problem solving.

This chapter examines the theoretical basis, core concepts, varying contexts of application, and ultimately the potential value of the social learning concept. It concludes with a summary of key elements of social learning and some commentary on the challenges associated with building capacity for social learning in an environmental management context.

2.2 Definitions, descriptions, and relationships between ideas

In their review of theoretical perspectives on social learning, Parson and Clark (1995) comment on the great diversity of perspectives concealed by the same term, noting:

That many researchers describe the phenomena they are examining as social learning does not necessarily indicate a common theoretical perspective, disciplinary heritage or even language...the deepest difference is that for some social learning means learning by individuals that takes place in social settings and/or is socially conditioned; for others it means learning by social aggregates.

Early origins of the term social learning stem from behaviourist psychology theory, when researchers first became interested in how people learned through observation of others and of role models. Albert Bandura is the name most commonly associated with the development of what was termed ‘observational learning’. Attending to a behaviour; remembering it as a possible model or paradigm; and playing out how it may work for them in different situations (rehearsal) are key aspects of observational learning (Parson & Clark 1995; Smith 2005b; Pahl-Wostl 2006). Webler et al. (1995, p. 445) point out several trajectories emerging from Bandura’s initial work: including those who have examined the possible biological roots of social learning (e.g. Webler et al. 1995), and those who have investigated how social organisations learn (notable among these is the seminal author in organisational learning Chris Argyris)¹. Webler also notes a sociological approach to social learning which, while gaining recent momentum has its roots in critical theory as exemplified by the work of Habermas (1979 in Webler et al. 1995). This work seeks to explain social change as a process of social learning, with cognitive and normative dimensions.

The development of a concept termed social learning in the context of policy, planning and environmental management is comparatively recent², and it is difficult to say for certain that it intentionally shares any theoretical heritage with the work stemming from Bandura’s observational learning. In appearance at least it shares some commonality with later developments to observational learning postulated by Lave and Wenger in the 1990s (Smith 2005a). Their theory, termed situational learning, concentrates less on the idea of learning as the acquisition of knowledge but rather looks at the kinds of social engagements that provide the context for learning to take place. Their focus is on the ways in which learning is *an evolving, continuously renewed set of relations* (Lave & Wenger 1991, p. 50). It is not so much that learners acquire structures or models to understand the world, but they participate in frameworks that have that structure. Learners therefore join communities of practice, initially at the periphery to that community and later more centrally, as their relationships develop. Hence,

¹ See Argyris and Schon’s much quoted paper on organization learning (Argyris & Schon 1978).

² Friedman and Abonyi’s (1976) paper on social learning in policy research predates Bandura’s social learning theory (1977) and makes no connection to the behaviourist theory. Social learning in policy, planning and environmental management is likely to have emerged from several overlapping theoretical sources. However, my own mention (March 2006) of the possibility of using social learning as a framework for collaborative social science research in climate change met with some surprise from social science colleagues who knew of only Bandura’s work under that name.

learning is a social progression. These communities of practice are influenced by, and may change, social structure (Wenger 1998 in Pahl-Wostl 2004).

Smith (1999) identifies three key points from situational learning theory of importance to social learning for environmental management. The first is around where learning takes place and how it can be assessed. Learning is most commonly measured on the assumption that it is a possession of individuals that can be found inside their heads (ibid.). However, situational learning theory tells us the unit of measurement is rather the relationships between people, the conditions that bring people together and the point of contact that allows for particular pieces of information to take on relevance and meaning. Learning does not belong to individual persons, but to the various conversations of which they are a part.

Secondly, situational learning theory has implications for educators. The significance of the community of practice to the process of learning means the critical role of educators is to facilitate engagement and full participation by this community. In the absence of formal educators, any person or process which shapes the participation of members in a community practice is in effect influencing the learning that will take place. Finally, Smith (ibid.) points out the 'situated' nature of social/situational learning means that the context for this learning is firmly rooted in the everyday experience.

2.2.1 Social learning and collaborative learning

Social learning as it is being applied to the context of complex environmental management, does not appear to be entirely rooted in situational learning, rather it is the constructivist theories of collaborative and cooperative learning that emerge as more closely related.

Collaborative and cooperative learning are constructivist theories (based on the work of John Dewey and Jean Piaget³) about the generation and utilisation of knowledge. There are four fundamental assumptions core to each (Smith & MacGregor 1992). Firstly, is the idea that learners are diverse and unique, functioning independently and bringing individual frameworks, experiences and hence constructions to knowledge. Secondly, that learning is an active,

³ Dewey and Piaget's work spans several decades. See Hein (1991).

constructive process. New knowledge is brought into relationship with existing ideas, causing active reorganisation and prioritisation, (hence the information received is not equivalent to the knowledge generated). Thirdly, learning is highly influenced by context and experience (i.e. the learning environment **is** the environment). Finally, learning is an inherently social process. Meaning making, feedback, and mutual exploration not only enrich the learning process, but are critical to the act of information interpretation and contextualisation.

Bonk and Cunningham (1998, p. 34) note the identification of two or possibly more variations of constructivist theory, namely, cognitive and social constructivism.

Cognitive constructivists tend to draw insight from Piaget and focus on individual constructions of knowledge discovered in interaction with the environment. Social constructivists rely more on Vygotsky (1978) and view learning as connection with, and appropriation from, the socio-cultural context within which we are all immersed.

The implications for those developing collaborative learning practices or tools (in the case of Bonk and Cunningham their interest is in computer-supported collaborative learning) of the two branches of constructivism is not insignificant. Bonk and Cunningham (ibid.) observe that whereas cognitive constructivists focus on making learning more relevant, building on the prior knowledge of participants, posing contradictions and addressing misconceptions, social constructivists emphasise human dialogue, interaction, negotiation and collaboration.

Despite these generally recognised constructivist roots, collaborative and cooperative learning appear to lack a commonly accepted and used definition. There are two possible interlinked reasons for this. The term collaborative learning occurs in a wide range of disciplines.

Examples of its use abound in areas as diverse as education, psychology, computer science, community development and environmental management. With such diverse usage it is more than likely that collaborative learning actually refers to multiple, co-evolved ideas about social interaction and learning. Dillenbourg (1999) concludes, after several workshops on collaborative learning with colleagues from education, psychology and computer science, that the only common definition for collaborative learning they could come up with is an unsatisfactory one...*it is a situation in which two or more people learn, or attempt to learn something together* (ibid., p. 1). Dillenbourg further states that collaborative learning is not a

process but a situation in which certain boundaries and conditions are determined (i.e. that this group will work together within a time and space and on a particular task that involves learning) and within this situation certain processes may be introduced.

A second likely reason for the lack of a consistent definition is poor linkages between theory derived from practice (where practitioners explore the nuances of their experiences with collaborative and cooperative learning) and constructivist theory development per se. Bonk and Cunningham (1998, p. 33 referencing Harris & Pressley 1991) note with some regret that:

...although constructivist revolutionaries have ventured onto the battlefield of epistemological change, most have not provided practicing educators with the wherewithal to reconstitute and embed constructivist ideas within their personal philosophies and teaching practices. Teachers might, in fact, design useful constructivist learning environments and strategies, but may not recognize that they operate from a constructivist paradigm.

Interestingly, similar observations have been made about the concept of social learning. Pahl-Wostl (2002, p. 400) notes that the theoretical basis for social learning in environmental management is still weak and conceptual approaches are scattered over different fields of the social sciences. My review of literature on social learning over the past twenty years has yielded little in terms of empirical or critical analysis of social learning in practice. What has been done seldom shares a common conceptual framework.

What has emerged from the review of the literature is the possibility of at least two trajectories of social learning theory which are worth exploring. Social learning as it has been discussed in the planning and policy literature (Webler et al. 1995; Forester 1999; Hayward 2000; Fiorino 2001) and social learning as a concept emerging in environmental management and sustainable development (Dale 1989; Wollenberg 2001; Pahl-Wostl 2002, 2006; Pahl-Wostl et al. 2004; Keen et al. 2005). To this I add a discussion around a third context for social learning theory and practice, the increasingly popular area of integrated and transdisciplinary environmental research.

2.2.2 Social learning in planning and policymaking

A year before Bandura published his paper on observational learning, Friedman and Abonyi (1976) wrote on the challenges of undertaking effective policy research, particularly linking researchers with policymakers. Their complaint was that the prevailing market model of policy research, with its linear client–researcher relationship, did not adequately support policy development. The problem they identified was that *knowledge treated as though it were a mere commodity cannot be understood, translated and fitted into the ongoing stream of decisions and actions that permeate the life of public agencies* (Friedman & Abonyi 1976, p. 932). Their proposed solution to this was essentially an action-research model of policy making which they termed the social-learning model. Friedman and Abonyi described the social practice of policymaking as an interaction of four dynamically related processes:

- Formulation of a theory of reality (i.e. what is going on in the problem situation?)
- Articulation of relevant social values (i.e. what does the policymaker consider important about this situation?)
- Selection of an appropriate political strategy (i.e. what should be done?)
- Implementation of practical measures (i.e. how will it be done?)

Friedman and Abonyi observe that contracted research for policy typically targets only the formation of the theory of reality⁴). A social-learning model, they argued, embraces all stages of the policy process in an open-ended experimentation, involving not only researchers and policymakers but also the stakeholders of the problem context. The emphasis of the social learning approach is on designing a dynamic research and policymaking process, directly interwoven with on-the-ground problem solving.

Friedman later advocated for a social-learning approach to planning, challenging the planner to engage in social learning through *radical transactive planning* in which the planners and the community acquire knowledge through planning action (Hayward 2000). This marks a

⁴ While this was an observation made in 1976, discussions with New Zealand local government environmental policy and planning staff during this PhD research indicated this is a relevant issue today. Their observations particularly noted the difficulty in funding policy research beyond reviews of best practice, and cursory problem scoping (Crawford, personal. communication, August 2005; Kirkland-Smith , 2008).

transition of social learning from being proffered as a pragmatic solution to a more effective policy development and research relationship, to a platform for participatory democracy and social transformation.

The work of Hayward (2000) in her PhD thesis *Beyond Consensus: Social Learning in Urban Planning* highlights how far learning, in the planning context, has moved from an experimental approach to policy research to both a goal and core process component in a new deliberative approach to planning. This deliberative approach is advocated by those who argue the role and scope of planning activity should be extended to address the complexity of problems associated with modern urbanisation. Deliberative planning is grounded in assumptions about justice and democracy and the essential role of the planner is to *assist the community to reach some understanding about what actions to take to address concerns which have been raised in discussion* (Hayward 2000, p. 18). Hayward explores the work of leading theorists of deliberative planning such as Healey (1992, 1995, 1996 in Hayward 2000) and Forester (1989, 1993, 1999 in Hayward 2000), and in particular their differently argued models and transformative aims for deliberative planning based on consensus building (Healey) and social learning (Forester) (ibid.).

Forester advocates for the transformative potential of deliberative planning, not because of its ability to promote consensus, but for its potential to enhance social learning (Hayward 2000, p. 52). The challenge of democratic deliberation, according to Forester, is not to transcend or avoid conflict, but to deal with differences, encouraging learning and relationship building which he argues is a process far beyond consensus building or deal making (ibid.). Social learning in this usage then refers to the particular development of capacity in participants to engage in more open and accepting interactions within their community. Social learning is thus about encouraging *public learning about social significance as well as about positive fact, about historical identity and difference as well as shared common ground* (Forester 1999,

p. 61). For Forester, then, social learning is a desired end state, a goal of deliberative planning and, at its broadest level, a theory of social transformation⁵.

A point of confusion in Forester's and Hayward's respective promotion and critique of social learning is the vacillation between viewing social learning as process or as end state, i.e. a way of doing things versus a goal to be reached. This tension is apparent throughout the emergent literature on social learning. For instance, writing on social learning in the field of impact assessment, Webler et al. (1995) typify this conflict. Firstly, Webler et al. (1995) reaffirm the potentially socially transformative quality of social learning when they argue:

When citizens become involved in working out a mutually acceptable solution to a project or problem that affects their community and their personal lives, they mature into responsible democratic citizens and reaffirm democracy (Barber, 1984). One way of describing this phenomenon on a societal level is to use the term 'social learning.'

They expand on this definition stating that social learning means more than merely individuals learning in a social situation; rather it encompasses a community of people with diverse personal interests, but also common interests, who must come together to reach agreement on collective action to solve a mutual problem. Social learning then refers to the process by which changes in the social condition occur – particularly changes in popular awareness and changes in how individuals see their private interests linked with the shared interests of their fellow citizens (ibid., p. 445). The virtue of such learning is that it enables people to overcome tendencies to *pursue egoistic aims before collective ones*. So Webler et al. have described social learning as both outcome and process in the same page. Furthermore, since their discussion includes making a distinction between learning that occurs within a public engagement process and outside the process (ibid., p. 445), they appear to envisage social learning as occurring within discrete events. This is consistent with the premise of their paper which is to explore the potential for public participation processes within social and environmental impact assessment exercises to be undertaken in a way that will enhance learning. Finally since they echo earlier

⁵ Forester's social learning as a basis for social transformation has attracted some criticism, e.g. Warren (1992 in Hayward 2000, p. 54) *...when people are engaged in participatory action they are bound to learn something, but may become more enlightened without becoming more tolerant or public spirited.*

authors (Fiorino 1990 and Laird 1993 in Webler et al. 1995, p. 460) in proposing that a new measure for the evaluation of public participation should include that it enhance learning, there is more evidence that social learning is a desirable ‘goal’.

Significantly, and consistent with their development of social learning as ‘end state’, Webler et al. (1995, pp. 445–446) outline two general capacities to which a process that facilitates social learning leads: (i) cognitive enhancement and (ii) moral development. The former referring to learning about both the technical and process aspects of problem solving and the latter referring to what might be regarded as socialisation characteristics such as increased respect for divergent viewpoints and capacity to address conflict and progress cooperative endeavour. They regard evaluating the evidence for these to be a useful part of the assessment of the worth of any public participation processes (see Table 2.1).

Table 2.1 Components of social learning (from Webler et al. 1995)

Cognitive enhancement	Moral development
Learning about the state of the problem (information and knowledge)	Developing a sense of self-respect and responsibility to oneself and others regardless of impact on own personal interests and values
Learning about the possible solutions and consequences of these	Being able to take on the perspective of others
Learning about other people’s interests and values	Developing skills for moral reasoning and problem solving, that enables one to solve conflicts as they arise
Learning about own personal interests (reflection)	Developing a sense of group solidarity
Learning about methods, tools, strategies to communicate and reach decisions	Learning how to integrate new cognitive knowledge into one’s opinion
Learning about practising holistic or integrative thinking	Learning how to cooperate with one another

What still appears to be missing from this framework is some exploration around the ‘how to’ of social learning. In the planning and policymaking literature, this is at least furthered by the recent work of Daniel Fiorino (2001), if not specifically addressed. In writing a review of

progressive learning trends of environmental policy in the US Fiorino (2001) comments that *the current generation of policy makers and reformers have been calling for a better capacity for social learning without using the term*. Fiorino identified three waves of policy learning in the US. The first he termed ‘technical learning’ – the search for new policy instruments in the context of fixed policy objectives. Technical learning relies on centralised control and emphasises acquisition of the **right** knowledge and implementation of the **right** policy instrument. In the face of perceived shortcomings in the technical learning approach, ‘conceptual learning’ has emerged. This places greater emphasis on the redefinition of policy goals and adjustment of problem definitions. By the 1990s policymakers recognised the need for a further set of capacities encapsulated by social learning. Social learning, as Fiorino describes it, focuses on interactions and communications among actors. It builds on the cognitive capacities of technical learning, and the rethinking of objectives present in conceptual learning, but emphasises relations among actors and the quality of dialogue (ibid. p. 324).

That the incentives for developing a social learning approach to public policy have emerged from the shift from the rational-objectivist model to the argument-based subjectivist approach to public policy is also supported by Knoepfel and Kissling-Naff (1998), who observe that in this context, specific learning must be shared, evaluated and accepted by a wider group in order for it to matter. Hence the ‘network’ becomes the primary mediating institution for the development of public policy. Fiorino (2001, p. 324) argues that the incentives for social learning have come largely from dissatisfaction with aspects of environmental regulation, especially adversarial relationships and lack of capacity for cooperative problem solving. In response to this need conceptual learning offers a change in the scale of problem definitions, the search for integrated strategies, growing use of consensus-based approaches, and attention to novel policy instruments. However, social learning, as Fiorino (ibid.) advocates, adds to this in three important ways:

1. **Structural openness.** Social learning approaches to policy and planning imply and rely on less direct control by government. Kooiman (1993 in Fiorino 2001) describes this as *sociopolitical governance* which is more or less continuous processes of interaction between social actors, groups and forces and semi-public organisations, institutions or authorities.

2. **Cooperative approach.** Social learning also implies a different approach to implementation, replacing hierarchical control with a cooperative model of shared responsibility for achieving policy goals among industry, government and others.
3. **Recognition of uncertainty.** Social learning recognises the inherent ‘unknowability’ within complex problems and emphasises the need for communication among stakeholders to negotiate action in the absence of scientific certainty (ibid., p. 328.).

In advocating social learning as the necessary evolutionary trajectory for policy development Fiorino (ibid.) is not specific about social learning as process (although he is clear that it is process rather than end state), nor does he offer any advice about transforming policy processes in line with a social learning approach. However, he does identify the core challenges facing such a transformation. The primary difficulty he acknowledges is putting social learning into practice in an institutional framework based on technical learning (ibid., p. 330). Social learning implies a different, although not necessarily lesser, role for the state (ibid., p. 332); however, current reliance on a technical learning approach limits the ability of actors in the policy system to change behaviour based on what is learnt.

In summary, social learning in policy and planning clearly has connections, if not roots, in the communicative rationality of Habermas (Maarleveld & Dangbégnon 1999), and the constructivist theories of learning, derived from the work of Piaget and Vitorsky (in Smith 2005b). The distinction between definitions, roles and purposes of social learning as it has emerged in the policy and planning literature as compared with the environmental management and sustainable development literature is largely a matter of focus. For the former, social learning is an add-on to the central subject which is, for example, how to get policy done or how to enact participatory democracy. In Hayward (2000) for instance, the question explored is: ‘is social learning a better goal for deliberative planning than consensus building?’ Or, in the case of Webler et al. (1995) social learning is a desirable and possibly essential outcome of public engagement (among others) and should be considered another criterion for evaluating the effectiveness and value of a public participation exercise (i.e. checking how well the social learning went, as well as more established criteria such as the degree of empowerment, degree of influence and subject satisfaction).

The early work of Friedman and Abonyi (1976) and the later work of Fiorino (2001) placed social learning as an approach to policy research and development, but still focused on the central task of policymaking. For those writing in the context of environmental management and sustainable development, social learning is more frequently regarded as process rather than outcome (or both) and is oriented toward collective problem-solving. To do this, one may need the support of public participation processes as a component of social learning. Hence, social learning comes to be referred to as both the collective learning processes and the public participation processes. The distinction may be subtle but it has led to a differing trajectory for the theoretical development and application of the concept of social learning.

2.2.3 Social learning in environmental management and sustainable development

As with the planning and policy literature, it is hard to trace a legitimate path for the development of the concept of social learning through the works of those writing in environmental management and sustainable development⁶. Although authors may reference each other, their uses of social learning are often so broad as to enable them to do so and still be developing widely differing themes. As Maarleveld and Dangbégnon (1999, p. 268) note:

The concept [of social learning] has come to comprise a collection of phenomena that includes: learning by individuals through observation or interaction with their social context, learning by social aggregates, learning pertaining to social issues, and learning that results in recognizable social entities such as collective decision making procedures, culture, etc.

What these various definitions share, Maarleveld and Dangbégnon argue, is a focus on *the interplay of individual and situational factors in generating human behaviour* (ibid., p. 268). The authors in this area also share an interest in social learning as a means to an end. The end, in this case, is to address complex problems resistant to solution which require the presence of multiple disciplines and perspectives and a fundamental change in social and institutional impediments (Dale 1989). This same purpose, i.e. addressing complexity, and empowering decision makers at multiple levels, has driven the parallel development of the concepts of

⁶ The reason I distinguish between planning and policy, and environmental management and sustainable development is primarily the different literature referenced by those writing about social learning. With the odd exception (Fiorino, for instance, is referenced by both), the environmental management and sustainable development authors use literature from the 'development' world rather than policy and planning.

‘adaptive management’ and ‘collaborative learning’. Both these discourses lay claim to a more holistic approach to resource management than previous generations of theory and practice (Guijt 2008, p. 44). The basis to adaptive management is recognition that knowledge about any problem system is always incomplete and the approach to management needs must be based on incremental, experiential learning and decision-making. Collaborative learning places emphasis on the participation of stakeholders and the processes used for collectively bounding the problem system, interpreting the diverse knowledge held and choosing future actions. My review of the literature suggests social learning is emerging as a linking construct between these approaches.

Authors such as Maarleveld and Dangbégnon (1999) regard social learning as a normative framework for environmental management. As such its aim is to convey the manner in which people learn (and need to learn) how to gain insight into, predict, and control the way their actions affect the natural and human domains. For this purpose they propose three value principles for social learning, which have been added to and prioritised but largely accepted by subsequent authors in this area. These are (i) systems thinking, (ii) experimentation, and (iii) communicative rationality. In a summary of Maarleveld and Dangbégnon’s argument (*ibid.*, p. 269), systems thinking is required to counter the blind spots of reductionist analytical traditions⁷; an experimental approach is one which is explicit about expectations when designing management strategies and evaluation methods and collects information to check assumptions with practice, and communicative rationality⁸ is the guiding principle for the necessary interactions of scientists, resource users, planners and managers (needed for the systems thinking and the experimental approach). Systems thinking and explicit experimentation are cornerstones of adaptive management (Lee 1993; Gunderson 1999). Communicative rationality, and its constructivist implications, is at the base of theory on collaborative learning, and collaborative management.

⁷ Systems thinking’ includes methods, tools and principles oriented toward understanding the interrelatedness of forces and elements and viewing them as part of a common purpose (Senge 1990 in Daniels & Walker 1996).

⁸ Maarleveld and Dangbégnon (1999, p. 269) describe Habermas’s (1984 in *ibid*) communicative rationality as the necessary ideal to guide interaction as this captures the notions of free exchange for all participants that is conducted in *understandable, legitimate and truthful manner*.

However, to suggest that social learning has developed as some kind of meta-theory of modern approaches to environmental management would be inaccurate. The relative newness of the field, and the fact that many authors are contributing from a pragmatic rather than theoretically driven perspective, means that concepts like collaborative learning and social learning are used synonymously or even as subsets of one another. For instance, authors such as Daniels & Walker (1996) and Schusler et al. (2003) regard social learning as a subsidiary concept or outcome of collaborative learning and collaborative management (co-management) respectively. Despite this their contributions to the concept overall are still worth reviewing.

Schusler et al. (ibid.) regard social learning as learning which happens across a collective and, like Webler et al. (1995), consider it a measurable outcome of a collaborative process. They view its main contribution is the increased knowledge that can be made available for community-based management, around facts, values, problems and opportunities, areas of agreement and disagreement, alternative actions, and possibilities for working together. However, echoing criticism of Forester's (1999) social learning for deliberative planning (see footnote 4) they note that not all learning is positive or accurate. The possibility of 'mistaken learning' means that the process of social learning needs to be ongoing so inaccuracies can be worked through (Schusler et al. 2003, p. 322). Furthermore they note that not all interactions lead to positive relationships. Social learning can foster negative perceptions of participants and powerful interests may co-opt the less powerful, even when no overt conflict is apparent. Also learning may not lead to action, and what is needed beyond social learning is a locally based change agent to follow up on initiatives (ibid.).

Daniels and Walker's (1996) framework for collaborative learning shares some commonality with Maarleveld and Dangbégnon's (1999) in that it links systems thinking (specifically through soft systems methodology⁹), with communicative competence. They see social learning as both a process *of framing issues, analyzing alternatives, and debating choices* (Daniels & Walker 1996, p. 73) and as an outcome – *social learning happens in the process of defining the problem as constituencies sort out their own and other's values, orientations and priorities*

⁹ Soft systems methodology, devised by Peter Checkland in the 1960s and used widely today, applies theoretical work on systems and experiential learning. The term 'soft' is used to refer to systems that are hard to define or bound, commonly rich in social or political elements (Checkland 1999).

(*ibid.*). What they add to the concept is an emphasis on alternative dispute resolution and some clarity around the underpinning assumptions about learning, since the purpose of social learning, is...*not to resolve or eliminate conflict; rather it is to learn about complex issues in an inherently conflictual environment* (*ibid.*, p. 74).

Maarleveld and Dangbégnon's work is comparatively recent, but as social learning has gained momentum it has often been cited. What has been added to it has largely come from a pragmatic discourse around what works and is perceived necessary for addressing complex questions of environmental management or sustainable development. Authors such as Buck et al. (2001), Wollenberg (2001), Keen et al. (2005), and Pahl-Wostl et al. (2002, 2006) have furthered both the concept and its popularity but are not postulating new theory. Largely they are collecting together the most influential ideas, phenomena, and conditions for learning and behaviour change operating at a social level. Social learning as it is increasingly being referred to in the literature is something of a 'grab bag' of useful concepts that have been ordered, grouped and prioritised for the author's purpose.

At this point, it is most useful to look at the common emerging factors that give insight into the value of the social learning concept in the context of environmental management. Most authors, view the concept more holistically than 'community participation' or 'learning in a group setting'. Social learning includes: understanding the limitations of existing institutions and management systems and experimenting with learning oriented and participatory forms of governance (Bouwen & Taillieu 2004). Furthermore social learning goes beyond single events and involves iterative and ongoing processes which generate transformations in the socio-ecological system unique to each context (Pahl-Wostl & Hare 2004).

A social learning approach is necessary where the situation is such that either the problem definition or desired outcomes are unknown or contentious; there is disparity in power, resources and knowledge; an interdependence between stakeholders; conflicting or adversarial relationships; and the need for coordinated action at multiple levels¹⁰ (Daniels & Walker 1996;

¹⁰ These conditions bring to mind conflict management. Although explicit reference to conflict management theory is not extensive in the social learning literature, it plays a central role in social learning's cousin concept, 'collaborative learning' (Allen & Kilvington 2000).

Lee 1999; Buck et al. 2001; Craps, 2003; Bouwen & Taillieu 2004; Pahl-Wostl & Hare 2004). It is often implied, if not stated, that a social learning approach is useful in situations where structural changes or new organisational forms are neither feasible nor desirable.

Common to authors also is the idea that social learning has a variety of dimensions and that paying attention to each of the multiple strands is necessary to the concept as a whole. As mentioned, it is commonly recognised that the various aspects of social learning are not easily divisible, and there is some variability in how they have been identified. I will expand on each of four general theme areas: (i) learning, (ii) systems thinking, (iii) collaboration and networks, and (iv) political systems and decision making.

The ‘learning’ of social learning

Buck et al. (2001, p. 5) observe that social learning can be advanced by understanding more about the learning process itself and a number of authors have looked at the different kinds of learning required in a social learning approach. Pahl-Wostl & Hare (2004, p. 195) say social learning involves a combination of *soft relational and hard factual aspects of analyzing and managing a human-environment system*. This in turn implies a combination of methods is required – hard-system ones (such as data collection and quantitative analysis), and soft-system ones (such as knowledge elicitation and engineering, group model building, and qualitative analysis). As noted earlier, Webler et al. (2005), uses the terms ‘conceptual’ and ‘moral’ to distinguish learning types within social learning. Craps (2003, pp. 8–9) rebrands this, identifying two types of learning critical to a social learning process as *cognitions* and *attitudes*. Cognitions describes learning about both technical information and social processes, such as how to deal with interdependence amongst actors. Learning around attitudes is essentially Webler’s *moral development* and examples include developing a sense of responsibility and a willingness to accept different perspectives (see Table 2.1).

While neither Craps nor Webler et al. make comment on how learning around cognitive or moral issues can be facilitated, there is a common recognition among authors on social learning theory and practice that the learning that takes place must go beyond revealing the basic facts of

the social and environmental system¹¹. Social learning processes must also include learning that questions fundamental assumptions about the system, and, beyond this, learning that critiques the learning process itself, examining who is learning and what is being learnt. This is referred to as double-loop learning (Maarleveld & Dangbégnon 1999; Keen et al. 2005) and draws on the organisational psychology work of Argyris and Schön (1978).

For Argyris and Schön (in Smith 2005a), single-loop learning is straightforward detection of error and correction which enables the basic policies or objectives of an organisation or project to be achieved. An alternative response to detection of error is to question the governing variables themselves (double-loop learning). Such learning enables a shift in the way the entire policy or objectives have been framed, and it is this kind of learning that is essential in the kind of problem situations where a social learning approach might be employed. While double-loop learning is the desired outcome, the platform this rests on is ‘reflection’.

Keen et al. (2005, p. 10) regard reflection as one of the five core strands integral to a social learning approach, stating that:

Reflectivity in environmental management is an important lever for social change because it can reveal how theoretical, cultural, institutional and political contexts affect our learning processes, actions and values.

They describe the process of reflection as a series of learning cycles – diagnosing what matters, designing what could be, doing what can be done, and developing a deeper understanding by evaluation. This reflection occurs at a personal and interpersonal level (e.g. between people and groups); at a community level (e.g. in the process of identifying shared visions); and at a social level (e.g. through the evaluation of the impacts of laws and regulations) (ibid., p. 10). Keen et al. (2005) argue motivation for such reflective practice needs some form of catalyst, and they propose adaptive management approaches (with their reliance on articulation of experimental elements in policy and management, followed by active monitoring and evaluation), and multi-stakeholder collaborations which challenge participants to consider new knowledge and insights. However, this argument seems somewhat tautological since elsewhere it is proposed

¹¹ In the case story chapters 5 and 7 I refer to this as content and process knowledge

that adaptive management and multi-stakeholder processes rely on good reflective practice to fulfil their potential.

Certainly, in adaptive management, the role of reflection is given formal dimensions and made explicit by the notion of taking an ‘experimental approach’ to resource management.

Maarleveld and Dangbégnon (1999, p. 268) observe that:

An experimental approach to resource management is explicit about expectations when designing management strategies and evaluation methods, collects information to check assumptions with practice, and translates comparison into learning-by correcting errors, improving understanding, and changing plans and actions.

This interweaving between adaptive management and social learning can be confusing with different authors implying that the one concept subsumes the other. For instance, in their work outlining a framework for social learning Maarleveld and Dangbégnon (1999) cite well-known authors in adaptive management’ (Holling 1978, 1995; Lee 1993). Lee (1993 in Buck et al. 2001, p. 3) also views social learning as a combination of adaptive management *involving conscious learning from policy experiments* and politics. Lee (1993) states that policy development using adaptive management, applies experimentation to the conception and implementation of natural-resource and environmental policies, and is designed from the outset to test clearly formulated hypotheses about the behaviour of a system. Consciously or unconsciously, this echoes Friedman and Abonyi (1976) and their early suggestions that social learning be used as an action-research framework for policy development.

Overall, the learning component of social learning falls well short of establishing a rigorous and widely agreed theoretical basis. This is not surprising, given comments on the paucity of theory around learning in complex multi-level social situations. Parson and Clark (1995, p. 436) conclude that *the best-developed theories of learning are clearly at the level of individual learners, and to a lesser extent at the level of small, face-to-face groups*. This is also supported by Argyris and Schon’s (1996) later work on triple-loop learning, i.e. learning which involves the development of new knowledge about how to engage in double-loop learning. This ‘learning how to learn’, they argued was critical to organisational development, but rarely

practised¹². Indeed Buck et al. (2001), in their book which collates the experience of practitioners in community forestry programmes, noted a fundamental lack of vocabulary when it came to describing their experiences of social learning.

[While] language characterizing collaboration and partnership formation was familiar... What was missing was conceptual language describing the role of learning in collaboration... Concepts such as learning groups, learning platforms, discovery groups, discovery learning, group experimentation, double-loop learning, appreciative inquiry, facilitation of platform processes, ecological knowledge systems, collective learning in actor networks and others helped us appreciate how learning is organized to support collaboration, and how people organize collaboratively to learn. (Buck et al. 2001, p. 6)

The kind of theory about learning that writers on social learning are generally agreed upon is, at its most fundamental, most closely described by Kolb's learning cycle (Kolb 1984 in Merriam & Clark 1993). The learning cycle is based on the idea that reflection on experience can transform this into new knowledge. It involves four stages: experiencing, where the individual, group or collective is immersed in 'doing' an activity; reflection, which involves stepping back from task involvement and reviewing what has been done; conceptualisation, where the significance and meaning of events are interpreted; and planning, which takes the new understanding and uses it to either make predictions about what is likely to happen next or decide what actions should be taken to refine the way the task is handled.

Daniels and Walker (1996, pp. 76–79) include Kolb's adult learning theory in what they regard as the assumptions underpinning collaborative learning. These are:

1. Learning is more likely in active rather than passive situations
2. Learning involves different modes of thinking
3. Learning styles vary and approaches to promote learning need to be flexible
4. Learning is improved by systems thinking.

¹² This comes from Argyris and Schon's *Organizational Learning II* and is similar to what another known organisational learning theorist, Gregory Bateson, referred to as 'deuterolearning' (Davies 1998).

The importance of recognising that learning involves different modes of thinking (assumption 2) fits with the earlier discussions around single- and double-loop learning. It is also reflected in Pahl-Wostl's (2002, p. 400) idea that social learning needs to capture processes of both apprehension (knowing through concrete experience) and comprehension (knowing through abstract concepts). That learning styles vary (assumption 3), and that there is a need to address this variation is echoed by Buck et al. (2001, p. 10) when they state:

The overarching theme here is the need for learning styles and approaches to be responsive to stakeholders' preferences, culture and changes in management needs. Multiple approaches are likely if the goal is to reach all the necessary parties and to be relevant to changing conditions over time.

The importance of systems thinking to support the learning component of social learning (assumption 4) has already been referred to by Maarleveld and Dangbégnon (1999) as one of three value-critical principles of social learning. This is common to a number of authors and will be discussed below.

Social learning and systems thinking

The necessity for a way of thinking about environmental management problems that avoids the traps of traditional, reductionist; analytical thinking is a corner stone of theory building around sustainability. Systems thinking is a way of interpreting the relationships between multiple components of a system, reassessing their character and the priority they are accorded in problem solving. The nature of systems thinking makes it attractive for addressing the most difficult types of problems: those involving complex issues whose solutions are not obvious, those that depend on past or ongoing actions of multiple actors, and those stemming from ineffective coordination amongst stakeholders (Aronson 1998). Systems thinking requires re-examination of boundaries (physical and ideological) and critical system elements, (human and non-human). A systems thinking approach accepts the uncertainty and dynamism inherent in the system and concentrates on clarifying patterns and processes rather than looking at events or seeking endpoints (Keen et al. 2005).

Owen and Lambert (1995) identify three main characteristics of systems thinking. Firstly, systems thinking requires appreciation of the characteristics of systems, i.e. that each element

will affect the operation of the whole, parts of the system are interdependent, and the grouping of parts of the system results in emergent properties that are the same as that of the parts but not the system as a whole. The focus of systems thinking is therefore on interaction. Secondly, systems thinking requires a shift of mind, particularly an understanding of our relationship to the system from within rather than externally. It looks at underlying systemic structures and beyond discrete events and patterns of behaviour. Thirdly, systems thinking in the environmental management context is about developing in-depth knowledge about programmes and policies and their organisational implications, across biophysical, socio-cultural and economic components of the system in question. The purpose of a systems-thinking-based inquiry is to seek leverage, seeing where actions and changes in structures can lead to significant and enduring improvements.

The importance to social learning of understanding both the complexity of the management system under scrutiny and the interdependence of actors is widely recognised by authors in the field, (e.g. Buck et al. 2001; Pahl-Wostl & Hare 2004; Keen et al. 2005). However, methods to promote systems thinking are not nearly so well developed and practised as the enthusiasm for the concept. One of the best known approaches to systems thinking is ‘Soft Systems Methodology’ (SSM) which was developed by Checkland in the 1960s but gained most currency in the 1980s. SSM has received substantial reworking over the years, but the core ingredients of reflection, and participatory development of conceptual models have remained. More of a framework than a step-by-step method, SSM proposes a series of seven stages (see Table 2.2). The SSM approach relies heavily on the ability of the participants to engage in active and critical reflection and, in his overview of SSM, Checkland (1999) reveals his confidence in the power of reflective thinking:

The process of learning by relating experience to ideas is always both rich and confusing. But as long as the interaction between the rhetoric and the experienced ‘reality’ is the subject of conscious and continual reflection, there is a good chance of recognizing and pinning down the learning which has occurred.

Although in practical application Checkland himself found the seven stages of SSM challenging to successfully integrate into ordinary activities of an organisation (Jackson, 2000, p. 255), the principles are comparable if not at the base of other efforts to promote systems

thinking in resource management problem solving. Participatory modelling approaches used in learning groups (e.g. Cole et al. 2007) and the collaborative construction of mental models (Dyball et al. 2005) are attempts to elicit more holistic and intuitive understandings of complex systems, often with a view to developing shared understanding among participants, and enabling joint decisions on further actions or research.

Table 2.2 Seven stages of soft systems methodology (Checkland 1985)

<ol style="list-style-type: none"> 1. The problem situation unstructured: conducting basic research, identifying key actors and processes 2. The problem situation expressed: using 'rich pictures' to draw together knowledge of the situation from diverse perspectives 3. Root definitions of the system determined: deciding from what different perspectives the situation will be viewed 4. Building conceptual models of the system 5. Comparison of the conceptual models with the real-world 6. Identifying feasible and desirable changes 7. Making recommendations for taking action
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A systems thinking approach is reliant on the ability of individuals or groups to critically reflect but is also dependent on building the kind of relationships between individuals that enables useful information exchange. Thus networks, building trust, dealing with conflict, and eliciting participation are factors on which social learning is also dependent.

Social learning, networks and collaboration

It is a truism to state that social learning is reliant on social interaction. More specifically social learning is dependent on processes of coordination, dialogue and collaboration. The art of social learning, say Bouwen and Taillieu (2004, p. 144), *is to create situations where people can learn collectively to improve a situation*. This may not mean all stakeholders are together at any one time. Rather, it implies a number of relational practices that involve combinations of stakeholders working in diverse ways over periods of years. The practical history of facilitating networks and supporting collaboration is by the far the richest component of social learning. A wealth of experience exists around identifying stakeholders, learning to work together, developing shared visions or problem definitions, negotiating, collective decision making, leadership, exchanging information, and developing trust. There is a correspondingly diverse range of tools to support these practices, such as stakeholder analysis, conflict resolution,

constructive conversations, and a significant depth of understanding around group behaviours. Fulsome as this area is, there are still some particular issues that test the operationalisation of social learning.

Firstly, social learning in practice rests heavily on capabilities in facilitation and the creation of 'platforms' or opportunities for collaborators to come together to learn (Buck et al. 2001; Keen et al. 2005). While the role of facilitation is widely agreed to be critical in promoting social learning, there are still important questions that contribute to its effectiveness. For instance who takes on the role of facilitation? How does the facilitation deal with the existing relationships between actors (Buck et al. 2001)? How does facilitation enable experts and laypersons to recognise the potentials and limitations of their own knowledge and the expertise of others (Craps 2003)? And how does facilitation build the formal and informal networks and foster perceptions of interdependence that underpin a social learning approach? Doctoral work by King (2000b) has closely examined the relationship between facilitation and learning, developing a proposed set of competencies for facilitators of social learning in sustainable agriculture that extend beyond current common skills, and which draw on a more extensive knowledge about theories of learning, cognition and systems (King & Jiggins 2002).

Platforms are the spaces – real or figurative – that need to be constructed so that stakeholders can interact and learn together (Buck et al. 2001, p. 9). Given the ongoing nature of social learning, these can range across time and space, and include both structural and process aspects. They may include one-off meetings or ongoing sessions with the same participants. They may take the form of formal boards or committees or more spontaneous associations. Platforms may also include 'virtual' conversations taking place online. The role of Internet technology, with its capacity to bridge distance and store knowledge, making it accessible to participants beyond those participating in direct exchanges, is of growing interest in the arena of environmental management in general (Allen & Kilvington 2000). Learning more about the variety of platforms, and their suitability to different contexts, is an important part of the social learning capacity of any given problem situation. Specifically, learning about platforms that can bridge existing social barriers, such as between management agencies, NGOs and other stakeholders, and enable vertical (across experts, policymakers, and community) and horizontal integration

(across disciplines) of knowledge is critical to a social learning approach (Klein 2004 in Lélé & Norgaard 2005).

Social learning, politics and decision-making

To be useful as a framework for addressing complex environmental management problems, social learning needs to be cognizant of the politics of the problem context and the decision-making constraints and opportunities. This is certainly a ‘last but not least’ element of the social learning discourse. As Keen et al. (2005, p. 14) comment:

[Discussion about] the benefits of reflexive, systemic and integrative approaches to the social learning process...could bring with it a mistaken idea that the different communities, professions and agencies, with their associated values, knowledge and sets of skills, come together easily and work seamlessly in environmental management. Nothing could be further from the truth.

To be operationalised Pahl-Wostl et al. (2004) see processes of social learning as needing to be embedded not only in the environmental context of the problem, but also in the governance process. Furthermore, to have a chance of contributing to complex problem solving, a social learning approach has to include processes of negotiation and conflict resolution which are sensitive to the real challenges of diverse power arrangements. Schusler et al. (2003) identify democratic structure as one of the key elements that foster learning in multi-stakeholder environmental situations. In particular they emphasise (and here they are drawing on Forester (1999)) the need for ‘structured unpredictability’. That is to say the institutional arrangements that support open exchange and knowledge building amongst parties needs to avoid the common trap of favouring and validating the a priori knowledge held by agencies. As Korten (1981, p. 613 in Schusler et al. 2003, p. 321) notes:

The key to social learning is not analytical method, but organizational process; and the central methodological concern is not with the isolation of variables or the control of bureaucratic deviations from centrally defined blueprints, but with effectively engaging the necessary participation of system members in contributing to the collective knowledge of the system and in generating policy choices.

Some of the key aspects of the political and decision-making context that impact on the social learning approach are better illustrated by some of the challenges, as yet unresolved, that they

create for the concept. These include, firstly, addressing the not always overt influence of power differences among stakeholders and managing conflict so that it operates as an incentive to dialogue not a barrier; and secondly, gaining access to 'real' decision-making. Without this latter point groups can become learning empowered but frustrated in action.

Associated with the issues of access to real decision-making is the question of scale. Scale in relation to environmental management is most commonly thought of in terms of geography (and not far behind that, 'time' and 'jurisdiction') and at its most basic the question of scale and its impact on social learning is 'at what level can deliberative processes be run effectively and how can those beyond an immediate group be included in a social learning process?' (Schusler et al. 2003). However, Cash et al. (2006) suggest other notions of scale that have important considerations for institutional arrangements. For instance there can be a mismatch in scales of knowledge between the generalised knowledge of science and the localised knowledge of practice. What happens when institutionally conceived strategies, plans, and policy responses are at a different operational scale to the available knowledge (e.g. planning for regional responses to issues when information is only available at a local or national level)? How can political and decision-making arrangements be responsive to the systems thinking and collaborative learning demands of social learning? Reminiscent of comments on the inherent need for institutional arrangements that reflect structural openness and a cooperative approach in order to facilitate social learning (Fiorino 2001), Cash et al.'s responses to issues of scale include what they term 'institutional interplay' (the interaction of agencies at different levels of jurisdiction); co-management (sharing of power and responsibility between governments and communities) and boundary organisations that actively promote the convening, translation and co-ordination of complementary expertise.

What does not appear to be addressed anywhere in the literature reviewed here is the question of just who assumes the responsibility for pursuing a social learning approach. There are likely different but equally significant demands for whoever this is, in any given context. Agencies mandated with the responsibility for environmental management decision-making are equally as unskilled in many of the components of social learning as their lay counterparts. Developing the capacity for social learning within governance structures is a significant challenge.

In summary, in the arena of environmental management and sustainable development, social learning has emerged as an approach to complex problem solving similar to, and sharing common elements of, adaptive management or collaborative management. Although authors vary in the grouping of components in the framework of social learning there is general agreement over the need to address aspects of learning, to embrace processes of systems thinking, become adept at collaborative processes and responsive to issues of politics and decision-making. There is also wide agreement on the goals of social learning. Fundamentally these are: achieving better (democratic) solutions to environmental problems, transforming conflict into a process for enriching the diversity of knowledge about a situation, and fostering implementation measures that have been agreed upon by the stakeholders (Pahl-Wostl 2002, p. 400).

There is another realm in which theory (and in some few cases, practice) around social learning is emerging. This is the area of science methodology, where the overall motivations for developing and understanding something like a social learning based approach are comparable to that of environmental management (i.e. the need to address ever more complex problems) but the focus is different. Here the interest is in the way science and scientists approach their role as decipherers of phenomena and ‘seekers of truth’ in a post-modern world.

2.2.4. Social learning and science

My observation from the literature is that the term social learning is not widely used by science theorists, but there are a few emerging and potent concepts that share the same qualities, namely, ‘sustainability science’ and ‘post-normal science’ (also referred to as mode II science). In an Australian radio broadcast in June 2001, Ian Lowe (Honorary Professor, Department of Science, Griffith University, Brisbane) spoke at some depth about the new field of science he termed ‘sustainability science’. In essence, the distinction in the kind of science to which he was referring lies in the recognition of several core principles. These are: integration, cyclic forms of inquiry, social learning, and science and science knowledge playing the role of stakeholders as relevant elements within problem systems, not as independent information providers outside the nature–society complex (Lowe 2001).

Ian Lowe's talk highlighted the importance of integration by referencing the failures of solving complex environmental problems through *piecemeal efforts that focused on one aspect of the problem to the exclusion of other equally important aspects*. He concluded...*great damage can be done by applying narrow specialized knowledge without an appreciation of the complexity of natural systems* (Lowe 2001). Checkland (1999, p. 60) made similar observations in his advocacy for counteracting the silo thinking of reductionist science through a systems thinking approach. He specifically noted that: *it is not nature which divides itself into physics, biology, psychology, sociology, etc. it is we who impose these divisions on nature; and they become so ingrained in our thinking that we find it hard to see the unity which underlies the divisions*.

Much of this echoes the earlier work of Funtowicz and Ravetz who in 1993 launched the concept of post-normal science. The terminology comes from the notion that a new science is needed that goes beyond 'normal' in the sense outlined by Thomas Kuhn (1962 in Funtowicz & Ravetz 1993). For Kuhn, the normal state of science was where *uncertainties are managed automatically, values are unspoken and foundational problems unheard of* (ibid., p. 740). So why is this new science needed? For the same reasons that Lee (1993, 1999) and countless others have observed: many of the situations where science is requested to shed light are characterised by uncertainty and disputed values, where the stakes are high and the decisions are often urgent – needing to be made well before the timeline of traditional scientific enquiry can run its course.

Funtowicz and Ravetz (1993, p. 740)¹³ go beyond describing the new problem context for post-normal science, and comment on how this confronts traditional tools of scientific endeavour:

These new policy issues have common features that distinguish them from traditional scientific problems. They are universal in their scale and long-term in their impact. Data on their effects, and even data for baselines of 'undisturbed' systems, are radically inadequate. The phenomena, being novel, complex and variable, are themselves not well understood. Science cannot always provide well founded theories based on experiments for explanation and prediction, but can frequently achieve at best only mathematical models and computer simulations, which are essentially untestable. On the basis of such uncertain inputs, decisions must be made, under conditions of some uncertainty.

¹³ Funtowicz and Ravetz (1993, p. 740) suggest a distinction between types of research based on goals: *applied research is 'mission oriented'; professional consultancy is 'client serving'; and post-normal science is 'issue driven'*. These contrast with traditional or basic research, which is *curiosity-motivated*.

The links between sustainability science, post-normal science and social learning¹⁴ are palpable. Pahl-Wostl (2002), writing on social learning in sustainable water management, observes the need for the science–policy interface to be *shaped as a continuous dialogue rather than as one-directional terminal transfer* and sees processes of enabling this to take place as a core component of a social learning approach. Maarleveld and Dangbégnon (1999, p. 269) also refer to the need for continuous dialogue and deliberation among scientists, planners, managers and users to explore problems and their solutions. In addition, as has already been discussed, central themes to social learning are that such an approach can deal with uncertainties and multiple perspectives, building knowledge from multiple sources, and through recognising and stating core assumptions. Siebenhüner (2004) is one of the few authors who explicitly link social learning and sustainability science. He advocates for participatory processes as part of scientific knowledge production to foster social learning within science and society at large, to address objectives of sustainability. In parallel to this, Funtowicz and Ravetz (1993) see what they term as *extended peer communities* as the central wheel of the post-normal science process. These peer communities are an *ever-growing set of legitimate participants* in the science research process, acting not only as peer reviewers, but themselves undertaking disciplined research that sits alongside that of science professionals.

Funtowicz and Ravetz (1993) foresee a number of difficulties in working out the social dynamics of participants – both science and lay— in the peer-community concept. It is not simply a case of bringing scientists and non-scientists into the same room for discussion. This frequently happens in applied research programmes but, in the absence of appropriate structures or processes, falls well short of a social learning approach. Ison (2005) discusses the influence of context and historical relationships between participants in getting successful dialogue in workshops between scientists (mainly ecologists) and pastoralists. He observes that flaws in the research and development (R&D) system meant that the ecologists were only concerned with formulating research problems from within *their system of doing ecology* and he concludes: *in effect, what they tried to do was to impose their system of interest on the context, rather than allow a jointly conceived system of interest to emerge from the dialogue* (Ison 2005, p. 31).

¹⁴ While the concept of sustainability science is now heard in many locations it is not always consistent with the radical propositions alluded to here. Rather it is used to describe science contributing to questions about environmental sustainability but done as it has always been, rather than through a new methodological approach.

Not surprisingly then, Siebenhüner's (2004) study of a range of processes aimed at social learning through sustainability science came up with a substantial list of difficulties. The processes he explored tended to exclude government agencies in order to maintain a focus on knowledge production rather than decision-making. They thus missed a vital link, in Siebenhüner's view, and led to a poor connection to political decision-making (*ibid.*, p. 157). However, given the difficulties of reconciling the widely different timescales of political and science processes (Daniels & Walker 1996), and the potential clash between research and problem solving goals (Pahl-Wostl & Hare 2004), it is easy to see why it might be attractive to do without this added tension. Similarly, the processes tended to give companies a minor role in order to neutralise commercial interests. Furthermore, the learning in the programmes was not clearly analysed. It was thus difficult to determine what long-term gains had been made, or whether they had triggered ongoing learning beyond the initial group. Finally, with the leadership of the processes (if not the initiative) resting with the researchers, the focus of the processes was dominated by research interests rather than sustainable development needs.

The methodological test for both sustainability science and post-normal science, then, is how to facilitate processes by which science can enter the dialogue of complex problems, not as the independent expert, but as the peer inquirer – ready to combine, without discrimination, the tools of synthesis, analysis, model building and explanation to those of direct experience and contextualised learning. Furthermore, there is the issue of how to embed this science in a real governance and decision-making context. This is clearly dependent on new ways of creating dialogue and collaboration with new audiences, and is analogous to taking a social learning approach.

In New Zealand, an increased interest in science 'delivery of outcomes' has sent a number of messages of change to the science community, predominantly through the research funding structures. Research institutions have largely responded to these change messages by making somewhat superficial adaptations to the existing structures of research programmes, e.g. by involving stakeholders in approving research directions or setting up panels of stakeholders to oversee research programmes. Such efforts are effectively 'add-ons' to traditional research practices and struggle to achieve meaningful shifts in science and stakeholder interrelations.

Efforts to go beyond traditional relationships are hampered by a lack of knowledge of the processes by which to link management and science, and an institutional bias against meaningful participation. Systems of reward within science institutions have been slow to create incentives for scientists to be involved in experimental processes of developing knowledge, particularly when these new ways of working might compromise their ability to perform well in the familiar path of peer review and publication. Furthermore, the institution of science research itself rests on the idea of the scientist as expert. Scientists hesitate to lay their ideas alongside the untested knowledge created within external learning frameworks such as the farm or the district council. In doing so, they face quite legitimate concerns about interpretation, value, misuse, and appropriation of their ideas and information. Equally, of course, other stakeholder groups are concerned about the same things in relation to their own knowledge. Finally, the research culture and short-term funding horizons encourage single-cycle research – a ‘one-shot approach’ to problem solving where the answer emerges from the research without reference to the wider context.

Despite these obstacles, efforts to integrate social learning or to embrace post-normal science are increasing. Case studies 3 and 4 in this thesis take place in an integrated environmental research programme that has attempted to make inroads in this area.

2.3 The challenges of the social learning concept

Social learning is an evolving theoretical construct. At the same time practical applications which both examine and use social learning ideas are ongoing, and it is practitioners who are currently contributing most to its conceptual development (albeit using a variety of different terms). Examples of programmes using social learning ideas can be found at differing scales and in a variety of contexts (see Table 2.3). They range from local-scale community-based resource management and sustainable agricultural in developing and developed world contexts; through to large multi-party catchment management programmes that cross national boundaries.

From the experience of these practitioners, and researchers, and others, it is possible to collate significant issues associated with the social learning concept into challenges of practice (Table 2.4) and challenges of theory.

Table 2.3 Examples of situations utilising social learning ideas

Context	Project/practice	Authors
Cross-boundary, large-scale governance of complex resource management situations	HarmoniCOP (2002–2005) <i>Harmonising Collaborative Planning</i> . Programme to increase understanding of participatory river basin management involving 15 partners from NGOs, government and other stakeholders across nine European countries	Pahl-Wostl & Hare 2004; Pahl-Wostl et al. 2004, 2007a, 2007b; Mostert et al. 2007; Borowski et al. 2008
	SLIM (2001–2004) <i>Social Learning for the Integrated Management</i> . Programme to investigate the socio-economic aspects of the sustainable use of water. Funded by the EU, involving researchers from France, Italy, the Netherlands, Sweden and the UK	Ison & Watson 2007; Jiggins et al. 2007; Steyaert & Jiggins 2007
Research, development and extension in sustainable agriculture	Developed and developing nations (e.g. India, Australia, Brazil, the Netherlands). Range of situations (e.g. farmer learning groups for pest control, or rangeland management)	King 2000; Guijt & Proost 2002; King & Jiggins 2002; Guijt 2008
Community-based natural resource management	Developed and developing nations (e.g. Nepal, Australia). Range of situations (e.g. community forest management)	Buck et al. 2001; Schusler et al. 2003

2.3.1 Challenges of practice

Authors on social learning, from Friedman and Abonyi (1976) to Keen et al. (2005), frequently comment that the application of social learning is heavily reliant on the commitment of organizations and the responsiveness of institutional arrangements. In 1976 Friedman and Abonyi identified three necessary ingredients to what they termed a social learning approach to policy research. These being (i) commitment of policy agencies to experimentation, (ii) formation of central services in support of experimentation and (iii) expansion of lateral channels of communication for the diffusion of new experiences and learning among the multiple experiments.

The difficulty is that this kind of support relies on an increase in flexibility in institutional arrangements and an upskilling of agency staff, i.e. quite considerable change in policy, management and planning practice. This kind of change, or indeed any change in organisations, has already generated a rich dialogue among organisational learning theorists. Keen et al.

(2005, p. 18) inspired by the technical view of organisational learning¹⁵, cite likely causes of rigidity in institutional arrangements as: administrative traps (e.g. systems becoming inflexible through concerns about efficiency); competency traps (i.e. ‘we are good at this so let’s not change it’); bureaucratic traps (e.g. existing hierarchies in decision-making prevent newcomers contributing); and legitimacy traps (the focus of the system is in maintaining face with a select group). Most importantly it has to be asked whether the argument of the benefits of social learning to environmental problem solving have been accepted or even articulated sufficiently for agencies to trouble themselves about institutional arrangements that support learning when their primary focus is on achieving compliance.

Circumventing the barriers imposed by existing institutional arrangements may have led to attempts to get social learning processes underway without this support and consequently led to what a number of authors have identified as another difficulty in application of the social learning approach – the lack of tie-in between multi-stakeholder learning processes to real decision-making and political processes (Hayward 2000; Pahl-Wostl 2004; Siebenhüner 2004). How proponents of social learning can overcome institutional barriers and promote the use and development of this approach within appropriate organisational settings is a key challenge.

Issues of power (both gain and loss of power are possible for groups and individuals engaging in social learning; Pahl-Wostl 2004) are also closely tied to political will and is another area where practitioners have found difficulty applying the concept of social learning. Craps (2003, p. 17) makes the interesting observation that not all issues of power are ‘real’, and that the image a stakeholder has about their own capacities, power contribution and roles (their ‘auto-image’) may differ significantly from that held by other stakeholders. While much cognizance is taken of the importance of purposefully managing different stakeholder views about problems and their boundaries, comparatively less attention is paid to the importance of dealing with the different views stakeholders have of themselves and of others. Nowhere is this more obvious than in the issue of ‘expert’ vs ‘non-expert’, where often recognition of ‘expertise’ can

¹⁵ Within organizational learning theory there are essentially two branches of literature – the *technical* view and the *social* view. The assumptions at the base of the technical view are that *organizational learning is about the effective processing, interpretation of and response to, information both inside and outside the organisation*. The social school in contrast sees organisational learning “*as socially constructed, as a political process and as implicated in the culture of the organisation* (Easterby-Smith & Araujo 2006).

go beyond the boundaries of the actual knowledge held by that group or individual, and lead to deferential valuing of their contributions.

‘Crises of confidence’ was also identified by authors as a limiting factor in social learning processes. Webler et al. (1995) commented that the main obstacles they observed to social learning were, firstly, overcoming participants initial lack of faith in the process (and that it would have an authentic influence over events), and secondly, addressing participants’ perceptions that they were not capable of contributing meaningfully. Webler et al. (ibid.) concluded that learning requires a certain amount of self-confidence and that building this confidence in citizens was a major effort.

That multi-stakeholder processes are often regarded as having failed to deliver expected results does not help the cause of promoting the social learning approach as a valid process within planning and management organisations, or increase the likely confidence of participants. In the cases Hayward (2000) reviewed she sees a possible reason for this as that not enough focus is given to the endpoint of the planning process in an effort to emphasize the deliberative processes. However, Bouwen and Taillieu (2004, p. 150) emphasise that the failure is in the match between expectations and outcomes:

As students and practitioners of multi-party projects we often assume implicitly that participation is a process and an outcome as we intend it to be. But participation may be by definition a paradoxical process. The more you plan and anticipate it, the less you have it.

For Bouwen and Taillieu (ibid., p. 150) then the critical question is *how can multi-party collaboration projects truly create a space for an open ended result?* That is to say, how can the unexpected be accommodated in existing institutional arrangements around complex environmental problem solving?

Lack of confidence in the process can also be attributed to another commonly encountered challenge to social learning practice – the sheer length of time involved. Pahl-Wostl and Hare (2004, p. 204) observe that the slowness of the process can cause trust to break down as actors are not aware what will happen next, and when, *one cannot overlook the costs and difficulties of maintaining a social learning process for long periods of time with people who have other*

work to do: both the research team and the actors. In response to a similar observation, Siebenhüner (2004) concluded there is a pressing need to learn how to keep processes dynamic.

Another commonly encountered question about the application of social learning concerns scale, i.e. bridging different levels at which a project operates and extending social learning opportunities beyond the small group level (Schusler & Decker 2001; Craps 2003; Bouwen & Taillieu 2004). Indeed Craps (2003) regards scale issues as among the most challenging for social learning, and Schusler et al. (2003, p. 322) asks *at what level can deliberative processes be run effectively?* Similarly Buck et al. (2001) observe the incomplete knowledge about the kind of platforms that facilitate social learning in complex networks of interdependent actors.

Finally, a specific area of practice related to social learning that is receiving some notice is that of participatory model development and the use of simulation software and various IC tools¹⁶. Model development plays a significant role in interpreting data and information on complex environmental problems and Pahl-Wostl et al. (2004) observe that different approaches to modelling will provide different contexts in which social learning may or may not thrive.

Table 2.4 summarises practice challenges and needs for building capacity for social learning observed by various authors. They have been grouped as issues of: required competences and resources (e.g. new facilitation capabilities), platforms for learning and collaboration (e.g. how to create opportunities for complex networks of independent actors to collaborate), process issues (e.g. building trust), social and institutional arrangements (e.g. acceptance by agencies of need for increased flexibility) and programme management (e.g. managing and monitoring progress). A number of these practice issues are explored through the cases in chapters 4 to 7.

¹⁶ Pahl-Wostl et al. (2004) define IC tools as a material artefact, device or software that can be used in participatory processes and that support two-way communication between stakeholders.

Table 2.4 Challenges of practice for social learning

Competences & resources	<ul style="list-style-type: none"> • New competencies in facilitation (King & Jiggins 2002) • Dialogic, and participatory modelling tools that assist interactive learning and systems interpretation (Pahl-Wostl et al. 2004; SLIM 2004b)
Platforms for learning and collaboration	<ul style="list-style-type: none"> • Knowledge about the kind of platforms that facilitate social learning in complex networks of interdependent actors (Buck et al. 2001) • Representation and boundary management (who is in/out?) (Pahl-Wostl et al. 2007) • Structural issues – e.g. opportunities to meet (Mostert et al. 2007)
Process issues	<ul style="list-style-type: none"> • Building trust, social capital (Pahl-Wostl et al. 2007b) and participants' competencies in learning and interaction (Pahl-Wostl & Hare 2004) • Framing the problem situation – whose problem perception counts? (Mostert et al. 2007; Pahl-Wostl et al. 2007) • How to keep processes dynamic (Siebenhüner 2004) • Matching expectations and outcomes (Bouwen & Taillieu 2004) • Managing confidence in individual's contribution and process itself (Webler et al. 1995) • Dealing with issues of power: real differentials and self limiting ideas (Craps 2003) • Avoiding common traps of favouring and validating apriori knowledge held by agencies (Forester 1999) • Creating space for an open ended result (Bouwen & Taillieu 2004) • Organisation of interactions, and design of experiments for interactive learning (SLIM Project 2004b) • Building and maintaining trust over lengthy projects (Bouwen & Taillieu 2004)
Social and institutional arrangements	<ul style="list-style-type: none"> • Location within social & institutional structural context – balancing the need for stability and dynamism (Pahl-Wostl et al. 2007) • Acceptance by agencies of need for increased flexibility in institutional arrangements and upskilling of staff (Friedman & Abonyi 1976; Steyaert & Jiggins 2007); including institutionalised competence to facilitate interactive processes (SLIM Project 2004b) • Tie-in between multi-stakeholder learning processes and real decision-making (Hayward 2000; Pahl-Wostl 2004; Siebenhüner 2004; SLIM Project 2004b); including match between scale of participatory structure and existing governance regime (Borowski et al. 2008) • Need for openness to necessity or potential for change in governance as a result of the shared learning process. (SLIM Project 2004b; Steyaert & Jiggins 2007) • Overcoming institutional barriers to promote the use and development of social learning
Programme management	<ul style="list-style-type: none"> • Managing and monitoring progress since investment costs are highest at beginning while benefits come later (SLIM Project 2004b) • Bridging different levels at which a project operates and extending social learning opportunities beyond the small group level (Schusler & Decker 2001; Craps 2003; Bouwen & Taillieu 2004)

2.3.2 Challenges of theory

One of the greatest challenges to developing a strong theoretical basis for social learning must be the sheer diversity of approaches scattered over a wide range of social science fields.

Without common language, and shared arenas for exchange of ideas and experience, theoretical and practical development of the concept is difficult. It is therefore not surprising that authors such as Pahl-Wost (2002) observe that the theoretical basis of the concept is still weak.

A core aspect of social learning in need of good theory is the area of ‘learning’. While much is understood (or at least supported by constantly evolving theory and praxis) about individual learning, far less is known about learning in multi-level networks. It seems that little has changed since Dale’s (1989) review of the literature in 1989 where he notes that authors regard social learning processes as more than just ‘learning by individuals’ and consequently called for studies that explore the learning patterns of groups, and larger collectives interacting over a common conflict or predicament¹⁷.

Maarleveld and Dangbégnon (1999) identify a number of barriers to useful learning practices in social learning. Termed ‘asymmetric learning patterns’ they include: learned helplessness¹⁸ where the failure to influence context through behaviour results in an insurmountable inertia; getting stuck in a learning loop (the possible cause of why some groups or individuals learn and others do not); successful single-loop learning which can mask the root of the problem; individual bias for certain forms of learning; and the inability to motivate learning in non-crisis settings. To this I would add the positivist construction of knowledge that causes reliance on certainty and a fear of being caught ‘not knowing’. However, having identified these barriers, it is a critical, but as yet a missing step, to transform this knowledge into useful techniques or ideas for countering them, for application through the social learning construct.

Social learning theory is hampered by lack of means for assessing practice and impact. Bouwen and Taillieu (2004) have identified a framework for theorising about and intervening in multi-party collaboration. They state that *the quality of a collaboration project can be described in terms of the lived interdependence among the different actors* (ibid., p. 147). This is a far from universally adopted framework and, at least currently, Siebenhüner (2004, p. 150) is justified in

¹⁷ Dale (1989) cites social learning theorists of the 1970s and 1980s, e.g. Dunn (1971), Friedmann (1971), Schon (1971), Michael (1973), and Alexander (1984).

¹⁸ From Garben & Seligman (1980), Maarleveld & Dangbégnon (1999).

his critique that a lack of criteria on social learning restricts empirical analysis to support theoretical development. Siebenhüner's observation of cases is that the learning in projects is not really analysed and such observations that are made concentrate on mental rather than behavioural changes.

That social learning is being applied, whole or in part, without ubiquitous understanding about the concept, and in often widely different planning, policy and management contexts suggests a short-term future where theoretical development will continue to struggle. A possible means of addressing this is by linking social learning with evaluation methodologies which promote practice and theoretical learning (see Chapter 4).

2.4 Summary – the value of the social learning concept

This chapter traces some of the likely roots and (also likely) coincidental evolutions of the social learning concept. It has examined how social learning has simultaneously emerged in the planning and policy literature, and the environmental management and sustainable development literature. In addition I have reviewed its implications for the arena of post-normal or sustainability science. The multiple venues in which social learning is appearing have led to some divergence in terminology, which poses challenges for the theoretical and practical development of the concept. While in some instances social learning is regarded as an 'end state' (e.g. the improved learning by collectives), more commonly in the environmental management and sustainable development literature social learning is regarded as a 'means to an end', i.e. a framework of ideas that collectively contribute to the capacity for agencies, stakeholders and communities to address environmental problems. Therefore, while it may be possible to measure social learning as an outcome, it is arguably more helpful to regard social learning as a collection of elements critical to understanding and supporting the social and situational factors that underpin complex environmental problem solving. From the analysis of the literature presented in this chapter I propose a Social Learning Framework that draws attention to four interlinked areas for focusing awareness and developing practice in complex

problem solving situations (Figure 2.2): These are:

1. How to manage group participation and interaction
2. How to work with and improve the social and institutional conditions for complex problem solving
3. How to improve the learning of individuals, groups and organisations
4. How to enable systems thinking and the integration of different information

In Table 2.5 I expand on the factors within each section based on those widely recognised in the literature as underpinning social learning¹⁹. In Figure 2.1 I have reserved a unique and central position for the role of reflection. Authors such as Keen et al. (2005) have highlighted the degree to which the particular approaches to learning and thinking proffered through the Social Learning Framework, and even the proper functioning of collaborative and multi-stakeholder processes, and the capacity for institutional arrangements to handle the demands of uncertainty and unpredictability rely on instituted practices of reflection and evaluation.

This comprehensive understanding of social learning means the concept can be a useful basis for maintaining critical observation not only on the problem solving task but on the learning and social interchange processes upon which it rests. I conclude that one of the primary values of social learning as a concept is this breadth and inclusiveness. As a framework it clearly articulates the learning processes of relevance in resource management (Pahl-Wostl 2004), alongside the social and institutional capacity needs. However, equally significant is that it draws attention to the relationship between factors. As Buck et al. (2001. p. 15) observe about social learning, it is the intersection of collaboration and learning which makes it distinctive. This requires *giving attention simultaneously to how to bring interest groups together, as well as to which learning patterns to employ*. Similarly, in using social learning as a theory of the social processes inherent in complex environmental problem solving, researchers and practitioners are encouraged to examine group behaviour within the context of the institutional arrangements that are likely to influence it, or decision-making structures and their relationship to learning. In short, as a theoretical basis to analysis of problem situations it does not constrain researchers or practitioners to exploring group behaviour in isolation of institutional arrangements, or decision-making processes independently of learning.

¹⁹ I acknowledge that different authors give these elements and the subcomponents within them different weight but argue these are consistent across most holistic definitions of social learning.

Table 2.5 Summary of critical elements of social learning theory

Group participation & interaction elements	Social & institutional elements
<p>Social learning is intimately connected to dialogue and communicative rationality and all social processes associated with information sharing (e.g. power relationships, institutional arrangements, and facilitation practices). Two important aspects are :</p> <ul style="list-style-type: none"> • Effective multi-party communication. This includes using communicative competence, (e.g. dispute resolution and conflict management) or communicative rationality as the guiding principle for the interactions of scientists, resource users, planners and managers (Daniels & Walker 1996; Maarleveld & Dangbégnon 1999) • Creation of collaborative platforms, i.e. spaces, real or virtual, which pay attention to both physical and process elements so that stakeholders can interact and learn together (Buck et al.2001). 	<p>Social learning draws attention to the social and institutional arrangements around problem situations, which affect the sharing of knowledge, decision making and action. These include:</p> <ul style="list-style-type: none"> • Management of the political and decision-making context: e.g. balancing power differentials, managing constructive conflict, and providing real access to decision-making. • Structural openness, i.e. facility for ongoing interaction between social actors, groups, semi-public organisations, institutions, or authorities (Kooiman, 1993 in Fiorino 2001) • Structured unpredictability, i.e. institutional arrangements that support open exchange and knowledge building amongst parties, and avoid common traps of favoring a priori knowledge held by agencies Schusler et al.2003).
<p>The ‘learning’ component of social learning</p> <ul style="list-style-type: none"> • In complex environmental problem situations people need to learn facts & information pertinent to the problem, as well as develop understanding of how to manage the interactions of multiple stakeholders with different sources of information, aspirations and mandates. This is referred to as learning that develops technical (task or content knowledge) and process knowledge. Also viewed as <i>cognitive enhancement</i> and <i>moral development</i> (Webler et al. 1995); and <i>soft relational</i> and <i>hard factual</i> aspects of analysing and managing a human–environment system (Pahl-Wostl & Hare 2004). • Social learning also rests on learning, that includes active cycles of action and review, and reflection on assumptions, that leads to new problem diagnosis (double-loop learning); and enhanced awareness of learning strategies (triple loop learning) (Argyris & Schon 1978). 	<p>Thinking elements of social learning</p> <ul style="list-style-type: none"> • Systems thinking: counters blind spots of reductionist analytical traditions, and enables re-examination of boundaries, (physical and ideological), and critical system elements, (human and non-human). Methods to introduce systems thinking vary and include those that are predominantly dialogic (e.g. soft systems methodology), and those which use modelling and information processing technology. (Maarleveld & Dangbégnon 1999) • Managing for uncertainty: social learning recognizes the inherent ‘unknowability’ within complex problems, and advocates processes of negotiated action and learning (e.g. cycles of adaptive management). This relies on an experimental approach to the management of problems that is explicit about goals and intentions, outlines evaluation methods; and collects information to check assumptions with practice (Maarleveld & Dangbégnon 1999)

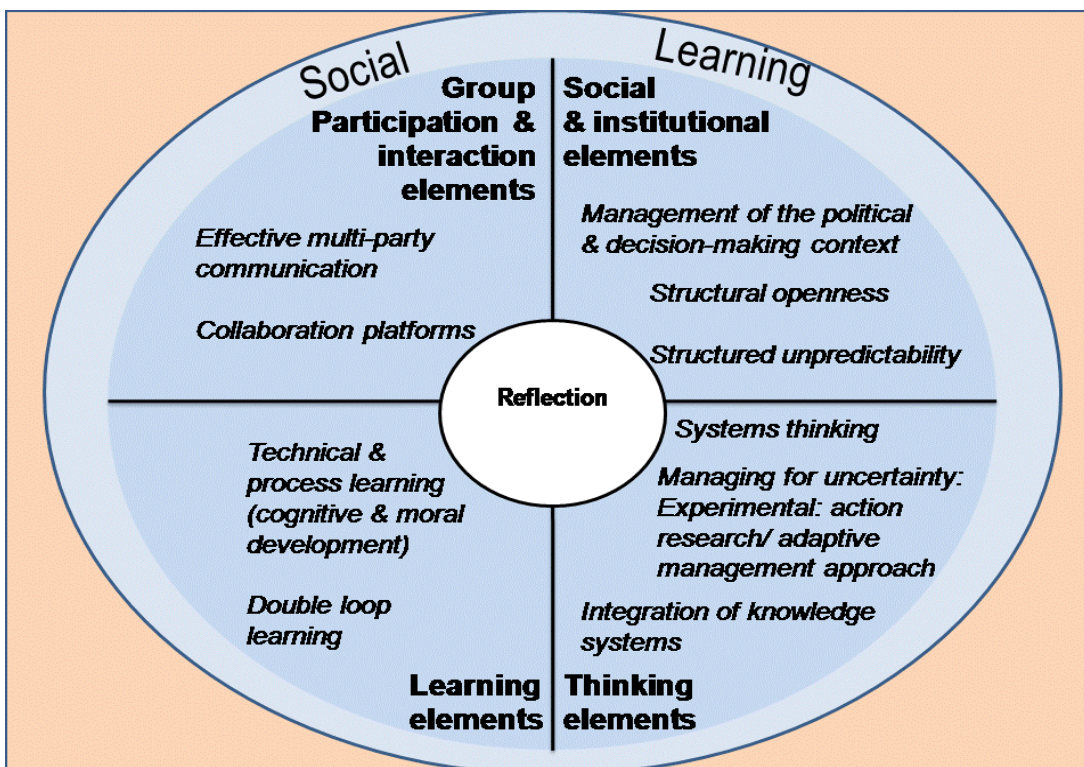


Figure 2.1 Social learning understood as a framework of elements critical to complex environmental problem solving.

While much has been written about the essential elements of a social-learning-oriented approach, practice appears to be incongruent with theory and it is how to operationalise social learning that is posing the greatest challenge (Röling 2002). This includes uncertainty about some of the specific elements of social learning – such as how to facilitate and enable active learning processes that not only add information, but also challenge existing assumptions. More generically the question is how to introduce, let alone embed social learning in ongoing and institutionalised processes of decision-making, and importantly – just who is responsible for this? In the next chapter I turn to the role evaluative practices can play in building capacity for social learning.

Chapter 3

Building capacity for social learning: what evaluation has to offer

...in studying evaluation use, we began to observe that the processes involved in certain kinds of evaluations had an impact quite apart from the findings. In approaches to evaluation that involve participatory processes, those involved often experience changes in thought and behaviour as a result of learning that occurs during the evaluation process. Changes in program or organizational procedures and culture can also be manifestations of an evaluation's impacts. These observations about the 'process use' of evaluation led to a more direct focus on the potential of evaluation to contribute to organisational capacity development.

Michael Quinn Patton 'The culture of evaluation' (Horton et al. 2003, p. v)

3.1 Introduction

Chapter 2 enquired into the history, breadth and depth of social learning and found it to be increasingly regarded as a comprehensive concept, inclusive of a range of critical elements of complex environmental problem solving, i.e. learning and thinking elements, social and institutional elements, and elements of group participation and interaction (see Figure 2.1 & Table 2.5). I argue that the value of social learning to environmental management is the recognition of the relationship between these elements. It draws attention not only to practices of collaboration or learning but to the intersection of both collaboration and learning; or to the challenges not only of undertaking a systems thinking approach but embedding this within the real institutional constraints of decision-making structures.

A search in the literature also revealed a lack of consistency in theoretical development and praxis. In many ways this is not surprising. The practice of environmental management seems to be particularly bereft of active use or inquiry into relevant social theory. Many projects and programmes are initiated and run on the basis of professional experience, intuition and beliefs which remain unarticulated throughout the project, making it difficult to extract meaningful learning from contextual variability in comparisons across cases.

This chapter begins with the premise, then, that social learning offers a useful set of ideas to those purposed with the challenge of addressing complex environmental problems. However, some of these ideas are somewhat untested hypotheses and many lack tangible links between theory and practice. This suggests that the practice of social learning is in need of an active enquiry that develops both capacity and understanding. Such an active enquiry process must have the ability to reach into the wide-ranging aspects of the social learning concept, and return knowledge that is practical for immediate needs yet with the potential to be sufficiently profound to make contributions to the development of social learning as a concept. Added to this, it is ideologically consistent that the framework for ‘learning about social learning’ is one which is embedded in the actuality of the social learning process.

Authors such as Keen et al. (2005) have already identified reflection as a practice inherent to the success of social learning (see Figure 2.1). Others, e.g. Guijt (2008), have given their attention to monitoring as a way to improve the learning capacity of resource management dilemmas. Evaluation, particularly participatory and developmental (P & D) forms of evaluation, in essence combines both practices of reflection and monitoring. In my work as a researcher within CLEM, before beginning this thesis, I was already seeing the potential for evaluation to contribute to learning in environmental programmes. Evaluation practice, experience and theory has much to say on approaches that can influence the overall structure of a programme, provide guidance on what is going on – what is meant to be happening and what actually is – at the same time as enhance the learning capacity within the programme.

Furthermore, to build capacity for social learning requires having some influence on the institutional arrangements and social conditions of a given problem situation, particularly those which facilitate or constrain participation by diverse constituents, and which provide opportunities for experimentation and learning. Since programmes aimed at intervening in environmental problems (whether they are discrete projects or long-term endeavours) are both a manifestation of existing social norms and theories of action and an attempt to make changes in the social conditions of problem situations, they are a means by which these particular social learning conditions are shaped. Hence, evaluation – where it is so constructed to provide developmental support to programmes, and enquiry into institutional and social factors that

influence programme activity – can be a means of influencing these conditions for social learning.

In this chapter I look into the literature on evaluation, highlighting particular branches of evaluation theory and practice that hold most promise for building capacity for social learning in environmental management programmes. Firstly, I outline what is meant by building capacity for social learning. Secondly, I explain why the field of evaluation is relevant to capacity building for social learning and what the most recent developments in evaluation theory and practice have to offer. Thirdly, I postulate a relationship between evaluation and social learning which will be used in the examination of the case stories in the subsequent chapters.

3.2 Building capacity for social learning – what does this mean?

Capacity building is a term which has had currency for sometime among academics and practitioners in community development, and increasingly it is appearing in discussions around behaviour change and environmental management. At its most basic, capacity building refers to activities that improve the ability of either an individual or organisation to achieve its goals (Linnell 2003). However, Allen (2007) points out that capacity building is only really meaningful when it is discussed in reference to what you intend to build capacity in; and the range of possible contexts is vast. Capacity building can take place across organisations, within communities, or in whole geographic areas. It can involve individuals and groups of individuals, organisations, groups of organisations within the same field or sector, and organisations and actors from different fields and sectors (Linnell 2003).

With such a broad range of potential contexts in which to build capacity, the focus of capacity building is similarly extensive, ranging from infrastructural matters such as core funding, resourcing, and providing expertise support, right through to technical training and facilitated organisational development. Who gets involved in capacity building is correspondingly wide-ranging. Primarily it is undertaken by external agents, such as government bodies, foundations and professional associations (Cigler 2001), but it can also be carried out by management

consultants, grant makers, researchers and academic centres, or specific intermediaries and umbrella organisations (Linnell 2003).

Historic and ongoing critiques of capacity building initiatives include concerns that they have traditionally focused on technical matters rather than social process skills such as the ability to problem solve, work collectively, manage conflict, or deal constructively with matters of power and influence. Furthermore there is a growing wariness of top-down capacity building approaches (Ford et al. 2001; Andrew & Robottom 2005). This can refer to the practice of experts coming into a situation to impart knowledge without cognizance of existing skills or interest in building self-learning capabilities. It can also refer to a critical matter at the heart of all capacity-building initiatives – ‘who determines the agenda?’ For instance, in a story of tensions between Australian landowners and government over the conceptualisation of sustainability, during the 1960s, 70s and 80s, Andrew and Robottom (2005) poignantly illustrate what can happen when tacit assumptions about what it is important to build capacity in go unexamined. In this example, despite tapping into the best expert advice, farmers faced increasing problems of drought and soil erosion, as the capacity-building initiatives at the time stemmed from a government-led agenda not related to these concerns but rather directed towards increasing economic productivity (ibid., p. 66).

Contemporary writers and practitioners involved in implementing or theorising on capacity building for complex social systems and situations, such as community health, and environmental management, stress that in these contexts technocentric linear-information-transfer models of capacity building are inadequate (Cigler 2001; Andrew & Robottom 2005; Allen 2007). As Allen (2007) notes, the central concerns of environmental management and social learning *to manage change, to resolve conflict, to manage institutional pluralism, to enhance coordination, to foster communication, and to ensure that data and information are shared, require a broad and holistic view of capacity development*. Further Cigler (2001), working in the field of multi-party networks and collaborations, points out, that while it is important to acknowledge that successful communities of the future will chart their own course, based on their particular characteristics — they appear to need help to do so. In which case *innovative types of capacity building that hone collaborative skills play important roles in*

preparing communities and their organisations for the changes associated with complex partnerships (ibid., p. 83).

What is emerging from the critique of technocentric linear-information-transfer models of capacity building is an interest in linking capacity building to the growing understanding around participatory and empowerment-based learning, emerging in circles of community development, and community-based environmental and health programmes (e.g. Horton et al. 2003). However, even capacity building initiatives conceived within this more socially aware paradigm are subject to further concerns over matters such as the costs of capacity building (which can make it prohibitive for many); difficulties with prioritising capacity building against other strategic objectives, and an underlying uncertainty captured by the question ‘what exactly is the role of the professional capacity builder? In recent decades the evaluation community, has been grappling with parallel challenges of limited resources and low priorities for their work. It has also faced comparable changes in their role – tracking shifts from the evaluator as external analyst and critic, to recognising that the evaluator has a unique opportunity to promote learning in programmes, and empower programme participants to make changes for themselves. This new character of evaluation, where it increasingly intersects with capacity building, is examined in the following sections.

3.3 Overview of the development of evaluation theory and practice

Evaluation owes its origins to the perceived need in the 1960s to find ways to track the progress of government policies, interventions and programmes. However, over the 40-year history of evaluation as a recognisably independent field, concern has grown within the evaluation community regarding the use and value of their work. Notions of what it means to have evaluations ‘used and of value’ have also shifted, and there has been augmented expectation that evaluation yield not just an analysis of ‘what happened’ but results in increased learning at individual, project and institutional levels. This interest in the learning impact of evaluation has been a driving force shaping the divergent trajectories of evaluation theory. However, this has not been the only influence on emergent theories in evaluation. Evaluation has been subject to what amounts to methodological schisms as a result of the widely different contexts in which it has begun to be applied and as a consequence of some fundamental ontological differences.

Mapping a path through this is a somewhat daunting task and my version of events has chosen to focus on the impact on evaluation theory and practice caused by some specific shifts in viewpoint that link well with social learning¹. Three shifts of viewpoint of particular interest are:

- Expansion of the core drivers of evaluation from client concern with accountability and information generation to evaluator interest in learning and organisational change
- Expansion of focus from producing evaluation **outcomes** that are valued and used to developing evaluation **processes** that are valued and used
- Increased cognizance of the power issues and potential for learning and development associated with evaluation knowledge.

These three trends of thinking have had transformative impacts on the field of evaluation resulting in innovative development of evaluation approaches.

3.3.1 Definitions of evaluation

Fundamentally authors agree that the concept of evaluation refers to a systematic assessment of a situation at a given point in time, past, present or future (Twomlow & Lilja 2004). Beyond this there is almost immediately a departure from consensus. The literature is rich with divergence on purpose, theoretical framework, underpinning ontology and, naturally, the implications this has for method. For instance, a seemingly relatively straightforward statement by a New Zealand evaluation researcher about the nature of evaluation implies that judgment is the central function:

Evaluation is the process by which we examine, assess and make judgments about the relative or absolute value of an action, a process, a practice, or an investment.
(Saville-Smith 2003, p. 16)

However, authors Guba and Lincoln (1989a) describe four generations of evaluation practice that have emerged over the years and identify a judgment function in evaluation as a

¹ It is important to note that while these are shifts of viewpoint, they result in an expansion rather than change in the evaluation field. This is because as evaluation has developed it has embraced a wider range of drivers, focus and methods rather than replaced historical ones with newer versions.

characteristic of 'third generation' evaluation. This has been preceded by frameworks based on accounting and description (still widely used) and superseded by frameworks that respond to the learning and information needs of multiple stakeholders. In other words the idea that evaluation is about judgement has only come about after many years of working with evaluation methods that have concentrated on describing, enumerating and measuring various aspects of public policy interventions. Further, many modern evaluation practitioners and theorists have started to work with new ideas about the purpose of evaluation, i.e. that it is about enabling a programme and its participants to learn, adapt and respond to the needs of the situation.

Even categorisation of evaluation is not universally agreed upon. While the earlier mentioned classifications of first-, second-, third- and fourth-generation evaluation described by Guba and Lincoln (ibid.) would be widely recognised amongst the evaluation community, there are many other ways in which authors have chosen to make distinctions. For instance Baehler (2003, p. 31) divides evaluation into process type and impact/outcome type, and Duignan (2003, p. 77) makes a distinction between policy and programme evaluation. In this age of pluralism, a multitude of others have introduced entirely new frameworks which they become predominantly associated with. Widely known examples are naturalistic/responsive (also known as fourth generation) evaluation (Guba & Lincoln 1989a); theory-based evaluation (Weiss 1995; Stame 2004); realistic evaluation (Pawson & Tilley 1997); participatory evaluation (Brunner & Guzman 1989) and empowerment evaluation (Fetterman 1996). Added to these are numerous less widely discussed contributions to evaluation theory and practice which also adopt new branding terminology to distinguish their ideas. Examples include the evaluation voices method (O'Sullivan & O'Sullivan 1998), partnership evaluation (Oliver et al. 2003), and evaluative enquiry (Preskill & Torres 1999). These varying approaches to evaluation are not sequential evolutionary developments, and frequently share as many characteristics as they have differences.

Summative, formative, cost-free, goal-free, functional, tailored, comprehensive, theory-driven, stakeholder-based, naturalistic, utilisation-focused, pre-ordinate, responsive and meta are but a small set of the terminology that could be attributed to evaluation (Pawson & Tilley 1997, p. 1). While many authors describe evaluation as a comparatively young discipline (ibid.; Saville-

Smith 2003) it is widely acknowledged to have grown exponentially in the face of a global trend towards decentralized bureaucracy and control through surveillance (Pawson & Tilley 1997, p. 1). Further evaluation has developed in multiple contexts, e.g. public health, education, community development and organisational change. It would be easier now to list areas of governance, funding and research which do not have a branch of evaluation theory and methodology directly contributing to it.

Duignan (2003) points out that evaluation undertaken in many different disciplines can be conceptualised in a number of different ways and the variety of terms can lead to problems in discussing, commissioning, undertaking, and reporting evaluations. He goes on to identify four conceptual levels for divergence in evaluation terminology: the evaluation approach, purpose, methods and designs (see Table 3.1).

Table 3.1 Conceptual levels for evaluation terminology (from Duignan 2003, pp. 78–79)

Evaluation approach	Overall way of conceptualising evaluation including philosophical and value orientation to the task	e.g. Kaupapa Māori ² , goal-free, utilisation-focused empowerment)
Evaluation purpose	Sometimes called ‘types’, this refers to the intended use of the evaluation	e.g. formative, process, impact/outcome, summative
Evaluation method	Ways of carrying out research	e.g. surveys, focus groups
Evaluation design	Way in which the methods of an evaluation are used to answer evaluation questions for a particular purpose under the overall framework of an evaluation approach	The design may use a number of different types and purposes within an overall approach.

Adding to the confusion is the disjunction between what is theorised about evaluation and what is actualised through evaluation practice. Chen and Rossi (1989, p. 299), note that the paradigmatic shifts that have occurred in evaluation largely operate at what they describe as the *high culture level*, rather than at the level of the everyday operative evaluator. In fairness, the blame for this is as likely to be constraints imposed by the limited expectations of the commissioner and funder of the evaluation, as the failure of the professional community to take

² Using Kaupapa Māori as a basis to evaluation implies that the specific philosophical and cultural dimensions of working with Māori communities are at the forefront of the evaluation approach.

up the theoretical advances on offer. However, the pragmatics of undertaking an evaluation in the end can make it likely that the best an evaluation theorist can hope for is that evaluators may use key features of their frameworks as guidance to their practice. As Davidson (2003, p. 106) points out: *real evaluation is a messy process characterised by numerous false starts, frustrations, and a lingering worry that you've chosen the wrong method in the first place.*

In summary, writing as far back as 1989, Chen and Rossi make a neat statement that has proved to be prophetic: *evaluation has never been dominated by a single paradigm, nor is it likely to be in the foreseeable future* (p. 299). Furthermore there are certainly those who regard epistemological eclecticism as a strength not a weakness and consider the secret to success is to maintain a vigilant reflexive approach to practice, staying aware of and questioning assumptions (Davidson 2003).

3.3.2 Critiques and new directions for evaluation

In 1980 Cronbach et al. observed that *an evaluation ought to inform and improve the operations of the social system* (p. 152). In his work on reform of programme evaluation Cronbach and his colleagues discuss expanding the role of evaluator beyond that of an investigator who brings in technical skills to a circumscribed problem, communicates findings in a report and departs. Their alternative vision is one where the evaluator is actively engaged in the political events of the situation, working as a *multi-partisan who serves the general interest* (ibid., p. 152). Cronbach's evaluator, in his terms, is an *educator*. Through *holding the mirror up to events* (ibid., p. 153) the evaluator gives decision-makers the chance to make decisions with greater awareness of the complexity of phenomena, the underlying assumptions, and the long-term possibilities as well as short-run advantages of situations. Operating in this education-based approach Cronbach indicates that what evaluation can offer community development programmes is lessons on how to choose what variables to observe to improve their function and delivery (ibid., p. 169). Furthermore the evaluator, by moving amongst the many programme constituents, cross-pollinates ideas from a range of stakeholders, clarifies the multiple objectives and can help to redefine the problem context for the programme (ibid., p. 171). The success of the evaluation is then to be judged as any other educational effort *by what it does to develop the learner's potential* (ibid., p. 160). To understand that in 1980 this was still

deemed a radical departure from conventional evaluation practice it is necessary to look at the trajectory of changes to evaluation theory and practice over the preceding decades.

In the late 1980s Guba and Lincoln (1989a) proposed a radical new construction for evaluation which they regarded as the fourth in a series of generations, each characterised by shifts in focus and changes to the role of the evaluator (*ibid.*). Evaluation can generally be said to have emerged out of drives towards greater rationality in government social policy and a perceived necessity for improved information for decision-making. What was then common to early and long-time dominant forms of evaluation was a focus on measurement. Hence Guba and Lincoln (1989a, p. 26) refer to first-generation evaluation as the *measurement generation*. Here measurement and evaluation are interchangeable terms. Variables are predetermined and the role of the evaluator is a technical one, providing a range of instruments (largely quantitative) to gauge them.

Spawned from perceived deficiencies in the usefulness of information generated solely around the measurement of predetermined variables, second-generation evaluation developed a focus on *objectives*. It is characterised by the description of strengths and weaknesses in relation to predetermined programme objectives. Measurement becomes one of the tools of evaluation and is no longer synonymous with it. The role of the evaluator in second-generation evaluation is as a *describer* (*ibid.*, p. 27). However, what soon becomes apparent is an absence in all this description of any capacity for judgment. This is further exacerbated by reliance on pre-formed objectives, the validity of which only becomes apparent after the project is completed. Therefore the shift in focus in third-generation evaluation is towards *decisions* (*ibid.*, p. 31). The development of a judgment function in evaluation necessitates a judge – a role which evaluators have reluctantly taken up, and found to be, as expected, rife with problems as it plunges them directly into the political arena and compromises the hitherto much prized objective independence (*ibid.*).

Guba and Lincoln identify a set of fundamental and interrelated problems with all three evaluation generations. These are: (i) a tendency toward managerialism, (ii) failure to accommodate value-pluralism, and (iii) over commitment to the scientific paradigm of inquiry (*ibid.*, pp. 32–37). Although these are couched here in Guba and Lincoln's terms, observations

on each of these areas of critique have been made by many other authors in the field (e.g. Pawson & Tilley 1997; Oliver et al. 2003).

1. **Tendency toward managerialism.** This refers to inherent problems in the relationship between the evaluator, the manager of the project under review, or the commissioner of the evaluation (often the project funder). Evaluations are often set up as independent, expert-driven, processes reliant on an established hierarchy and set of roles. For example, the community are seen in terms of *problems*, the policy analyst devises *solutions*, the service provider *implements* these, and the evaluator *observes, reviews and makes judgment* (Oliver et al. 2003). Such an evaluation model effectively avoids any questions about the practices and qualities of the manager and funder of work. Since these are the same people who generally have control over the dissemination of any results, the consequences are disempowerment, and disenfranchisement for both the evaluator and other project participants.

2. **Failure to accommodate value-pluralism.** Guba and Lincoln (1989a, p. 34) observe that evaluations are commonly regarded as scientific and therefore value free. However, in their opinion, in practice, this is far from true. A simple example of this is the tendency for the project manager or funder to set the agenda of the evaluation. In such cases, programme managers, affected by desire to make a ‘good showing’, are consciously or unconsciously selective in the variables they dictate for evaluation.

3. **Over commitment to the scientific paradigm of inquiry.** Although not alone, Guba and Lincoln are among the foremost in proposing a shift from positivist-based evaluation to a constructivist approach. In their view this positivist-based drive for generalisable results has led to *context-stripping*, i.e. ignoring the environment of the subjects of the evaluation. It also results in an overdependence on formal quantitative measurement, and an abdication of responsibility on behalf of the evaluator, because they are simply revealing ‘the truth’.

Stame (2004, p. 59), in her review of theory-based evaluation, suggests that the positivist tradition, in its reluctance to engage with the issue of values, has limited the ability of evaluators to contribute to discussions on the theoretical implications of programmes. Instead evaluators have concentrated on developing methods that test the internal and external validity

of a programme (i.e. did it do what it set out to do and can you generalise about the results?) and steered clear of challenging the theoretical rationality of the programme.

What Guba and Lincoln offer as a remedy to previous generations of evaluation practice is fourth-generation evaluation. This is based on constructivist understandings and hence represents a radical departure from positivist-based-evaluation formulas. Here programmes are recognised as social events and, by necessity, interpretations of these events must be negotiated with stakeholders who are the primary focus of this form of evaluation. Thus *the engine of the method is...an exchange of meaning between the researcher and all program participants* (Pawson & Tilley 1997, p. 18).

Pawson and Tilley (1997), in their own synopsis of methodological change in evaluation research, echo these critiques and offer a different, but not contradictory version of events. Writing some time after Guba and Lincoln's fourth-generation-evaluation work had appeared, they include this among three significant developmental phases of evaluation theory and practice. Terming the first phase of evaluation as experimental they describe it as based on a theory of causal explanation (i.e. the classic positivist science paradigm of control groups and measurable interventions). Experimental-based evaluations were designed to assist rational choices in policy around the best options, but their tendency was to end up with a complex of controls to try to ensure the validity of causal claims.

This is followed by the pragmatic phase, which is more grounded in the realities of policy making. Here the flow of knowledge is opposite to that of experimental-based evaluation, i.e. it starts with an understanding of the needs of policymaking and ends with knowledge that is considered valid if it is pragmatically acceptable within the set policy framework. The objective is to enlighten rather than provide definitive options, and hence the focus of the evaluation is clearly on the policymaking community. The third phase is Guba and Lincoln's aforementioned fourth-generation (naturalistic) evaluation.

Pawson and Tilley (ibid.) see problems with all three approaches. In particular they note (in agreement with Guba and Lincoln) that the first strips away context by being experimental and control based, but the last, as an opposite extreme (Guba and Lincoln's own suggestion), is of

compromised value because it places context so highly it is not possible to extrapolate and generalise. What Pawson and Tilley (1997) offer as an alternative is what they term realistic evaluation, which, in their view, draws both context and theory together to offer meaningful interpretation of events.

From all this reformist activity it may be easy to assume that the old ways of evaluation have largely been abandoned. This is far from the truth. Authors writing about new approaches to evaluation recognise them as departures from the norm, and even in some cases representing currently marginal viewpoints within the evaluation community. As Twomlow and Lilja (2004, p. 1) point out [*t*]he way most evaluations are commissioned and conducted still aims at making definitive judgements about project worth rather than providing learning opportunities. The one driver that evaluators share across the board, whether they are undertaking traditional cost-benefit analysis or radical soft-systems based participatory evaluation, is the desire to see their evaluations put to use. The cry of the evaluator, since the first accounting study was undertaken, was surely one of dismay at the lack of impact their patiently gathered information had in the critical decision-making it was designed to assist.

Being more influential with their work was certainly a driver behind the pragmatic evaluation trend described by Pawson and Tilley (1997) where evaluators seek greater engagement with the policy world. For others this has led to increased efforts to improve communication between themselves and those influencing decision-making processes, including an increased interest in understanding how organisations use information and learn. For instance, in his paper on evaluation and organisational learning, Rist (1997, p. 19) reflects on the question *why is it that organizations appear to have more receptivity to certain types of information and to the manner in which it is packaged than they do to other types?* and posits that the evaluation community needs to consider how to restructure their work to respond to the dynamics of organisational learning. Similarly Preskill and Torres (1999, p. 94) found they were driven to develop a more meaningful role for evaluation in organisational development after they *increasingly encountered instances where our work went unused and realized what little impact traditional evaluation practice was having on organisational change efforts.*

In their discussion of evaluation use Forss et al. (1994) make a helpful distinction between types of use that are instrumental and those that are conceptual. Instrumental use is where the results of an evaluation are used to make decisions and change projects. Conceptual use, in contrast, implies that the people involved are affected in how they think about an issue³. My own experience with evaluation suggest that an interest in enhancing instrumental use tends to focus evaluations on ‘outcomes’, whereas an interest in conceptual use leads developers of evaluation approaches to consider ‘process’ and its relationship to learning to a greater degree.

Fundamentally then, where evaluation theory and practice have developed in different directions it is not because there are not some widely shared views about the limitations of traditional forms of evaluation, and the need to improve the use of evaluation findings, but because evaluation theorists and practitioners have differed on what they consider to be the most important issue to address, or most promising way to go about it. While there are those who consider that the solution to ensuring evaluations are used lies in finding ‘the right communication approach’, or perhaps the right person to talk to, of more interest to the quest in this thesis (to find evaluation approaches that works well with the demands of building capacity for social learning) are those evaluation theorists who respond to a shift in view of the role of the evaluator from independent technical advisor to engaged facilitator of learning and change. These theorists often have in common an interest in the move from externalised accountability-based evaluation to internalised improvement-based evaluation (Torres 1994, p. 333). There are a number to choose from and the next part of this chapter will concentrate on reviewing their work for its applicability to the question of developing social learning capacity in complex problem solving.

In summary, Table 3.2 outlines fundamental shifts and drivers that have shaped evaluation theory and practice. They mark the altered perception of evaluation from an instrument of **accountability**, to understanding its potential to create **improvement** in programme functioning, to ultimately, regarding evaluation as an intervention that can fundamentally affect the capacity of programmes to deliver **change and development** in their target contexts.

³ Weiss (1977) refers to this conceptual use of evaluation as *enlightenment* and Berk and Ross (1977) refer to it as *demystification* (cited in Forss et al., 1994, p. 576).

Overarching shifts in purpose for evaluation coincide with changed emphasis in evaluation practice: from generating information, or supporting judgements about programme efficacy, to influencing programme learning. This has been accompanied by altered focus, from ensuring the client or funder needs are met by communicating the findings of the evaluation, to strengthening relationships between the evaluation and the policy context for the work, and most latterly paying increased attention to the needs of stakeholders who implement the programme or are the intended beneficiaries. Methodological changes include shifting from a positivist epistemology to a constructivist basis for evaluation with all this implies; and recognition of the need to consider both the instrumental and conceptual use of the evaluation. This in turn has implications for the role of the evaluator as a technical expert or a skilled facilitator of learning within the programme.

Table 3.2 Changes and trends in evaluation (1960s to present day)

Accountability	Improvement	Change & Development
Information (description, measurement)	Judgement (comparisons, matching objectives to outcomes)	Learning (facilitation, frameworks)
Focus on ‘outputs’ that are valued and used	Focus on ‘outcomes’ that are valued and used	Focus on ‘processes’ that are valued and used <i>e.g. orders of outcome evaluation</i>
Focus on client/funder needs (improve communication)	Focus on policy needs (improve evaluator/policy interface)	Focus on stakeholder/participant needs (improve stakeholder–evaluator interface) <i>e.g. participatory evaluation</i>
Emphasis on instrumental use		Emphasis on conceptual use <i>e.g. theory-based evaluation</i>
Evaluator as technical expert		Evaluator as facilitator of learning <i>e.g. empowerment evaluation</i>
Positivist epistemology		Constructivist epistemology <i>e.g. naturalistic evaluation</i>
Works within implied theory and logic of programme		Develops theory and logic of programme <i>e.g. theory-based evaluation</i>

In Table 3.2 the far-right column highlights recent developments in evaluation theory and practice of most interest to building the capacity of social learning in environmental management programmes. Included here are examples of evaluation approaches that have responded to these drivers and shifts in focus. For example participatory evaluation has much to say about the involvement of stakeholders in evaluation. Empowerment evaluation extends this further into making these stakeholders the masters of their own evaluation process.

In the final row of the table I add one further path of change in evaluation – a movement from accepting the implied rationale and theory of the programme as a basis for evaluation, to recognising that this at times may be the root of programme failure and that evaluation has a role to play in introducing new theory and improving the logic of the programme. This capacity to introduce theory and expose tacit assumptions that drive programmes is an important potential avenue for introducing concepts of social learning into environmental management initiatives. A cluster of approaches termed ‘theory based evaluation’ have developed in response to this perceived opportunity for evaluation.

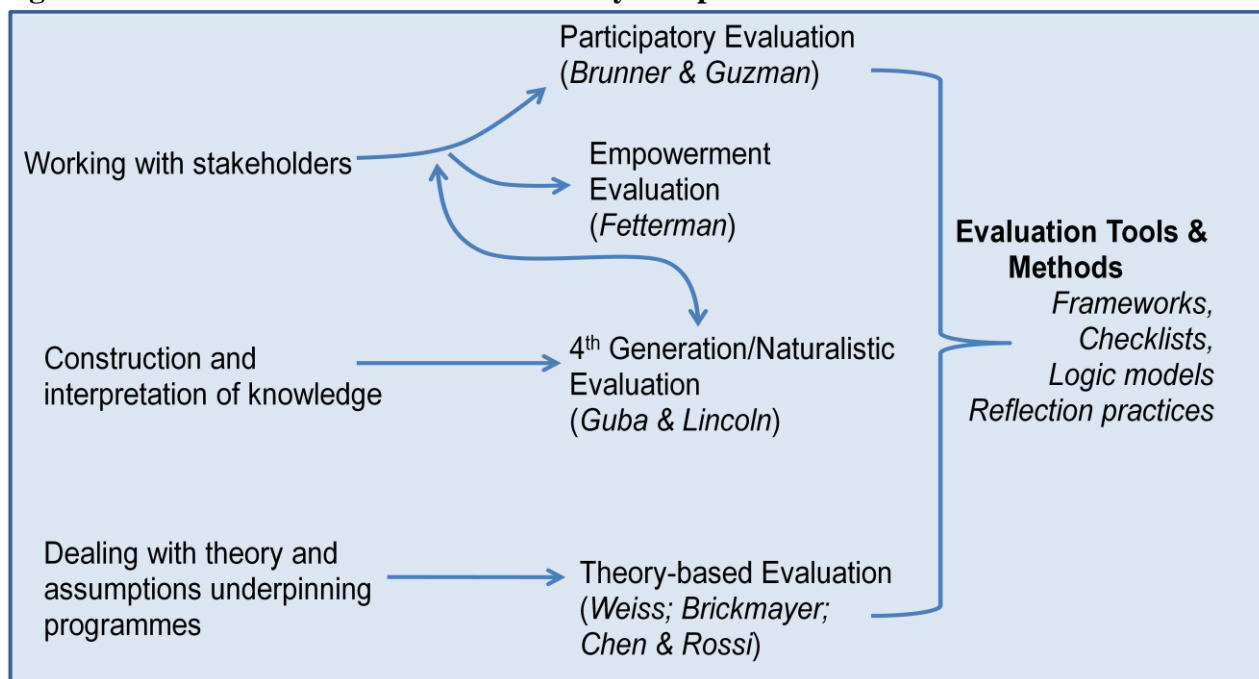
3.4 Evaluation’s contribution to capacity building for social learning

Learning and change are clearly not always the foremost directives of evaluation. Many, if not most, evaluations undertaken have a primary function to gather information for decision-making, paying varying degrees of attention to the links between that information gathering and the decision-making processes. Indeed there are many purposes behind undertaking evaluation which may even act as obstacles to learning, such as legitimisation, camouflage, or to develop ammunition in a struggle for power (Forss et al. 1994). However, the previous section reviewed developments in evaluation theory and practice that show promise for a useful intersection with social learning. These developments have emerged in response to multiple drivers but essentially in line with the three shifts in viewpoint identified earlier: that is (i) changed drivers, i.e. from client concern with accountability and information generation vs evaluator interest in learning and organizational change; (ii) changed focus, i.e. from evaluation **outputs**, and **outcomes** to evaluation **processes**; and (iii) increased cognizance of power issues associated with evaluation knowledge.

While no one branch of evaluation has addressed all three with equal emphasis, these shifts of view have been formative in several evaluation approaches. Figure 3.1 outlines the four branches of evaluation theory and practice that will be explored in the remainder of this chapter. The figure also lists names of one or more theorists whose work has been seminal in the development of each evaluation approach: (i) changes in the way stakeholders are regarded and involved in evaluation practice forms the basis of participatory evaluation; (ii) even further commentary on the implications of this for the role of the evaluator is offered through empowerment evaluation; (iii) although it has much to say about stakeholder engagement fourth-generation evaluation has been included here principally for what its commentary on how evaluation approaches can contribute to the development of knowledge; (iv) theory-based evaluation has emerged in response to a perceived need to find ways to improve the theoretical basis and inherent logic of programmes and interventions.

Finally each of these evaluation approaches is, in practice, implemented through tools, techniques and methods that are themselves worth scrutinising for how they can contribute to the development of the social learning potential of environmental management programmes.

Figure 3.1 Four branches of evaluation theory and practice.



3.4.1 Increasing stakeholder participation in evaluation

The first branch of evaluation approach discussed here is that which has developed primarily in response to the perceived need for increased stakeholder participation.

Participatory evaluation

Brunner and Guzman (1989), in their paper on participatory evaluation – *a tool to assess projects and empower people*, cite a familiar cast of grievances against traditional project evaluation for its *insensitivity to their true achievements and real problems* (ibid., p. 9). Their criticisms include that local projects feel victimised by evaluators, evaluations reflect the worldview and priorities of sponsoring agencies, and main actors are denied meaningful input while the focus is on pre-coded questionnaires, cost–benefit analysis, observation sheets, and quantitative data. These can readily be seen as the pragmatic and observable consequences of the problems with conventional evaluation commented on by Guba and Lincoln (1989), namely, the tendency to managerialism, failure to accommodate value pluralism, and overcommitment to the positivist research paradigm.

Lack of reflection on who benefits, and who **should** benefit out of evaluation is still a prevalent issue today. Davidson (2003, p. 102) states that, at the most basic level, there are three considerations which drive the choice of a particular research approach or method: (i) What do you want to know? (ii) From whom do you want to know it? (iii) How many resources do you have to find it out with? In my view, what is clearly missing from this list is the question ‘Who needs to know it?’ By placing the evaluator at the centre of the enquiry there is no opportunity to reflect on who the evaluation is serving, i.e. is it the evaluation commissioner, the project managers, or the participants? The evaluator becomes a knowledge broker, gathering and disseminating without need to be cognisant of the power dynamics inherent in such an arrangement.

With an unashamed social reform agenda in mind Brunner and Guzman’s (1989) ‘participatory evaluation’ aims to put the ‘who’ of development projects firmly in the picture when it comes to their evaluation. Participatory evaluation shares theoretical foundations, ideological convictions, and methodological principles with movements of popular education and participatory research in the Third World. Furthermore Brunner and Guzman express the

intention of empowering people through participatory evaluation to *join the struggle for a just and egalitarian society*. They assert that evaluation should be *permanent, participatory and educational* (ibid., p. 10).

The aim of such evaluation is to help beneficiary groups and local facilitators adjust strategies. Hence the ingredients of their participatory approach to evaluation include, foremost, a shift in the roles of evaluator and evaluatee. In participatory evaluation the evaluators are the principal actors of a development project (the groups conventionally called the target population or beneficiaries), while professional evaluators act as methodological consultants rather than decision-makers. In the evaluation the groups and the evaluators decide collectively what should be evaluated, how the evaluation should be carried out, and what should be done with the results. Evaluation is used to control the progress of the project, explain its problems, and establish consensus on what to do next. Preliminary results are shared with all people who have a stake in the project; reactions to or interpretations of the results are recorded, organised by the evaluation team, and turned over to the groups responsible for making the decisions for future action. Such evaluation is formative in nature and its success is based on the constructive action that it generates and the improvements made in the programme. There is also clearly an intention to improve collective reflection among project participants. This is designed to help clarify divergent values and norms that can prove influential in a project's progress, and even beyond that, to produce action-oriented knowledge that is based on shared norms and a common world view.

Brunner and Guzman readily acknowledge the challenges in undertaking participatory evaluation. Principal among these is its radical approach toward empowerment. They observe that participatory evaluation can only be successfully implemented where the institution that promotes it truly wants to emancipate the dominated groups and when the groups are prepared to assume responsibility for it (ibid., p. 16). Furthermore they note that proponents of more traditional methods of formative evaluation are often concerned that standards of scientific knowledge generation are not met and that participatory evaluation produces only subjective knowledge which is not suitable to explain change or be used for policy decisions.

A further challenge to this praxis-oriented approach in application is that the perception of reality among community groups and facilitator teams is conditioned by experience and their culture. Their appreciation of a situation, therefore, may be biased by a collective misperception, which can result in misguided action. Brunner and Guzman acknowledge this risk and state that participatory evaluation tries to diminish the danger of this through promoting a permanent attitude of critical reflection and by frequent evaluation exercises (ibid.). Importantly, participatory evaluation has profound implications for the role of the evaluator, and the skill set they require. It is no longer sufficient for evaluators to be versed in methods of assessment; they must have the capacity to impart these techniques to others, and to facilitate their learning.

There is now a vigorous community of practitioners of participatory evaluation, and although this approach emerged primarily within the development community context it has extended into numerous other arenas, including health and education. It has also spawned variations upon its main themes, designed for specific issues and environments. In New Zealand, this includes the 'partnership evaluation' approach described by Oliver et al. (2003). Developed within the context of working with Māori and Pacific Island communities, it shares the same principles as participatory evaluation but with added focus on establishing partnership between evaluators, programme funders and service providers.

Empowerment evaluation

Almost indistinguishable at first glance from participatory evaluation (but without quite the same degree of emancipatory fervour) is Fetterman's 'empowerment evaluation' (1994, 1996). Fetterman describes empowerment evaluation as *the use of evaluation to help others help themselves* (1994, p. 305). It is designed to foster self-determination rather than dependency, focuses on improvement rather than measuring outcome, is collaborative, and requires both qualitative and quantitative methodologies.

Self assessment is a critical component of empowerment evaluation: [It is] *pervasive...built into every part of a program, even to the point of reflection on how its own meetings are conducted and feeding that input into future practice* (ibid., p. 11). Empowerment evaluation is a response to a challenging idea for evaluation: that merit and worth are not static, and that within the

social system that programmes operate, nothing remains the same (ibid., p. 6). Populations and their knowledge shift and values and goals change correspondingly. Fetterman argues that internalised and institutionalised self-evaluation processes are necessary for evaluation to be responsive, and therefore useful, in the face of these changes (ibid.).

Fetterman considers empowerment evaluation adaptable to almost every environment (e.g. health, education, business), but as with Brunner and Guzman, he acknowledges the importance of commitment in order to undertake it. While management must clearly support the process and the risk-taking associated with it, groups themselves must request assistance rather than have this imposed upon them, and programme participants must want to control their own destiny and take charge of the specific steps required to do so (ibid., pp. 306–311).

Also, as with participatory evaluation, empowerment evaluation redefines the professional evaluator's role and their relationship with the target population to one of collaborator and facilitator rather than expert (Fetterman 1996, p. 5). Fetterman sees an evolving relationship between evaluator and programme participants and outlines five potential facets or developmental stages: training, facilitation, advocacy, illumination and liberation (ibid., p. 9). Through training evaluators teach people to conduct their own evaluations, demystifying the process and helping organisations to internalise evaluation practices. Because new skills are needed to respond to new levels of understanding, identifying what further training is required becomes an ongoing part of the self-assessment⁴ (ibid., p. 11).

Facilitation evaluators are a step less directive than training evaluators, serving as coaches or facilitators to help others conduct a self-evaluation and providing guidance and direction to the effort. Fetterman also describes instances where evaluators serve as advocates for a group, notably in contexts where target groups are clearly disadvantaged. As he observes: *in an empowerment setting, advocate evaluators allow participants to shape the direction of the evaluation, suggest ideal solutions to their problems, and then take an active role in making social change happen* (ibid., p. 13). While all evaluations seek to reveal and provide information, Fetterman considers empowerment evaluation particularly illuminating of roles,

⁴ Corresponding to Argyris and Schön's (1978) triple-loop learning, i.e. learning about learning.

structures and program dynamics. This sets the stage for liberation, i.e. freedom from these existing roles and patterns.

Fetterman (1994) describes four steps to help programme participants internalise evaluation as part of their programme planning and management. These are essentially: (i) take stock—which involves participants developing consensual scores of the strengths and weaknesses of components of the programme; (ii) establish goals – which also uses a consensual process to set priorities and agree measurable performance targets; (iii) develop strategies to accomplish goals; and (iv) document progress – which includes reaching an understanding of the type of evidence required to do this. Important overall themes in these steps are brainstorming, critical review and consensual agreement.

Both participatory evaluation and empowerment evaluation appear to blur the line between evaluator and social change agent. In fact it could be argued that social development workers should become more skilled in monitoring for programme improvement rather than expecting evaluators to take on roles of facilitation, collaboration building and empowerment. However, Fetterman, like Brunner and Guzman, and indeed numerous other advocates for more participatory approaches to evaluation (e.g. Papineau & Kiely 1996; Cousins & Whitmore 1998) assert the worth of participatory approaches within the evaluation community to counteract the way evaluation can misrepresent reality and actively disempower communities. To argue for these approaches they have needed to counter some common challenges. These include questions over the maintenance of research rigour, and range from straightforward doubts as to the objectivity of self-evaluation to concerns over the co-opting of the generation of knowledge by sub-power factions within the stakeholders you are seeking to empower. Those in support of more participatory approaches counter-argue that absolute objectivity is not feasible in evaluation and is overvalued in its contribution to the generation of useful knowledge in a typical evaluation context. They further assert that the collective contribution of multiple parties, playing a variety of roles within the programme, reduces the bias and counters overdominance by single groups (Fetterman 1996, p. 24).

Neither participatory evaluation nor empowerment evaluation is regarded as mutually exclusive with traditional evaluation methods. Thus neither offers the same fundamental critique to

traditional evaluation as that proposed by Guba and Lincoln (1989a, 1989b; Lincoln 1992) through what has been variously termed ‘responsive evaluation’, ‘naturalistic evaluation’ and ‘fourth generation evaluation’ (FG evaluation).

3.4.2 Construction of knowledge and meaning in evaluation

Guba and Lincoln (1989b) rest their proposal for FG evaluation on two platforms. Their first is similar concerns about equity and power to that which drove development of participatory and empowerment evaluation. As with these approaches, the focus of FG evaluation is the issues identified by the stakeholders, who they further define as being *persons or groups that are put at some risk by the evaluation* (ibid., p. 39). Since ‘knowledge is power’ and evaluation creates knowledge, Guba and Lincoln see stakeholders as open to exploitation, disempowerment and disenfranchisement through evaluation processes (ibid., p. 52). However, their second platform for FG evaluation is ontological rejection of previous positivist evaluation approaches in favour of constructivist methodology. This makes FG evaluation more reformist in its agenda than either of the previous evaluation approaches.

Constructivism has been discussed earlier in this thesis in relation to social learning (chapter 2) However, the replacement of scientific positivism with a framework based on constructivism is significant enough to make it useful to revisit some of the fundamentals and their implications for evaluation. In summary the distinctions are:

1. Constructivism implies relativist ontology, i.e. there are multiple socially constructed realities. This contrasts with positivist ontology based on the existence of a single objective reality.
2. Constructivism is characterised by a subjectivist epistemology that denies subject–object dualism. Thus it asserts that the inquirer and the inquired are interlocked. ‘Knowing something’ comes about through an interactive process by which the inquirer and the participant/respondent trade roles of teacher and learner.

The methodological response to these ontological and epistemological distinctions is to substitute the experimental approach to evaluation with what Guba and Lincoln describe as:

...a hermeneutic dialectic process that takes full advantage, and account, of the observer/observed interaction to create a constructed reality that is as informed and sophisticated as it can be made at a particular point in time. (Guba & Lincoln 1989a, p. 44)

Such a methodology includes context as part of the nature of the thing to be known (hence often referred to as *naturalistic*, i.e. taking place in natural, uncontrived settings) (Lincoln 1992, p. 7). It is 'hermeneutic' because it depends on continuing iterations of analysis and critique that lead to a negotiated and shared understanding of the situation (ibid.). A major task of the evaluator, therefore, is to conduct the evaluation in such a way that each group must confront and deal with the constructions of all the others. The theory being that...*their own constructions alter by virtue of becoming better informed and more sophisticated* (Guba & Lincoln 1989a, p. 41). Guba and Lincoln (1989a, p. 44), citing Guba (1987), list a number of assumptions underpinning constructivist-based evaluation. These include:

- Truth is not an objective reality but a matter of consensus among informed constructors.
- Facts have no meaning except within some value framework and hence there cannot be an objective assessment of any proposition.
- Phenomena can only be understood within context hence findings cannot be generalised from one situation to another.
- Evaluation produces data in which facts and values are inextricably linked. Valuing is therefore an essential part of the evaluation process providing the basis for attributed meaning.

From this come certain conclusions about evaluators. Fundamentally the evaluator in a constructivist-based inquiry is a partner with stakeholders in the creation of information. What distinguishes them from other stakeholders is their role as the organiser of the negotiation process that forms the basis of meaning making (ibid.).

Fourth-generation evaluation is described in terms of four general phases that may be reiterated or overlap (Guba & Lincoln 1989b, pp. 72–74)⁵ (see Table 3.3). These are stakeholder engagement, collective review, information gathering, negotiation, and consensus. In both FG evaluation and empowerment evaluation, consensus building is an important theme. However, while FG evaluation tries to reach consensus on claims and issues, this is often not possible and conflict resolution is also a key component. In a departure from the more hands-off approach of participatory evaluation, the leadership role of establishing a conflict resolution process and moderating negotiation in FG evaluation falls to the evaluator.

Guba and Lincoln see the FG evaluation approach as able to address critical issues plaguing more traditional evaluation methodologies. Important among these are interrelated questions of how evaluations are used, the quality of evaluation information in decision making, and the association of evaluation and learning. In FG evaluation stakeholders are not only the direct users of evaluation information, but it is they, rather than the evaluators, who define what useful evaluation knowledge is. The use of a hermeneutic, dialectic methodology means that stakeholders are in a position to broaden the range of the evaluation inquiry (ibid., p. 53). Furthermore, engagement of a wide variety of stakeholders in the process focuses energy around those matters where there is disagreement and, in a process that gives balanced access to decision making, these can be the areas where most movement and improvement can be made (ibid., p. 54). FG evaluation is therefore ‘*responsive*’ both because it seeks the views of different stakeholders and because it responds to the most fundamental items in its subsequent processes (ibid., p. 41).

⁵ Guba and Lincoln (1989, chapters 1 & 2) describe a four-phase process (p. 42), later further subdivided into nine steps (pp. 72–74). I have summarised these steps within the four phases first identified using my own summary headings.

Table 3.3 Four phases in fourth generation evaluation (Guba & Lincoln 1989b)

Phase 1 Stakeholder engagement	While the evaluation process remains open to new participants, it begins with a wide-reaching identification of the full array of stakeholders. During this stage claims, concerns and issues are identified.
Phase 2 Collective review	Identified claims are submitted to the collective for comment, refutation or agreement. The evaluation provides a methodology by which these various constructions can be understood, validated and ranked for importance. An agenda and negotiation process is prepared for any unresolved items.
Phase 3 Information gathering:	This phase involves collecting information to aid in addressing those issues and concerns that still emerge after phase 2. It may include training stakeholders to enable them to use this information.
Phase 4 Negotiation and consensus	A forum of stakeholder representatives is established and negotiation takes place under the guidance of the evaluator. The information collected is used and consensus is reached on disputed items. A mechanism for reporting findings is agreed. Those issues still unresolved go on to further cycles of evaluation.

Ultimately FG evaluation is about the mutual education of participants and therefore goes substantively beyond simply identifying views from stakeholders. Rather it asks them to confront different value positions and to become more aware of their own. While this is unlikely, even in the most ideal scenario, to result in an elimination of differences, it is also less likely to result in the kind of polarised debate over evaluation findings that frequently occurs in more traditional models, in which neither side expands their understanding (ibid., p. 56). Guba and Lincoln do not appear to regard FG evaluation as running the risks of rejection by professional evaluators based on lack of research rigour that participatory evaluation and empowerment evaluation encounter. In their view both traditional, positivist-based evaluation and this responsive constructivist evaluation are both forms of disciplined inquiry. This is because, in both, *the raw materials entering the argument and the logical processes they are subjected to* may be submitted for inspection (ibid., p. 44). However, they do anticipate resistance among the evaluation community in taking up the challenge of FG evaluation. Making the switch, they argue, to greater involvement of stakeholders is easy enough. Not so easy is the paradigm shift to a constructivist methodology for those researchers steeped in positivist science (and despite a steadily growing interest in constructivist responses to evaluation methodologies, hindsight would largely agree with them). Among the likely concerns for evaluators that Guba and Lincoln identify, one they share with other more

stakeholder centred evaluation approaches, is the reluctance to give up control to stakeholders, with all the methodological and political consequences this implies (ibid.).

However, in addition the constructivist basis to FG evaluation also implies uncertainty – both in the direction an evaluation might take and in the outcomes it might generate. This uncertainty, while uncomfortable for evaluators, is likely to be even less attractive to would-be commissioners and funders of evaluations. Equally unpalatable is the inescapable implication, (based on the inability to generalise from findings) that there are no universal solutions to problems. This clearly places the process of evaluation as more valuable than its outcomes in its capacity to generate learning and change, but limits its range to only that of the target group or programme it directly works with. However, this direct confrontation of ‘unknowability’ makes FG evaluation a good fit for the knowledge and learning demands inherent in social learning.

3.4.3 Putting theory into evaluation

Not everyone sees Guba and Lincoln’s FG evaluation, or indeed any of the more stakeholder focussed approaches, as resolving all the critical issues in positivist, experimental evaluation. In particular a number of theorists have concerns about the absence of theory or the capacity for theory building in these frameworks, and it seems true to the behaviour of evaluation theorists that a number of different approaches in response to the ‘theory challenge’ have emerged. In this section I will look at theory-driven evaluation (Chen & Rossi 1989), and theory-based evaluation (Weiss 1991, 1995, 1997; Brickmayer & Weiss 2000; Connell & Klem 2000).

Stame (2004, p. 58) describes one of the fundamental challenges of social intervention programmes as *the black box problem*. What she is referring to is the reluctance of programme designers to openly examine what actually happens between the inputs of a programme (i.e. interventions) and the expected outcomes. In her view, too often programme designers pay little attention to how inputs or interventions are actually expected to work. Furthermore, she adds *evaluations do the same – concentrating on measuring outputs, whilst attributing the observed difference to the input* (ibid.). To explore the relationship between inputs and outputs i.e. to ‘open the black box’ requires an understanding of the theory basis for interventions. However, authors such as Chen and Rossi (1989, p. 301) note a pernicious failure of social intervention

programmes and their mainstream evaluations, to formally or explicitly specify theory. Stame (2004, p. 60) declares that not discussing programme theories amounts to *warranting programmes with 'absolute rationality'*, i.e. assuming that all needs are known and decision-makers are informed about the risks and opportunities implied in each option.

Theory-of-change approaches to evaluation

In 1995 in a paper entitled 'Nothing as useful as good theory', Weiss presents the concept of grounding evaluation in theories of change⁶. Weiss's work rests on the idea that social programmes are underpinned by explicit or implicit theories about how and why the program will work. Furthermore, in practice, there are commonly several theories in action, which may or may not be consistent with one another. Even more sobering is Weiss's assertion that a common theory basis to a programme is simply '*K-A-P*', i.e. increased **k**nowledge leads to change in **a**ttitude which leads to change in **p**ractice (Weiss 1997, p. 510)⁷. The aim of theory-based evaluation is to examine the extent to which these theories hold; which assumptions break down, and where they break down; and which of several theories underpinning the programme are best supported by the evidence. In essence her theory-based evaluation works by surfacing theories, laying them out in detail, identifying all assumptions and then constructing methods for data collection and analysis to track their unfolding. Furthermore theory-based evaluation aims to describe the actual mechanisms that related to the desired outcomes, which may not necessarily be synonymous with the programme actions. For instance a programme action may be to 'pass on information' but the mechanisms for achieving a desired outcome may be the 'empowerment of gaining knowledge' (ibid.). Thus if a programme is successful in passing on information but the recipients are not empowered by this new knowledge, the programme can be said to have achieved its intended actions but still failed in its intended outcomes.

In Weiss's view theory-based evaluation serves four major purposes (1995, p. 4). Firstly, it concentrates evaluation attention and resources on the key aspects of the programme. This is

⁶ Theory-of-change refers to the assumptions that underpin the steps leading to a long-term goal and the anticipated connection between programme activities and outcomes (Weiss 1995 in Anderson 2004).

⁷ In my experience this simplistic formula of behaviour change is used as a basis for many environmental management programmes.

particularly useful in dealing with programmes and projects where there is complexity and uncertainty – even uncertainty about what is known and what is not, as characterises many environmental issues. Secondly, theory-based evaluation enables the aggregation of evaluation results into a broader base of theoretical and programme knowledge, i.e. it generates knowledge about key theories of change. This addresses some of the concerns raised about FG evaluation and its lack of applicability across programmes. It also points to the potential of evaluation contributing to the conceptual development of social learning.

Thirdly, theory-based evaluation requires that programme practitioners make their assumptions explicit and reach consensus with colleagues about what they are trying to do and why. This requires that programmes develop skills in dialogue and reflection that have the potential to foster the kind of ‘double loop learning’ that is one of the key components of social learning (see Figure 2.1 & Table 2.5). Articulation of theories and assumptions causes practitioners to confront their ideas about how they expect a programme to work and limits the possibility of different parts of the programme working at cross-purposes. Furthermore, in Weiss’ view, working through the *logic of their expectations* should inspire programme designers to consider more powerful interventions to achieve goals or to scale back expectations as they are forced to match them to the resources available (Weiss 1997, p. 517). Connell and Klem (2000, p. 116), writing about using a theory-of-change approach to education reform suggest that this approach helps participants to become more conscious and even more ambitious about the work they are doing, choosing *change-making work* over doing what is comfortable and familiar.

Connell and Klem (ibid.) identify four steps in a theory-of-change approach to evaluation: (i) generate or adopt an initial change framework; (ii) select indicators, populations, thresholds and timelines; (iii) develop action strategies to strengthen support for change; (iv) final implementation planning. Furthermore they outline a highly participatory process of engaging stakeholders in defining and exploring the theory of how and why an initiative works, and associate specific benefits for learning and development at each stage. For instance they suggest conversations about thresholds (step 2) forces stakeholders to consider the value of *what is enough*, which can change stakeholders mindsets about what needs to be done and what it is really going to take to do it. They argue that the high degree of dialogue and consensus required for this approach makes it more likely that programme stakeholders will follow through on commitments and persist together in overcoming setbacks.

The distinction between theory-driven (Chen & Rossi 1989) and theory-based (Weiss 1991) evaluation on the surface is not great and rests around some assumptions about theory and programmes. Chen and Rossi lament the atheoretical nature of the experimental paradigm dominating evaluation, observing that, without theory, programme goals are unclear and measures are consequently false (Stame 2004, p. 61). In contrast, Weiss comes to theory-based evaluation from a viewpoint that programmes are confused because of the complex reality of decision-making, which is a consequence of trying to act on multiple and competing theories. Bringing to light these theories-of-change enables a consensus to be developed on those that deserve to be tested. Thus the distinction between the two theory-oriented approaches is that while one places emphasis on locating suitable theories in an apparent absence of theory, the other concentrates on identifying, exposing, and reconciling the existing theories.

Connell and Klem (2000) take a highly pragmatic approach to the theory-oriented evaluation. In their view, the role of the theory is to outline the pathway of an initiative by making explicit both the outcomes (early, intermediate and longer term) and the action strategies that will lead to the achievement of these outcomes. The quality of the theory-of-change is judged by four criteria: (i) how plausible it is (i.e. stakeholders believe if you do this you will get the expected results); (ii) how doable it is in terms of human, political and economic resources; (iii) how testable it is; and (iv) how meaningful it is (i.e. stakeholders see the outcomes as important and worth the effort). However, they also recognise that the theory-of-change can itself alter as it is tested over the course of the initiative (*ibid.*, p. 94).

All these authors acknowledge a number of potential sources of theory. These include: (i) prior theory and research from the academic social sciences, (ii) exploratory research directed toward discovering underlying causal mechanisms of a programme, and (iii) extraction of the stakeholders' implicit program theory (Lipsey & Pollard 1989 in Chen & Rossi 1989, p. 301). All approaches also rest on discussion between evaluators and stakeholders to reach consensus on choosing a theory-driven approach that meets stakeholder needs (*ibid.*, p. 305). Connell and Klem (2000) observe that the value of an imported theory is that it enables discussions to progress away from self-protective explanations of what is currently done, and can attach the evaluation to a credible tested knowledge base. The downside is that people may not accept the imported theory and it may need a good process to enable people to engage with it.

Despite the considerable interest that theory-oriented approaches to evaluation have generated in the evaluation community, Weiss herself acknowledges a number of barriers to their use (1997, p. 502). Some of these, perhaps not surprisingly, centre on the notion of theory itself. Weiss (*ibid.*) suggests that the meaning of ‘program theory’ may be unclear and that a more useful terminology might be the word ‘*model*’ (although she acknowledges this is itself overused and subject to diverse interpretations). Further to this she notes a muddle amongst writers on theory-oriented approaches merging ‘theories of implementation’ (how a programme is being put into operation) with ‘theories of action’ (the anticipated chain of effects) (*ibid.*, p. 505)⁸.

There can also be difficulty with identifying or constructing programme theories, which may stem from a number of causes. In any programme there are multiple potential sources of theory, such as documents, prior research, programme funders, managers and participants. Interviews with the people involved to solicit information about theory may be challenging as the politics frequently surrounding programmes make it uncomfortable for them to produce ‘their theory’. Furthermore evaluators may find themselves faced with an articulated theory which they believe to be wrong and they are hence unwilling to rest their evaluation on it. A way around this might be to identify multiple theories and look at those that work and those that don’t. However, this adds to another surfacing problem with theory-based evaluation – the heavy demands on resources to undertake it (*ibid.*, p. 511). As if this was not all problematic enough, Weiss also warns that programmes don’t always go in the order of first establishing goals and then acting upon them. Goals frequently appear along the way. While this seems like it may call for an adaptive approach, Weiss sees this as adding an additional and too onerous a level of complexity (*ibid.*, p. 514). Finally, in her self-scarifying review of why theory-based evaluation may not be embraced as enthusiastically as she would hope, Weiss lists the demanding analysis, the inability to generalise from the results, and the likelihood that those evaluators who already do *process evaluation* may regard what they do as already close enough to theory-based evaluation.

⁸ Together these two equate to a ‘theory-of change’ – see footnote 6.

Writing some time later Brickmayer & Weiss (2000) had more practice of theory-based evaluation to review. They still note that theory-based evaluation offers significant advantages for programme planning and improvement and the growth of knowledge around behaviour change, and offer this compromise:

Even if the evaluators do not adopt the language of theory-based evaluation, they can incorporate elements of it into their studies...In the end, whether or not the theory is right it will have provided a framework for thinking about how the program is working...lead to development of creative ways to improve programs or design new approach and program theories – for future programs. (Brickmayer & Weiss 2000, p. 426)

3.5 Tools and techniques for participatory developmental evaluation

So far in this chapter I have concentrated on summarising developments in evaluation theory that are germane to using evaluation to build capacity for social learning. These have included approaches that are cognizant of the need to address power relations in evaluation; reorient the locus of the evaluation towards the interests of programme beneficiaries; focus on learning rather than information generation; and are both process and outcome oriented. It has also included approaches that have addressed the need for greater awareness and use of theory in programmes, as a means to explain events and to promote suitable actions in the future, and to build greater understanding about the overall system.

Regardless of which approach within this collective of participatory, developmental (P & D) evaluation theories a practising evaluator has most affinity for they are still left with the need to translate these ideas into an evaluation practice. In this they are faced with three particular challenges of method, of interest to understanding how evaluation can support social learning in environmental management: (i) how to help programme participants see across scale and systems; (ii) how to ask meaningful questions and facilitate a response to these; and (iii) how to promote reflection and dialogue.

3.5.1 Frameworks for seeing across scale and systems

While discrete programmes of activity with clear temporal and physical boundaries are still common, increasingly evaluations are sought to help multiple participants find their way through programmes of activities that span large and complex social and physical systems over lengthy periods of time, during which goals, objectives and methods of measuring them may change significantly. Even with the aforementioned discrete projects there is a growing interest in anchoring these within the context of the wider system within which they operate. Helping programme participants see across either the social, temporal or geographic system of their programme is all but impossible without some way of representing the system elements in a model or framework. There are broadly two purposes for frameworks (not mutually exclusive): (i) to reveal and improve the inherent sense of the programme, and (ii) to use theoretical and practice experience to illuminate some complex but essential ingredient of the programme.

An evaluation method emerging (or rather re-emerging since first appearing in the 1950s) that generates frameworks for improving programme management is the 'logic model'. Logic models are designed to create a picture of how a programme works by illuminating the underlying theory and assumptions, and highlighting how events are expected to unfold, what activities need to come before others, and how desired outcomes are achieved (W.K. Kellogg Foundation 2004). Advocates of the logic model approach cite three areas of benefit to programme development and evaluation. The first of these is improved programme design. This happens through keeping focus on outcomes, connecting interim to long-term goals, linking activities and processes to desired results, and keeping underlying programme assumptions at the forefront of the mind. The second benefit is providing the basis to ongoing programme evaluation. The logic model enables the programme participants to decide systematically which parts of programme activity to study, how to do so, and how to assess whether initial assumptions have been correct. Finally, the third benefit lies in the process of constructing the logic model itself, which brings stakeholders together to work on clarifying what is to be achieved, what they expect will be the outcomes, and what theoretical assumptions they are relying on. Changes are based on consensus and collective ideas rather than ideology or politics (ibid., pp. 35–40). Logic models thus incorporate participatory, constructivist and theory-oriented evaluation approaches.

Conducted with a strong eye to the process of participant engagement, logic models have the potential to surface tacit knowledge about the programme system and suggest causal relationships, and thus increase the collective knowledge about the programme's strengths and weaknesses. For instance a logic model can be used to interpret a bad outcome from a programme helping to clarify whether the results are a consequence of theory failure or some deficit in implementation. However, one of the complaints of the logic model approach is the tendency to invest large amounts of time deriving beautiful and explicit models of the programme that are then left without further reference to ongoing monitoring and learning. There is also a risk, inherent in the use of all models, that the model is perceived as 'the truth' rather than an explanation of the system based on the knowledge of all those who have contributed (Davidson 2008).

Frameworks can also be used in evaluation to introduce theories of how events happen that are not currently held by programme participants, thereby creating new lenses for participants to use to examine how their system is functioning. This is particularly relevant for those programmes which are grappling with complex systems about which much is unknown – a typical characteristic of programmes emerging in the arena of environmental management. Many frameworks are initially designed without evaluation in mind, rather as means to explain a complex system or set of relationships. However, any framework can form the starting point for an evaluation. The framework must be adapted and complemented with techniques that render it suitable as the basis for enquiry and learning. Therefore some process that tests and grounds the framework in the programme context must take place. Examples of using frameworks as a basis to evaluation are given in Chapter 6.

3.5.2 Ways of asking questions

Asking questions is a primary tenet of evaluation. Not surprisingly then, the practice of specifying evaluation questions and developing questioning techniques has received considerable examination by the evaluation community. For evaluation that is designed to deliver programme accountability, questions that lead to specific measures of predefined criteria predominate. However authors such as Davidson (2008) regard questions that are prevalently descriptive in nature as *weak* – capturing what a client may want to know for immediate operational purposes but unable to come close to investigating important issues

about a programme. P & D evaluation, i.e. oriented towards generating knowledge at not only instrumental but conceptual levels, requires questioning that moves beyond data gathering or questions that can be satisfied by 'yes' or 'no' answers. Rather it requires questions that are open-ended, and depend on reflection, dialogue and the seeking out of additional information to fully comprehend (Preskill & Torres 1999). This is because questions not only elicit answers, but *good questions awaken the curiosity, challenge our limited views, and create opportunities for dynamic learning* (ibid., p. 97). In processes that are aimed at engaging groups or broad publics in actions for change, simply seeking out the galvanising question can be regarded as a most potent tool. As Chawla (1995 in Preskill & Torres 1999, p. 96) observes: *Asking the proper question is the central act of transformation.*

Garvin (1984 in Preskill & Torres 1999) offers a typology of questions to consider in establishing an evaluative enquiry, noting different types of questions can establish a fluid interchange, lead to surfacing assumptions, reveal disjuncts between theory and practice; or enable participants to think creatively about problems and solutions (Table 3.4). The questions in Garvin's typology can all be used to promote discussion around what participants in a programme or members of an organisation already know and experience. However, as discussed above, models or theoretical frameworks that offer interpretations of systems can be a way of introducing new theories or ideas and questions based on these frameworks can therefore raise issues that would not otherwise be considered.

A checklist is one way of clustering questions together in a meaningful way. While a checklist in itself is quite a simple device it can be constructed on the basis of quite complex theory (Scriven 2007). It is an economical way of incorporating and presenting large amounts of information for stakeholders to engage with. Furthermore, by adding criteria of merit (e.g. scoring from 1 to 10) the checklist can be used as a basis to assessment (ibid.). Chapter 5 will look at the use of a checklist approach to evaluation.

Table 3.4 Typology of questions (from Garvin 1984 in Preskill & Torres 1999, p. 97)

Type of question	Examples
Broad diagnostic questions	What do you think the problem is?
Questions of action or decision	What would you normally do in this situation?
Questions of extension or synthesis	Exploring how different comments fit in with one another, e.g. how does that relate to what X said?
Questions of priority or ranking	What is the most important issue?
Questions of clarification	What do you mean by that?
Questions that challenge or test	Does this really hold true for every situation?
Factual questions	What? Commonly used but the least effective at sustaining dialogue
Hypothetical questions	If this situation was different how would it affect your decision?
Summary questions	What overall themes have emerged from this discussion?

Having determined the kinds of questioning approach that is most useful to employ, evaluators still commonly face several constraints. There can be ‘no-go’ areas of inquiry with restricted access, which can be explicit or camouflaged (the latter being where the evaluator finds they are simply blocked from ever having time with the people concerned). In contrast a constraint on questioning can also be the over-prescription by clients who specify areas of investigation based on a well meaning but under-informed mandate for the evaluation. In such a situation a role for the evaluator can be to widen the client’s view of the potential for the evaluation – to help *formulate a powerful and incisive set of ‘big picture’ questions to help guide the evaluation or clarify/modify an initial set developed by the client* (Davidson 2008, p. 2). Shifting the role of an evaluation relies on first developing a relationship with the evaluation commissioner that uncovers their more fundamental needs (an example of this is given in Chapter 5).

Even without client-imposed constraints on questioning there are few environments where active inquiry is innate. In organisations, solutions are frequently more highly valued than the questioning that led to them, and consequently are often embraced and acted upon without due consideration to their likely success. Questioning can be seen as time wasting at best but also

highly threatening. Exploring how to introduce an acceptance and even enthusiasm for questioning is examined in Chapter 7.

3.5.3 Reflection and dialogue in evaluation

Many authors have recognised the role of reflection in learning, and subsequently supporting and enabling reflection is emerging as a recognised methodological issue in evaluation. For instance Preskill and Torres (1999, p. 103) place reflection as one of the seven fundamentals of establishing an evaluative enquiry practice to support organisational learning stating:

[T]he reflection process is the way we come to know and understand ourselves. And, knowing ourselves is critical to creating new meanings that lead to personal development and change. Engaging in critical reflection as a group accomplishes an even stronger community of practice.

To summarise an immense branch of literature *Not all experience educates* (Dewy 1938 in Merriam & Clark 1993, p. 41). The question then is what makes for good learning? While numerous authors have contributed substantively to understanding the basis to how experiences and new information are used to make and change meaning for individuals, most would recognise the central role that practices of reflection can have in this (Preskill & Torres 1999). Merriam and Heuter (1996, p. 251) summarise the role of reflection thus:

For learning and eventually development to occur, we must engage ourselves with the experience. This engagement is a cognitive activity and may also have emotional and even physical dimensions. Most writers have labelled this step 'reflection', 'reflection – in-action' or 'critical reflection'.... We prefer the notion of 'engagement' which can include reflection before, during and/or after the experience; it can also include emotional and/or physical reactions.

Mezirow (1991 in Preskill & Torres 1999, p. 101) suggests three foci of reflection: *Content* reflection – on the detail or description of a problem; *process* reflection – where critique is focused on the strategies for addressing the problem; and *premise* reflection – which considers the underlying assumptions or beliefs that underpin the problem situation. As identified in Chapter 2 (Figure 2.1, Table 2.5) the presence of platforms for reflection that address content, process and the underlying premise of the situation are fundamental to social learning.

Merriam and Heuter's (1996) theory of how an event can trigger development and the arrival at new meaning is summarised in Figure 3.2. It draws our attention to three criteria that are needed to create a transformative experience. The first is that the initial event (e.g. an action or a new piece of information) diverges from existing norms, values, and understanding. More particularly the event needs to be sufficiently different to the individual's existing mental model to present a challenge but not so different as to repulse them.

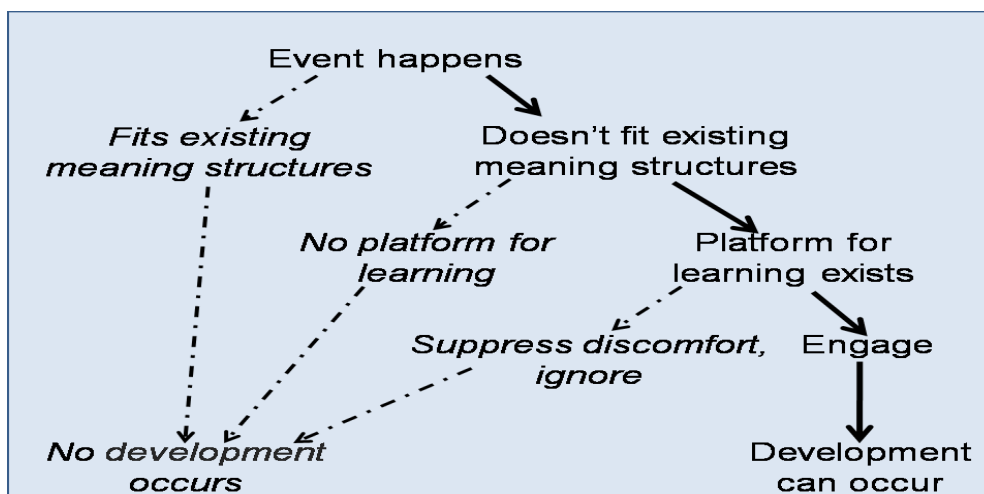


Figure 3.2 Criteria for transformative experience (from Merriam & Heuter 1996).

Secondly, it is reliant on the existence of a platform or opportunity for learning. This needs to be safe, interesting and create some imperative to engage with the new experience or information so that the individual does not wish to ignore the opportunity but rather to engage with it (i.e. the third criteria). Fostering this environment is itself dependent on having available time, and supportive questioning that enables movement from a short-focus experience to its place in a wider context. For this to happen Merriam and Heuter (ibid.) suggest there is need for a 'journey guide' who assists the learner and who also models some aspect of the new territory. Chapters 5 and 7 will explore further the role of supporting reflection through evaluation.

Furthermore, reflective practice can have an impact not only on individuals but on groups as well. The basis to group reflection is dialogue, which, as discussed earlier in this chapter is a fundamental ingredient of FG evaluation. As Jarvis (1987 in Merriam & Heuter 1996, p. 247) observes, *it is possible for individuals to perceive what are apparently the same facts from a situation and experience them differently, even to experience them in such a manner as to*

confer diametrically opposing meanings upon them. Setting up an environment in which the exchange of views is possible introduces not only the potential for individuals to access new ideas but empowers the group with a diversity of opportunity.

As distinct from ‘discussion’ the purpose of dialogue is not necessarily to develop consensus, sell or convince others of ideas. Rather it is to share, enquire, and reveal. Dialogue contributes to learning where diversity of viewpoints is needed; and where the thinking around a problem situation has become stale, overgeneralised, dominated by particular views or values, or trapped in unrevealed assumptions about the situation. Like processes of reflection, the establishment of platforms for dialogue need careful attention. In particular, thought is needed on how to overcome problematic power dynamics or individual inhibitions that can stifle free exchange.

3.6 Summary: linking social learning and P & D evaluation

In Chapter 2 I outlined how social learning emerged as a framework for understanding the social process demands inherent in the management of complex environmental issues.

However, it is important to understand social learning not as a model for ‘how things should be done’ but rather as a set of premises or conditions – the management of which impacts on the ability of groups of stakeholders to find their way through complex problems where each share some knowledge, and towards which each need to take some action. The ideas that make up social learning are fundamentally about improving the conditions for learning and adaptation. There are no set steps to be followed, nor does it prescribe any particular starting position. Rather these ideas can be applied to improve the situation from ‘where you are now’. What social learning is reliant on then is the development of a culture and conditions for continuous and rigorous enquiry among the participants in the problem solving situation. This reflective practice examines not only what is known and needs to be known about the problem, but also what exists and needs to change about the social conditions in which the problem situation is located, i.e. learning about both content and process.

In search of a mechanism that might be used to drive this enquiry practice, in this chapter I explored a potential role for evaluation, as it might be applied to complex environmental problem solving situations. In particular I examine developments, in participatory-, reflection-

and theory-driven approaches which are able to be used to improve the learning capacity of groups, and to help environmental management programmes understand how they might go about working on social development aspects important to their overall goals. These evaluation approaches, tools and understanding around the creation of enquiry practice, offer a potential means to support the capacity for social learning in any given problem situation.

I propose four spheres where participatory, developmental evaluation approaches and social learning can intersect. These are:

1. Scoping the environmental management problem situation
2. Supporting the capacity to enquire and problem solve
3. Supporting the management of programmes or interventions in the problem situation
4. Research and development that facilitates the growth of theoretical and practical knowledge about addressing complex environmental management situations (see Figure 3.3.)

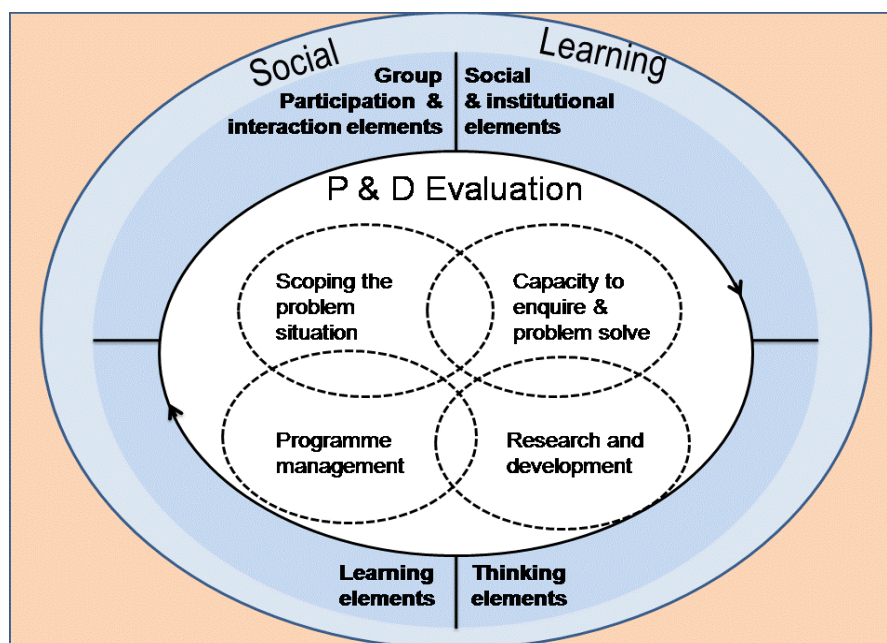


Figure 3.3 Linking social learning and P & D evaluation.

Scoping the problem situation

Social learning, as a framework of ideas about complex environmental problem solving, can be used as the basis for a review of the problem situation as a whole. This includes first asking the question ‘Is improving the conditions for social learning important to addressing this problem?’

Only if the answer is ‘yes’ would you then look further into the major challenges, and opportunities and how they will present in this particular situation.

One way in which this could be done is by combining the Social Learning Framework with a basic SWOT analysis (strengths, weaknesses, opportunities and threats). A SWOT analysis of each of the four social learning quadrants as they apply to the particular situation can be used to analyse the overall social learning capacity of the situation (see Figure 3.4). For instance, a SWOT analysis of the capacity for participation and interaction – asking the question ‘How do existing platforms for conversations about this issue match up to the demands of multi-stakeholder collaboration and learning?’ might reveal existing networks that could be of value to the programme or potentially problematic relationships. Strategies to deal with these opportunities and threats can then be incorporated into the programme. Similarly a review of the social and institutional elements important to the situation may identify that existing decision-making arrangements are insufficiently flexible or open to the input of different stakeholders, which in turn might suggest other steps that need to be taken to change these arrangements or work around them.

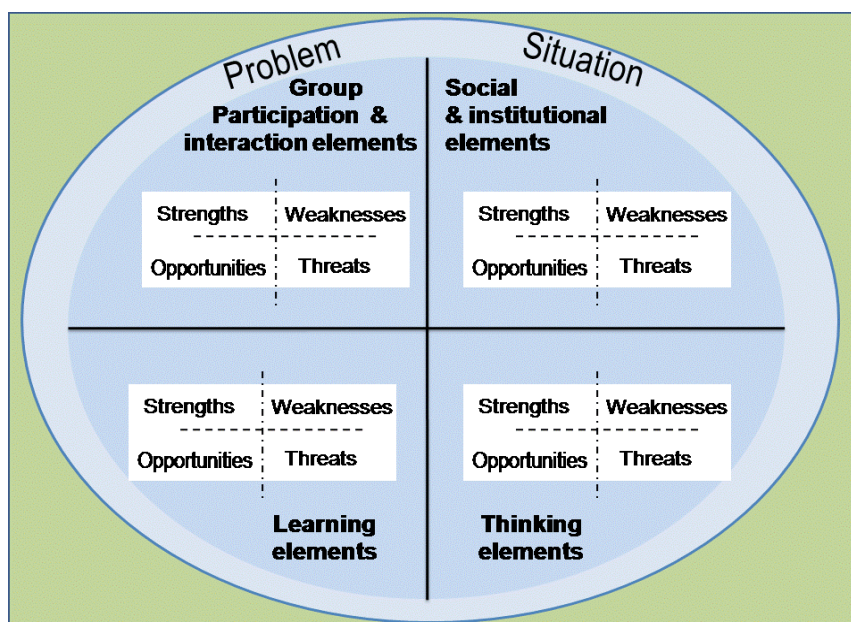


Figure 3.4 SWOT analyses of the social learning challenges of a problem situation.

In this way an evaluation based on the Social Learning Framework provides those tasked with driving improvements in the problem situation with a means to assess the existing social learning capacity and better consider both the challenges and opportunities for improvement. They may also use it to determine where their best rewards for effort might be found. Given the limitations on skills, resources and time available to most if not all complex environmental problem situations, it will be necessary for choices to be made on which areas are most amenable to change and which would yield the most strategic benefits. This is analogous to steps 1 and 2 of empowerment evaluation (Fetterman 1994), and an example of using frameworks to introduce social theory into programmes, and to support understanding across complex systems. The Social Learning Framework proposed in Chapter 2 was used as a basis for scoping the problem situation in each of the case stories presented in Chapters 4–7. A review of how this worked is included in discussion Chapter 8.

Supporting the capacity to enquire & problem solve

P & D evaluation has many tools and approaches that are useful for improving the collective learning and problem solving ability of groups. Each of the cases presented in this thesis explores the use of one or more such approaches. In the Whaingaroa Catchment Management Project (Chapter 4), a participatory timeline generation approach was used to help the local catchment management group develop a sense of the successes and struggles of their work to date. In the Target Zero programme (Chapter 5), a checklist-based facilitated evaluation approach was used to improve the effectiveness of manufacturing company teams' as they worked to implement waste minimisation practices in their companies. In Chapter 6, I discuss the use of frameworks for describing the social processes of complex integrated environmental management programmes, and how a participatory evaluation based on one such framework (the social spaces framework) enabled the ICM programme to interpret competing demands for communication and information exchange. Finally, in Chapter 7 – Watershed Talk, a number approaches based on P & D evaluation were used to enable participants in the project to draw on their knowledge about their local environment, and discuss local intractable problem situations. These included techniques that encourage individual reflection, e.g. interviews, and photo-based story telling; and techniques that supported groups in their diagnosis of problems and consideration of options (e.g. soft-systems-based group reflection).

Managing a programme

Supporting programme development and implementation is a traditional role for evaluation, P & D evaluation can be used proactively to plan programmes and interventions aimed at addressing an environmental management challenge (Table 3.5). A common evaluation approach, which combines P & D evaluation with theory-based evaluation to help design programmes that are ‘fit for purpose’, is the logic model (discussed in section 3.5.1). In the first instance, they can be used to help programme proponents, managers and participants clarify the logic of their programme, and uncover important assumptions and theories of action (or even an absence of theory) that underpin their approach. Using a consensual, participatory approach to developing programme logic can, at the least, assure all those concerned that they share an understanding about the programme’s intentions and direction. At other times what can be revealed are fundamental flaws, missing steps, or insufficient knowledge about how a part of the programme may work, and a decision can be made about how to address this.

Table 3.5 Aspects of programme management that can be supported by evaluation

Programme logic , assumptions, theories of action	Why are we doing this? What do we think will happen? How strong a link is there between actions and goals/intended outcomes?
Programme priorities	Given we expect things to happen in this way, what is the most useful thing to do? What can we afford to take a risk on?
Programme implementation	What can we use to gauge what is happening (indicators)? How will we gather information on these indicators and assess what they are telling us (monitoring strategy)?

By exposing the link between proposed actions and intended outcomes, P & D evaluation can also be used to help programmes allocate priorities for resources and effort, by clarifying what actions are most closely linked to the most important intended outcomes. It can also be used determine indicators that are appropriate and practical to use as a means to gauge programme progress; as well as establish a plan for gathering information on these indicators, and schedule for reviewing the meaning of these indicators for the programme’s ongoing operation. Unanticipated developments can occur in the best-planned programmes, and monitoring ‘for surprise’ (Guijt 2008) enables programme proponents, managers and participants to make choices about how they respond to these ‘windfalls’ or ‘pitfalls’.

Using a logic model approach to provide overall guidance to the development of a particular programme may at times highlight the need for a more in depth information need in particular areas which other P & D evaluation methods might assist with. For example stakeholder analysis can be used to identify a project's key stakeholders, assess their interests and needs, and clarify how these may affect the project's viability (Allen & Kilvington 2009). Stakeholder analysis might also be combined with the Social Learning Framework to reveal needs and abilities of stakeholders that will contribute to the social learning capacity of the situation. For instance, the stakeholder analysis might be designed to explore the role of particular stakeholders in influencing institutional arrangements or isolate their particular potential knowledge contribution to understanding the problem system. Similarly, where programmes of work extend across large geographic and temporal scales, various framework-based evaluations may be applied to help programme participants and managers visualise the more intangible social and/or physical changes that are underway.

Research and development

The final area in which P & D evaluation and social learning intersect to support complex environmental problem solving is through research and development. This is far from an academic afterthought. Rather it enables environmental management programmes to become active contributors to the body of knowledge on complex environmental problem solving that supports their own practice. Indeed the cases in this thesis are all examples where practitioners, as much as researchers, have an active interest not only in learning whether their programme is working but in understanding the reasons why, to enable these practices to be more thoughtfully and successfully applied elsewhere. An example of where evaluation played an critical role in research and development of new environmental management practice is the Twin Streams project, conceived of and sponsored by the Waitakere City Council. Ostensibly aimed at improving water quality within an urban catchment in the Auckland Region, this project took a departure from the conventional, agency-centric, approach by using a community-development-driven methodology. Testing the assumptions underlying this approach (i.e. was this really going to make a difference?), and clarifying the achievements and limitations of the new way of working were regarded as essential roles for the programme evaluation (Chilcott, personal communication, October 2009. See Appendix 1). Important to choosing the right evaluation

approach to support research and development, is considering ‘who is the learning for?’ It may be that in a complex initiative there are multiple learning needs operating at different levels.

3.6.1 Putting evaluation into practice to support social learning

This chapter reviewed several strands of evaluation approaches, tools and methods useful to building capacity for social learning. Importantly though none of the explored approaches is sufficient in itself. For instance while it is easy to imagine that participatory evaluation can be successful on a project basis, i.e. improving the ability of project participants to have influence on project directions, how does it perform in broader decision-making contexts when a mixture of programme participants and non-participants are responsible for the direction of the initiative? Theory-based evaluation takes away the problems of ‘self-assessment’ and ‘culture capture’ perceived to be problematic in participatory approaches, but without participatory and empowerment-based methodologies, it lacks the potential for developing ongoing capacity for self-assessment and learning, or the constructivist emphasis that facilitates the dialogic processes essential for communicative rationality. Fortunately, although there is undoubtedly a degree of ‘adherence to faith’, modern evaluation practice does not require us to make choices between these different evaluation theories.

In addition to the part specific approaches to evaluation can play in building capacity for social learning, there is a role evaluation can play in itself – that of situating inquiry within a valid social and institutional setting. In an age in which monitoring, measurement and accountability is all pervasive, an observed impact of the ‘pernicious audit’ is that, that which can be most easily assessed becomes the focus of endeavour (Shore & Wright 1999). As evaluation practice itself transitions from its historical accounting orientation to focus on learning and stakeholder empowerment, the potential is to counter cultural bias and introduce capacity for social learning by the back-door.

What cannot be avoided is the influence of previous experiences of evaluation. These are likely to be jaded, as for many, evaluation is seen as taking time and resources, distracts from core work, and is commonly associated with a kind of ‘pass or fail’ decision-making by an external agent. In addition, in the messy world of actually doing evaluation, it is questionable whether

people really want you to warn them of trouble ahead (Cronbach et al. 1980). Clearly the further back an evaluation can be located (i.e. into programme development rather than simply programme outcome), the more successful an evaluation intervention can be in developing capacity for improvement and learning, and the more optimistically it is likely to be regarded. Ultimately, it is important to note that, although the theory and practice of evaluation can offer much to the challenge of building capacity for social learning, the choice of approach will often depend on available resources and the recognised mandate for the work.

The cases presented in Chapters 4–7 are about three environmental management programmes set up to address a particular set of issues, and tell the story of the application of P & D evaluation approaches designed to improve some aspects of the social learning potential of a given situation. In each instance these interventions are imperfect, and opportunistic, but deal with the anticipated and unexpected outcomes of the experience, the barriers and the pitfalls.

Each of these case stories follows a schema of questions (see Chapter 1, Table 1.1, repeated in Box 3.1). The cases begin with a review of the critical factors that frame the social learning challenge of the situation. This includes the particular social learning capacity needs and the match between these and the programme intervention that is occurring. This is essentially a SWOT analysis based on the Social Learning Framework described in section 3.6.

Box 3.1 Schema of questions for case studies

- *What is the social learning challenge of the situation?*
- *What aspect of social learning was supported by the evaluation?*
- *What evaluation approach was chosen?*
- *What happened/results/outcomes?*
- *What was learnt?*
- *What is the significance of this?*

The case story then outlines how evaluation was designed to contribute to building capacity for social learning; what evaluation approach was used and how it was implemented; and the outcomes from this

(intended and unintended). Finally it considers what was learnt from the use of evaluation in this situation and the significance of this for understanding how evaluation can support social learning in environmental management.

Chapter 4

Social learning in community-based environmental management

Case One: The Whaingaroa Catchment Management Project

...an exciting but still largely incomplete experiment in resource management and problem solving.

(Kenny et al. (2000) speaking of community-based planning in Lane & McDonald 2005, p. 719)

4.1 Introduction

This chapter is the first of four case stories that explore the potential role of evaluation in supporting social learning in different environmental management and problem solving contexts. This particular case is first in the sequence not only in this thesis but in the timeline of cases themselves. In essence it marks the baseline of thinking around how evaluation can be configured to support social learning, and the issues that emerge from trying to locate an evaluation with this purpose in mind.

As outlined in Chapter 1, the environmental management context of each case story varies in terms of the perceived problem scope, the system in which it is situated, and the programme of activity aimed at addressing it. This chapter tells the story of the establishment of a community-based environmental management programme in the Whaingaroa catchment, on the west coast of the North Island of New Zealand (see Box 4.1). It therefore represents an opportunity to explore the particular challenges for social learning in what has become a comparatively conventional arena for environmental management – the organising and motivating of communities to undertake environmental improvement initiatives and/or contribute grassroots input into mainstream environmental planning.

Box 4.1 Summary of the Whaingaroa Catchment Management Project

Location: Whaingaroa Catchment, Waikato Region

Duration: 1995–1999

Synopsis: In December 1995 Environment Waikato, Waikato District Council, Landcare Research and the National Institute of Water and Atmospheric Research (NIWA) put together a joint proposal for an integrated catchment management project based in the Whaingaroa Catchment. The proposal had two parts: (i) to gather biophysical data in order to develop baseline measurements of the environmental processes that impact on the harbor; (i) to undertake a community engagement process based on the approach used in the Canadian Atlantic Coastal Action Programme (ACAP). Funding by the Ministry for the Environment (MfE) Sustainable Management Fund grant covered only the second part of the initial proposal and the project went ahead with a more limited mandate to set up a community group interested in tackling catchment-wide environmental management issues and produce a community environmental management plan.

The community engagement (facilitated by Landcare Research staff with experience in ACAP) involved running community ‘kitchen’ workshops; gathering background information on the catchment; and holding a public information day. The official engagement process culminated with a public meeting and formation of a community project steering group in March 1997.

Evaluation activity: Two years into the programme I undertook a participatory, goals-free evaluation. This included a facilitated group meeting and interviews with project stakeholders. The evaluation proved a turning point for the programme as it became clear that there was confusion over purpose and direction. A series of meetings followed which galvanised participants into new actions. This illustrated both the value of participants becoming better informed about the programmes in which they take part; and the potential role of the evaluator in increasing access to crucial knowledge about programmes.

Current status: The steering group went on to form Whaingaroa Environment, which has operated for 12 years as a networking group that supports dissemination of information and ideas across environmental groups in the region. It initially received facilitation and resource support from Environment Waikato. By 2002 Whaingaroa Environment had produced a community-based catchment management plan, created an incorporated society, and transformed into the Whaingaroa Environment Centre (WEC). Environment Waikato withdrew from administering funds for the group and WEC entered into a different funding contract (for environment centres) with MfE (Greenaway et al.2003b). WEC currently operates as an information and networking group for the catchment.

Role in project: Process observer, occasional group facilitator, project evaluator

Sources for case story: Formal evaluation report (Kilvington 1998), project notes, subsequent reviews of WCMP (Van Roon & Knight 2000a, b; Greenaway et al. 2003a, b). Discussion with Petra Meijer, PhD student, Auckland University – currently investigating Whaingaroa as an example of community-based environmental management (2008, 2009).

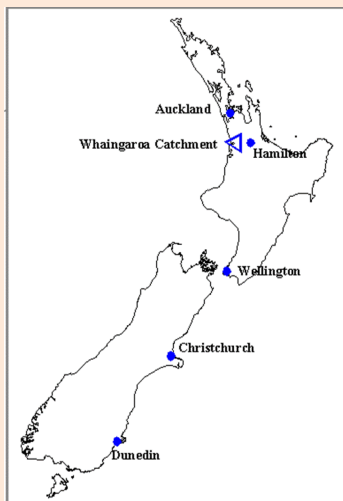
This chapter begins with a basic outline of the Whaingaroa Catchment Management Project, followed by a retrospective analysis of the critical factors that frame the social learning challenge of the situation. It then outlines how evaluation was designed to contribute to social learning, what evaluation approach was used and how it was implemented, and the outcomes from this (intended and unintended). Finally it considers what was learnt from the use of evaluation in this situation and the significance of this for understanding how evaluation can support social learning in environmental management.

4.2 Overview of the Whaingaroa Catchment Management Project

In 1995 a proposal to establish a community-based catchment management initiative in the Whaingaroa (Raglan) catchment was submitted to the New Zealand Ministry for the Environment (MfE) for support under their Sustainable Management Fund. The Whaingaroa Catchment Management Project (WCMP) was foremost conceived as a community planning project that would garner energy around local concerns over harbour degradation (see Box 4.2) and contribute to Environment Waikato's mandated requirement to develop local area management strategies (LAMS). The intention was to run a process that would both engage community interest in local environmental management issues and increase willingness and ability to take action to improve the situation.

While scoping ideas about how to run such an initiative Environment Waikato met with a recently recruited Landcare Research staff member who had been active in setting up the Canadian Atlantic Coastal Action Programme (ACAP). In addition, the opportunity arose to apply to the Sustainable Management Fund for support for the project. This funding mechanism, and input from Landcare Research staff, directed the project towards a further purpose – to work as a demonstration of community-based integrated environmental management, and in particular to test the transferability of holistic, ecosystem-based environmental management models already trialled in Atlantic Canada (through ACAP).

Box 4.2 The Whaingaroa Catchment (Kilvington 1998, p. 10)



The Whaingaroa catchment covers an area of 525 km² on the west coast of the North Island, in the Waikato Region, and is hence under the jurisdiction of the regional council, Environment Waikato. In the mid-1990s the population was around 5,500, around a third of whom lived in the principal town of Raglan. A significant proportion of the community was (and still is) of Māori descent (17% by 1991 census data) representing ten hapu of the Tainui iwi.

Indigenous vegetation was cleared from more than half of the catchment in the 19th century and the land converted for agricultural use (predominantly pastoral farming, but increasingly dairy farming in recent years). Raglan has been an important port and centre for commercial marine fishing enterprises. As it is

within commuting distance of Hamilton, it faces pressure to convert agricultural land to residential, or lifestyle blocks. Whale Bay is a popular location for surfing and the site of national competitions.

In the 1990s environmental concerns in the Whaingaroa catchment focused on three principal features: sewage contamination, sedimentation in the harbour resulting from erosion off agricultural land, and perceived declines in harbour fish stocks. Concerns over erosion-associated sedimentation led to the formation in 1995 of Whaingaroa Harbour Care, who run a nursery and promote planting of native trees and shrubs along riparian margins.

The WCMP can be regarded now as a fairly typical early experiment in community-based environmental management (CBM). The late 1980s and early 1990s saw an international trend in resource management policies that favoured greater sharing of power and responsibility between government and local resource users, and increased devolution of management and control (Berkes et al. 1991; Lane & McDonald 2005; Marshall 2008). Although the origins of CBM may have initially stemmed from grassroots frustrations with governmental inabilities to solve local environmental and resource management problems, they have increasingly been sponsored by governments as a way of dealing with problems at spatial scales ranging from small catchments to entire regions (Marshall 2008). The critique that has given rise to this movement is that resource management based on *administrative rationalism*, characterised by decision-making in the public interest undertaken by professionals in distant, centralised and disaggregated agencies, has failed to deliver sustainable outcomes for resources or communities (Dryzek 1997 in Bradshaw 2003, p. 138). The transfer of responsibility to those directly

impacted by resource-management decisions is therefore proffered as an alternative. The idea that ‘bottom up’ is a more efficient approach to sustainable resource management than regulations imposed by external agencies has had wide currency and CBM has evolved into a major dimension of environmental planning and conservation management in a host of developed and developing nations (Pijnenburg 2002; Bradshaw 2003)¹.

When the WCMP began, ideas about community-based environmental management initiatives as a path to sustainable management in New Zealand were still novel but of growing interest. Furthermore, like other regional councils, Environment Waikato was coming to grips with new functions as a regional planning agency following local government reforms in the late 1980s. They were therefore open to exploring innovative approaches in the development of regional plans, and LAMS, such as that offered by following in the footsteps of ACAP.

4.2.1 The Atlantic Coastal Action Programme

ACAP was launched by Environment Canada in 1991 as an ambitious integrated environmental management programme covering 13 different coastal communities, ranging from urban industrial to rural agricultural (Ellsworth et al. 1997). Initially intended to last 6 years, the programme has continued for over 16 years and is in its third phase of operation (McNeil et al. 2006). The main objective of the programme at its inception was to get communities involved with governments in restoration and maintenance plans and actions for harbours and estuaries in Atlantic Canada. While the programme focus began with water-related concerns, this has since broadened to a wide range of sustainability-oriented issues.

Although each ACAP community is associated with an ecosystem, the community itself is not determined by usual geographic or political boundaries but rather made up of environmental, economic and social stakeholders who are able to *distil their aspirations and values to create common unity* (Ellsworth et al. 1997, p. 126). Hence the boundaries of each initiative are pragmatically based upon the interests and issues to hand. The initial object of ACAP was to

¹ Although CBM has been widely taken up in New Zealand, the argument that it is required to counter centralised decision-making is less applicable. Other possible reasons for embracing CBM approaches include a desire to facilitate local action, and a hope to reduce the burden of local government. (see Appendix 2 background to CBM in New Zealand).

facilitate the establishment of community-based organisations that would take a leadership role in the planning and management of the local environment. The intended difference from other participatory government initiatives is that this group would go on to form an independent incorporated society that itself employs a community coordinator (albeit with funds and technical support generally being provided by the lead environmental management agency).

Within the first phase of ACAP the core group would produce a comprehensive environmental management plan (CEMP). This would take the form of a long-term strategy for the local ecosystem that would be based on consensus on long-term vision, goals and objectives; establish working partnerships; and include financial plans, timetables and commitments for implementing actions (Ellsworth et al. 1997). In addition to contributing to planning, in Phase I each ACAP project plays a role in education and awareness raising and on-the-ground action (termed the 'trinity' of activities) (ibid.). In Phases II and III the emphasis shifts from gathering of baseline data and the development of the CEMP, to implementation. This includes: capacity building, direct action, and the advancement of science with a view to preparing communities to tackle complex local environmental issues (McNeil et al. 2006).

Although ACAP has not advocated any specific methodology for Phase I initiatives, they generally have five main steps:

1. Formation and incorporation of a representative multi-stakeholder organisation
2. Consensus on a holistic vision for the area
3. Conducting environmental quality assessment
4. Identification of remedial options to close the gap between existing and desired levels of environmental quality
5. Consensus on an implementation schedule and agreement on actions and responsibilities.

In 1997 Environment Canada undertook a review of ACAP to identify lessons learned, and factors that assisted, or caused difficulties, for the ACAP groups. This report noted that overall the watershed boundaries and multi-stakeholder approach were effective, although obtaining full representation of interests was often problematic. They found that ACAP participants perceived many mutual benefits in cooperating with other organisations that share ACAP

interests, though the extent of cooperation varied, and it was widely recognised that time and effort are required to establish and maintain working relationships. The review also concluded that ACAP board composition at each site needed to be guided by local issues; and that skills and training for board members, in areas such as facilitation of decision-making or public relations, was both needed and valued by participants (S.B. Moir Consulting 1997).

Finally, the review revealed that the CEMP was useful in providing a long-term focus for activities, but CEMPs varied in the degree to which they specified implementation, and groups had to contend with reluctance of some people to take part in lengthy planning exercises. There was also the risk that the CEMP would be treated as a blueprint for change rather than as a dynamic document flexible to new knowledge and altered circumstances. Further reflections observed that a number of the ACAP communities did not develop holistic responses but rather focused on single issues and remained essentially environmental NGOs (ibid.).

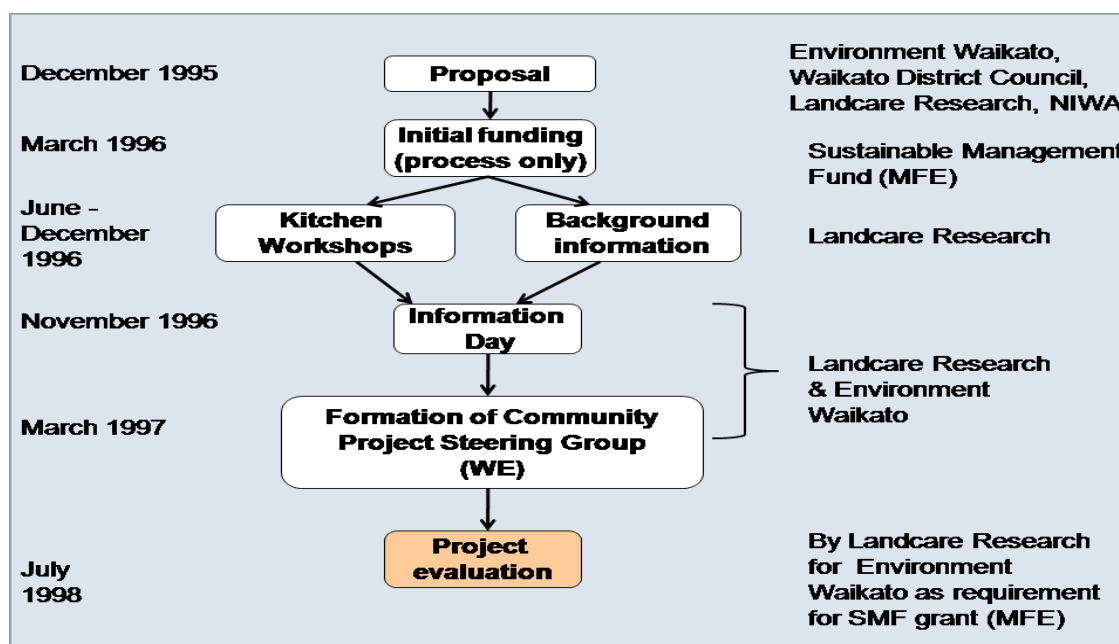
4.2.2 WCMP process and major events

In line with Phase I of the ACAP process, the initial proposal for funding of the WCMP had two parts: (i) to gather biophysical data in order to develop baseline measurements of the environmental processes that impact on the harbour; (ii) to undertake a community engagement process based on the approach used in ACAP. However, funding granted by MfE covered only the second part of the initial proposal and the project went ahead with a more limited mandate to coordinate community involvement in catchment-wide environmental management issues. The project's initial aims were to run a process that would cross traditional boundaries between formal (regulatory) and informal groups concerned with the management of the Whaingaroa catchment; and develop new relationships between unfamiliar collaborators such as farming and fishing interests, and those concerned primarily with issues of environmental health. As with ACAP, the intended outcome of this initial process was the formation of a representative stakeholder group that would subsequently guide development of a local area management plan.

Phase I – engagement

The steps of the engagement process are shown in Figure 4.1. It was intended to be a combined ‘top down’ and ‘bottom up’ process, initiated and led by Environment Waikato and facilitated by the Landcare Research staff member who had worked with ACAP. The project facilitators began by identifying stakeholders in the community, publicising the project’s intentions, generating interest, and initiating the formation of a stakeholder group. The principal method for this was ‘kitchen workshops’ (denoting their informality) where identified key stakeholders invited neighbours or associates to meet and discuss issues that concerned them. The workshops took place in such diverse locations as shearing sheds, community halls, fire stations and the homes of local residents. Participants in each workshop came from similar backgrounds (e.g. fishers, farmers, bach owners) to minimise potential conflict at an early stage and enable participants to freely express their views.

Figure 4.1 First 2.5 years of WCMP (Phase I).



Negotiations also took place to facilitate tangata whenua involvement with the project. These were initially with the Huakina Development Trust and later with the locally based Whaingaroa Kite Whenua Trust. Significantly, these were not productive in engaging either iwi group. The workshops were followed by an information day in November 1996, where information about the catchment was shared, attended by local residents, interest groups, tangata whenua and local

government representatives. Subsequently an open meeting was held at Te Uku with the intention of forming a community project steering group.

Phase I – formation of a community action group

More than 50 people crowded into the community meeting centre at Te Uku in March 1997. This was to be a pivotal meeting in the WCMP, as it was to result in the formation of a community steering group made up of volunteers representing a range of stakeholders in the community. This group would take on the task of developing a grassroots strategy for the catchment that would garner the multiple interests and concerns of constituents. It also marked the end of the formal involvement of Landcare Research staff as it was expected the newly formed community group, in conjunction with Environment Waikato, would be responsible for direction of the project. Many of the participants at Te Uku had taken part in one of the kitchen workshops, or the information day, or had been consulted in the first stages of applying for funding for the project. However, a number of those at the Te Uku meeting had not previously had direct contact with the project and the good attendance at this meeting reflected not only a high degree of interest in the environmental management of the catchment but some outright curiosity about what was going on.

The meeting did not run smoothly, and comments received later indicated that its purpose had been unclear. For some, particularly those who had not taken part in earlier workshops, the idea that the project would now hand over responsibility to the community (with the withdrawal of the Landcare Research facilitators) was confusing, and even suspicious. As one participant later commented *it felt like we were being handed a hospital pass* (i.e. something was being passed on to them that was destined for failure) (Kilvington 1998). Despite these concerns a project steering group was formed, although its membership was far from the wide sectoral representation initially envisaged. Over the next 18 months this group developed a role in coordinating, networking and providing information on catchment environmental issues. Called Whaingaroa Environment (WE) the group met regularly, convened general public meetings to determine the future of the project, generated newsletters and engaged in a number of activities to promote environmental concerns in the catchment. Environment Waikato continued to support WE by providing resources for newsletter production, and small projects, and through

further facilitation. Waikato District Council continued to send a representative to group meetings (either a staff member or local politician). In July 1998, at the official end of the MfE funding for the project, a participatory evaluation was undertaken that proved to be a turning point in the direction of the project.

4.3 Social learning challenges for WCMP: scoping the problem situation

In many ways programmes like the WCMP typify the social learning challenge, as it is the very struggles around trying to progress collective understanding and action across communities and agencies with diverse goals but common interests that have provided both impetus and knowledge leading to the development of social learning as a normative concept in environmental management.

In terms consistent with interpretations of social learning presented in Chapter 2, the problem situation presented in the WCMP can be scoped using a SWOT analysis (see Figure 3.4) based on four interlinked foci of concern: (i) stimulating and managing group participation and interaction; (ii) locating the initiative within significant social and institutional structures; (iii) supporting the generation of new knowledge and capacity for learning at multiple levels; and (iv) introducing new approaches to the integration of ideas and information for problem solving. In addition it is useful to review the overall theoretical basis to the WCMP and how the overt and tacit expectations and theories of action held by proponents, facilitators and participants influenced the programme.

4.3.1 Group participation and interaction in the WCMP

The concept of wide and equitable public engagement and participation (and all it entails) is a fundamental operational element of CBM. In CBM initiatives participation must go well beyond supplementing existing decision-making arrangements. Making progress through an oftentimes complex, multi-faceted resource allocation or environmental problem solving situation is dependent on intra- and inter-organisational interaction, collaboration and learning. It is the development and support of collective communication and learning capacity that has proven to be one of most testing components of CBM (Lane & McDonald 2005).

As a programme whose primary goal in its first phase was to establish a cross sector steering group that would include community members and representatives of major environmental and resource management agencies, the creation of a platform for collaboration and exchange was clearly pivotal for the WCMP. As outlined in Chapter 2 (Table 2.4) there are substantial procedural difficulties in running a multi-party deliberation. However, contextual issues can also influence the effectiveness of such platforms in any given situation. These include existing connections between stakeholders (particularly the distribution of power inherent in these), and overall capacity and preparedness for engagement. It is not uncommon for CBM initiatives to proceed without investigating the background of the community that is to take up challenge, or with insufficient consideration of how the programme should respond to local conditions (Bradshaw 2003). In the WCMP several contextual factors that had not been sufficiently considered emerged as problematic for group participation and interaction in the programme. These included: (i) contentious relationships between an existing local environmental group – Harbour Care and Environment Waikato, and others; (ii) burgeoning assertion of tangata whenua authority over resource management issues in the catchment, and (iii) existing appetite for the initiative.

Contentious relationships

During the project design phase for WCMP, locations other than Whaingaroa were considered for a trial of the ACAP process. These included Kawhia and Tairua harbours, where there were already plentiful data available on the ecology of the area². However, the prospect of running the project in Whaingaroa, and gaining funding through the Sustainable Management Fund, was raised during a meeting in April 1995 with the then Minister for the Environment, and local MP for Raglan, Simon Upton. This meeting followed on the heels of appeals to the MP to take action on local concerns over pollution, siltation, and over-fishing affecting the health of the harbour, and in particular following a campaign of form letters directed to Environment Waikato. These petitions had been stimulated by the local environmental group – Harbour Care, which had been in existence sometime before the WCMP project was conceived and was spearheaded by an outspoken and somewhat confrontational local resident. While the group had made substantive contributions to restoration planting in the catchment (including setting up a

² A strong evidence base was a prerequisite of the ACAP model (Dech 2003).

local nursery) they were also vocal in concerns over silt and pollutant runoff into the harbour and made many representations to Environment Waikato.

Eventually, despite suggestions from within the council itself that other locations would be better suited to the project, Whaingaroa was selected as the site. The inescapable conclusion is that the idea of using the WCMP to mollify local agitation, and to satisfy a government minister's ambitions for 'wins' in his own constituency, was an undercurrent in the initial thinking about the project. Further, as in practice the community members empowered through WCMP were not those agitating for greater influence, it could be said that an intention of the project was even to destabilise existing community dynamics.

Site selection based on political reasons, and influenced by the temptation of readily available funding, is a familiar story in CBM projects. However, this stands in contrast to acknowledged criteria for success of CBM initiatives, such as a clearly identifiable and unifying challenge, or strong social cohesion (Chamala & Mortiss 1990; Selin & Chavez 1995; Margerum 1996). It was also contrary to ACAP's principles of locating projects within communities which already had a recognised need to work collaboratively to resolve shared issues of concern. Furthermore, using participatory processes as a tactic to pacify or divert the public's energy away from criticism and into activities considered safe by an agency can create expectations and demands that may lead to backlash if people are engaged with no visible returns (Larner & Craig 2002 in Scott & Park 2008). In the end, the outspoken member of Harbour Care was far from appeased by the WCMP process. He continued to agitate for 'real action' from Environment Waikato and frequently confronted both the council and the WCMP facilitators on the worth of the project.

Tangata whenua involvement in the WCMP

A second challenge to the format of multi-stakeholder engagement prescribed by ACAP emerged around the role of tangata whenua in local resource management. The ACAP process identifies engagement with indigenous people as important, but significantly accords them no different status than that of other community and sector stakeholders. However, in New Zealand resource ownership and management rights accorded Māori through the Treaty of Waitangi, and the associated negotiations with national, and regional government agencies over

this, represents a significant contextual factor for not only the specific situation of the WCMP but for CBM initiatives across New Zealand³.

Relationships between regional and territorial agencies and tangata whenua vary widely. The capacity and organising potential of iwi⁴, and their success or otherwise in achieving levels of autonomy and resource independence through Waitangi Tribunal settlements clearly have profound impact on this. Most importantly for CBM, the Treaty of Waitangi provides tangata whenua with the standing of a direct treaty partner with the Crown. A CBM process like ACAP, which assumes equal status will be accorded the multiple stakeholders participating in the project, in the New Zealand context reduces tangata whenua to an interest group. Thus arguably the ACAP process could be seen as circumventing the obligations of local government under the Treaty of Waitangi. However relationships between tangata whenua and local government play out in practice, it is not surprising that iwi and hapu⁵ do not regard themselves in the same light as a community interest group and have thus been understandably reluctant to take part in multi-stakeholder community initiatives where their unique status might be subsumed.

In the Whaingaroa catchment in the mid-1990s, a significant proportion of the community was (and still is) of Māori descent. The Whaingaroa catchment is not only an area of great significance to tangata whenua but the site of some momentous conflicts. Te Kōpua (Raglan) was home to Eva Rickard, a well-known Māori activist who was vocal and influential in ascertaining tangata whenua rights. Controversy over appropriation of land during World War II that was subsequently not returned to local Māori, and concerns over the location of landfill sites and sewage treatment schemes, meant the relationship between the local hapu and regional council was strained.

³ Claims by Māori under the Treaty of Waitangi cover a wide range of property and resource management matters. Across New Zealand independent resource management agencies representing the interests of iwi and hapu of a region have been established. The RMA (1991), and the Conservation Act (1987) – major pieces of legislation governing the management of natural resources – both require regional and territorial authorities, and DOC, to give recognition to the Treaty of Waitangi and the Kaitiaki (guardianship) status of Māori.

⁴ Tribe

⁵ Subtribe

As involvement of local Māori with the WCMP was considered important for the success of the project, support for the project during application to the SMF was sought and secured from the mana whenua⁶ via the Whaingaroa Kite Whenua Trust. However, this was offered with some reservations. They considered that the project preparation stage had been rushed and there was little opportunity to discuss the details of their involvement. Subsequent discussions were held with the Huakina Development Trust – the environmental management arm of the Tainui Trust Board - who also raised concerns over the lack of Māori input into the development of the process itself, and questioned the benefit to furthering fundamental issues of iwi resource ownership and management. Tensions between the Tainui Trust Board and the local hapu contributed to the uncertainty of the project facilitators about the correct procedure for ensuring tangata whenua involvement in the project. The concerns of the Huakina Development Trust remained unresolved and in November 1996 a decision was made to contact the Whaingaroa Kite Whenua Trust again, inviting them to the project information day. Subsequently a meeting was held on Te Kōpua Marae⁷, attended by kaumatua⁸ from three other marae in the catchment. This went some way to reconnect Tainui hapu to the WCMP, but the proffered original ideal of having tangata whenua representation within the WCMP steering group was not realised.

Despite the inference that the facilitators involved in ACAP in Canada had some practical knowledge of engaging with the indigenous people of an area, the fundamental process as advocated through WCMP was inadequate to address the complex power relation aspects of Māori participation in a multi-stakeholder environmental management process. Indeed, as it later emerged, the experience of the facilitators in securing the participation of indigenous people through ACAP at that time had been largely symbolic (at all ACAP meetings a chair was held vacant for an indigenous representative to indicate the importance of their presence but they did not in fact attend!). To date two parallel planning processes have evolved for the CBM of the Whaingaroa Harbour and catchment – one by tangata whenua and the other by the balance of the community. Individuals within both sectors have made efforts to involve and keep the other group informed, and despite the lack of integration the overall impression is that

⁶ Those with customary authority over the area.

⁷ Most Māori tribes and subtribes have marae – places where significant meetings are held and ceremonies conducted.

⁸ Tribal elders or leaders.

all parties have similar objectives for the sustainability of valued local resources (Van Roon & Knight 2000a).

Capacity for community-based environmental management

The two previous challenges to the establishment of a platform for collaboration and learning in the WCMP have been examples of what Bradshaw (2003) terms *community credibility*. This refers to both the knowledge held by communities and their long-term commitment and shared desire for collective community and environmental benefit as a fundamental basis to resource management decision-making. It cannot be assumed that because a CBM initiative might be desirable in a particular context that there is sufficient community credibility to make it viable. What is often at the heart of mistaken assumptions of credibility is the degree of idealisation of the notion of community, where insufficient attention is paid to the likely influence of dominant power factions and competing communities of interest as a counter force to collaboration (Lane & McDonald 2005).

CBM initiatives like WCMP also make large demands on *community capacity*, i.e. the social and physical resource base which will be drawn on to complete CBM goals (Bradshaw 2003). Even where there are good networks, leadership, commitment and local environmental knowledge, communities 'empowered' under CBM face difficulties associated with the varying wealth and resources in a region, and the public-good nature of acts of environmental management which consequently rely on volunteers who are prone to burnout (ibid.). Community capacity needs to be regarded as a dynamic commodity as CBM initiatives often span many years during which they face widely varying external pressures (ibid.).

This question of community capacity came to a head in the WCMP at the meeting held at the Te Uku community centre. At this stage in the project (Figure 4.1), participants at the kitchen workshops and the information day, along with staff from the Waikato District Council and Environment Waikato, were to convene to discuss the establishment of a steering group. This group would become an incorporated society administering its own funds from the project, would employ its own convenor, and direct the development of a local environmental management plan. This suggested trajectory was clearly confusing to many at the meeting and

even regarded as outrageous by some. Not only was there apprehension as to who would be on this steering group, how they would be chosen, and who they would represent, but also it appeared to some participants at the meeting that the very nature of an independent community group that would generate plans for the catchment undermined the democracy of an elected regional council – who furthermore appeared to be reneging on their responsibilities. Far from regarding this as an opportunity, they considered it ‘*a cop-out!*’ (Kilvington 1998).

Clearly the engagement process employed to that point in the project had insufficiently prepared the community for this proposal. There had been no real assessment of community capability or willingness. Rather there was an assumption that the ACAP-mirror process would be sufficient to engender the necessary support, and there was no contingency plan should this not be the case. In the end a preliminary steering group was established through the self-nomination of participants at the meeting. These people for the most part were those who were already actively involved in some form of community work (e.g. members of Harbour Care or the local residents association), and was far removed from the wide-sector representation anticipated in the original project design. Consequently, although the inclusion of participants of groups such as Harbour Care created useful connections for the WCMP, to some extent the project was an overlay on existing community-based structures.

4.3.2 Social and institutional settings for the WCMP

As outlined in Chapter 2 capacity for social learning is dependent on social and institutional arrangements, norms, and practices that frame the context of the environmental management situation, particularly in terms of the formal and informal arrangements around planning and decision-making. For participants in the WCMP this included access to resources and personnel involved in environmental governance, which itself is dependent on how well existing decision-making structures could accommodate community input, and enable the cross-sectoral, and interagency agency holistic thinking around catchment issues, that was at the heart of the project.

Clarity on the type of CBM initiative the sponsoring agency has committed to is fundamental to understanding how existing institutional arrangements must shift and resources be assembled to

accommodate it. It is also essential to appreciating how significant a challenge the proposed initiative is to existing norms and practices. Different types of CBM can be classified by where they sit on three principal continuums: (i) complexity, (ii) purpose, and (iii) extent of power sharing and devolution of responsibility (Figure 4.2).

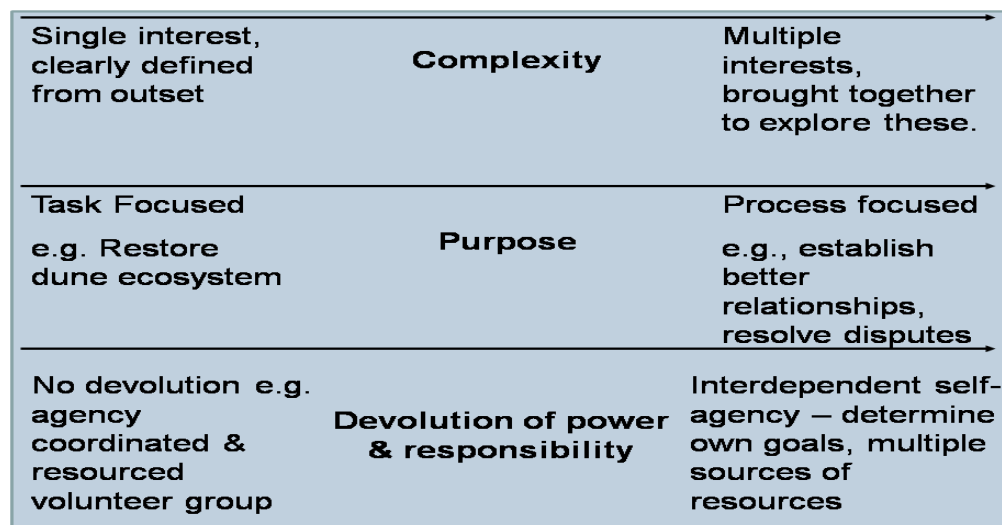


Figure 4.2 Three continuums of CBM initiatives.

Complexity refers to the nature of the environmental management issue that is the focus of the CBM initiative, as well as the number of parties involved and the time and geographic boundaries of the initiative. Hence on the complexity scale CBM initiatives extend from situations of comparatively low complexity, such as the establishment of care programmes where relatively homogenous groups participate in local activities for environmental benefit, such as dune replanting for erosion control, to high-complexity situations, e.g. large-scale, catchment-wide projects integrating the knowledge and perspectives of diverse stakeholders and requiring sophisticated mechanisms to support collaboration. Similarly the continuum of power-sharing and devolution refers to the basis for national and local government and community relationships. This can range from situations of high dependency (and thus low devolution of power and responsibility) such as groups initiated and supported to perform specific tasks by government agencies; to joint partnerships; and in some circumstances transfer of specific roles and entitlements to local organisations which are self-directed and form new interdependencies with diverse partners (Pretty & Frank 2000).

The nature of CBM is also influenced by the principal purpose the initiative is intended to address and the extent to which this is about delivering on particular pragmatic tasks or setting up new processes and relationships. For example a highly task focused CBM initiative may be to coordinate volunteer effort to address a local problem (such as pest or weed control). Alternatively CBM initiatives may be a means to build relationships or address conflicts between sectors, governance agencies and/or communities⁹.

The WCMP suffered from a lack of clarity on what kind of CBM initiative it was intended to be. In the first instance Environment Waikato, as the primary sponsor of the WCMP, had acknowledged ambitions for the project. Principal amongst these was that it would provide input into its LAMS for the catchment, but more optimistically that it would deliver an entire community-based plan that would include aspirations for the catchment held by various stakeholders in the community (and beyond the jurisdiction of the council) and have developed a strategy for delivering these. This semi-formal planning role for the WCMP – that it would assist with managing a catchment across system boundaries, and sector interests – places it to the far right of the complexity scale. However, the novelty of the situation for all involved led to confusion over the anticipated extent of independence and responsibility of the WCMP steering group, and Environment Waikato. While the ACAP programme on which WCMP was based represented something comparatively radical in Canadian regional environmental planning, it is was not intended to be about devolution —regarded as a step too far for the readiness of most regional authorities (Ellsworth et al. 1997) . By following the ACAP process, the WCMP somewhat unconsciously located itself between being about the creation of an independent body with entrusted responsibilities and mandate, and a volunteer group coordinated and managed by Environment Waikato.

One of the most obvious consequences of confusion was that, through a desire not to be too directive on behalf of Environment Waikato, the WE group were not informed about the

⁹ Wherever CBM initiatives start may not be where they end up. Their eventual history depends on numerous factors, including leadership and opportunity. It will also depend on how they go about addressing issues such as the dynamics of relationships between agencies and different public constituencies; processes of group behaviour, conflict management and collaboration; mechanisms for sourcing new ideas, and learning, and adapting to new information; and the life-cycle of long-term projects, where goals shift and circumstances change.

expectation that they would produce a community-based environmental management plan – and in fact did not become aware of this until after the first-phase evaluation. After the Te Uku meeting, in the void of clearer directives, and the withdrawal of facilitation by Landcare Research staff, the community steering group slipped into the role of a networking agency. This was needed in Whaingaroa where there were multiple agencies with overlapping and not always complementary jurisdictions, and some real community concerns about harbour degradation. However, it was not the purpose originally intended for the group, and did not deliver on Environment Waikato's needs for input into local area planning. Furthermore there was some sense from various stakeholders (notably the protagonist from Harbour Care) that the 'hype' of the WCMP had led to little outcome.

Most importantly, the experimental nature of the WCMP also meant that the programme was effectively positioned outside other planning, policy and management initiatives within the council. The programme champion was himself located within the council's policy division. He managed the funding for the programme and ensured resources were available, and consistently participated in all aspects of the project. However, despite the intended holistic nature of the WCMP, the programme came to be perceived within Environment Waikato as a separate initiative not relevant to other branches of council activity. It was even referred to as 'X's *project*' by one biosecurity officer within the council who had chosen not to use the WCMP as an avenue for setting up community based pest control work in the catchment, as he was unclear of how the WCMP connected with this work. Without deliberate strategies to use CBM initiatives like WCMP to contribute to ongoing formal approaches to management in the region, and even to challenge the limitations of existing silos of responsibility within organisations, the risk is that such programmes become powerless appendages to ongoing traditional management practices.

In the years following the initial set-up of WE (and after the programme evaluation), the group took on the responsibility of coordinating the development of a community-based environmental management plan. In 1999 two contractors were employed using funds provided by Environment Waikato and by 2002 a draft plan was widely circulated. However, the group

subsequently expressed regret that the plan had no real status or resourcing associated with it (Greenaway et al. 2003a, b).

4.3.3 Promoting holistic thinking and enabling learning through the WCMP

Of the different CBM approaches that exist, the WCMP was most closely affiliated to integrated environmental management¹⁰. This is an approach to holistic or system management which principally relies on drawing together a diverse group of stakeholders who share information and perspectives in a way which fosters mutual understanding, and develops a collaborative approach to managing an environmental system (Margerum 1999). The principles of integrated environmental management are that it goes beyond enhanced communication or consultation and is rather a planned process of change that results in a different way of ‘doing business’ and may include a new strategy or new institutional arrangements. Core to it is the use of scientifically recognised techniques for understanding environmental systems, albeit with a wider use of lay practitioners in collating, and interpreting information than in more traditional environmental management regimes (Margerum 1996).

Basing the WCMP on an integrated environmental management model of CBM presented the programme with two significant challenges: firstly, to provide participants in the project with access to current biophysical research information about the catchment; and secondly, to create a process by which this information could be debated, interpreted, and scrutinised by the various community and sector interests in the catchment. However, a significant divergence from the ACAP process was the failure at the outset of the WCMP to secure funds for preliminary research on the catchment. The expectation was that the project would subsequently source additional funding to meet the data needs of the ACAP process for the Whaingaroa Catchment. This did not eventuate and without this, now independent research institutes such as Landcare Research and NIWA could not contribute time and resources to the project.

¹⁰ CBM approaches with characteristics that fall to the right of the continuums (i.e., high complexity, mixture of task and process, and responding to devolution of power and responsibility) include those under the name **co-management** (largely but not exclusively focused on relationships between regulatory agencies and first nations) and **integrated environmental management** (a holistic approach to management that relies on collaboration among a wide range of stakeholders). Examples of these approaches to CBM have emerged across Canada, North America, and Australasia (Berkes et al. 1991; Margerum 1996).

Being able to hold critical public debate on important catchment issues, supported by access to up-to-date technical information, is a central pillar of the ACAP platforms for public engagement in environmental management. Already in the Whaingaroa catchment issues of sedimentation, and sewage treatment and their impact on the health of the harbour (in particular fish stocks) were topics that were contentious, subject to divergent views and clouded by conflicting interpretations of such data as were already available. Alongside this had developed suspicion and mistrust of agencies such as Environment Waikato, and tensions between sectors such as fishing and farming. It is unlikely that scientific data alone, coming into this arena, would have been met with widespread acceptance (though unquestionably this was the anticipated outcome by professional managers and researchers involved in the initial WCMP proposal). Although it may have provided some clarity over what was currently known about the catchment and what would remain, for practical purposes in the short term, unknown. However, without this information those involved with the debate were left with the sense that resolution was outside their grasp.

In practice, even if there had been a strong science component to the WCMP, the project had not made sufficient provision for how this information would be used, understood and integrated with other sources of knowledge. The WCMP's main method for collective thinking was the generation of a 'shared vision' for the catchment. However, without facilitation skills in conflict resolution, constructive debate, systems thinking and adaptive learning the visioning exercises that took place resulted in weak, overarching concepts upon which it was easy to reach agreement, and which were consequently irrelevant to the real challenge of reconciling divergent viewpoints and knowledge about local environmental issues. This may not have been a fault of the project itself but rather an inherent methodology failure. Early work on integrated environmental management reveals no explicit recognition of the challenge that different knowledge basis or premises for problem construction might present to holistic management. This contrasts with its close relative co-management which more overtly acknowledges the inherent power relations in the ownership of legitimate knowledge¹¹.

¹¹ For instance in Margerum's (1999) list of 20 foundational factors for successful integrated environmental management practice (written after an extensive review of projects across Australia and the USA), the only reference specifically made to knowledge is factor 10 which highlights the need for integrated environmental

4.3.4 Theoretical basis and programme logic of the WCMP

The previous sections already hint at a number of under analysed aspects to the premise, theory and implementation of the WCMP. These include: lack of consideration of the impact of choosing a site based on meeting political needs rather than on community credibility and capacity; the assumption that the ACAP process would be adequate to manage tangata whenua involvement in the project; lack of resources for incorporating research and technical information gathering; and the absence of a platform for reconciling stakeholder interpretation of existing information of the catchment, and development of collective understanding.

From the project evaluation, it was apparent that there was not a strong conceptual understanding of the programme among participants or proponents – at least not one that would have been equally recognisable to all parties. Instead, the evaluation revealed a wide range of assumptions and expectations regarding the WCMP, held by the MfE, the regional council and community members. Some of these were assumptions on what the programme would deliver and others were beliefs about how things would come about (theories of action). They included:

- People want to have greater control over management of the catchment
- Adequate scientific data can resolve contention over what and who are responsible for the decline in fish stocks in the harbour
- The project will force Environment Waikato to act more in accordance with particular groups' wishes
- The community will generate a plan of action and carry it out
- Bringing people together in a facilitated group will result in them recognising common goals and being better able to work together
- There is sufficient motivation and skill for a group to form that will be self-directing after 18 months of the project
- There will be recognisable improvement to environmental quality at the end of the project (3 years).

management projects to be equipped with sufficient scientific data to understand environmental systems and their interrelationships.

In addition there were some high-level value judgements associated with the project. Significant among these was the idea (inherent to CBM) that local residents are better at managing their own resources; and local knowledge is undervalued in current formal management regimes. Much of the theory and practice around CBM has come from North America, where such assumptions may be valid given highly centralised environmental management bureaucracies. However, it is questionable whether this holds true for the Whaingaroa catchment. Arguably, with the privatisation of research institutes and the devolution of management responsibilities to regions, it could be claimed that it was as challenging for scientific information to be incorporated in regional environmental planning as local knowledge.

In addition to competing ambitions and theories about the project, the evaluation also revealed a lack of connection between espoused goals and strategies to achieve them. In the original proposal for the WCMP the expected project output was *a catchment environmental strategy supported by community and local government* (Kilvington 1998). In contrast, the even more ambitious intended outcomes of the project were (i) *increased community involvement in natural resources management*; (ii) *improved management of natural resources in the Whaingaroa Catchment*; and (iii) *improved health of the Whaingaroa Harbour* (ibid.). However, these outcomes were implementation strategies, baseline measures or indicators of success. In the end, with no clear, shared sense of either a theory of action for the project or way of achieving its own predetermined outcomes, the WCMP was based on a somewhat formulaic adherence to the processes used in ACAP, even when divergence in circumstances suggested a need for process readjustment.

Rigidity of process is problematic in CBM. Prominent authors and practitioners in the field of CBM (Berkes 2006; Cash et al. 2006; Guijt 2008) note a tendency to establish CBM initiatives based on predetermined and static institutional and power-sharing arrangements. This process inflexibility even extends to the evaluation and monitoring— which Guijt (2008) describes as typically designed once, at the outset of the initiative, and from then on assumed to be adequate for all future eventualities. Such systemic intransigence is anathema to good conditions for social learning. Large-scale, long-term projects are likely to evolve through different cycles of

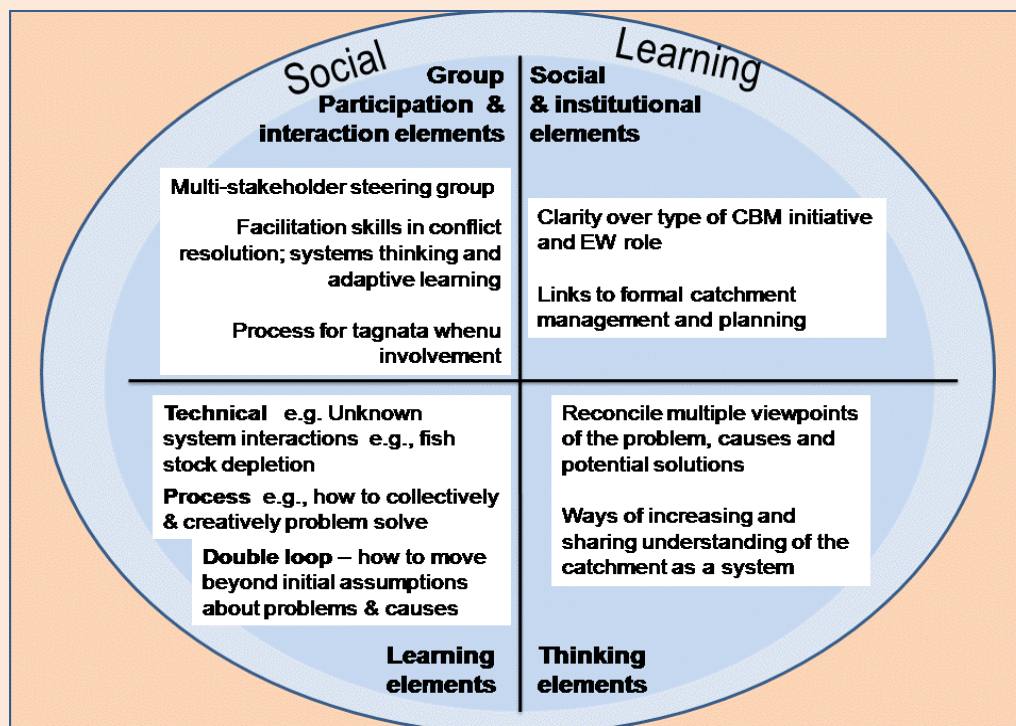
goal setting, and key political relationships. Uncertainty of what substantive knowledge is needed to address issues (let alone emergence of new issues as projects progress), coupled with unpredictable and changing social elements and political conditions, requires that the CBM initiatives be adaptive, and flexible. Arguably, in such a form as this, CBM projects, and their counterparts in participatory planning processes, are not equipped to be responsive vehicles for collective learning and development.

Summary of the social learning challenges for the WCMP (Figure 4.3)

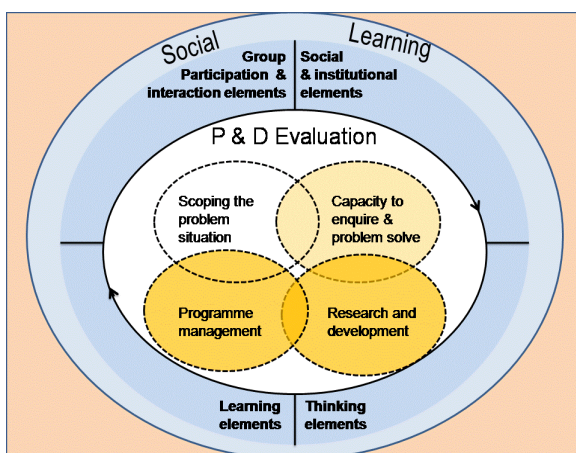
Establishing a platform for multi-stakeholder collaboration was a core ambition of the WCMP. Also important was providing an entry for community-based management and locating this within existing institutional arrangements for the catchment. Underpinning these ambitions was the need for capacity in reconciling and integrating multiple viewpoints over causes and solutions to local environmental problems, which itself was reliant on the ability for multiple stakeholders to share interpretations of technical information about the catchment and to integrate this with contextual knowledge about local management practices. Ultimately, the success of the WCMP as a CBM initiative also rested on its ability to increase both community and agency skills, and awareness of collaborative processes.

The WCMP was hampered by a number of factors, including insufficient assessment of important social dynamics, which affected community credibility and capacity as a base for a CBM initiative, and lack of access to scientific and technical information on problem issues in the catchment. Important to the programme's success, but also lacking, was a clear and shared sense of programme purpose and logic, and a way to manage the multiple assumptions and aspirations for what the programme would deliver. Most of all with such a challenging venture ahead of it, and much uncertainty about how a novel process would fit within its new context, the WCMP needed some way of monitoring its progress and responding to signals that all was not going according to plan.

Figure 4.3 Components of the social learning challenge for the WCMP



4.4 The WCMP evaluation



Chapter 3 concluded with four possible connection points between evaluation and social learning. In environmental management programmes evaluation is most commonly linked to accountability to programme funders and/or programme management. However, evaluation methods and approaches can also be used to build the collaborative enquiry capacity of programme participants; as well as provide important

information about the success factors and limitations of the overall programme approach for both the programme proponents and those that might follow in their footsteps (see Figure 3.3 repeated here).

The evaluation of the WCMP took place in June 2008, 2.5 years into the project. It was commissioned by Environment Waikato to fulfil conditions of funding received from MfE. While it was ostensibly driven by an accountability function it was also shaped by the need to provide information on the WCMP as a national demonstration programme for the practical use of other similar initiatives in the future (i.e. **a research function**). Neither Environment Waikato nor MfE outlined more than general expectations for the evaluation, There were no explicit 'learning' intentions for the evaluation and certainly no capacity-building intentions. However, as the evaluator of the programme I had substantial freedom to design the evaluation process (within resource limits and fulfilling the requirement of completing a report). A number of factors influenced my choice, including: client expectations for the evaluation, what had happened in the project to date, evaluation history of these types of project, tools and techniques available to me, and my own values around evaluation.

Firstly, since the WCMP was an ongoing initiative it seemed appropriate to undertake an evaluation that would provide information for the future development of the project. Importantly this information would be most useful to the regional and district councils and the community participants in the project rather than MfE. Thus the evaluation addressed two client needs (i) to be formative, i.e. providing information for ongoing programme improvement; and (ii) to assess impact, i.e. determine the results and effects of the programme to date (**programme management**). This was essentially a double task with distinct but overlapping audiences, and the possibility that there would be some information that might benefit project participants but which it would be preferable not to share with the funding agency.

Secondly, the WCMP was conceived without clear, measurable objectives or established baselines. Its two stated goals were (i) the establishment of a multi-stakeholder group and (ii) the production of a community-based catchment environmental management strategy. To restrict the evaluation to an assessment of the achievement or non-achievement of these goals would not provide a very rich picture of the WCMP. In such circumstances a goal-free¹² (or

¹² Goal-free evaluation attempts to document the actual effects of the project on the target participants or addresses the extent to which actual participant needs are being met by the project.

needs-based) evaluation is more appropriate. This requires substantial input from the participants since the focus is on their experience rather than what should have happened.

Thirdly, one of the strongest drivers of the evaluation approach was my own concern that there had been no appreciable opportunity for the programme participants and proponents to learn and respond to what was going on in the programme. At this stage in my work I was not yet part of CLEM and I had little background in social learning. However, as a new member of the Landcare Research team that was carrying out facilitation of the WCMP I had observed most of the project's major events. I was therefore aware that neither the programme protagonists nor the facilitators had expressed much interest in improving the learning potential of the programme¹³. Like many, if not most CBM initiatives, the foremost emphasis was on action. Furthermore, my observation was that the project participants (particularly the members of WE) were uncertain of their aims and purpose now the facilitation by Landcare Research had been withdrawn, and were in need of an opportunity to explore the project's strengths, and weaknesses, and to develop clarity over future directions, and needs. I therefore saw the evaluation as a chance to contribute to WE's capacity to **enquire and problem solve**.

A possible methodology to support this learning orientation to the evaluation was offered in a recent workshop I had attended, run by Robert Chambers, the UK-based specialist in participatory rural appraisal. The essence of participatory rural appraisal is the use of approaches to community development that enable communities to examine their own problems (Chambers 1997). Although the techniques explored in the workshop were designed around rural, primarily non-literate societies, it was possible to extend the essence of the approaches to the context presented in WCMP. In particular I made use of a timeline technique where groups are facilitated to explore the history of their collective experiences (e.g. what had been achieved, what had been problematic).

Ultimately, because of its mixed aims and client needs, the evaluation methodology involved two processes: Part 1 was a facilitated group reflection by members of WE on the group's goals, criteria for success, achievements and difficulties, as well as proposals for how the group

¹³ My task as an observer was largely anticipated to be to witness and record the success!

might operate in the future. This would provide both public information (to be made known via the evaluation report) but also give the group an opportunity to discuss more sensitive issues to be kept confidential. Part 2 involved interviews with staff of the main environmental management agencies operating in the catchment (the district and regional councils, Department of Conservation and the Ministry of Fisheries) who could be considered participants of the project; alongside the Chairperson of WE, an active environmental organiser for mana whenua, the chief advocate for Harbour Care, and other community members associated with the project. This participant-told story of the project represented the bulk of the results presented in the evaluation report, but in addition records of the project were reviewed and an evaluation of the kitchen workshops done by students at Waikato University (Gallardo & Hewson 1996) was also included. Most importantly the final evaluation report (Kilvington 1998) was circulated to all the stakeholders who took part in the evaluation.

4.4.1 Outcomes of the WCMP evaluation

Around eight members of WE took part in a facilitated group meeting where they created a timeline of activities from the 14 months of working together. The aim of the session was to not only gather information for the evaluation on what the group had done but to support the group's own learning about who they were, what they had already achieved and what they could do in the future (see Figure 4.3). The group not only identified events but ranked them as positive or negative experiences, based on their own criteria. Discussion on whether they regarded events as successful, challenging, galvanising or confusing was revealing for the group. As one member expressed *'we've really done a lot – I hadn't realised how much'* From this initial exercise discussion expanded into assessing the group's capacity in terms of members, resources, networks and goals. They also discussed their current relationship with Environment Waikato and other key relationships revealing that such networks were the most tangible outcome of the programme to date.

This reflective self-evaluation exercise was useful for WE's development. However, it was the wide circulation of the final evaluation report that had the greatest impact. The report documented the history of the project, including its basis in ACAP and provided an assessment of the community project steering group (WE) based on points raised in the group meeting and

interviews. This included representativeness, key relationships, achievements, success factors, weaknesses, and challenges for the future of WE. The report also looked at implementation issues, i.e. how the project was initiated, community facilitation, iwi participation, and agency involvement. Beyond the detail of what had worked and what had not, the evaluation raised the issue of a significant gap in communication and understanding across the range of stakeholders involved in the WCMP. It highlighted discordance between the objectives for the project outlined in the funding agreement between Environment Waikato and the Sustainable Management Fund, and the objectives WE had established for their work. It revealed that WE were not fully (if at all) cognizant of the broader project process and the contractual obligation of its work – namely to produce a community catchment management plan, in accordance with the ACAP process (Greenaway et al. 2003b).

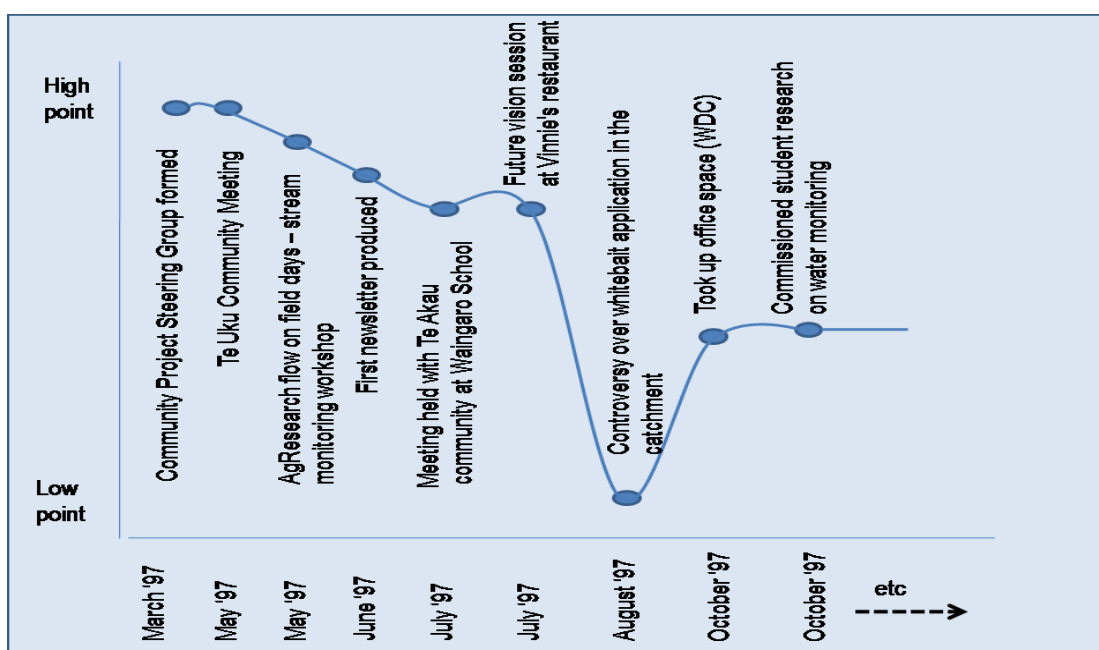


Figure 4.3 The first few months of the WE timeline (derived from Kilvington 1998).

The wide circulation of the evaluation brought critical attention to the WCMP and to WE. Among other things the report had revealed that the project to date had not undertaken work on a community catchment management plan. This was picked up by representatives of various groups who challenged the project and WE. As one WE member commented:

That report was picked up by some people in the community who hadn't been involved up until then, who came along to the meeting...and said 'you failed you didn't make a plan'. Everybody was going 'we didn't know we were meant to have a plan!'
(Greenaway et al. 2003b, p. 31)

Subsequently, the group underwent an arduous process of developing a mission statement as well as clear protocols for the work they undertook. This involved extensive discussion and resulted in the development of a stronger group identity and clarity of purpose (ibid., p. 31). As one interviewee, in a subsequent review of the WCMP commented:

They [the challengers] had a major impact on the mission statement...we debated hard, hard, hard, meeting after meeting, communities and what that word meant...what we thought we could offer, we were being prescriptive...it was hard work...that was maybe a second phase in the life of the organization. (Greenaway et al. p. 31)

Ultimately WE responded to this challenge by reassessing their goals and priorities and securing funding to contract researchers to develop a draft set of environmental guidelines as the basis to a catchment management plan for Whaingaroa (Stanway & Thorpe 2002). In the same year the draft plan was released (2002), WE transformed into an incorporated society – the Whaingaroa Environment Centre (WEC), and Environment Waikato withdrew from administering funding for the group. As a centre WEC received grant funding for establishment and overheads from MfE but is still largely staffed through voluntary labour.

Overall the evaluation could be regarded as a potent intervention in the WCMP. Coming more than 2.5 years into the initiative it was the only structured learning opportunity for the programme stakeholders, that furthermore became the impetus for further reflection. The intention of the evaluation had been to provide an overview of the programme for all stakeholders and an opportunity for a formative assessment that could be used to develop the programme further. In practice the evaluation became a turning point for the programme, it identified not only points of strength and weakness, it highlighted critical gaps in communication, and failures in relationships that were essential to address for the future of the initiative. That such information emerged through what could almost be described as a crisis for the programme is a consequence of the evaluation coming as a single intervention. Building

ongoing, organized reflective practices into programme design has not been mainstream practice in CBM design or in community action initiatives in general (Pijenburg 2002; Greenaway, et al. 2003a). Furthermore, Pijenburg (2002, p. 298) goes as far as to say that it is this lack of critical reflection in CBM practice that places it most at risk of failure:

Lack of critical reflection has likewise been observed in connection to other participatory approaches. Such approaches are often presented as the only way forward with the consequent risk of imposed cookbook type interventions. Implementation was too eagerly put on a single track before practitioners had enough information....

According to Duignan's (2003) terminology for evaluation (Table 3.1) the evaluation design for the WCMP is not easy to classify. Overall the evaluation had some of the characteristics of evaluation approaches that in Table 3.2 have been classified as having a change and development orientation, i.e. a focus on stakeholder and participants needs, and a fundamentally constructivist epistemology. However, it was intended to meet purposes of outcome and impact assessment, as well as create opportunities for formative thinking. Also, formally, it largely cast the evaluator in the conventional role of external, technical expert, while informally, my own orientation was to use the opportunity to facilitate learning. Furthermore, despite the participatory group reflection exercise, there are limits to the extent the WCMP evaluation could be regarded as participatory. Participatory evaluations involve project participants, and intended beneficiaries of the project determining the shape of the evaluation. In the WCMP this would have required the staff of Environment Waikato, members of WE and the wider Whaingaroa community to collectively agree on the goals, boundaries, measures and assessment procedures for the evaluation. At the stage the evaluation was conducted, the project participants shared an insufficiently collective vision of the project for this to be easily achieved. What this suggests is that the participatory nature of the evaluation may be limited by the extent of the participatory processes inherent in the project.

What the WCMP evaluation did do was to clarify across the range of project stakeholders what the project had been about. Evaluations can play a useful role in building understanding across stakeholders, and subsequently contribute greatly to the achievements of the programme (Greenaway et al. 2003a). This is a particularly significant role for evaluation where communication among those within an interest in the programme has been poor and where the

evaluator, in effect, can end up being the only person with an overview of the project. That the WCMP stakeholders could have developed divergent viewpoints on the intentions of the project in a comparatively short space of time is again symptomatic of lack of opportunities for the project sponsors (Environment Waikato), facilitators (Landcare Research) and core group participants (WE) to collectively assess their individual goals and expectations. It is also associated with incorrect assumptions that participants shared common ideas on core concepts such as catchment health, the critical issues in the catchment or the notion of ‘sustainability’.

4.5 Summary – evaluation and social learning in the WCMP

The early experience of establishing the WCMP is illustrative of how the potential for CBM initiatives to foster the capacity for social learning among institutional and community stakeholders is let down by a ‘cook book’ type methodology that has insufficient awareness of its own fundamental theories of action. The WCMP began with inadequate understanding of the political sensitivities behind bringing various groups in the catchment together. Furthermore, adherence to the pre-designed approach to the programme, (based on the ACAP methodology), coupled with implementation that had no built-in monitoring, or evaluation, meant the WCMP was unable to respond to important events that challenged and shifted it from its planned trajectory.

The evaluation that was undertaken after the programme had completed its first 2.5 years of activity was based on a goals-free and participatory framework. It was a one-off event and the opportunity to undertake it was prescribed by the compliance needs of the programme funding (i.e. it had no learning intention from the point of view of the programme proponents).

Nevertheless programme participants, and the wider community affected by the programme, were able to make use of the evaluation findings to cause a reassessment of the programmes directions. In a programme lacking a thought-through framework that connected theories of action to observable outcomes, and without opportunity for reflection, an ‘end of the pipe’ evaluation can have a dramatic effect as the only learning opportunity available to participants. However, this is only true if the evaluation information is made available to participants through either participatory events or the wide dissemination of the findings. Otherwise there is

a real risk that the evaluator becomes the most informed about the programme with no ability or mandate to take action from this.

Ultimately this kind of catastrophe-based realignment of programmes is hardly ideal. Indeed, while the WCMP evaluation helped programme participants reconfigure the programme in this instance, there is no system for programme learning further down the track. What is needed is an imbedded inquiry that is able to empower CBM initiatives with the capacity to be reflective and consequently responsive in three contiguous spaces: (i) understanding the social dynamics of the interacting stakeholders at the heart of the programme, (ii) understanding the programme's goals, and the logic of its actions; and (iii) how the programme fits alongside core concepts that underpin CBM (see Figure 4.4).

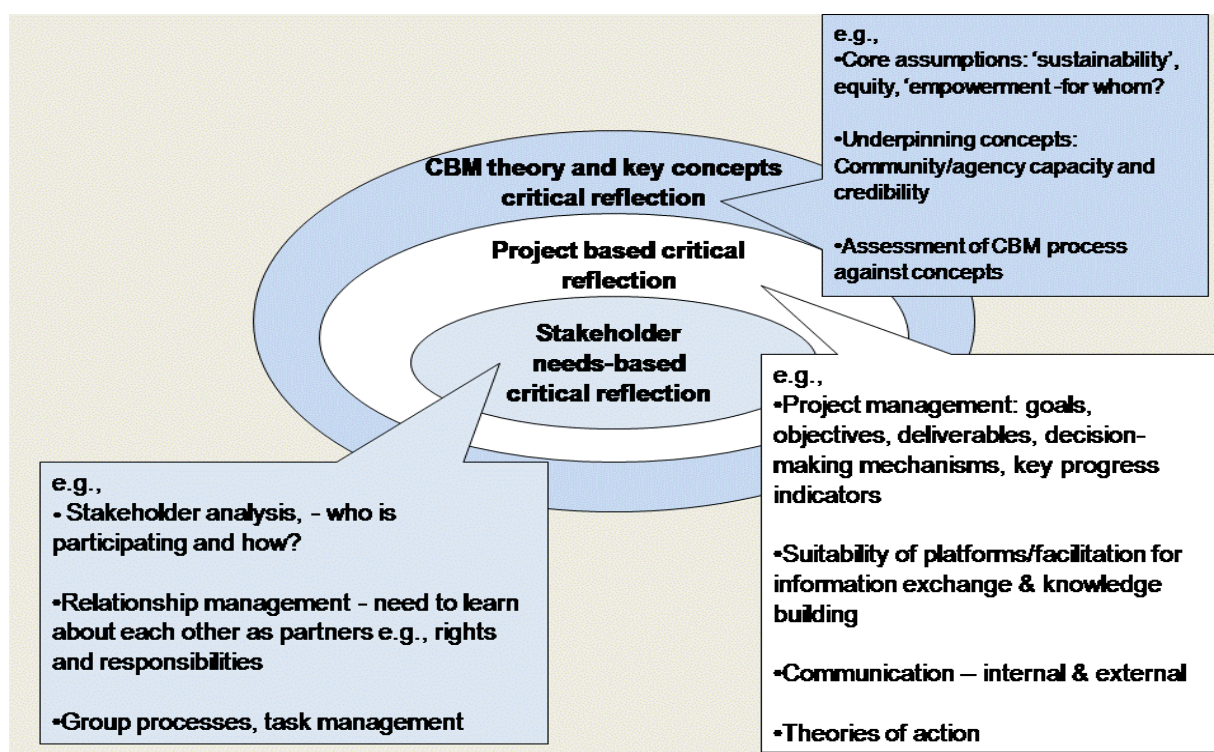


Figure 4.4 Critical reflection spaces for CBM.

Firstly, stakeholders need to have some awareness of the essential relationship dynamics of the CBM initiative. This can include examining who is participating and under what circumstances, being able to understand each others' roles, rights and responsibilities, and being able to keep track of group and individual tasks and processes. Secondly, critical reflection is required at the

project level, examining aspects of project management such as goals, objectives, deliverables, decision-making mechanisms, key progress indicators; as well as the essential mechanisms of the CBM initiative, such as the suitability of platforms for information exchange and knowledge building; and communication strategies for exchange between stakeholders internal and external to the project.

Also important at the project level is a collective understanding of the theories-of-action underpinning the programme approach. These can vary between stakeholders, who may even hold contradictory views on what actions are essential and what outcomes they will contribute to. Although the common themes of CBM are well established (e.g. a belief in the need for enhanced public participation in environmental decision-making; the notion of community as a meaningful organising concept for resource management; and the importance of strengthening networks between institutions, sectors and communities), less apparent in CBM initiatives is their explicit theory-of-action. ACAP, for instance, places great emphasis on the connection between ‘education, awareness raising and action-on-the-ground’ (Ellsworth et al. 1997).

However, the cause-and-effect relationship between actions central to the ACAP process (such as forming a multi-stakeholder group representative of the interests of the catchment) and the anticipated outcomes (shared knowledge about the catchment) is not clearly articulated nor, as a consequence, exposed to tests on its veracity. Similarly the ACAP process, as a widespread movement, appeared to anticipate little interference from the diversity of social and physical environments in which it has been utilised, i.e. their theory-of-action assumed context was largely insignificant. What this can amount to is an unchallenged superimposition of process over context. This was the case in the WCMP where use of the ACAP approach placed an odd (but not untypical) confidence in the ability of process to override existing institutional relationships and power dynamics, which later proved problematic to the success of the WCMP.

Thirdly, it is important for programme stakeholders to have the opportunity to examine underpinning theory and ideas integral to CBM practice. This includes an examination of the variance in interpretation of core concepts such as ‘sustainability’, equity, or ‘empowerment –

(for whom?); and assessment of the impact that critical components of CBM (revealed through the growing body of CBM theory) such as community or agency capacity and credibility may have on the programme.

The evaluation of the WCMP crossed all three critical reflection spaces. It queried stakeholder roles, articulated divergent goals and intentions for the project, enabled stakeholders to assess their group process strengths and weaknesses, and questioned fundamental theories-of-action inherent in the ACAP process. It also examined the WCMP against some fundamental principles of CBM through critiquing the processes of site selection and iwi participation. However, the limitations of the evaluation are obvious. It represented a slice in time, and the principal 'reflector' was not an ongoing member of the project. While efforts to pass on the observations were made, it could not substitute for critical reflection built in to programmes as part of ongoing monitoring and assessment which enables stakeholders to build awareness of key content and process matters. Thus the WCMP as a case story is illustrative of the need for ongoing and embedded evaluation, to build the social learning potential of the CBM initiatives.

The following three chapters explore further cases in which attempts have been made to directly apply evaluation to the task of supporting social learning in environmental management.

Chapter 5

Developing Critical Thinking in Teams

Case Two: The Target Zero waste minimisation programme

Today most organizations embrace the notion of groups. Groups have become the core unit in many organizations. Part of this is based on the fact (supported by research) that groups are more effective in solving problems and learn more rapidly than individuals. Yet surveys will find that few organizations and few individuals in them are particularly satisfied with the way their groups are working...Few managers have training or knowledge of group dynamics; many are quite apprehensive about groups and pessimistic about their value (Wertheim 2000).

5.1 Introduction

Starting in the mid-1990s the Christchurch City Council (CCC) began investment in a comprehensive programme aimed at not only achieving significant reductions in waste going to the city's landfills, but also changing the resource-use behaviours of private citizens, communities and businesses. This became known as the Target Zero (TZ) waste minimisation programme, although over time it has been an evolving and diverse collection of initiatives as the CCC experimented with the best practices to deliver desired results in different communities and sectors.

This chapter tells the story of the introduction of a self-evaluation approach to help support the effectiveness of teams of people working in one of the CCC's key initiatives – the TZ company training programme (see Box 5.1). This programme used a team-based approach to promote cleaner production in manufacturing companies. The challenge for the CCC was to improve the ability of the teams to both deliver on the short-term projects they undertook as part of the training and become advocates for long-term organisational change. One way the CCC addressed this was to contract evaluators to help them understand what was supporting and limiting the teams in their work. In 2000 this led to the TZ teams' evaluation project – a bounded initiative where the researchers/evaluators (myself and CLEM colleague Will Allen) were contracted over 2 years to undertake work that would contribute to the development of the TZ programme.

Box 5.1 Summary of Target Zero and the teams' evaluation project

Location: Christchurch

Duration: 2000–2002

Synopsis: Since the mid-1990s the Christchurch City Council (CCC) Waste Minimisation Unit had invested in a series of initiatives to reduce waste production and resource consumption in the commercial and manufacturing sectors, and by the general public. Among these was the Target Zero (TZ) company training programme, which enrolled companies in resource use efficiency training that ran for 6–12 months. The programme's aim was to upskill teams of staff (3–10 people depending on company size) in technical practices designed to improve resource use. This included measuring resource flows, detecting wasteful practices, and designing, implementing and monitoring changes. The teams attended seminars, had support from technical consultants, and took on in-house projects. The training programme had up to 12 companies taking part at any one time and teams also learnt from the experiences of others. CCC recognised that the teams were the primary means of initiating change in the company and were concerned to improve their effectiveness in this role.

Evaluation activity: The TZ teams' evaluation project took place over 2 years (2000–2002). The aim was to improve the effectiveness of teams involved in the company training programme at both completing specific waste reduction projects, and influencing resource use practices across their parent companies. It initially involved three phases: (i) contributing to CCC's understanding of how teams functioned and the role they might play in organisational change; (ii) reviewing strengths and weakness of the TZ programme as it had been experienced by five companies, and (iii) a two-stage self-reflective evaluation designed to built competency in five teams currently enrolled in the TZ training programme (the team's evaluation checklist).

The approach used in the team's evaluation project extended CCC's knowledge of how to influence the ability of teams to manage themselves, and become agents of change within organisations. The perceived success of the self-reflection checklist meant a fourth phase of the project was added: (iv) to embed the checklist as part of the TZ teams training. Overall this project highlights the potential role of evaluation in both programme development and supporting the learning capacity of groups. The opportunity to negotiate this developmental and learning role for evaluation was critical to the projects outcomes.

Current status: A few years after the team's evaluation project the CCC reduced its role as a training provider and shifted emphasis towards providing advice, access to networks and resources to companies interested in changing waste practices (see the CCC website Target Sustainability <http://www.targetsustainability.co.nz/Services/>).

Role in project: Contract manager of the evaluation project, co-design and facilitation of the team's evaluations with CLEM colleague, Will Allen.

Sources for case story: formal reports (Allen & Kilvington 2001; Kilvington & Allen 2001; Horn et al. 2003); TZ programme evaluations and manuals (Aldridge & Hargreaves 1999; Hargreaves & Sargent 1999; Dolamore 2000); project notes; discussion with CLEM colleagues Will Allen and Chrys Horn; PhD research conducted on Target Zero available through publications (Stone 2000, 2002, 2006a, b; Brown & Stone 2007).

The TZ team's evaluation case story is an interesting contrast to the WCMP evaluation. The distinction lies not with the seemingly widely different scale and context of the projects, since in essence both could be regarded as facing very comparable challenges, i.e. getting collectives of individuals together to learn their way through complex problems and influence the overall community/organisational practices around them. Rather, in the case of TZ, we, as researchers, were able to negotiate a learning-based role for evaluation. More specifically we were given the opportunity to trial a way to promote reflection on group process and confront the predominant mechanistic approaches to group learning.

This case story starts with an outline of the CCC waste minimisation programme. It then follows the same schema of questions as Case Story One. Firstly, there is an analysis of the critical factors that frame the social learning challenge inherent in the TZ company training programme (scoping the problem). Secondly, it outlines how an evaluation approach was introduced to the programme to help address some of these social learning needs. This section includes exploration of the underpinning theory behind the approach, how it operated in practice and the outcomes in the case of the TZ programme. Using observations from this case study I conclude by highlighting a number of issues pertinent to the use of evaluation in building capacity for social learning.

5.2 Overview of the CCC waste minimisation work

Just as the early 1990s was a time of growing enthusiasm for community-based environmental management initiatives, the same decade saw emergent interest in how to embed fundamentals of sustainability into business and industry, with a particular emphasis on cleaner technology and cleaner production. The overall premise of cleaner production is to minimise the environmental impacts of production and consumption, and as such it is underpinned by concepts and techniques such as environmental management systems, environmental audits and product life cycle analysis (Vickers & Cordey-Hayes 1999). As the skills, scope and sagacity of the cleaner production movement has developed, a variety of terms have been utilised, including waste minimisation, resource use efficiency, and sustainable business. This reflects at times divergent emphasis of different programmes but

also a fundamental pragmatism – different terms appeal to the different interests of target audiences.¹

In 2001, a stocktake of activities in support of environmentally sustainable business in New Zealand by MfE identified 120 different initiatives across the country (Goldberg 2001). These included projects that disseminated information on cleaner production, developed networks to support learning and change, and promoted environmental management systems. While a number of partnerships existed between sectors and agencies, the cleaner production movement was dominated by three main groups. District or city councils were responsible for around 25% of activities, followed by community associations (mostly promoting employment or community development) and industry associations (ibid.).

The CCC has been foremost of those city councils proactive in the field of waste minimisation, and the TZ waste minimisation programme run by the CCC's Waste Management Unit (WMU) has been regarded as one of the most comprehensive in New Zealand (Brown & Stone 2007). Operating since 1997 it combines a range of intervention programmes for the general public and businesses, coupled with the establishment of the Recovered Materials Foundation to process and recycle a range of solid materials, from kerb-side and business collections² (ibid.) While other territorial authorities have engaged in similar activity, it has been on a more limited scale³.

The CCC's efforts on waste minimisation for business began in 1995, and a full-time commercial waste minimisation officer (Christine Byrch) was employed in late 1996. In 1997 the CCC work was strengthened by involvement in the first TZ programme, a 2-year-pilot cleaner production project initiated and managed by ECNZ (Electricity Corporation of

¹ Unlike other spheres of sustainability practice there seems to be little more than pragmatism at stake in the use of different terminology. Cleaner production programmes have been known to change their titles as they discover terminology that has more or less appeal to their target audiences, e.g. Target Zero began as a cleaner production project, changed to 'waste minimisation' as its catch call, and in 2000 considered re-branding as 'business care'.

² The foundation was established in 1997 in response to collapsed markets for plastic, paper and glass, with the aim of developing sustainable end-uses for materials recovered from the waste stream (Brown & Stone 2007).

³ Brown and Stone (2007, p. 722) contrast the landfill histories and GDP growth of the Christchurch and Auckland regions from 1984 to 2003. They attribute the comparative success of Christchurch (particularly decoupling GDP growth from waste volume) to: firstly, the integrated nature of the TZ programme which addresses resource use efficiency in both businesses and residential communities; secondly, management by a single local government agency (as opposed to four separate city councils and three district councils covering the Auckland Region).

New Zealand) with support from CCC and Southpower⁴. The pilot TZ initiative looked at developing a model for implementing cleaner production within a region and establishing a network from which the idea could grow. It trialled the introduction of cleaner production into the workplaces of 12 companies, in two regions – Hawke’s Bay and Christchurch (Goldberg 2001)⁵. Based on the TZ experience the CCC developed its own programme promoting the cleaner production methodology to Christchurch businesses while retaining the Target Zero name (Brych 2000). This included a diverse array of activities ranging from workshops, networking clubs and programmes tailored to specific sectors such as retail, hospitals, and the construction industry (see Appendix 3 for outline of initiatives in the TZ programme) (Goldberg 2001; Brown & Stone 2007) and by 2003, the initial 12 businesses involved in TZ had swelled to in excess of 200 Christchurch businesses taking part in some resource-use-efficiency activity (ibid.).

5.2.1 The Target Zero company training programme

From 1999 to 2004 one of the key initiatives of the work of WMU was the team-based resource use efficiency training programme for small/medium-sized manufacturing companies, which took the name of the overall programme, i.e. Target Zero. This 6-month training programme developed out of an initial 2-day intensive format. Its aim was to lift awareness of inefficient resource use practices and provide the basic skills necessary to undertake waste assessments, implement identified options, and monitor progress (Brown & Stone 2007). The established format was to get the participating companies to appoint teams of people from a range of key areas of operation across the organisation. These teams collectively took part in seminars, and site visits. Individually the teams undertook reviews (audits) of their company’s energy use and waste production, and worked through specific improvement projects, in which they were supported by TZ technical consultants. By mid-2000 there had been four rounds of the TZ programme and around 30 manufacturing companies had participated. These companies ranged in size from comparatively small (less than 10 full-time staff) to large production and export manufacturers with multiple sites across the country. The programme itself had also gone through several evolutions, with changes in format and delivery partners (see Appendix 4 for a summary of the different features of the TZ training rounds).

⁴ Southpower (later Meridian) is an independent electricity provider.

⁵ TZ was the first New Zealand cleaner production project comparable with large, multi-sector projects run elsewhere, e.g. the Landskrona project in Sweden, and the Aire & Calder project in the UK (Stone 2006).

The TZ training programme was complex and posed many challenges for the programme initiators. These ranged from questions about how to best run the training workshops; how to develop the skills and knowledge of consultants and match these to the needs of companies; and how to set up the TZ teams within the participating companies that would initiate changes in practice and deliver waste reduction outcomes. It also included some questions on the overall methodology of the cleaner production programme. The WMU both debated these questions among themselves and sought external advice from researchers, consultants and other practitioners. In particular, the WMU commissioned evaluation reports which assessed programme delivery and impact and conducted follow-up assessments to check on the effect of any subsequent changes (Aldridge & Hargreaves 1999; Hargreaves & Sargent 1999). In this way, the WMU employed a continuous improvement approach applying iterative action and reflection thinking to its own programme development.

Through the regular evaluations of the TZ programme the WMU became aware that the programme was not delivering the long term change in organisations that it had anticipated. Principally they noted that companies either discontinued more efficient practices or ceased to make additional progress once the formal intervention had finished (Stone 2000). This was a catalyst for programme change and once again the WMU sought input from external researchers and evaluators. Earlier evaluations (Hargreaves & Sargent 1999; Aldridge & Hargreaves 1999) had drawn attention to the composition of the teams as an important component in both short- and long-term project success, and the WMU asked Will Allen and me if we could further this work and help the programme pull together teams within organisations that had the greatest likelihood of success.

5.3 Social learning challenges for TZ: scoping the problem situation

In order to understand how a programme like TZ fits with ideas about social learning we first need to appreciate that TZ was anticipated to be an instrument for organisational change. The mechanism for this change was the company team, and the theory of action (unarticulated) was that a good strategy for getting organisations to change their resource use patterns was to draw together a group from across a company who would work together to learn new practices and act as conduits of new ideas. The missing realisation for the TZ programme was that this would require the group to not only become skilled in technical

knowledge around resource use efficiency but also to have learnt how to work together, and how to subsequently influence events across the company as a whole.

The overall framework of the TZ company training programme was based on current best-practice for cleaner production, and the methods used were consistent with those advocated in guides and manuals which had emerged from national and international case studies (Stone 2000). It had theoretical origins which match those of the Total Quality Management (TQM) approach to business management, particularly its emphasis on ‘continuous process improvement’ which increases the transparency and monitoring of company activities with a view to ensuring all areas of company operation focus on quality. The TZ framework was consequently based on six steps (illustrated in Figure 5.1), starting with (i) gaining commitment; and then working through stages of (ii) assessing waste, (iii) analysing causes and sources of waste, (iv) identifying and evaluating possible solutions, (v) implementing changes, and (vi) monitoring their effect.

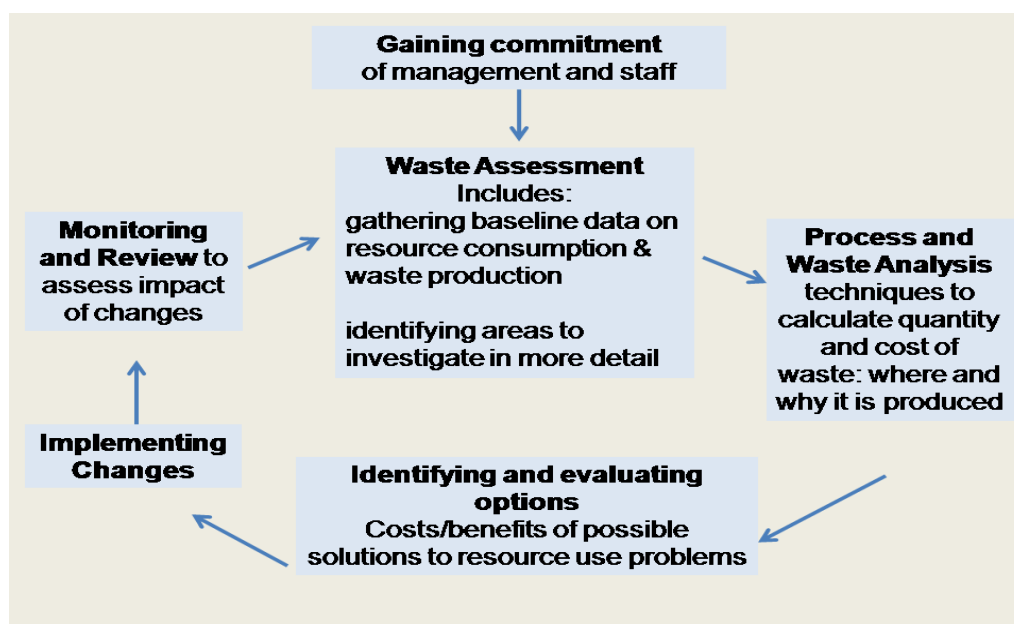


Figure 5.1 Overview of Target Zero, cleaner production methodology (from Dolamore 2000).

Significantly, the TZ programme process (as it was run in 2000) relied on a cyclic approach to the review of the company’s waste generation. Teams were expected to go through several laps of waste assessment and problem analysis. For many participating organisations this represented a new approach to dealing with problems. Termed ‘measure to manage’ this effectively slowed down the process of instituting changes by inserting steps which caused

people to first assess the situation and then weigh up the options for addressing it. This meant not only a greater degree of likely success but also the ability to track the improvement and to learn from the process. Ideally this would become a continuous practice within the organisation.

However, while it is clearly stated that *gaining commitment of management and staff is one of the key ingredients for a successful waste minimisation programme* (Dolamore 2000, p. 4), in contrast with the cyclic learning approach to technical improvement, this was treated as a one-off event not requiring ongoing attention. This points to what was, in effect, a substantial deficit in the TZ programme, i.e. attention to organisations as social entities, and alongside this, a workable theory to support a change management process. In its primary reliance on technical and process innovation, the programme had incorporated little information on how organisations can successfully introduce changes, the social organisational norms and practices that influence this, and the mechanisms and skills important to any programme that is wrestling with changing how organisations and the people within them behave.

Similarly the programme's criteria for monitoring success (e.g. waste reduction, company cost savings) gave no feedback to the participating companies or the programme itself on likely long-term shifts in organisational behaviour⁶. Stone (2000) indicates this was a general feature of the national and international case studies on cleaner production, pollution prevention and other similar concepts that formed the basis of the TZ programme. The most common types of changes that are demonstrated by such case studies are changes to the type, quality or quantity of resources used; improved maintenance or housekeeping; equipment modification or substitution; changes to processes; and, more recently, changes to products and services. In Stone's view, while information on these technical types of changes is valuable, it is unlikely to be enough by itself to bring about cleaner production in organisations, and what is largely underexplored in these studies is the human dimensions of organisational change (ibid.).

Unlike community-based environmental management, cleaner production can draw on a readymade body of literature which has developed out of the need to understand and

⁶ This absence of support for social processes of change was borne out by an investigation into training needs for improving business environmental performance which asked a number of Christchurch businesses about their experiences with environmental and/or cleaner production programmes (Horn et al. 2003).

influence drivers for innovation in business, i.e. the social/psychological theory and practice of understanding how organisations function, learn and change (termed organisational theory, or organisational learning)⁷. However, at the time the TZ programme was developed it appeared that only a subset of this literature (management theory) had been applied to cleaner production programmes, through the introduction of management systems which established steps of creating policy, making plans; conducting audits, and the identification, assessment and implementation of options for improvement. The CCC Target Zero company training programme is based on such a management system approach (Stone 2000).

Advocates of paying greater attention to organisational theory in cleaner production programmes argue that it can provide so much more. For instance, not only can organisational theory offer insight into non-technical barriers to the uptake of cleaner production approaches in organisations, but organisational learning, and change management theory and practice can provide options for *how* they can be overcome (Stone 2006a). However, by and large cleaner production initiatives have employed mechanistic and hopeful rather than theoretical approaches to address the social processes of embedding their change message in organisations. Consequently, while the introduction of new management systems can significantly influence the uptake of cleaner production, these programmes are not well equipped to deal with barriers that may be linked to organisational culture and employee attitudes (Stone 2000) – the outcome of this being the failure of cleaner production programmes to deliver the organisation wide cultural shifts that proponents optimistically envision. Typically cleaner production programmes are naive around:

- Organisational barriers, e.g. non-involvement of employees, vested decision-making powers, emphasis on production, high staff turnover, lack of recognition
- Systemic barriers, e.g. poor record keeping and reporting, inadequate and ineffective management systems, lack of systems for professional development, ad hoc production planning

⁷ Organisational theory brings together many branches of organisational and industrial psychology and sociology. Together they cover areas such as organisational structure, and operating environment; decision-making and power; the character of personnel; and sources of opportunity and conflict; and, the way learning and development occur within organisations (Brown & Stone 2007)

- Attitudinal barriers, e.g. lack of good housekeeping culture, resistance to change, lack of leadership, lack of effective supervision, job insecurity, fear of failure (ibid.)

This critique of cleaner production programmes could be applied to the CCC TZ company training programme. In this programme the teams of participants undergoing training were regarded as vehicles for not only the successful completion of their specific resource-use efficiency projects, but also the wider dissemination of the sustainability vision within organisations. Teams were expected to champion work within the organisation, communicate upwards and across the organisation, and be able to initiate changes, armed with technical knowledge in resource use assessment, but not with any specific social or organisational skills.

It would be fair to say that, at the time, this expectation of the role the teams might play as ‘ambassadors’ and ‘change agents’ was not clearly articulated, rather anticipated as a natural progression of the TZ training experience. As such it was not planned for by the inclusion of any measures or activities in the training programme that were based on known approaches to organisational change. Nor were participants significantly prepared for their role in promoting actions that would run against existing organisational social norms and practices.

Following a review of the national pilot TZ programme Stone comments (2006a, p.7):

If staff are inadequately equipped (particularly in terms of motivation, knowledge, skills and experience) and do not have the resources (particularly in terms of authority and support), they are unlikely to be prepared for the difficulties they will encounter during the course of what is likely to be a significant change programme. This is confirmed to some extent by the relative ease with which technical problems were able to be overcome in the TZ programme (most participants had technical backgrounds), in contrast to the difficulties encountered in overcoming non-technical problems.

However, through the creation of teams, with membership (and potentially networks) ranging across the company, the TZ programme approach could be regarded as establishing ‘communities of practice’⁸ – an increasingly recognised structure of value in organisational learning because of their capacity to link learning with practice in a way that is contextually

⁸ A community of practice is a formalised approach to learning and development among a group of practitioners with common learning goals (Lave & Wenger 1991)

relevant to each organisation. Rather than simply vehicles to carry out projects the TZ teams can be regarded as learning groups, which, with some support, may be able to influence Stones' (ibid.) critical factors for organisational change.

Summary of the social learning challenges of the Target Zero programme

Figure 5.2 represents a summary diagnosis of the critical elements in the social learning challenge for the TZ company training programme. A strength of the programme was its learning-based approach to resource use efficiency. Company teams were given the means by which to unpack their own specific problems and construct solutions. However, because the TZ programme lacked overt recognition of the company teams as the vehicle for long-term organisational change, it had not yet incorporated any means by which teams could be prepared for this role. What the WMU observed, through several seasons of the training programme, was an uneven uptake of fundamental changes to resource use practice by the companies who took part in the training. Stage II of the teams' evaluation project, which reviewed the experiences of past TZ participants, suggested an answer to this: the more successful cases of significant change took place in companies that already had a strong commitment to learning and innovation. Thus the teams were encouraged and even already skilled in contributing to organisational development.

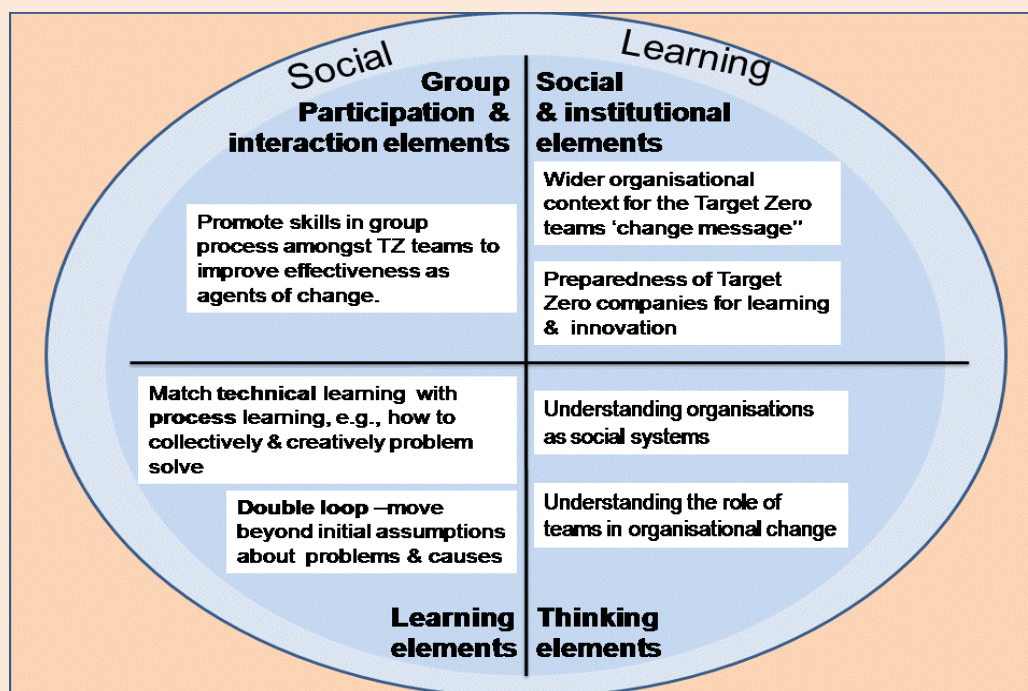


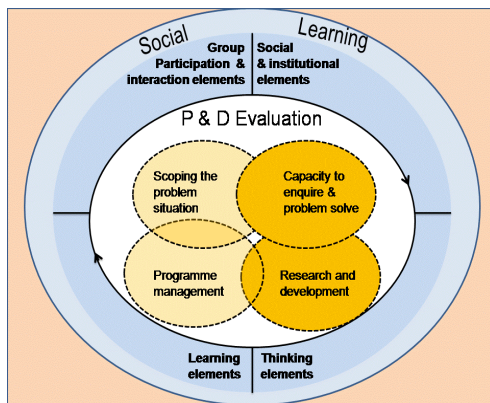
Figure 5.2 Components of the social learning challenge for the TZ programme.

The functioning of the teams is clearly central to the TZ programme's ability to achieve, and the programme placed emphasis on setting up appropriate teams. However, to enable teams to complete projects and foster change within their organisations required more than a mechanistic emphasis on getting the right team structure. Teams needed support to operate effectively as a group. Also, in addition to technical knowledge, teams needed skills in how to communicate and interact with others in the company around proposed changes. Thus the challenge to the TZ programme was to incorporate a way to build the capacity of the teams that gave them new skills in understanding group processes and managing themselves; and a means to interpret and work within the various institutional values and routines in their organisations.

An approach to developing team capacity would need to foster the same critically observant practice to the challenge of working together and solving problems already applied to the technical aspects of waste minimisation, i.e. identify the problem areas, analyse and interpret these, develop options for resolving the problem based on the team's strengths and resources to hand, and monitor the effectiveness of the action. This practice, as in the technical side of waste minimisation, should aim to move participants beyond first assumptions about problems and solutions (double loop learning) In short the current emphasis on technical training needed to be matched by process learning that was similarly grounded in participants' own experiences.

Furthermore, to achieve change within their home organisations the teams needed more contextual support from the TZ programme. Beyond recognising the importance of senior management sponsorship within organisations, and acting to secure this in the recruitment phase of the programme, the efforts of teams needed to be backed up by company-wide messages that promoted cultural acceptance of innovation and in particular recognition of the resource use efficiency idea.

5.4 The TZ teams' evaluation project



Using the framework of intersection between evaluation and social learning (see Figure 3.3 repeated here), the TZ teams' evaluation project could be said to contribute to the needs of the TZ programme in two predominant ways. Foremost the evaluation was designed to promote **capacity to enquire and problem-solve** amongst the TZ teams. However, the first requirement of the evaluation as

set out by the WMU was that it would support **programme management and development** through **research** on critical factors about how the programme operated. This chapter review will also illustrate how the evaluation approach supported the TZ teams in their capacity to **scope the problem situation**.

The functioning of the TZ company teams is central to what companies are able to achieve during their participation in the programme, and one way to influence team functioning is to ensure certain factors are built in to their set-up. The original outline for the TZ teams' evaluation project, set by the WMU, was to verify and expand on earlier evaluations (conducted in August and December 1999) which focused on the structure and set-up of TZ teams, hoping to establish what would constitute an ideal team. The first report (Aldridge & Hargreaves 1999) noted:

...for each company to maximise their success in the project, they need to have high staff commitment, minimal background activities that will impinge upon the project, and a cleaner production team composition including a mix of senior and middle management and production staff.

While the second report (Hargreaves & Sargent 1999) made further recommendations:

Use a template to educate/inform participating companies on the 'ideal' cleaner production team structure to optimise success and ensure information is passed to them. One suggestion includes:

1. *Staff that have a personal commitment to waste reduction, recycling, etc.*
2. *At least one senior manager and/or middle manager*
3. *Production staff*
4. *Sufficient team members so that tasks can be shared, reducing the 'time burden' ...suggested is 2% of the total staff in the company.*

By establishing a team based on the four-point template suggested by the 1999 evaluations the WMU believed they were influencing: (i) enthusiasm for the project, (ii) the team's link to management, (iii) influence across key parts of the organisation, and (iv) manageable workload. However this one-off attempt at influencing team functioning had no means of assessing actuality against intention', i.e. were the teams operating the way they were intended or in the most effective way to achieve project goals? For instance does the management representative on the team actually provide the links to key decision-making that are needed? Is the team maintaining enthusiasm for their tasks? Is the team membership sufficient to manage the workload?⁹

The TZ programme needed to shift focus from getting the 'right team structure' to maximising the effectiveness of the team at doing its job. This in turn relies on knowledge of groups as dynamic entities that go through phases of development with different needs at different times, as well as some way of enabling both the project consultant and the team to assess how well they were going and what their changing needs might be.

By working through these issues with the WMU we [the researchers] were able to propose a change in the teams' evaluation project brief from advising on the best team make-up; to providing the WMU with information and tools to assess and improve the functioning of teams as they participated in the programme. What was subsequently agreed with the WMU was that there would be three parts to the TZ teams' evaluation project (with a fourth part added as a consequence of how the project evolved (see Figure 5.3). These were:

- | | |
|---------|--|
| Stage 1 | Develop an understanding of groups in the context of organisational change and from this design a checklist-based evaluation approach as a basis for enabling consultants and teams to assess the strengths and weakness of their performance. |
| Stage 2 | Trial the checklist through interviews with teams who had completed TZ company training in the past and with the TZ consultants. This would provide feedback on the evaluation approach, and also provide contextual information on the issues teams had faced going through the TZ programme. |

⁹ This has a parallel in multi-stakeholder environmental management initiatives, where initiators concentrate on ensuring there is representation of all relevant interests at meetings in the hope that this will guarantee all views on the issues are incorporated – not anticipating how existing power dynamics will affect this.

Stage 3 Use the now revised checklist in a two-stage participatory evaluation with the teams currently enrolled in the TZ programme. The first session would be held at the beginning of the formal training, and the second, at the end (i.e. 6 months later) as they prepared to carry on independently.

On completion of stage 1 a report was presented to the WMU on why teams were regarded as important elements in achieving organisational change, and the ways in which they could be prepared and supported in this role (Allen & Kilvington 2001). At the end of stage 3 a report on the findings from the evaluations of past and current programme participants was also presented to the WMU (Kilvington & Allen 2001). This report included feedback on what the teams as a whole observed to be the major challenges and also outlined the role of the participatory evaluation process in strengthening the effectiveness of the TZ teams. Following these report-back sessions with the WMU a fourth and additional phase was added to the project. This was to help embed the evaluation approach as part of the suite of training and skills development offered to teams taking part in the TZ programme.

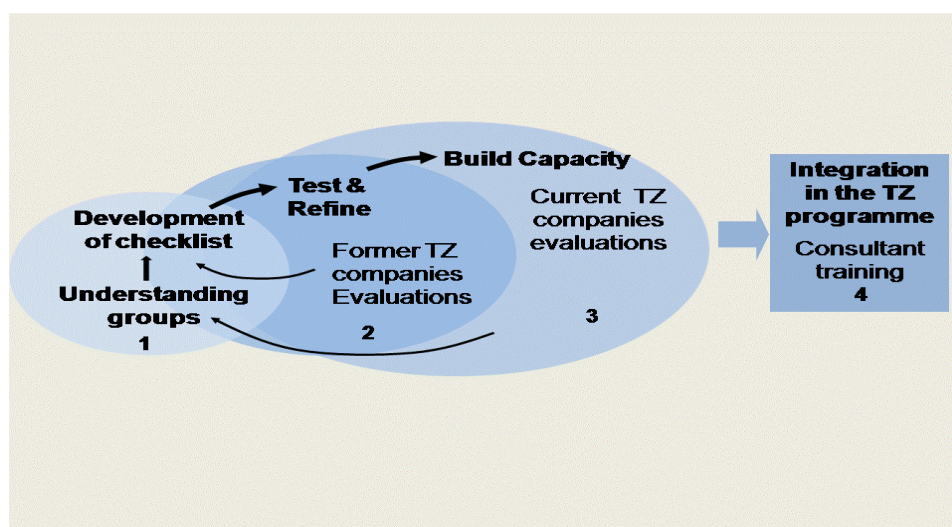


Figure 5.3 Four stages of the TZ teams' evaluation project.

Overall this new approach to the evaluation negotiated with the WMU included both a conventional review of relevant literature and a gathering of general information about the teams and how they were functioning. However, importantly, it was not just an assessment of the status quo but rather was designed to directly contribute to the awareness, learning and ability of the teams taking part. An important factor in establishing this new role was the openness of the WMU staff to different ways of learning about the TZ programme.

5.4.1 Developing an approach for working with teams and organisational change

As the TZ teams' evaluation was intended to provide generic information for the WMU about how teams were currently operating, as well as support the capacity of the participating teams, the design of the evaluation approach rested on theoretical understanding of two areas: (i) working groups and their role in organisational change, and (ii) P & D (participatory and development) oriented approaches to evaluation, particularly suitable methodologies for the TZ situation, where we would have to work with a wide range of teams, across very different organisational contexts.

Developing an understanding of groups

The WMU instinct about the importance of groups in achieving organisational change has wide support in organisational learning literature and practice. Many tasks facing organisations, including instigating waste minimisation improvements, cannot be implemented by individuals working alone. While a group approach is not always necessary, or even the most efficient way to deal with all organisational change issues, situations where problems and decisions involve a degree of complexity and uncertainty; where there is potential for misunderstanding and conflict; and where widespread acceptance and commitment are critical will call for group collaboration (Wertheim 2000).

From conversations with the WMU and their consultants, review of programme material, and by attending TZ workshops, it was apparent that the programme suffered from a lack of dynamism in its approach to both teams and the organisational change process. Current interventions in the organisational change process were at two points. The first was when WMU promoted the possible benefits of the TZ programme to potential participant companies to elicit 'buy in', and the second when companies received instructions on how to set up a team (e.g. select members from across the company, include management staff). From then on teams were typically focused on the task of identifying and eliminating poor resource-use practices in company procedures. The training workshops for the teams included some generic material on likely obstacles they might encounter to the introduction of new ideas (such as examples of typical blocking tactics, e.g. *we've tried this before and it didn't work*), but the main thrust of the programme was to ensure the transmission of technical ideas about waste minimisation to the teams and support them in undertaking projects within their own companies.

Table 5.1 A three phase model for understanding teams and organisational change
(Allen & Kilvington 2001, p. 6)

A model for a team-based approach to organization change		
Phase 1: Getting started	Phase 2: Teamwork	Phase 3: Evaluation and adjustment
<ul style="list-style-type: none"> • Organisational needs analysis • Executive approval and alignment • Establishing the team 	<ul style="list-style-type: none"> • Setting goals and objectives • Clarifying roles • Managing the team 	<ul style="list-style-type: none"> • Evaluating progress towards goals • Evaluating team process • Adjust strategies • Communicate progress and new goals

The programme needed a way to understand how teams fit with organisational change, and how they could develop a team's ability to promote changes in practice that reached beyond their own specific projects. To this end the TZ teams' evaluation project offered the WMU a simple model (Table 5.1), which described a group approach to organisational change in terms of three phases: (i) getting started, (ii) team work, and (iii) evaluation and adjustment, (Allen & Kilvington 2001).

Phase 1 – Getting Started brings attention to issues that need to be examined at a management level before organisational change is initiated. These include identifying and agreeing to the need for change, aligning the new cultural values with the organisational structure, and getting the right people on to the change management team. This phase is about recognising that **the team** is one component within a wider organisational approach to support the change process, and not the whole process itself (ibid, p. 6). The implication for the TZ programme is that team efforts in championing waste minimisation at different levels of the workplace needed to be complemented by efforts that build a supportive environment within which the teams will work. Examples of this include widespread company messages about waste minimisation (e.g. switch-off-power programmes), and open acknowledgement from senior management of both the need for, and value of the change effort.

The *getting started* phase also includes consideration of how to set up the team, addressing questions such as 'who should participate?' and 'what resources will be needed?' A set of points to consider in setting up a TZ team were also offered to the WMU (ibid., p. 7). These were posed as prompts for reflection rather than templates, in recognition that companies need to consider the appropriateness of their own responses rather than settle for off-the-shelf answers. For example, under 'who should participate' several questions were included, such as 'What are the pros and cons of calling for volunteers? Who is good at networking in

the organisation? How long is the team required for – is it a permanent structure or intended to be flexible and adaptive?’

From our experience interviewing and conducting evaluations with companies taking part in the TZ programme, at best only half of the factors listed for setting up teams were taken into account and the team composition was rarely revisited once team projects and goals had been determined. Most teams were allocated time and facilities for meeting but this was not always negotiated throughout the company and team members might find that their supervisor or immediate colleague had not been informed or steps taken to accommodate the employee’s temporary absence. Rarely, if ever, was access to decision-makers and organisational decision making processes considered as a resource for the team.

Phase 2 – Teamwork draws attention to activities needed to enable the group of people brought together to function as a viable team with established norms of behaviour and a workable level of personal trust. Teamwork requires clarification of both team vision (a reminder of the team purpose and direction) and goals (targets that may be met and reset during the life of the team). Some thought also needs to go into the allocation of roles and tasks and the division of labour. At this point it might become necessary to relook at the team membership asking ‘how well do the tasks meet the skills of the team?’

Another important aspect of teamwork is supporting the different stages of group development. It is now widely accepted that groups, despite differences in makeup and purpose, share stages of ‘getting started’, ‘getting to work’, ‘maturity’ and ‘ending’¹⁰. Active facilitation is often necessary to support groups through these phases, particularly the forming stage where groups question purpose and look for leadership. Unaddressed issues at this stage can lead to a need to revisit as the group loses sense of direction (ibid., p. 11)¹¹.

Understanding vision and goals, allocating roles and tasks and facilitating through group development stages are standard practices for fostering groups towards the achievement of their ambitions. Less common, but also important for teams involved in initiating changes in organisational practices, is the need to foster the group’s capacity to bring in knowledge that

¹⁰ This is often referred to as *forming, storming, norming/performing and dorming* (Hunter & Bailey 1992).

¹¹ Material prepared for the WMU on group processes included a table of facilitation needs for different stages of group development (Allen & Kilvington 2001, p. 11).

enables them to consider the situation from a new perspective and challenge their habitual frame of reference. Encouraging new thinking within a group is not a straightforward matter. As the evaluations of the TZ teams revealed this was influenced not simply by the availability of new information but by the confidence expressed by team members to try out ideas – itself dependent on the openness and trust built within the group.

Phase 3 covers the *evaluation and adjustment* components of the team-based organisational change process. Monitoring, adaptation, and review are at the heart of the TZ programme – at least in regards to understanding and mitigating wasteful resource-use practices. Phase 3 highlights the need to monitor both task and process, i.e. to track the **task** of changing production processes to minimise waste and the **process** of developing a successful long term change programme within the organisation. This includes finding appropriate measures for intermediate stages along the way to achieving the larger vision, which in turn relies on the understandings developed in phases 1 and 2 (e.g. how clearly the goals of the team have been articulated and how much thought has gone into team structure). Evaluation, as an integral part of the change management process, can be regarded as a positive learning tool, and a means to problem-solve that fosters the ability not merely to identify right and wrong practices, but to isolate important issues and work through them.

A participatory developmental evaluation approach

As we went about researching for the WMU how the effectiveness of teams could be improved we were conscious that we wanted to work **with** teams, rather than just ask them questions. Thus, referring back to Duignan's (2003) conceptual levels of evaluation terminology (Chapter 3, Table 3.1) the value orientation of the evaluation approach was that it should be empowerment and collective-learning based (i.e. in line with evaluation approaches aimed at change and development, outlined in Table 3.2). Specifically it should provide participants with knowledge about their own strengths and weaknesses as a team, as well as provide consultants and the WMU with information on cross-team issues for improving programme design and management.




Information derived from stage one of the TZ evaluation project (developing an understanding of groups) provided a theory basis for considering what was important to group functioning and performance as they worked to support organisational change.

However, the challenge was how to introduce this dense theory about groups to teams of people who were most interested in the practical, i.e. ‘getting on with the job’ and quite likely to be short of time. As discussed in Chapter 3 (section 3.5.2) checklists can be an economical way of portraying large amounts of information that is easy for stakeholders to engage with. With this in mind we set about rendering the information on teams – their structure, skills, resources and ways of working – into a checklist of factors grouped in four sections (see Appendix 5):

- | | |
|-----------------------------|-------------------|
| 1. Results and productivity | 3. Team operation |
| 2. Team structure | 4. Team skills |

However, it would not meet our goals of providing teams with knowledge they could work with, or the WMU with a way of supporting team development, to simply hand over the checklist to the consultants or the WMU. Nor would it be sufficient to use it as a basis for questioning teams as external evaluators to assess how well they were performing. Instead we decided to couple the checklist with a facilitated team reflection process that would help teams themselves identify what aspects were relevant to their situation, so they could review their own performance. In designing this process we again looked for a way to appeal to practical busy people. What was required was an approach that was straightforward, but had sufficient of the inspirational quality of good questioning (Chapter 3 section 3.5.2) that would allow for a fluid interchange between participants which can surface assumptions, unpack problems, uncover options, and thus prove transforming.

We subsequently came up with a workshop process that took 1 to 1.5 hours (see Appendix 6). It began with a team review of their goals, following which the checklist of factors important to teams was introduced, and the teams were prompted to discuss each factor, decide whether it was relevant to them and, if so, how well it was currently being addressed. Team members collectively ranked each factor using a simple traffic-light system:

-  **G** *This aspect is well covered*
-  **Y** *We need to think about this as it maybe a limiting factor*
-  **R** *This factor needs to be addressed as it is limiting team performance*

At the end of the session the team were then invited to discuss strategies for addressing the areas where they had greatest concern. The discussion around the checklist was intended to

guide thinking about the key things that make teams work. It was not designed to rate how effective each team has been, rather it was to help participants critically reflect on what had been effective for them and what they would like to do differently in the future (Kilvington & Allen 2001).

The process needed to allow for at least one cycle of reflection-action-reflection so that the teams could revisit any of their main issues to assess the effectiveness of their strategies to address them. Consequently the facilitated sessions were run at the beginning of the TZ training; and 5 months later towards the end of TZ programme. All teams received copies of the notes taken of their evaluation that were confidential to them and not copied to the TZ programme coordinators or to their companies. Alongside the self-reflective evaluation processes, interviews were held with consultants working with the teams in the TZ programme. This was to give further context to the generic information on findings common across teams provided to the WMU.

Aspects of three branches of evaluation theory and praxis discussed in Chapter 3 were made reference to in the design of the TZ teams' evaluation approach. Firstly, the use of group theory (in particular the role of groups in organisational change) formed the basis for the checklist. The use of theory, not just to understand how well a programme functions but to better inform the theories of action upon which the programme is based, is a fundamental tenet of theory-based evaluation (Weiss 1995; Brickmayer & Weiss 2000). Secondly, a principle of participatory evaluation (particularly empowerment evaluation) is the transfer of the learning potential of evaluation into the hands of the programme participants (Fetterman 1996). Thirdly, FG evaluation establishes a legitimacy for evaluation practice which is based on the importance of context and individual interpretation of knowledge (Guba 2004). Arguably the TZ teams' evaluation was also a formative evaluation since a way to both capture generic cross-team information for the further development of the TZ programme, and to pass this on to the WMU, had been built into the project.

5.5 Outcomes of the TZ teams' evaluation¹²

During the TZ teams evaluation project nine different company teams took part in at least one checklist-based reflection exercise. These teams were divided into two groups. Group 1 was made up of five company teams who had been involved in past TZ training rounds.

¹² This section uses letters to denote teams. Appendix 7 lists teams and their letter code. Reviewers copy only.

Group 2 included those four companies just beginning their 6-month training. Follow-up reflection exercises were only held with companies currently involved in TZ training (see Table 5.2). Overall the evaluation highlighted three areas where teams needed support in order to play a useful role in influencing organisational change within their home companies:

1. **Task** – the ability of teams to achieve during participation in the TZ programme
2. **Process** – development of teams during and beyond participation in the TZ programme
3. **Environment** – the interaction of the team with the rest of the organisation, and their networking with those outside the company.

Table 5.2 Teams involved in TZ teams' evaluation

Group 1 – Company teams involved in past TZ training programmes	Group 2 – Company teams involved in current TZ training programme
Ravensdown Fertiliser Co-operative <i>First Target Zero programme</i>	Also involved in current TZ training programme
Tait Electronics <i>First Target Zero programme</i>	BICC General Cables NZ
Reflex Products <i>Second Target Zero programme</i>	AEP Flexipac
GL Bowron & Co. <i>Second Target Zero programme</i>	Quality Bakers
Canterbury Spinners* <i>Second Target Zero programme</i>	Canterbury Laundry Service
The Christchurch Star <i>Third Target Zero programme</i>	
*Phone interview with team leader only	

5.5.1 Task – ability of teams to achieve during participation in the TZ programme

The overall set-up of teams and provision of training and advice through TZ was designed to help teams operate successfully and to achieve during their time with the programme. Teams were particularly well served by the 'step by step' process applied to problem solving; provision of consultants who ensured regular meetings took place and maintained momentum on work; bringing teams together in workshops where projects could be discussed and new information sourced; and not least, the CCC acknowledgement of the success of the team projects which offered encouragement that was not always echoed within their own companies. Moreover it revealed that many teams were developing skills,

ideas, and strategies in a range of areas beyond technical expertise, including how to combat defensive behaviours in response to their proposed changes, and ideas about what kind of staff it was important to recruit into the team.

Motivation, for task completion and ongoing activity, was the greatest challenge for the groups. It was a tenet of the programme that *seeing ideas translated into action* and the realisation of savings for the company influenced the sense of achievement of the team itself. Furthermore, that the communication of these successes to management will encourage the continued support and expansion of resource use efficiency throughout the company, and lead to a positive attitude among other staff towards TZ work and waste reduction in general. However the need to ‘*have a few achievements under our belt*’ to maintain team motivation was not always a direct match with higher company goals to make major savings. One company we interviewed stated that their senior management held little regard for the small \$2,000–\$3,000 savings that had been made, while yet another stated that the size of their organisation meant that savings of \$18,000 were considered negligible – a view echoed in different forms by others. The emphasis on money saving as the primary goals for TZ meant that little was done by teams to celebrate small steps and less glamorous activities, even though the visibility of an activity, even at small scale – such as kitchen waste recycling, increases staff involvement and awareness and ultimately satisfaction and can play a role in spreading a culture of acceptance around waste minimisation and resource use efficiency.

5.5.2 Process – development of teams in the TZ programme

A number of models exist that describe group development. Pretty and Frank (2000) offer a way of measuring group maturity which is based on the degree to which groups move from *dependence* and task focus through *independence* and an emergence of new capabilities and networks, to a stage which they term *interdependence*, where the individuals within the group are self-reflective, and the group as a whole is involved in shaping their own trajectory using self-generated networks and resources. The group stages are progressive (i.e. one stage can lead to another) but progression is not taken as inevitable. Teams need deliberate and conscious effort to develop to a stage where they self-maintain let alone develop to a point where they are more aware of the value of the group itself and its capabilities to problem solve, become capable of developing responses to shape their future, and continually look to strengthen their collective abilities (ibid.).

From our evaluations it was clear that monitoring team performance (i.e. process issues), as opposed to team achievement, was an area that few teams, and even consultants, were comfortable with. The consequence of this was that while the TZ teams commonly thought they had a good relationship between the identification of tasks and the skills and capacity to complete them, they were typically unaware of the need for a wider set of skills such as how to foster a learning environment at team meetings and what steps to take to catalyse even small-scale change within their organisations.

When asked during the evaluations ‘how’ or ‘if’ they paid attention to team functioning the common response was *we get things done, so there is no need to worry about it*. However, the counterpoint to this is that it is equally important to find ways of improving the efficiency of how a team operates as it is to form a team to improve the efficiency of the way a production line uses resources. For those teams that were pilots for further spread across the company, or as in some instances, where team goals included upskilling team members to subsequently become leaders of their own teams, it is clearly important to be able to identify what were problematic and successful aspects to how the teams functioned. During interviews with TZ consultants we learnt that companies could register more than one team to successive rounds of TZ training and these teams could vary substantially in their performance – one being highly motivated and successful and another failing to complete projects. Without awareness of team performance issues and how to address them this variance was a complete mystery to the teams, company and the WMU!

From our interviews and evaluations we encountered only one team that had successfully developed beyond a dependent and task-focused phase (Team B). In this situation original team members had themselves gone on to become leaders of their own teams, passing on the methodology and approach to waste minimisation problem solving developed through the first round of TZ training. Furthermore, these new teams spawned subgroups that developed and managed their own projects. This example and indeed this team were exceptional in a number of ways. During the evaluations, we judged them the most reflective on their performance; and they were the only team that did not cite maintaining motivation as an issue. The parent company of this team is highly reliant on innovation to maintain its market edge. This hints at a finding in Stone’s research (2002) that cleaner production programmes made the most long-term gains within organisations with an existing culture that was receptive to change and learning.

5.5.3 Teams and their environment

The strength of relationships between the team and the parent organisation (from all levels of company operation through to management), and externally with associates that are able to contribute creative ideas and even act as collaborators, is a fundamental ingredient in how effective teams can be in influencing wider organisational change. These networks effect both task achievement and team development. In Pretty and Frank's (2000) model of group development mature, *interdependent* groups are characterised by the skill with which they build and utilise contacts within the system in which they operate.

While teams commonly responded confidently about the strength of their internal connections during the evaluations, these somewhat glib responses were often later negated by stories of lack of management interest and support, or difficulties in securing the cooperation of co-workers. Indeed, during the TZ programme teams were clearly learning the value of networks, sometimes through a failure in a project. For example, one team relayed the story of uncovering a source of waste that could be addressed, thereby significantly reducing the quantity of product that needed to be used, but they failed to ensure this information was passed on to the person responsible for purchasing!

It was common that the task of communication within the company was not assigned to anyone within the team; there was an assumption that when necessary this would somehow get done. However, communication of project outcomes, team goals, and overall programme aims across the company cultivates the ability of the team to continue and the work to expand. Furthermore the demands of communication can often be too complex to rest on ad hoc arrangements. Many companies operate across multiple sites, and run 24-hour plants. Some of the companies were extremely large, with up to 450 staff on one site. The TZ teams therefore often face both geographic and temporal communication issues, and the marginalisation experienced by teams not based in head office sites was evident.

During the life of the TZ training the teams were conscious of the benefit of being able to interact with teams from other companies, visit their sites and attend talks on waste minimisation work. This external networking almost universally diminished after the TZ training was completed. Although the CCC offered companies membership of the TZ club, attendance at these meetings tended to be limited to management level rather than the full spectrum of team members.

5.5.4 Response to the evaluation approach

As researchers trialling a new approach to team evaluation we were keenly interested in the team responses to the process we used. As with so many of the findings from the evaluations, this was highly variable from team to team, and dependent on both the openness already established in the group and the familiarity with some form of reflection activity.

Looking across the teams it was apparent that those in what Pretty and Frank (2000) refer to as the *dependent phase* (the majority) were focused on task achievement and regarded process issues (e.g. relationship building, networking, monitoring performance) as a distraction to the 'real job'. Because of the self-reflective nature of the evaluation, this lack of interest in process could lead groups to rate themselves highly on their performance in **all** areas of team activity – reflecting an attitude of 'if it doesn't seem that important we are probably doing just fine'. In contrast, teams that were aware of both task and process issues were more interested and aware of their shortcomings and looked for areas in which to improve. Accordingly, they tended to rate themselves more in need of improvement. Thus ironically, Team B, which had shown the most impressive use of the initial TZ training by using their new skills in team work and waste minimisation to drive initiatives across the rest of the company, were among the most self-critical during the teams' evaluation – seeing numerous areas in which they could improve their performance.

The challenge this presents is best illustrated by two contrasting team evaluations. Team H and Team I came from comparable sized organisations. The parent company of Team H regarded their enrolment with TZ training programme as a pilot for potential use at other sites, and the team goals included developing team skills, and having an influence across the company. Team I regarded senior management interest in their work with some uncertainty, sensing there was an expectation that they would deliver but not necessarily trusting they had the support to do so. Team H seemed to regard TZ as an opportunity while Team I saw it as an extension of work they should be doing already and had no wider goals for influencing change in the organisation.

Team H used the evaluation as a chance to have an open and positive discussion about important elements of their functioning that could be improved, in particular to critically reflect on their leadership. Their current team leader was an important link to management

but was too stretched to perform other leadership roles associated with running the team and getting projects going. Following the evaluation they repositioned their leader as an *advocate* and distributed other leadership roles within the team. This presented a strong contrast to the Team I evaluation, which was dominated by an individual that was clearly uncomfortable with the idea that the group should expose any weaknesses and was a ‘blocker’ to group discussion. The team had insufficient trust and openness as a group to discuss any issues, and presented to us as unsure what value the evaluation offered. During the evaluation they did not rate any issue as worth further attention. Their team self-score had the highest number of ‘green lights’ and yet this team was among the least successful in the training round at delivering on waste minimisation projects.

From the second round of evaluations (with companies in group 2) it was apparent that some learning about teams and team process had gone on. Generally we noticed that the teams we interviewed were more self-critical and less glib about their potential and the difficulties they might face in working together. We came across specific examples of teams having changed what they were doing as a result of thinking through a problem uncovered by the evaluation process. Two teams mentioned they considered the first evaluation we had undertaken with them to be a *training experience* that got them thinking about teams. Team A regarded the evaluation exercise as a chance to undertake planning and develop strategy – something they had not previously done as a group. There was also an increased acknowledgement that monitoring processes goals, i.e. keeping track of how well they were doing as a team (something not thought of before the evaluation), would be useful.

However, we also observed that when a team made a discovery that something was not working this did not necessarily lead to doing anything about it. In our observation the degree to which a team was interested and motivated to take on issues that became apparent to them through the evaluations was influenced by the degree of responsibility and commitment they had towards the TZ initiative, and the degree of self-direction and trust the team granted within their organisation.

The evaluations also revealed that the members of the TZ teams were motivated by many other goals than those of making cost-savings and reducing resource use and/or increasing production efficiency that were regarded as the primary goals the company had for signing up with the TZ programme. These included learning about resource use and waste in their

companies, being environmentally friendly, building project management, and team problem-solving skills, being a vehicle for sharing ideas, keeping the company in touch with new technologies, and creating a paradigm shift beyond the team, described by one member as *...changing the culture within the company from creating waste, to recycling waste, and ultimately to avoiding waste in all areas of work*. Team F clearly regarded the programme as an opportunity to counter imposed changes from elsewhere in the company. *If we don't make changes someone from Auckland will come down and do it for us and they don't really understand how we work down here*. This highlights the complex nature of intervention programmes entering social (organisational) systems where there are already existing agendas and concerns. Clarity over the multiple goals of a team can be important to reduce the risk that they may subvert or work against one another – but also because when they are acknowledged there is greater likelihood of incorporating them in the project and satisfying all team members.

5.6 Evaluation as an intervention in the TZ programme

As researchers, evaluators and facilitators we ourselves were interested in what we could learn from the experience of running the TZ teams evaluations. We consistently 'debriefed' after evaluation sessions and reviewed the facilitation approach, the checklist material, and the response by the groups participating.

In our view one of foremost strengths of the checklist-based team self-assessment is the degree of flexibility inherent in the approach. Generic issues of team activity are covered in a way that is unique and specifically relevant to each team. The process causes participants to reflect upon their own performance rather than study a list of 'how-to' that might seem self-evident and would be unlikely to be retained. The process also worked with the goals the teams had set for themselves rather than those assumed to be theirs because of the overall structure of the TZ programme.

The material included in the checklist went largely unchanged through the evaluations. As Wertheim (2000) comments, *There is no absolute checklist for what makes a group effective*, and with this in mind during the checklist design, elements were selected because of their potential to stimulate discussion in the teams, and questions were posed in a way that implied no right or wrong answer. Each question was therefore an opportunity to open a window into the teams' functioning. As an absolute measure, the scores the teams allocated

themselves on the checklists could not be taken literally. The traffic-light ratings were as much a reflection of the degree of self-critique and ambition in the team as their actual competency. In fact almost an inverse relationship could be concluded. In later evaluations using the checklist we exploited the idea that self criticism was, in our experience, associated with better performing teams, to incentivise greater reflection among more sceptical teams.

Given the reflective rather than assessment-based orientation of the evaluation approach, the facilitation of the process was highly influential on the outcome. As we carried out a number of the evaluations we learnt how to motivate discussion, and how best to challenge assumptions and responses. In our first design of the process we had planned for individuals to personally rank the factors before bringing them to the group. The divergence and commonality of these responses could be a prompt to discussion, and this might better channel ideas from team members who were less inclined to comment in front of their colleagues. However, we quickly learnt that the teams preferred to run the entire discussion as a group, and the process was adjusted accordingly. We also added a stage to the beginning of the evaluation session. Following on from reviewing team goals we invited teams to identify their achievements to date – even comparatively small ones, as this was often the only time the group had reflected on these, and it was both encouraging and an aid to further assessment of their work.

The teams and the companies were extremely diverse, ranging from small to substantive operations, with a range also in the organisation orientation toward innovation and learning. It was clearly important that in facilitating the evaluation we paid adequate attention to how the team wanted to interact with us. Equally important was the cultural fit between the process and the organisation (something of importance for the entire TZ programme). Many of the workplaces we visited were toxic, noisy, and unaesthetic – a daunting environment to enter with thoughts about group process and reflection. Our credence as facilitators was greatly influenced by the WMU backing of our role as being an integral part of the TZ programme. However, it was still important to find a convincing introduction to the idea that evaluating team performance was a useful way to spend an hour. I personally often used

a rugby team analogy – *a successful team works not just on strategy to win the game but on how to make the most of their strengths and how to address weaknesses*¹³.

Team reflection could clearly be pushed to greater or lesser extent dependent on the trust and culture of inquiry within the group. Facilitation needed to be active i.e. not allowing teams to get away with their first casual responses; encouraging groups to identify assumptions behind their responses and then to challenge these assumptions (double-loop learning) (see example Box 5.2). However, this was not possible with all groups, or with all the questions on the checklist. For instance, while prompting from facilitators could elicit more thoughtful response around questions such as ‘does the team have effective leadership?’ teams were reluctant to acknowledge the need for ‘ways of dealing with conflict’. Since managing disagreements is an inevitable part of the experience of working in teams, some other approach (or wording) was clearly needed to address this issue.

Box 5.2 Example of three-level reflection based around the teams checklist
(hypothetical)

Facilitator questions	Team response
<i>Does the team have good internal networks? (question 3.3)</i>	<i>Yes they're fine</i>
<i>Why do you think your internal networks are good?</i>	<i>Well we all come from different parts of the organisation so we know all the different areas of operation that are important to the project.</i>
<i>So does your team have all the right people on board the team itself to carry out the changes your project suggests are needed?</i>	<i>Well no... We don't have anyone from finance here...and also the maintenance crew come in at night so they won't know anything about what is going on... I guess we will have to find out some way of talking to them.</i>

Questions and prompts can then continue to help the team build a response to the now-recognised problem.

A group evaluation such as this is clearly reliant on willingness to reflect, and difficulties emerge when either an individual or the entire group blocks discussion. This is essentially a manifestation of ‘culture capture’ and is a recognised risk of highly contextual, participatory-based evaluations. One of the likely causes of ‘blocking’ in the TZ evaluation

¹³ Those who know me will find this amusing. I won't speculate how convincing I was but sometimes even making a joke of yourself can be an important facilitation technique!

was when one or more members of a team regarded the evaluation as a judgment on the value of the group. One of the challenges of implanting programmes like TZ which rely on active inquiry is the performance and compliance orientation of the business environment, where people are measured on the degree of adherence to protocols; and it is difficult to find fault without according blame.

Furthermore, teams' evaluation could all too easily be associated with the kinds of organisational assessments that are ultimately linked with restructuring and job losses. Evaluations and evaluators frequently suffer from a negative reputation based on such uses of their work. While we took pains to use non-threatening language and explain the confidential and developmental orientation of the evaluation, it was not always possible to override suspicions and ingrained distrust of such processes. The consequence of distrust was a lack of willingness to countenance the notion of deficit in any area of team performance. It manifest as: limited debate over questions, short 'quick fire' responses remaining unchallenged by other team members, and a difficulty in pushing teams beyond these.

5.6.1 Embedding evaluative learning in TZ training

Following our completion of the three initial phases of the TZ evaluation programme we ran a short workshop with the WMU staff and the TZ consultants on the work. One of the questions which emerged for the WMU was how to support teams and team development. This was a newly acknowledged gap,, as to date the TZ programme had put most effort in being effective at the task-focused elements of cleaner production training, i.e. the cyclic stages of assessing and analysing waste, implementing and monitoring changes, and in particular supporting teams to identify projects where they could make easy gains. The tension in the TZ programme between emphasising process and task is common to change-driving programmes in general. Many programmes oscillate from one perspective to the other, first emphasising 'getting the job done' and then swinging back to a process effort in order to develop more capacity for the long term (Kilvington & Allen 2001).

The WMU recognised that most of the technical consultants they employed to work with the teams had little or no experience in supporting social process elements of change. At the same time, the WMU were also aware the TZ teams' evaluation process had been generally positively received by participating teams, two of whom commented that they regarded it as

useful part of the training they received through the TZ programme because *it got people thinking*. Following this feedback the WMU asked us if we were prepared to continue with the teams' evaluation process as an integrated part of the TZ training. We proposed a process where we would pass on the checklist approach as a training tool to the TZ consultants and partner with them in their first round of evaluations. However, our assessment was that this was of limited success. As with the TZ teams themselves, the competency and confidence with this aspect of team work varied with the consultants. While some indicated they could happily see themselves integrating this into their ongoing work with companies, others felt the depth of expertise needed to adequately facilitate a truly reflective group evaluation was beyond them.

Subsequent iterations of the TZ programme experimented further with ways of supporting both teams and organisations to achieve long-term sustainable business practice. Most recent generations of the manufacturing company programme have seen it revert to a technical advisory approach to waste minimisation.

5.7 Summary – evaluation and social learning in the TZ programme

The TZ teams' evaluation was designed to improve knowledge about how teams were functioning, and to uncover barriers and success factors for teams as agents of organisational change, for use by the CCC to improve the long-term impact of the TZ company training programme. Most importantly it was oriented to set up a process that enabled teams to examine their own situation, and become more aware of their achievements and limitations and empowered to affect their own productivity.

The TZ teams' evaluation project illustrated a significant degree of success was possible in increasing the capacity of teams to both manage themselves, and their tasks, and enable them to investigate areas of the operation that were important to how effective they could be as instruments of change within an organisation. The use of a checklist of key aspects of group process, when coupled with a structured opportunity to assess these on a group-by-group basis, was a compact way to introduce teams to substantive learning about group processes. It ensured the reflection process was grounded in real experience and consequently immediately meaningful to the teams.

A substantive criticism of resource use efficiency and cleaner production programmes is their failure to appreciate organisations as social systems and consequently their tendency to take a mechanistic approach to supporting innovation (e.g. concentrating on structural elements of teams, or relying on simplistic recipes for behaviour change). The TZ programme already encouraged thinking about organisations as technical systems; the teams' checklist evaluation expanded this to thinking about the organisation as a social system. In particular it encouraged practical self analysis of the groups themselves, their behavioural norms and practices and their relationship to the organisation. The teams' evaluation approach therefore illustrates a way to link both technical and process management and support an overall questioning approach to problem solving that uncovers hitherto unthought-of non-technical influences on the change process.

Facilitation of reflection was critical to the effectiveness of the checklist review approach. This reflection process rested on both the skills of the facilitator and the position of the evaluation as an integral event in the training programme, i.e. coupling it with the same processes of analysis and review that were the mainstay of the 'measure to manage' approach to the TZ programme. A limitation of the self-reflection-based approach is the difficulty of overcoming existing resistance to reflecting on performance. The propensity for learning and development was different in each of the teams and often a manifestation of the capacity for innovation inherent in the organisation itself. The impact of such interventions as the TZ team's evaluation can be magnified or minimised by the overall context in which they sit.

Another limitation of the TZ teams' evaluation approach is its dependence on expertise within the programme to carry out the role of facilitating the enquiry. In the teams' evaluation project we were unable to pass on the checklist-based teams evaluation to the existing consultants employed in the programme, despite the success of the approach in supporting team development, because they were foremost recruited for their technical expertise in waste minimisation, and either lacked skills or interest in extending their role to incorporate social process training.

The teams' evaluation checklist was made freely available via the CLEM website. Over the following years a steady stream of interest in the approach has been evident from extremely diverse audiences, ranging from large commercial companies (e.g. Hewlett Packard) wanting to use the approach to support learning groups/teams within their organisation, to a

most recent enquiry (March 2010) from the American Academy of Family Physicians, whose intention was to use the material in training to enhance the practices of family physicians.

Overall the TZ teams' evaluation performed several roles, which match the four potential areas in which evaluation can support social learning outlined in Chapter 3 (see Figure 3.3). In the first instance it was able to support the company groups and their development as effective vehicles for change in the organisation. This occurred in two ways: firstly the checklist self-reflection approach offered the teams new techniques to **enquire and problem solve**; secondly, the teams' evaluation checklist, through its grounding in the social aspects of organisational learning and change, is an example of how evaluation can link participants to conceptual understanding that helps them to diagnose the social learning challenges they are likely to encounter and develop strategies to respond to these. In other words the evaluation approach enabled the teams to **scope the problem situation**.

Thirdly, the teams' evaluation projected collated information about how teams were working in general. These were discussed in meetings with the WMU and were thus instrumental in supporting the WMU learning about how the programme was working (**programme management**). Finally by linking ideas about how groups work with organisational change the teams' evaluation extended the knowledge about how training initiatives like the TZ company training programme can meet their wider goals of increasing the uptake of cleaner production and adoption of resource use efficiency approaches across organisations (**research and development**).

Three particular points of interest about the potential of evaluation to support social learning emerge from the TZ programme. The first of these is the importance of being able to negotiate a learning-based role for evaluation. This in itself was reliant on the existing responsive and adaptive capacity of the WMU. Similarly, and secondly, the TZ teams' evaluation was able to utilise an already existing orientation towards developing a new learning capacity in participants, and was therefore not philosophically at odds with the programme in which it was operating. Thirdly, the project, as in the WCMP case story, illustrates that limited skills in consultants and programme managers can be a real constraint in embedding reflective, learning-based approaches in environmental management programmes.

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 programmes 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

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.

years of working within the catchment – developing networks and establishing trust – that a full stakeholder workshop exploring the implications of the work was undertaken².

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 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.

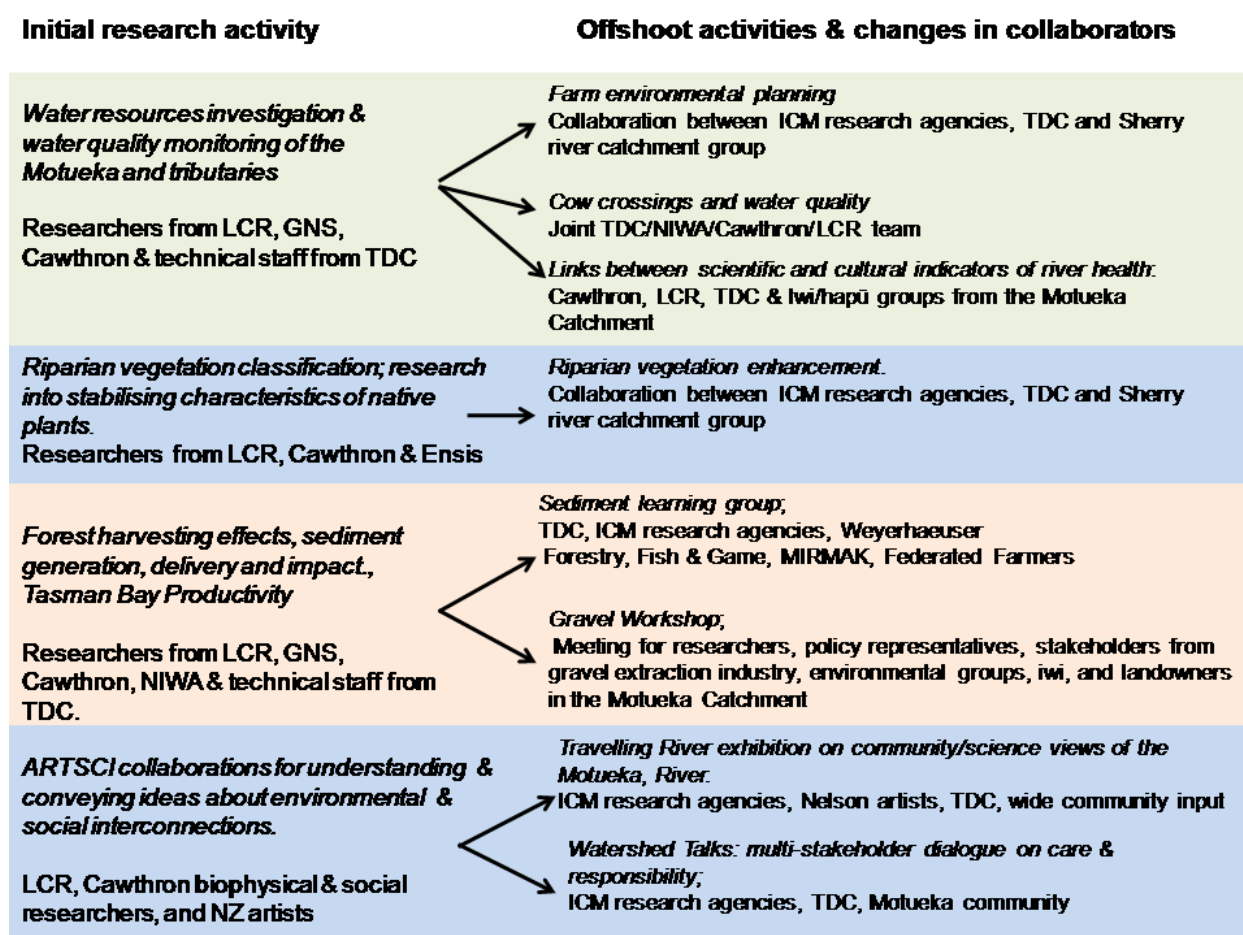


Figure 6.1 Examples of project development in the ICM programme.

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

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.

problem solving but at influencing change in policy and planning arenas and in the worlds of 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.

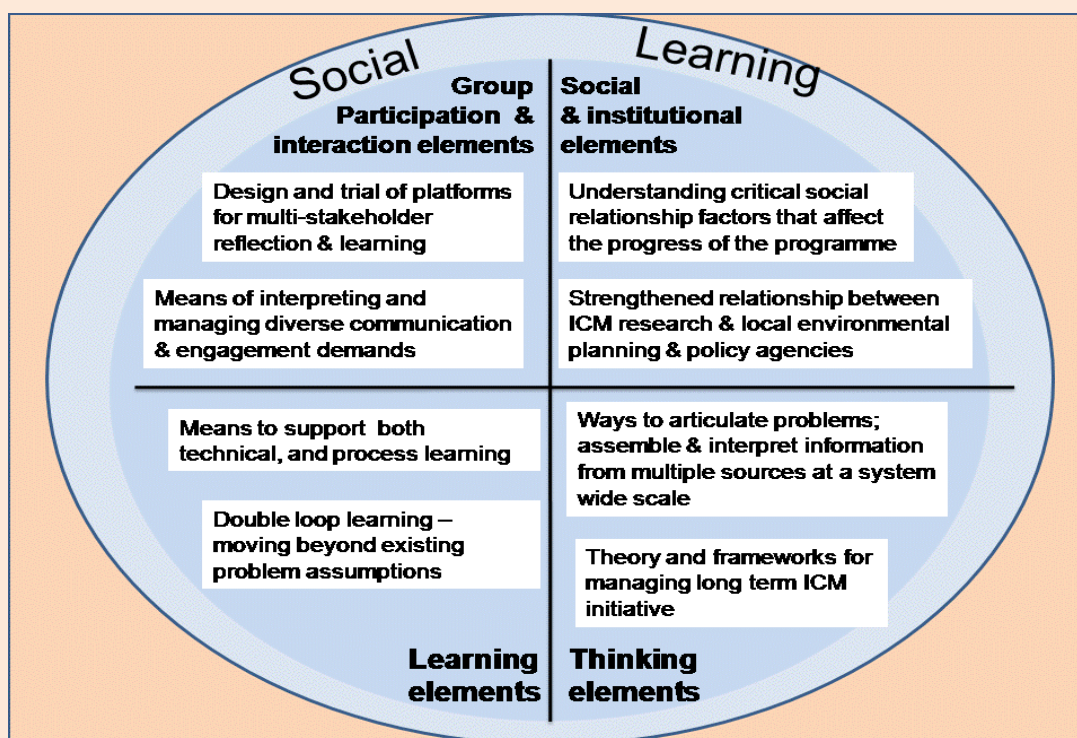


Figure 6.2 Components of the social learning challenge for the ICM programme.

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.

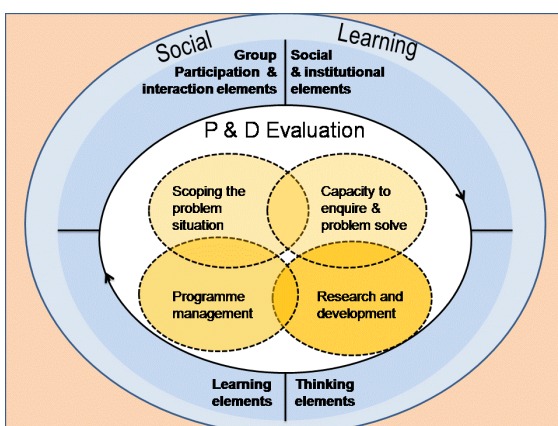
Confluens is an online workspace for ICM staff and associated stakeholder and interest groups. The site has around 50 members and is used to discuss research questions and share progress across disciplines, and practice areas.

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.

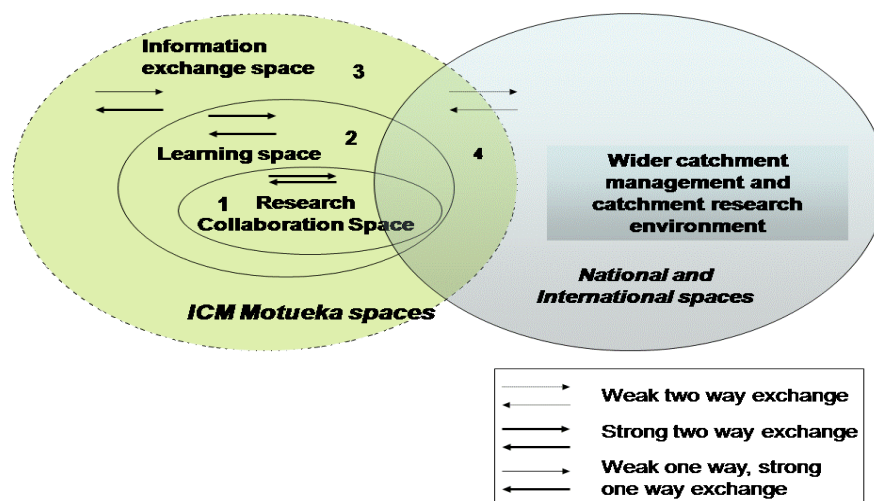


Figure 6.3 Social engagement spaces of the ICM programme.

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 (Confluens); 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).

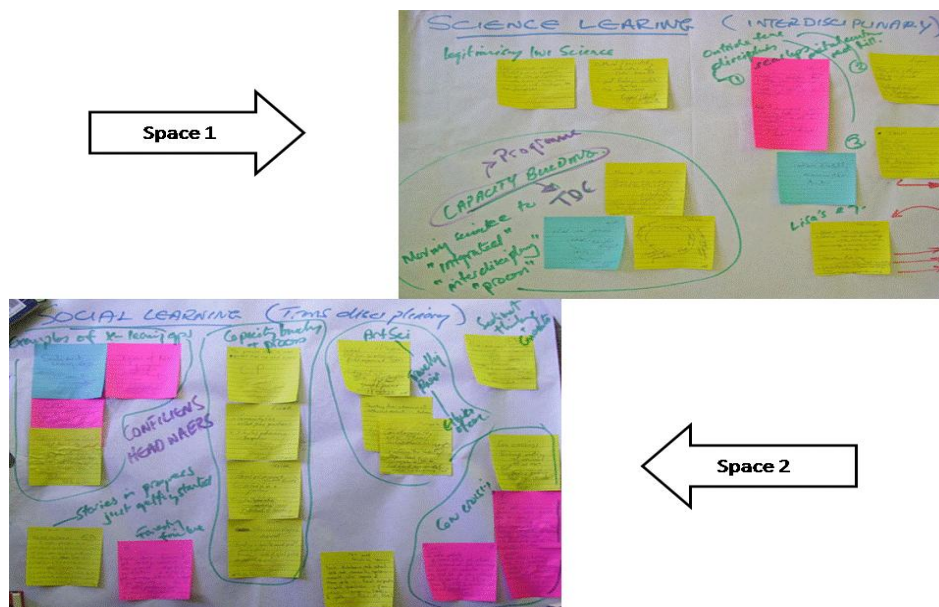


Figure 6.4 Worksheets from the social spaces evaluation exercise at the ICM AGM (2007).

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

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.

semi-structured conversations designed to illicit issues of importance to the different members in the collaboration.

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

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

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' 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, regarding the work as an opportunity to gain clarity on the programme that 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.

Chapter 7

Integrated environmental research: platforms for dialogue and reflection

Case Four: The Watershed Talk project

They were nothing more than people by themselves...But all together, they had become the heart and muscles and mind of something perilous and new, something strange and growing and great. Together, all together, they were instruments of change.

Keri Hulme, *The Bone People*

7.1 Introduction

This is the second of the two case stories based on the ICM Mouteka programme. As outlined in Chapter 6 the social learning capacity building work in the ICM programme centred on two areas of effort: (i) the development of frameworks for assessing and understanding the social processes of the ICM programme, and (ii) the trialling of platforms for dialogue, reflection and systems thinking. The first of these was discussed in Chapter 6, using the example of the Social Spaces Framework, and the second is reviewed here.

The ICM programme's ambitions as an engaged research endeavour relied on the creation of opportunities (or platforms) to enable multi-stakeholder dialogue, exchange and analysis of information, and collective problem solving. Furthermore, the transdisciplinary orientation of the programme specifically requires platforms that foster collaborative interpretation of both science- and non-science-generated information. The knowledge and skills to create such platforms are a fundamental part of the ICM programme's social learning capacity.

In this chapter I examine the experience of one particular sub-project in the ICM programme – Watershed Talk – which developed, implemented and evaluated a method for promoting the collective capacity of a diverse group of individuals to unpack and understand local environmental management problems. Importantly, the previous cases have described programmes where evaluation approaches have been used to introduce reflection

and formative learning in a number of spheres, i.e. to scope the problem situation, support programme management, improve capacity in the programme to enquire and problem solve, or aid research and programme development. In these programmes the evaluation has often been the only structured means of inquiry. In contrast the Watershed Talk project was designed to promote different levels of individual and group reflection, and the formal steps and techniques of P & D evaluation were fully embedded in the project as a fundamental means of delivering on the project's objectives, making the overall methodology for Watershed Talk grounded in P & D evaluation.

Another significant feature of the Watershed Talk project was its timing in relation to this thesis. Starting late in 2006 this project was an opportunity to test evolving ideas about social learning as a concept, and how to build social learning capacity in environmental management programmes. In particular Watershed Talk was set up to examine ways to address some of the key challenges of operationalising social learning identified by theorists and practitioners elsewhere (summarised in Chapter 2 section 2.3.1). The Watershed Talk project was also accompanied by rigorous debate and reflection among the project team and in this way represents the fifth action-research cycle in this thesis (see Chapter 1, Figure 1.2).

This chapter begins with an overview of the Watershed Talk project, and how it was intended to contribute to the ICM programme's social learning capacity needs. It then outlines the particular challenges of practice in social learning examined by the project. Subsequent sections review the design and implementation of Watershed Talk, and the outcomes. It follows with some observations on the strengths and limitations of the approach used in Watershed Talk, and its contribution to the social learning capacity of the ICM programme. The final section makes some observations on the shifts in practice and views around social learning during the length of the ICM programme, as a conclusion to the overall ICM programme case story.

7.2 Overview of the Watershed Talk project

Watershed Talk was an action-research sub-project within the ICM research programme, which ran from October 2006 to July 2007 (see summary Box 7.1).

Box 7.1 Watershed Talk: a platform for dialogue, reflection and systems thinking**Location:** Mouteka Catchment , Nelson region**Duration:** October 2006 – July 2007

Synopsis: Watershed Talk was an action-research sub-project within the ICM programme which trialled a platform for multi-stakeholder dialogue, and collaborative learning, meeting needs of the ICM programme for capacity development in this area. The premise to the project was that ways in which conversations are conducted around complex environmental issues can have consequences for the ongoing capacity of communities to adapt and respond to local concerns.

The platform rested on six core principles (respect, diversity, empowerment, reflection, generosity, and active cultivation). These principles were used to guide platform conception and implementation across the project phases of engagement, conversation, evaluation and feedback. Innovative techniques were employed to address common challenges of multi-stakeholder platforms such as addressing unequal power and voice, and adherence to a priori problem definitions. Over 8 months, 18 people from widely different backgrounds local to the Motueka Valley, or with strong local connections, took part in Watershed Talk. Participation involved individual interviews, take-home tasks, and attendance of two group meetings.

Evaluation activity: The previous cases describe programmes where evaluation approaches have been used to introduce reflection and formative learning in a number of spheres. In these programmes the evaluation has often been the only structured means of inquiry. In contrast the Watershed Talk project was designed to promote different levels of individual and group reflection, and methods of evaluation were fully embedded in the project as a fundamental means of delivering the project objectives. The evaluation methods used frequently had multiple purposes. For instance the individual interviews at the start and end of the project helped prepare participants for the meetings, and enabled them to reflect on their experiences. Also, the information from the interviews, coupled with feedback from a post-meeting questionnaire, were used to assess shifts in important social learning goals for the platform, i.e. shifts in content and process learning, and development of networks and relationships.

The outcomes of the project endorsed the idea that integration of P & D evaluation techniques into collaborative platforms for multi-stakeholder dialogue can support the capacity of groups to build both content and process knowledge around complex problems. An arguable limitation of the project was its applicability to politically constrained resource management settings.

Current status: The story of Watershed Talk was published in January 2009 (Atkinson et al. 2009). Negotiations continued with TDC staff interested in utilising ideas from Watershed Talk in local environmental planning.

Role in project: I was one of three team members carrying out Watershed Talk, along with ICM programme leader Andrew Fenemor and Maggie Atkinson, a local Nelson artist with a specialist interest in community and landscape. My role was as a social researcher with an interest in practices of engagement and dialogue. I was also the principal facilitator for the meetings.

Sources for case story: Formal reports, Watershed Talk publication, project notes, reflections with Watershed Talk team; and feedback on the Watershed Talk publication.

Its purpose was to trial a platform for multi-stakeholder dialogue, information sharing and collaborative learning, meeting needs of the ICM programme for capacity development in this area. The team members carrying out the work included the ICM programme leader Andrew Fenemor, Maggie Atkinson, a local Nelson artist with a specialist interest in community and landscape, and myself as a social researcher with an interest in practices of engagement and dialogue (Atkinson et al. 2009).

Over 8 months, 18 people from widely different backgrounds local to the Motueka Valley, or with strong local connections, took part in Watershed Talk. The project had four phases: engagement, conversation, evaluation, and feedback (Figure 7.1). Each phase had a number of activities and a reflection component. Participants went through the entire project, taking part in the activities in each phase, including individual interviews, take-home tasks, and attendance of group meetings (see Figure 7.1).

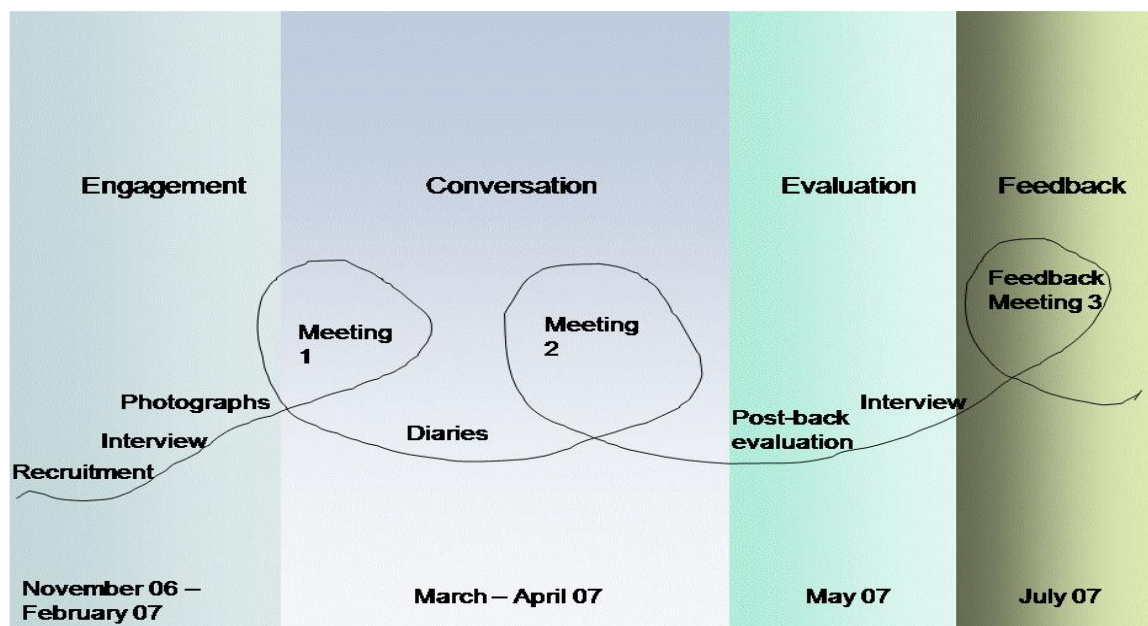


Figure 7.1 Phases and events of Watershed Talk

Platforms have both a physical and a process component. The former refers to the location and timing¹ of events and the latter refers to the way in which participants are engaged and conversation is facilitated. While it is common to consider platforms as single events, or groups (or even networks), in Watershed Talk all project phases were equally important to

¹ Timing of events includes both the time of day or season that events occur and their sequence alongside other influential activities – such as after those that build relationships, or occur before more formal proceedings.

establishing the conditions for dialogue and learning, not just the meetings which physically brought people together. Box 7.2 gives a summary of the phases and events in Watershed Talk.

Box 7.2 Phases and events of Watershed Talk
<p>Phase 1 Engagement: This phase of the project prepared the ground for individual participation and the capacity for dialogue at the meetings. Participants were actively recruited (rather than relying on self-selection). The pre-meeting time period was used to cultivate confidence and ability to take part.</p>
<p>Recruitment</p> <p>ICM programme contacts were asked to recommend participants who would bring diverse perspectives on the Motueka catchment, based on their different knowledge and experience. The project deliberately sought participants with particular qualities, including, being thoughtful, and good at sharing ideas in conversation as well as listening to others. Participants were not asked to represent an interest or a group, i.e. were not position-takers. Care went into contacting individuals, explaining the purpose of the project, the tasks that would be involved, and the likely time commitment. People were given an opportunity to withdraw from the project, (although only one did). The Travelling River exhibition catalogue (Atkinson et al. 2004) was offered as koha² to all who gave their time to assist in the recruitment phase. Two groups were formed of nine individuals each. Each group included one member who was a biophysical scientist undertaking research in the Motueka catchment and one member who worked in policy and planning for the TDC.</p>
<p>Pre-meeting interview</p> <p>Before the first meeting participants took part in an individual semi-structured interview lasting 1–2 hours (see Appendix 10) which asked them to reflect on their current views of how care and responsibility were manifest in the Motueka catchment. They considered their own knowledge and sources of information, their contacts, beliefs and values around the community and the Motueka environment. This was preparatory thinking for participants and provided baseline information for comparison in the final interview.</p>
<p>Pre-meeting task</p> <p>To assist conversation at the first meeting participants were asked to carry out a pre-meeting task. During their everyday activities in the catchment participants were asked to record, with a disposable camera, images that, to them, illustrated that <i>someone cares and is taking responsibility... or... No one is taking care and responsibility</i>. Participants could take up to 15 photographs, which were developed and returned to them. They then selected five images to talk about at the first meeting.</p>
<p>Phase 2 Conversation: Participants were placed in one of two groups which approximately coincided with their connections in the catchment. The venue for both groups and both meetings were the local community centres at Tapawera (upper reaches of the Motueka Catchment), and Ngatimoti (mid-catchment). The groups met twice at meetings held 2 weeks apart.</p>

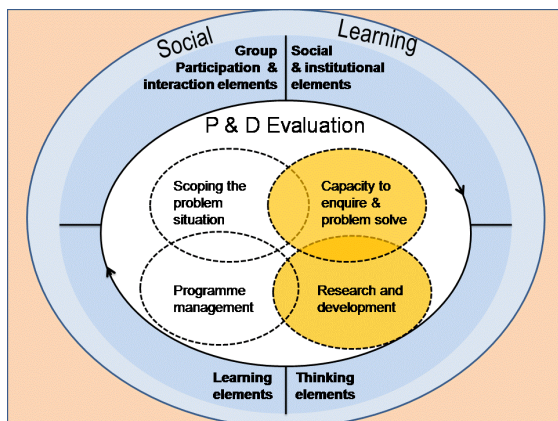
² Koha – Māori term meaning gift or appreciation.

<p>1st meeting. The purpose of the first meeting was to bring people together and open up the range of ideas about care and responsibility within the catchment. The overarching question was: <i>Is our catchment (the Motueka River) being cared for...and how do we recognise that?</i> The meeting was held in the evening, took 5 hours and there was a shared meal. It included: an icebreaker exercise; a presentation of participant's photographs; and discussion around the general themes of care for the catchment. It finished with outline of a take-home task; and the question for the next meeting.</p>
<p>2nd task – Diary: To provide continuity between meetings participants were asked to keep a diary of ideas, conversations and observations over the intervening 2 weeks. A prompt question was offered: <i>What is at the heart of building resilience (sustainability), and what are we going to do about it?</i> They were also asked to note any new concerns, new ways of thinking about an issue, creative opportunities, ways to work with others, or things they wanted to know more about.</p>
<p>2nd meeting: At the second meeting the groups looked closely at one issue, and considered how a community and/or individuals might respond. The topics were different for each group and reflected the emphasis that had been placed on these issues by participants during their first meeting. The Tapawera group discussed management of invasive weeds, and the Ngatimoti group discussed subdivision and changes in rural land use. The meeting was facilitated using techniques based on a soft-systems-methodology approach to complex problem solving (Checkland 1999). It included (i) expanding a problem from its original definition to identify and challenge underpinning assumptions, and make links to other parts of the problem system; and (ii) back-casting, i.e. asking participants to explore what the resolution to a problem might look like, then comparing this with current conditions, and considering what steps or options could link the current situation to the ideal.</p>
<p>Phase 3 Evaluation: Activities in this phase were aimed at learning about the strengths and limitations of the Watershed Talk platform, and any shifts in participants' thinking around care and responsibility in the catchment. The evaluations also promoted participants' own reflection.</p>
<p>Post-back evaluation: At the end of the second meeting participants were given a set of questions about the processes used during the two meetings to complete and return by post (Appendix 12); 15 out of the 18 participants returned the form.</p>
<p>2nd interview: A second, semi-structured interview was held with individuals approximately 3 weeks after the last group meeting (Appendix 11). This interview returned to issues discussed in the first interview and asked participants to reflect on any shifts in their views following taking part in Watershed Talk. This also provided a further opportunity for participants to reflect on their experience in the project.</p>
<p>Phase 4 Feedback: Initially feedback was intended to be via circulation of a summary of the project to all participants. However, participants expressed an interest in a joint meeting. This took place at the Ngati Moti community hall in July 2007. Members of both groups attended and a potluck meal was shared. A presentation was given on the preliminary results, and a discussion was held on the implications of being involved in such a project. All images taken as part of the project were on display and participants nominated those they would like to see in the final publication. A full copy of the final publication was later sent to all participants.</p>

There were three important contextual elements which shaped the development of the Watershed Talk project: (i) the specific needs of the ICM programme; (ii) prior experiences of platforms for dialogue and learning in the ICM programme; and (iii) the previous experiences of the Watershed Talk project team.

7.2.1 ICM programme needs

As a research programme with ambitions to contribute to real-time complex catchment management issues, the ICM programme faced a number of social learning challenges (Chapter 6, section 6.3). Particularly it needed some capacity to facilitate multi-party critical reflection around diverse sources of knowledge about the Motueka catchment. This meant integrating science and non-science knowledge, and assembling and interpreting data at a system-wide scale. Thus the design of platforms for multi-stakeholder dialogue and learning was an important element in the ICM programme. Furthermore, since there were no blueprints for how this should take place, this required not only development of capacity,



but also research into different kinds of approaches, and their relative merits. Using the framework of intersection between evaluation and social learning (see Figure 3.3 repeated here), the Watershed Talk project therefore contributed to the ICM programme's **capacity to enquire and problem solve**, and undertook **research** into the viability of particular methods for supporting multi-party

dialogue.

Another important aspect of the social learning capacity of the ICM programme was the relationship between the programme and the local environmental management agencies. Hitherto the ICM programme had made little ground in negotiating with TDC for an opportunity to integrate experimental and adaptive approaches to addressing environmental problems with ongoing management activities. The Watershed Talk project was consequently set up to operate outside regular resource management arrangements (but with TDC staff involvement). The hope was that this would provide a chance to both investigate and model new approaches to working with communities around complex environmental problem solving. However, it also ran the risk of Watershed Talk being regarded as 'nice

but irrelevant' when set alongside the constraints of what one TDC staff member referred to as the 'real world' resource management context.

7.2.2 Platforms for dialogue and learning in the ICM programme

Platforms for active dialogue between those with different interests and ways of seeing the Mouteka catchment had been trialled throughout the ICM programme. In each instance there was a point of difference and purpose which shaped the physical and process components (see Box 6.3). Examples include the Community Reference Group and the Sediment Learning Group. The Community group was set up with participants that reflected a diversity of interests and knowledge about the catchment. The intention was that the group become a constructive yet low risk space where researchers could develop new skills in presenting and discussing their work, and develop a better understanding of the problem context in which their research was situated. The Sediment group, in contrast, was a group of selected experts (practitioners and researchers), that met over 18 months to generate a shared system-wide understanding of sediment management in the catchment.

Both previous examples contrast with the River Gravel workshop, which was a single-day event focused on bringing together views on a specific and longstanding resource management problem – the extraction of river gravels from the Motueka River and its tributaries. However, although the workshop itself took place over one day, it was positioned in a continuum of relationship-building events over several years that enabled a more frank exchange of views than would normally be possible.

Watershed Talk borrowed something from each of these platform experiences with the ICM programme. Participants in Watershed Talk, like those in the Community Reference Group, were not selected as representatives of particular interests but were those who would bring different perspectives as scientists, artists, tangata whenua, farmers, policymakers, long-term residents or newcomers to the community. Watershed Talk also used workshop events, and developed specific facilitation devices designed to short-cut the trust-building necessary to enable open discussion. As with the Sediment group, facilitation of the workshops promoted system wide understanding rather than resting with a priori definitions of problems and their boundaries.

7.2.3 Previous experience of the Watershed Talk team

The three team members of Watershed Talk had worked together previously on the arts³ collaboration project Mountains to Sea which created the Travelling River exhibition (Atkinson et al. 2004; Kilvington & Horn 2006). The genesis for Watershed Talk came out of this experience. In particular, questions had arisen about whether the range of ideas on well-being, and the sometimes even seemingly opposed notions of care for the catchment environment, expressed by different people through the exhibition could be reconciled, or, even further, be used to facilitate learning, action and change in communities. As a team we were interested in a project that would start from the premise that such values existed, and were diverse in their expression, and the challenge was to use these as a basis for growing community capacity to tackle concerns. We also wanted to learn how much could be gained from establishing platforms for dialogue-and-learning that were not foremost about addressing a particular issue but on fostering the ability for meaningful conversation and problem solving.

Finally, the project team wanted Watershed Talk to leave a legacy with participants – specifically a shift in their individual capability and collective capacity for learning, problem solving, and action. In their work on cooperative inquiry Heron and Reason (2001) make a distinction between transformative and informative inquiry culture in action-research. In informative-oriented inquiry, actions are chosen on the basis, firstly, of how much information they are likely to generate on the phenomena in question. In contrast, if the aim is to be transformative, actions are chosen for their likely impact and any information generated about this is a secondary output. The culture of inquiry at the heart of Watershed Talk was primarily transformative, and the action elements were aimed at creating opportunity for dialogue and learning. These included who was engaged as participants in the project, how they were brought together, and what processes were used to generate good dialogue. The reflection or evaluation elements were opportunities to observe shifts and changes (i.e. be informative), and to critique the effectiveness of the actions. However, the location of evaluation as critical to the project was not merely to ensure the learning of the project team, but was recognition that processes of reflection play a pivotal role in cementing observations and new learning. Thus reflection by the participants was

³ Artsci is a common abbreviation for projects which unite artists and scientists.

supported at every phase of the project (see Figure 6.1), through the initial interviews, the photographic pre-meeting task, diary exercise, post-back evaluation, and final interview.

7.3 Addressing social learning challenges in Watershed Talk

The Watershed Talk project incorporated central theoretical elements of social learning, and explored some of the challenges to the practical application of social learning already noted elsewhere (Chapter 2 section 2.3.1). Many of these challenges are common to all multi-party deliberations such as managing differential degrees of power and influence. Others are more specific to social learning, such as flexibility in administrative systems to enable more experimental and adaptive approaches to planning and decision-making. Given the breadth of the social learning concept it was important to bound the project as being about ‘improving the social learning capacity of the situation’ and to make some specific choices around which aspects of the inherent social learning potential were most amenable to improvement. Consequently Watershed Talk concentrated on three particular issues: (i) dealing with barriers to learning, (ii) addressing ‘too early’ and a priori problem definition, and (iii) managing an open-ended dialogue process.

Firstly, in the practice of implementing social-learning-oriented initiatives, a number of authors had observed barriers to learning. These include inability to motivate learning in non-crisis situations and, somewhat ironically, successful learning of the ‘single loop’ variety which can result in a reluctance to look at more fundamental aspects of a situation. Learning barriers are also intimately related to issues of power and confidence. In group settings it is a well-observed phenomenon that existing power dynamics influence the dominance or otherwise of particular voices. However, of equal importance can be assumptions by participants about what knowledge is valid and, consequently, who is most readily believed. An example of this is the tension between expert and non-expert. Where specific individuals or groups are regarded as experts, it can happen that other stakeholders attribute proficiency beyond the boundaries of the actual knowledge they hold, i.e. because they are acknowledged for their contribution in one area their opinion is preferentially valued in other areas. Similarly, the image a stakeholder has about their own capacities and roles (their auto-image) may differ significantly from that held by other stakeholders, and may result in self-limitation of a participant’s possible contribution (Craps 2003).

This phenomenon is particularly important in the context of Watershed Talk, as the intention was to design a platform that could inform the practice of transdisciplinary research which rests on the successful integration of science- and non-science-derived knowledge about situations. Both groups in Watershed Talk had a participant who was a scientist working on environmental science questions in the catchment, and a participant who worked in planning and policy for the local government agency (TDC). Both scientists and local authority staff are commonly regarded (and often regard themselves) as experts. The challenge in a dialogue situation aimed at maximising the potential contribution from a variety of sources is to apportion expertise more widely among the participants, and to counter the effect of preferential bias towards particular individuals.

Secondly, in collective problem-solving situations, there can be a tendency to leap to a solution without sufficient consideration of critical and influential elements. What may predicate this is the acceptance of a priori problem definitions. Problem statements issued by authoritative voices (such as agencies, NGO spokes-groups, and key political figures) can be among the most powerful assumptions underpinning complex problems (Tàbara & Pahl-Wostl 2007). A consequence of this is that while the need for multiple perspectives on issues is increasingly recognised, less acknowledged (and consequently less likely to be addressed) is the need for wider thinking to be employed prior to establishing the boundaries of a problem situation. Introducing systems thinking at the stage of problem definition in multi-party dialogue situations can be challenging, with participants feeling an understandable resistance to 'stepping backwards' and the sense of anti-progression that this phase of discussion can engender. Related to this is a third issue, important to developing Watershed Talk as a social learning platform: how to create a space for an open ended result (Bouwen & Taillieu 2004). This includes considering how the 'unexpected' can be accommodated in a multi-party dialogue situation while still meeting the very real need for participants to have a satisfactory sense of direction and purpose.

Finally, one of the recognised challenges for social learning is integration with existing decision-making institutional arrangements. The primary purpose of Watershed Talk was to generate an opportunity for good (even transformative) dialogue, and by operating independently of formal planning and environmental management structures the process was not bound by conventions that surround local government consultation exercises.

Nevertheless, the Watershed Talk project offered an opportunity to postulate distinctions in process between what was termed ‘resilience oriented approaches’ to collective problem solving, and approaches to engagement with public, sectors and interest groups conventionally employed in addressing local issues. These resilience-oriented approaches are those that have an intention to develop community capacity for learning and change through enhancing individual and social capital. Table 7.1 made a coarse comparison between conventional and resilience approaches to public deliberation. Making these comparisons from outside the constraints of formal processes may seem contrived; however, TDC staff who took part in Watershed Talk found the consequences of employing a different approach genuinely novel and expressed interest in the potential application in mainstream events.

Table 7.1 Traditional and resilience approaches to problem solving⁴

Challenges with traditional approaches to problem solving	What resilience approaches can offer
Reinforce existing power arrangements (loudest voice, most popular, most influential)	Look to different expressions of leadership in participants
Efficiency focused, e.g. one stakeholder representative	Abundance of ideas (generosity, profusion, wealth)
Favours a priori understanding of the problem	Problem revealed, reinterpreted by participants
Generates polarity of viewpoints	Respects and relies on diversity and fosters commonality
Often based on extraction of information for use by ‘official’ decision-makers	Important for all participants to be learning and participating in decision-making
Focused on reaching a decision	Interested in what goes on beyond decision, i.e. shifts in view, values, action
Unconscious learning about negative social interaction	Conscious what messages about social interaction are modelled

⁴ This table was compiled by me for the Watershed Talk public outreach document (Atkinson et al. 2009).

Summary of social learning challenges addressed in Watershed Talk

The Watershed Talk project was an opportunity to bring together diverse knowledge sources on local Motueka catchment issues. It was also a chance to develop a platform for dialogue, learning and systems thinking that had a clearly articulated theory of learning at its basis, and which was addressing specific social learning challenges, i.e. (i) barriers to learning, (ii) too early / a priori problem definition, (iii) managing open-ended processes.

The challenges of methodology for the project were to develop means to build trust and self-efficacy; mitigate the effect of preconceptions about roles, knowledge and contributions among participants; and introduce a systems thinking approach to addressing complex issues; all within a limited time frame (6 months) – as well as leave a legacy for participants of enhanced skills in collective problem-solving.

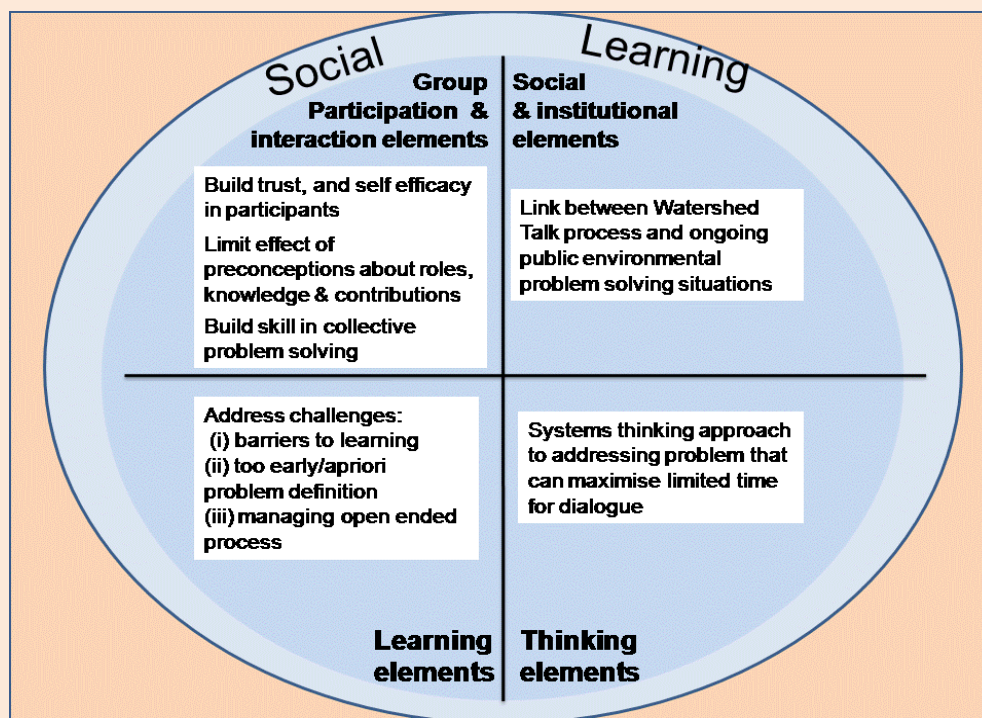


Figure 7.2 Aspects of social learning addressed in Watershed Talk

The Watershed Talk project was designed to meet and explore challenges across all four quadrants of Social Learning Framework (Chapter 2 Figure 7.2). However, its weakest contribution was its link with ongoing public environmental problem solving situations. By setting up the project to work outside the constraints of prescribed formats for public meeting and problem solving, Watershed talk was able to employ an approach to dialogue

about local issues that could circumvent predetermined problem definitions dictated by interests of management agencies. However, this exposed Watershed Talk to criticisms that it lacked realism since it did not have to deliver on political or social expectations.

7.4 Design of Watershed Talk

There are two features of the design of Watershed Talk it is useful to explore more fully: (i) the use of principle based design, and (ii) the integration of evaluation to support both learning and development for the project team and participants.

7.4.1 Design principles

With the previously discussed social learning challenges in mind, the design of Watershed talk was based on ideas that were well rehearsed in settings of community development, dialogue, conflict management and participatory action research. These included: affirmative questioning (derived from appreciate inquiry; Cooperrider & Srivastva 2001) and an approach to conversation termed ‘camping out’ where the tendency for ‘quick answers’ is deliberately constrained (derived from work on conflict resolution by Kahane 2004). Concepts from Checkland’s (1999) soft system’s methodology were employed in the problem scoping process in meeting two; and the idea that formal shared meals can support civil conversation was borrowed from the work of Cronin and Jackson (2004), who used this in their exploration of ways to promote dialogue on biotechnology in New Zealand.

The project team also decided on a set of core principles as a basis to the work practice. These were **respect, diversity, empowerment, reflection, generosity, and active cultivation**. Box 7.3 expands on these principles and their use in Watershed Talk.

Box 7.3 Core principles in Watershed Talk

Respect for the unique contribution and potential of all participants was an important guiding ethos for the Watershed Talk project team. This manifest as respect for views, and knowledge, as well as time and effort, and was expressed as much through the courtesy of how people were contacted, as in the active facilitation of meetings.

Diversity is a recognised factor for resilience and therefore an important ingredient in conversational approaches that are designed to contribute to community resilience outcomes (Walker & Salt 2006). In Watershed Talk this was reflected through the wide range of views, knowledge and standpoints of the invited participants, who included scientists, TD staff, landowners, artists, tangata whenua, teachers, hunters, people new to the district and those who had long family histories in the area.

Good conversations do not just happen and the Watershed Talk project considered ways of **empowering** participants with confidence in the value of their own contribution as well as creating good conditions for open discussion. Similarly, fostering **reflection** for individuals and groups can help reveal to them their own knowledge and enable them to reach beyond initial assumptions and ideas. Reflecting on what has been newly discovered (through evaluation) is also a way of reinforcing this new knowledge.

Finally, in Watershed Talk there was an interest in exploring how the idea of **generosity** could be used as a counter notion to scarcity which is commonly associated with resource management conversations. As one project participant observed: *Generosity – it is actually so easy to do something that will change the whole tenor of an interaction or situation.* Enacting these principles relies on **active cultivation**, and consistent reflection on the effect of actions, rather than adherence to formula.

7.4.2 Evaluation, learning and development in Watershed Talk

To address the informative intention of the project three mechanisms were employed: a post-meeting evaluation, project team reflection, and participant interviews. Firstly, post-back evaluation forms were completed by participants immediately after the second group meeting (Appendix 12). These forms asked participants to comment on and critique various aspects of the meeting events and encouraged participants to think through their experience and make some record of their observations, reinforcing this new knowledge. Secondly, as facilitators of the meetings Maggie Atkinson and I reviewed our observations after each session, noting comments and actions from participants that were illustrative of different responses to the engagement and facilitation activities we had designed. In so doing we were conscious of the need to look for what was confirming, disconfirming or unexpected.

Thirdly, interviews were held with participants at the beginning of the project (Appendix 10) and again 2–3 weeks after the final meeting (Appendix 11). The interviews were semi-structured and conversational, but designed to reveal information that would help assess the value of the Watershed Talk project as a social learning platform. Specifically they were set up to assess shifts in participants' content knowledge (i.e. knowledge about the Motueka catchment) as well as learning receptiveness of the individual, knowledge of and trust in networks and resources; and knowledge and confidence in processes for collective reflection and problem solving. For instance, while participants were questioned on what they thought about the Motueka catchment and what was of concern to them (e.g. *I notice the low water levels over the last few summers – is the Motueka River drying out?*), the interview also explored how they built their knowledge about this, what networks and resources they used, what their capacity for collective problem-solving might be. These three areas of potential change for participants were derived from both social learning theory, and ideas about social capital and community resilience (Gunderson 1999; Walker & Salt 2006).

Looking for evidence of learning is methodologically challenging. In Watershed Talk we used the term 'learning receptiveness' to indicate the degree to which the person is open to or curious about building their knowledge. Further, our supposition is that awareness of the state of one's own knowledge is a precursor to shifts in learning receptiveness. Thus in Watershed Talk we chose a particular progression of awareness to indicate shifts in learning receptiveness: movement from I know what I know, to I know what I don't know, to I don't know what I don't know (see Box 7.4).

Box 7.4 Shifts in learning receptiveness

I know what I know – Being aware and confident in the knowledge that is already held is not the default position for people. What was observed through Watershed Talk was that there was varying degrees of trust and doubt expressed by participants about the content and level of their knowledge about the catchment, and in particular how relevant that knowledge might be to others. For instance one participant asserted that they believed their knowledge to be *better than some because I have lived here all my life*. In contrast another participant said that she considered her level of knowledge about the Motueka catchment to be *pathetic...don't know what the rocks are...don't know what else lives in the river apart from cockabullies and trout*. Another participant commented that their knowledge about the catchment was *50% historical...from living here about the place...reading local papers...talking with people*. Of these responses only one makes any comment on the actual nature of the knowledge they believe they hold (historical) and how they come to have this. The first comment is not about knowledge but rather a confidence expressed in the value of having a long history of connection with the catchment and the second respondent leaps immediately to areas of information she feels herself to be lacking.

Awareness of what a person has to offer to a collective problem-solving situation is important and for many participants in Watershed Talk the project served first to highlight knowledge that they had hitherto been unaware of. This led to increased confidence in their contribution.

I know what I don't know – Having formed some sense of the knowledge and potential contribution already held can be a platform for a more specific awareness of knowledge that is lacking. This goes beyond the generic 'I don't know anything' to a specified curiosity. For instance one participant observed: *I'd like to know how to go about changing many of the things we have talked about*, highlighting a need for knowledge about processes of influence and change in the community.

I don't know what I don't know – in this state of learning receptiveness we were looking for indicators not of abnegation but an opening to the possibility that there were important contributions and sources of knowledge that had not previously been thought of. For indicators of this we looked principally to expressions of surprise. The comment below made by a participant, reflecting on the Watershed Talk project, is an example of this.

It was the design that went further than my preconceptions, which were – a bunch of greenies sitting around expounding our philosophies and finding some common ground, but in fact we went further – it was more sophisticated than I thought it would be. Preconceptions can always be broken down and reassembled.

7.5 Watershed Talk in action

There are multiple strands to building an effective platform for social learning. This section looks at some specific elements in the phases of engagement and conversation (Figure 6.1) and how they addressed the specific methodological issues and social learning challenges outlined in Figure 6.2.

7.5.1 Engagement – building capacity for conversation

Engagement is the first phase of collective and participatory projects of all kinds. In Watershed Talk this stage was equally regarded as an opportunity to foster confidence and curiosity in participants as a matter of getting people around the table. In the first instance participants were specifically invited to take part and moreover were nominated by others in their community. This had implications for both their willingness and self-assurance in doing so. As one participant commented: *I chose to be part because of the selection process – was impressed someone had nominated me*. The agency of the person involved in the recruitment (in Watershed Talk this role was done by Maggie Atkinson) can also be a powerful influence on the preparedness of participants. Through her commitment to the principle of respect Maggie Atkinson was able to convey a high degree of value for an individual's contribution and to cultivate enthusiasm, and a sense of reciprocity and generosity among participants.

Secondly, the initial interviews asked people to identify and reflect on their personal connection with the catchment and their thoughts about how they, and others, were expressing care and responsibility towards it. This was the first opportunity in the project for people to consider what **did** they actually know about their home environment, both positive and negative. This process of reflection on views and knowledge already held (although not always consciously) was further supported by the pre-meeting photographic exercise where participants recorded images with a disposable camera, in response to the prompts:

'someone cares and is taking responsibility' and *'no one is taking care and responsibility'*.

The idea for the photograph exercise derived from work in the Travelling River project and from conversations with the landscape ecologist Joan Nassauer during her visit to the region in 2006. The concept was novel and proved effective in several ways. In the first instance, the purposeful taking of photographs of everyday scenes required participants to look more

closely and to make conscious judgements about what they saw, e.g. *I like this; this is bad; this is useful; this is puzzling*. Furthermore, the photographs themselves provided participants with a pre-prepared starting point for talking at the first meeting, which gave them confidence and a sense of their own authority on the catchment.

The use of creative arts to facilitate individual and group learning and communication has some precedence in participatory community development (e.g. Lykes 2001). Nemes et al. (2007, p. 9) have even presented an interesting case for the use of collaborative video in participatory evaluation, arguing that *participatory video enables self expression, and can bypass some of the formal institutionalisations of knowledge that prevent the expression of participant's needs and thinking*; They rest their claim on what they contend is the *inherent visual literacy* of participants (ibid.). Hayward (2000, p. 266), also makes a link between the creative arts and social learning in environmental policy and planning through her discussion of the notion of 'talk-plus':

...inclusive deliberation and social learning requires more than an opportunity to participate through critical argument. The conditions of talk-plus require that a variety of deliberative techniques such as visualisation, story-telling, discursive media and community activities are required to encourage social learning.

The act of taking images to both crystallise and convey ideas, also corresponds to Heron and Reason's (2001, p. 183) construct of *presentational knowing*. In their work on cooperative inquiry Heron and Reason identify what they term a *radical epistemology* of four different ways of knowing: (i) *experiential knowing* – through direct face to face encounter; (ii) *presentational knowing* – which articulates the meaning and significance of experiential knowing through expressive forms of imagery such as painting, sculpture, poetry, or music; (iii) *propositional knowing* – which emerges through ideas and theories and is communicated through informative statements; and (iv) *practical knowing* – which is knowing 'how to do something' and is conveyed via a skill, or competence. Heron and Reason (ibid., p. 183) go on to argue for the need to take all forms of knowing into account in cooperative inquiry:

In co-operative inquiry we say that knowing will be more valid if these four ways of knowing are congruent with each other: if knowing is grounded in our experience, expressed through stories and images, understood through theories which make sense to us and expressed in worthwhile action in our lives.

In Watershed Talk the pre-meeting interview and the photography exercise helped reveal to participants' their sense of connectivity with their environment. They also enabled participants to build clarity and gain confidence to introduce both themselves and their ideas to a group of mostly strangers: As one Watershed Talk participant commented:

I found the pre-meeting tasks very useful and thought provoking – gave you a chance to show how you felt – and with time to organise rather than being put on the spot.

7.5.2 Creative conversation

In Watershed Talk the characteristics of a good learning environment (see Chapter 6 section 6.5.2) were regarded as emergent properties, manifest not just from static arrangements established at the outset of the project but from facilitative activities that progress the conversation from moment to moment. Paying attention to both the physical and process aspects of the dialogue platform is important, and specific leverage points for building the conversational opportunity of Watershed Talk included: (i) who was taking part; (ii) the venue and climate; and (iii) particular facilitative devices that: build trust between participants (and the research team), create equal opportunity for contribution to discussion, and foster confidence in the comparatively slow process of revealing and developing understanding.

Participant profile – who took part

A result of the deliberate recruitment of participants in Watershed Talk was a high degree of diversity in interest, experience and history with the catchment. Furthermore, by relying on recommendations the recruitment process also revealed some of the values commonly respected in others such as a quiet leadership or respected knowledge, that can be overlooked in processes that rely on volunteers or use familiar figures as representatives of a 'community view'. This ability to direct participation through Watershed Talk could be considered a luxury. However, participants of Watershed Talk themselves observed that a deterrent to their involvement in conventional public processes was the tendency for these to attract the same people, who are confident (even dogmatic) in expressing their views and over time have developed a rigidity in their approach to solving problems. As one

Watershed Talk participant observed:

At the moment they [TDC] only hear from people motivated enough to come in to them – writing or coming in – often business sector – someone with a bee-in-their-bonnet. Would be nice to meet the ordinary people...

Participants also valued being invited for themselves and not for their representation of any interest, or sector, or for their symbolic importance. This enabled them to be more intuitively responsive in the conversation, able to shift and change rather than hold on to positions.

Venue and climate

Watershed Talk drew on Kahane's (2004) 'camping out' methodology of running a discussion, i.e. fostering the willingness to sit with a degree of uncertainty about the direction of conversation. Such willingness can be enhanced by the theatre of the engagement. In Watershed Talk this included using a venue that was communal, familiar and non-institutional; and sharing a catered meal. Cronin and Jackson (2004) used the process of a formal shared meal to disrupt confrontational dynamics between would-be protagonists in the biotechnology debate. Watershed Talk similarly explored the potential for this to create an atmosphere of gratitude (the prepared meal expressed appreciation for effort and time) and to expedite familiarity and ease between participants. The following comment by a participant illustrates how this was experienced:

Creating a neutral forum, or a space within a more formal space which can act like pushing a refresh button...like you can't be killing someone if you are busy sharing food with them!

From discussion with the participants in Watershed Talk, including the local government staff members, it appears that the relationship between the formula of an event, those who participate and the quality of the dialogue is widely appreciated. This is surprising given how uncommon it is that public meetings make use of relatively simple and low-cost strategies to disrupt non-productive dynamics, such as actively encouraging those who do not traditionally participate, or holding meetings in informal settings, and including gestures of appreciation.

Conversational devices

The conversations conducted through Watershed Talk were constructed to enable participants to explore familiar ideas and objects in a different context. Ultimately the style of facilitation in Watershed Talk was pragmatically driven by the expertise and preferences of the research team. However, regardless of what structure had been put in place, active and attentive facilitation was needed. In the Watershed Talk meetings the facilitators looked for particular indicators to reflect on whether openness and trust were being built when potentially conflicting values or ideas were exchanged. These included participants staying engaged and contributing, being able to express and accommodate different values, relaxing into different kinds of meetings and groups, and contributing to strategies of repair if dialogue broke down.

Two particular conversational devices were used to support the overall facilitation of Watershed Talk meetings. These were the ‘icebreaker’ map exercise and the conversational use of the participants’ photographs.

Icebreaker map exercise



Given that the opportunities for dialogue between the participants in Watershed Talk were comparatively limited (i.e. only two meetings) we were interested in ways to swiftly foster connections between participants that would ease candid conversation. To this end the first meeting began with the icebreaker map exercise. Participants in each group were asked to speak about their connection to the catchment using a visual prompt of a map of the Motueka Valley (Figure 7.3).

Figure 7.3 Map used for the ‘ice-breaker’ exercise⁵.

⁵ Courtesy Pete Frew, Tasman District Council.

This map was intentionally obscure, (only the two settlements where meetings were held and the Motueka Township were named) and thus relied on participants' local knowledge to interpret. While this was firstly an approach to elicit information from individuals about their association with the catchment which they could easily share amongst the group, it rapidly became a joint project as participants physically got up to help locate places and interpret the map. This was a comparatively simple but surprisingly powerful device that tapped into the practical knowledge of participants, and built rapport.

Photographic exercise

From the initial introduction stage the meeting moved into the presentation of the photographs that each participant had taken. The inclusion of participants' photography, as a visual representation participant's ideas, played a galvanising role in the project. As one participant observed: *...great tools in the project – like those photos. For me they were a really good way of getting people connected...a tool to talk about things. People focused more on the pictures than themselves.*

The photographs proved a catalyst for collective conversation for a number of reasons. Firstly the act of taking the photographs had been a reflective exercise for participants, pre-preparing them with formulated ideas to share with others. In addition, all the photographs had been developed to the same dimensions and quality so the presentation for each person took the same basic form and was without tacit expressions of power or authority. Rather, the presentations were a direct reflection of areas of the participant's own competency, about which they could speak with a high degree of self-assurance.

Secondly, the use of visual aids stimulated responses at multiple levels. People found they had taken the same images for different reasons or different images to express a similar issue or value. This use of the photographs thus shifted people's levels of connection from the mundane (we live in the same place, our children go to the same school) to the substantive (we share ideas and perceptions). Furthermore this rapidly moved people beyond cursory assumptions and judgements of their fellow group members. Previously held views about types of people present in the group, such as *greenies, pig hunters, farmers, scientists* and *council staff*, were turned on their head. As one participant reflected: *...you might have a lot more in common with someone than you think you have.*

Beyond the commonality of ideas, a shared set of values, ethics or principles might be discovered. As one participant observed, in the past they would have dismissed some people's values but now they saw that it was possible to have divergent views on life but still have convergence over *what was right!* In particular inviting scientists and staff from the local authority to take part in a forum where effort had gone into equalising the status of all participants clearly shifted attitudes, if not to these groups as a whole, at least to the individuals who took part in the meetings. As one participant commented: *I had never met scientists before – my expected stereotype didn't fit!*

The shift in the way the scientists and TDC staff were regarded led to greater trust in the information coming from these people. In both groups people expressed a view that something said by the TDC person or the scientist had changed their minds on things, and that it was *reassuring that people of that calibre are in such positions*. This is in contrast to public meetings where information presented by local authorities, scientists or other public service professionals can be treated with scepticism and suspicion (Corburn 2005).

However, there was an unexpected side-effect to this increased trust. The efforts to construct an equality of value in the contributions of participants did not quite disrupt the tendency towards expanded notions of legitimacy – particularly on the part of the presentations given by the scientists. The facilitators noted a readiness to surrender authority when scientists spoke and to accord information offered by the scientists more weight than that of other participants.

At the close of the project, the research team discovered an unplanned-for use for the photographs, as a prompt for inquiry into how participants' views had changed over the project. In the follow-up interviews participants were shown thumbnails of all the photos they had taken and asked: *would you view any of your photos differently now?* While around half said *no*, a variety of responses arose from the remainder. Most insights revolved around changes in understanding of an issue highlighted in the photographs they had taken, while some commented that they thought differently about levels of knowledge and interest of others that had been revealed through the conversation around their images, e.g. *It surprised me that the images I showed were new to some who were there. What I thought was normal farming practice and good for the environment...was new to others*. Reviewing their thoughts on the photos at the end of the project acted as a form of closure, helping participants recognise the gains and changes from taking part in the project.

Table 7.2 summarise the benefits of using photography to support initiatives aimed at collaboration and dialogue. It can contribute to individual or group capacity as well as work with the overall development of the programme, supporting internal and/or external assessment of progress and change. This way of using photography is not unique and similar interventions have been used elsewhere to support difficult and complex conversations.

Table 7.2 Using photography in collaboration and dialogue processes

Individual	Reflection	The physical act of photography works as a stimulus to ‘look twice’ at everyday scenes and question existing interpretations of these.
	Knowledge building	This results in a conscious (and unconscious) assembly of information, seeking out meaning and determining patterns.
	Self-efficacy	Presentation of a participants own ‘research’ in their own voice gives authority and empowers individuals to make a more confident contribution in a collective setting.
Collective	Communication	The images themselves present a rich and readily conveyed source of ideas and values, easily coupled to the participants own story. This makes for an accessible and comfortable interchange between participants.
	Relationship building	The presentation of individual visual stories of the catchment sends signals of common concerns, and shared views, and recognition that even where there are differing perspectives this does not necessarily negate other common values.
	Collaborative learning	The presentation of the images creates conversational bridges. As presentations are made they build upon one another and the images become reference points for discussion that leads to assessment and reinterpretation of information, ideas and values around the collective imagery as a whole (which is in itself a window into the underlying subject, i.e. the well-being of the Mouteka catchment).
Programme	Evaluation	Both the act of photography and the images themselves can form part of a participatory developmental evaluation, supporting endogenous reflection and information gathering, and enabling more exogenous assessment of changes for participants.

These observations on the use of photography in work with communities in Guatemala parallel experiences in Watershed Talk:

The photograph creates its own story and became a site for wider participatory storytelling and analysis. It represents the photographer's perspective or point of view but then becomes a stimulus for the group's reflections, discussions, analysis and representations. The fixed image serves as a catalyst for an ever-widening discussion of the differing realities that are present... (Lykes 2001, p.369)

Problem-solving facilitation

The use of the photographs and the story-telling that accompanied them was not just a means of sharing participant's values. A great deal of content material about the Motueka catchment, common concerns and emerging challenges was passed on and processed through the individual presentations. This material formed the basis for the selection of a particular area of inquiry for the second group meeting. Thus all participants had a hand in shaping what was perceived as an issue, and no initial assumptions were made on the way a problem should be constructed. The impact of this approach was not lost on participants, at a later meeting with local authority staff from Nelson City Council and TDC, one former Watershed Talk project participant commented on the difference in process used in the project, noting: *Opening people up on their values is such a different starting point*⁶.

There were three stages to the inquiry process at the second group meeting:

1. Unpacking the problem – challenging participants to explore what was going on, and what evidence they had to support this. Participants were facilitated in creating a mind-map of issues and connections to the central problem question.
2. Using a back-casting approach participants were asked to envisage a desirable future – what would things look like if this problem was competently addressed.
3. Participants were asked to consider what strategies might link the existing scenario as they had described it, with the 'ideal future'.

The format of this approach to group problem-solving has its roots in Checkland's (1999) systems' thinking practice, and it has been adapted and frequently used by researchers in the CLEM group in various contexts (e.g. Allen et al. 1998) The value of the approach is that it enables a wide scoping of the problem before coming to conclusions about actions, and an

⁶ Notes taken at a Tasman District Council/Nelson City Council meeting: Maggie Atkinson, 9 June 2009.

examination of the underpinning assumptions about the problem situation. For instance, during discussions about infestation of old man's beard (*Clematis vitalba*) in the Motueka, the Tapawera group explored what might incentivise communities and landowners to take action on weed and pest problems, and questioned whether this was a reasonable expectation of people or whether they would rather just pay their rates and rely on the local council.

7.6 Outcomes of Watershed Talk – content and process learning

An important feature of Watershed Talk was the intent to foster greater understanding and capacity in content and process aspects of problem solving (see Chapter 2 section 2.2.3), signalled by new knowledge gained in these areas as well as shifts in learning receptiveness (Box 7.3). This was assessed through the interviews, the evaluation questionnaire, and the project team's observations. In the Watershed Talk project, indicators of changes in content capacity included that participants had gained new knowledge about the state of the Motueka catchment, and had learnt about their own personal interests and values associated with it, as well as those of others. Furthermore the project team looked for signals that participants had an increased understanding of the different elements important to the problem they discussed in their groups (i.e. land use change and invasive weeds), and had learnt about, and considered, possible solutions. In addition it was an equally important outcome of the project to ascertain whether participants had developed any new ideas about methods, tools or strategies for communicating with others and collectively reaching decisions (process aspects of problem solving). Finally in the assessment the project team also looked at whether involvement in Watershed Talk had furthered an individual and collective sense of responsibility and empowerment to act. These latter shifts are analogous to the notion of *moral development* outlined by Weblert et al. (1995) discussed earlier in chapter 2.

From the various assessments it was apparent that participants had experienced both content and process learning, and the project had impacted on participant's overall learning receptivity. The public document generated from Watershed Talk (Atkinson et al. 2009) identified four subsets of this shifting knowledge, capacity, and sense of responsibility:

- Altered ideas about the Motueka catchment and its community

- Personal changes in how individuals see their own role and that of others
- Changes in ideas about how to meet with others and problem solve
- Preparedness for further engagement and action

7.6.1 Altered ideas about the Motueka catchment and its community

Overall, the combination of reflecting, presenting, discussing and reflecting again through the Watershed Talk process meant that participants developed a greater sense of the way care and responsibility already manifests in the catchment, and became more conscious of their own level of knowledge and ability. There was also evidence of participants speculating on what kinds of individual and collective knowledge was important for long-term sustainable management of the Motueka catchment.

In the first instance, the individual presentations of the photographs of the catchment raised a large number of issues about the Motueka catchment and its communities. Many of these fell into the category of concerns about the environment and the impact existing land-use practices might have on this (e.g. is irrigation causing the Motueka River to dry out?). There was also apprehension about the negative impact of invasive pests and weeds (e.g. old man's beard, and *Didymo*), as well as concern over the sometimes controversial measures taken by authorities to address these issues (e.g. possum control using 1080 poison). Another constellation of issues were associated with the unknown impact of likely future trends such as population and demographic changes, or raising energy prices. What was noticeable was that participants early on identified these issues as complex and in need of resolution but not the fault or responsibility of any one agent. The project team speculated that this may have been a consequence of the ethos under which the project had been initiated (the phrase *avoiding finger pointing* was included in the promotional material). It may also have been a result of the diversity of the participants which gave the groups insight into the motives and challenges of a wide range of people in the catchment, and moreover gave these a personal face in the discussion.

Discussion on the issues raised through the photographic exercise occurred not just during the structured, problem-solving part of the second meeting but throughout both meetings. Participants followed up their personal observations by listening to those of others, hearing at times views that confirmed or contradicted their own,. By debating the significance of

what they heard, and incorporating new information, their own views were modified. Similarly sometimes participants reassessed the priority or importance of their original views, when fresh information placed their previous understanding in a new light.

The project team observed a shift for most participants in their thoughts about the scope of their personal knowledge, what knowledge was held collectively and what was needed by the community to address the kinds of problems likely now and in the future – moving from what was sometimes ambivalence around knowledge and its importance to observing: *We collectively have the knowledge – but it may be spread about – so there is real benefit in working together.* People also thought about what changes to current institutional approaches would be required to draw out and share knowledge from multiple sources to get more inclusive and integrated community ownership of knowledge at a catchment scale.

This project has given me cause to actually reflect on my actual knowledge about networks in the Motueka River catchment and the kinds of networks council could consider engaging with in some targeted way, rather than some passive random way. And questioning whether there are better conduits for knowledge dissemination [Watershed Talk participant].

7.6.2 Seeing self and others

In addition to changes to the way individuals thought about what was going on in the catchment, the project team, and the participants themselves, noted several changes to the way participants viewed their own role in how the catchment was managed, and how they regarded the contributions of others. At the first interviews and even at the first meetings participants expressed doubt and cynicism about whether people did show care and take responsibility for the catchment and its community. Notably, many photos people had taken and used in the meetings were not of taking care but rather the opposite, such as rubbish tipped on the river bank, graffiti, or rampant weeds taking over native forest areas. Despite this, in the follow-up interviews, participants commonly expressed more optimism about the amount that people were prepared to undertake and were already doing. As one participant commented: *others do a lot more than I thought they did on the whole – particularly their consciousness and sense of responsibility to the land.*

Shifts in self-efficacy had also occurred, reflected in participants' increased confidence in their own abilities and the significance of their actions to others.

I learned to speak more in public which is not easy for me to do. And to come to a meeting with an opinion on something and through the day I changed. That is good – I learned to listen more intensely, and respect people's thoughts more [Watershed Talk participant].

Similarly, some participants expressed greater confidence in the possibility of linking in with others as a result of an augmented awareness of the networks available to them, an actual increase in these networks (through the people they met in the project), and a trust in their ability to access them. For example: *...I'm slightly more confident in approaching people and I notice I am more open-minded towards what they know, and what I think I know....* Although for others this was balanced with a consciousness of what they believed the limitations of the enthusiasm or skill might be, e.g. *...would happily join a group focusing on an issue I felt strongly about – but I wouldn't drive it.*

These insights into the behaviour of both self and others were enabled through the group make-up and discursive activities within the Watershed Talk project. Participants themselves made observations about what they had believed stemmed from the way the groups had been set up:

There was a surprising diversity in lifestyle and opinions that was represented by a great cross-section of people. The willingness of the group to share their thoughts was a surprise to me – careful choice of attendees I suppose...Great cross section of people – different backgrounds, agendas, knowledge, skills all focused on the catchment or particular part of it.

In addition to shifting ideas about individuals and groups, participants also made observations about people as a whole. For instance, one Council staff participant felt he had a much greater sense of how unappreciated people had felt but also, given the right situation, how good people were at listening to the views of others.

7.6.3 Ideas about meeting and problem solving

One of the biggest surprises to the Watershed Talk project team was the comparative shift in participants' confidence and ideas around process as opposed to content matters. This included making observations on the project as a whole, as well as reflecting on specific aspects of the dialogue approach, – what it had achieved, and how such processes could be used in other settings.

The research team considered that several aspects of Watershed Talk had contributed to this. Principal among them was that reflection on process had been embedded in the post-back evaluation and both the initial and final interviews which purposefully asked participants to consider not just if any changes had happened but how. Secondly the project itself openly acknowledged that the intentions behind the particular interventions were to explore capacity building for social learning – therefore making the topic of meeting and problem solving processes a legitimate interest for discussion.

Finally, participants observations on process were not infrequently prefaced by comments on how much more enjoyable the meeting events of Watershed Talk had been compared to those they had previously experienced. Though participants certainly critiqued the meeting processes and in particular noted some frustration that the end of the second meeting did not lead to more tangible outcome, the majority considered the project had been an experience they would wish to repeat, leading them to reflect on what significant distinctions in process they could discern. This was regarded as evidence of a developing capacity for judgement on what is useful in a public meeting setting. Significantly those who were less interested in being involved in further initiatives like Watershed Talk were more focused on taking independent action and did not see much value could be gained in talking with others.

Participants made comments on facilitation, including how to balance free-flowing conversation with keeping things on track; the different starting point of the project – i.e. working with existing values; and the difference in the type of conversation engendered. As one participant commented: *It was not oppositional conversation like I have been often used to when trying to express my ideas...I found the group took away the head-on style. It was a new perspective and a new thing for me to achieve.* Participants also considered opportunities in their own sphere of influence were they could translate and adapt the processes they had witnessed in Watershed Talk, e.g. *I am going to use your model at school – get the students to identify issues, not be told by us – it will get them talking with their parents.*

Significantly, the project team also observed that, despite common assumptions that people prefer focused and directed meetings, participants in Watershed Talk became surprisingly comfortable with the camping out approach to discussion. In Watershed Talk this manifest

as suspending judgement and developing purpose through dialogue rather than directing conversation based on predetermined topics and areas for debate. Despite some initial reservations people became more confident that such open-ended process could lead to somewhere.

7.6.4 Preparedness for further engagement and action

An emergent view of participants of the Watershed Talk meetings was that the challenges facing the catchment were not necessarily dependent on acquiring more information (although you could always do with more), but were rather how to mobilise, coordinate or support responses to problems. However, an individual or community's willingness to take action is a function of a combination of ability, skill and the awareness of what opportunities there are. Involvement in Watershed Talk for a number of participants influenced their willingness to act through several individual and collective transformations: increased perception of the value of pulling diverse actions into common focus; recognition of the importance of harnessing energy and a heightened impetus to think of ways to do this; and augmented enthusiasm for building 'teamship' and 'communityness' associated with an increased sense of sharing the burden.

In the first interviews, participants were asked about their experiences of taking action and their thoughts about barriers and opportunities to doing so, and this question was revisited in the final interviews. Many participants did not perceive themselves as involved in any action, which clearly discounted their own everyday activities and how these contributed to the well-being of the catchment. The barrier most commonly cited was *lack of time* sometimes wistfully expressed as a desire to do more when *retired* or when other time-consuming activities in their lives drew to a close. Others cited barriers of lack of leadership, lack of understanding, and financial constraints.

In the second interview participants were noticeably more engaged with thinking about opportunities for how to do environmental stewardship better, listing a number of new ideas. Some were oriented towards direct personal or collective action, e.g. *community could identify a stretch of riverbank and work together to save a tree by releasing old man's beard from their patch*; others considered novel ways of undertaking existing activities, e.g. *Look at planning things together with the council, e.g. subdivision; TDC contributing resources*

and knowledge, local people contribute their knowledge, and get experts in. However, not everyone saw themselves wanting to work collectively; rather there was a place and a need for both joint and independent action. As one participant commented: Let individuals who don't want 'group gropes' get on and do their own thing – it is really important because there is a lot of change at an individual level and it is inspirational to see such action.

Participants also put considerable thought into how to initiate change. In particular, ways of working together which both refreshed the style of existing forums but retained a traditional feel, including options for changing the relationship between the local authority and the community. For example:

I believe as a council that the mayor and CEO should have these community forums. Just go round the district say once a year, in an unstructured way, to say 'we will be here to take questions'. They should act as a conduit back to council. That is a hugely important thing – unless you go and talk to people there is always a suspicion about why things are happening.

However, balancing the optimism of these comments, people were also keenly aware of the potential difficulties in stimulating community action, including inertia, the limitations of existing engagement opportunities and the sheer complexity of everyday life, e.g. *Apathy undermines resilience – it reinforces 'traditional approaches' so recruiting people is important.*

The difficulty associated with anticipating that on-the-ground action will emerge out an intervention like Watershed Talk is that it often manifests as an addition to current activities, whereby an individual or a collective take on a new project. This in turn adds to existing burdens of care and responsibility, rather than asserting original and imaginative ways of enabling stewardship that feeds (rather than feeds-on) energy and enthusiasm. However creative an intervention such as Watershed Talk might aim to be, the context for the individual wanting to take action is always complex. While a single opportunity can create at ideas and even momentum, ultimately, one of the key values of a reflective process is that it enables participants to pause and take stock. As one participant observed:

We are all, in life, trying to carve out a life for our families, earning money to do that. At the same time we say our priorities are our environment, and space, natural resources we are not going to be able to replace – so there is a balance we are all

trying to achieve. Some days you are struggling, other days you think you are doing well. Overall you look back on your performance and you've got to be happy with yourself otherwise you've got to change things.

7.7 Significant learning from Watershed Talk

The main features of the Watershed Talk process were: (i) the deliberate cultivation of individual reflection, (ii) building a level platform for the confident sharing of ideas, (iii) destabilisation of assumptions through providing for early sharing of values, and (iv) a structured problem-solving approach. These were all part of a purposeful facilitative design intended to *manage the fall and enable the climb* (M. Atkinson, pers. comm., October 2009) – i.e. to challenge assumptions, allow for the unexpected but create enough structure to enable people to respond to any new ideas that emerge. However, the challenge for some is that such a ‘slow reveal’ process can be frustrating. As facilitators we learnt how important it was to clarify the stages of the process even if the experience itself remains novel. During a debriefing on Watershed Talk the project team made the following observations about this approach to building a platform for multi-stakeholder dialogue, and collaborative learning:

- Recruitment of participants based on the recommendations of others brings together diverse views; draws on different values and skills than a self-selection process, and validates participants’ in their potential contribution.
- Having pre- and between-meeting tasks draws attention to the focus of the meeting and creates continuity.
- Evaluation is an integral part of the process; it provides feedback and opportunities for reflection which cements new learning.
- Facilitation needs to be enabling and generative.
- Ensuring the learning is complete within the cycle of the project and that project expectations are managed is a matter of integrity and important for future relationships.
- Platform design based on articulated principles allows for greater creativity and results in a stronger connection between process and desired outcomes.

Response to the Watershed Talk project from participants and subsequently from those whose feedback was sought in the development of the outreach publication indicated that the process had an integrity of design and implementation that held true to the principles of

respect, diversity, empowerment, reflection, generosity, and active cultivation upon which the project had been based⁷. Furthermore, the attention to detail, and the dynamic approach to both the physical and process components of the platform, yielded dividends in participant engagement and in the substantive shifts of content and process learning made by individuals and the collective. The Watershed Talk project not only gathered the viewpoints of people to better understand the critical norms and values at play in the catchment, but the process (the interviews, pre-meeting tasks and meetings) also helped establish relationships both within the group and between researchers and participants, and played a role in shaping how participants viewed their role in the well-being of the catchment as well as that of others.

The integrated nature of the evaluation component was critical to the success of the project. Reflection and structured forms of critique and analysis took place over the entire project, not merely in the events formally named as evaluation. Evaluation was so fundamental to the design of Watershed Talk as a platform for learning that Watershed Talk could be regarded as a participatory evaluation exercise with a theoretical basis in social learning. More specifically, the evaluation-based techniques contributed to learning and development across the project in four areas:

Individual content and process learning	Two semi-structured interviews Photographic exercise Icebreaker map exercise Evaluation questionnaire
Collective problem solving	Systems-based problem-solving facilitation
Project development	Post-meeting project team reflection
Research and development of collaborative learning platform	Interviews Evaluation questionnaire Post-meeting project team reflection

Also important was the composition of the project team itself. As the social researcher in the team I was conscious that working with an artist and landscape and community specialist

⁷ The draft Watershed Talk publication was shown to a number of people, from different local authorities (e.g. Otago Regional Council and Nelson City Council), as well as community development specialists. It was presented at a special ICM, CRG meeting (August 09) which included TDC staff not involved in the project.

created opportunities for original and inspired process. In return Maggie Atkinson asserted my contribution was my knowledge of social learning, facilitation and disciplined approach to inquiry. As a collective, including Andrew Fenemor, a catchment hydrologist and former TDC water policy manager, our team was a microcosm of the Watershed Talk experience, using diversity of skill, life experience, theoretical and practical knowledge to tap richer potential than we might have reached on our own.

A legitimate criticism of Watershed Talk as a social learning platform is that it operated outside a formal and institutionally constrained context. Projects run in this way can appear impossible to replicate within existing social and institutional contexts for planning and management. After some years of working in the ICM programme the project team concluded that TDC could not be enticed into using an experimental, adaptive approach within its own mandated planning and management processes, and saw that Watershed Talk might have merit as a model of the potential of doing things differently. It was not designed to be opposite to formal processes but rather to extend these and offer an alternative that could be incorporated, if not wholesale, at least in part. One TDC participant particularly noted what he considered to be the mix between the familiar and the novel in the approach:

Very good process, really interesting, old New Zealand way of doing things – cup of tea – civil, well mannered and it had enough of the meeting structure, an essence of planning about it...kind of ‘lamington meets modern RMA’.

One of the interesting aspects, of significance to adapting the approach to more conventional settings, is that, as a platform for dialogue, Watershed Talk was foremost based on developing better ways to work together, rather than addressing a specific problem, and the outcomes suggested there can be a greater tolerance for such abstraction than often suspected, when the processes used are inclusive, and vital.

However, by running Watershed Talk outside mainstream planning and management it became a single intervention unsupported by previous or subsequent activity. The project team were aware there would be no funding for further work, and tried to manage the expectations of participants, knowing that without ongoing support the enthusiasm for new ways of working expressed by the participants would be unlikely to gain much traction.

7.8 Social learning as an explicit goal in ICM research

As outlined in Chapter 6, from the beginning it was clear that many in the ICM programme, viewed social learning as meaning ‘how the wider catchment community learnt about the research of the programme’. Consequently the role of the social researchers was initially thought to be to deliver this, and also to collate information on people’s attitudes and knowledge about environmental issues in the Motueka catchment. My own reflection on this is that CLEM researchers failed to make a persuasive case for action-research to drive the new engine of transdisciplinarity, and for some years we were regarded with suspicion and confusion. This is not surprising when what we appeared to be offering were processes that slowed down events and seemed unproductive in conventional research programme terms. Such a case may indeed have been impossible to make given the existing capacity for understanding different modes of knowledge development and the implications this would have for the roles of scientists and the other programme partners (particularly the TDC).

As has been argued in the previous case stories, mandate and the degree of support given by those in influential positions is essential to the role of the evaluator or social process specialist working within programmes to introduce reflection and learning. In the ICM programme the support of the programme leader and those key researchers running research objectives was critical, as was the connection with the staff of the TDC. While the former was slowly but ultimately successfully progressed, leading to ongoing and productive working relationship with CLEM members, TDC staff involved with the ICM not only changed during the programme history but seemed always more constrained by time and resources.

Nonetheless, over the ten years of the ICM programme social learning has certainly entered the lexicon of programme participants. It may be too much to suggest that social learning acted as boundary object in the programme, i.e. a concept that, while subject to different translations by different communities, acts as a conduit for conversation between different intersecting worlds (Star & Griesemer 1989). However, nor has social learning suffered from a similar fate to that of many other important but unfocused terms such as ‘sustainability’, where at first the term is unrecognised and disputed, then co-opted to various convenient but largely conformist interpretations; and finally it is rejected as insufficiently rigorous or meaningful. If nothing else, the sheer existence of social

researchers who refused to conform to standard roles with the research programme has been the cause of much debate and conversation and ultimately some quite fundamental shifts in perspective, including a greater appreciation for both the challenges of integrated research and the role of social process specialists. The difficulty for the programme has been in finding ways to measure these shifts, as without a clear set of objectives for social learning, there were no baseline data collected. Rather these changes have been described through a series of activities aimed at tapping into the experience of participants, and unpacking the ICM programme story, the outputs of which have been varied including short film and newsletters, as well as more conventional workshops, seminars and published papers (see ICM website for links to these).

In the case of the ICM programme the comparatively radical adherence to the pursuit of transdisciplinary research, and the component that social learning research has played in this, has not won it recognition in the eyes of the principal funding agent FRST. In the 2007 programme review, the ICM programme, with its non-traditional formula, failed to achieve high scores in many traditional programme measures of success. Furthermore a change of government in 2008 has signalled adjustments to science funding with an even greater expectation of 'delivery of benefit'. As a consequence FRST has asserted that such work as was pursued within the social learning strand of the ICM programme would now be expected to be 'mainstream best practice' within programmes, and not allocated any specific funding. However, there are no indications that programmes will be critiqued on whether this is indeed the case.

7.9 Summary

This chapter uses the example of the Watershed Talk project to explore the second strand of activity in the ICM programme aimed at developing capacity for social learning, i.e. developing and trialling platforms for multi-stakeholder dialogue, learning, and systems thinking. Of all the cases presented in this thesis Watershed Talk had most input from my own progressed understanding and interest in how P & D evaluation can contribute to building capacity for social learning. The project design incorporated social learning theory and praxis knowledge derived from the literature (Chapter 2) including understanding of preconditions for good dialogue, the 'hard and 'soft' elements of group interaction, how to facilitate reflection and learning, and how to integrate different knowledge sources. It

particularly examined three praxis issues associated with operationalising social learning: (i) dealing with barriers to learning, (ii) addressing ‘too early’ and a priori problem definition, and (iii) managing an open-ended dialogue process.

Evaluation and reflection approaches were an integral part of the project, contributing to the performance of the platform itself (through supporting participants’ individual and collective capacity for reflection and learning) and providing feedback to the project team. The outcomes of the Watershed Talk project endorsed the idea that P & D evaluation, when integrated into collaborative platforms for multi-stakeholder dialogue, can support the capacity of groups of people to build both content and process knowledge around how to address complex problems. However, Watershed Talk was deliberately conducted outside formal processes for community planning and environmental management. This leaves questions about how the principles and practices derived from this work might be integrated into more mainstream opportunities for social learning in environmental management.

Section 7.8 also concluded the discussion started in Chapter 6 on what can be learnt about including social learning as a specific goal within an integrated environmental research programme. Observations are that even with the deliberate articulation of an intention to pursue social learning, where it is subject to as yet unformed ideas about its meaning, there is a long time period involved in negotiating a place for the kinds of research and work that will advance it. Further the ICM programme has not gained in status because of its adherence to a transdisciplinary approach and its pursuit of social learning, suggesting that the wider context in which research programmes are located is problematic for this work.

Chapter 8

Discussion: social learning and participatory developmental evaluation

*Assumptions attacked,
I can fasten myself to
a rock, or transform*

(Zelman 1995 in Bray et al. 2000)

8.1 Introduction

This Chapter returns to the core enquiry of this thesis – what can be learnt about using participatory and developmental (P & D) evaluation techniques to build capacity for social learning in environmental management? In particular, it examines what has surfaced from the case stories presented in Chapters 4–7.

Chapter 2 outlined how social learning has emerged as a basis for understanding the social process demands inherent in the management of complex environmental issues. The framework I proposed draws attention to four interlinked areas for focusing awareness and developing practice in complex-problem-solving situations (Figure 2.1): These are:

1. How to manage group participation and interaction
2. How to work with and improve the social and institutional conditions for complex problem solving
3. How to improve the learning of individuals, groups and organisations
4. How to enable systems thinking and the integration of different information.

It is important to understand social learning not as a model for ‘how things should be done’ but rather as a set of premises or conditions – the management of which can affect the ability of groups of stakeholders to find a way through problems where each share some knowledge, and towards which each need to take some action. These ideas that make up social learning are fundamentally about improving the conditions for learning and adaptation. There are no set steps to be followed, nor does it prescribe any particular starting position. Rather these ideas can be applied to improve the situation from ‘where you are now’. What social learning

is reliant on, then, is the development of a culture and conditions for continuous and rigorous enquiry among the participants in the problem-solving situation. This reflective practice examines not only what is known and needs to be known about the problem, but what exists and needs to change about the social conditions in which the problem situation is located, i.e. learning about both content and process.

In search of a mechanism that might drive this enquiry practice, in Chapter 3 I linked the ideas of social learning to evaluation. I specifically examined developments in participatory, reflection- and theory-driven approaches which can be used to improve the learning capacity of groups and to help environmental management programmes understand how they might be more responsive to social development aspects that underpin their overall goals. These evaluation approaches and tools offer a means to support the capacity for social learning in any given problem situation. At the end of Chapter 3 I proposed four arena in which P & D evaluation approaches and social learning can intersect. These are:

1. Scoping the environmental management problem situation
2. Supporting the capacity to enquire and problem solve
3. Supporting the management of programmes or interventions in the problem situation
4. Research and development that facilitates the growth of theoretical and practical knowledge about addressing complex environmental management situations.

Since the overall intention of this PhD is to look into ways for moving social learning from a ‘nice normative theory’ to an implementable basis for practice, the link between P & D evaluation and social learning was examined in four case stories where P & D evaluation approaches were used to support the social learning potential of different situations (Chapters 4–7). These cases addressed the overall question: ‘Can evaluation, as a legitimate part of environmental management programmes, operate as a vehicle for social learning through its potential to situate learning and inquiry within a valid social and institutional setting?’

Each case story was based on a standard schema of questions (see Box 3.1, repeated here). In the first instance the Social Learning Framework was used as a basis for **scoping the problem situation**. This involved a SWOT analysis to identify the particular social learning challenges in each of the cases, and it tested the first proposed intersection between social

learning and P & D evaluation. Secondly, each of the cases tells the story of using some form of P & D evaluation aimed either at **improving the capacity to enquire and problem solve**; supporting **programme management**; adding to the knowledge needed to help address the situation (**research and development**), or a combination of these. Each case had highly variable conditions and used differing approaches. Accordingly the case story investigates the

Box 3.1 Schema of questions for case studies

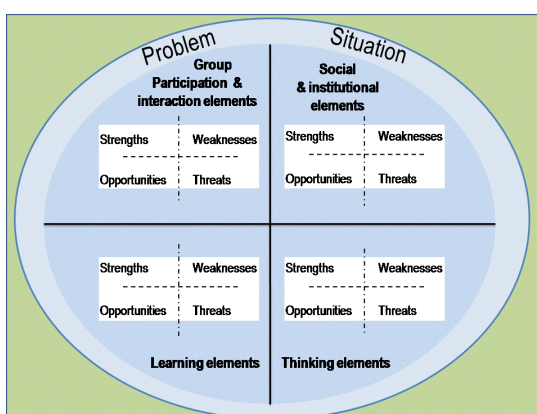
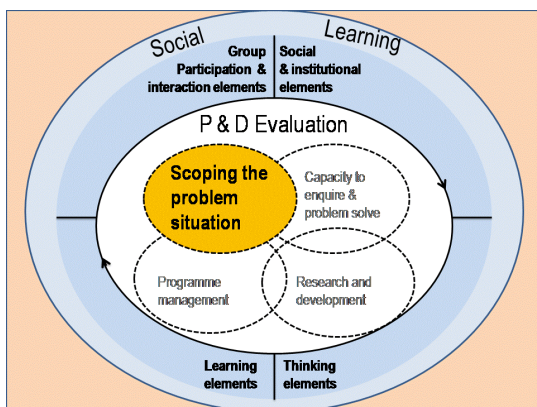
- *What is the social learning challenge of the situation?*
- *What aspect of social learning was supported by the evaluation?*
- *What evaluation approach was chosen?*
- *What happened/results/outcomes?*
- *What was learnt?*
- *What is the significance of this?*

use of P& D evaluation and the events surrounding it (i.e. what evaluation approach was chosen, what happened, and what was learnt?).

In this Chapter, the observations and conclusions from the case stories are drawn together for re-examination (Appendix 13 contains a summary of the cases and findings). Firstly, the common and significant social learning challenges across each of the case stories are reviewed. Secondly, there is a summary of the experiences of applying the various P & D evaluation approaches in each of the cases, followed by a discussion of the emergent success and limitation factors for applying P & D evaluation approaches to complex environmental management problem situations. A final section includes some observations on the case story methodology.

8.2 Scoping the environmental management problem situation

The task of building capacity for social learning may be broadly interpreted as ‘how to translate existing theory on social learning to practice’. However, in reality this needs to be rendered down to particular challenges in a given problem-solving context. Consequently, while the framework proposed in Chapter 2 identifies four groups of elements important to social learning, where there are limits to time, skill and resources some choices need to be made about which areas are a priority to address or are most amenable to progress. For instance in one situation a pressing social learning challenge may be: ‘How can we facilitate active learning processes that confront existing assumptions among multiple stakeholders’. In another situation the question demanding attention may be: ‘How can we facilitate social learning within the constraints of existing management and planning approaches?’



In Chapter 3 I proposed that one of the ways in which P & D evaluation can contribute to building the capacity for social learning in a given situation is by linking the Social Learning Framework (Figure 3.3 repeated here, above) with a SWOT and/or needs analysis to **scope out the problem** (Figure 3.4 repeated here, below). Such an analysis would reflect on how the core elements of social learning are catered for in the problem context, what significant barriers might need to be overcome, and what opportunities there are for progress. To explore how this might work in practice, each of the case stories began with a **SWOT analysis** of its particular social learning challenges. In the first three case stories (i.e. the WCMP, the TZ waste minimisation programme

and the social spaces evaluation of the ICM programme) this was a retrospective exercise. Because the final case (the Watershed Talk project) took place during the more advanced stages of my PhD work I was able to make use of the Social Learning Framework to analyse the situation as a pre-emptive contribution to project design and implementation.

In this section I report on the significant and common social learning challenges across each of the case stories. I then comment on the value of the Social Learning Framework as a tool for programme development in complex problem situations.

Common challenges for group participation and interaction

All the case stories shared a need to bring together and manage multi-party collaboration and learning. Indeed groups were widely regarded as the principal instrument for dealing with the environmental management challenge to which each of the case story programmes was committed. These groups ranged in complexity from teams of staff chosen from across a single organisation (as in the TZ company training programme) through to the multiple agencies and stakeholders involved in research and management in the case of the ICM programme, where different collectives and associates would be brought together at different times. Correspondingly all the programmes outlined in the case stories made initial (and often

substantive) efforts to create some form of structure that brought stakeholders together. The processes by which this took place varied but reflected a general reliance on ‘getting the right people together’, and forming a group with the ‘right structure’. This meant considering issues such as representative membership and the group’s terms of reference.

What this was rarely matched with was any sense of how the social dynamics of a group, once formed, would influence the outcome of their work together. There was little evidence of any planning to manage or mitigate existing power inequalities, address the various and often contentious expectations around roles, or the history of conflict between members. For instance, the WCMP placed heavy emphasis up-front on recruiting participants from a range of sectors and interest areas across the Whaingaroa catchment, with the intention of forming a representative stakeholder group that would develop a community-based environmental management plan. In contrast, almost nothing in the approach spoke to the means by which this group would draw together their collective understandings of the environmental issues of the catchment, or reach agreement on future management. As it eventuated the WCMP was in particular need of skills in dispute resolution and conflict management to deal with historical and ongoing tensions between key stakeholders, particularly between local hapū and the regional management agency.

Similarly, in the case of the TZ programme, the programme’s key proponents recognised that the performance of the company teams established through the training programme was critical to implementing resource use efficiency measures in their respective companies. However, the only means they believed they had of influencing this was through the group structure. Consequently they put effort into guidelines for how many people should be included in the teams and what parts of the company they should be recruited from. The intervention offered through the TZ evaluation project in Case Two was deliberately aimed at providing a balance to this structural emphasis by focusing on developing team self-management skills.

While the ICM programme, too, placed initial emphasis on structure as a means to enable collaboration, social process specialists were included as core researchers in the programme, so that over the 10 years it experimented with a number of platforms for multi-stakeholder dialogue and learning that used different structural and process elements. The IRAP programme, in contrast, followed the more traditional model of creating an ‘end user advisory

group'. For this group they recruited people as representatives of various institutions and subsequently experienced a high turnover of membership as individuals felt little personal allegiance to the group. This in turn affected the capacity of the group to work together and provide meaningful input to the programme.

As a whole there was limited awareness that collective learning and action on the part of groups requires particular conditions, and that both physical (location and timing of events) and process (way in which participants are engaged and conversation is facilitated) elements are important to such collaborative learning platforms. Nevertheless, the review of the challenges across the cases revealed this to be the area of social learning that was given most attention by the programmes in each of the case stories.

Common social and institutional challenges

Existing institutional and social arrangements often offered the biggest challenge for programmes, which in some cases proved insurmountable. Not only were the four cases influenced by how these qualities manifest in their own particular context, they were each in their own ways intent on influencing the social and institutional structures and modes of operation of the particular problem on which they were focused. For instance, in the case of the WCMP the overall ambition at the heart of the initiative was to generate a new form of community-based environmental management which would at least complement if not replace existing dominantly agency-led planning and decision-making in the Whaingaroa catchment. For the TZ programme, the key social context was the organisational culture and norms of behaviour of the participating companies. The programme's intent was to affect the way companywide decisions were made about resource use by introducing cyclic monitoring and reflection-based management methods. The premise of the ICM programme was not only to generate new technical knowledge about physical elements of the Motueka Catchment, but to develop and trial ideas about integrated management itself, with corresponding implications for the way in which decisions and actions were undertaken by individual agencies and stakeholders. Finally the Watershed Talk programme had a specific intent to model processes that could be utilised by local management agencies by providing a novel experience of a platform for collaboration and learning for two local council staff.

However, despite fundamental aims to generate some form of social and institutional change, the programmes (WCMP, Target Zero and ICM) had not undertaken any form of assessment

of the existing conditions, and what might represent significant barriers to their work. Thus they sought to change conditions that they had not really gauged. Indeed, while programmes were quick to pick up on the opportunity presented by the expressed willingness of a key agency or organisation to become involved in the programme, this was generally taken at face value and no further consideration was given to what might be needed to ensure this enthusiasm could be translated into action. In the case of the WCMP, and the ICM programme, the initial interest expressed by various agencies in novel ways of working did not ultimately manifest in any major changes in practice. This could be due to a number of factors, such as incongruence between political or senior management will and the expectations of the on-the ground staff involved the programme, a lack of understanding on the part of the agencies or organisations as to how to implement changes, or failure to grasp that involvement in these programmes required any changes to their way of working.

What this amounts to is a certain naivety around the importance of understanding the social, cultural and institutional context of environmental management programmes. In the case of the WCMP this manifested as a neglect of issues of community capacity and credibility, such as how the current resource management treaty rights negotiations ongoing between the tangata whenua of the Whaingaroa catchment and the local resource management agencies would influence local Māori participation in the project. In the case of the TZ programme there was a lack of understanding that the companies they were seeking to influence were themselves social systems with pre-existing attitudes and capacities for learning and change.

Understanding how a programme fits within its social and institutional context also enables the programme proponents to orient their actions in concert with the activities of others. Without this they run the risk of attempting to achieve too much, working in isolation, or not being aware of additional actions that may be necessary to ensure their success. For instance the ICM research programme struggled in early years with the role they were to play in achieving management on-the-ground by not fully recognising the nature of their relationship with the other agencies and communities of the Motueka catchment. Alternatively, the TZ programme expected individual teams to influence the learnt behaviours, habits and strategies of an entire organisation, when what was needed was for team efforts to be complemented with actions (such as ‘switch off’ campaigns) that would increase awareness and interest across the companies as a whole.

Common learning challenges

In keeping with the aim of generating platforms for collaboration among multiple participants, each of the cases shared a need to support collective learning, in both content and process knowledge. In the first instance making progress on the specific environmental problems in each of the cases rested on harnessing existing or acquiring new, technical information. For instance, in the case of the WCMP, a source of contention in the community was the unknown cause of decline in fishstocks in the Whaingaroa Harbour. In the ICM programme, the local unitary council was interested in information that would enable them to make clear-cut decisions about aquifer management and water allocation.

In both of these programmes there was a generalised faith that new information (particularly that generated by reputable experts) would clarify choices and actions for those involved. For example, in the WCMP, one member of a local harbour care group already used such scant data as were available about harbour water quality to advocate for his own interest in riparian revegetation. However, the evidence was far from conclusive and, instead, the interpretation of the data became a new source of debate among stakeholders. The WCMP was hampered in its original intention of acquiring unchallengeable scientific data by not receiving funding to support research on the issue. Nevertheless, it is questionable how much difference this would have made. In practice, data on environmental issues is rarely incontrovertible. More commonly, sense-making of local environmental issues requires the active interpretation of knowledge from numerous sources. Had more data been available on the relationship between increased silt levels and fishstock, further questions would have inevitably surfaced – such as which rivers and streams were contributing to the problem? What is the impact of rainfall patterns? What is the impact of local fishing? What planting and fencing practices would reduce the silt problem? For landowners, fishers and managers the question would be ‘how does this affect what I do?’ The resolution of these issues would no doubt take lengthy negotiations that were reliant on the goodwill and historical relationships between parties, and on the platforms available to analyse the information and develop strategies. Even when technical information is available the processes of problem resolution still require attention.

The ICM programme, running for 10 years, had longer than the WCMP to learn about new ways in which technical information can be used to address environmental problems, and what else might be needed. Accordingly it is possible to see a shift in awareness, at least among the research collaborators, from expecting scientific information to stand alone in its

contribution to problem solving, to recognising an equal need to understand the way in which this can be integrated with practice-based or cultural information from other sources to generate more complete knowledge about the problem system. In particular, the ICM programme showed an increased awareness of the importance of relationships between stakeholders for building knowledge about a problem. The story of the Sherry River cow crossing (Davies-Colley et al. 2003) became an important reference for members of the ICM programme as it was illustrative of a new wisdom about the importance of rapport between science and non-science stakeholders.

Of the three programmes presented in the cases (Watershed Talk being a subproject within the ICM programme) the TZ programme had the most clearly articulated theory of learning. This centred on development of technical knowledge about company resource use patterns and opportunities for improving efficiency. However, because the success of the TZ programme relied on teams of company staff developing specific knowledge about their local situation, the programme placed as much, if not more, emphasis on developing participants' skills in learning and problem solving as on imparting generalised information on, such topics as energy conservation or waste recycling. The ultimate aim of the programme was to enable participants to go on learning, and responding to new resource use issues in their respective companies. For this end, teams needed skills in diagnosis, assessment, planning, and monitoring. Consequently the Waste Management Unit (WMU) that ran the TZ programme was open to extending more technical-oriented learning capacity to the area of team self-management (i.e. process learning) to improve their effectiveness as agents of change within organisations.

The overall presence or absence of an articulate approach to learning in each of the cases is an issue of such import that it can be easy to forget that even with a planned approach to learning there are many other challenges to overcome. Learning challenges identified in the social learning theory and practice literature elsewhere were taken into consideration in planning the Watershed Talk project (Chapter 3 section 7.3). These were:

- Barriers to learning – including motivating learning in non-crisis situations; and issues of relative power and authority among participants
- ‘Too early’ and ‘a priori’ problem definition
- Managing open-ended dialogue process that allows for the unexpected to emerge
- Development of trust – particularly ways in which this can be expedited.

As an action research project it was able to ascertain that attention to the physical and process elements of the collaborative learning platform (that was developed through the project) was able to mitigate and resolve many of these issues. In particular it highlighted the value of four elements in designing platforms for collaboration and learning:

1. Design based on principles well rehearsed in settings of collaboration and conflict resolution (rather than adherence to formula)
2. Extending the concept of the platform beyond a single event to consider pre-event preparation and after- event conclusion activities
3. Use of innovative techniques that target typical group learning challenges
4. Reflective practice that promotes reflection among participants as well as the project team.

Common challenges of ‘thinking’

At the basis of the programmes in each of the case stories was a need and desire on behalf of the programme proponents to be able to understand the problem system (whether a catchment or an organisation) in different ways; to be able to recognise links between physical and social elements of the system; and to more effectively measure and assess the impact of actions taken to deliberately influence the problem situation. Meeting this need relies on a capacity to draw on different knowledge about the system held in different locations. For example in the case of the WCMP, where the aim of the programme was to improve holistic management of the Whaingaroa catchment, an approach was needed that could collectively draw on knowledge held by tangata whenua, local landowners, harbour care groups, and research and management agencies. In the case of the TZ programme, the different knowledge about the resource practices and all the actions and decisions that impinged on this (for each of the companies enrolled in the waste minimisation programme) was held by staff across the company including system operators, managers, and those responsible for financial decisions.

Again, the programmes ranged in their ability to meet this knowledge integration need. As outlined earlier, at its most basic, the approach to facilitating systems thinking simply relied on getting people together in one place, from which it was assumed that information would flow and collective understanding develop. For example in the WCMP, the proposed approach to developing collective understanding about the catchment was an ‘information day’ and a community ‘visioning exercise’. Visioning is certainly a practice used in many systems thinking methodologies and can often be carried out using facilitative devices that are

inclusive and encourage participation. However, in the WCMP the visioning remained high level and not linked to any other processes that would help analyse the current situation or design of ways forward.

As a 'learning for improvement' based initiative, the TZ programme had an inbuilt approach that enabled programme participants to analyse the resource use practices across the organisation. This was useful for examining the intersection between the different 'hard' elements of the system, such as operation practices, and resource inputs and outputs. However, before the evaluation intervention, the programme had not made the connection to the 'soft' or social elements of the system, such as actors' motivation and resistance to change or the organisation's communication systems. What was needed was an approach that would extend the programme participants' notion of 'the system', allowing them to think about potential constraints, or key elements in the social part of the system, and to design ways to work with these.

Significantly, the TZ programme was the only initiative that catered for incomplete information about the problem system. The programme advocated an adaptive approach reliant on cyclic monitoring, reflection and action to build knowledge about the issue in question. The distinction in setting between the TZ programme and others, such as the ICM or the WCMP, is likely to have influenced this. Employing an adaptive, experimental approach to issues of public policy, where there are numerous parties involved and formal and informal expectations to meet, is arguably a more taxing endeavour than encouraging an organisation to take a measured approach to understanding its resource use practices.

Developing capacity for systems thinking is not an easy task. In environmental management it is dependent on features of the political and decision-making context such as structural openness, facility for ongoing interaction between social actors, and the way in which platforms for dialogue and learning are established and facilitated. For instance, the desire to know as much about the problem system as possible often dictates the way in which groups looking into local environmental management issues are brought together. In the Watershed Talk project, participants were recruited not just for their knowledge about the Motueka catchment but for their willingness and capacity to engage in discussion. This additional selection criterion represents a departure from common public engagement practices in environmental management, which often start and end with the people regarded as most

directly connected to the problem. Participation of those only with the highest stake in an issue seems to have become an unchallenged canon of participatory environmental management. It is therefore good to ask ourselves whether this should be the only criteria, and is it possible to plan processes based on other principles, and what might they deliver?

The ICM programme, like the WCMP, focused on better understanding and management of a catchment with intersecting political, cultural and management systems. As a research programme, with more time and resources to experiment, the programme as a whole has tried many different approaches to support systems thinking (e.g. participatory ecosystems modelling; Cole et al 2007). The social spaces framework evaluation (Chapter 6) was a systems thinking approach designed to enable programme participants to see across the social system of the programme itself. Nonetheless, for all of the cases the challenge of improving the systems thinking in the situation was substantive. Programmes struggled to find or develop appropriate methodologies. Part of the difficulty lies in the sheer novelty of the practice. Even available expertise in systems thinking, in the case of the ICM programme, did not make this easy, as one of the greatest hurdles for systems thinking advocates is persuading parties that the steps that seem to take people backwards to the problem definition rather than forward to its solution will yield dividends in the end. In introducing systems thinking into programmes two points of practice emerged as helpful. Firstly, it is useful to regard approaches to systems thinking in environmental problem solving situations in less than absolute terms – asking ‘how can we improve capacity to see the problem system?’ Secondly, it is important to clarify the boundaries of the system (or part of the system) under investigation, accepting it is not possible or even desirable to be holistic all the time.

8.2.1 Using the Social Learning Framework as a basis to programme development

Using the framework as a whole to draw a portrait of the problem situation discloses much that is useful about learning and social interchange processes generally. However, the way programmes or activities are designed to address a complex situation is largely a creative one, therefore the value of the Social Learning Framework in practice is tied to how it can be used as a basis for questioning and reflection that can aid the unique diagnosis of any given situation. The evaluation (enquiry) approach I have linked to the Social Learning Framework here is a simple SWOT analysis. By applying this to each of the cases – asking what were the existing conditions of the situation and how was the programme able to respond to these – I derived an assessment of specific needs that were a priority for the programme or intervention

to address. The way in which I applied the SWOT and needs analysis was fundamentally self-reflective. A more participatory process, which involved programme proponents, managers and participants reviewing the strengths, weaknesses and needs of the programme, and jointly assessing priorities, would both increase the usefulness of the evaluation and the overall understanding and efficacy of those involved in the programme implementation.

The attraction of using the Social Learning Framework in the planning phases of environmental problem solving is its potential to build expertise and competency. The Watershed Talk project is illustrative of this where awareness of the social learning issues pertinent to the situation led to not only greater efficacy in the project's design and delivery but also enabled some critical research and development about techniques for developing platforms for collaboration and learning. However, what this hinges on is a diagnostic approach to problem solving that does not just focus on the problem but rather on the problem solving capacity. Accordingly, having completed an initial scoping of the situation using some form of social-learning-based critique; a next step is to question how the proposed intervention matches the social learning capacity needs. For instance, does the success of the programme rest on platforms for learning and collaboration that simply don't exist? If so, how will this need be met? This in turn suggests a potentially beneficial link between social learning and evaluation approaches that aim to surface the logic of programme with a view to improving the connection between the expected outcomes and the operational objectives and implantation path. Theory-based evaluation and the use of logic models are both P & D evaluation approaches designed to feed the need for a working understanding about the cause-and-effect relationships anticipated in the proposed programme.

Furthermore, since the problem situation will not remain the same over time (indeed the basic assumption of any intervention is that the situation will change), it is a premise of good programme management to watch for what changes are occurring, whether important issues are being progressed, as well as what significant factors are changing in the context around the problem which will further influence the programme's effectiveness. For instance, it may be important to track shifts in the institutional context that could make decision-making more or less open to participation by multiple parties. It is not possible to monitor everything, and programmes need a way of perceiving and prioritising the pertinent elements within the problem situation. For this purpose the Social Learning Framework can be coupled with implementation and outcome evaluation to derive monitoring criteria, and to provide a basis

to ongoing programme management. This also enables a programme to track progress in the social conditions for problem solving, not changes to the more physical elements on which the programme may be focused (e.g. tracking changes in stakeholder capacity for collaboration, not just improved water quality).

Finally, the social-learning-based SWOT review highlighted how fundamentally atheoretical the case story programmes were. There was common need for (and general lack of) applied social and organisational theory to feed the purpose and direction of the various programme interventions. For instance, the ICM programme both needed and desired workable theory about integration – how did integration work? What did it look like? What were the stages that a programme like the ICM could expect to go through? For the TZ programme, much better equipped with practice ideas about resource use efficiency, there was still a notable gap in knowledge about organisational learning and change, and the role that groups might play in this. Similarly, the WCMP – based on a model of catchment management applied in Atlantic Canada – had no means of utilising the growing body of theory and praxis around community-based environmental management, and hence had nothing to draw upon to explain what was going wrong or what might assist the programme out of its difficulties.

The implications of this theory deficit are that environmental management programmes do not just need to clarify their own internal logic, but require inspiration from current knowledge about the practices of social changes in which they are involved. One way in which this can be met is through theoretical framework-based evaluations. The TZ teams' evaluation and the ICM social spaces evaluation are both examples of using theoretical-framework-based evaluation to expand on core elements of social learning to provide more specific working knowledge for the programme. In the TZ programme the checklist evaluation introduced programme participants to new ideas about group processes, and the role of groups in organisational change. For ICM the Social Learning Framework evaluation offered a way for programme participants to visualise across the social system in which they were working and identify the diverse communication and knowledge building challenges inherent in a transdisciplinary research endeavour. Table 8.1 summaries the way the Social Spaces Framework can be coupled with evaluation to support effective programme interventions that address complex environmental problems.

Table 8.1 Coupling the Social Learning Framework with P & D evaluation

Scope the problem situation	Social Learning Framework and <i>SWOT/Needs analysis</i>	Understand the problem situation in terms of the specific social learning issues inherent in the problem context.
Scope the problem solving capacity	Social Learning Framework and <i>theory based evaluation/logic models</i>	Understand the relationship between the proposed programme or activity, the existing social learning issues, and the capacity development needs
Watch for changes	Social Learning Framework and <i>implementation/outcome evaluation</i>	Develop monitoring criteria that track changes in social learning capacity and can be used to assess how effective the programme is in terms of its implementation or outcomes.
Introduce new ideas	Social Learning Framework and <i>theoretical framework evaluation</i>	Introduce ideas based on theory and praxis around a specific social learning challenge for the programme.

This coupling of the Social Learning Framework with various evaluation approaches illustrates a way that environmental management programmes can become more adaptive, and responsive to the social context of the environmental problem situation. However, there are two issues to consider in practice. The first is a matter of resources, and expertise. Simply put – who is going to do this? Does the application of social learning theory through evaluation demand too much expertise in both social learning and evaluation? Is it likely that programme proponents will be willing to invest time and resources in the generic matters of complex problem solving when they are most likely recruited for their interest and skill in more contextual aspects of the problem? One scenario would be the employment of social learning and evaluation specialists to work alongside programme proponents and participants. Although the cases presented here are examples of where this has indeed taken place, they are by no means common. Furthermore, the experience of working within the various situations suggests the relationship between process expert and programme proponents and participants is far from straightforward. What these experiences intimate is a need for a change in the standard set of expertise required of environmental managers such that they can more successfully accommodate creative input from a range of sources in the design and implementation of environmental problem solving platforms.

8.3 Using P & D evaluation to build social learning capacity in four cases

Each of the four cases explored in this research involved some attempt to support the capacity for social learning in a particular environmental management situation using an approach based on P & D evaluation methodologies. These contributed to one or more of the arenas for supporting social learning capacity in environmental management initiatives identified in Chapter 3 (see Table 8.2). The four cases explored through this thesis spanned 10 years of research and practice of the Collaborative Learning for Environmental Management group (CLEM) at Landcare Research. Each case offers a progression of thinking and learning about the potential role of evaluation to support social learning

Table 8.2 How P & D evaluation contributed to social learning capacity in each case¹

	Whaingaroa	Target Zero	ICM – social spaces	Watershed Talk
Scoping the problem		✓	✓	
Programme management	✓	✓	✓	
Capacity to enquire and problem solve	✓	✓		✓
Research and development	✓	✓	✓	✓

8.3.1 Case One: The Whaingaroa Catchment Management Project (WCMP)

In the case of the WCMP, a participatory, goals-free evaluation was undertaken at the end of the first 2.5 years of the programme. In addition to meeting the programme funder's desires for some accountability around the programme, the intention of the evaluation (led by my own values as the evaluator) was to introduce an opportunity for learning about the programme for those involved. In particular the evaluation sought to confirm the principal programme participants in their achievements, highlighting what had worked, as well as what was problematic; and to generate an overview of the structural elements of programme that would enable stakeholders to clarify some of the programme's confusion around stakeholder roles and relationships. The evaluation therefore addressed purposes of **supporting programme management**, and **research and development**. Through the participatory

¹ Lighter shade ticks indicates a minor contribution; darker shad ticks indicate a more substantive contribution

processes used, some support was also given to participants' **capacity to enquire and problem solve**.

The WCMP evaluation and the subsequent outcomes that stemmed from it highlighted two important points. The production of an evaluation document that outlined the basis of the programme and its intentions proved galvanising (even more so than the participatory reflection exercises that were part of the evaluation process), as the participants in the programme gained access to information about the programme which empowered them to make changes. The document that was circulated widely among the stakeholders in the programme became a starting point for debate over the goals and possibilities of the programme, and catalysed a process by which the various participants in the programme reached greater clarity around future direction. This was significant as it was something which the programme process itself had failed to achieve. As the first case story, not just in terms of this PhD but in the sequence of work I was involved in as a member of CLEM, this potentially transformative role for evaluation in environmental management initiatives was in many ways the starting point for this research inquiry.

However, what the WCMP evaluation also revealed was that a terminal (rather than formative) evaluation conducted in this way can result in the evaluator being one of the few (possibly only) people who has knowledge of the overall vision of the programme and the story of its implementation. The evaluator, by then communicating this information through a report or any other process, acts as a filter and interpreter, and thus limits the scope of the learning that is possible for the stakeholders. In short, post-event evaluation can be empowering, but contribute little to the ongoing social learning potential of the initiative.

What also became apparent through the assessment of the WCMP was the vulnerability of programmes where there is a lack of capacity to assess the proposed model of events against the implementation reality. This need for some way of understanding internal theories of action and verifying their merit against the actuality of the context, and the implementation experience, is a fundamental of good responsive programme management. Furthermore, community-based management arrangements (of which the WCMP is an example), like many approaches to addressing complex environmental management situations, are more effective when they can be responsive to important changes in the context in which they are operating. This requires knowledge about the problem system and self-awareness about the programme's

strengths and weaknesses (Foote et al. 2009). The evaluation of the WCMP had reviewed the fundamental premise of the programme, exposed existing assumptions, and demystified the programme process. By this information being more widely shared among the programme participants and stakeholders, changes were able to happen, illustrating that an evaluation, even in its more traditional form, can be an opportunity for learning and development.

8.3.2 Case Two: The Target Zero waste minimisation programme

On the surface, the second case story about the TZ waste minimisation programme appears to be a very different context from that presented by the community-based environmental management programme in the Whaingaroa catchment. However, as with the WCMP, the TZ programme attempted to establish groups (teams) who would influence the overall direction of a wider community (their home organisations) and in particular change their practices around resource use and management. This was done through a training programme that recruited teams from manufacturing programmes and offered them instruction and support in undertaking projects to minimise waste in the company's resource use. The success of the programme relied on having the capacity to support the effective functioning of the teams, matching their technical learning around such matters as waste analysis with process learning about issues such as how to collectively and creatively problem solve. In particular the programme relied on the ability of participants to move beyond initial assumptions about problems, causes and solutions and to take on a more rigorous and disciplined learning approach to problem diagnosis and analysis. The TZ programme proponents (the WMU) were largely aware of the need for the teams to become better skilled as self-managing agents of change. However, they were less conscious of how the organisations (companies) they were seeking to influence were social systems with norms of behaviour and prevailing values that would shape the capacity of the teams to complete their immediate tasks and influence wider organisational changes.

As with the evaluation of the WCMP, the TZ teams' evaluation was influenced by the evaluators' values – principally the desire to work with participants and support their capacity to perform, as well as inform the programme proponents about the efficacy of the overall programme approach. To achieve these ends the evaluation utilised participatory, developmental and theory-based evaluation approaches. The overall approach was to generate a checklist of key factors for successful teams, which was used in conjunction with a participatory reflection process. The TZ teams' evaluation illustrated the potential of

evaluation approaches to increase the learning opportunities within a programme. It worked in three ways. Firstly, the facilitated, checklist approach offered support to individual groups as they grappled with their roles as change agents, i.e. developing **capacity to enquire and problem solve**. This was considered so successful that attempts were made, through phase four of the evaluation, to incorporate the self-assessment as part of the teams' basic training. It also enabled the individual teams to **scope the situation** in terms of their capacity to influence change across the organisation. Secondly, the overall information gathered across the various companies informed the WMU about some of the common success factors and barriers to the way teams' operated (**research and development**). Thirdly, by incorporating a phase in which the theory, ideas and best practice around working with groups was brought to the fore, the WMU were able to assess how well the teams approach worked to achieve wider organisational change, and the implications of this for how teams were supported and trained (**supporting programme management**).

Several observations can be drawn from the TZ teams' evaluation experience. The facilitated reflective checklist approach proved effective at creating a platform for learning about group dynamics and collaborative problem solving. It introduced quite complex theory and ideas about groups and organisations in a palatable and immediately useful form. Also, by incorporating it alongside the TZ programme's other training opportunities, it was a means to match technical learning with process learning. However, the checklist approach relied on active facilitation that was more effective in situations where there was an existing organisational preference for learning and development. Correspondingly, embedding such an approach in programmes without existing capacity for facilitation and reflective learning is not easy, as it relies on skill and experience with group work, and the confidence to be able to adapt the approach to different situations.

In addition, the TZ teams' evaluation was a new approach for the WMU and initially some negotiation was required to ensure it met their needs as well as the desire of the research and evaluation team (myself and Dr Will Allen) to work in a particular way. Working with programme proponents who were motivated to learn about and develop their programmes was a significantly unusual experience for the evaluation and research team to be notable. The WMU's receptivity to employing the proposed new approach to evaluation and support of our role as evaluators contributed directly to what was able to be achieved.

8.3.3 Case Three: The ICM programme, and the Social Spaces Framework evaluation

As a multidisciplinary, multi-stakeholder research programme intent on making impact on real-world environmental problems the ICM programme has theory and practice needs in engagement, building knowledge, integration, and the theory of ICM. 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 goals of improving the collective understanding of the system; and (ii) trialling platforms for dialogue and learning. Case Three explored the former of these, using the example of the Social Spaces Framework and evaluation. Frameworks are a useful way to clarify the inner workings of a problem or programme system, and render visible the less obvious social processes that can shape events. Furthermore, the way in which they are used, such as through workshops or other participatory and evaluatory activities, can develop both a shared understanding of the programme among participants and foster capacity for dialogue and reflection.

The Social Spaces Framework had been developed as part of a process of clarifying the different communication and engagement demands inherent in a long-term complex multi-stakeholder programme like the ICM. It was based on the idea that different social spaces existed within the programme (in a physical, temporal and virtual sense) and that these had differing goals for communication and varying norms of interaction. The framework was used in a participatory exercise with programme participants, enabling them to assess the value of programme activities in terms of how they contributed to the communication and relationship development needs across the programme. The social spaces concept contributed to an increased understanding of the complex social interaction demands of transdisciplinary research (**research and development**). Moreover, like the checklist approach used in the TZ programme, the framework-based evaluation exercise made it possible to present pertinent theory in a form that was acceptable and immediately useful for participants, thus linking theory to practice and contributing to **programme management**. The use of the framework in a participatory and reflective exercise also supported the programme's **capacity to enquire and problem solve** and gave participants the opportunity to **scope the situation**, in terms of the relationship and communication needs across the programme.

In Chapter six the social spaces evaluation was compared with a parallel but less successful experience in another integrated research programme, IRAP. In this situation a checklist of key features of planning and managing integrated research (derived from the ISKM framework) was used as the basis of a participatory evaluation exercise with a mixed group of researchers and stakeholders from the IRAP programme. This comparison revealed three important factors that influence the effectiveness of framework-based participatory evaluation: (i) status of the evaluation within the programme; (ii) trust among the participants; and (iii) orientation of the evaluation framework.

Unlike the situations in Cases One and Two, in both the ICM and IRAP programmes evaluation interventions were not commissioned as independent, external exercises to contribute to demands for accountability or as ways of analysing outcomes or implementation strategies. Rather participatory, development and theory-oriented evaluation approaches were incorporated in a suite of activities aimed at contributing to the social learning capacity of the programme. As such the interventions were not constrained to meet expectations of external parties and were designed solely to contribute to the learning of participants in the programme.

At first glance this licence to practice evaluation approaches in any way deemed appropriate seems a boon to building capacity for social learning. However, what the comparison between the social spaces evaluation in the ICM programme and the ISKM checklist evaluation in the IRAP programme revealed was the importance of mandate, both for the proposed intervention and for the facilitator or evaluator. In the case of the ICM programme, 10 years of growing familiarity with the researchers, local agency staff and other stakeholders participating in the programme had granted the evaluators (social researchers within the programme) acceptance and permission to use unusual and sometimes challenging exercises. This acceptance within the programme was hard won. The transition this demanded of participants in the programme was incisively captured in the following comments made at the final ICM AGM by a marine biologist and researcher within the ICM programme.

To begin with I didn't know what a social scientist did. Then I knew what they did, but I didn't know what they were for. Now I think they are critical to enabling an integrated research programme to be successful. (Dr Paul Gillespie, Cawthron Institute, pers. comm. August 2009)

No such mandate or recognised purpose existed in the IRAP programme, and the exercise to promote thinking around the social system of the programme was largely unsuccessful. Despite pre-prescribed roles for evaluation being at times a constraint on the choices of approach that can be taken, in situations where no relationship exists between the evaluator and the programme participants (or the relationship is weak) the status of a predefined and agreed purpose for the work can be critical to how it is received.

The orientation of the two framework-based evaluations also differed. The ICM social spaces framework was initially derived from participants' own observations so had direct meaning for them. Furthermore, the facilitation of the social spaces evaluation exercise was oriented towards appreciative enquiry (Cooperrider & Srivastva 2001), enabling participants to build their understanding through the acknowledgement of successful activities. In comparison the ISKM framework, while adapted for the IRAP programme, had been developed in a different context and was new to the evaluation participants. It also used a critique-based process that scored various criteria as successful or needing attention. This required a degree of comfort among the participants to effectively pass judgement on the programme. This was difficult in the IRAP situation because the group itself had a number of new members and a history of fluctuating membership. This led to limited trust within the group and made open enquiry and reflection unlikely.

This changing membership of groups of stakeholders involved in long-term endeavours is not exceptional (the situation in the ICM programme with its comparatively stable participant make-up over 10 years is unusual). In addressing complex environmental management issues there can be times when there is a need to challenge groups that are not particularly familiar with one another. The issue of whether trust can be build expeditiously within groups to enable high-level reflection was explored in Case Story Four – Watershed Talk.

8.3.4 Case Four: Watershed Talk – a platform for collaborative learning

As part of the ICM programme, Watershed Talk was an action-research project designed to contribute to the programme's need for greater capacity and understanding around platforms for dialogue, reflection and systems thinking. More specifically Watershed Talk was about the potential for change through dialogue, the premise for the work being that the ways in which conversations were conducted around complex environmental challenges could have far-reaching consequences, not only in terms of the outcomes of the specific point of discussion,

but also in the legacy of increased knowledge, strengthened relationship and self efficacy of those taking part (Atkinson et al. 2009). The project objectives were therefore both transformational (increased **capacity to enquire and problem solve**) and informative, i.e. enabling the research and facilitation team and the participants to learn something about the creation of platforms for dialogue, reflection and systems thinking. More particularly it examined the effect of various innovative techniques (developed as part of the platform) on previously observed challenges to social learning. In this way the project contributed to **research** into overcoming barriers to learning and hence the **development** of effective platforms for collaboration.

In some ways Watershed Talk can be compared with the first case story – the Whaingaroa Catchment Management Project. Although much smaller in scale, both have their origins in the concept of drawing together participants with diverse views to facilitate a more holistic understanding of the ways in which to address catchment management problems. However, there are a number of important distinctions between the two. Firstly, cultivating and learning about processes of good dialogue was a primary function of the Watershed Talk project, not just a means to an end. Secondly, the intended legacy of Watershed Talk was not a community-based environmental management plan, or an established community group, but enhanced capacity for individual and collective problem solving and learning – and specific measures were included in the project to indicate how this had progressed. Thirdly, the platform created through Watershed Talk was designed on the basis of core principles well rehearsed among theorists and practitioners of multi-stakeholder dialogue and conflict management (respect, diversity, empowerment, reflection, generosity, and active cultivation). These principles were used to guide platform conception and implementation across all the project phases. Principle-based design requires a sensitivity to the existing context (and to any changes in that context) that can only be achieved through active monitoring and reflection on behalf of the project team, and encouragement of feedback from project participants. Such a flexible and responsive approach to project design and implementation is in many ways the antithesis of the model-driven approach used in the WCMP.

This also hints at the integral role evaluation and reflection play in the project. Structured forms of critique and analysis took place over the entire project, not merely in the events formally named as evaluation. Evaluatory processes were used to drive the development of individual knowledge, networks and self-efficacy. For instance, at one level the individual

interviews at the beginning and end of the project could be regarded as a ‘before and after’ data-gathering exercise to enable assessment of the project’s outcomes. However, they were also intended to stimulate participant’s self-awareness about their level of existing knowledge, and consequently improve their confidence for participation in a dialogue about the catchment. The final interviews also acted to cement new learning by promoting reflection on what had occurred. Thus the interviews had both a transformative and informative intention. In the same way soft-systems enquiry processes were used as a fundamental part of group processes to enable participants in the group meetings to reveal and interpret local stories, and use these to build solutions to local problems. Indeed evaluation was so integral to the design of Watershed Talk as a platform for learning that, in some ways, Watershed Talk could well be regarded as a participatory evaluation exercise with a theoretical basis in social learning.

The outcomes from the project, measured through the final interviews, evaluation feedback and project team’s own reflections, suggested that the attention to physical and practice aspects of the platform had yielded dividends in the quality of participant engagement. A number of the creative devices, employed to challenge conventions and revitalise people’s sense of interest in connecting with one another, were successful in delivering on their intentions (e.g. the icebreaker map exercise and the sharing of a formal meal). In particular, the use of photography as a basis for gathering and communicating ideas about the catchment was noteworthy for its impact at multiple levels. It was a simple and effective tool to support participants’ garnering of ideas and pulling together of their reflections on what they already knew about the catchment, and at the same time prepared them for engagement with others. The use of the photographs as a common prop for conversation drew attention from the speaker to the subject, effectively neutralising preconceptions and prejudices about individuals. Since all participants had the same source material – their own images from their own observations, the focus of attention was on their personal expertise as opposed to their relative position as experts – countering uneven power dynamics. Most importantly the use of photographs tapped into visual storylines that were readily accessible for people.

The use of Kahane’s (2004) *camping out* was an approach which, as a facilitator, I had not been certain would be successful. A sense of urgency and desire for outcomes often drives groups towards actions and limits their capacity in the first instance to give space to the development of ideas, causing a rush to conclusions or consensus and so constraining options and new directions. Certainly, among the two groups that took part in Watershed Talk, there

were those who did not enjoy the more open ended means of handling conversation. However, the modelling of active listening – real interest and respect for what was being offered (fundamental to the camping out approach) – enabled a less directive process to still satisfy participants’ desire for purpose and progress. Nevertheless, of the two groups that took part, one was able to agree on a more conclusive set of ideas by the end of the second meeting than the other. This may have been a consequence of the different nature of the topics the groups explored. The group that came to clearer ideas for the future discussed the issue of invasive weeds in the catchment. The other group had looked at the changing land-use patterns in the catchment – a more nebulous subject. This suggests that some topics require more time than others for analysis and to come to ideas about grounded action. It may also be that what is at first thought of as ‘a problem’, i.e. land use change, when more closely examined lacks substance and is based on fears, uncertainties, prejudices or lack of knowledge than any real challenge requiring resolution and action.

One of the more surprising findings of Watershed Talk was the appetite among participants for ideas about process. Participants made many observations about what they had noticed was different to their usual experiences of public meetings, and evinced a genuine curiosity about the methods and design of the project, as well as postulating their own theories as to what had occurred. Watershed Talk contrasts more conventional problem solving and community-planning processes by focusing foremost on ways of working together rather than specific problems. The outcomes from the project suggest communities may have greater tolerance for this than is often supposed – when the practice is inclusive, and vital.

Beyond learning about how effective the interventions and overall process design were in enabling people to collectively explore complex issues, the feedback from the post-back evaluation and from the follow-up interviews indicated that participants had experienced both content and process learning to a high degree. The public document that was produced out of Watershed Talk (Atkinson et al. 2009) identified four subsets of shifts in knowledge, capacity, and sense of responsibility:

1. Altered ideas about the Motueka catchment and its community
2. Personal changes in how individuals see their own role and that of others
3. Changes in ideas about how to meet with others and problem solve
4. Preparedness for further engagement and action

Adults do not learn from every experience they have. Well-known work on transformative learning experiences by Merriam and others (e.g. Merriam & Clark 1993; Merriam & Heuter 1996) indicates that those experiences which result in growth do so because they have a personal effect on the learner and because that effect is valued within the learner's meaning system. The approaches used in Watershed Talk used grounded personal experience as a vehicle for accessing new information (through the actions of taking photographs and sharing their meaning with others). The collective reinterpretation of the stories about the images was then a means to fluidly connect new emerging information to this personal experience. Finally, asking participants to analyse their perceptions of the conversations that took place for themselves (through the post-back evaluation and final interviews) opened participants up to ideas about public dialogue and how future interactions could be better managed.

Merriam et al. (ibid.) also point out that not all transformations are growth enhancing. Negative experiences, (such as those associated with trauma) can result in a retardation of perspective rather than an expansion. In the public document circulated about the Watershed Talk project we postulated that many conventional means of running public conversations could have just this 'anti-transformational' effect, generating a polarity of views, reinforcing existing power arrangements, and acting in all ways unconsciously about the messages and norms of social interaction they are in effect reinforcing. That the unspoken messages of public forums may in fact be affecting perspectives and behaviours in negative directions is ironic given how reliant the canon of environmental management has become on achieving outcomes through processes of public engagement and information exchange.

One significant issue for the Watershed Talk project was its perceived lack of authenticity from having operated outside a formal institutional constrained context. The ICM programme had an ongoing partnership with the TDC. However, despite professions of interest, it had not been possible to establish projects that explored different models for developing social learning capacity in official catchment management situations. Accordingly, Watershed Talk was set up to trial such an approach independently of the agency, but by inviting key TDC staff to take part, the intention was to provide at least these individuals with an opportunity to themselves consider how such processes might be used in their own public engagement situations. While both TDC participants clearly enjoyed taking part in the Watershed Talk meetings, a critique offered by one was that the conditions for the Watershed Talk project did

not match the 'real world', and were not feasible in typical local planning and decision-making settings.

Taking the meaning of 'real world' to imply working with limited budgets time, and data, and political constraints (Bamberger & Rugh 2008), Watershed Talk arguably still clearly operated within limitations imposed by the first three of these factors. Similarly the topics discussed in the meetings were not fictional but derived from the concerns and experiences of the participants living and working in the catchment. Furthermore the Watershed Talk meetings also had to work with the same parameters imposed by social and cultural norms of assembling and conversing, as any public process of interaction and problem solving. Nonetheless this perceived lack of correspondence between such processes and the current conditions for local and regional government public processes of decision making speaks to a potent barrier for capacity building for social learning, in particular for the potential of integrating social learning platforms into the repertoire of approaches used by councils. The legal frameworks for problem solving and decision-making under which local and regional councils operate (through the RMA 1991 and the Local Government Act 2002) are more broadly facilitative than highly directive of practice. They speak to the need to create opportunities for conversation and input at various stages of local government decision-making, not necessarily how these processes must take place other than that they be transparent, democratic, make genuine effort, and be effective and efficient means of reaching a decision. If institutional prescribed norms are not responsible for inflexibility in council processes, what might be the alternative cause? Arguably the barriers are not structural but social.

Ideas about aversion to change abound in the literature on organisational learning (e.g. Huysman 1999; Easterby Smith & Lyles 2003), and describe both individual, collective, and systemic strategies that emerge in response to new concepts and practices. History, both personal and organisational, is widely regarded as important to organisational learning in a number of ways. At the heart of the perceived mismatch between what was enacted and achieved through Watershed Talk and the 'real world experiences' of the TDC staff members could then be a sense that it would be at odds with historically embedded expectations about how things are done. These expectations are derived from sources both internal and external to the council. They include the expectations of council politicians, members of the public and even the staff themselves around process, such as how an issue is going to be dealt with, who

will be involved, whose view will be important to include or placate, and when this will occur. They also include expectations around outcome or output. For example, there may be an expectation that the end product from the process will be a particular decision (governed by predetermined parameters), a management plan, a rule or some other artefact of planning and management. The threat such rigidity around outcomes or outputs can pose to strategies to address complex problems in resource management has been recognised elsewhere, hence the need identification of ‘structured unpredictability’ as a critical component of the social and institutional precursors for social learning. As Aarts and Van Woerkum (2002, p. 431) observe:

Many negotiations are obstructed because they are expected to immediately result in final plans. However in the case of complex problem solving, a final plan is rarely realistic. Instead of striving for the development of and adherence to fixed rules, participants should invest in constructive relationships.

That these expectations become the tacit dictators of practice is a consequence of habit, organisational competency traps (where skills have been concentrated in a particular way of doing things), low tolerance for risk, and the potential threat of compromise to existing power dynamics. For example, during a conversation with another TDC staff member about the possibility of incorporating some of the Watershed Talk ideas into a new council public engagement project, concern was expressed at the technique of actively recruiting participants on the basis that it could be seen as ‘undemocratic’. In the relatively small community of the Tasman District, there are a number of people who repeatedly become involved in public issues, so working with different participants might have positive aspects for the council of bringing in fresh perspectives and new networks. However, these people would also hold viewpoints that would not be predictable, and have unknown allegiances. Establishing new relationships would obviously be more work. Equally uncomfortable, one can imagine, would be the prospect of informing some of the more regular participants that their slot had been given to others! Finally, and significantly, this was a new process and further conversations with TDC staff suggested a capability issue for the organisation, i.e. that there was little awareness of the different ways in which councils could work with communities and that not all public processes were necessarily best run in the same way.

Ultimately it is a reasonable conclusion to draw that, despite overall positive responses from the TDC staff who took part in Watershed Talk, and genuinely interested reflections on the processes used, the effect of the experience was not transformative for both of them, in the

sense of liberating perspectives on ways to engage multiple stakeholders in conversations about complex issues. Rogers (1951, p. 388, in Merriam & Heuter 1996) observes that *a person learns significantly only those things which he[or she] perceives as being involved in the maintenance of, or enhancement of, the structure of the self*. Running Watershed Talk outside existing social and institutional contexts for planning and management required no real commitment or risk on behalf of the council staff taking part and thus had little connection to their sense of competency around their work (i.e. structure of the self as a public planner or policymaker). This was disappointing, so the next steps for the Watershed Talk project team were to see if it was possible to use the preliminary interest generated by the project to work within the organisation's own setting, using the experience as an entry point for building capacity for social learning.

8.4 Practical issues for using P & D evaluation to support social learning

The previous section reviewed the principal features of what was done in each case to address the specific social learning needs of the situation. This cross-case review suggests a number of limitations and key factors that contribute to how evaluation can support social learning in complex environmental problem solving situations.

Scoping the problem situation	The case-study approach itself used the Social Learning Framework, coupled with a SWOT or needs analysis, to reflect on the social learning challenges of each case. This revealed that it can be a useful basis for developing environmental management programmes that are adapted to the social context of the environmental problem situation. However, this relies on having available those with skills in evaluation and understanding of social learning .
Capacity to enquire and problem solve	The cases illustrated that evaluation approaches can greatly influence the ability of programme participants to enquire and problem solve, supporting both content and process learning. Frameworks to help people see important theoretical ideas or across complex systems lent useful structure to enquiry. However, this capacity cannot be built through one-off evaluation interventions. Rather it relies on embedding evaluation approaches into a programme or problem-solving approach. Receptiveness of the organisation and participants to learning greatly influences what can be achieved.

Managing a programme Supporting the management of the programme, enabling it to better understand its inherent logic, become well grounded in important theoretical and practice understanding, and track and monitor the effectiveness of its implementation is a traditional role for evaluation. Theory deficit was a common challenge to programmes and theoretical-framework-based evaluation is a particularly succinct way of relating relevant theory to practice. The cases revealed that this again calls for specialist skills in both social learning and evaluation, and openness to evaluation approaches that are not simply to meet accountability needs or designed to assess outcomes is important.

Research and development In all the cases the programme proponents expressed interest that went beyond whether their particular programme was working to understanding why. This understanding would enable practices to be more thoughtfully and successfully applied elsewhere. Evaluation to support research and development relies on close work between the evaluator and the programme proponents and participants. Establishing the nature of this relationship is a critical factor. Where research and development aspects are embedded in programmes from the beginning (e.g. Watershed Talk), significant progress can be made on issues that might otherwise have disrupted or limited project outcomes.

Accordingly, while the cases are illustrative of the possible connection between P & D evaluation as a medium for social learning, they also highlight a number of issues of practical importance. These can be grouped into three interlinked areas of concern:

1. The evaluator, their skill, values, and role
2. Mandate, and location of the evaluation
3. Organisational disposition to learning and change.

That these factors have emerged as significant is not very surprising. They would easily be among the issues of greatest concern to any evaluator undertaking an evaluation commission or indeed any social process specialist. However, the junction between building capacity for social learning and P & D evaluation places a very particular set of demands in all three areas.

8.4.1 Evaluator, skills, values and roles

From comparison of my experiences in the cases presented in this PhD with those of many other evaluators at ANZEA regional and national fora, it is apparent that what occurred in the cases is an uncommon intersection between expertise areas in community development and evaluation. This is not an unheard of junction for evaluators. As early as 1980 Cronbach et al. (1980) proposed changes to the role of evaluators, postulating they take advantage of their capacity to move among the many programme constituents, and act to cross-pollinate ideas from a range of stakeholders, help clarify the multiple objectives, and to redefine the problem context for the program (ibid., p. 171). Rather than independent and isolated expert, Cronbach and colleagues argued for evaluators to be actively engaged in the political events of the situation – working as a *multi-partisan who serves the general interest* (ibid., p. 152). This, at the time, was regarded as a significant shift in responsibility, from independent technical advisor to engaged facilitator of learning and change. More recently Keast (2004), addressing a conference on social change in Australia, echoes this and speaks of an anticipated change for evaluators from just facilitating evaluation to also facilitating programme and organisational development. Alongside this comes the need to tap into a broader skill set around facilitation and engagement. However, while this is certainly ‘a role’ an evaluator might fulfil, it is not the only one, and in New Zealand at least it is unlikely in the short or even medium term to become mainstream.

The choice to work as an evaluator, in what can be described as a ‘boundary role’, is reliant on a mixture of values and capability. Preskill (2004, p347) lists the following extensive expertise:

Evaluators who use collaborative, participatory and learning-oriented approaches to evaluation will be more effective if they understand the concept of team development, group dynamics, systems theory, trust and power, organisational change and culture, self-efficacy, multi-cultural competence and adult learning. They will also be more successful if they are able to facilitate meetings effectively, provide feedback, listen actively, mediate conflict and negotiate compromise.

My own role as an evaluator in each of the cases presented here changed as my skills, experience and confidence grew. In the WCMP evaluation, I undertook what would be regarded as a fairly conventional, participatory outcome evaluation. Through the TZ and ICM programmes, I increasingly acted to expand the possible use and contribution of the

evaluation activity I was involved with. Ultimately my role in the Watershed Talk project would be best described as a social process specialist using evaluation as a means to a number of complex ends – not a very traditional role for evaluation at all. Nevertheless, throughout all these changes, my fundamental ideals remained the same, i.e. a desire to support people in their learning about the problems they were trying to address. At the 2009 ANZEA

Box 8.1 Identifying a personal evaluation philosophy

*Why are you involved in evaluation?
 What is most important to you in evaluation?
 What do you want to support through evaluation?
 What do you want to avoid?
 What aspects of your personality most affect your approach to evaluation?*

(from Trotman 2009)

conference Rachel Trotman proposed a personal inquiry for evaluators to ground them in purpose, technique, proclivity and expertise. The questions she offered (see Box 8.1) make clear the wide scope for divergent career paths in evaluation.

Choosing to work to build the social learning potential of environmental management situations requires foremost a set of knowledge about social learning. Secondly, it requires skills in a range of P & D evaluation approaches that can facilitate learning, not only for programme efficacy, but to support the resolution of the problem itself. Finally, it entails an acceptance of the need to negotiate (and probably renegotiate) the mandate for the work.

8.4.2 Mandate, location and role for the evaluation

The evaluator can be contracted as an outside contributor to the programme (e.g. WCMP and the TZ programme) or have a recognised role within the programme (e.g. ICM). Both have advantages and disadvantages. The expertise for the evaluator lies in working out what can be made of either position, or how disadvantages can be mitigated. On the one hand, coming in from the outside can mean that there is a commitment to make the most of the expertise that is on offer. This provides a legitimacy and purpose which is helpful when negotiating access to information or when making demands on the time of programme participants (e.g. the TZ programme). In contrast, coming from within the ICM programme at times made it difficult to be perceived as sufficiently independent to be trusted with the role of facilitating reflection on critical issues. For example, during the review of community engagement I undertook for the ICM social spaces evaluation, one participant questioned how I could critique this when his perception was that this had been my responsibility. On the other hand, as the comparison

between the ICM programme and the IRAP programme illustrated, building a trusting relationship with colleagues over time can enable a greater openness to working with new ways of reflection and learning, and a greater (albeit sometimes hard-won) acceptance of your role in the programme.

This acceptance of a role for reflection and evaluation within a programme is fundamental. In their work on practical reflexivity and experiential learning, Cunliffe and Easterby Smith(2004) point out that the nature of reflexivity itself is to problematise rather than simplify situations. Asking people to step back, assess and rethink the problem situation can slow things down or seem to be making situations worse. This clearly makes such work seem unattractive to those who expect to take action and make progress within fairly short time-horizons, as is often the case in environmental management situations. Another challenge to acceptance of reflection and evaluation in a programme is the lack of a common, let alone widespread, acceptance that there is a problem. The comparative cases of the IRAP and ICM programmes are illustrative of this. My first efforts to establish a role for critical reflection in the IRAP programme were met with an assertion that ‘there would be no problems because the desire to collaborate was very strong’. After four years the collaboration in IRAP developed serious, even irreconcilable difficulties as unforeseen problems in the collaboration arose.

The most common mandate for evaluation is one based on critique, and, as in the case of the TZ programme, it is often tempting to use this to become involved in a programme, because it appears to be the only opportunity that is available. However, to have an effect on the social learning capacity of a programme, the evaluation needs to serve more than a critique, accountability or judgement purpose. As the WCMP illustrated a traditional critique evaluation, when the information is shared widely with programme participants, can still result in learning and programme development. Nonetheless it does not support the ongoing social learning potential of the situation. To do this the evaluation must be able to target specific social learning challenges, and introduce ongoing capacity for reflection. If this is not the specified mandate of the evaluation there must be some ability to negotiate a role for the evaluation that meets these learning needs. In the case of the TZ programme there was both interest and resources available to alter the orientation of the evaluation. This leads to the issue of an organisation’s proclivity and openness to learning.

8.4.3 Organisational disposition to learning and change

There are two aspects to this that are important: cultural interest in learning and change; and familiarity and use of evaluation. One of the surprises for me during the course of this PhD has been to discover how relatively uncommon evaluation of any kind is in the environmental management sector, notwithstanding the often considerable expenditure that is allocated to programmes. Evaluation attached to short-term and long-term programme interventions is a matter of course in both education and health sectors – both of which are in many ways comparably involved in social change interventions. During my critical conversations (Solomon 2009, see Appendix 1) I learnt from one interviewee how, over two years of employment in the research and evaluation unit of a major metropolitan authority, he had been involved in only three evaluations. Furthermore, his view was that if the unit he was currently working with requested to see the evaluation frameworks being used across the organisation, they would receive very little response. However, if they requested monitoring frameworks, they would be inundated! This can be seen as an indicator of organisation learning preferences. As many of those working in regional environmental management have

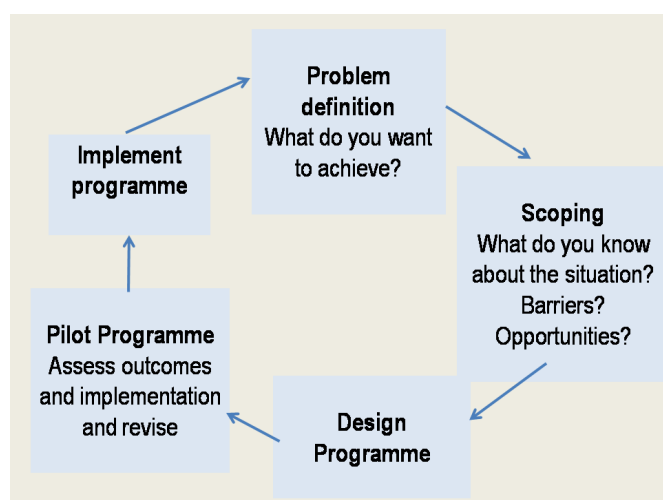


Figure 8.1 **Suggested planning stages for behaviour change programmes** (from Kirkland-Smith 2008).

a background in environmental science and engineering, there is a corresponding cultural proclivity towards ‘hard’ data gathering and analysis rather than creating frameworks to understand the more complex interventions in which they are involved.

Speaking from his position as a research and evaluation specialist within a regional council Solomon (ibid.) regarded evaluation as simply a form of good programme management. This echoes views expressed by Kirkland Smith (2008), who, from a similar position in Manukau City Council (a metropolitan resource management agency), posited that the ideal format for designing and implementing programmes to create behaviour change would be cyclic and have five stages (see Figure 8.1). However, her own experience suggested these stages were short cut, often moving from problem definition straight to programme design, and followed

by implementation of a programme which, while termed 'pilot', may end up as the only initiative pursued in this area.

Where evaluation approaches have been used to support programme development, the examples offered during my critical conversations suggested that this was a consequence of the presence in the organisation of someone with interest and skills in this area. An example is the Twin Streams project. Conceived of and sponsored by the Waitakere City Council, this project was ostensibly aimed at improving water quality within an urban catchment in the Auckland Region. It departed from a conventional agency-led approach by using a community development methodology. Testing the assumptions underlying this approach (was this really going to make a difference?), and clarifying the achievements and limitations of this new way of working were regarded as essential roles for the programme evaluation (Chilcott, pers. comm. October 2009). To this end the project worked with evaluators to track the programme as a whole and employed evaluators to work as a 'critical friend' to various sub-projects within the programme (Greenaway, pers. comm. October 2009). This use of evaluation was substantive and creative, and was undoubtedly influenced by the presence of two people with interests and skills in this area employed in the agency at the time.

Notwithstanding the previous argument, this absence of a cultural investment in evaluation could be regarded as having a positive side to it. What is a common practice can often become hidebound and trapped in convention. Exchanging experiences with evaluators in the education and health sector at ANZEA meetings, I learnt that in their working context evaluations are often highly prescribed, making it a struggle to pursue more innovative practices. As there appears to be no established convention for evaluation in the environmental sector, it may be possible to introduce one that does not have to first and foremost serve the needs of accountability.

Moreover, an organisation's responsiveness to change is not just expressed through its tendency to employ evaluators or not. Rather it manifests at many levels in the overall cultural openness to ideas. In the cases explored here (and the critical conversations certainly imply), the regional and territorial agencies involved in environmental management initiatives that demand both collaboration and changed behaviour on behalf of stakeholders are underprepared for the innovation required of the agency itself. The success of projects discussed in the cases, and among those who took part in the critical conversations, appears reliant on pockets of originality and creativity within the organisations that may even run

counter to organisational norms. The term ‘working under the radar’ was used by more than one of those who took part in the critical conversations.

This PhD research has not made a study of the organisational learning skills and tendencies of environmental management organisations in New Zealand (although I suggest this is a fertile topic for further work). What the cases and conversations indicate is that while organisations may often be unprepared, and are certainly pressured, they may feel more constrained in creative terms than is real. Either way this is not a fruitful context within which to pursue new ideas about social learning. In a recent article, long-time community development practitioner Riccardo Ramirez (2009) comments on a recent revelation in his own field of work, that the development agencies with whom he has advocated more participatory communication approaches are not ignorant of, or confused by suggested departures from conventional practice. Rather, their resistance to change is because their own needs for communication are far better met through *public relations, information, awareness raising, social marketing, or any other form in the persuasive mode* (ibid.). The same might well be said of regional and territorial authorities in New Zealand. That is, the fundamental role of such agencies is to make decisions and implement policy. Any form of communication with stakeholders that fostered their independence and self-efficacy might be considered not only a distraction but might act to undermine the council’s ultimate authority.

While this could be construed as a gloomy prospect for those wishing to build the capacity of social learning into mainstream complex environmental problem solving, it is important to note that the cases presented here are successful examples of strengthening the social learning capacity of given situations. Ramirez (2009) outlines his own strategy for navigating the ambiguity of participatory communication using three coordinates: (i) find champions, (ii) develop an understanding of context, and (iii) match this with appropriate communication approaches. The cases presented here suggest a similar set of prerequisites for work that is aimed at improving the social learning potential of environmental management situations. In the first instance ensure there is a person who will champion the work – who is interested, willing, and able to make change happen within their organisation. Secondly, assess the social learning challenges of the situation (potentially using the SWOT evaluation based on the Social Learning Framework). Thirdly, use this contextual analysis to design an appropriate response that can take forward some aspect of the social learning potential of the situation.

8.4.4 Professional capacity in social learning

One of the early questions asked in this thesis was ‘who is responsible for pursuing the agenda of developing social learning capacity in complex problem situations’. As this is not a conventional endeavour for evaluators, it might be that evaluators, with other objectives in mind for their profession, are not the best equipped or most motivated to carry this out. Furthermore, in a country the size of New Zealand, it is not to be expected that such an area of novel and somewhat boundary professional expertise will have large numbers of people exclusively dedicated to it. Moreover, New Zealand environmental management professionals commonly have generic skills, assume many different roles, or respond to different job descriptions in order to meet the expectations of clients or employers, such that anyone working to develop social learning capacity might go by the title of project manager, facilitator, or community development specialist. Using P & D evaluator approaches to support social learning need not be the exclusive province of evaluators or a group of ‘social learning’ specialists. The full skill set required to manage the projects in the cases presented here was diverse. Accordingly, productive partnerships between those with different disciplinary backgrounds will be important to the challenge of developing capacity for social learning in environmental management. The Watershed Talk project is an example of this as the outcome of collaboration between a social process specialist (me), a landscape architect and artist, and a hydrologist and former local government policy manager. The skill of working well in multidisciplinary teams will be a critical component for those wanting to support the social learning capacity of complex environmental problem situations.

8.5 Observations on the case story methodology

The case stories in this thesis were all based on work I had undertaken myself. As outlined in chapter 1 I utilised Jean Mc Niff’s (2002) schema of questions to ground myself in a regular and structured inquiry. In addition, all the cases were viewed and commented on at some point by others. In Case One (Whaingaroa Catchment Management Project) I was fortunate to have access to a meta-evaluation which had assessed the impact of my own initial evaluation work (Greenaway et al., 2003a & 2003b). In the further cases I worked with colleagues who contributed to the assessment of the outcomes and the initial publications. Nevertheless, self-critique formed an important part of my method. I had not realised beforehand how challenging (sometimes outright uncomfortable) it would be to ask myself the difficult questions—‘what really went on here?’; ‘how could this have gone differently?’ In building

my understanding and, most importantly, challenging my assumptions I recalled advice from action researcher Bob Dick (pers comm. March 2005) and actively sought *disconfirming evidence*. Hence my inclusion of the difficulties faced in the IRAP evaluation (Chapter 6) and the failures with some of the Target Zero teams (Chapter 5). These have been essential in defining the boundaries and limitations of ideas.

Across the cases as a whole there is a wide divergence in context and the social learning challenges this presents. Furthermore, in each case my role, experience and skills were progressively developing such that even I could not be said to be the common denominator. While this might present difficulties for a traditional comparative case study it made for a rich enquiry into self and practice. In each case I had different knowledge which I brought to the situation. In the process I learnt more about how to enable better paths of communication and learning for others as well as the implications of placing myself in this role, such as the risks of rejection and hostility and the need to deal with persistent uncertainty.

The sequential nature of the cases meant that they represent a progression of ideas. The first case initiated my interest in the potential role for evaluation that could support people learning their way through complex situations. Furthermore, the WCMP case story revealed how evaluation could operate at different levels: supporting programme participants in their tasks directly related to the problem situation; supporting those trying to manage a multi-stakeholder initiative; and creating needed knowledge on how to address complex problem solving per se. In the final case story (Watershed Talk) lessons from previous experiences were reworked and further progressed.

Along the way I needed to test my reflections with others, and I held a number of directed conversations with people working as evaluators or within local and regional government in positions where they were responsible for programmes aimed at addressing multi-faceted environmental management issues (Appendix 1). I also went to a number of national ANZEA (Aotearoa New Zealand Evaluation Association) conferences and became a regular member of my local ANZEA branch. These conversations, conferences, workshops and meetings validated, extended and contradicted ideas that were emerging through the PhD. The importance of creating a role for evaluation and the influence of the organisation's own predisposition towards learning were confirmed through my contacts with evaluators. However, my conversations with regional and local government staff contradicted by first

ideas about evaluation, i.e. that it might be a recognisable and therefore potential conduit for bringing in ideas about learning and change. Evaluation has not proved to be a common let alone popular activity within the environmental management sector. This suggests an area for further investigation —gaining a better understanding the organisational competence for complex problem solving in the environmental management sector of New Zealand. This, and other possible future research directions will be briefly discussed in the concluding chapter.

8.6 Summary

The central aim of this thesis has been to examine the possible intersections between P & D evaluation as a means to support capacity for social learning in complex environmental management situations. In Chapter 3 I proposed four possible arena where P & D evaluation approaches and social learning can intersect. These are:

1. Scoping the environmental management problem situation
2. Supporting the capacity to enquire and problem solve
3. Supporting the management of programmes or interventions in the problem situation
4. Research and development that facilitates the growth of theoretical and practical knowledge about addressing complex environmental management situations.

In this thesis I then went on to examine the use of P & D evaluation approaches to support capacity for social learning in four case stories. For three of these I used the Social Learning Framework combined with a SWOT analysis to do a retrospective scoping of the problem situation. What this revealed about the cases was:

- Programmes relied on formation of groups to achieve their ends but were commonly underprepared for how to facilitate and manage these groups to enable collaboration and learning.
- The social and institutional contexts of the cases were very important to the outcomes of the programmes. However, there was limited awareness of key factors within this. This was despite universal intentions to create change in these social and institutional contexts.
- Programmes lacked a coherent approach to learning, although learning, development and change were intended outcomes of the programme. The TZ programme was a notable exception with its adaptive learning approach for developing technical understanding of the waste and resource use practices of organisations.

- Finding a workable approach to improve the systems thinking in programmes was problematic for people in complex multi-stakeholder programmes.
- The case stories also highlighted the atheoretical nature of the programmes. The programmes commonly had a need for an improved understanding of theoretical and praxis knowledge concerning some aspect of the social learning challenges they faced.

In the fourth case story (Watershed Talk) the Social Learning Framework was used proactively as part of project planning. This enabled the project to focus specifically on common challenges associated with the learning dimension of social learning: (i) dealing with barriers to learning – principally those associated with power in groups and confidence or self-efficacy for individuals; (ii) addressing ‘too early’ and a priori problem definition; and (iii) managing an open-ended dialogue process.

Each of the four cases involved some attempt to support the capacity for social learning in the problem situation using an approach based on P & D evaluation methodologies. The different approaches were employed to address points 2, 3 and 4 above or a combination of these. These approaches all met with some success. Key observations from the use of these approaches were:

- Case One showed how even simple outcome evaluation conducted as a discrete event can change the learning potential of the programme when the findings are shared with programme participants and proponents. However, single-event evaluations do not support the ongoing social learning capacity of the situation.
- Case Two (social spaces evaluation in the ICM programme) and Case Three (TZ teams’ evaluation) both illustrate the potential value of frameworks to help programme participants and proponents visualise important aspects of the context in which they operate. Framework-based evaluation can be an efficient approach to introduce complex theory and ideas needed by programmes in a palatable and immediately useful form. However, the story of the ISKM-based framework evaluation in the IRAP programme was comparatively less successful, and illustrates the importance of not only getting the right framework for the situation but matching this with an approach to reflection and questioning that meets the proclivities and unique needs of the participants.
- Cases Two and Four further highlighted the potential value of processes of reflection and questioning. They illustrated that when these are built into a programme over time these

can develop both individual self-efficacy (e.g. Watershed Talk) and collective or group efficacy (e.g. Target Zero). In addition such processes can be used to build both content knowledge about the system (e.g. Watershed Talk soft-systems-based problem solving) or process knowledge about the way the programme is operating (e.g. Target Zero, ICM social spaces, and the WCMP).

The cases highlight a number of important issues of practical importance to using P & D evaluation to support capacity for social learning in complex environmental problem solving situations. These can be grouped into three interlinked areas of concern: (i) the evaluator, their skill, values, and role; (ii) the mandate and location of the evaluation; and (iii) Organisational disposition to learning and change.

The junction between evaluation and social learning requires a set of knowledges about social learning and skills in a range of P & D evaluation approaches that can facilitate learning, not only for programme efficacy, but to support the resolution of the problem itself. This requires a particular role of the evaluator (and a willingness to pursue this) beyond independent technical advisor to engaged facilitator of learning and change. Furthermore, those seeking to use P & D evaluation approaches to support social learning will often find there is a need to negotiate the mandate of the evaluation away from critique, judgement or accountability towards learning, development and change. The ability to influence the nature of the evaluation is a fundamental limiting factor on the contribution it can make to the social learning capacity of the situation. This, in turn, is likely to be influenced by the disposition to learning and change of the lead organisation sponsoring the programme. There are two aspects to an organisation's proclivity and openness to learning that are important: familiarity and use of evaluation and overall cultural interest in learning and change.

The assessment of the cases and the critical conversations suggest that, unlike in sectors such as health and education, evaluation of any kind is not a core component of programmes across the environmental management sector in New Zealand. At first glance this undermines the notion of using evaluation as vehicle to support capacity for social learning. However, set against this is the potential of establishing a new convention for evaluation in the environmental sector that does not have to first and foremost serve the needs of accountability. Furthermore, the cases explored here and the critical conversations suggest that the regional and territorial agencies involved in environmental management initiatives are

underprepared for the innovation required of the agency itself. The successes of the case story projects, and among those who took part in the critical conversations, appear reliant on pockets of originality and creativity within organisations that may even run counter to organisational norms.

To address these challenges, recommended guidelines for working with P & D evaluation to support social learning are: (i) find champions who are interested, willing, and able to make change happen within their organisation; (ii) understand the social learning challenges of the situation (potentially using the SWOT evaluation based on the Social Learning Framework proposed here); (iii) use this contextual analysis to design an appropriate response that can take forward some aspect of the social learning potential of the situation.

In summary, just as it is important to understand that social learning is not a model for complex problem solving, P & D evaluation should not be confused with a recipe for delivering it. No standard model of evaluation can hope to meet the multiple contextual factors of various problem situations. These include the particular social learning needs of the situation, existing skills and capacity, and the opportunities for carrying out successful interventions.

Chapter 9

Conclusions

9.1 Introduction

This thesis investigated the field of managing complex environmental management issues at local and regional scales. In particular it examined the emergent concept of social learning, noting that alongside its increasing popularity as a way of understanding the social and institutional aspects of environmental problem situations is a need to translate this normative idea into practice. In response, this research explored current advances in participatory developmental evaluation, proposing links between these approaches and promotion of the social-learning-capacity needs of environmental management programmes. Pragmatic aspects of these links were further examined through a series of case stories. In this concluding chapter I consider the implications of the research findings for New Zealand environmental management practice.

9.2 Summary of research findings

One of the first outputs of this thesis has been to trace the likely roots and coincidental evolutions of the social learning concept. Social learning has simultaneously emerged in the planning and policy literature and in the environmental management and sustainable development literature. It also has implications for the arena of post-normal or sustainability science. The multiple venues in which social learning appears have led to some divergence in terminology, which poses challenges for the theoretical and practical development of the concept. While in some instances social learning is regarded as an end state (e.g. improved learning by a collective), commonly in the environmental management and sustainable development literature social learning is regarded as a means to an end, i.e. to enable agencies, stakeholders and communities to address environmental problems. Accordingly, while it may be possible to measure social learning as an outcome, it is arguably more useful to regard social learning as a framework of elements critical to understanding and supporting the social and situational factors that underpin complex environmental problem solving.

From this analysis of the literature I propose a Social Learning Framework that draws attention to four interlinked areas for focusing awareness and developing practice in complex problem solving situations: These are:

1. How to manage group participation and interaction
2. How to work with and improve the social and institutional conditions for complex problem solving
3. How to improve the learning of individuals, groups and organisations
4. How to enable systems thinking and the integration of different information.

It is important to understand social learning not as a model for ‘how things should be done’ but rather as a set of premises or conditions, the management of which is important to the ability of groups of stakeholders to find their way through complex problems where each share some knowledge, and towards which each need to take some action. The ideas that make up social learning are fundamentally about improving the basis for learning and adaptation. There are no set steps to be followed, nor does it prescribe any particular starting position. Rather these ideas can be applied to improve the situation from ‘where you are now’. What social learning is reliant on, then, is the development of a culture and conditions for continuous and rigorous enquiry among the participants in the problem-solving situation. This makes reflection a central driver of practice in all four areas. This reflective practice must examine not only what is known and needs to be known about the problem, but also what exists and needs to change about the social conditions in which the problem situation is located, i.e. learning about both content and process.

From the literature review I also concluded that more had been written about the meaning of social learning, or whether social learning has occurred in any given situation, than about the ‘how to’ of social learning, suggesting the relationship between practice and theory is incoherent. This praxis gap relates to the different elements of social learning, such as how to facilitate and enable active learning processes, as well as how to introduce and embed social learning in ongoing and institutionalised processes of decision-making.

In search of a mechanism that might be used to drive the enquiry practice at the heart of social learning and locate it within environmental management programmes, I looked to the area of participatory developmental evaluation (P & D evaluation). There are three reasons for this. Firstly, evaluation is a structured and methodical inquiry. As such, evaluation,

particularly P & D forms, formalises practices of reflection and monitoring. Secondly, one of the core factors of social learning is the institutional arrangements and social conventions that circumscribe an environmental problem solving situation. Influencing these is important to preparing the ground for social learning. Intervention programmes designed to address specific environmental issues manifest directly from these institutional practices and social norms, and programme evaluation is a traditional and widely accepted mechanism for supporting learning and development in programmes. Thirdly, capacity building itself is a challenging task, and includes matters such as how to support learning and how to engage and empower people. These are familiar issues at the forefront of debate among the professional and academic community involved in P & D evaluation.

The diverse branches of evaluation that are grouped here as P & D evaluation have commonly emerged in response to a more politicised and learning-oriented agenda for evaluation. As such they offer much to those interested in practical methods to improve a situation or to learn about the *how* and *why* of programmes (Weiss 2004). Moreover, the potential of evaluation is to do something more than simply enquire. Depending on its construct it can change the whole nature of the inquiry paradigm itself. Authors such as Cronbach (1982, in Greene 2004) have advocated and created a recognised remit for evaluation that works to support the resolution of controversial issues, arguing that one of the functions for evaluation can be stimulating the connectivity between groups, and fostering and supporting the conditions of debate and collective meaning-making. This also alters the role of the evaluator from an independent technical expert of mainstream evaluation, to having a vital political role as a medium for deliberative democracy.

Matching the findings from the review of evaluation with the social learning elements derived earlier I proposed four arenas where P & D evaluation approaches and social learning can intersect. These are

1. Scoping the environmental management problem situation
2. Supporting the capacity to enquire and problem solve
3. Supporting the management of programmes or interventions in the problem situation
4. Research and development that facilitates the growth of theoretical and practical knowledge about addressing complex environmental management situations.

This proposed link between P & D evaluation and social learning was examined in four case stories of environmental management initiatives addressing a range of complex environmental issues. Each tells the story of using some form of P & D evaluation aimed at improving the capacity to enquire and problem solve, supporting programme management, adding to the knowledge needed to help address the situation (research and development), or a combination of these. In addition the case story review process itself used the Social Learning Framework as a basis for scoping the problem situation. This involved a SWOT / needs analysis to identify the particular social learning challenges in each of the cases, and it tested the first proposed intersection between social learning and P & D evaluation.

The case story review revealed several common, significant, social learning challenges were shared by the environmental management programmes:

- Environmental management programmes relied on formation of groups to achieve their ends but were commonly underprepared for how to facilitate and manage these groups to enable collaboration and learning.
- The social and institutional contexts of the cases were important to the outcomes of the programmes. However, there was limited awareness of key factors within this. This was despite universal intentions to create change in these social and institutional contexts.
- Programmes lacked a coherent approach to learning, although learning, development and change were intended outcomes of the programme. The Target Zero programme was a notable exception, with its adaptive learning approach for developing technical understanding of the waste and resource-use practices of organisations.
- Finding a workable approach to improve the systems thinking in programmes was problematic for programmes.
- The programmes were commonly atheoretical and had a need for an improved understanding of theoretical and praxis knowledge concerning some aspect of the social learning challenges they faced.

Secondly, the cases were all illustrative of the successful use of P & D evaluation approaches to improve discrete elements of the social learning capacity of the situation:

Scoping the problem situation	The coupling of the Social Learning Framework with a SWOT analysis is useful for isolating particular social learning challenges in a given situation. Its use in the fourth case story (Watershed Talk) illustrated its value as a way of developing environmental management programmes that are adapted to the social context of the environmental problem situation. This relies on an understanding of social learning and some evaluation and reflection capacity.
Capacity to enquire and problem solve	Evaluation approaches can greatly influence the ability of programme participants to enquire and problem solve, supporting both content and process learning. Frameworks to help people see important theoretical ideas or across complex systems lend useful structure to enquiry. However, this capacity cannot be built through one-off evaluation interventions. Rather it relies on embedding evaluation approaches into a programme or problem-solving approach. Receptiveness of the organisation and participants to learning greatly influences what can be achieved.
Managing a programme	Supporting the management of the programme, enabling it to better understand its inherent logic, become well grounded in important theoretical and practice understanding, and track and monitor the effectiveness of its implementation is a traditional role for evaluation. Furthermore, as theory deficit was a common challenge to programmes, theoretical-framework-based evaluation is a succinct way of relating relevant theory to practice. The cases revealed that this calls for specialist skills in both social learning and evaluation, and openness to evaluation approaches that go beyond accountability or outcome assessment.
Research and development	Evaluation to support research and development to enable practices to be more thoughtfully and successfully applied elsewhere relies on close work between the evaluator and the programme proponents and participants. Where research and development is embedded in programmes from the beginning, significant progress can be made on issues that might otherwise limit project outcomes.

In addition the four case stories revealed:

- Simple, outcome evaluation conducted as a discrete event can change the learning potential of the programme when the findings are shared with programme participants and proponents. However, single-event evaluations do not support the ongoing social learning capacity of the situation.
- Framework-based evaluation can be an efficient approach to introduce complex theory and ideas needed by programmes, in a palatable and immediately useful form. Important considerations for choosing the framework are its endogenous or exogenous origins, and its orientation (critical/judgement or appreciative/constructive). The framework also needs to be matched to a participatory reflection approach that meets the proclivities and unique needs of the participants.
- When processes of reflection and structured questioning are built into a programme these can develop both individual self-efficacy and collective or group efficacy. In addition such processes can be used to build both content knowledge about the system and process knowledge about the social dynamics important to the intended outcomes of the programme; and also management knowledge about way the programme is operating.

Overall, three key factors emerged as important to the practice of using P & D evaluation to support capacity for social learning in complex environmental problem solving situations: (i) the evaluator, their skill, values, and role; (ii) the mandate and location of the evaluation; (iii) organisational disposition to learning and change.

The junction between evaluation and social learning requires a set of knowledge about social learning and skills in a range of P & D evaluation approaches that can facilitate learning, not only for programme efficacy, but to support the resolution of the problem itself. This requires a particular role of the evaluator (and a willingness to pursue this) beyond independent technical advisor to engaged facilitator of learning and change. Furthermore, those seeking to use P & D evaluation approaches to support social learning will often find there is a need to negotiate the mandate of the evaluation away from critique, judgement or accountability towards learning, development and change. The ability to influence the nature of the evaluation is a fundamental limiting/promotion factor effecting the contribution it can make to the social learning capacity of the situation. This in turn is

likely to be influenced by the disposition to learning and change of the lead organisation sponsoring the programme.

There are two important aspects to an organisation's proclivity and openness to learning. The first of these is familiarity and use of evaluation. The assessment of the cases and the critical conversations suggest that, unlike in sectors such as health and education, evaluation of any kind is not a core component of programmes across the environmental management sector in New Zealand. To set against the obvious disadvantages of this for relying on evaluation as an inroad to supporting social learning is the potential of establishing a new convention for evaluation that does not have to first and foremost serve the needs of accountability.

The second factor is overall cultural interest in learning and change. The cases explored here and the critical conversations suggest that the regional and territorial agencies involved in environmental management initiatives are underprepared for the innovation required of the agency itself. The successes of the case story projects, and the cases discussed in the critical conversations, appear reliant on pockets of originality and creativity within organisations that may even run counter to organisational norms.

To address these challenges, guidelines for working with P & D evaluation to support social learning are, firstly, to find champions who are interested, willing, and able to make change happen within their organisation; secondly, to understand the social learning challenges of the situation (potentially using the SWOT evaluation based on the social learning framework proposed here); and thirdly, to use this contextual analysis to design an appropriate response that can take forward some aspect of the social learning potential of the situation.

9.2.1 Additional conclusions from the case stories

In addition to the conclusions that can be drawn about the application of P & D evaluation approaches to support social learning the case story review offers some unique insights into three very different environmental management programmes.

In Case Story One, the early experience of establishing the WCMP is illustrative of how the potential for CBM initiatives to foster capacity for social learning among institutional and community stakeholders can be let down by a 'cook book' type methodology that has

insufficient awareness of its own fundamental theories of action. The WCMP began with inadequate understanding of the political sensitivities behind bringing various groups in the catchment together. Furthermore, adherence to the pre-designed approach to the programme (based on the ACAP methodology), coupled with implementation that had no built-in monitoring or evaluation, meant the WCMP was unable to respond to important events that challenged and shifted it from its planned trajectory. While programme participants, and the wider community affected by the programme were able to make use of the evaluation findings to cause a reassessment of the programme's directions, there was no system for learning further down the track. What this highlights for other CBM initiatives is the need for practical mechanisms to promote reflection and responsiveness in three contiguous spaces: (i) understanding the social dynamics of the interacting stakeholders at the heart of the programme, (ii) understanding the programme's goals, and the logic of its actions; and (iii) how the programme fits alongside core concepts that underpin CBM (see Figure 4.4 in chapter 4).

Case Story Two—the Target Zero programme was illustrative of a common criticism of resource use efficiency and cleaner production programmes—their failure to appreciate organisations as social systems and consequently their tendency to take a mechanistic approach to supporting innovation (e.g. concentrating on structural elements of teams, or relying on simplistic recipes for behaviour change). In this case, the Target Zero programme already encouraged thinking about organisations as technical systems. The intervention of the teams' checklist evaluation expanded this to thinking about the organisation as a social system. In particular it encouraged practical self analysis of the groups themselves, their behavioural norms and practices and their relationship to the organisation. However, as in the case of the WCMP, the ultimate failure to integrate evaluation into the programme highlights that limited skills of consultants and programme managers can be a real constraint in embedding reflective, learning-based approaches to environmental management programmes.

Case stores three and four are both based in the ICM programme which is a comparatively unique example of the challenges of undertaking transdisciplinary research in environmental management. To make progress the ICM programme had to address theory and practice needs in engagement, building knowledge, integration, and the theory of ICM. These cases revealed both active experimentation around creation of platforms for social learning, and

frameworks to help programme participants visualise across complex systems, to be important components of transdisciplinary research. They also illustrated a different role for social researchers. Rather than simply adjuncts to biophysical research creating further data streams on the social components of the problem system they can make important contributions as specialists in the processes of integration, and problem solving.

9.3 Implications for environmental management in New Zealand

The primary purpose of this research has been to contribute to the challenge of building capacity for social learning in complex environmental management situations. Three issues of importance to the practice of environmental management emerge from this thesis. The first concerns the practical value of coupling the social learning framework with a practice of review and reflection to directly interpret the social learning challenges and capacity of a problem situation. The second is an extension of notions of what professional expertise is useful to help address complex environmental problem situations; and the third concerns the possible risks and value of the concept of social learning itself.

9.3.1 The social learning framework as a practical tool

This study has tested and confirmed the validity of a postulated link between P & D evaluation as a means to build capacity for social learning in four different cases. In each instance a specific set of challenges were addressed, such as improving the learning and collaboration capacity of groups, or supporting systems thinking. This is a selective use of the ideas of social learning and represents a progressive rather than holistic approach to building the social learning capacity of a given situation. The task of building capacity for social learning may be broadly interpreted as ‘how to translate existing theory on social learning in to practice’. However, where there are limits to time, skill and resources this needs to be rendered down to particular challenges in a given problem context. Some choices need to be made about which areas are priorities to address or are most amenable to progress. For instance in one situation a pressing social learning challenge may be ‘How can we facilitate active learning processes that confront existing assumptions amongst multiple stakeholders?’ In another situation the question demanding attention may be ‘How can we facilitate social learning within the constraints of existing management and planning approaches?’

The SWOT/needs analysis, coupled with the Social Learning Framework, is arguably an immediately practical tool for environmental managers wanting to work with the concept of social learning but uncertain where to begin, and without access to specialist evaluation or social learning support. In Figure 9.1 I propose a set of possible prompt questions, derived from the Social Learning Framework that can be used in a review of the existing capacity for social learning of an environmental management programme. These questions were designed as a starting point for those engaged in addressing complex environmental problems. They are examples, are by no means definitive, and have been structured to suit a generic audience. Other sets of questions more specific to the particular context of the situation or the skills and proclivities of the enquiry group can be constructed using the fundamental characteristics of the core elements of social learning outlined in Table 2.5 (Chapter 2).

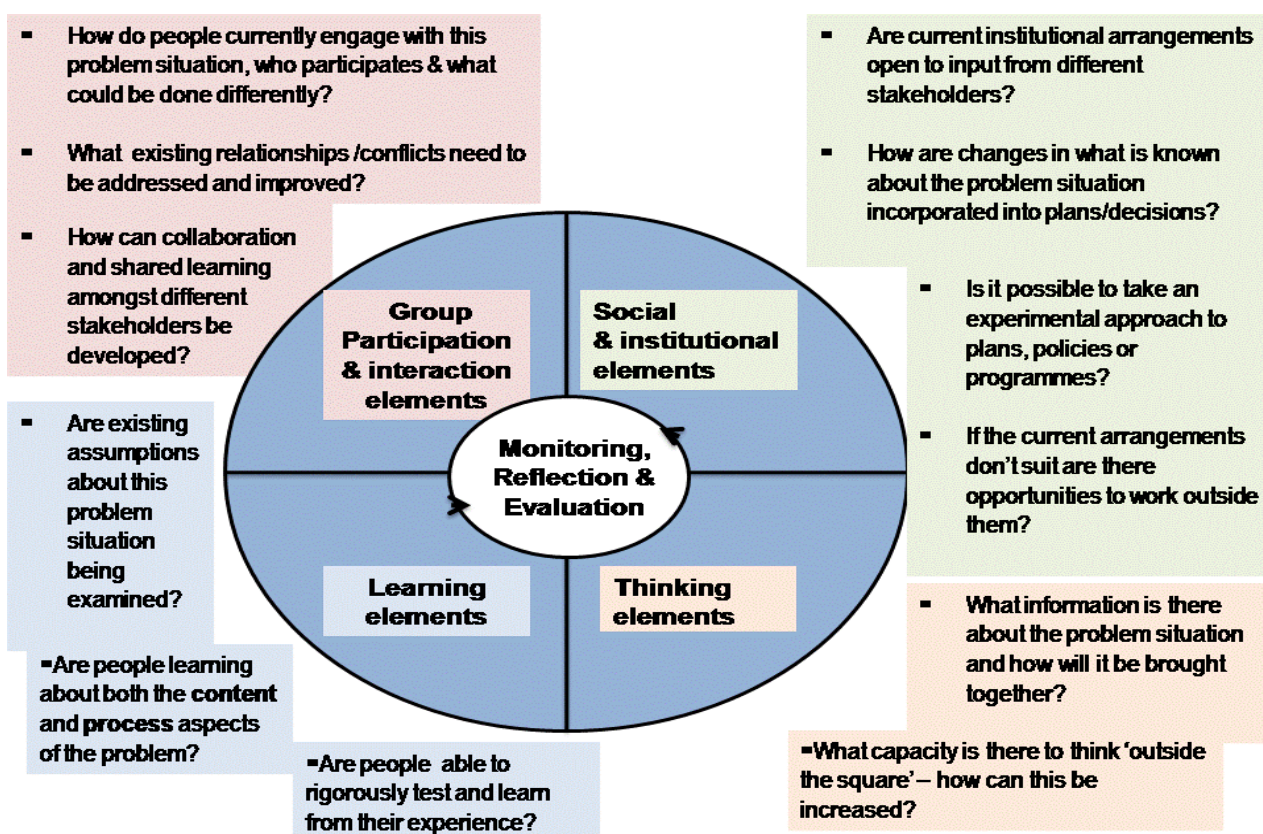


Figure 9.1 Questioning the social learning capacity of a problem system (Kilvington & Allen 2009).

Using a participatory process to undertake this assessment, which involves programme proponents, managers and participants reviewing the strengths, weaknesses and needs of the programme, and jointly assessing priorities – would both increase the value of the review and the overall understanding and efficacy of those involved in the programme

implementation. Picking and choosing aspects of social learning to work with may seem contrary to the holistic nature of the construct. However, using the Social Learning Framework as a basis for assessment means this selection can take place from a position of awareness of the whole. In arguing the merit of using social learning as a basis for understanding complex problem situations I am conscious of the significant shift in thinking around problem solving itself that is required. The attraction of using the Social Learning Framework in the planning phases of environmental problem solving is its potential to build expertise and competency. However, what this hinges on is a diagnostic approach to problem solving that doesn't just focus on the problem but on the solving capacity. Accordingly, having completed an initial scoping of the problem situation using some form of social-learning-based critique, the next question is how well the proposed intervention matches the social learning capacity needs. For instance does the success of the programme rest on platforms for learning and collaboration that simply do not exist? If so, how will this need be met?

Furthermore, since the problem situation will not remain the same over time (indeed the basic assumption of any intervention is that the situation will change), it is a premise of good programme management to keep a watchful eye for what changes are occurring, whether important issues are being progressed, as well as what significant factors are changing in the context around the problem which will further influence the programme's effectiveness. For instance, it may be important to track any shifts in the institutional context that could make decision-making more or less open to participation by multiple parties. It is not practical or even desirable to monitor everything, and programmes need a way of prioritising the pertinent elements within the problem situation. Accordingly, the Social Learning Framework can be used to derive monitoring criteria and provide a basis to ongoing programme management. This also enables a programme to track progress in the overall social conditions for problem solving rather than the more physical elements on which the programme may be focused (e.g. tracking changes in stakeholder capacity for collaboration, not just improved water quality).

A final or perhaps first issue is whether social learning is the right framework in the first instance. Building social learning capacity for addressing environmental issues is a resource, skill, time and expertise-hungry undertaking. Consequently, it is useful to first conduct an assessment of whether the problem would benefit from such an approach. Arguably social

learning becomes a viable, even necessary option where the situation is intractable, where there are many unknowns or unknowables. Hence questioning, trial, assessment and reconsideration need to be built into the management response – and, the means to enable this to happen becomes a fundamental premise of the proposed intervention. Also, social learning becomes important where there are many diverse groups in society who can contribute important information and whose actions are important to the situations; where the problem situation to date has suffered from failures of short-term interventions; and where there is a genuine desire to build more independent problem-solving capacity.

9.3.2 Social learning and environmental management professionalism

Recognising the overall potential for evaluation to support social learning as outlined by Cronbach (1982, in Greene 2004) and others, and the directly pragmatic possibilities as witnessed in the case stories, at the very least what emerges from this research is the possibility of the profession of environmental management to form new partnerships with those skilled in P & D evaluation to support the social learning capacity in environmental programmes. However, this presupposes that there are those motivated, skilled and interested in taking on this challenge.

In New Zealand there are difficulties on both the demand and supply sides of building capacity for social learning. In terms of the demand for social learning it is reasonable to ask – just who is responsible for driving the processes of complex environmental problem solving in New Zealand? Is it the territorial and regional resource management agencies? Is it the central government departments and ministries such as the Department of Conservation or Ministry for the Environment? Or is it the responsibility of non-governmental organisations, sectors and communities with the greatest stake in the outcomes of these issues, to push for progress? The answer is all and yet none of these. Each undoubtedly have a stake, a role and at times may take the lead in driving particular programmes of activity aimed at making inroads into complex problem situations. However, while each may consider the outcome of the particular issue important to them, it is another step to accept responsibility for fostering a more comprehensive capacity to respond to issues that might empower others. The fundamental role of agencies such as local and regional authorities is to make decisions and implement policy. Any form of activity that fostered the independence and self-efficacy of stakeholders might not only be considered a distraction but also act to undermine their ultimate authority.

Furthermore, while it may have been convenient to bring social learning into environmental management programmes through the door of programme evaluation, realistically it requires a clear mandate from the beginning. Without a readiness and willingness to embrace ideas about problem solving, which demand changes in way existing agencies operate, it is hard to conceive of anything but continued isolated experiences – or ‘islands of success’ for social learning. This makes the role of champions even more apparent.

I argue that to meet both the supply and demand challenges of building capacity for social learning there is a need to establish a new professional space. I do not anticipate that the evaluation profession per se would be the community that would create the impetus for more sophisticated, enquiry-based methods of problem solving in environmental management. As a discipline evaluation is about promoting learning and development in a wide range of problem settings. As a community in New Zealand it has its own challenges, and importantly, linear communication and information provision is still the dominant learning model for evaluators. Thus promoting wider use of evaluation in environmental management may not serve the purposes of building capacity for social learning at all.

Nevertheless, in recent years a common connection has developed between the community of practitioners interested in collaborative and participatory environmental problem solving and P & D evaluation. In late 2009 this saw the formation of the Evaluating Sustainability network. As a special interest sub-group of ANZEA its stated purpose is to *work to ensure that environmental and sustainability issues are addressed in evaluation, and that the best evaluation tools are available to those working in the environmental and sustainability arena* (Christine Harper, pers. comm. January. 2010), formally linking the two fields. These somewhat organic connections are a common pattern among those who could be said to currently make up the community of practitioners and researchers involved in promoting deliberative and adaptive forms of resource and environmental management.

The primary focus of this community varies widely. Their emphasis may be on facilitation of multi-stakeholders initiatives, or working with integrative modelling of complex ideas; and their drivers may be to mobilise and empower communities to respond to local environmental issues, or to widen the knowledge sources and scope of environmental decision making structures. To do this they source the methods, theories, ethics and values of multiple disciplinary and praxis constructs such as participatory rural appraisal,

collaborative learning, co-management, participatory communication, social learning and P & D evaluation. Furthermore, this body of practitioners is located within local, regional and national government agencies, and in non-governmental organisations. They can be found running their own practice consultancies, or, as in the case of CLEM, located within Crown Research Institutes. They are also highly likely in their careers to have spent time in more than one of these spheres. What this seemingly eclectic group share are parallel values about the nature of complex environmental problems, and the importance of diversity and inclusivity in determining solutions. What they lack is a coherent, widely recognised remit in complex environmental problem solving.

The strengths of this network lie with its diverse professional expertise and the capacity that stems in many ways from this – which is to work within multi-skilled and multidisciplinary groupings. Its weakness stems ironically from the same source. By embracing so many apparently differently styled approaches and methodologies, they are not readily recognisable as a professional sector. Furthermore, those interested in securing their services are faced with a bewildering array of options, between which it seems difficult to distinguish without some prior knowledge. This correspondingly makes it less likely they will be called upon to support mainstream environmental problem solving initiatives. Consequently the experience of working in this field is one of constantly negotiating entry points for situations within which they can legitimately operate. The opportunities to work in the programmes that make up the case stories in this research are examples of this.

Providing a more solid platform for this collective expertise is important. One of the means by which this might be possible is through the use of boundary organisations. Forsyth (2003, p. 141) describes these as *social organizations or collectives that sit in two different worlds such as science and policy, and can be accessed equally by members of each world without losing identity*. The distinguishing feature of these organisations is that they provide sites where different epistemological networks may unite. In a sense these organisations often act as intermediaries, but beyond this they create a recognised space for intersection. The role of boundary organisations in environmental management is growing internationally, extending beyond traditional purposes of bringing together the demand and supply sides of knowledge development and acting in arena where problems are more unstructured. Here their role is not only to source and integrate relevant formal and informal knowledge, but to support processes of transdisciplinary research (Roeland 2004). The

attraction of the boundary organisation concept is in its potential to allow for the necessary interaction between actors of all kinds (e.g. NGOs, government agencies, sector representatives) without the loss of agency for any of these.

Ultimately, an important signal emerging from this thesis has been the need for change within the professional environmental management sector as it stands in New Zealand today. The examples offered through this research have been illustrative of the severe constraints that cause process paralysis in current problem-solving approaches to complex resource and environmental management dilemmas. These constraints are both structural and, perhaps even more significantly, are part of a collective organisational psychology governing the expected remit and preferred modes of operation of such organisations. There appears little opportunity for innovation and almost no room for social learning or adaptive management within this highly structured context. This still seems to be the case in the face of a common quest for 'new ways of working' on complex problems. The call for a new profession could equally apply to the current practices of environmental management to be found in New Zealand resource management agencies. A more dynamic and responsive approach to management is required that moderates the addiction to the artefacts of planning, and instead measures its success in terms of transformational impact. What this would mean in practice is a reconsideration of what is currently regarded as core expertise in environmental management, rejecting the primacy of biophysical science and planning disciplines, instead seeking proficiency in integration, facilitation, systems thinking and knowledge brokerage.

9.3.3 Value of the social learning concept

Finally, it is worth considering the value of social learning concept itself to the practice of environmental management. Over the years of working on this PhD I have witnessed a small but growing usage of the term in New Zealand. Not all of it refers to the conceptually rich version expounded here and by theorists such as Keen et al. (2005), Pahl-Wostl (2004) and others. This greater circulation of the idea of social learning has both positive and negative aspects. In the first instance the very existence of an idea offers a chance for those who use it to pause and consider in what way the current circumstances in which they find themselves match with or contradict it; giving new meaning to and opening the door to new interpretations of previously unexamined phenomena. As Gouldner (1970 in Cooperrider &

Srivastva 2001) observes: *every social theory facilitates the pursuit of some, but not all, courses of action and thus encourages us to change or accept the world as it is, to say yea or nay to it.*

Alternatively, when a concept becomes overused, loses its originality and hence ability to challenge, it can be that the usage that is commonly settled on may even run contrary to its provocative potential. As a consequence, people assume that because something has been given the title ‘social learning’ then this is what is taking place, when it may actually be a renaming of the status quo. An example of this has been the co-opting of terms such as ‘dialogue’, and ‘engagement’ to mask otherwise conventional forms of communication (Escobar 2009). During this research there have been times when I thought that the term social learning may be problematic. Its diverse origins leave it open to multiple interpretations and no one can be considered wrong in using the term at its most simplest, i.e. meaning ‘people learning’. This ‘othering’ of the learner in social learning, i.e. assuming that the learner is other than those who are nominally in charge of the situation, is one of the concept’s most likely operational pitfalls.

Potentially the greatest value of social learning is its dynamic quality. In every unique situation the meaning of social learning has to be determined for those and by those involved, and furthermore acknowledged to be continuously changing. Many have already outlined the appeal of social learning as both a normative goal and a basis for understanding the complexity of these situations. The danger of social learning becoming, as Röling (2002) terms it, *the new orthodoxy* is an argument for linking social learning with active critical reflection.

9.4 Summary and future research

In this thesis I chose to focus on building capacity for social learning. This in itself is a substantive field, and more could be done to contribute to persistent challenges within it (such as understanding individual and collective learning, and developing applied approaches to systems thinking). Furthermore, the four cases illustrate that developing capacity for social learning is dependent on the institutional arrangements and the learning receptiveness of key agencies that drive many of the initiatives. Understanding the organisational competence for complex problem solving in the environmental management sector of New Zealand is an important but as yet underexplored research area. What may

prove important to this is the role of organisations and groups that operate along the boundaries between traditional disciplines and professions.

This research has contributed to the practical value of social learning. What this is reliant on is a more rigorous approach to working with the ideas which it embodies. If it is to be a conscious framework of use to resolving resource use and environmental management dilemmas there must be greater literacy about the core elements of social learning and their relationship to the problem situation. P& D evaluation offers structure for this disciplined inquiry as well as tools for building capacity along the way. Its wider usage in environmental management initiatives would contribute to increased programme efficacy and learning potential.

References

- Aarts, N., & Van Woerkum, C. (2002). Dealing with uncertainty in solving complex problems. In C. Leeuwis & R. Pyburn (Eds.), *Wheelbarrows full of frogs: Social learning in rural resource management*. Netherlands: Koninklijke Van Gorcum.
- Aldridge, B., & Hargreaves, R. (1999). *Evaluation of the CMA Cleaner Production Project: Report to Waste Management Unit, Christchurch City Council*. Lincoln: Environmental Management and Design Division, Lincoln University.
- Allen, W. (2001). Working together for environmental management: the role of information sharing and collaborative learning. Unpublished PhD thesis, Massey University, Palmerston North, New Zealand.
- Allen, W. (2007). *Learning for sustainability reference site*. Website: <http://learningforsustainability.net/>
- Allen, W., & Kilvington, M. (2000). Why involving people is important: the forgotten part of environmental information system management. *2nd International Conference on Multiple Objective Decision Support Systems for Land, Water and Environmental Management (MODSS '99) Brisbane, Australia, 1–6 August 1999*.
- Allen, W., & Kilvington, M. (2001). *Building effective teams for resource use efficiency* (Landcare Research Contract Report LC0001/060). Lincoln, NZ: Landcare Research.
- Allen, W., & Kilvington, M. (2002). Learning and working together for the environment: applying the Integrated Systems for Knowledge Management approach. *Development Bulletin*, 58, 106–110.
- Allen, W., & Kilvington, M. (2009). Stakeholder analysis. In Frame, B., Gordon, R., & Mortimer, C. (Eds.), *Hatched: the capacity for sustainable development* (pp. 249–253). Lincoln, NZ: Landcare Research New Zealand Ltd.
- Allen, W., Kilvington, M., Nixon, C., & Yeabsley, J. (2002). *Sustainable development extension* (Development Bulletin Technical Paper No: 2002/03). Wellington, NZ: Ministry of Agriculture and Forestry.
- Allen, W., Kilvington, M., & Stephenson, G. (1998). *Kereru (NZ wood-pigeon) management evaluation workshop report* (Landcare Research Contract Report LC9798/135). Lincoln, NZ: Landcare Research.
- Anderson, A. (2004). Theory of change as a tool for strategic planning: a report on early experiences. Washington, DC: The Aspen Institute.
- Andrew, J., & Robottom, I. (2005). Communities' self-determination: Whose interests count? Social learning in environmental management. UK, USA: Earthscan Press.
- Argyris, C., & Schön, D. A. (1978). *Organizational learning: A theory of action perspective*. San Francisco, CA: Jossey-Bass.
- Argyris, C., & Schön, D. A. (1996). *Organisational learning II: theory, method and practice*. Reading, MA: Addison Wesley.
- Aronson, D. (1998). *An introduction to systems thinking*. Website: <http://www.thinking.net>
- Atherton, J. S. (2005). *Teaching and learning: Group cultures*. Website: http://www.learningandteaching.info/teaching/group_cultures.htm . 2005.

- Atkinson, M., Kilvington, M., & Fenemor, A. (2009). Watershed Talk: the cultivation of ideas and action: observations from the Watershed Talk project, October 2006 – July 2007. Lincoln, NZ: Manaaki Whenua Landcare Research.
- Atkinson, M., Peacock, S., & Fenemor, A. (Eds.) (2004). *Travelling River – a collaboration of artists, scientists and the people of the Motueka River catchment*. Catalogue for the *Travelling River* exhibition, Mountains-to-the-Sea project. Nelson, NZ: Landcare Research.
- Austin, D. E. (2004). Partnerships, not projects! Improving the environment through collaborative research and action. *Human Organization*, 63, 419–429.
- Baehler, K. (2003). Evaluation and the policy cycle. In N. Lunt, C. Davidson, & K. McKegg (Eds.), *Evaluating policy and practice: A New Zealand reader*. Auckland, NZ: Pearson Education.
- Bamberger, M., & Rugh, J. (2008). Real world evaluation: working under budget, time, data and political constraints: An overview. Adapted from ‘Bringing it all together’. In M. Bamberger, J. Rugh, & L. Mabry 2006. *Real world evaluation: working under budget, time, data and political constraints*. San Francisco, CA: Sage. WWW.RealWorldEvaluation.org
- Berkes, F. (2006). From community-based resource management to complex systems: the scale issue and marine commons. *Ecology and Society*, 11 (1), 45.
- Berkes, F., George, P., & Preston, R. J. (1991). Co-management: the evolution in theory and practice of the joint administration of living resources. *Alternatives*, 18 (2).
- Bonk, C., & D. J. Cunningham (1998). Searching for learner-centered, constructivist, and sociocultural components of collaborative educational learning tools. In C. Bonk & K. King (Eds.), *Electronic collaborators: learner-centred technologies for literacy, apprenticeship, and discourse*. Mahwah, NJ: Lawrence Erlbaum.
- Borowski, I., Le Bourhis, J., Pahl-Wostl, C., & Barraqué, B. (2008). Spatial misfit in participatory river basin management: effects on social learning, a comparative analysis of German and French case studies. *Ecology and Society*, 13 (1), 7.
- Bouwen, R., & Taillieu, T. (2004). Multi-party collaboration as social learning for interdependence: developing relational knowing for sustainable natural resource management, *Journal of Community and Applied Social Psychology*, 14, 137–153.
- Bowden, W. B. (1999). Integrated catchment management rediscovered: an essential tool for a new millennium. *Proceedings of the Manaaki Whenua Conference Wellington, New Zealand, 21–23 April 1999*.
- Bowden, W. B., & Wilkinson, R. (2000). Stakeholder opinions regarding priority research issues for land and water resource management in the Motueka river catchment, Tasman District (Landcare Research Contract Report LC0001/007). Lincoln, NZ: Landcare Research.
- Bradshaw, B. (2003). Questioning the credibility and capacity of community-based resource management. *The Canadian Geographer*, 47, 137–150.
- Bray, J. N., Lee, J., Smith, L. L., & Yorks, L. (2000). *Collaborative inquiry in practice: action, reflection and making meaning*. San Francisco, CA: Sage.
- Brickmayer, J. D., & Weiss, C. H. (2000). Theory-based evaluation in practice. *Evaluation Review*, 24, 407–431.
- Brown, G., & Stone, L. (2007). Cleaner production in New Zealand: taking stock. *Journal of Cleaner Production*, 15, 716–728.

- Brunner, I., & Guzman, A. (1989). Participatory evaluation: A tool to assess projects and empower people. In R. F. Conner & M. Hendricks (Eds.), *International innovations in evaluation methodology* (pp. 9–18). San Francisco, CA, Jossey-Bass.
- Brych, C. (2000). *Commercial waste minimisation update report*. Archived report to CCC monthly meeting. Christchurch, NZ: Christchurch City Council.
- Buck, L., Wollenberg, E., Edmunds, D. (2001) Social learning in the Collaborative Management of Community Forests: Lessons from the field. In E. Wollenberg, D. Edmunds, L. Buck, J. Fox, & S. Brodt (Eds.), *Social learning in Community Forests*. Desa Putera, Indonesia.: SMK Grafika.
- Cash, D. W., Adger, W., Berkes, F., Garden, P., Lebel, L., Olsson, P., Pritchard, L., & Young, O. (2006). Scale and cross-scale dynamics: governance and information in a multilevel world. *Ecology and Society*, 11 (2), 8.
- Chamala, S., & Mortiss, P. (1990). Working together for Land Care: group management skills and strategies. Brisbane: Australian Academic Press.
- Chambers, R. (1997). Whose reality counts? Putting the first last. London: ITDG.
- Checkland, P. (1985). Achieving "desirable and feasible" change: An application of soft systems methodology. *Journal of the Operational Research Society*, 36, 821–831.
- Checkland, P. (1999). *Systems thinking, systems practice*. Chichester, UK: John Wiley.
- Chen, H., & Rossi, P. (1989). Issues in the theory-driven perspective. *Evaluation and Program Planning*, 12, 299–306.
- Cigler, B. A. (2001). Multiorganizational, multisector, and multi-community organizations: Setting the research agenda. In M. P. Mandell (Ed.), *Getting results through collaboration*. Westport, CT: Quorum Books.
- Cohen, C. (2001). An interdisciplinary approach to competitiveness: an easy solution or a Pandora's box? In S. Wall, & L. Lloyd-Reason (Eds.), *Dimensions of competitiveness: Issues and policies*. Cheltenham, UK: Edward Elgar.
- Cole, A., Allen, W., Kilvington, M., Fenemor, A., & Bowden, B. (2007). Participatory modelling with an influence matrix and the calculation of whole-of-system sustainability values. *International Journal of Sustainable Development*, 4, 382–401.
- Connell, J. P., & Klem, A.M. (2000). You can get there from here: Using a Theory of Change approach to plan urban education reform. *Journal of Educational and Psychological Consultation*, 11, 93–120.
- Cooperrider, D. L., & Srivastva, S. (2001). Appreciative inquiry in organizational life. In D. L. Cooperrider, P. F. Sorensen, T. F. Yaeger, & D. Whitney (Eds.), *Appreciative inquiry: an emerging direction for organization development*. Champaign, IL: Stipes.
- Corburn, J. (2005). *Street science*. Cambridge, MA: MIT Press.
- Cousins, B., & Whitmore, E. (1998). Framing participatory evaluation. *New Directions for Evaluation*, 80, 5–23.
- Craps, M. (2003). *Social learning in river basin management*. Report of work package 2 of the Harmonicop project . Website: www.Harmonicop.info.
- Cronbach, L. J., Ambron, S. R., Dornbusch, S. M., Hess, R. D., Hornik, R. C., Phillips, D. C., Walker, D. F. & Weiner, S. S. (1980). *Toward reform of program evaluation*. San Francisco, CA: Jossey-Bass.

- Cronin, K. (2008). Transdisciplinary Research (TDR) and Sustainability: overview report prepared for the Ministry of Research, Science and Technology (Institute of Environmental Science and Research Limited report). Wellington, NZ: MoRST.
- Cronin, K., & Jackson, L. (2004). Hands across the water: Developing dialogue between stakeholders in the New Zealand biotechnology debate. A project for the Ministry of Research Science and Technology (MoRST) 'Dialogue' programme. Wellington, NZ: School of Earth Science, Victoria University of Wellington.
- Cunliffe, A. L., & Easterby-Smith, M. (2004). From reflection to practical reflexivity: Experiential learning as lived experience. In M. Reynolds, & V. Russ (Eds.), *Organizing reflection*. Aldershot, UK: Ashgate.
- Dale, N. (1989). Getting to co-management: social learning in the redesign of fisheries management. In E. Pinkerton (Ed.), *Co-operative management of local fisheries. New directions for improved management and community development*. Vancouver, BC, Canada: University of British Columbia Press.
- Daniels, S. E., & Walker, G. B. (1996). Collaborative Learning: improving public deliberation in ecosystem-based management. *Environmental impact Assessment Review*, 16, 71–102.
- Davidson, C. (2003). The mix of methods: common research techniques used in evaluation. In N. Lunt, C. Davidson, & K. McKegg (Eds.), *Evaluating policy and practice: A New Zealand reader*. Auckland, NZ: Pearson.
- Davidson, J. (2008). Guest editorial: Evaluators as technicians? Our true calling as questioners and thinkers. *Evaluate* newsletter, 4–5 February, 2008. Aotearoa New Zealand Evaluation Association.
- Davies, R. (1998). Contending perspectives on organisational learning. Chapter 4 in *Organisational learning in non government aid agencies*. Unpublished PhD thesis, Centre for Development Studies, University of Wales, UK.
- Davies-Colley, R., Nagels, J., & Merrilees, R. (2003). Cows out of creeks: water quality improvement in the Sherry River following bridging of crossings on raceways. Website: <http://icm.landcareresearch.co.nz>
- Dech, S. (2003). ACAP's Science Linkages Initiative: a sound investment in science and community 1997–2002. Report for Environment Canada Atlantic Region.
- Dick, B. (1997). *Action learning and action research*. Brisbane, Australia: Southern Cross University. www.scu.edu.au/schools/gcm/ar/arp/actlearn.html
- Dick, B. (1999). *What is action research?* Brisbane, Australia: Southern Cross University. www.scu.edu.au/schools/gcm/ar/arp/actlearn.html
- Dick, B. (2002). Postgraduate programs using action research. *The Learning Organisation*, 9, 159–170.
- Dick, B. (2006). *The Snyder evaluation process*. Brisbane, Australia: Southern Cross University. www.scu.edu.au/schools/gcm/ar/arp/actlearn.html
- Dillenbourg, P. (1999). What do you mean by 'Collaborative Learning'? In P. Dillenbourg (Ed.), *Collaborative learning: Cognitive and computational approaches*. UK: Elsevier.
- Dolamore, B. (2000). Target Zero workbook: A guide to implementing cleaner production for Christchurch businesses. Christchurch, NZ: Waste Management Unit, Christchurch City Council.

- Duignan, P. (2001). Mainstreaming evaluation or building evaluation capability? Three key elements. *16th American Evaluation Association conference, St Louis, 7–10 November*.
- Duignan, P. (2003). Approaches and terminology in programme and policy evaluation. In N. Lunt, C. Davidson, & K. McKegg (Eds.), *Evaluating policy and practice: A New Zealand reader*. Auckland, NZ: Pearson.
- Dyball, R., Beavis, S., & Kaufman, S. (2005). Complex adaptive systems: constructing mental models. In M. Keen, V. A. Brown, & R. Dyball (Eds.), *Social learning in environmental management*. UK, USA: Earthscan.
- Easterby-Smith, M., & Araujo, L. (2006). Organisational learning: current debates and opportunities. In M. Easterby-Smith, J. Burgoyne, & L. Araujo (Eds.), *Organisational learning and the learning organisation*. Aldershot, UK: Sage.
- Easterby-Smith, M., & Lyles, M. (2003). Re-reading organizational learning: selective memory, forgetting, and adaptation. *Academy of Management Executive*, 17, 2.
- Ellsworth, J. P., Hildebrand, L.P., & Glover, E.A. (1997). Canada's Atlantic Coastal Action Program: a community-based approach to collective governance. *Ocean and Coastal Management*, 36, 121–142.
- Escobar, O. (2009). Dialogue. Online: <http://oliversdialogue.wordpress.com>
- ESRC (Economic and Social Research Council). (2000). *Global Environmental Change Programme: Producing greener, consuming smarter*. Brighton, UK: University of Sussex. <http://www.gecko.ac.uk>
- Fenemor, A. (2004). *Integrated Catchment Management: FRST achievement report 2004* (FRST Contract no.: C09X0305). Wellington, NZ: Foundation for Research, Science and Technology.
- Fetterman, D. M. (1994) Steps of empowerment evaluation: From California to Cape Town. *Evaluation and Program Planning*, 17, 305–313.
- Fetterman, D. M. (1996) Empowerment evaluation: An introduction to theory and practice. In D. M. Fetterman, S. J. Kaftarian, & A. Wandersman (Eds.), *Empowerment evaluation: Knowledge and tools for self-assessment and accountability*. San Francisco, CA: Sage.
- Fiorino, D. (2001) Environmental policy as learning: A new view of an old landscape. *Public Administration Review*, 61, 322–334.
- Foote, J., Ahuriri-Driscoll, A., Hepi, M. & Wilby, J. (2009). Systemic evaluation of community environmental management programmes. *Proceedings of the 53rd meeting of the International Society for the Systems Sciences: making liveable sustainable systems unremarkable. University of Queensland, Brisbane, Australia, 12–17 July 2009*.
- Ford, R., Ross, L., Coleman, M. (2001). *Neighbourhood networks in Worcester: Partnerships that work. Getting results through collaboration*. Westport, CT: Quorum Books.
- Forester, J. (1999) *The deliberative practitioner: Encouraging participatory planning processes*. London, UK: The MIT Press.
- Forss, K., Cracknell, B., & Samset, K. (1994). Can evaluation help an organization to learn? *Evaluation Review*, 18, 574–591.
- Forsyth, T. (2003). *Critical political ecology: the politics of environmental science*. London, UK: Routledge.

- Friedman, J., & Abonyi, G. (1976). Social learning: a model for policy research. *Environment and Planning*, 8, 927–940.
- Funtowicz, S. O., & Ravetz, J. R. (1993). Science for the Post-Normal Age. *Futures*, 25, 739–755.
- Gallardo, A., & Hewson, D. (1996). Evaluation of "kitchen workshops" as a community participation process for the environmental management of Whaingaroa (Raglan) harbour (a report prepared for Environment Waikato). Hamilton: Department of Psychology, University of Waikato.
- Gallopini, G. C., Funtowicz, S. O., O'Connor, M., & Ravetz, J. R. (2001). Science for the twenty-first century: from social contract to the scientific core. *International Journal of Social Science*, 168, 219–229.
- Goldberg, E. (2001). Stocktake of local government/private sector/NGO activities in support of environmentally sustainable business initiatives (compiled for MfE, New Zealand). Wellington, NZ: Ministry for the Environment.
- Greenaway, A., Milne, S., Henwood, W., Asiasiga, L., & Witten, K. (2003a). *A meta analysis of community action projects Vol. I*. Auckland, NZ: Centre for Social and Health Outcomes Research and Evaluation & Te Ropu Whariki.
- Greenaway, A., Milne, S., Henwood, W., Asiasiga, L., & Witten, K. (2003b). *A meta analysis of community action projects Vol. II*. Auckland, NZ: Centre for Social and Health Outcomes Research and Evaluation & Te Ropu Whariki.
- Greene, J. C. (2004). The educative evaluator: An interpretation of Lee J Cronbach's Vision of Evaluation. In M. C. Alkin (Ed.), *Evaluation roots: Tracing theorists' views and influences*. San Francisco, CA: Sage.
- Guba, E. G. (2004). Naturalistic evaluation. *New Directions for Program Evaluation*, 1987, 34, 23–43.
- Guba, E. G., & Lincoln, Y.S. (1989a). *The coming of age of evaluation*. Fourth generation evaluation. San Francisco, CA: Sage.
- Guba, E. G., & Lincoln, Y.S. (1989b). *What is fourth generation evaluation? Why should we chose to practice it?* Fourth generation evaluation. San Francisco, CA: Sage.
- Guijt, I. M. (2008). Seeking surprise: rethinking monitoring for collective learning in rural resource management. Unpublished PhD thesis, Wageningen University, The Netherlands.
- Guijt, I. M., & Proost, J. (2002). Monitoring for social learning: insights from Brazilian NGOs and Dutch farmer study clubs. In C. Leeuwis & R. Pyburn (Eds.), *Wheelbarrows full of frogs: Social learning in rural resource management*. The Netherlands: Koninklijke Van Gorcum.
- Gunderson, L. (1999) Resilience, flexibility and adaptive management: antidotes for spurious certitude? *Conservation Ecology*, 3, 1.
- Haag, D., & Kaupenjohann, M. (2001). Parameters, prediction, post-normal science and the precautionary principle: A roadmap for modelling for decision-making. *Ecological Modelling*, 144, 45–60.
- Hargreaves, R., & Sargent, D. (1999). *Evaluation of the Cleaner Production Project, August– December 1999*. Christchurch, NZ: Waste Management Unit, Christchurch City Council.

Harmsworth, G. R. (2003) Guidelines for engaging iwi and hapu groups in Integrated Catchment Management research. *New Zealand Association of Resource Managers (NZARM) broadsheet*, June 2003, 37–40.

Hayward, B. (2000). *Beyond consensus: social learning in urban planning*. Unpublished PhD thesis, Lincoln University, Canterbury, New Zealand.

Heron, J., & Reason, P. (2001). The practice of co-operative inquiry: Research 'with' rather than 'on' people. In P. Reason & H. Bradbury (Eds.), *Handbook of action research: Participative inquiry and practice*. London, UK: Sage.

Hein, G.E.(1991). Constructivist learning theory. *The museum and the needs of people. Proceedings of the CECA (International committee of museum educators) conference. Jerusalem, Israel, 15-22 October 1991.*

Horn, C., Kilvington, M., & Allen, W. (2003). *Improving business environmental performance: training needs to support environmental sustainability practice in business* (Landcare Research Contract Report LC0203/081). Lincoln, NZ: Landcare Research.

Horton, D., Alexaki, A., Bennett- Lartey, S., Brice, K. N., Campilan, D., Carden, F., De Souza Silva, J., Duong, L. T., Khadar, I., Maestrey Boza, A., Kayes Muniruzzaman, I., Perez, J., Somarriba Chang, M., Vernoooy, R., & Watts, J. (2003). *Evaluating capacity development: Experiences from research and development organizations around the World*. The Netherlands: International Service for National Agricultural Research (ISNAR); Canada: International Development Research Centre (IDRC); The Netherlands: AC-EU Technical Centre for Agricultural and Rural Cooperation (CTA).

Hunter, D., & Bailey, A.T.B. (1992). *The Zen of groups: A handbook for people meeting with a purpose*. Auckland, NZ: Tandem Press.

Huysman, M. (1999). Balancing biases: a critical review of the literature on organizational learning. In M. Easterby- Smith, J. Burgoyne, & L. Araujo (Eds.), *Organisational learning and the learning organisation*. Aldershot, UK: Sage.

Ison, R. (2005). Traditions of understanding: Language, dialogue and experience. In M. Keen, V.A. Brown, & R. Dyball (Eds.), *Social learning in environmental management*. UK, USA: Earthscan.

Ison, R., & Watson, D. (2007). Illuminating the possibilities for social learning in the management of Scotland's water. *Ecology and Society*, 12 (1), 21.

Jackson, M. (2000) *Systems Approaches to Management*. New York: Kluwer Academic/Plenum Publishers

Jiggins, J., Van Slobbe, E., & Röling, N. (2007). The organisation of social learning in response to perceptions of crisis in the water sector of The Netherlands. *Environmental Science and Policy*, 10, 526–536.

Kahane, A. (2004). *Solving tough problems*. San Francisco, CA: Berrett-Koehler.

Keast, R. (2004). Participatory evaluation: a missing component in the social change equation for public services. Paper presented to the Social Change in the 21st Century Conference, Centre for Social Change Research , Queensland University of Technology , 29 October 2004.

Keen, M., Brown, V. A., & Dyball, R. (2005). Social learning: a new approach to environmental management. In M. Keen, V.A. Brown, & R. Dyball (Eds.), *Social learning in environmental management*. UK, USA: Earthscan.

- Kilvington, M. (1998). The Whaingaroa Catchment Management Project: a multi-stakeholder approach to sustainable catchment management (Landcare Research Contract Report LC9899/021). Lincoln, NZ: Landcare Research.
- Kilvington, M., & Allen, W. (2001). A participatory evaluation process to strengthen the effectiveness of industry teams in achieving resource use efficiency: The Target Zero Programme of Christchurch City Council (Landcare Research Contract Report LC0001/062). Lincoln, NZ: Landcare Research.
- Kilvington, M., & Allen, W. (2007). *Evaluation of the social spaces of the Integrated Catchment Management (ICM) research programme* (Landcare Research Contract Report LC0607/183). Lincoln, NZ: Landcare Research.
- Kilvington, M., & Allen, W. (2009). Social learning: a basis for practice in environmental management. In B. Frame, R. Gordon, & C. Mortimer (Eds.), *Hatched: the capacity for sustainable development* (pp. 215–225). Lincoln, NZ: Landcare Research New Zealand Ltd.
- Kilvington, M., & Horn, C. (2006). Mountains to the Sea: Reflections on an arts and science collaboration about the Motueka River Catchment. Lincoln, NZ: Manaaki Whenua Landcare Research.
- King, C. (2000a). Moving from natural to systemic social learning through systematic reflection and dialogue. In M. Cerf, B. Gibbon, R. Hubert, R. Ison, J. Jiggins, M. Paine, J. Proost, & N. Röling (Eds.), *Cow up a tree: knowing and learning for change in agriculture. Case studies from industrialised countries*. Paris: Institut National de la Recherche Agronomique (INRA).
- King, C. (2000b). *Systemic process for facilitating social learning: Challenging the legacy*. Published Doctoral thesis, University of Uppsala, Sweden.
- King, C., & Jiggins, J. (2002). A systemic model and theory for facilitating social learning. In C. Leeuwis & R. Pyburn (Eds.), *Wheelbarrows full of frogs: Social learning in rural resource management*. Netherlands: Koninklijke Van Gorcum.
- Kirkland-Smith, T. (2008). Practical learnings on the effectiveness of behaviour change action programmes. *Rethinking Consumption: symposium on sustainable consumption, Wellington, New Zealand, 12–13 March 2008*.
- Knoepfel, P., & Kissling-Näff, I. (1998). Social learning in policy networks. *Policy and Politics*, 26, 343–367.
- Lane, M. B., & McDonald, G. (2005). Community-based environmental planning: operational dilemmas, planning principles and possible remedies. *Journal of Environmental Planning and Management*, 48, 709–731.
- Lave, J., & Wenger, E. (1991). *Situated learning: legitimate peripheral participation*. Cambridge University Press.
- Lee, K. N. (1993). *Compass and gyroscope. Integrating science and politics for the environment*. Washington, DC: Island Press.
- Lee, K. N. (1999). Appraising adaptive management. *Conservation Ecology*, 3, 3.
- Lélé, S., & Norgaard, R. B. (2005). Practicing interdisciplinarity, *BioScience*, 55, 967–975.
- Lincoln, Y. S. (1992). Fourth generation evaluation, the paradigm revolution and health promotion. *Canadian Journal of Public Health*, 83, Suppl. 1, s6–10.
- Linnell, D. (2003). *Evaluation of capacity building: lessons from the field*. Washington, DC: Alliance for Nonprofit Management.

- Lowe, I. (2001). *Ockham's razor*. ABC Radio National. Website: <http://www.abc.net.au/rn/science/ockham/stories/s317194.htm>.
- Lykes, M. B. (2001). Creative arts and photography in participatory action research in Guatemala. In P. Reason & H. Bradbury (Eds.), *Handbook of action research: Participative inquiry and practice*. London, UK: Sage.
- Maarleveld, M., & Dangbégnon, C. (1999). Managing natural resources: A social learning perspective. *Agriculture and Human Values*, 16, 267–280.
- Margerum, R. D. (1996). *Integrated environmental management: a framework for practice* (Occasional Paper 9). Armidale, Australia: University of New England, Centre for Water Policy Research.
- Margerum, R. D. (1999). Integrated environmental management: the foundations for successful practice. *Environmental Management*, 24, 155–166.
- Marshall, G. R. (2008). Nesting, subsidiarity, and community-based environmental governance beyond the local scale. *International Journal of the Commons*, 2, 1.
- McCallum, W., Hughey, K. F. D., & Rixecker, S. (2007). Community environmental management in New Zealand: exploring the realities in the metaphor. *Society and Natural Resources*, 20, 323–336.
- McNeil, C. T., Rousseau, F. R., & Hildebrand, L. P. (2006). Community-based environmental management in Atlantic Canada: The impacts and spheres of influence of the Atlantic Coastal Action Program. *Environmental Monitoring and Assessment*, 113, 367–383.
- McNiff, J. (2002). *Action research for professional development: Concise advice for new action researchers*. Action Research Network website: <http://www.actionresearch.net/>
- McNiff, J. (2005). Action research workshop. University of Canterbury, New Zealand, 28 October 2005.
- Merriam, S. B., & Clark, C. M. (1993). Learning from the experience: What makes it significant? *International Journal of Lifelong Education*, 12, 129–138.
- Merriam, S. B., & Heuter, B. (1996). Meaning-making, adult learning and development: a model with implications for practice. *International Journal of Lifelong Education*, 15, 243–255.
- Mostert, E., Pahl-Wostl, C., Rees, Y., Searle, B., Tàbara, D., & Tippett, J. (2007). Social learning in European river-basin management: barriers and fostering mechanisms from 10 river basins. *Ecology and Society*, 12, 19.
- Nemes, G., High, C., Shafer, N., & Goldsmith, R. (2007). *Using participatory video to evaluate community development*. Working Group 3, XXII European Congress of Rural Sociology, Wageningen, The Netherlands.
- Nicholls, R. J., Johnson, C., Green, C., & Shackley, S. (2000). Proceeding of SURVAS expert workshop on European vulnerability and adaptation to impacts of accelerated sea-level rise (ASLR), Hamburg, Germany, 19–21 June 2000.
- Oliver, P., Spee, K., & Wolfgramm, T. (2003). A partnership approach to evaluating in communities. In N. Lunt, C. Davidson, & K. McKegg (Eds.), *Evaluating policy and practice: A New Zealand reader*. Auckland, NZ: Pearson.
- Olsen, S. B. (2003). Frameworks and indicators for assessing progress in integrated coastal management initiatives. *Ocean and Coastal Management*, 46, 347–361.

- O'Neill, O. (2002). *A Question of Trust: The BBC Reith Lectures 2002*. UK: Cambridge University Press.
- O'Rourke, D., & Eungkyoon, L. (2004). Mandatory planning for environmental innovation: evaluating regulatory mechanisms for toxic use reduction. *Journal of Environmental Planning and Management*, 47, 181–200.
- O'Sullivan, R. G., & O'Sullivan, J. M. (1998). Evaluation voices: Promoting evaluation from with programs through collaboration. *Evaluation and Program Planning*, 21, 21–29.
- Owen, J. M., & Lambert, F.C. (1995). Roles for evaluation in learning organizations. *Evaluation*, 1, 237–250.
- Pahl-Wostl, C. (2002). Towards sustainability in the water sector: the importance of human actors and processes of social learning. *Aquatic Sciences*, 64, 394–411.
- Pahl-Wostl, C. (2006). The importance of social learning in restoring the multifunctionality of rivers and floodplains. *Ecology and Society*, 11, 10.
- Pahl-Wostl, C., Bouwen, R., Craps, M., Maurel, P., Mostert, E., Ridder, D., & Thallieu, T. (2004). The importance of processes of social learning for transboundary water management : perspectives from the Harmonicop project. *Conference on Integrated Water Management of Transboundary catchments, 24–26 March 2004, Venice, Italy*.
- Pahl-Wostl, C., Craps, M., Dewulf, A., Mostert, E., Tabara, D., & Taillieu, T. (2007). Social learning and water resources management. *Ecology and Society*, 12, 5.
- Pahl-Wostl, C., & Hare, M. (2004). Processes of social learning in integrated resource management. *Community and Applied Social Psychology*, 14, 193–206.
- Pahl-Wostl, C., Sendzmir, P., Jeffrey, J., Aerts, J., Berkamp, G., & Cross, K. (2007b). Managing change toward adaptive water management through social learning. *Ecology and Society* 12, 30.
- Papineau, D., & Kiely, M. C. (1996). Participatory evaluation in a community organization: fostering stakeholder empowerment and utilization. *Evaluation and Program Planning*, 19, 79–93.
- Parson, E. A., & Clark, W. C. (1995). Sustainable development as social learning: theoretical perspectives and practical challenges for the design of a research program. In L. Gunderson, C. S. Holling, & S. S. Light (Eds.), *Barriers and bridges to the renewal of ecosystems and institutions*. USA: Colombia University Press.
- Pawson, R., & Tilley, N. (1997). *Realistic evaluation*. London, UK: Sage.
- Peterson, G., De Leo, G., Hellermann, J., Janssen, M., Kinzig, A., Malcolm, J., O'Brien, K., Pop, S., Rothman, D., Shevliakova, E., & Tinch, R. (1997). Uncertainty, Climate Change, and Adaptive Management. *Conservation Ecology* [online], 1(2), 4.
- Phillips, C., Allen, W., Lauder, G., Kilvington, M., & Fenemor, A. (2006). Integrated catchment management (ICM): integration, knowledge management and the role of collaborative learning. *Presentation at: Social Sciences in Resource Management: Global Challenges & Local Responses. 12th International Symposium on Society and Resource Management, Vancouver, Canada, 3–8 June 2006*.
- Pijnenburg, B. (2002). Community based natural resource management as dogma. In C. Leeuwis & R. Pyburn (Eds.), *Wheelbarrows full of frogs: social learning in rural resource management*. Netherlands: Koninklijke Van Gorcum.

- Preskill, H. (2004). The transformational power of evaluation: passion, purpose and practice. In M. C. Alkin (Ed.), *Evaluation roots: Tracing theorists' views and influences*. San Francisco, CA: Sage.
- Preskill, H., & Torres, R. (1999). The role of evaluative enquiry in creating learning organizations. In M. Easterby-Smith, J. Burgoyne, & L. Araujo (Eds.), *Organisational learning and the learning organisation*. London, UK: Sage.
- Pretty, J. N., & Frank, B. R. (2000). Participation and social capital formation in natural resource management: achievements and lessons. *International Landcare Conference, Melbourne, Australia, 2–5 March*.
- Price, R. J. (2003). Identifying social spaces in the sustainable grazing systems program. *Australian Journal of Agriculture*, 43, 1041-59.
- Ramirez, R. (2009). *Another development*. Online: Communication, Media and Development Policy. 4 May 2009, 10:13 a.m.
<http://www.comminit.com/en/node/291341/bbc>
- Reed, M.S., Evely, A.C., Cundill, G., Fazey, I., Glass, J., Laing, A., Newig, J., Parrish, B., Prell, C., Raymond, C., Stringer, L.C. (2010). What is social learning? *Ecology & Society* (in press) <http://homepages.see.leeds.ac.uk/~lecmsr/whatisociallearning.htm> [uncorrected proof]
- Rist, R. C. (1997). Evaluation and organisational learning. *Evaluation Journal of Australasia*, 9 (1 & 2), 16–23.
- Ritchie, H. (1995). *Landcare in rural Waikato*. Report on a study. Hamilton, NZ: Environment Waikato.
- Roeland, J. (2004). *The importance of being a boundary worker*. Prof. Roeland J. In 't Veld, chairman of the Advisory Council for Research on Spatial Planning, Nature and the Environment, The Hague.
http://www.rmno.nl/websites/V2_RMNO/files_content/roel/1043_Bridging%20the%20Gap.pdf
- Röling, N. (2002). Beyond the aggregation of individual preferences: Moving from multiple to distributed cognition in resource dilemmas. In C. Leeuwis & R. Pyburn (Eds.), *Wheelbarrows full of frogs: social learning in rural resource management*. Netherlands: Koninklijke Van Gorcum.
- S.B. Moir Consulting (1997). *Lessons learned: The Atlantic Coastal Action Program*. Contract report for Environment Canada.
- Saville-Smith, K. (2003). Power and politics: the shaping of evaluation research in New Zealand. In N. Lunt, C. Davidson, & K. McKegg (Eds.), *Evaluating policy and practice: A New Zealand reader*. Auckland, NZ: Pearson.
- Schusler, T. M., & Decker, D. J. (2001). *Learning to collaborate for natural resource management: a summary of key findings*. NY, USA: Human Dimensions Research Unit, Department of Natural Resources, Cornell University.
- Schusler, T. M., Decker, D. J., & Pfeffer, M. J. (2003). Social learning for collaborative natural resource management. *Society and Natural Resources*, 15, 309–326.
- Scott, K. & Park, J. (2008). Creating a liveable community: Linking participatory planning with participatory outcomes. *Presentation at 46th International Making Cities Liveable Conference, Santa Fe, New Mexico, 2-4 June*.

- Scriven, M. (2007). *The logic and methodology of checklists*. USA: The Evaluation Centre, West Michigan University. <http://www.wmich.edu/evalctr/checklists/papers/index.html>
- Selin, S., & Chavez, D. (1995). Developing a collaborative model for environmental planning and management. *Environmental Management*, 19, 189–195.
- Shore, C., & Wright, S. (1999). Audit culture and anthropology: Neo-liberalism in British higher education. *Journal of Royal Anthropological Institute*, 5, 557–575.
- Siebenhüner, B. (2004). Social learning and sustainability science: which role can stakeholder participation play? *International Journal of Sustainable Development*, 7, 146–162.
- SLIM Project (2004). Guidelines for capacity building for social learning in integrated catchment management and the sustainable use of water. SLIM Policy Briefing No. 7. Online : <http://slim.open.ac.uk/objects/public/slimpb7final.pdf>.
- Smith, B. L., & MacGregor, J. (1992). What is collaborative learning. In A. Godsell, M. Maher, V. Tinto, B. L. Smith, & J. MacGregor (Eds.), *Collaborative learning: a source book for higher education*. USA: Pennsylvania State University, National Center on Post Secondary Teaching, Learning, and Assessment.
- Smith, M. K. (1999). The social/situational orientation to learning. *Infed (Informal Education)* <http://www.infed.org/biblio/learning-social.htm>
- Smith, M. K (2005a). Chris Argyris: theories of action, double-loop learning and organizational learning. *The Encyclopaedia of Informal Education*. www.infed.org/thinkers/argyris.htm. [Accessed 28 Jan 2005].
- Smith, M. K (2005b). The social/situational orientation to learning. *The Encyclopaedia of Informal Education*. www.infed.org/thinkers/argyris.htm. [Accessed 28 Jan 2005].
- Stame, N. (2004). Theory-based evaluation and types of complexity. *Evaluation*, 10, 58–76.
- Stanway, L., & Thorpe, R. (2002). *A plan for a sustainable environment in the Whaingaroa Catchment*. Hamilton, NZ: Environment Waikato.
- Star, S. L., & Griesemer, J. (1989). Institutional ecology, translations and boundary objects: amateurs and professionals in Berkeley's Museum of Vertebrate Zoology, 1907–1939. *Social Studies of Science*, 19, 387–420.
- Steyaert, P., & Jiggins, J. (2007). Governance of complex environmental situations through social learning: a synthesis of SLIM's lessons for research, policy and practice. *Environmental Science and Policy*, 10, 575–586.
- Stone, L. (2000). When case studies are not enough: the influence of corporate culture and employee attitudes on the success of cleaner production initiatives. *Journal of Cleaner Production*, 8, 353–359.
- Stone, L. (2002). Sustainability programmes for business: Place and practice within the context of relevant developments in organisation theory. Unpublished Doctoral thesis, University of Auckland, New Zealand.
- Stone, L. (2006a). Limitations of cleaner production programmes as organisational change agents. I. Achieving commitment and on-going improvement. *Journal of Cleaner Production*, 14, 1–14.

- Stone, L. J. (2006b). Limitations of cleaner production programmes as organisational change agents. II. Leadership, support, communication, involvement and programme design. *Journal of Cleaner Production*, 14, 15–30.
- Tàbara, J. D., & Pahl-Wostl, C. (2007). Sustainability learning in natural resource use and management. *Ecology and Society*, 12, 3.
- Torres, R. T. (1994). Linking individual and organizational learning: The internalization and externalization of evaluation. *Evaluation and Program Planning*, 17, 327–337.
- Tress, B., Tress, G & Fry, G. (2005). Clarifying integrative research concepts in landscape ecology. *Landscape Ecology*, 20, 4, 479-93.
- Trotman, R. (2009). Identifying your personal evaluation philosophy and how this plays out in the real world. *Evaluation and Social Responsibility: new understandings, pathways and connections – ANZEA conference, 13–15 July, Auckland, New Zealand*.
- Twomlow, S., & Lilja, N. (2004). The role of evaluation in successful integrated natural resource management. In T. Fischer, et al. (Eds.), *New directions for a diverse planet: Proceedings for the 4th International Crop Science Congress, Brisbane, Australia, 26 September – 1 October 2004*.
- Van den Besselar, P., & Heimeriks, G. (2001). Disciplinary, multidisciplinary, interdisciplinary: concepts and indicators. *The 8th conference on Scientometrics and Informetrics, Sydney, Australia, 16–20 July 2001*.
- Van Roon, M., & Knight, S. (2000a). *Raglan community strives for a cleaner environment* (Department of Planning working paper). Auckland, NZ: University of Auckland.
- Van Roon, M., & Knight, S. (2000b). Steps towards sustainable pastoral farming: illustrated by integrated coastal catchment management at Whaingaroa (Raglan) (Department of Planning working paper). Auckland, NZ: University of Auckland.
- Vickers, I., & Cordey-Hayes, M. (1999). Cleaner production and organizational learning. *Technology Analysis and Strategic Management*, 11, 75–94.
- W.K. Kellogg Foundation. (2004). Logic Model Development Guide: using logic models to bring together planning, evaluation and action. Michigan, USA: W.K. Kellogg Foundation.
- Walker, B., & Salt, D. (2006). Resilience thinking: sustaining ecosystems and people in a changing world. Washington, DC: Island Press.
- Webler, T., Kastenholz, H., & Renn, O. (1995). Public participation in impact assessment: a social learning perspective. *Environmental Impact Assessment Review*, 15, 443–463.
- Weiss, C. (1991). Linking evaluation to policy research. In W. R. Shadish Jr, T. D. Cook, & L. C. Leviton (Eds.), *Foundations of program evaluation: theories of practice*. San Francisco, CA: Sage.
- Weiss, C. H. (1995). Nothing as practical as good theory: exploring theory-based evaluation for comprehensive community initiatives for children and families. In J. P. Connell, A. C. Kubisch, L. B. Schorr, & C. H. Weiss (Eds.), *New approaches to evaluating community initiatives: Volume 1, Concepts, methods, and contexts*. Washington, DC: The Aspen Institute.
- Weiss, C. H. (1997). How can theory-based evaluation make greater headway? *Evaluation Review*, 21, 501–524.

- Weiss, C. H. (2004). Rooting for evaluation: A Cliff Notes version of my work. In M. C. Alkin (Ed.), *Evaluation roots: Tracing theorists' views and influences*. San Francisco, CA: Sage.
- Wenger, E. (1998). *Communities of practice: learning, meaning, and identity*. Cambridge University Press.
- Wenger, E. (2007). *Communities of practice: a brief introduction*. *Etienne Wenger home page* <http://www.ewenger.com/theory> [Accessed 22 September 2007].
- Wertheim, E. G. (2000). *Surviving the group project: A note on working in teams*. Boston, MA: Northeastern University, College of Business Administration.
- Wollenberg, E., Edmunds, D., Buck, L., Fox, J. & Brodt, S. (2001) *Social learning in Community Forests*. Desa Putera, Indonesia.: SMK Grafika
- Yin, R. K. (1994). *Case study research: design and methods*. San Francisco, CA: Sage.

Appendices

Appendix 1 Critical conversations

As part of the reflection process of this thesis I have had a number of ‘critical conversations’ during which I have discussed ideas that have been emerging through my work. These happened across the thesis, and were used at times to test the validity of my findings against the experiences of others and at other times to aid with the interpretation of particular events. These were conversations in addition to those that took place as part of the case studies, and in addition to discussion held with members of CLEM. The people with whom I held these conversations are listed below:

Maggie Atkinson, community and landscape specialist,	2004–2009
Jenny Chillcott, Tamaki Transformation Project (formally Waitakere City Council – Twin Streams Project)	2009
Scott Crawford, Southland Regional Council	2005
Ann Dowden – Research New Zealand	2008
Sarah Greenaway, The Centre for Social and Health Outcomes Research and Evaluation	2009
Chris Ferkins, Waitakere City Council	2004–2009
Dr Andrea Schöllmann, Group Manager Tertiary Education, Ministry of Education	2008
Regan Solomon, Waitakere City Council	2009
Kathryn Scott, evaluator for Tamaki Transformation project	2009
Andrea Clark, Socialfoci (independent evaluator and researcher)	2009

Appendix 2 : **The New Zealand context for community-based environmental management**

Implementation of community-based management in New Zealand has been heavily influenced by the significant reform of local government functions, structures and boundaries in the late 1980s. The innovations saw amalgamation of multiple agencies responsible for diverse resource management functions (e.g. borough councils, harbour boards) into a two tiered territorial and regional government structure, which in some cases has been further merged into a single unitary authority). Local government is now comprised of 12 regional councils with boundaries based on natural river catchments, 16 city councils and 57 district councils. The regional councils are the primary resource management agency with roles in the management of water quality and allocation, soil conservation, coastal planning, biosecurity, flood control and disaster management. Territorial councils (city and district) are mandated to manage for community development, health and safety and infrastructure, and land-use planning.

The local government reforms were matched by a substantive overhaul of resource management legislation which brought together disparate laws on natural and physical resources under a single piece of legislation – the 1991 Resource Management Act (RMA). Under the RMA regional councils were made responsible for the development and implementation of regional environmental management plans. Within broad guidelines considerable flexibility in the pursuit of this mandate is permitted to regional councils. Subsequently, in coming to grips with new responsibilities in the 1990s, regional authorities pursued a variety of geographic and issue-based approaches to planning. This was coupled with some innovation in facilitating public participation in resource management planning.

The review of the environmental and local government legislation that preceded the reforms created an expectation that they would result in the ceding of more power to the community (Van Roon & Knight 2000b). Scaling down of resource management responsibility to the regions has undoubtedly been an outcome of the reforms, but scaling up has also occurred. To some, local body amalgamations meant loss of administrative bodies that communities felt some ownership of and replacement with larger councils that were regarded as less accessible (*ibid.*). Regardless of whether the new management structures themselves offered greater or less community investment in resource management there was a surge in interest in community based, informal environmental management options. Van Roon and Knight (2000b) offer two alternative perspectives on this. They suggest, firstly, that councils have intentionally attempted to empower the community by enabling them to do things by their own initiatives, but secondly, observing that a reduction in council resources has been coupled with a widening of vision regarding the need to integrate ecological, economic and social issues, leading to an upsurge in reliance on community voluntary labour to recognise and address environmental concerns.

In New Zealand today a full and complex range of community-based environmental management initiatives exist. These include widespread establishment of community groups focused on specific tasks (e.g. dune management, water quality), and catchment communities addressing environmental health (e.g. Taieri River) or development issues (e.g. Lower Waitaki River) for their local region. Supporting some form of community-based management has become a core concern of local authorities, although by and large such activities have evolved to be less about power devolution or sharing than about harnessing public support for resource management strategies.

Appendix 3 Resource use efficiency initiatives at CCC 1999–2005 (derived from Goldberg 2001; Brown & Stone 2007)

Target Zero business training	Six-month training programme based on workshops and on-site assistance to enable companies to identify, quantify and minimise waste
Target Zero club	Open meetings on environment and sustainability topics of interest to business, e.g. renewable energy, hazardous substances, transportation
Workshops	(i) The Natural Step (TNS) workshops (2001–2002): to help businesses look beyond immediate savings to plan a sustainable future (ii) Environmental Management System (2003–2005): integrating cleaner production within a systematic management framework
M2M Retail	Pilot ‘Measure to Manage’ programme for inner-city retailers, focusing on energy efficiency and waste reduction
CCC Outreach to sector groups, schools & hospitals	(i) Work with sector groups to improve environmental performance (e.g. work with foundries to reduce sand to landfill, identifying opportunities for minimising waste in Christchurch schools) (ii) Undertake site visits and make recommendations (e.g. support reduction in volume and toxicity of solid waste from hospitals)
Construction Waste Minimisation	Pilot programme working with three construction companies to divert waste away from the Christchurch landfill sites for recycling or reuse
Information services	(i) Web-site based resources. (ii) Quarterly newsletter with national distribution – includes examples of resource efficiency and sustainable management

Appendix 4 Summary of TZ company training programme rounds

<p>First Target Zero project 1997–1999</p> <p>50% funded by MfE, initiated and managed by ECNZ, supported by CCC and Southpower</p> <p>Two-year programme. Consultants used to assist companies with students</p>	<p>Alliance Group, Sockburn Plant Leiner Davis Gelatin NZ Ravensdown Fertiliser Co-operative Mainland Products</p> <p>Tait Electronics Feltex Carpets Food Solutions Skellerup Industries Park Royal Hotel Millenium Hotel Canterbury Health Christchurch Polytechnic</p>
<p>Second Target Zero Project 1999–1999</p> <p>Run by CCC in association with the Canterbury Manufacturers Association</p> <p>Six-month programme. Each business assisted by a consultant, which provided an opportunity for consultants to gain experience</p>	<p>GL Bowron & Co. (tannery) Kaputone Wool Scour Lion Breweries South Security Plastics Air New Zealand Engineering Services Reflex Product Waitaki Biosciences NZ Canterbury Spinners The Press</p>
<p>Third Target Zero Project 1999–1999</p> <p>Run by CCC. Hosted by New Zealand Institute of Management (NZIM)</p> <p>Six-month programme. Each company paired with a consultant</p>	<p>The Press Arthur Ellis A Verkerk Lane Walker Rudkin – Hosiery The Christchurch Star</p>
<p>Fourth Target Zero Project Feb–Aug 2000</p> <p>Run by CCC. Hosted by Canterbury Manufacturers Association</p> <p>Six-month programme. Each company paired with a consultant</p>	<p>Heller Tasty PDL Industries Heinz Watties Brintons Ravensdown MCP Untouched World Glass Tech</p>

Appendix 5 Target Zero teams' evaluation checklist

Areas of team performance		Rate
1 Results and productivity		
1.1	Does the team have clearly identified actionable steps to achieve its goals?	
1.2	Does the team monitor its progress by concrete milestones?	
1.3	Does the team regularly and frequently assess how well they are working together?	
1.4	Are the team's successes, big and small, acknowledged?	
2 Team structure		
2.1	Is the team the right size, with the right mix of players for your purpose?	
2.2	Does the team have the flexibility to bring in people and change membership to suit the current project?	
2.3	Does the team have the right resources? Money Time Resources	
2.4	Does the team meet regularly?	
3 Team operation		
3.1	Does the team have effective leadership?	
3.2	Do the team members understand their roles and are they able to carry them out effectively?	
3.3	Does the team have good networks? Internally Externally With management	
3.4	Does the team have useful meetings with clear identification of tasks?	
3.5	Does the team have effective ways of managing conflict?	
3.6	Is the team functioning in a way that people freely express ideas and share opinions?	
3.7	Does the team stay motivated?	
4 Team skills: Does your team have these?		
	Managing meetings: setting agendas, managing time, etc. Documenting progress: keeping minutes, records, etc. Data and information gathering Facilitation: dealing with conflict, managing constructive debates, etc. Innovation: introducing creative ideas Presentation: summarising finds to relevant audiences Networking: bring comment, feedback, etc., to the team Motivation: reminding team of success Task performing: reliably doing relevant tasks	




Appendix 6 Workshop process for the Target Zero team performance evaluation

In facilitated sessions lasting between 1.5 and 2 hours, teams were asked to reflect on their performance in five main areas (represented here in the order in which they were covered).

- | | |
|-----------------------------|-------------------|
| 1. Goals | 4. Team operation |
| 2. Results and productivity | 5. Team skills |
| 3. Team structure | |

1: Because teams are purposeful, i.e. brought together to achieve certain tasks, each evaluation began by asking teams to define their goals. The teams were asked to reflect on both general team goals (from the company's point of view) and personal goals (goals that each team member hoped to achieve by their involvement in the team).

2–5 were addressed through a series of questions identified in the checklist (see Appendix 5). These questions were opened up for discussion by all the team. As a way of closure the team was asked to come to a consensus on their performance in this area using colour dots according to a 'traffic light' system.

- | | |
|---|---|
|  G | <i>This aspect is well covered</i> |
|  Y | <i>We need to think about this as it maybe a limiting factor</i> |
|  R | <i>This factor needs to be addressed as it is limiting team performance</i> |

Where teams felt they were doing well, they were prompted to think about reasons why this was so. Where teams identified they had a weakness, they were offered a short opportunity to work through the barriers and develop steps that could be taken to improve their performance.

All teams received copies of the notes taken of their evaluation, which were confidential to them and not copied to the TZ programme coordinators or to their companies. Generic information on findings common across teams was presented back to the WMU in a workshop and through two final reports.

(Kilvington & Allen 2001, p. 31)

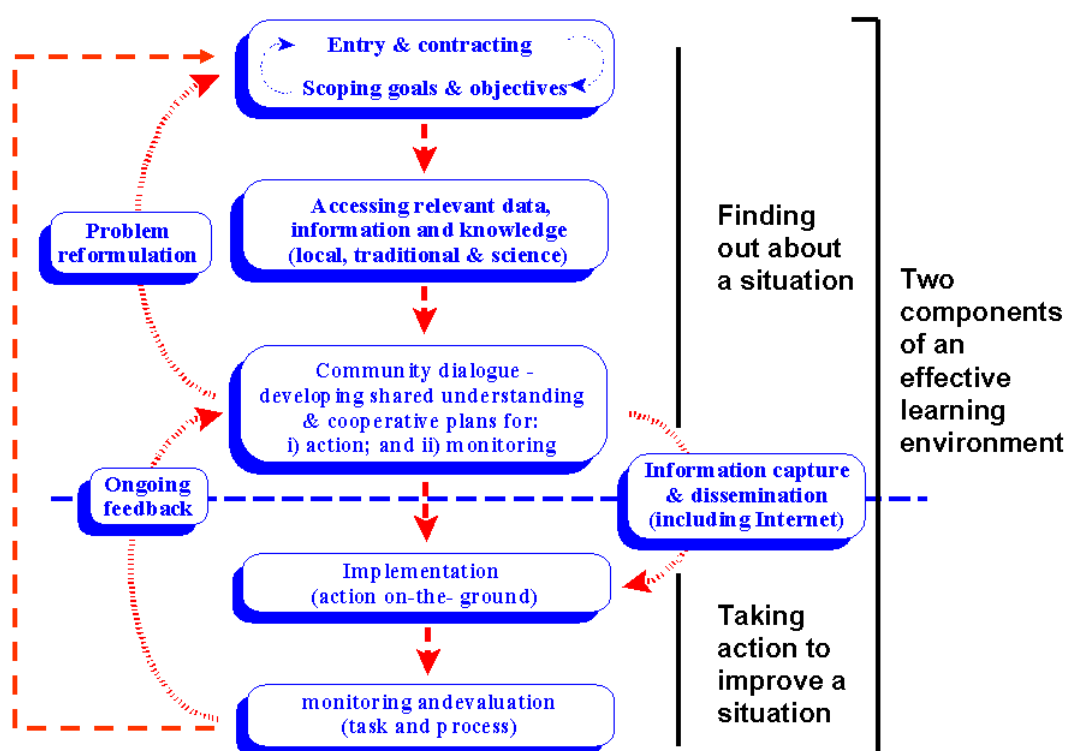
Appendix 7 Teams involved in Target Zero teams' evaluation

Group 1 – Company teams involved in past TZ training programmes		Group 2 – Company teams involved in current TZ training programme	
	Ravensdown Fertiliser Co-operative <i>First Target Zero programme</i>		Also involved in current TZ training programme
	Tait Electronics <i>First Target Zero programme</i>		BICC General Cables NZ
	Reflex Products <i>Second Target Zero programme</i>		AEP Flexipac
	GL Bowron & Co. <i>Second Target Zero programme</i>		Quality Bakers
	Canterbury Spinners* <i>Second Target Zero programme</i>		Canterbury Laundry Service
	The Christchurch Star <i>Third Target Zero programme</i>		
*Phone interview with team leader only			

Appendix 8 The ISKM (integrated systems for knowledge management) framework (origin Allen 2001)

The ISKM framework was first developed during a long-term, multi-disciplinary research programme that worked in the highly contested and oftentimes polarised area of high-country management, in the Mackenzie Basin in the South Island of New Zealand. Dealing with particular issues of rabbit-induced soil erosion and invasive hawkweeds the programme frequently found itself embroiled in contentious issues of land management and clashes between conservation, tourism and pastoral farming interests. In this context ISKM emerged as a framework to support dialogue and decision-making critical to transdisciplinary research on complex environmental management problems. Its premise is that managing constructive involvement of stakeholders is a skill that requires as much emphasis as does developing abilities in technical problem solving and the design of information technology. ISKM builds on principles of community participation, constructivism and experiential learning, organisational learning, adaptive management and systems thinking, and is applicable to developing the knowledge and actions needed to change situations constructively. Like these other participatory approaches, ISKM does not offer a recipe for desirable change, but rather a description of an action-oriented process that may enable change.

The figure below illustrates the key phases of ISKM (Allen & Kilvington 2002).



Appendix 9 Evaluation check sheet based on ISKM framework

Goal Goals for IRAP

What are the goals of the IRAP Project? <i>[Participants identified the overall goals of the project from their perspective. At the end of the session the group returns to these to assess their progress]</i>	Rate
What are some of the personal goals/individual goals around that table?	

our phases of integrated model development based on ISKM

No.	Task	Rate
Entry and contracting <i>In this section we ask who is and should be involved and when?(stakeholder analysis)</i>		
1	Who is going to use the tools/models/decision support system from IRAP? Are those people involved?	
2	Who needs to understand the information coming out of these tools, to enable them to change their practice? Are these people involved?	
3	What are the problems, past issues that have prevented people from cooperating on this – are these issues being addressed?	
Accessing relevant data, information, knowledge <i>It is hard to find any one person/group with enough knowledge to make a model. This section looks at issues of drawing together information from science, agencies, & land managers.</i>		
4	Where is most information coming from to develop the IRAP models and is the balance of different sources appropriate?	
5	Are there other sources of knowledge that should be inputting, and are there adequate processes for enabling this to happen?	
6	Are there any stakeholders who have information that they are likely to think should have been included?	
Dialogue and negotiation <i>The dialogue and negotiation phase of a project assesses the importance and value of different knowledge and information. In this phase the project members ask ‘what does this mean?’ and ‘how will it help us get where we are going?’ Out of this process participants should have developed a shared understanding and be able to take further action.</i>		
7	What processes are there in IRAP for dialogue and negotiation around information and knowledge?	
8	What happens when there are divergent views?	
9	How is conflict managed?	
Implementation and review <i>The IRAP models, when released, will only be ‘state of the art’ for a short period of time. The value of the decision support system depends on the ability to update and in particular to ground-truth based on monitoring information from management practices. Revealed uncertainty around critical issues should direct further research.</i>		
10	How updatable will the IRAP tools/models be?	
11	Are you setting up ways to use monitoring information from management to validate/update the models?	
12	Are the pathways to identifying further research for IRAP clear?	

Building the climate that makes it work

When a model comes out it gives us information based on what how it has been built – how much other people believe this depends on trust and relationships

13	How well aware are you of the key political and strategic relationships necessary to ensure the IRAP models are trusted?	
14	How well are you addressing the difficult relationships?	

Throughout IRAP only a small subset of interested stakeholders can be directly involved. This section looks at the way information is captured and made available to wider audiences

15	How well is the information all the IRAP participants generate (not just what goes into the IRAP models) being captured?	
16	Are there effective mechanisms for communicating learning from IRAP to wider audiences?	
17	How well is IRAP building a community of interest through developing networks with the wider community of stakeholders?	

Appendix 10 Watershed Talk initial interview questions

Who are you?	
1	How would you describe your connections to the Motueka catchment? (Sense of continuity, etc.: length of time resident; family or other connections; intentions to remain or see themselves here into later life; membership of any groups?)
2	What are the qualities (social and physical aspects) you appreciate most about the Motueka catchment?
3	Tell me in what way you enjoy/experience/use the aspects you have just described? (maybe some story about these aspects)
Care and responsibility	
4	Do you perceive there is anything you do in your everyday life/work in the catchment that impacts on the things that you identified as important to you?
5	Do you perceive there is anything that anyone else (person or organisation) does in their everyday life/work that impacts on these aspects?
6	In your view do you think that enough care and responsibility is being taken of the Motueka catchment?
7	Are there any current changes to the Motueka catchment (or things you think might change) that concern you? Do you think these changes are very likely?
8	Can you pick one of these concerns and tell me if there is anything going on to address it that you already know about? [Looking for a story enlarging on knowledge of active taking of care and responsibility in the catchment] Alternatively if they have not identified any concerns: You don't have any concerns – why do you think things are running so well in the catchment?
9	Have you ever been involved in any action to change something going on in the catchment? [can you tell me some specific incident/project?, was it easy? would you do it again?] If yes...tell me about that experience... If no...tell me if there is anything you can think of that puts you off doing that
Networks	
10	Where or who would you go to, to address an issue of concern about the well-being of the physical environment of the Motueka catchment?
11	Have you ever been in contact with these people? If yes...tell me about that experience If no...why is this?
12	Where or who would you go to, to address an issue of concern about the well-being of the social environment of the Motueka catchment?
13	Have you ever been in contact with these people? If yes...tell me about that experience If no...why is this?
Knowledge	
14	How good do you think your knowledge of the Motueka catchment is? Where does this knowledge come from?
15	Do you have any questions about how things (physical or social) 'work' in the Motueka catchment? (i.e. are there things you would like to know more about, curious about?)
16	Who do you think of as the people who might know the answers to these questions?
17	Have you ever been in contact with these people? If yes...tell me about that experience If no...why is this?
18	Is there anything you can suggest that would enable people to take greater care and responsibility for their social and physical environment?
19	Could you think of anything that would further put into action/practice the care and responsibility that you feel?
Any other comments about care and responsibility of the Motueka catchment you would like to make?	
End of interview	

Appendix 11 Watershed Talk follow-up interview questions

Preamble... <i>we asked some questions first time round; we're interested to know about shifts in any of these.</i>	
Care and responsibility	
1	In our first interviews we asked you some questions about what evidence you saw of care and responsibility in the Motueka catchment? Since taking part in the Watershed Talk project have any of these views changed?
2	Anything changed about what you think you do? (i.e. do you now think your actions are more significant or less significant than previously?)
3	Anything changed about what you think others do?
4	Would you view any of the pictures you presented differently now?
5	Have your thoughts on what issues you feel are important in the catchment changed?
Networks and resources	
6	We also asked some questions about who you might go to about issues of concern in the Motueka catchment. Since taking part in Watershed Talk have you any new thoughts about who these groups or people might be?
Environmental and social issues	
7	Were they people you already knew but didn't think of as a resource until now?
8	Do you regard any of these people or groups in a different light now? (e.g. other community members/groups, TDC employees – scientists – us included)
Knowledge Given the range and nature of issues concerned with the well-being of the catchment that were raised in the meeting discussions:	
9	How do feel about your knowledge of the Motueka catchment?
10	Do you think that you and or the wider community have the kind of information and knowledge needed to address these issues?
11	What are your thoughts about how a community might go about equipping itself with the information it needs to solve problems?
Taking action In our first interview we discussed what experiences you had of taking action to change something going on in the catchment.	
12	What are your thoughts about the barriers and opportunities to taking action?
Overall	
13	Since your involvement in the Watershed Talk project are there any new ideas you have about how you and a community might best prepare itself to deal with issues that are important?
14	Having taken part in the Watershed Talk project would you be prepared to be involved in anything else like this again? [either answer...]... Why?
15	Did you think this project could have gone further in any way? If yes. In what way?
16	Do you think your involvement in the Watershed Talk project has had any downstream effects for you in terms of how you interact with others (or plans you might have to interact with others)?
Engaging in the project We went through a number of stages; first phone contact, sending out thank you Travelling River catalogues with the Watershed Talk long card (outlining what the essence of the project was about), confirming emails/phone calls for appointments, one-on-one interview meetings and this last interview.	
17	We want to get a sense of how our ways of engaging and communicating with you have made it easier, or made you feel willing to be part of this project – could you comment on this?
End of interview	

Appendix 12 Watershed Talk post-workshop evaluation questionnaire

Both meetings had a theme of fostering dialogue to improve understanding, and connection between participants. As a reminder:

The purpose of Meeting 1 was to uncover the different ways care and responsibility for the Motueka catchment are understood and expressed by different people.

The purpose of Meeting 2 was to explore what is needed to build resilience in communities in the face of big changes, using examples of major issues identified by participants in Meeting 1.

1. Which group were you in?

Ngatimoti

Tapawera

2. What worked well about the workshops? (Identify workshop 1 and workshop 2 in your comments)

3. What elements did not work so well? (Identify workshop 1 and workshop 2 in your comments)

4. What surprises, if any, were there?

5. When you think about how people engaged in Meeting 1, how would you rate the quality of the dialogue that took place?

Poor

Fair

Good

Excellent

6. When you think about how people engaged in Meeting 2, how would you rate the quality of the dialogue that took place?

Poor

Fair

Good

Excellent

7. Do you have any comments on how the meetings went? (e.g. your reasons for your answers to questions 5 and 6)

8. How easy was it for you to undertake the pre-meeting tasks?

Not possible to do

Difficult, but I could fit it in

Easy

9. Do you have any comments on the pre-meeting tasks? (e.g. your reasons for your answer in question 7, how well explained the tasks were, or how useful you considered them to the subsequent meetings)

10. Can you tell us one new thing you learnt or a new insight you gained from taking part in this project?

End of evaluation

Appendix 13 Summary of case story findings

Case story	Key elements of the social learning challenge	Type of evaluation intervention	Important outcomes/observations
<p>Case 1:</p> <p>Whaingaroa Catchment Management Programme</p> <p>Main programme proponents: Environment Waikato & Landcare Research</p> <p>Aims: Establish a platform for multi-stakeholder collaboration in the Whaingaroa catchment in the Waikato Region</p> <p>Provide a new approach to local planning and management that would work with existing institutional arrangements</p>	<p>Programme was based on a predesigned model for community-based management, but lacked capacity to adjust to differences imposed by the new context in which it was applied.</p> <p>Programme needs:</p> <ul style="list-style-type: none"> ▪ Capacity to create a platform to integrate multiple viewpoints and knowledge over causes and solutions to local environmental problems. ▪ Understanding of important social dynamics which affect community credibility and capacity ▪ A way to manage the intersection between a new form of community planning and existing institutional arrangements ▪ Shared sense of programme purpose and logic among key stakeholders and programme proponents ▪ A way of monitoring progress and responding to signals that pointed to the divergence from the predetermined model for the initiative 	<p>A participatory goals-free evaluation took place 2.5 years into the programme.</p> <p>The aims were to:</p> <ul style="list-style-type: none"> ▪ Meet accountability requirements of the programme’s funders and managers ▪ Provide participants with an opportunity to learn about the programme ▪ Confirm the stakeholder group in their achievements – highlighting what worked for them, as well as what was problematic ▪ Generate an overview of the structural elements of the programme and a review of stakeholder roles and relationships 	<ul style="list-style-type: none"> ▪ There was no negotiation over the evaluation but some freedom of methodology. ▪ Participants were empowered through gaining access to information about the programme. ▪ The evaluation had status as a commissioned work. ▪ The evaluator acts as a filter, i.e. can’t assume knowledge is gained just because the evaluator has gained it. ▪ An evaluation at the end of a programme has limited ability to influence the social learning capacity of a programme.

Case story	Key elements of the social learning challenge	Type of evaluation intervention	Important outcomes/observations
<p>Case 2:</p> <p>Target Zero waste minimisation programme</p> <p>Main programme proponents: Waste Minimisation Unit, Christchurch City Council</p> <p>Aims: Train teams of people from manufacturing organisations to implement cleaner production/resource use efficiency measures within their companies</p>	<p>The programme had undeclared ambitions for company teams to deliver on organisational change, and consequently had not incorporated training to facilitate this or considered other factors that would support this role.</p> <p>Programme needs:</p> <ul style="list-style-type: none"> ▪ Way to support the effective functioning of the Target Zero teams ▪ Match technical learning(e.g. waste analysis) with process learning (how to collectively and creatively problem solve) ▪ Enable participants to move beyond initial assumptions about problems and causes (double-loop learning) ▪ Increased theoretical understanding of organisations as social systems and how teams can support organisational change 	<p>The evaluation had participatory, developmental and theory-based elements to it.</p> <p>There were four phases:</p> <ol style="list-style-type: none"> 1. A review of literature on groups and organisational change was used to generate a checklist of key factors for successful teams. 2. The checklist was used to review historical performance of teams involved in the programme and 3. As a mechanism to support the ongoing development of teams currently involved in the programme. 4. Efforts were made to build the capacity of the programme staff to use the evaluation approach as a development tool. 	<ul style="list-style-type: none"> ▪ CCC support gave the evaluation official status. ▪ It was possible to negotiate a different role for the evaluation because of the openness of the WMU to using evaluation for learning and development. ▪ The checklist approach relied on active facilitation that was more effective in situations where there was an existing organisational preference for learning and development ▪ The evaluation approach proved effective at helping teams learn about group dynamics and self-motivated problem solving ▪ The checklist was a useful way to introduce theory and ideas in a palatable and immediately useful form. ▪ The evaluation approach was also useful at matching technical learning with process learning. ▪ Imbedding such an approach in programmes without existing capacity for facilitation and reflective learning is not easy.

Case story	Key elements of the social learning challenge	Type of evaluation intervention	Important outcomes/observations
<p>Case 3:</p> <p>The Integrated Catchment Management Programme</p> <p><i>Frameworks for seeing across complex social systems</i></p> <p>Main programme proponents: Landcare Research, Tasman District Council, Cawthron Institute; other research institutes and local management agencies</p> <p>Aims: Transdisciplinary research to improve management of land, freshwater, and coastal environments in catchments with interacting, and potentially conflicting land uses, with a focus on the Mouteka catchment in the Nelson Region</p>	<p>The ICM programme’s task has been to provide new information about the interaction of various biophysical processes and to generate knowledge about how integrated environmental management can operate and to contribute directly to changes within the Mouteka catchment.</p> <p>Programme needs:</p> <ol style="list-style-type: none"> 1. Ability to manage multiple interests and provide platforms for multi-party critical reflection 2. New ideas about knowledge production – 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 3. Relationships with key management agencies that provide for structurally open and flexible institutional arrangements around decision-making, enabling real-time experiment and learning 4. The 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. 	<p>The social spaces framework evaluation was designed to support the programme participants understanding and action around communication and engagement needs of ICM.</p> <p>It involved three stages:</p> <ol style="list-style-type: none"> (i) Interviews with programme participants, out of which: (ii) a framework was developed which identified different social spaces across the programme with different goals for communication and norms of interaction. (iii) It was used in a participatory exercise with programme participants to enable them to assess the value of their actions and plan for future needs. <p>A comparison is made with an ISKM-based-checklist evaluation exercise used in the IRAP programme. There was no established formal mandate for the evaluation in either programme.</p>	<ul style="list-style-type: none"> ▪ The framework exercise was successful in enabling programme participants to make sense of the complex social interaction demands of a transdisciplinary research programme. ▪ It was a useful way of introducing theory and ideas in a palatable and immediately useful form. ▪ The participatory evaluation exercise in the ICM programme was more successful than in the IRAP programme, possible reasons for this include: <ol style="list-style-type: none"> 1. ICM social spaces framework was derived from participants own observations and had direct meaning for them. 2. The facilitators role in the ICM programme was better established than in IRAP. 3. Facilitation on the social spaces framework was directed towards ‘appreciative inquiry’ rather than critical reflection. 4. IRAP group had a large number of new members, and had little group trust established.

Case story	Key elements of the social learning challenge	Type of evaluation intervention	Important outcomes/observations
<p>Case 4:</p> <p>The Integrated Catchment Management Programme</p> <p><i>Platforms for dialogue and reflection: The Watershed Talk project</i></p> <p>Main programme proponent: Landcare Research</p> <p>Aims: Watershed Talk was an action-research sub-project within the ICM research programme which designed and trialled a platform for multi-stakeholder dialogue, information sharing and collaborative learning — meeting needs of the ICM programme for capacity development in this area.</p>	<p>The Watershed Talk project was an opportunity to bring together diverse knowledge sources on local Motueka catchment issues. It was also a chance to develop a platform for dialogue, learning and systems thinking that had a clearly articulated theory of learning at its basis, and which was addressing specific social learning challenges, i.e. (i) barriers to learning, (ii) too-early / a priori problem definition, (iii) managing open-ended processes.</p> <p>The challenges of methodology for the project were to develop means to build trust, and self-efficacy; mitigate the effect of preconceptions, about roles, knowledge and contributions amongst participants; introduce a systems thinking approach to addressing complex issues; all within a limited time frame (6 months), as well as leave a legacy for participants of enhanced skills in collective problem solving.</p>	<p>Reflection and structured forms of critique and analysis took place over the entire project. These included:</p> <ul style="list-style-type: none"> ▪ Interviews designed to promote reflection at the beginning and end of the project ▪ Use of photography to promote individual reflection, and contribute to enhanced dialogue, and information exchange between participants ▪ Facilitation approaches including use of a soft-systems based approach to unpacking complex problems ▪ Formal participant feedback on the workshops and the project as whole ▪ The project team’s own reflection practice to aid project development <p>P & D evaluation was so integral to the design of Watershed Talk as a platform for learning, that Watershed Talk could be regarded as a participatory evaluation exercise with a theoretical basis in social learning.</p>	<ul style="list-style-type: none"> ▪ Attention to physical and process aspects of the platform yielded dividends in participant engagement and shifts in content and process learning. ▪ Notable successes were achieved with a number of creative devices (e.g. photography) used to support individual and group reflection and learning. ▪ Watershed Talk contrasts more conventional problem solving / community planning processes by focusing foremost on ways of working together rather than specific problems. Outcomes suggest communities may have greater tolerance for this when the processes used are inclusive, and vital. ▪ Running Watershed Talk outside existing social & institutional environmental planning and management meant it was a single intervention unsupported by previous or subsequent activity. ▪ The project highlighted the importance of working with different disciplines in project teams.

