

**Insights for Regional Councils on the collaborative and
adaptive management of freshwater resources:
based on the Manawatū River experience**

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November 2013

Published by Ecological Economics Research New Zealand
College of Humanities and Social Sciences
Massey University
Private Bag 11 222
Palmerston North
New Zealand

ISBN (Print) 978-0-9876532-7-7

ISBN (Online) 978-0-9876532-8-4

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REPORT PURPOSE

Purpose: The complexity of adaptive catchment management requires moving beyond the standard approaches to collaboration. This report is one of the outputs from the Integrated Freshwater Solutions (IFS) project and aims to share empirical learnings from a completed stakeholder collaboration process for the Manawatū River. It covers: (1) stakeholder selection and workshop structuring (2) the use of systems thinking and Mediated Modelling (MM); and (3) working with iwi/hapū. The systems and adaptive management approaches used by the IFS project are described. The spectrum of equally valid alternative approaches is not discussed. Sharing IFS researchers' and stakeholders' reflections has the potential to provide further insights given the close alignment of the strategy, research priorities and direction of the IFS project with the Ministry for the Environment (MfE) 'Freshwater reform 2013 and beyond'; National Policy Statement for Freshwater; and changes to the Resource Management Act. These initiatives place emphasis on collaborative and adaptive management, and the resourcing and capacity building of Māori communities – all covered by the IFS project.

Background: The IFS research concept to address the increasing degradation of water quality in the Manawatū River Catchment, was submitted for funding in August 2009. The project was subsequently funded by the Ministry of Business, Innovation and Employment (MBIE) for 3 years (from 2010 to 2013) to investigate if collaboration supported by Mediated Modelling (MM) was a way to address water quality/quantity issues. MM can be described using model building as a mediation tool; modelling *with* stakeholders, rather than building models *for* stakeholders (van den Belt, 2004).

When the state of water quality in the Manawatū River received national publicity in 2009 Horizons Regional Council (HRC), initial supporters of the IFS project, brought together territorial local authorities, iwi/hapū, business and environmental NGOs to form the Manawatū River Leaders Forum (MRLF). For pragmatic reasons it was decided that the IFS project and MRLF should combine forces rather than run parallel processes. As a consequence the collaborative *context* in which the IFS project was conceived with its end-user partner HRC, changed significantly at that point in time. It moved from a research-based collaboration to a more politically-oriented action planning process. As initially conceived the IFS project intended to use MM model building as a mediation tool and have a series of workshops (50 hours spread over a year) to allow up to 20 key stakeholders to bring various perspectives and data sets to a dialogue that simultaneously (and for all to see) was to be interpreted into a gradually evolving scoping model. Elections, media attention, time constraints and personnel changes among our collaborators resulted in significant changes needing to be made to the IFS project for it to proceed. The MM workshops which were to take place during the second year of the IFS programme were brought forward. As it eventuated only three workshops using MM took place to fit with the six-month MRLF time-frame to produce an Action Plan. Other modelling pursued after the workshops moved to collaborative modelling among scientists.

This report provides insights from the lens of the IFS research project as opposed to the more political MRLF process. While both had the goal of an Action Plan attained through collaboration, to bring about improved water quality, the approach to achieving this differed. The research

project was based on using a systems approach for integrated catchment management and providing a robust adaptive management framework to help inform the more short-term political processes as they arise. This allows continual improvement to take place over time as well as better short-term outcomes. Recognition of the importance of ecosystem services and educating stakeholders and the wider public were auxiliary research objectives. The political process was strongly time-based and aimed at meeting the political agenda imposed as a result of the negative media attention.

The novelty of the IFS approach to collaborative decision-making was to develop and test the suitability of two modelling approaches during a collaborative workshop-based process. The tools were: (1) Mediated Modelling (MM) and (2) Bayesian Belief Network modelling (BBN). These tools provided a mechanism to systemically integrate social, economic, cultural, ecological, scientific data and synthesize knowledge among participating stakeholders.

An additional aspect of the IFS project was to foster iwi/hapū capacity to participate in the proposed mediated modelling workshops. Iwi/hapū have different levels of resourcing and capability. Independent iwi/hapū research projects were part of the IFS project to build capacity.

Overall goals for the IFS project were to: (1) provide a tool to enable freshwater to be better managed for the benefit of all; (2) enhance linkages between research providers, society including Māori, policy makers and water users; and (3) ensure that ecosystem services not valued through market mechanisms (drinking water, spiritual values and recreation) are accounted for. These goals were to be achieved by: (1) incorporating available scientific and economic data, and involving users in scenario modelling to explore solution pathways; (2) demonstrating how freshwater systems contribute to achieving economic, social, and environmental goals; and (3) bringing together generally competing stakeholders to develop a facts-based framework including indicators to measure mid-to long-term progress towards mutually agreed goals.

The IFS project, as a research initiative, placed importance on documenting and analysing the stakeholder process and outcomes for the benefit of others. Stakeholders were surveyed before, during, and after the workshop sessions. Towards the end of the three-year IFS project stakeholders were also interviewed by an independent researcher (an outsider who had not been involved in workshops), and brought together to have an opportunity to reflect on the collaboration process at a workshop titled “Account-ability of Collaborations”. This workshop explored the key areas for success of freshwater collaborative processes in NZ and focused on: (1) the extent to which collaborative processes are accountable; (2) what tools are desirable to support collaborations; and, (3) how to manage and invest in catchments to ensure that long-term Ecosystem Services and other benefits are derived.

This report documents key findings from the workshops held for the Manawatū River catchment for the purpose of assisting and improving stakeholder collaboration processes. Bullet points are used for brevity and to make the report accessible to a wide range of interested parties.

REPORT STRUCTURE

This report draws on the observations made, and experiences stakeholders gained during the workshops and is structured as follows:

Section 1 briefly explains the context of the IFS project.

Section 2 covers the preparation phase including stakeholder selection, facilitation and workshop structuring.

Section 3 covers the workshop phase and modelling in the context of an adaptive management cycle. Emphasis here is the problem to be addressed (integrated catchment management) and an assessment of the use of collaborative and adaptive management decision-support tools in a stakeholder collaborative process.

Section 4 covers working with iwi/hapū.

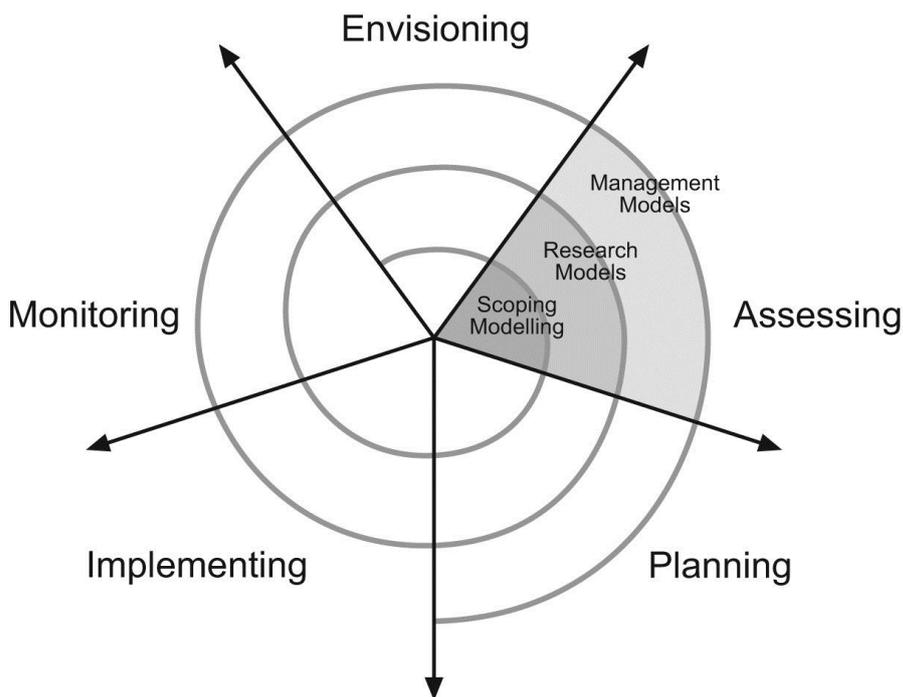
Section 5 provides some general conclusions drawn from the collaborative workshops.

1. SECTION 1: INTEGRATED FRESHWATER SOLUTIONS CONTEXT

The Integrated Freshwater Solutions (IFS) project was funded to advance integrated catchment management for the Manawatū River. Integrated catchment management involves simultaneously taking into account the combined impacts of ecological, economic, social and cultural activities, using both quantitative and qualitative measures as appropriate. The IFS research project argument was freshwater systems are complex and impacted on by competing interests with social, cultural, economic and ecological implications. Full understanding and solutions come from integrating these fragments and resolving conflicting demands. For the IFS project freshwater was considered to be a non-substitutable Ecosystem Service that provided drinking water, irrigation for crops, spiritual values and recreation opportunities plus many other critical contributions to well-being. As many of these services are not valued through market mechanisms promoting recognition of Ecosystem Services and how they relate to each other, was considered essential if long-term solutions were sought.

Another focus of the IFS project was the need to advance adaptive management (AM). AM provides an evaluation mechanism to facilitate continuous response to change to gain on-going improvement. The IFS project was therefore an opportunity to explore ways to put in systems that would generate long-term benefits for the council. As shown in Figure 1 there are five stages to the adaptive management cycle. The starting point is 'envisioning' which requires consensus on an agreed long-term vision for where stakeholders want to go. Stage two is the 'assessment' stage of the cycle where the perception of the situation is determined, data is collated and gaps identified. The 'planning' stage involves backcasting from the vision to determine what steps need to be taken, when, and in what order, to move in the direction of the vision. 'Fuller' cost and benefit accounting for the proposed alternatives is also required. The implementation stage involves putting into action the agreed plan and the final stage is the 'monitoring' to ensure actions achieve the desired results. This process is iterative as with all long-term plans new developments occur that require adjustments to be made to the previously agreed on actions so they remain aligned with the vision.

Adaptive Management



Source: van den Belt, 2009

Figure 1: Adaptive management cycle and evolving modelling toolbox

The overarching IFS approach was the use of systems thinking and systems theory to understand the underlying structural causes of the decline in the water quality in the Manawatū catchment. As a rule humans favour linear thinking which results in an oversimplification of complex systems and responses that are directed at short-term cause and effect relationships (Northrop and Connor, 2013) rather than addressing fundamental issues. Applying systems thinking provides a different lens to look at the world as it makes visible the relationships between structure and behaviour and allows better understanding of how the system works. When issues are inter-related and interlinked they become part of a complex system where each component is capable of acting or reacting in multiple ways. By studying complex systems we aim to better understand indirect effects which are often counter-intuitive. Uncertainty remains a characteristic of complex decision-making but the goal is to understand the leverage points by which systems change and routine decisions become dynamic in nature (Meadows, 2008; 2009).

Stakeholders were provided with both the opportunity to engage in a collaborative process and the chance to reflect on collaboration as a way to solve contentious environmental issues in the Manawatū catchment.

2. SECTION 2: STAKEHOLDER SELECTION AND WORKSHOP STRUCTURING

Stakeholders were engaged in the fresh water management process through workshops. These workshops created opportunities for multiple users of the freshwater system to discuss and acknowledge fresh water issues and possibilities while considering science facts, in a mediated forum. For the Manawatū River the goal was improved river water quality. Workshop participants represented Horizons Regional Council, Forest & Bird, Horowhenua District Council, Palmerston North City Council, Fonterra, Federated Farmers, Vision Manawatū, Department of Conservation, Fish & Game, Te Kāuru Eastern Manawatū River Hapu Collective, Ngāti Kauwhata (supported by Taiao Raukawa), Rangitāne O Manawatū, Muaūpoko Tribal Authority, and Water and Environment Care Association.

Based on the Manawatū River workshop experience the following guidelines are proposed:

- Carry out a stakeholder analysis to identify which organisations should be represented and to ensure there is diversity between the groups. Stakeholders should have an understanding of the problem from the perspective of their organisation as well as a willingness and openness to learn about the views and perspectives of other groups.
- Consider funding for volunteer stakeholders. “If you are involved in collaboration and it is not your paid job, it is a struggle. Volunteers need support.” This was the feedback from small break out groups at the ‘Account-ability workshop’. Therefore, the collaborative process needs to be adequately resourced (e.g. by government or the wider group). The point was made that while there was enthusiasm for collaboration there is also a cost. Support was provided by IFS for non-funded stakeholders to participate in the collaborative process. Examples of this were travel costs paid for volunteers, and workshop attendance required as part of the individual iwi/hapū project contracts. This enabled participants to be involved who would otherwise not have been able to. Lunch, parking costs and refreshments were provided to all participants during full day workshops.
- Guidelines for the collaborative process need to be provided to participants prior to the start of workshops and reiterated during workshop sessions. These include: the need for an open mind and suspension of judgement, agree to disagree, and ensure everyone has an equal opportunity to express their view. While not done with the IFS project engaging participants in establishing the guidelines would make them more real and create ownership.
- Incorporate activities into the day for people to get to understand each other better. Such activity can be working together as a group, small group work and joint solution finding sub-task groups.
- Engage in active listening to hear the stories of others. This makes people more inclined to work together. There is a need to actively seek out the quiet voices.
- Provide information prior to workshops so participants have a pre-requisite level of knowledge at the outset for the benefit of everyone involved. This is especially important

if 'back-ups' are required as frustration results when a topic already covered is revisited by a new stakeholder.

- Provide the 'capacity' for collaboration. This refers to having specialist people on-board with the required skill-sets e.g. strong and sensitive facilitator/s, modellers, relevant experts in the field.
- Don't underestimate the amount of time required for collaboration. The IFS project traded the time required for collaborative decision-making based on systems understanding for the practicality of political time lines. From the IFS research perspective this weakened the output. From the MRLF this was not an issue. Therefore, a reflection is that when driven by different overall agendas research and political action planning process do not mix easily.

3. SECTION 3: MANAWATŪ RIVER WORKSHOPS

The structure used here for reporting on the Manawatū River workshops aligns with the adaptive management cycle.

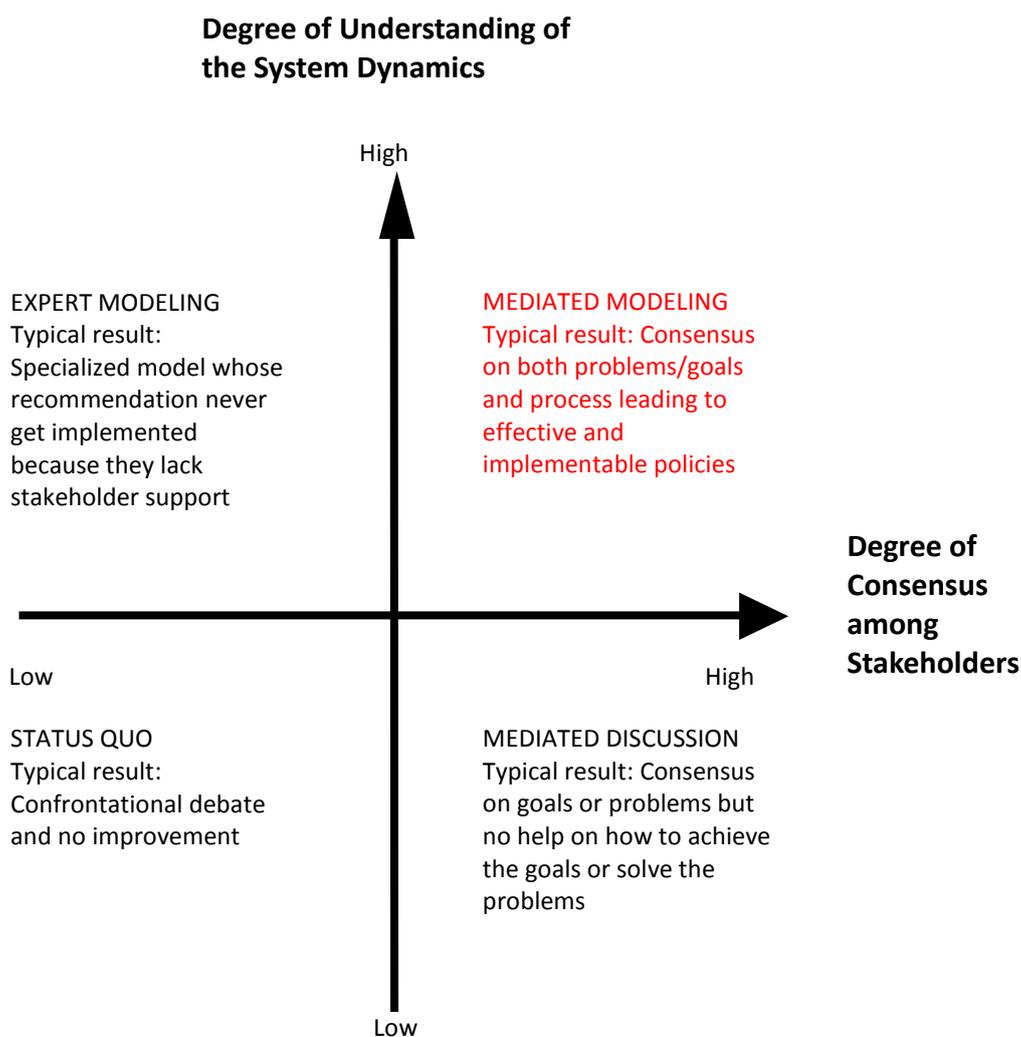
3.1. Visioning

Ideally the workshop process should start with a visioning exercise to allow participants to develop a common vision(s) of the desired long-term outcomes. For the Manawatū River workshops visioning had already been done as part of the development of the Manawatū River Leaders Accord. This had the advantage that participants could build on an existing vision. It had the disadvantage that not all workshop participants had been part of the visioning process. Ideally visioning should be part of the workshop process and revisited when shifts in thinking are not happening.

3.2. Assessing

The assessment stage of the adaptive management cycle involves sharing stakeholder perceptions of the situation, providing data to corroborate views and identifying gaps in understanding and data.

The Manawatū River workshops were structured to test MM as a way to build both understanding and consensus during the assessment and action planning phase of the workshops (red quadrant in Figure 2). MM brings together both dialogue and modelling in contrast to mediated discussion (where discussion determines the solutions) or expert modelling (where modellers present solutions based on their model outputs). With MM combining model building with mediated discussion has the potential to result in a high-level scoping model that can be used to structure dialogue and "test" the direction of solutions proposed in a bigger systems picture. The six workshops aimed to operate in the MM quadrant where stakeholders expanded their understanding of the "system" of which the Manawatū catchment is part of and use this gained knowledge to agree on a way forward. Mediated modelling was used at the first three workshops.



Source: van den Belt (2004)

Figure 2: Developing understanding and consensus of dynamic systems

3.2.1. *Modelling benefits*

- An integrated, system dynamics model at scoping level was built collaboratively by stakeholders during three workshops. This process provided a ‘thinking space’ and allowed participants to more fully appreciate divergent values, feedback loops, time lags and the trade-offs required to adaptively manage freshwater resources. The three main categories of issues identified by the stakeholders were erosion/sedimentation, nitrogen runoff/eutrophication and loss of aquatic habitat. The five classes of action were erosion control through the Sustainable Land Use Initiative and reforestation, fencing of waterways and riparian planting, nitrogen management through winter stand-off pads/herd homes, wetland restoration, point source reduction and restoration of habitat.
- In between workshops the model was populated with data and calibrated by the mediated modeller and another modeller. The MM scoping model provided historic and projected future trends of changes over time (1990 – 2040) for erosion, nitrogen runoff and aquatic habitat. The scoping model simulated ‘what-if’ scenarios, based on the five

broad classes of action perceived by participating stakeholders which were presented to stakeholders to discuss.

- A MM outcome was an enhanced understanding of interconnections among cultural, economic, social and environmental issues, and, acceptable and necessary trade-offs. The modelling provided a high level overview of the relevant topics discussed during the workshops, the main proposed actions, their funding sources and a projection of the impact of implemented actions onto indicators of interest.
- Modelling provided a viable way to interpret and integrate available data, based on the stakeholder dialogue. At the workshops the MM process was appreciated for structuring the stakeholder dialogue, interpreting and interconnecting readily available information and teasing out the most important questions. In MM, the process of model building is equally as important as the resultant deductive model.
- Stakeholders involved in the workshops had the opportunity to experience systems thinking and MM which are tools that support strategic ‘deductive reasoning’ (as opposed to ‘inductive reasoning’). Stakeholders expressed an interest in continued work on the IFS modelling tools, evidenced by inclusion of this task in the Action Plan. This opportunity was subsequently taken up by one iwi representative. The introduction to deductive tools allowed stakeholders to see the progression from scoping models (i.e. qualitative or quantitative models *built* with stakeholders (i.e. Causal Loop Diagrams, MM, Participatory Mapping) to research and management models (i.e. Multi-scale Integrated Modelling for Ecosystem Services, Integrated Scenario Explorers etc.). This progression is shown by the spiralling outwards in Figure 1.
- Both systems thinking and systems modelling assisted in developing knowledge to close the gap between ‘where we want to go’ and ‘where we currently are’ and allow exploration of ‘what-if’ scenarios. The system dynamics model provided a means to capture feedback loops and change over time.
- Provision of both basic information and models was seen as desirable. Discussion of data allowed understanding of the information the modelling is based on. Models can act as a good conversation starter and interactive models can articulate the benefits of different strategies.
- The workshops and the need to populate the model with data made relevant the excellent science on hand and provided opportunities to learn about corrective action already underway. Participants’ questions resulted in HRC re-packaging their science. Although data was available as a result of the ‘One Plan’ process HRC had not always presented it in a way the layperson could understand and the collaborative dialogue prompted a translation. Considerable effort was put into maps, graphics and consolidating data at a sub-watershed scale to provide a “snapshot” of challenges and related solutions.
- Discussion on how to incorporate different values into the decision-making process for the river and the dialoguing around such values added to trust building. The workshops significantly increased the knowledge and understanding of participants’ with respect to the causes of water degradation in the Manawatū River catchment and actions that lead

to improvement. The different value positions that stakeholders have, and why, is also better understood. The modelling process highlighted issues associated with incorporating different cultural values into the decision-making process for the river.

- All the values identified in the 'Freshwater reform 2013 and beyond' (Ministry for the Environment, 2013) discussion document were covered in the first three workshops. These were: food gathering/mahinga kai; ecosystem health; swimming; electricity generation; irrigation; fishing; boating and navigation; natural form and character; stock watering; indigenous species; human health; drinking; ceremonial uses and food production.

3.2.2. *Learnings from the modelling experience*

- MM requires tolerance and time to allow different views to be expressed and integrated into the model. Not all stakeholders saw the process as an effective use of time due to time constraints or individuals levels of patience with the process. Seven out of 14 participants interviewed by the independent researcher conveyed positive reflections on the IFS modelling process, both for the value that the tools *did* add and for what the tools *might have provided or might yet provide*. Opinions on the IFS toolkit as a means to solve contentious environmental issues in New Zealand were divided. One respondent described the tool kit as "complicated; not central to the task of river restoration; and, of less value than operational models used by HRC".
- A scoping model is a useful tool to generate discussion and test out 'what-if' scenarios based on current understanding of what takes place. It does not claim to duplicate reality or be a tool to predict the future. This abstractness was difficult for some stakeholders to deal with. They could not accept that the purpose of a scoping model is to provide an order of magnitude and a means of seeing interconnections in a system.
- As MM requires intensive work by modellers between sessions, workshops need to be spread over longer rather than shorter time spans. The compressed time frame of the workshops prevented this.
- The concept of Ecosystem Services introduced in workshop 3 for inclusion in the scoping model was new to most of the stakeholders involved in the workshops. The timing of the introduction of Ecosystem Services wasn't right this early in the project (2010) due to the limited time available to assimilate knowledge. The Action Plan and associated implementation was prioritized. Interestingly, when the Ecosystem Services concept was discussed during follow-up workshops after the completion of the Action Plan stakeholders were more willing to engage. Understanding ecosystems as 'Natural Capital' from which people derive Ecosystem Services opened the opportunity to consider if economic value, generated by economic activities, is indeed higher than the value lost through degradation of ecosystems in the production process of these activities.
- Undesirable trends as captured in the scoping model have structural causes. To resolve these causes there needs to be a readiness to engage at a systems level and move from 'can we do what we do better?' to 'are we doing the right things?' Stakeholders generally

were more willing to go for visible quick wins rather than addressing the structural changes needed for long-term change. As an example, when reducing wastewater at the source by converting to composting toilets was suggested this was considered by some stakeholders as misusing precious workshop time.

- The MM model, when run into the future at a scoping level, projected scenarios where freshwater ecosystems would remain under threat despite the proposed actions. For example, the modelling indicated clean-up efforts could be undermined by further intensification of dairying. This was not a major concern to stakeholders.
- The Bayesian Belief Network was not achieved in time to be used in the workshops due to time and data constraints. The BBN model was the proposed method to provide spatially explicit information on water quality at specific locations in the catchment. When this approach was applied using empirical data the results were not statistically robust. This inductive modelling method was consequently abandoned in favour of the deductive Multi-scale Integrated Modelling for Ecosystem Services (MIMES).
- As stakeholders had indicated that both spatial representation and dynamics were important, MIMES was progressed following the workshops to satisfy the need for a spatially explicit depiction (as well as an Ecosystem Services approach) of factors influencing water quality. The pilot MIMES model showed the interconnectivity of the multiple causes of water degradation and that the 'hot spots for management' change over time, depending of the supply and demand for Ecosystem Services. The MIMES model is an adaptive management framework that can be used for the assessment of Ecosystem Services to connect regional catchments to national and global efforts. A 'risk of shortages of all Ecosystem Services' can be projected, as well as value propositions for investment in natural capital and economic benefits.

3.3. Planning

The last three workshops followed the more conventional negotiation process to achieve an Action Plan in the time frame required.

This planning stage was focused on the tasks the different groups that the stakeholders represented could undertake to improve water quality, and move in the direction of the vision.

3.3.1. Planning phase observations

- The need to develop an Action Plan within a six-month time frame dominated the final three workshops and resulted in actions that favoured an incremental approach. The resulting Action Plan had 130 tasks with the responsible parties assigned to each. Final sign-off was the prerogative of the MRLF which was the governance group.
- During the action planning process there was a high level of political engagement with stakeholder groups and a strong focus on public relations. The context and time-pressures to produce an Action Plan meant the regional council engaged in bi-lateral negotiations with stakeholders outside of the collaborative workshops. This did not derail the process but was not approved of by all stakeholders.

3.3.2. *Learnings from the planning experience*

- At the start of the workshops there was a strong emphasis on the science and economics of the solutions. This was not where the final focus was when stakeholders worked on the Action Plan at catchment scale.

When progress stalled as a result of disagreement questions were ‘parked’. As many of these questions were science based it was agreed to bring together an ‘expert science panel’ for their input. The expertise of the science panel was accepted at the workshops without further debate. ‘Science as proof’ became less important to the stakeholders as relationships built.

The action planning process did not ‘fill knowledge gaps’ identified by the modelling. For example, after the Action Plan was produced a workshop was held in response to participant requests to review the costs of the various alternatives identified by the MM. Different costing methods were presented and a report “Cost Benefit Analysis of Selected Options to Improve Water Quality in the Manawatū River Catchment” cost out the five ‘solutions’ included in the Mediated Model (Forgie et al., 2012). An Economic Impact Analysis of these five options was also undertaken by Market Economics (Market Economics, 2013).

- The government is asking for tools like Cost Benefit Analysis (CBA) to be deployed for decision-making about freshwater in New Zealand. Therefore, there is a need for collaborators to be informed about their strengths and limitations to enable them to ask the right questions (van den Belt, 2013). When completing a CBA the market and non-market costs of an activity need to be understood and included. It should be made explicit *who* the costs and benefits get attributed to. CBA are useful for small, contained cases of discrete, short-term choices when assumptions can be explicit. CBA, as part of the conventional economic toolbox, is not adequate for more complex, holistic situations. For example, you cannot include iwi/hapū health in a CBA. When decision stakes and uncertainty are high and benefits are not clear, the available toolkit is best expanded to use integrative approaches that combined ecological, economic, social and cultural factors.

3.4. **Implementation and Monitoring/Reviewing**

The implementation stage involves putting into action the agreed plan and the final stage is the monitoring to ensure actions achieve the desired results. These two phases were outside the IFS project scope. However, the following points can be made:

- Goals need to be revisited (approximately every 2 years) as part of collaborative process to ensure they remain relevant and bring new people on board. For the Manawatū it was agreed the vision of ‘our healthy river’ should hold.
- Time pressure and political influence produced an Action Plan with 130 tasks, but these actions do not necessarily conform with SMART criteria: Specific, Measurable, Achievable, Relevant and Time-bounded. There was a celebration of the achievement of a

collaboratively developed Action Plan, but no accepted method agreed on for monitoring and measuring achievement or providing for adaptive management going forward at the time.

- Evaluation is an important part of the collaborative process. Report cards were suggested as a way to assess progress. How report cards, if implemented, would work was discussed at the 'Account-ability' workshop. Defining 'accountability' is an on-going goal. It was noted that if a report card indicates a group is not doing well there is no way to impose punishment when the commitments are voluntary. With collaborations the main 'stick' is the power of peer pressure which should not be underestimated. Not judging is important as there could be all sorts of reasons for non-completion. Some targets are easy to achieve, others very difficult. The consensus of stakeholders was that if committed group/s front up and say they need support to deliver this is an opportunity to pull together and help each other. If others are in similar positions this provides a space to examine underlying resources, collaborate on understanding and think about how to do things efficiently/differently. Using this approach will ensure the group does not break down. A question unresolved was: "who do report cards go to with collaboration?"
- Honest communication of progress is important so the group can support those not achieving. The trust built in the group makes asking for help possible.

3.4.1. *Opportunities from Implementation and Monitoring/Reviewing*

- IFS models and outputs have the potential to support a second iteration of the freshwater adaptive management cycle in the region. This could build more robust decision-making processes if persevered with over time.
- Undesirable trends as captured in the scoping model have structural causes which will continue to impact water quality in the Manawatū River if not addressed. The model could be used to revisit issues such as whether the underlying negative trends identified are indeed considered curbed, and how stakeholders in the region will know this to be true.
- Discussion is needed on how to align the adaptive management cycle for the river with the 10 year planning cycle and revisit with stakeholders actions every 3 years to feed into the 3 yearly planning cycle. Aligning short-and long-term goals avoids short-term expediency.
- Jointly developed Action Plans require adaptive management for implementation. A process to monitor outcomes needs to be established as part of the collaboration. Maintaining the MM scoping model provides a tool to support 'adaptive management' in the region. This already tested process can also be applied by other regions and at national level.

4. SECTION 4: COLLABORATING WITH IWI/HAPŪ

While regional councils undertaking collaborations will not, in most instances, have the supporting iwi/hapū research component provided by the IFS project, the aim of this section is to disseminate valuable information accrued.

The IFS research project had funding to support iwi/hapū involvement as iwi/hapū capacity building was a significant part of the IFS project. Specifically the aims were capacity building of iwi/hapū to:

- (i) develop pan-iwi activities reflecting a joint interest in the Manawatū River ‘from the mountains to the sea’;
- (ii) partake effectively in a regional stakeholder dialogue; and,
- (iii) develop local community based monitoring and co-management.

Māori values at the workshops were represented with the participation of four iwi/hapū groups: Te Kāuru Eastern Manawatū River Hapu Collective; Ngāti Kauwhata (supported by Taiao Raukawa); Rangitaane O Manawatū; and Muaūpoko Tribal Authority.

Māori have a tikanga (protocol) on how to interact in a group which needs to be followed. Respect for this and time needs to be allowed for Māori and others (if protocol requires) to work through their kaupapa (agenda, project) as part of any collaborative process. For iwi/hapū there are additional components of collaboration that need to be taken into account. The first is the need for Māori stakeholders to account back to hapū/iwi on what they are doing to make the river better based on their set of values such as whakapapa (interconnectedness of everything), mana (standing) , mauri (life force). The second is to understand the nature and extent of relationships. Different iwi/hapū might have different values and if it is possible to establish those at the outset mutual understanding and respect can be enhanced.

- The IFS project supported iwi/hapū by providing research funding to iwi/hapū to participate in workshops held jointly with the Manawatū River Leaders Forum (MRLF) to co-develop the Action Plan. Additional support was provided to iwi/hapū outside of the workshop environment to assist iwi/hapū participation. A part of the IFS project was individual research projects chosen by iwi/hapū to advance their aspirations and contribute to a common understanding of freshwater systems and an integrated management system at a regional level. Iwi/hapū aspirations for improving freshwater in New Zealand have been advanced in the Manawatū as a result of the workshops, iwi/hapū research projects, and combined kaupapa days.
- Iwi/hapū in the Manawatū catchment did not have a history of collaborating across the whole catchment. Iwi/hapū represented at the workshops are now involved in pan-iwi activities to develop a Manawatū River Management Plan. Pan-iwi collaboration for freshwater management emphasizes the catchments interconnectedness ‘from the mountains to the sea’. IFS focused on relationship building amongst the four participating iwi/hapū groups. This has enhanced understanding of relative positions. The IFS project provided on-going support for pan iwi/hapū river management planning extending beyond the workshops.

- Project management skills have developed and iwi/hapū-led community based monitoring activities have involved extended whānau (family). Both Mātauranga Māori and western science have been employed by iwi/hapū.
- IFS stakeholder analysis prior to the workshops identified five groupings to be represented at the workshops. These were HRC, Territorial Local Authorities, business (including farming), environmental groups and iwi/hapū. This differed from the initial MRLF where neither iwi/hapū nor Non-Government Organisations had been invited to participate in the first meeting
- Support has been provided for iwi/hapū researchers to develop and present their research using culturally appropriate communication tools (Schiele et al., 2012a, b). This includes at marae and a conference. Media include posters and video documentaries to allow iwi/hapū to tell their own stories about the river to their own people and others.
- Pan-iwi conversations continued through kaupapa days held to maintain communication between the participating iwi/hapū. Rangitaane O Manawatū hosted the 2012 Kaupapa Day, an opportunity for all four iwi/hapū to share learning and experience from their respective projects. Treaty Settlement negotiations have at times caused setbacks, but the goal of improving water quality in the Manawatū has consistently been a reason to maintain pan-iwi dialogue. The benefits of this effort will be on-going for iwi/hapū.

4.1.1. *Learnings from working with iwi/hapū on the IFS project*

- Additional input, such as funding and capacity building assists meaningful participation in collaborative process by Māori.
- Working at a practical level with iwi/hapū was a significant component of the IFS project. This has proven to be an effective way to build on-going relationships between the research team and iwi/hapū.
- Uncompleted Treaty negotiations and disagreement between members of iwi/hapū make it difficult to determine the mandated people to be working with.
- When engaging with iwi/hapū the issue of a neutral versus cultural setting (i.e.) marae should be considered.

5. SECTION 5: CONCLUSIONS DRAWN FROM THE WORKSHOPS

- Technical information and Mātauranga Māori need to be communicated in a way that can be understood. Communication is part of education and awareness building and requires utilising various media types to involve/reach many people. User friendly language is required that is non-technical (no jargon) but not dumbed down.
- Openness added to trust building. Note taking, surveys on how views changed over the course of the workshops, and feeding back of information to participants aided

communication. A website¹ was maintained and wider transparency was provided by summarising the narrative of the stakeholder workshops and associated material. Each summary was reviewed by stakeholders before being posted on the public website.

- Transparency was also achieved by workshops being open to the public. Protocols were set for how the wider public could have a voice through stakeholders, and how the group interacted with media. The workshops with representative stakeholders were in addition to the legislated local government consultation procedure. So they did not undermine the statutory process.
- Research and political goals seldom align within a given timeframe. The IFS project adapted to support the end-users and collaborating stakeholders, adjusting to where they were at, and time constraints. At the same time IFS encouraged taking a more strategic/visionary view, using a deductive form of inquiry and delivering outputs relevant to the end-user and stakeholders.
- Collaborative workshops provide a means for deeper thinking and thereby add greater value than a forum. The interviews confirmed the view that wisdom existed in the group and learnings can be passed on to others.
- The collaborative process is about providing a safe environment and enhancing people's mana. All group members need to be treated as equals in a collaborative process. The goal is to bring solutions as opposed to taking an adversarial approach where you only present the good and opponents only tell what is bad. Voluntary and collaborative spaces should create a shared vision which regulatory processes help to enforce, rather than the other way round.
- Visualisation is important to communicate stories. Wānanga (seminar), education and monitoring tool kits are all different ways to promote active learning.
- The feedback regarding the collaborative process for the workshops was generally reported as positive. The workshops built human capital and most people interviewed expressed a desire for the workshops to continue. Collaborations between stakeholders increased in the Manawatū River catchment. The 6 June, 2013 workshop "Account-ability of Collaborations" reflected positively on collaborative efforts developed over the previous three years. This is an achievement given the extended period of conflict among the same stakeholders over the 'One Plan' proposed for the Horizons region and between iwi/hapū involved in the process of Treaty Settlements. Relationships built during the IFS/Manawatū River Leaders Forum (MRLF) project on the Manawatū River have led to a signed accord to support Muaūpoko Tribal Authority clean up Lake Horowhenua.
- Outcomes from collaboration need to be recognised at all levels. Central government support needs to align with regional/local collaboratively agreed decisions. The bulk of funding received from the Ministry for the Environment (MfE) Clean-Up funding went to improving point source discharges and Mangatainoka farm plans (Horizons Regional

¹ Now at: http://www.massey.ac.nz/massey/learning/departments/centres-research/eernz/integrated-freshwater-solutions/integrated-freshwater-solutions_home.cfm

Council, 2012). Tasks identified by the stakeholders as important, such as community monitoring, did not meet the MfE funding criteria, so only a very small portion of the fund was allocated to these. This illustrates the need for consistent vertical integration when promoting collaboration.

- Collaborations can make people feel pressured to say yes to a solution that is ‘possible’ while not being ‘best’. For this group of stakeholders, it was accepted that to improve the condition of the Manawatū River may require compromise. A focus on ‘what’s possible’ is important to move forward in the short-run. However, space to reflect on ‘what’s best’ needs to be created as well, to achieve the long-term goals.

6. SUMMARY

This report provides insights gleaned from the IFS research initiative and the stakeholders involved. The stakeholder process and outcomes were extensively documented and analysed for the benefit of others. In addition at the end of the IFS project stakeholders were brought together to reflect on the collaboration process at a workshop titled “Account-ability of Collaborations”.

This report discusses the issues that arise when collaboration takes place and research is undertaken to support end-users. The focus of the IFS project was addressing freshwater degradation using integrated catchment management and model building with stakeholder, as part of a collaborative process to support decision-making. While not comprehensive as a ‘blue print’ for every regional council, the insights from the IFS project aim to contribute to the potential and pitfalls of collaborative freshwater management in NZ.

The IFS project worked with stakeholders using a systems approach to build a scoping model that could be used for adaptive management and to inform short-term political processes as they arose. The research approach was to use the model to develop an Action Plan. Time constraints and the resistance of some stakeholders to using modelling resulted in reversion to conventional stakeholder mediation and a negotiated Action Plan.

The IFS model remains available as an adaptive management tool to explore the strategic, collaborative and adaptive consequences of immediate operational actions and to encourage working towards a vision rather than engaging in incremental changes at the margin. This facilitates continual improvement over time and provides a means of assessing whether short-term outcomes concur with long-term goals.

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8. PUBLICATIONS SINCE END OF IFS PROJECT

There have been significant additional research ‘spill-over’ from the IFS project. The IFS project has explored ‘Institutional structures required for ‘Common Asset Trusts’, ‘Investment Traps’ and how a ‘Return on Investment from Natural Capital’ can best be understood. Practical applications of this research include institutions such as ‘Payment for Ecosystem Services (PES)’, which have the potential for flow on to other sectors in the economy. While the Manawatū region is already engaging in a form of PES through its Sustainable Land Use Initiative (SLUI), there is potential for this approach to be extended to other areas, such as, nitrogen management. The projected impact of SLUI and projected impact of nitrogen management solutions are included in the MM scoping model and MIMES.

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