Creative platforms for social learning in ICM: the Watershed Talk project

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Creative platforms for social learning in ICM: the *Watershed Talk* project

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Watershed Talk was an action research project within the Motueka-based integrated catchment management research programme. It explored processes of dialogue between catchment residents, scientists and resource managers, and examined how design of creative processes can shift people's understanding and develop their capacity to address the complex environmental issues that they face. The project was highly reflective, and examined the potential transformative power of constructive conversation and the means by which social learning platforms can affect the legacy of skills, knowledge and enthusiasm for action amongst participants. Three important elements for the design of platforms for social learning were identified: (1) the value of using principles to guide process design; (2) the potential outcomes from using creative approaches to generate dialogue; and (3) the importance of integrating evaluation and reflection into platform design to both manage the platform and to help cement new learning amongst participants. This paper outlines the fundamental aspects of the *Watershed Talk* platform design, its implementation, and conclusions drawn from evaluation of the experience.

Keywords: complex problem solving; social learning platforms; integrated catchment management; dialogue; community resilience; public engagement

Introduction

Social learning platforms are constructed opportunities for groups of stakeholders to work their way through complex problems (Keen et al. 2005). They are an important element in the toolkit of integrated catchment management (ICM), and of increasing interest to water and land managers faced with complex resource allocation and management issues (Maarleveld & Dangbégnon 1999; Warnera 2006; Pahl-Wostl et al. 2007). More than simply meetings or forums, platforms can take a variety of forms, and the way they are created and facilitated influences what is experienced by the participants and what can be achieved (Buck et al. 2001).

This paper outlines the techniques employed to create a platform for social learning in the *Watershed Talk* project. The project was undertaken as an initiative within the ICM research programme—a 10-year interdisciplinary research programme based in the Motueka catchment in the South Island of New Zealand. The aim of the ICM research was to explore ways to understand and integrate catchment biophysical and social processes for achieving more effective sustainable management in the face of strong development pressures. Multiple research and resource management agencies, sector groups and community stakeholders have been involved in the programme. Its distinction as a research programme was its intention not only to provide research information to catchment management agencies, but also to develop tools, methods and processes that would advance integration and

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participation for catchment management (Fenemor et al. 2011).[1]

An important part of ICM Motueka research was to investigate ways to build capacity for social learning as an underpinning condition of adaptive integrated environmental management (Maarleveld & Dangbégnon 1999; Keen et al. 2005). Consequently *Watershed Talk* was set up to examine how a platform for social learning could be designed and implemented to specifically address social learning challenges and add to participants' capacity to engage in complex and controversial discussions around catchment management. While *Watershed Talk* was intended to be informative about processes to support social learning, the culture of inquiry at the heart of *Watershed Talk* was also transformative, aiming to add to the skills, and confidence of the participants.

This paper first discusses the importance of dialogue in ICM and the need for establishing platforms for social learning. It goes on to outline the *Watershed Talk* project as a platform for dialogue and learning about the environmental management concerns of the Motueka river and catchment. In particular, it outlines the specific challenges associated with facilitating social learning that *Watershed Talk* focussed on. The paper discusses the three main pillars of the *Watershed Talk* platform design: (1) principle-based design; (2) creative approaches to dialogue; and (3) reflective practice. The paper next outlines observable outcomes from *Watershed Talk* in terms of shifts in participants' views, networks, knowledge and concerns about the Motueka catchment. It ends with key conclusions about the critical elements of designing social learning platforms to support the development of skills, knowledge and enthusiasm for action amongst participants.

Importance of dialogue in ICM

The way a catchment is managed is a consequence of both the large-scale long-term plans that are put in place and numerous daily decisions made by local landowners, resource users and managers. ICM demands that these plans and decisions are made with an eye to upstream influences and downstream effects (Mitchell & Hollick 1993; Bowden et al. 2004). Success requires it to be a highly cooperative venture, reliant on decision-making processes that take into account multiple interests, values and aspirations (de Loë et al. 2009; Berkes 2009).

What compounds the challenge of catchment management is uncertainty (Allen 2001). Information about resource management issues is often incomplete—some crucial factors may even be indeterminable—and when available may be debated by different stakeholders on the basis of relevance or meaning (Allen 2001). The proffered solutions to the problem may fix one part of the problem only to reveal yet another. Moreover, stakeholders may dispute problem causes and remedies and their role in these, or even the existence of a problem at all (Friedman & Abonyi 1976; Lee 1999). Under such conditions, catchment management becomes not so much a matter of determining the solution as mediating a course between the many possible perspectives (Mollinga 2008). Consequently the ability to more consciously learn a way through problem situations is equally relevant for all stakeholders, including land and resource users, environmental management agencies, and problem experts such as science researchers (Allen 2001; Keen et al. 2005). Ultimately, while catchment managers may employ a mix of approaches to influence actions ranging from regulations, best practice guidelines, economic incentives and voluntary efforts, all of these are underpinned by good communication and opportunities for dialogue amongst the many interested parties (Young et al. 1996; Allen et al. 2002).

In the last decade, 'social learning' has been used to describe the social-process ingredients of complex environmental problem solving (Maarleveld & Dangbégnon 1999). It has become a recognised component of ICM (Mostert et al. 2007; Tábara & Pahl-Wostl 2007).

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. Kilvington & Allen (2009) propose a social learning framework that draws attention to four interlinked areas for focusing awareness and developing practice in complex problem solving. These are:

(1) How to manage stakeholder participation and group 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.

ICM research in the Motueka catchment actively pursued initiatives aimed at better understanding how to build capacity for social learning into any ongoing catchment management situation (Fenemor et al. 2008). Achieving this rests on the availability of platforms (or opportunities) for dialogue, information exchange, systems thinking, addressing conflict, debate and learning. Platforms have both a physical and a process component. The former refers to the location and timing of events and includes where and when events occur as well as their sequence alongside other influential activities, such as before legal proceedings. The latter refers to the way in which participants are engaged and conversation is facilitated. Platforms can be virtual (e.g. online networking sites), can take place over years or be single events. While any opportunity for interaction between multiple stakeholders and public agencies can be regarded as a platform, their different qualities in terms of design and implementation have consequences for immediate outcomes and the long-term skill and capacity development of those taking part. Platforms can be designed to address different social learning needs such as resolving a long-

standing conflict, taking collective action on an issue or constructing a model to explain system interactions. Therefore, cumulatively, different platforms contribute to the ongoing social learning capacity of a catchment, a project, community or group of stakeholders.

Platforms that are intended to improve the social learning capacity of the situation must include strategies for addressing common social learning challenges such as the tendency to rely on 'too early' or *a priori* problem definition, managing open-ended dialogue and building trust (Bouwen & Taillieu 2004; Kilvington 2010). They must also be responsive to existing barriers to individual and collective learning, such as preferential notions of what is valid knowledge, and self-limiting ideas around a participant's potential contribution (Webler et al. 1995; Craps 2003; Kilvington 2010).

The trial of a diversity of platforms for dialogue, reflection and systems thinking was a significant part of the ICM Motueka research activities. Examples ranged from the annual general meetings, which included sessions for public, science and management to interact on research and policy issues, to co-ordinated groups such as the community reference group, which met regularly over 10 years (Table 1). In each instance, there was a point of difference and purpose that shaped the physical and process components of the platform.

Outline of *Watershed Talk*

Watershed Talk was essentially an action-research project aimed at understanding good practice in multi-stakeholder dialogue and social learning. Through a staged series of individual and collective activities, participants with diverse backgrounds were brought together to discuss care and responsibility for the Motueka catchment. The premise of *Watershed Talk* was that the way in which conversations were held could affect participants' ability to both understand issues and take action to address them. The project was external to any formal ongoing environmental

Table 1 Examples of platforms for social learning in the integrated catchment management (ICM) Motueka research.

Annual general meetings	Typically 3-day events with sessions open to all stakeholders, sector groups, and Motueka catchment residents. Aimed at reviewing research progress as well as building networks. Each AGM explored different approaches and topics. For example, the River Gravel & Channel Dynamics Workshop (2006) brought together researchers and stakeholders to discuss controversial science and policy for river gravel allocation.
Community Reference Group (CRG)	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 took place 2–4 times per year.
Confluens online workspace	Designed for research programme members and active participants, the online workspace had around 70 members and was used to discuss research questions and share progress across disciplines, and practice areas.
Mountains to Sea (2002–04)	This initiative was a collaboration of scientists and artists exploring environmental and social interconnections that shape the Motueka catchment. A significant output of the project was the Travelling River exhibition, which combined more than 250 community photographs, science images and stories from residents and researchers in the Motueka catchment.
Sediment Learning Group	The learning group facilitated interaction between science, management and policy to develop a shared understanding of sediment management issues. The group was made up of researchers and practitioners including individuals from the local resource management agency (Tasman District Council), ICM programme researchers, the local iwi resource management authority, forestry, farming and fishing groups.

management processes. As such, it was not constrained by legislative requirement or local government conventions. Rather it was designed to inform how such processes might be constructed to enhance the collective learning of participants.

The *Watershed Talk* project team of three comprised a social researcher and facilitator, an artist and community and landscape specialist, and a catchment hydrologist and programme leader of the ICM research programme. This team had worked previously together on the art-science initiative Mountains-to-the-sea, which linked scientific and community interpretations of the Motueka catchment (Atkinson et al. 2004; Kilvington & Horn 2006), and reflected the diverse knowledge and skill sets thought appropriate for the project.

Watershed Talk took place over 8 months and involved 18 participants in individual interviews (conducted at the beginning and end of the project) and two group meetings. The project had four phases: engagement, conversation, evaluation and feedback (Fig. 1). Each phase had a number of activities and a reflection component (Table 2), including individual interviews, take-home tasks, and attendance at two group meetings where the principal opportunities for dialogue occurred.

The participants reflected a wide diversity of backgrounds and were not asked to represent an interest or a group (i.e. were not position-takers) but were those who would bring different perspectives created by their different knowledge, through being scientists, artists, tangata whenua,[2] farmers, policy makers, long-term
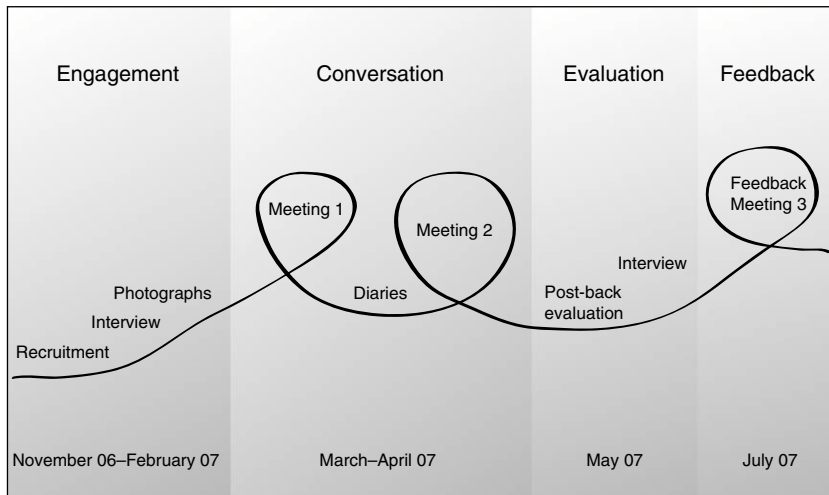
Figure 1 Phases of the Watershed Talk project.

residents or newcomers to the community. One consequence of this process is that the participants were not a random representative cross-section of the community but were also not people who self-select to take part in meetings. Rather participants were identified through contacts (see extension of the snowballing technique, Table 2) as people who were known for being thinkers, who had a real grounding and sense of this area and may be good at sharing ideas in conversation and listening to others. This created some later discussion regarding the applicability of *Watershed Talk* to more conventional local government processes. However, the authors argue that a number of opportunities for public engagement are open to local government outside those that require formal representation by participants.

The project team collated information from the interviews, records of the meetings, feedback from the evaluations and their own critical reflections, to make observations on the social learning platform and its effectiveness at addressing the identified barriers to learning. In particular, the interviews were designed to assess shifts in attitudes, knowledge, and skills

Table 2 Phases and activities in *Watershed Talk*.

Engagement	Recruitment	Step 1—Snowball technique, people nominated by their community to take part
		Step 2—Gathering of potential participants
		Step 3—Final invitations to reflect a diversity of perspectives
	1st interview	Semi-structured interview, 1–2 h
	1st pre-meeting task	Taking photographs around the theme of care and responsibility within the Motueka catchment
Conversation	1st meeting	Workshop around a shared meal, 5 h
	2nd pre-meeting task	Diary record of ideas, conversations and observations
	2nd meeting	Workshop around a shared meal, 5–6 h
Evaluation	Evaluation form	Post-back, optional confidentiality
Feedback	Final feedback meeting	Presentation of initial synthesis by project team, feedback and social event (6 h)

in discussion and networking, while the evaluation looked at response to the meeting process. A booklet outlining the *Watershed Talk* process aimed at public participation practitioners was produced and made freely available to all project participants (Atkinson et al. 2009).

The culture of inquiry at the heart of *Watershed Talk* was both informative and transformative (Heron & Reason, 2001). The project design aimed to maximise opportunities for dialogue and learning amongst participants. Design included selection of who was engaged as participants in the project; how they were brought together; and what processes were used to support discussion. The reflection or evaluation elements were opportunities to observe shifts and changes (i.e. be informative); and to critique the effectiveness of the design elements. However, the processes of evaluation were not merely to ensure the learning of the project team, but in recognition that processes of reflection play a pivotal role in cementing observations and new learning for all. Thus, reflection by the participants was supported at every phase of the project, through the initial interviews, the photographic pre-meeting task, diary exercise, post-back evaluation and final interview (Fig. 1 and Table 2). In this way, *Watershed Talk* coupled the practical experience of meeting and working together with reflection by individuals on the value and impact of the processes used and any subsequent changes for them in their attitudes, understanding, networks and relationships.

Choosing the social learning focus of *Watershed Talk*

Given the breadth of the social learning concept, it was important to bound *Watershed Talk* as being about 'improving the social learning capacity of the situation' and to select which aspects of the inherent social learning potential were most amenable to improvement. Consequently, *Watershed Talk* concentrated on three issues: (1) dealing with barriers to learning; (2) addressing 'too early' and *a priori*

problem definition; and (3) managing an open-ended dialogue process. Developing sufficient trust between participants and project facilitators to enable meaningful conversation underpins all three.

Observed barriers to learning in environmental management include inability to motivate learning in non-crisis situations and 'single loop learning', where cause and effect are too quickly assumed, leading to a reluctance to look at more fundamental aspects of a situation (Argyris & Schon 1978). Learning barriers are also related to issues of power and confidence. In group settings, existing power dynamics influence the dominance or otherwise of particular voices. Of equal importance are 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 because specific individuals or groups are regarded as experts in one area their opinion is preferentially valued in other areas. Similarly, the image stakeholders hold about their capacities and roles (their auto-image) may differ from that held by other stakeholders, and may result in self-limitation of a participant's possible contribution (Craps 2003).

This phenomenon was particularly important for *Watershed Talk*, as the intention was to design a platform that could inform the practice of transdisciplinary research and ICM, which rest on the successful integration of science- and non-science-derived knowledge about situations. Both participant groups in *Watershed Talk* included an environmental scientist working in the catchment and someone who worked in planning and policy for the local government agency (Tasman District Council). Both scientists and local authority staff are commonly regarded as experts. *Watershed Talk* aimed to maximise the potential contribution from a variety of sources; therefore, the challenge was to apportion expertise widely amongst the participants, and to counter the effect of preferential bias towards particular individuals. This challenge

was met through active facilitation of the conversation during the group meetings but also through the project's engagement phase. In this phase, participants gained confidence from knowing they had been nominated by others, and were able to prepare themselves for participation through the pre-meeting interviews and tasks. This highlights the need to regard all stages of platform design as an opportunity to build capacity for social learning.

Second, 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 problem definitions based on unchallenged generalised ideas about what is important and what is occurring (*a priori*). Problem statements issued by authoritative voices (such as agencies, NGO spokes-groups and key political figures) can be some of the most powerful assumptions underpinning complex problems (Tàbara & Pahl-Wostl 2007). While the need for multiple perspectives on issues is increasingly recognised, wider thinking also needs to be employed prior to establishing the boundaries of a problem situation (Allen 2001). Introducing systems thinking, with its holistic emphasis on understanding relationships between elements, rather than focussing on particular aspects, at the stage of problem definition in multi-party dialogue situations can be challenging, with participants feeling a resistance to 'stepping backwards'.

A third challenge in developing a social learning platform is 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 participant needs for direction and purpose. Structuring conversation to attend to these common problems required thoughtful use of different approaches, including soft-systems methodology (Checkland 1999) and the notion of 'camping out' beside a problem and allowing the options to emerge (Kahane 2004).

The platform design and implementation borrowed something from the previous experiences within the ICM Motueka research (Table 1). For instance, as with the Sediment Learning Group, facilitation of the *Watershed Talk* workshops promoted system-wide understanding rather than resting with *a priori* definitions of problems and their boundaries.

Cultivating collective problem-solving

The design of the *Watershed Talk* platform rested on three main pillars: (1) principle-based design; (2) use of creative approaches to address common challenges; and (3) reflective practice.

Principle-based design

In contrast to platforms based on recipes or standard meeting formulae, *Watershed Talk* relied on a set of core principles as a basis to work-practice. These were respect, diversity, empowerment, reflection, generosity and active cultivation. Principle-based design has the advantage of flexibility and responsiveness to unique conditions. It relies on selecting concepts that are in sympathy with the core aims of the platforms, and ensuring these are manifest in the process and structures set up through the platform. For instance, *respect* for the unique contribution and potential of all participants was an important guiding ethos for *Watershed Talk*. This was expressed through the courtesy of how people were initially contacted, and in the active facilitation of meetings.

Diversity is a recognised characteristic of resilient systems (Walker & Salt 2006). In *Watershed Talk*, this was reflected through the wide range of views, knowledge and standpoints of the invited participants. Good conversations do not just happen and *Watershed Talk* considered ways of *empowering* participants with confidence in the value of their own contribution as well as creating good conditions for open discussion. Fostering *reflection* through the pre- and post-meeting interviews

and in opportunities during the meetings helped reveal to participants their own knowledge and enable them to reach beyond initial assumptions and ideas.

While respect, diversity, empowerment and reflection are principles common to participatory process design (Fetterman 2002), *Watershed Talk* also explored how the idea of *generosity* could be used as a counter notion to scarcity, which is often 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.'

Finally, in *Watershed Talk*, the characteristics of a good learning environment were regarded as manifest not just from static arrangements established at the outset of the project but from facilitation that *actively cultivates* learning, dialogue and the opening up of ideas from moment to moment.

Creative approaches to dialogue

The conversations conducted through *Watershed Talk* were constructed to enable participants to explore familiar ideas and objects in a different context. A variety of techniques were used to break down barriers, create pathways for new connections between participants, and enable fluid movement between the sense of being an individual and being a community. These included an ice-breaker exercise where participants located themselves and their interests on a map of the catchment, and participants and facilitators sharing a formal meal in the middle of the meeting (Atkinson et al. 2009). Two techniques that had significant impact on the transformative potential of the *Watershed Talk* platform were the use of photography and the facilitation approach.

Photography

During the project's engagement phase, participants were asked to reflect on their personal connection with the catchment, and their thoughts about how they and others expressed care and responsibility towards it. This reflection was supported by a 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 photographic exercise derived from earlier work in the Motueka ICM research (Kilvington & Horn 2006) and from the work of landscape ecologist Joan Nassauer (1997). The use of visual media to facilitate individual and group learning and communication has precedence in participatory community development (Lykes 2001) where it has been used in response to what is regarded as the inherent visual literacy of participants (Nemes et al. 2007, p. 9). The act of taking images to crystallise and convey ideas effectively, translates the meaning and significance of experiential knowledge derived from direct encounter into presentational knowledge (Heron & Reason 2001)—making it more open to shared critique and understanding.

In *Watershed Talk*, 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 puzzling'. Furthermore, the photographs themselves provided participants with a self-prepared starting point for talking at the first meeting, which gave them confidence and a sense of their own authority on the catchment.

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 organize rather than being put on the spot.'

All the photographs were developed to the same dimensions and quality, so the presentation for each person took the same basic form without tacit expressions of authority. The presentations directly reflected participants' own experience, which they could talk about with self-assurance. The use of visual aids

stimulated responses at multiple levels. Participants 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). 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' were turned on their head. As one participant reflected: '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.'

Beyond the commonality of ideas, a shared set of values, ethics or principles might be discovered. 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. The shift in the way the scientists and agency staff were regarded led to greater trust in the information coming from these people. Similarly, the scientists and agency participants observed that they had gained a greater appreciation of the concerns and interests of the other participants and moreover their willingness to engage on catchment management issues.

At the close of the project, the photographs were used as a prompt for inquiry into how participants' views had changed over the project. In the follow-up interviews, participants revisited their images and were asked: would you view any of your photos differently now? Reviewing the photos at the end of the project acted as a form of closure, helping participants to recognise the gains and changes from taking part in the project. Table 3 summarises uses of photography to support initiatives aimed at collaboration and dialogue. These include how

photography can be used to benefit individual participants in building their knowledge and improving self-efficacy. Photography also offers benefits to the collective by providing an additional means of communication, building relationships through shared discussion around images and creating conversational bridges that support collective learning. Projects as a whole can benefit from use of photography through its capacity to support reflection and information gathering by participants.

'Camping out' and problem-solving facilitation

Both the physical and process aspects of platforms are an opportunity to influence capacity for dialogue. Specific leverage points in *Watershed Talk* included: (1) who was taking part; (2) the venue and climate; and (3) facilitation that builds trust between participants (and the research team), creates equal opportunity for participant contribution and fosters confidence in the slow process of revealing and developing understanding.

Watershed Talk drew on Kahane's (2004) 'camping out' approach to running a discussion. As Kahane observes 'In real innovation the "click" does not come from working on and talking about a problem but from stepping back, giving our unconscious space to work' (Kahane 2004, p. 262). This requires fostering the willingness to sit with 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 & Jackson (2004) used the process of a formal shared meal to disrupt confrontational dynamics between protagonists in the biotechnology debate. *Watershed Talk* similarly explored the potential for this to expedite familiarity and ease between participants. As one participant observed: 'Creating a neutral forum, a space within a more formal space, can act like pushing a refresh button ... like you can't be

Table 3 Benefits of photography in collaboration and dialogue processes.

Individual		
	Reflection	The physical act of photography works as a stimulus to re-examine everyday scenes and question 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 participant's 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 participant's 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. 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.
Project		
	Evaluation	Both the act of photography and the images themselves can form part of a participatory developmental evaluation, supporting reflection and information gathering by participants, and enabling assessment of changes.

killing someone if you are busy sharing food with them!'

Through the individual photographic presentations and accompanying storytelling information, concerns and emerging challenges in the Motueka catchment were introduced and debated. From this discussion, a particular focus of inquiry and topic emerged for the second group meeting (the topics for the two groups were land use change and invasive weeds). In this way, all participants contributed to shaping the problem under discussion.

There were three stages to the inquiry process at the second group meeting:

(1) Unpacking the problem—participants explored what was happening, and what evidence they had to support this. They created a mind-map of issues and connections to the central problem question.

(2) Using a back-casting approach, participants envisaged a desirable future—what would things look like if the 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, adapted and used by researchers in various environmental management contexts (e.g. Allen et al. 1998). The value of the approach is that it enables a wide scoping of the problem and examination of underpinning assumptions before coming to conclusions about actions.

The project team observed, through the final interviews, feedback evaluations and project team reflections on the meetings 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, and more confident that such an open-ended process could lead to useful outcomes.

Reflective practice

Evaluation and reflection were integral to *Watershed Talk*, contributing to the performance of the platform itself through supporting participants' learning and confidence and providing feedback to the research team about the progress of the project. Formal stages of evaluation included the pre- and post-meeting interviews and the post-back participant evaluations. Reflection was inherent in the pre-meeting photographic exercises as well as the camping-out facilitation approach.

Reflective practice for facilitators and platform managers is essential to the delivery of a principle-based design in three ways: (1) being thoughtful about how the principles relate in different circumstances; (2) monitoring the connection between platform design and desired outcomes; (3) ensuring the platform is internally consistent, i.e. you model what you expect of others. Such reflection need not be elaborate; rather it rests on vigilant observation and tracking of signals such as the attention, interest and contribution of participants. Reflective practice also looks to the end of the process, recognising and anticipating the journey for participants, managing expectations and stages of the process (such as engagement, conversation and closure).

Reflective practice recognises that all platforms for communication convey moral messages, consciously or subconsciously asserting particular forms of behaviour and interactions. *Watershed Talk* offered an opportunity to postulate distinctions between what the project team termed 'resilience-oriented approaches' to collective problem solving, and approaches to engagement that can be commonly found in resource management. Resilience-oriented approaches have an intention to develop community capacity for learning and change through enhancing individual and social capital (Paton & Johnston 2001; Adger 2003). More conventional resource allocation and management forums adhere to process formulas that reinforce existing power arrangements, favour authority-driven problem definitions and are often focused on efficiency (e.g. appointing one stakeholder representative; judgements and decisions made as quickly as possible) (Knoepfel & Kissling-Näff 1998; Forester 1999; Hayward 2000; Andrew & Robottom 2005; O'Brian 2009). Where different principles are deemed important to the problem situation (such as inclusiveness and an emphasis on learning), these need to be actively pursued through the problem-solving process, which can ultimately lead to wider expressions of leadership in addressing issues (Gronn 2002). Table 4 makes a coarse comparison to postulate possible distinctions between approaches to public deliberations that do and do not consider their potential to enhance resilience.

Outcomes of *Watershed Talk*—content and process learning

Outcomes of *Watershed Talk* were assessed through interviews, participant feedback and the observations of the research team. They endorsed the idea that social learning platforms can be designed and implemented in a way that leads to changes in participants' knowledge about the properties of the system (i.e. 'content knowledge', which in this case means knowledge about the Motueka catchment) as well as knowledge of and trust in networks and resources, and confidence in processes for collective reflection and problem solving. The project identified four subsets of this shifting capacity, and sense of responsibility:

(1) Altered ideas about the Motueka catchment and its community—participants

Table 4 Contrasting conventional and resilience approaches to problem solving.

Challenges with conventional 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 particular problem definitions	Problem revealed, reinterpreted by participants
May generate 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 social interaction	Conscious what messages about social interaction are modelled

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.

(2) Personal changes in how individuals see their own role and that of others—including a greater optimism over what people were prepared to undertake and were already doing, and shifts in self-efficacy.

(3) Changes in ideas about how to meet with others and problem-solve—this included observations on the *Watershed Talk* approach to dialogue, what it had achieved, and how such processes could be used in other settings.

(4) Preparedness for further engagement and action—this included 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.

Conclusion

The *Watershed Talk* research project developed ideas about care and responsibility, explored principle-based design of social learning platforms and resilience approaches to problem solving, and documented what makes for good communication and participation.

Watershed Talk revealed several important elements in the design of platforms for dialogue and learning that are useful to managers, researchers and policymakers grappling with ICM. Firstly, *attention to both the physical and process components* of the platform yields dividends in participant engagement and in the substantive shifts of content and process learning made by individuals. In *Watershed Talk*, this manifested as increased awareness and knowledge about issues in the catchment and increased interest in new ways to take action. In particular, careful *staging and stepping through phases* of engagement, conversation, evaluation/reflection and feedback built participant confidence in their ability to contribute and helped establish relationships both within the group and between researchers and participants.

Platforms for social learning need to be receptive to the unique context in which they are located. *Basing a platform on principles* such as those used in *Watershed Talk* (respect diversity, empowerment, reflection, generosity and active cultivation) rather than standardised meeting format, combined with *reflective practice*, maximises platform responsiveness.

Reflection on the core principles of the platform enables the selection of appropriate approaches and creative techniques to support dialogue that meet the needs of the participants and the social-learning challenges of the situation. In *Watershed Talk*, these included the use of photography to support people's confidence and capacity to contribute to discussions. It also included the 'camping out' approach to facilitation and the use of formal shared meals, which both challenge conventional meeting dynamics.

Also important is the integration of *reflective (evaluative) processes* into the platform. This not only tracks platform progress but encourages participant learning.

Finally, processes by which people are deliberately brought together to share knowledge and discuss values set up the preconditions for particular forms of interaction. Platforms for social learning that actively consider their impact and monitor progress can *consciously model desired ways of interacting*.

Acknowledgements

Notes

1. This special issue of the *New Zealand Journal of Marine and Freshwater Research* focuses on different aspects of the Motueka ICM research programme. For detail about the programme, see Fenemor et al. (2011), this issue.
2. Tāngata whenua is a Māori term literally meaning 'people of the land' used to refer to local tribes with standing in the area.

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