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Legitimacy of Collaborative Environmental Governance in New Zealand: The Manawatū River Leaders' Forum

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Souphamith Naovalat

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Abstract

Over the past few decades, collaborative governance has emerged as an alternative to traditionally adversarial approaches such as hierarchical command-and-control regulation. A wide range of governance theory praises collaborative governance with multi-stakeholders' participation as an effective strategy to deal with a public issue. Environmental deterioration, such as water pollution, is a cross-cutting issue that has been in a favour of collaborative approaches to resolve. The promise of collaborative environmental governance is to make environmental policy more effective for sustainability.

However, multi-stakeholders' participation poses challenges in practice if it really makes any difference to and is compatible with environmental policy decision-making processes within a set timeframe. Power imbalance, for example, entails legitimacy deficits to ensure the effectiveness of collaborative environmental governance. Therefore, legitimacy is an important concept that defines a political acceptance whether or to what extent collaborative governance can result in more sustainable or effective environmental policy.

This study assesses legitimacy of collaborative environmental governance by using the Manawatū River Leaders' Forum (MRLF), a collaborative forum to solve water quality issue in southern North Island of New Zealand, as a case study. The study focuses on developing a framework for assessing legitimacy based on three types of legitimacy including input, output and throughput legitimacy that are applicable to explore the MRLF's effectiveness. In corresponding to these legitimacy types, the legitimacy assessment framework is designed with three dimensional factors including participatory quality, policy effectiveness and collaborative process with their own indicators and criteria.

Results of analysing published data indicate that the MRLF is basically legitimated as a fundamental commencement for collaboration as participations by different stakeholders are active and collective decisions have been implemented. However, interviews with MRLF's key stakeholders demonstrate different perspectives on

legitimacy through an existing conflict. Through the three dimensional factors, governmental stakeholders perceive high legitimacy, while most non-governmental stakeholders perceive low legitimacy. This study suggests ways to look conflict as a collaborative learning, rather than fighting, to bridge a synergy between collaboration and conflict. Although collaboration aims to resolve conflicts, collaboration should be learnt as one aspect of conflict management through controversial policy settings.

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SN

Contents

Tables

Figures

List of Abbreviations

DCC	District and City Councils
DoC	Department of Conservation
HRC	Horizons Regional Council
IFS	Integrated Freshwater Management
LAWF	Land and Water Forum
MRLF	Manawatū River Leaders' Forum
MWR	Manawatū-Wanganui Region
NGOs	Non-Governmental Organisations
NPS-FM	National Policy Statement for Freshwater Management
RI	Research Institutes
RMA	Resource Management Act 1991
RPs	Regional Plans
RPSs	Regional Policy Statements
SLUI	Sustainable Development Initiative

Chapter 1 : Introduction

1. Collaborative governance at a glance

Collaborative governance has increasingly been claimed as a way for resolving seemingly intractable environmental problems. It emerged from the neoliberal reforms in the 1980s – 1990s to supplant the traditionally adversarial government decision making (Ansell & Gash, 2008; Emerson, Nabatchi, & Balogh, 2012). These reforms sought, in part, the transformation of hierarchical governmental systems through policy networks which encouraged more participants from private sectors and civil society (Bevir, 2008). As pointed out by Bäckstrand (2010), the hierarchical system produces limitations for practical cooperation and multilateral decision-making. Consequently, collaborative governance has been increasingly expected by a range of governance theorists as a better alternative. The promise of collaborative governance is to bring multi-stakeholders to a platform of commitment for an integrative decision to deal with a publicly known issue that needs broad cooperation to resolve (Gunningham, 2011).

Nowadays, collaborative approaches have been applied worldwide to resolve environmental issues. The scholarly literature illustrates the proliferation of collaborative efforts to solve and make decisions on environmental dilemmas over the past decade (von der Porten & de Loë, 2014). As environmental deterioration, such as water pollution, is cross-cutting and is identified as “the problem to all”, multi-level collaborative and participatory governance has been increasingly promoted as an approach to more effective environmental policies for sustainability (Newig & Fritsch, 2009a).

Questions are raised by many sceptics whether collaborative environmental management really works. Some scholar remains sceptical whether multi-stakeholder participation really makes any difference, is compatible with any kind of integrated management and is sustainable (Warner, 2007). The main challenge of collaborative governance are intrinsic to organizational relationships and incentives, benefits, or self-defined outcomes for participation among the stakeholders (Huxham, Vangen,

Huxham, & Eden, 2000). This challenge can exacerbate power balance, trust building and interdependence indicating whether the decision-making process entails effective outcomes (Ansell & Gash, 2008). The efficacy and accountability to affected parties and the wider public of collaboratively made decisions drive through to the heart of legitimacy (Hogl, 2012). Therefore, legitimacy is importantly considered to identify an acceptance whether, or to what extent, collaborative and participatory governance ensures more sustainable or effective environmental policy.

2. Water governance in New Zealand

New Zealand's recent experiences with collaborative environmental management highlight both the push for and questions about the legitimacy of this approach. Water issues have been increasingly recognised by New Zealand citizens and government at the level of national importance (Cullen, Hughey, & Kerr, 2006). As the country has relied largely on agriculture as a primary contributor to its economy over the past few decades, agricultural intensification within catchments, has caused problems through degradation of water quality and imposed pressures on water quantity (Fisher & Russell, 2011).

The *Resource Management Act 1991* (RMA), establishes an integrated natural resource management regime in New Zealand. It aims to sustain the management of country's natural and physical resources implemented by regional and territorial councils. However, according to Fisher and Russell (2011), RMA has been periodically amended due to problems with the legislative framework and its narrow collaborative approaches. The primary approach to water permits, for example, has been criticised for the ineffective role of public agencies (regional councils) and political pressure. The initial collaborative effort was a relationship between the government (the Crown) and indigenous people, Māori as stated in the Treaty of Waitangi. Unfortunately, this relationship caused further tensions through the increase in water demand for economic needs, property-right and cultural value of Māori towards water resource (Belt, Schiele, & Forgie, 2013; P. Memon & Kirk, 2012).

The governmental reform in 2008 sought to bring about a new approach to water policy. The initiative called 'A New Start for Fresh Water' is a new programme to replace the previous initiative (Sustainable Water Programme of Action, or SWPOA). This new initiative has three development pillars (1) on-going policy development by government agencies, (2) engagement between ministers and iwi[1] leaders, and (3) establishment of a Land and Water Forum (LAWF) tasked with advising ministers on how water should be managed (Fisher & Russell, 2011). The LAWF is a collaborative forum involving representatives from primary industries, environmental NGOs, iwi and other organizations with interests to undertake a collaborative process in freshwater management at a national level.

2.1. The Manawatū River Leaders' Forum

The LAWF can be seen to provide guidance for local collaborative water efforts in parts of New Zealand such as the Manawatū River Leaders' Forum (MRLF). The MRLF was established in 2010 with a baseline agreement to take actions for improving the state of the Manawatū River, a major river of the Manawatū-Wanganui Region (MWR), as its water quality has deteriorated far from its natural condition. The forum brought together a group of participants from different sectors comprising iwi/hapu[2], environmental interest groups, farming communities, and industry and local authorities (regional and district/city councils). All stakeholders collaboratively developed an action plan committing to cooperate and improve understanding of how to integrate and balance cultural, social, environmental and economic values to achieve goals in 2020+ (MRLF, 2011).

As the MRLF is a new collaborative effort, there is currently limited research on assessing its success. Research carried out by Belt et al. (2013) presented only a tool (Mediated Modelling) to support the assessment of collaboration. Their research found different degrees of incentives for power among stronger and weaker participants towards decision-making. Even though some stakeholders see the tool as helpful to promote their empowerment, political precedence still occurs even in the

[1] Māori tribes that form the largest social units in Māori culture
[2] Māori sub-tribes that function the basic political unit within Māori society

process of collaboratively applying the tool. Although the tool led to common understanding to the forum's goals, the main recommendation was that negotiation-based approaches and adaptive management must be emphasised to the tension between the Action Plan and the goals during compressed timeframes.

The MRLF is an interesting case for this study where the theory of collaborative governance, especially the legitimacy concept, is applicable to accessing successful collaboration within the forum. Legitimacy could answer a question to what extent is collaborative environmental governance accepted to ensure more sustainable or effective environmental policy in New Zealand?

3. Research

3.1. Aim and objectives

The aim of this research is to assess legitimacy of collaborative environmental governance using the MRLF as a case study. The objectives of the research are to:

- Review concepts of collaborative environmental governance through a combination of new governance modes and rationalities reflecting a degree of legitimacy;
- Develop a framework for assessing legitimacy based on three types of legitimacy including input, output and throughput legitimacy; and
- Apply the developed framework to explore the MRLF's effectiveness.

3.2. Research hypothesis

This study sets the following hypotheses to inform research objectives:

- New modes of governance that involves state and non-state actors increase collaboration and deliberation levels.
- Legitimacy is, to most extent, indicated by three dimensional factors including participatory quality, policy effectiveness and collaborative process representing three types of legitimacy (input, output and throughput) respectively.
- Collaborative governance structures have high conflict power imbalance, low trust and low interdependence.
- Collaborative governance improves relationships between different stakeholders.

3.3. Scope and limitations

Time constraints and the limited degree of feasibility cause significant limitations in the scope of this study. This research purposefully emphasises legitimacy measurement through a framework with detailed indicators and criteria. As the theory of collaborative governance and legitimacy is quite broad, indicators and criteria to test legitimacy are complicated. Therefore, the research limits legitimacy assessment to three dimensional factors with six indicators assumed as effective elements to indicate legitimacy. While criteria for participatory quality and policy effectiveness mostly direct to the case study, some criteria for a collaborative process seem ambiguous to inform the case study.

Assessing legitimacy does not focus on assessing new modes of governance. This study only draws the conceptual model of collaborative governance based on governance forms and rationalities assuming that collaboration and deliberation variables influence a degree of legitimacy. This model is not tested by a research method, but only compares the theory with the case study and results obtained from data analysis.

For example, new modes of governance with economic and deliberative rationalities are not directly examined in published data and interviews but compared to the management of resource consents and public participation in decision-making. This comparison, therefore, can form collaborative institutional arrangements.

3.4. Thesis outline

This study underpins collaborative environmental governance and legitimacy measurement. It is structured in eight chapters and a summary for each is provided below..

Chapter 2 outlines the theory of new modes of governance and legitimacy. It firstly identifies environmental management reforms from hierarchical command-and-control regulation to more collaborative forms of governance as alternatives to make environmental policy more effective and legitimate. The legitimacy concept centres on input, output and throughput legitimacy on which the assessment framework is based.

Chapter 3 introduces collaborative water governance in New Zealand and the management of Manawatū River. Collaborative water governance focuses on institutional reforms for freshwater management and the formation of LAWF. In light of the Manawatū River's water quality issue, the chapter takes into account the MRLF as a case study for this research identifying key background of its foundation and characteristics.

Chapter 4 highlights research methods employed to assess legitimacy applied to the MRLF's context. It theorises qualitative research methods in which a mixture of case study review, document analysis, and interview are selected to explore assessment results.

Chapter 5 briefly illustrates findings yielded from document analysis. It emphasises the evidence of participatory quality, policy effectiveness and collaborative process of the MRLF focusing on particular indicators and criteria.

Chapter 6 reports interview results examining stakeholders' perceptions of the MRLF's legitimacy. To corroborate document analysis, the interview results are also structured in the three legitimacy dimensions showing to what extent the MRLF is perceived as legitimate.

Chapter 7 chapter discusses research results accordingly to participatory quality, policy effectiveness and collaborative process. The conflicts perceived by different stakeholders as a precondition of establishing the MRLF differentiate their perspectives on legitimacy.

Chapter 8 draws conclusions based on a combination of theory and discussed results. It firstly suggests a synergy between collaboration and conflict and measuring legitimacy in contexts and situations where each legitimacy type is accepted. The study concludes time, trust and interdependence as important collaboration features. Finally, recommendations for further research are provided.

Chapter 2 : Towards a framework for assessing legitimacy of collaborative environmental governance

1. Introduction

The premise of collaborative approaches in environmental governance resonates as an alternative to old-fashioned governance. This style is largely related to failure of the hierarchical state. Collaborative strategies are critically expected to bring more effectiveness than traditional ones to deal with environmental problems, such as water quality issues. Beyond such a sweet reward of collaborative governance, it is interesting to learn about legitimacy where the idea of moral acceptance to collaborative change would be more intriguing than effectiveness. The effectiveness of environmental collaboration can be learnt through the lens of legitimacy because effectiveness is a substantive aspect of legitimacy (Hogl, 2012; Sabatier, Focht, et al., 2005).

This chapter firstly outlines the shift from government to governance, reflecting government failure in imposing hierarchical command-and-control regulation, and then identifies the favour of collaboration as an alternative. It then focuses on legitimacy of collaborative environmental governance and its challenges. Finally, the assessment of legitimacy is formed by three kinds of legitimacy (input, output and throughput) with dimensional factors, indicators and criteria.

2. Collaborative environmental governance

The notion of environmental governance can be reflected by the shift from government to governance as an emergence of collaborative approaches (Biermann & Pattberg, 2012; Durant, Fiorino, & O'Leary, 2004; Evans, 2012; Howlett, Rayner, & Tollefson, 2009). 'Governance' is a term with quite different meanings across disciplines. With political science it is seen as a pattern of changing rule or public regulatory reform in a case that public agencies urge the involvement of external parties due to the weaknesses or inabilities in the traditional governing mechanism

(Bevir, 2008). This concept simply holds the sense of collaboration for drawing the comprehension of collaborative governance (Ansell & Gash, 2008; Emerson et al., 2012). As a focus of this study, collaborative governance is defined as:

> a governing arrangement where one or more public agencies directly engage non-state stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative and that aims to make or implement public policy or manage public programs or assets (Ansell & Gash, 2008, p. 544).

Environmental governance reform is the transformation from administrative hierarchy to a combination of forms and rationalities of governance. A wide range of environmental governance theory has criticised administrative hierarchy, focusing on government role, as an inappropriate form to deal with environmental problems since the 1980s, and, therefore, has suggested the addition of market and network forms by applying economic and deliberative rationalities as an alternative (Backstrand, 2010). The following discussion is based on Table 2.1, a conceptual framework for understanding the intersection between governance forms and rationalities proposed by Bäckstrand (2010). The dark shaded area (Box 1) represents hierarchy form with administrative rationality perceived as an old or traditional mode of governance that fails to manage the environment. The lighter shaded areas (Box 2, 3, 4, & 7) are hybrid forms perceived as new modes of governance that are more effective for managing the environment. This study argues that new modes of governance can be learnt to identify a degree to which they refer to collaborative governance. It does not explore self-regulation and pure market or civil society governance as shown in non-shaded areas (Box 5, 6, 8 & 9) because the configuration of new modes of governance constituted by most scholars is a mixture of state and non-state actors and hierarchical and non-hierarchical steering (Héritier, 2003; Hogl, 2012).

Table 2-1: A conceptual framework of governance forms and rationalities. Source: Bäckstrand (2010)

Rationalities of governance / **Forms** of governance	**Administrative rationality** Delegated by politicians to experts and civil servants	**Economic rationality** Governance is possible through price and contract mechanisms. Economic incentive change behaviour, contracts establish relations	**Deliberative rationality** Governance is possible through participation, communication, broaden knowledge and delibration
Hierarchy (principal-agent relations)	1 Administration/experts govern through chains of command via rules, legal norms, etc. Examples: 'Steering by objectives' Traditional regulation e.g. emission standards, permitting and licensing	2 Hierarchy forms influenced by economic rationality Example: Eco-taxes Carbon taxation Labelling schemes	3 Hierarchy forms influenced by deliberative rationality Examples: Advisory boards, Multi-stakeholder panels/ consultation, citizen juries/panel
Market (Self-organising)	4 Market exists as the mercy of political will or the will of state institutions. In the 'shadow of hierarchy' Examples: Trade and competition laws' Regulated carbon market Public-Private Partnership	5 Market works through price and trade mechanisms. Examples: Voluntary carbon markets Self-regulation Certification Green consumption	6 People participate and communicate in self-organised way. Examples: Campaigns and protests Life-style choice Green consumerism
Network (interdependent actors)	7 Networks among experts, civil servants, politicians and elites. Examples: Scientific and expert networks City to city networks	8 Networks based on economic ties, interests, contracts. Examples: Green technology lobbies Industrial partnership	9 Networks of participating citizens. Examples: NGOs, social movements, Environmental activists

2.1. Perceived failure of government

The traditional mode of governance is often associated with government role. While governments provide public services and goods, they are perceived to fail to manage the environment (Acheson, 2006). The failure is relevant to government roles where environmental performance has been increasingly recognised by a wide range of management theories since the 1980s, the time when environmental problems were politicised (Backstrand, 2010). It is basically associated with hierarchical forms of

steering where democratically elected public agencies delegate powers using command-and-control regulations (Black, 2008; Delmas & Marcus, 2004; Gunningham, Grabosky, & Sinclair, 1998; Potoski & Prakash, 2004; Williams & Matheny, 1995). Accordingly, the key problem of hierarchy centres on single-state function in decision-making, which impairs policy effectiveness and increases environmental disputes.

Government hierarchy typically has three levels: central government as legislator; local government as enforcer; and firms as polluter (Jin-Li, Chung-Huang, & Wei-Kai, 2004). This system excludes other stakeholders from environmental decision-making processes. Policy decisions are unilaterally made by, and left in hands of government experts and technocrats who have little interest in local culture and circumstances (Williams & Matheny, 1995). As Acheson (2006) notes, one of institutional failures in resource management is connected to government that has intention to protect the environment but often fail to do so. This failure typically stems from the behaviour of politicians and government officials who choose to serve their own interests rather than those of the public. Authors such as Demski and Sappington (1987) and Shavell (1979) discuss this hierarchy as a significant factor of inefficiency of distortion. Every party under a hierarchical system has their own self-interest, objective functions of central government and local government, yet this could be divergent to some extent. Therefore, when policy decisions are made and informed by only regulatory bodies, it is hard to find an opportunity for effective policy outcomes.

Government agencies are financially invested with considerable power that may entail antagonism to local entities (Ascher, 1995). The hierarchical regulatory mandates burdens firms to economically comply with regulation because of high compliance costs including search and information costs, bargaining and decision costs, and monitoring and enforcement costs (Delmas & Marcus, 2004). In addition, when firms perform the transaction of these costs with public regulatory agencies, they face high opportunity costs for operating in rapidly changing market conditions. Morally, government decisions should be accepted by the general public to strictly legislate and enforce industries for mitigating their pollution. However, the cost-ineffectiveness caused by strict compliance can lead to a significant decline in economic factors

produced by industries that are key contributors to a national economy (Elkington, 1994). Interestingly, while there are different levels of enforcement, punishment would be practically low and out of public perception (reference?).

This apparent failure of government hierarchies to manage the environment, suggests it is appropriate to reconsider environmental governance (Bryant, 1998; Durant et al., 2004). However, most of the government failure suggests the transformation of the state rather than its absence from a governance system as it is important to be regularly involved in non-hierarchical modes of governance (Börzel & Risse, 2010; Howlett et al., 2009; Hysing, 2009; Rhodes, 1996). As hierarchy with only administrative rationality is not ideal, hierarchy needs to be reformed to apply economic and deliberative rationalities. Similarly, an administrative rationality, with hierarchy form alone, needs to be innovative to market and network forms (Backstrand, 2010).

2.2. Market-based governance

Market-based governance may imply that hierarchical forms are influenced by economic rationality (Box 2) and that market exists in the mercy of political will (Box 4). The key actors in economic rationality are government and private sectors that initiate and employ economic incentives through price mechanisms and contract. These include taxes and labelling in the environmental policy-making process (Commission, 2009; Delmas & Marcus, 2004; Svenfelt, Engström, & Höjer, 2010; Tietenberg, 1990). Governments have influence on the market by setting the rules for market operation such as trade and competition laws. Market-based governance can also enhance the self-interest of government and private firms to respond to costs and benefits derived from price and contract, and in turn they will change their behaviours (Dryzek, 2013). The changed behaviours can be identified by a means of negotiation (Langbein & Kerwin, 2000; Scharpf, 1994) and voluntary agreements (Arimura, Hibiki, & Katayama, 2008; Borck & Coglianese, 2009) where governments are able to minimise compliance costs and firms can apply negotiated agreement instruments.

However, economic principles for environmental governance are only the appreciation to economic purpose. This criticism goes back to administrative hierarchy as government authorities see economic incentives as an opportunity to generate revenues used for other purposes rather than environmental protection (Backstrand, 2010). In addition, despite the preference of regulatory negotiation or voluntary agreements, the transaction costs are also high and again make economic instruments cost-ineffective (Delmas & Marcus, 2004). The other, and probably more ineffective, case is that the 'shadow of hierarchy' in market-based governance may generally be a symbolic game that government, as a regulator, and private firms, as a polluter, could play to reach their objective functions (Scharpf, 1994). This appears unlikely to contribute to an environmental beneficial solution.

2.3. Network governance

A broad range of governance theories, especially focusing on the European Union (EU), consider network governance as the best alternative to hierarchy and the market (Evans, 2012; Farazmand, 2012; Provan & Kenis, 2008; Skogstad, 2003; von der Porten & de Loë, 2014). In support of this instrumental claim, and with the existence of administrative rationality, networks can be formed in an administrative manner by the involvement of experts, civil servants, politicians and elites, such as scientific and expert networks (Box 7). Similarly, network governance can be in the form of hierarchical steering by the state, bureaucracy, and scientific expertise. For example, an advisory board, with deliberative ideals (Box 3). This innovation includes citizens and stakeholders through a transparent process, such as citizen juries and public access to information (Gollagher & Hartz-Karp, 2013; Papadopoulos & Warin, 2007; Smith, 2003). Positive expectation of deliberative rationality, as Kronsell and Bäckstrand (2010) note, will lead to more effective environmental governance, which is the promise of new modes of governance. This is based on the assumption that better decisions are made in a participatory way where citizens are expected to reach the most informed and legitimate decisions that improve implementation (Bäckstrand, 2006a).

Public participation in administrative decision-making processes such as public hearings and court judgement is interesting. The involvement of citizens these processes has been long discussed in democracy theory as an appropriate way to resolve environmental conflict. Complex environmental debates are not amendable to administrative structure of single-purpose government agencies or non-representative local governments. However, citizen environmental litigation is active in the environmental management process to promote more satisfaction with decisions reached by government as it forms better-equipped judicial settings. From this, citizens or private groups have a legislative right to develop environmental lawsuits for challenging government efforts, or failures, to regulate the environment and for protecting public or their own properties such as lands being enjoined by other entities (DiMento, 1977).

In contrast, deliberative rationality is associated with expensive and time-consuming environmental litigation process (Sabatier, Focht, et al., 2005). Environmental litigation is extremely expensive both for government agencies and private appellants. As Kassinis and Vafeas (2002) assert, several firms are prosecuted yearly for infringing environmental laws costing hundreds of millions of dollars in penalties. Meanwhile, there are also numerous costs relevant to litigation. While this substantial amount of money should be spent in a tangible improvement of environmental quality, it is typically paid to lawyers in the litigation process. Environmental citizen-initiated legislation can cause long delays in environmental and land use decisions at a local level where it is shifted to a judiciary. According to Beierle and Cayford (2002), Chess and Purcell (1999), and Innes and Booher (2004), significant delays may result from the difficulty to evaluate whether the public will have wider acceptance over public hearings and litigation. This is because of a lack of appropriate benchmarks against the quality of participation exercises might be compared. Therefore, it is understood that court is not always a good platform to resolve complex environmental problems.

As disadvantages still exist in new governance forms and rationalities, as a result of government failure as explained above, each form and rationality complements each other's advantages (Backstrand, 2010). Therefore, combining them as new modes of governance can be a cooperative action between governmental and non-

governmental parties. However, government authority is still important towards the trend of market and network governance and the use of economic and deliberative rationalities that call for non-governmental actors in the decision-making process. Therefore, new modes of governance can imply the concept of collaborative governance as a more responsive and effective approach. It is highly expected to bring more participation, more deliberative democracy, more integrated policy formation and implementation, and a more collective decision-making process (Gunningham, 2011). Simply, collaborative environmental governance directly matches multi-stakeholder platforms defined by Warner (2007) as a forum for negotiation amongst the diversity of identities of stakeholders contrasting with 'single-sector' forms of interaction. This study agrees with Warner (2007) that multi-stakeholder platform are more responsive to deal with conflicts, more adaptive to the change and more democratic and decentralised.

3. Legitimacy of collaborative environmental governance

As a combination of new modes of governance, collaborative governance has a high expectation to increase environmental policy effectiveness. The transformation from a traditional mode to new modes of governance varies public perception of legitimacy on how, and to what extent, multi-participation is accepted and justified as a precondition of effective policies in collective decision-making process. This section draws on theoretical concepts of legitimacy ranging from its general definition to types reflecting on different forms and rationalities of governance.

The definition of legitimacy is broad as it implies different contexts and levels of governance. Generally, Hogl (2012) stipulates that legitimacy can be defined through four analytical lenses (normative, descriptive, evaluative and strategic). With respect to normative, legitimacy is a moral standard of how citizens or governance actors accept and justify political authority in political systems and institutions (Bodansky, 1999; Buchanan & Keohane, 2006; Steffek, 2003). On the contrary, legitimacy is a descriptive fact demonstrating to whom such authority is accepted and justified (Black, 2008; Bodansky, 1999). In the evaluative lens, legitimacy is a model of democracy in real-

world governance practice and institutional reforms (Dingwerth, 2005; Holzhacker, 2007; S. G. Schneider, 2008). Strategically, legitimacy in this context is an operational resource influencing competition among political, economic and social actors who holds different interests to deliver their preferred goals (Suchman, 1995). These definitions are effectively encapsulated by Bäckstrand's (2010) definition:

> Legitimacy has been defined as the acceptance of a particular social order, rule, norm and institution by a set of actors or by a specific community and concerns authority granted by political community to its institutions and structures (p. 38)

It is interesting to identify when and how legitimacy occurs. According to Bernstein and Cashore (2007) and Buchanan and Keohane (2006), obedience with rules and norms appears when actors perceive social and political orders as acceptable. This acceptability usually rests upon the approval and consent of the community and values of liberal democracy such as transparency, rule of law, accountability, fairness, inclusion, participation, representation and deliberation.

New modes of governance has been a key aspect of environmental governance reform in which legitimacy has emerged as a seminal concern among scholars of environmental politics and green political theory (Baber & Bartlett, 2005; Meadowcroft, 2004; Smith, 2003). The hierarchical form and administrative rationality is basically legitimate because of its context in domestically electoral democracies where politicians are accepted to represent the public in governance systems. However, democratic state-centred legitimacy is less applicable for non-electoral collaborative governance which includes multi-stakeholders and agencies. As a result, new modes of public-private environmental governance have increased and are perceived as more legitimate as they hold a promise of more participatory quality and policy effectiveness through collective values of liberal democracy (Bäckstrand, 2006b).

4. Challenge of legitimacy

New modes of environmental governance have been theorised as more effective. However, this claim is widely controversial whether, and to what extent, collaborative and participatory governance ensures more sustainable or effective environmental policy (Newig & Fritsch, 2009a). As the effectiveness of environmental governance becomes more problematic to determine (Head, 2008), perception of legitimacy unavoidably, becomes uncertain and difficult to identify. Consequently, the challenge of legitimacy would draw on concerns about participation and policy effectiveness that correspond to three types of legitimacy.

4.1. Participation

Challenge of participation is basically associated with problems of the involvement of a large number of actors. Both opponents of hierarchical decision-making, and advocates of bottom-up governance, assert that the involvement of many actors become 'so-called' in the real-world policy implementation in which roles of non-state actors are neglected (DeLeon & DeLeon, 2002; Hill & Hupe, 2002). Despite a critical claim that participation increases environmental decision standards to determine more effective outputs (Hogl, 2012), in practice, the environmental standards are mostly determined by different interests of participants (Newig & Fritsch, 2009a). Therefore, individual participants hold different perceptions of legitimacy, which make it more difficult to be collectively justified.

Problems of scale can also challenge legitimacy (Hogl, 2012). New modes of governance can empower larger participants in policy decision-making. However, collective matters do not take place at a smaller scale, but rather at a wider scale where making no points to such empowerment (Newig & Fritsch, 2009b). This demands trade-offs between democratic legitimacy or a 'democratic dilemma' among stakeholders including citizens and/or local communities (Dahl, 1994). The economic incentives for participation, for example, are questionable for local people whether they deserve economic benefits (e.g. agriculture) or a commitment to environmental

protection. The point is that burdens and costs for environmental awareness are made at local levels while economic benefits tend to be distributed on a wider level (Koontz, 1999).

These challenges of participation can be foreseen as a question to reflect whether participation in environmental governance contributes to an improvement in legitimacy (Hogl, 2012). Evaluating participatory quality is complex because policy and programme processes and change management have become more complex (Head, 2008). Generally, it is difficult to justify the correlation between decision-making scales derived from participatory quality, policy distribution and institutionalisation (Newig & Fritsch, 2009a).

4.2. Policy effectiveness

The focus and challenge of policy effectiveness is on coordination and integration of policy outputs. Policy formulation and implementation in areas of environmental and natural resources are complicated because of cross-cutting accountabilities of various stakeholders in decision-making processes. Briassoulis (2004) and Peters (1998) note, different stakeholders, even within government and public service delivery agencies, have made policy domains more difficult to be effectively coordinated. Vertical coordination of policy outputs is often inserted in a higher level, such as within national policy frameworks, while addressing decentralisation approach. This results in a number of environmental governance issues that are shaped by “landscapes of interdependent but fragmented policy-making arenas” in which horizontal and vertical policy coordination are necessary for effective policy-making (Hogl, 2012).

Although network coordination seems legitimate as a logical solution to interrelated environmental issues, it practically fails to bridge the relationship between public organizations and outsiders, particularly linking private actors to governmental structure. This failure often results in difficulties of building multilateral agreements within networks and trust relationships, which are the seminal drivers of network integration (Peters, 1998). However, Jordan and Lenschow (2010) suggest that the

more deliberative negotiated decision-making arenas are a result of comprehensive failure of horizontal coordination. The barrier to achieving negotiation-based vertical coordination is unfortunately made by negotiations in networks. While deliberative and negotiated decision-making arenas seem instrumental in a 'shadow of hierarchy', negotiations in networks cause the threatening discrepancy between "the exchange of interest balance and negotiations for joint-problem resolution", which in turn, impedes collectively rational outputs (Mayntz, 2003).

Tensions between science and politics obviously limit the legitimacy of policy effectiveness. Yet, scientific expertise is a seminal component of political decisions and the formation of environmental and natural resource policies (Mentzel, 1999) because it helps identify, describe and explore substantive environmental problems (Fischer, 2001). In addition, according to, Beck (1992), Weingart (1999) and Bäckstrand (2004), issues placed on political agendas for resolving a long-term complex environmental degradations result from scientific insights. However, Weingart (2003) claims there is strong competition through science and expertise advice. The barriers and discrepancies that exist in communication between scientists and politicians generally exacerbate decision-making because of perceived inabilities to obtain a consensus. Perhaps more importantly, scientific findings are usually complex and sometimes ambiguous which is complex for politicians to understand (Cash et al., 2002; Holmes & Clark, 2008).

The major challenge is how to combine expert knowledge and political decision-making in the most effective way with the recognition of democratic legitimacy (Guston, 2001; Hogl, 2012, p. 200). In empirical grounds, most scientific advice to policy-making has dramatically increased concerns over the validity and credibility of such advice (Glynn, Cunningham, & Flanagan, 2002) because science, which is influential in societal decisions, somehow produces uncertainties to political decisions (Jasanoff, 2003). However, as long as environmental problems become terminologically technological in empirical debates, environmental governance will endure technocratic forms of increased science and de-politicisation (Bäckstrand, 2004; Fischer, 2001).

The aforementioned challenges of policy effectiveness draw more on normative expectations of legitimacy. These are necessary to allow accountability to the force of democracy. As Hogl (2012) notes, normative expectation of legitimacy can be met by the operationalization of effectiveness as a fundamental assessment of legitimacy. Nevertheless, effectiveness and legitimacy in policy coordination and policy-science combinations are problematic in real-world advisory settings.

5. Assessing legitimacy

Legitimacy can be divided into three types: *input legitimacy*; *output legitimacy*; and *throughput legitimacy* (Scharpf, 1988, 1999, 2007) by which it can be assessed. Input (or procedural) legitimacy is associated with participatory quality in policy-making and decision processes. Output (or substantive) legitimacy is policy effectiveness as a result of participatory quality. To bridge this linkage, throughput legitimacy significantly reflects on a collaborative process in which transparent and deliberative quality is identified. This section underlines a framework for assessing legitimacy with more specific indicators and criteria (Table 2.2) to identify how collaborative environmental governance is regarded as legitimate.

5.1. Input legitimacy

Input legitimacy matches legitimacy definitions of normative and descriptive lenses mentioned earlier. Normatively, input legitimacy has implications by whom policy should be made. The term *input* itself would mean the inclusion of stakeholders, especially non-state actors, and more diverse forms and rationalities of governance in a procedural policy decision-making process thus, leading to more effective policy, rules or laws (Scharpf, 1999). Using a descriptive lens, input legitimacy demonstrates the fact to whom a policy should be formulated as it is intended to solve an interrelated issue that affects all. These participatory qualities suggest that a policy should be made and decided by more parties for collective benefits, rather than by a particular actor.

Input legitimacy is a moral standard of participatory quality resulting in effective policymaking. Its initial indicator would be associated with participants, especially non-state stakeholders, to the policymaking process reflecting on the diversity of representatives and incentives for their participation. Following this, other significant indicators can address questions related to the appropriate representation of collaborative stakeholders.

5.1.1. Participants

The first part of assessing input legitimacy of collaborative governance should be about the diversity of participants, i.e. completeness of the range of actors with interests and the number representing each interest. As mentioned in Chapter 2, involving a large number of actors is problematic due to a risk of manipulation (DeLeon & DeLeon, 2002; Hill & Hupe, 2002). The participation in collaborative governance should therefore be limited by the need to maintain a manageable number of participants. According to Sabatier, Focht, et al. (2005, p. 59), 'the number of representatives from each group should be in rough proportion to the group's size and intensity of its interests to the policy outcome. Then, a central question is why does a particular stakeholder decide to participate in the policymaking process? This question indicates whose participation is legitimated and in what ways. Participation by state stakeholders such as elected officials is democratically legitimated by legal requirements of their positions to represent the community they serve. The more focus of participatory governance is on non-state actors (Bernstein & Cashore, 2007; Cashore, 2002; Gulbrandsen, 2005) whose participation is basically legitimated by their values of autonomy (Sabatier, Focht, et al., 2005).

Although it would be too early to indicate those qualities as legitimate, a thoughtful criterion is how legitimacy of participations by state and non-state stakeholders is justified. This reverberates incentives for participation as different stakeholders are willing to participate because of different incentives (Ansell & Gash, 2008). Apart from democratic legitimacy, participation by public officials as a sponsor of a collaborative process is normatively accepted by other actors or the community to bring positive financial incentives and a successful collaboration (Ebrahim, 2004; Koontz, 2004). The

idea behind values of autonomy of non-state stakeholders would be associated with power and resource imbalance. Gray (1989) argues that power asymmetries among actors influence their willingness to come to the table. Environmental groups, for example, prefer court judgement or hearing processes where they believe that they have more power although court or legislative mandates decrease incentives for participation. Incentives for stakeholders to participate also depend on their expectations about whether a collaborative process is able to yield meaningful results against the balance of time and energy to fulfil collaboration (Geoghegan & Renard, 2002; M. Schneider, Scholz, Lubell, Mindruta, & Edwardsen, 2003; J. F. Warner, 2006).

5.1.2. Appropriate representation

An interesting question to reflect is why does a particular stakeholder have a vote on an issue that will affect everyone? A possible answer is that participation by that stakeholder does not affect others or they are required to be a representative. However, when it comes to consideration of non-governmental stakeholders, appropriate representation should be identified. A criterion of appropriate representation is election in a fair system held among non-state stakeholders, so it is accepted as democratically legitimate as the representativeness of state stakeholders (Sabatier, Focht, et al., 2005).

Although election is legitimated as a fair representation, collaboration is typically voluntary (Andranovich, 1995; Chrislip & Larson, 1994). Usually, individuals' or groups' preparedness to volunteer to collaborate depends on their own interests in a policy, question, and positions with other parties. Organisers of collaborative institutions, mostly public agencies, may solicit volunteers. As a result, they are accountable for making proper balance of group members, most commonly by encouraging members of underrepresented groups to participate (Koontz, 2004). However, a power/resources imbalance is challenging for organisers of collaborative institutions to solicit volunteers. According to Ansell and Gash (2008, p. 551):

> if some stakeholders do not have the capacity, organization, status, or resources to participate, or to participate on an equal footing with other

stakeholders, the collaborative governance process will be prone to manipulation by stronger actors.

It is more likely for stakeholders to participate voluntarily or represent when they perceive that achieving their goals depends on cooperation with others (Logsdon, 1991). Some individuals and groups might deny a solicitation as they believe goals can be achieved unilaterally. Therefore, a power/resources balance and interdependence can indicate whether stakeholders are willing to participate or represent.

5.2. Output legitimacy

Output legitimacy matches legitimacy definitions by evaluative and strategic lenses mentioned earlier. It is a result-based acceptance of effectiveness seen as a consequence of input legitimacy (Skogstad, 2003). Output legitimacy strategies are primarily based on problem-solving capacity of a political system (Scharpf, 1999). An intrinsic link between input and output legitimacy is that participatory quality of decision-making process leads to effectiveness (Lindgren & Persson, 2010; Newig & Fritsch, 2009b; Risse, 2006). Effectiveness is difficult to describe as it is defined in widely different ways (Andresen & Hey, 2005; Beisheim & Dingwerth, 2008). According to the literature reviewed by Hogl (2012), governance effectiveness can be defined as three categories: (1) 'the achievement of pre-set policy targets' (for example, Héritier, 2003; Papadopoulos & Warin, 2007); (2) ability of an institution to deliver certain goods, such as international regime (Steffek, 2009); and aptitude to solve the problems that prompted its establishment (for example, Andresen & Hey, 2005).

To draw on these definitions, effectiveness is conceptualised in different perspectives. Positivists see that the evaluation of governance effectiveness can be easily assessed, while constructivists emphasise the questions like, under what condition and by or for whom (i.e. stakeholders, initiators, community or society) the effectiveness can be assessed as the sense of achievement (Beisheim & Dingwerth, 2008). More empirically, effectiveness is conceptualised through the assumption that policy-making is circulated in the 'stagist-model' (for example, Beisheim & Dingwerth, 2008; Kronsell & Bäckstrand, 2010) classifying three levels of effects: (1) 'outputs' as political

programmes produced by governance process, such as laws, administrative acts, strategies and plans; (2) 'outcomes' resulted from governance process that affect the change in behaviours and strategies of major actors and target groups; and (3) 'impact' as the practical or materialised consequences of outputs and outcomes of a governance process. Generally, effectiveness would have four dimensions including policy, institutional, compliance and environmental effectiveness (Gulbrandsen, 2005; Victor, 1998; Weiss & Jacobson, 2000). The idea of effectiveness discussed in this study however, is associated with policy effectiveness, which outweighs the other three dimensions presumably known as policy outputs and outcomes.

Output legitimacy could be the most critical dimension as it represents effectiveness of collaborative process (Quack, 2009). Unlike a broader context where effectiveness is placed on every aspects of legitimacy, the literature review discusses output legitimacy on the philosophy of policy effectiveness indicating outputs and outcomes of policy decisions. The central expectation of policy outputs and outcomes is therefore, to make changes in environmental quality against a force of time and energy that a collaborative process requires.

5.2.1. Policy outputs

Policy outputs, are referred to political programmes produced by a governance process, such as laws, administrative acts, strategies and plans (Beisheim & Dingwerth, 2008; Kronsell & Bäckstrand, 2010) and can be examined to see whether they are high-quality. High-quality documents generally indicate legitimate policy outputs as governance participants or represented communities are able to justify new actions or identify clear approaches for implementation (Mandarano, 2008). With this quality, this study more likely emphasises formulated plans in order to specifically correspond to the case study. Legitimacy of collaboratively built plans can be assessed by the approval and consent of a consensus-based process that fairly consider concerns, rights and responsibilities of stakeholders (Koontz & Thomas, 2006; Sabatier, Focht, et al., 2005).

Another tangible criterion of policy outputs is an implementation of restoration projects by the collaboration or indirectly through actions by others (Koontz & Thomas, 2006). Through restoration projects, rights and responsibilities of stakeholders can be identified. The existence of property, culture and legal rights can be assessed, while responsibilities can be seen through the activities stakeholders perform and support. Different stakeholders may play different roles such as decision-makers, enforcer, planners, data collection, and advisors (Currie-Alder, 2007). Therefore, it is interesting to assess how these performance outputs can deliver to collective policy outcomes.

5.2.2. Policy outcomes

Policy outcomes would be associated with changes, classified as institutional change, societal change and improved environmental quality, as a result of policy outputs (Koontz & Thomas, 2006). Institutional change is identified when new strategies and actions exist with the aim to end conflicts and to change a policy. Additionally, it can be recognized when new attitudes and behaviours of institutions are created in order to integrate change (Mandarano, 2008). The acceptance of societal change is known by a degree of public perceptions of changes in environmental quality, such as water quality (Sabatier, Leach, Lubell, & Pelkey, 2005), and new or improved working relationships, trust and collective understanding (Innes & Booher, 1999). These criteria could certainly lead to a situation of resolving conflicts, a goal of societal change. Technically, it is obvious that improved environmental quality, for example, standards of parameter, signals a change in environmental quality.

Intermediated outcomes can be a critical element that indicates policy outcomes. They result from achievements or implementation progress of the restoration projects as a consequence of good quality policy outputs. Significantly, policy outcomes are obvious if there is an effective adoption of policies and best management practice (Koontz & Thomas, 2006) in a line of institutional arrangements or within the collaborative forum. In economic perspectives, policy outcomes can be noticed when they improve or are fairly distributed to stakeholders' welfare (Sabatier, Focht, et al., 2005). This could be relevant to cost and benefit distribution among stakeholders. According to Currie-Alder (2007), outcomes achieved are measured by equity and efficiency of cost

and benefits. For equity, fairness in the distribution of costs and benefits among stakeholders occurs when they are financially supported to run a collaboration, to improve resource access for weaker stakeholders in order to obtain a presence.

5.3. Throughput legitimacy

Throughput legitimacy is seldom termed and conceptualised in governance theory because it is embedded in input legitimacy as a process that results in output legitimacy. Most scholars include the characteristics of throughput legitimacy in input legitimacy as a degree of transparency, and deliberative quality in the decision-making process (Eshuis & Edwards, 2012; Risse & Kleine, 2007). Understandably, Scharpf (1999) claims that *input* is judged in terms of the responsiveness to citizen concerns as a result of participation *by* the people*; output* is judged in terms of the effectiveness of policy outcomes *for* the people; and *throughput* is judged in terms of the efficacy, accountability and transparency of the governance processes along with their inclusiveness and openness to consultation *with* the people. This quality of throughput legitimacy goes along with the characteristics of collaborative process in new governance arrangements aiming to answer the question how participatory quality leads to effective policy outcomes.

With the recognition of importance of output and input legitimacy, throughput legitimacy represents a collaborative process that plays a role in bridging participatory quality to policy effectiveness (Schmidt, 2013). The collaborative process is, therefore, intended in this study, to address the transparent interaction among collaborative stakeholders reflecting control and accountability, commitments and deliberative quality.

5.3.1. Control and accountability

The idea of control centres in facilitative leadership by organisers of collaborative institutions, most commonly governmental stakeholders, who initially bring stakeholders together to engage in a collaborative spirit (Ansell & Gash, 2008). This criterion implies that when stakeholders are unable to directly collaborate, they need facilitation through a kind of interventionist mediation techniques that are perceived

to ensure assisted negotiation and the integrity of a consensus-building process (Cruickshank & Susskind, 1987). Significantly, when stakeholders are ineffective in exploring possible win-win gains, mediation can indicate a need of control by a third party to intervene in the negotiation practice. Leadership, which is important for empowering and mobilising stakeholders to move collaboration forward (Vangen & Huxham, 2003b), can be indicated in parallel by the ability of facilitative leaders to set and maintain clear ground rules, trust and mutual gains throughout the collaborative process.

According to Grant and Keohane (2005, p. 25), accountability

> implies that some actors have the right to hold other actors accountable to a set of standards, to judge whether they have fulfil their responsibilities in light of these standards, and to impose sanctions if they determine that these responsibilities have not been met.

Therefore, measuring accountability may link to the interaction between representatives and their constituencies. The accountability is credible when the representatives have accomplished their responsibilities, but legitimate accountability can occur when constituencies are able to authorise actions and decisions that are incompatible with their values, concerns and preferences (Backstrand, 2010). The legitimate accountability can also be determined when the representatives have active communication with their constituencies for enabling deeper understanding of issues they have learnt from the participation (Sabatier, Focht, et al., 2005).

The availability of information, public access, and transparency and monitoring mechanisms are important measures of accountability. Information, public access and transparency can be measured by how science is integrated to collaborative policymaking and the existence of advisory committees or groups in the collaborative process. The measures of transparent scientific policy suggested by Hogl (2012) are fascinating, requiring:

- Final results of and all related to evidences should be published;
- Divergent opinions and minority votes should be made public;
- Policy-makers should clarify the policy advice they use in policy decisions;
- Advisory committees should routinely maintain high levels of transparency in their business; and
- Scientific advisory committees should promote public consultation through forms of open meetings or provisions of equal opportunities for direct public access.

5.3.2. Commitments and deliberative quality

Commitments to the collaborative process and deliberative quality can be linked when assuming that collaborative governance is convergent to democratic institutions that can measure the success of public deliberation (Baber & Bartlett, 2005). Typically, a level of commitment from stakeholders is the most significant factor to indicate success or failure of collaboration (Alexander, Comfort, & Weiner, 1998; Gunton, 2003; Margerum, 2001; Tett, Crowther, & O'Hara, 2003). The weak commitment of public agencies, especially at a central level, to collaboration is perceived as a particular concern (Wondolleck & Yaffee, 2000). Commitment to a collaborative process concerns an effort for making fair negotiation and mutual gains, then completing desired policy outcomes (Burger et al., 2001). Measuring levels of commitment reflects the level of incentives for participation. For example, participants are increasingly committed to the process if they can ensure that their constituencies are not disregarded by their participation, and so they have a legitimate position. Mandated collaboration may be precarious when or where incentives for participation are feasible, while authorised cooperation covers “so-called” commitment from stakeholders.

Deliberative quality is noticeable when deliberation entails reciprocity. The psychological shift towards different positions possibly occurring in the process is required to assure “mutual recognition” (Saarikoski, 2000) or “joint appreciation”

(Gray, 1989; Plummer & Fitzgibbon, 2004). This may correspond to what Ansell and Gash (2008) call “openness to exploring mutual gains” as one indication of commitment to the process. It is arguable that deliberative quality results from up-front willingness to share ownership, which in turn, enhances a degree of commitment (Gilliam et al., 2002) and keeps deliberative process open for stakeholders (especially the minority or weaker stakeholders) to participate with equal respects of their opinions. The notion of ownership of collaborative process implies shared responsibilities in which stakeholders are required to have relationships with other stakeholders, where they own decision-making with other stakeholders who may hold contrasting opinions (El Ansari, 2003; Geoghegan & Renard, 2002; Weech-Maldonado & Merrill, 1999). Therefore, it needs to measure trust to examine the extent that shared ownership can increase trust among the stakeholders. Trust can be enhanced if case stakeholders have high interdependence to achieve policy outcomes together, and this also improves commitments for collaboration. Generally, attractions of commitments and deliberation are resonant where collaboration relies on continuous cooperation for future mutuality.

Table 2-2: Legitimacy indicators framework

Dimension	Indicator	Criteria
Input legitimacy *(Participatory quality)*	• Participants	• The number of participants • Incentives to participate
	• Appropriate representation	• Election in a fair system of representation • Volunteer
Output legitimacy *(Policy effectiveness)*	• Policy outputs	• Formulated plans with new strategies and actions • Implementation of restoration projects
	• Policy outcomes	*Changes* • Institutional change • Societal change • Improved environmental quality
		Intermediate outcomes • Achievement of restoration projects • Fair distribution of costs and benefits
Throughput legitimacy *(Collaborative process)*	• Control and accountability	• Facilitative leadership • Interaction between representatives and constituencies • Availability of information, public access and transparency
	• Commitments and deliberative quality	• Fair negotiation • Mutual gains • Shared ownership

Source: Various authors

6. Summary

Collaborative environmental governance promises more effective and legitimate policy decisions. Due to low legitimacy of government roles and functions in managing and regulating the environment, especially in administrative hierarchy, the transformation from hierarchical coercion to make governance more economically and deliberatively reasonable enhances the level of legitimacy. However, challenges of legitimacy rest upon a central question whether, or to what extent, does participatory governance lead to effective policymaking? Therefore, the framework for assessing the legitimacy is conceptualised with three-dimensional factors of legitimacy including participatory quality, policy effectiveness, and collaboration representing three types of legitimacy respectively.

Policy effectiveness results from participatory quality through a collaborative process (Figure 2.1). Participatory quality is state actors' legal authority of representativeness and non-state actors' value of autonomy with fair, balanced and equal access to political processes. The effectiveness of policy decisions lead to implementable outputs and tangible outcomes that resonates ideas and values of collaboration. The collaborative process links input participation to output effectiveness through interaction between actors reflecting on efficacy, accountability, transparency, openness, and inclusiveness in institutional processes and constructive interaction.

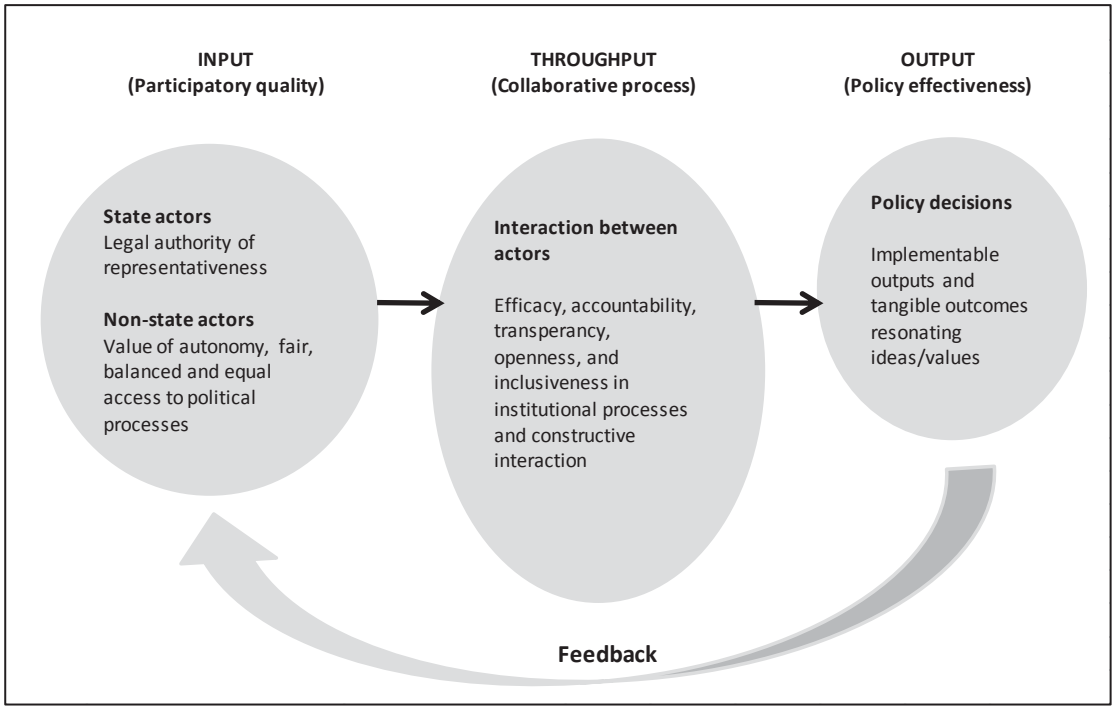

Figure 2-1: Relation between Input, Output and Throughput legitimacy. Source: Various authors

Chapter 3 : Overview of collaborative water governance in New Zealand: Managing the Manawatū River

1. Introduction

Water management planning in New Zealand generally relies on regulation to manage water quality and allocation issues (Fenemor, Neilan, Allen, & Russell, 2011). With this, an integrated water resource management has been applied in New Zealand based on a river catchment scale that is believed to deliver the best achievement through local participation in policy decision-making (Davis & Threlfall, 2006). Managing the Manawatū River exemplifies such a collaborative approach by the establishment of the MRLF in which stakeholders within the Manawatū catchment have participated to deal with the river's water quality issue.

This chapter firstly introduces the collaborative water governance in New Zealand. Accordingly, significant freshwater issues are of national significance, and therefore institutional reforms for freshwater management were necessary. The Land and Water Forum is a cornerstone of collaborative water governance in New Zealand and is seen as a result of water policy reforms. The fact of managing the Manawatū River is then informed as a specific challenge of deteriorating water quality. The chapter emphasises the MRLF as a collaborative platform with a mission to improve the degraded water quality of the Manawatū River. It identifies the key background and how the forum has been shaped to address water quality issues.

2. Collaborative water governance in New Zealand

This section briefly identifies water quality and allocation issues and institutional reforms required to apply a collaborative approach for management. The attention on water quality issues in New Zealand goes back to the 1980s when they became an additional component of some management plans. The institutional arrangements for water resource management in New Zealand have been fundamentally reformed since then in order to encompass practical changes in objectives for water resource

management and validate past practices within a devolved planning framework for sustainable resource management (Memon, 1997).

2.1. Freshwater issues

Over the last two decades, agricultural intensification within catchments in New Zealand has contributed to the degradation of water quality and imposed pressures on water quantity (Fisher & Russell, 2011). Scientifically, agriculture produces substantial volumes of nutrients, particularly nitrogen (N) and phosphorus (P), faecal matter and sediment, and this is discharged to streams, rivers and lakes in several regions (Quinn et al., 1997, Cullen et al., 2006, & Monaghan et al., 2007). The over-allocation, inefficient use and takes of freshwater have increased pressures on demand and availability of surface and ground water (Memon & Skelton, 2007). Agricultural irrigation is the largest consumer of water allocation and is expected to increase periodically (PCE, 2004). See Appendix 1 for detailed data for water quality and quantity.

Government reports and empirical studies reveal increasing water quality and quantity challenges across New Zealand. It seems likely that water quality deterioration is escalating as a result of agriculture intensification and future demands for surface and groundwater is also increasing dramatically (Cullen et al., 2006). Empirical studies have emphasised adverse water effects caused by dairy farming, reflected in a public perception of worsening water quality and pose damaging impacts on New Zealand's clean and green marketing image (Cullen et al., 2006; Fisher & Russell, 2011).

Perceived conflicts relevant to freshwater management would be associated with different views about causes of water degradation and how local governments address to resolve the issues. Nationally, Hughey, Kerr, and Cullen (2013) conducted a nationwide survey with 2200 responses comparing its results with seven previous surveys conducted between 2000 and 2010. The 2013 survey results found over half (56%) of New Zealanders perceive farming as the greatest cause of water degradation, followed by sewage and stormwater (approx. 43%). With this, managing farm effluent

and runoff had been perceived to worsen, while sewage disposal had been recognised as improving.

2.2. Institutional arrangements

Integrated water resource management is widely based on a whole watershed or catchment as an appropriate means for sustaining the water resource (Mitchell, 2005). New Zealand has had a long experience utilising this since the 1940s (Wilson, 1973) showing the periodically reforms. According to Memon (1997), New Zealand had practiced the 'catchment control plans' for soil conservation and river control during the 1960s to 1980s. Following this period, new institutional arrangements were constructed.

The enactment of the Resource Management Act (RMA) in 1991 reflected a worldwide trend of government deregulation which first appeared in the late 1980s (Fisher & Russell, 2011). The RMA is a landmark framework that delegates natural resource management authority to politically elected regional councils and promotes a collaborative approach to problem-solving in order to facilitate sustainable use of natural resources, including freshwater (Memon & Weber, 2008). The RMA includes the need to improve freshwater quality by enabling regional councils to address this concern in regional policy statements, regional plans and resource consents for water rights and permits. Additionally, the *Local Government Act*, *2002* enables local governments to make decisions that benefit the community they serve. Regional councils are responsible for broader management such as of water quality in streams, rivers and lakes, while cities or district councils ensure provision of drinking water, storm-water and wastewater facilities (Cullen et al., 2006).

For providing the best advantage to freshwater management, the central government adopted a National Policy Statement for Freshwater Management (NPS-FM) in 2011 amended in late 2014 (Ministry for the Environment, 2014). The significant change in the NPS-FM 2014 is the input of the National Objectives Framework, which indicates the involvement of diverse stakeholders. Regional policy statements (RPS) and regional plans (RP) of regional councils are required to give effect to objectives set in the NPS-

FM and delegate activities of the territorial authorities through district plans and resource consents for achieving functions under the RMA. In summary, Figure 3.1 illustrates an institutional arrangement equivalent to an integrated set of legislation, policies and consenting processes which are intended to result in the sustainable management of freshwater resources in New Zealand.

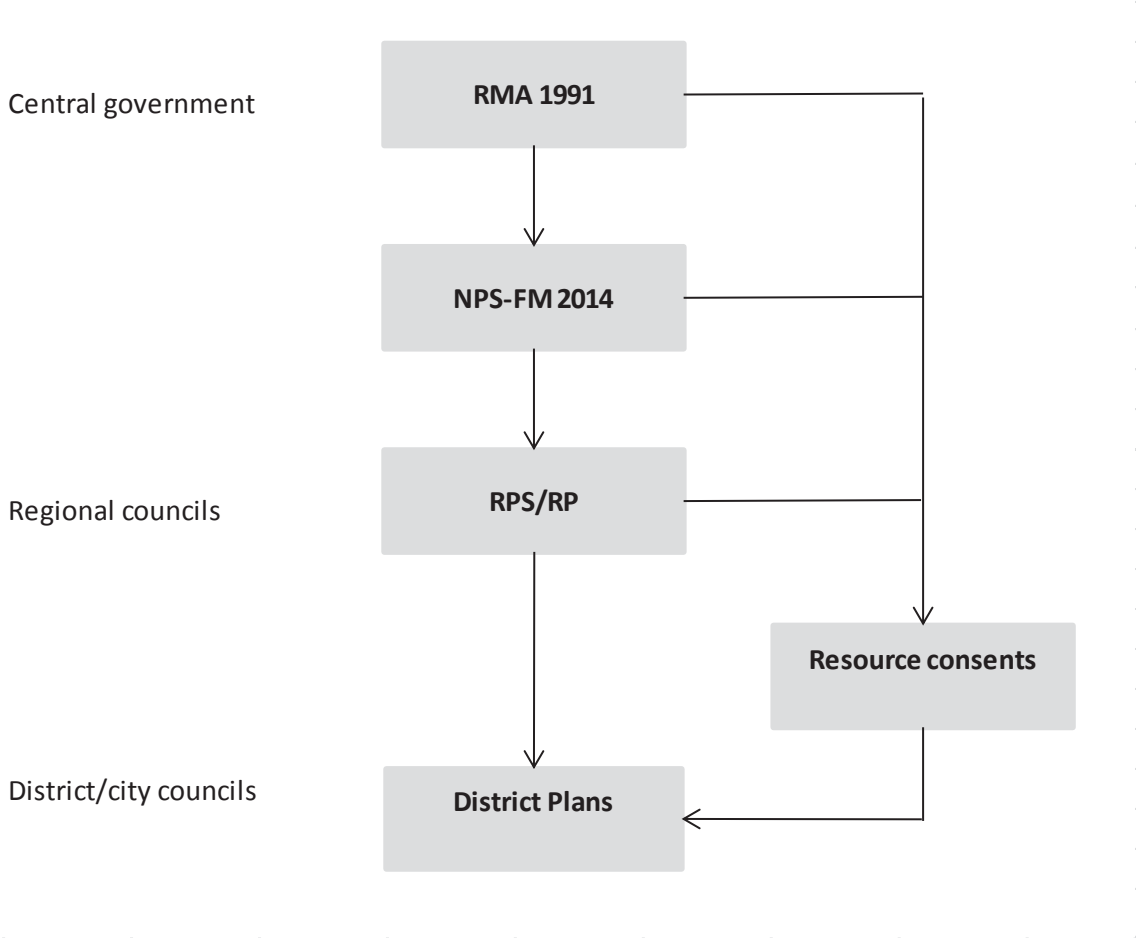

Figure 3-1: Institutional arrangements for integrated freshwater management in New Zealand. Source: MfE (2010)

2.3. Land and Water Forum

The Land and Water Forum (LAWF) is an example of collaborative efforts to freshwater management in New Zealand at the central level. It was established in 2009 and brought together a range of industry groups, environmental and recreational NGOs, iwi, scientists, and other organisations with a stake in freshwater and land management as well as joint-observers from central and local governments. The Forum takes into account the consideration of ecological and socioeconomic opportunities derived from water resources as a main reason why the members need to work collaboratively. The central goal of the Forum is to develop a shared vision and a common way forward among all those with an interest in water, through a stakeholder-led collaborative process (LAFW, 2011).

The LAWF has released three reports showing progress of collaborative commitments of the Forum members. The first report emphasises limits and targets that can be achieved through good management practice and self-management including regulatory approaches, price-based measures, and continued investment in the clean-up of contaminated water bodies (LAWF, 2010). The second report proposes a national framework within which regional councils working with their communities and iwi to set freshwater objectives and develop limits for its use. It provides a consistent and transparent process for setting objectives and limits, and one expected to lead to effective and enduring outcomes and greater certainty for investment and development (LAWF, 2012a). Interestingly, this report focuses on collaborative decision-making at a national level in New Zealand which recommends collective approaches to ensuring that values and interests are visible or relevant at broader scales (national or regional), appropriately addressed in local or catchment-level decisions, or in locally-driven collaborative processes. The third report draws on managing within limits. It recommends integrated decision-making in catchments, continuous improvement of management practices to improve water quality, and clearer rights to take and use water within set limits (LAWF, 2012b).

The ‘move forward’ commitment of LAWF will reflect future policy reforms, review the overall changes to water policy and their implementation. It will also address, lessons learned and further work requiring achieving the overall objectives of improved water management in New Zealand by 2017. The particular aim is to maximise economic benefits of freshwater while managing it within water quality and quantity limits that are consistent with cooperative mandates in the NPS-FM (LAWF, 2010).

3. Managing the Manawatū River

The Manawatū River is a major river of the Manawatū-Wanganui region in the southern part of the North Island in New Zealand. According to Young (2009), the river was reported in late 2009 as one of the most polluted rivers in the western world. Over the past four decades, there has been a significant decline in water quality and increasing pressure on water quantity utilised by intensive agricultural activities and population growth in the region (Belt et al., 2013). Horizons Regional Council (HRC), a facilitative leader in managing natural and physical resources in the Manawatū-Wanganui Region (MWR), has taken significant steps to deal with water issues of the Manawatū River and its catchment. The development and implementation of the Manawatū Catchment Water Quality Regional Plan in the 1990s and Sustainable Land Use Initiative (SLUI) in the 2000s were important milestones that led to the establishment of a collaborative platform, the Manawatū River Leaders’ Forum in 2010 (MRLF, 2011).

3.1. Geography and community

The source of the Manawatū River is northwest of Norsewood in the Ruahine Ranges of southern Hawke's Bay. With a total length of 235 km, the river flows westward crossing fault lines and mountain ranges through the townships of Dannevirke, Woodville, and Palmerston North. It has five key tributaries including the Oroua, Mangatainoka, Mangahao, Pohangina and Tiraumea rivers (LAWA, n.d.). The river finally enters the Tasman Sea at Foxton Beach where the Manawatū estuary is formed. The Manawatū River catchment covers an area of approximately 590,000 ha, which is divided into nine sub-catchments (MRLF, 2011) and has a total stream length of 2,800

km (Hill, 2004 cited in Cullen et al., 2006). Figure 3.2 portrays sub-catchments of the Manawatū River with the hydrological character of its tributaries.

The Manawatū River catchment is home to over 133,000 people in Palmerston North, the largest urban area and several smaller communities containing agricultural areas. The region is also home to 17 species of native freshwater fish in which rare and threatened populations are included (HRC, 2013). Within the catchment, agricultural activities form a major proportion of total land use accounting for 70% with over half being used for sheep and beef farming, and around 17% for dairy farming (LAWA, n.d.). According to HRC (2013), the surface water is allocated on a daily basis to 78% for hydropower, 15% for agriculture, 5% for town water supplies and 2% for industry. The Manawatū River is also significant for iwi as a source of mana[3] and a provider of cultural and spiritual values for Maori tribes within the region (MRLF, 2011). The mauri of the river is significant because it provides Rongoa-Maori traditional healing plants and food resources, drinking water for people and stock, swimming/other recreation/tourism, agriculture and flood protection, gravel/sand extraction and electricity generation.

[3] Mana is a Māori word meaning *power* in general. See more: http://www.maoridictionary.co.nz/word/3424

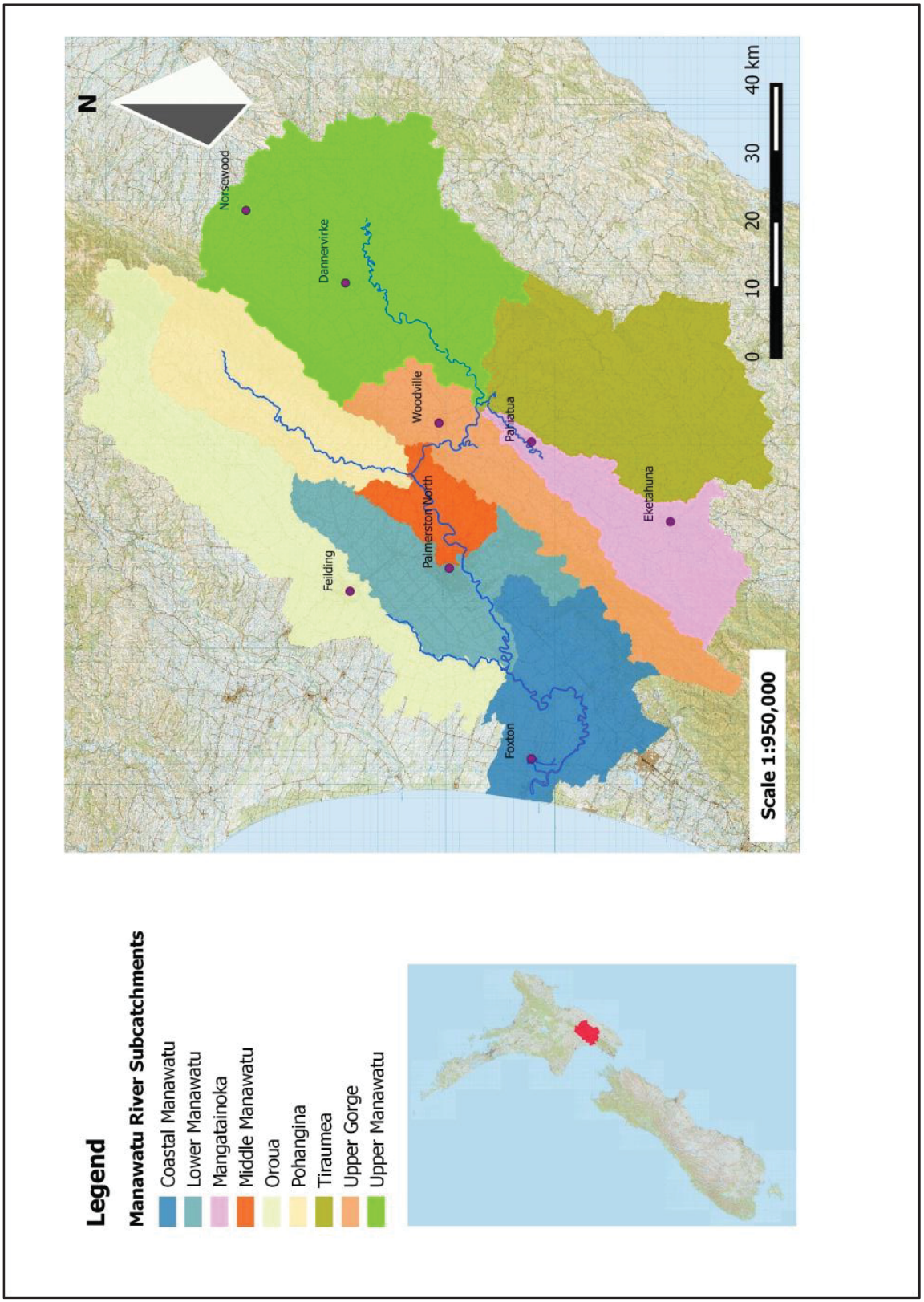

Figure 3-2: Manawatū-River catchment and sub-catchments

3.2. Water quality

The Manawatū River watershed characterizes significant trends of deteriorating water quality in New Zealand and is one of the nation's most modified river (Belt et al., 2013). The river quality is ranked at the bottom of national water quality tables for nitrate, phosphate, turbidity, Escherichia coliform (*E. coli*), and macro-invertebrate community index (Ministry for the Environment, 2010). In addition to the above, Joy (2010, cited in Belt et al., 2013) claims that around 60% of native fish, shellfish, and crayfish species in the Manawatū River are at risk of extinction.

High nutrient concentrations, caused by non-point source discharge (agricultural run-off) and point source discharge (municipal sewage treatment plants), are key issues for water quality in the Manawatū-Wanganui Region (HRC, 2013). Recent research reveals that over 80% of the nitrogen and 50% of the dissolved reactive phosphorus found annually in the Manawatū River at Hopelands (above Palmerston North) are a result of agricultural run-off (HRC, 2014b). It is known that excessive nutrients can cause nuisance algae or periphyton growth on the river bed, particularly during periods of minimum flow.

Runoff from farms contributes to much greater amounts of nutrients (nitrogen and phosphorus) than wastewater treatment plants in both low and high flow seasons (Wright, 2012). Point source discharge (PSD) can generally produce nitrogen and phosphorus higher than nonpoint source discharges (Snelder, Brooker, Unwin, Wood, & Wilcock, 2014). PSDs have a higher proportion of sites that failed to meet water quality set in the One Plan although the number of State of Environment (SoE) sites, which largely refer to non-point source discharges, is two times greater than PSDs (see Appendix 1).

4. The Manawatū River Leaders' Forum

Managing the Manawatū River has been implemented through significant milestones that could be preconditions of establishing the MRLF. In 1990s the first generation regional plan (the Manawatū Catchment Water Quality Regional Plan) was successful to remove dairy effluent discharge from water and set standards on phosphate levels for point source discharge. However, this regional plan did not make any regulations for managing non-point discharges. Therefore, HRC later sought to manage agricultural diffuse (non-point discharges) focusing on dairying, while also reducing point-discharge conditions, including town sewage treatment plants (McNeil, submitted).

In partnership with territorial authorities and communities in 2003, HRC prepared a consolidation of regional policy statements and plans for managing physical and natural resource within the MWR. This is known as One Plan, and became operative in late 2014 (Horizons Regional Council, 2014b). The development of the One Plan was to produce guidance to regional council's functions under the RMA 1991 and the NPS-FM 2011. For water management, the plan sets out regulatory water quality targets and indicates a comprehensive framework for water allocation for each management zone and sub-zones based on catchments and sub-catchments (Horizons Regional Council, 2013).

With leadership from the HRC, the MRLF (the Forum) was formed in early 2010 by leaders representing sectors and groups that have an impact on and/or interest in the river including iwi, farming communities, industry, local governments and environmental stakeholders. In August 2010, Forum members signed an accord with a shared understanding that 'the state of the Manawatū River is unacceptable and the community wants it cleaned up' (MRLF, 2010). The Forum's management focuses on the whole of the Manawatū River Catchment as it affects the mauri or life force and ecological health of the Manawatū River and its tributaries. Together with the focus, vision, issues and goals, were agreed to improve the poor state of the river in a collaborative way that recognises the Treaty of Waitangi. The Manawatū River Leaders' Accord (the Accord) acknowledges hapu/iwi as indigenous people who have

expressed the range of interest and values connected with the River (MRLF, 2010). Baseline agreements led to the development of a collaboratively built Action Plan with the main goal to achieve water quality improvement in 2020s. Appendix 2 adds more details to following presentation.

4.1. Participants

The signatories to the Accord represent an extensive participation in the Forum comprising some 30 parties from iwi/hapu, environmental interests, farming and industry, local governments (including Horizons Regional Council) and local business (Table 3.1). These stakeholders are committed to collaboratively finding solutions for the Manawatū catchment through gaining a collective understanding of how to balance cultural, social, environmental and economic values. The group has worked collectively and created actions jointly and individually.

Table 3-1: Type and number of participants in the MRLF

(See list of participants in Appendix 2)

Type	Number
Iwi/hapu	8
Environmental interests	8
Farming and industry	6
Local governments	5
Business	3
Total:	**30**

4.2. The Forum's Action Plan

The MRLF's Action Plan defines shared direction for all members to remedy the poor state of the Manawatū River. Through the direction, the members are committed to implement baseline agreements set in the plan.

4.2.1. Shared direction

The Action Plan sets shared direction for all members to take ownership of the issues and their solutions to rehabilitate and protect the health and wellbeing of the Manawatū River catchment for future generations. The shared vision is 'if the water is healthy, the land and the people are nourished' (MRLF, 2010). The group noted that the community has concerns and has identified that the river is in a poor state and has been described as dirty, lacking life and culturally compromised. Importantly, the Forum's members understand that people living in and around the Manawatū River want to appreciate and enjoy the river by swimming in it, taking food from it, using it as a water source and protecting its cultural values. Therefore, the main goal for resolving these issues is to improve the Manawatū River or the mauri (life force) of the catchment. It is envisaged that it will sustain fish species, remain suitable for contact recreation in balance with the social, cultural and economic activities of catchment communities (MRLF, 2010). The goal signifies a community opportunity to develop leadership in catchment improvement and capture the social and economic benefits of such leadership. The four specific goals agreed as achievement milestones in 2020 plus are that:

- waterways in the Manawatū catchment are safe, accessible, swimmable, and provide good recreation and food resources;
- sustainable use of the land and water resources of the Manawatū catchment continues to underpin the economic prosperity of the region;
- the Manawatuū catchment and waterways are returned to a healthy condition; and
- the Manawatū River becomes a source of regional pride and mana.

To achieve these goals, the Forum leaders collaboratively set six prioritised activities including: (1) sediment; (2) nutrients and bacteria from point source discharges; (3) nutrients and pathogens from agricultural runoff; (4) physical changes from flood control work; (5) protection of native fish and birds; and (6) management of water

allocation. These key actions include 131 particular tasks to implement in a specified number of years. The Forum believes that delivering these key actions across the catchment will entail significant progress towards the remediation of the Manawatu River.

4.2.2. Commitment

The development of the Forum Action Plan was a fundamental commitment of the Forum's members to come up with those baseline agreements to be implemented by all members and their respective organisations (MRLF, 2014a). The Action Plan requires a significant investment of time, energy, resources and collaboration from the Forum members to:

- work together positively and collaboratively towards achieving their goals and realising the vision;
- keep the community informed of their goals and progress towards them;
- advocate for their vision and goals; and
- meet as a leader's forum at least twice a year to receive reports on progress and provide guidance to those implementing the Action Plan.

4.3. Science and information sharing

The HRC commissioned an independent report on the state and trends of water quality in the Manawatū catchment. This basically backs up the science used and notifies all stakeholders to determine whether the state of water quality was improving or degrading. In support of this technical report, the HRC monitoring network collects monthly samples at 76 sites to provide valuable data on water quality and the pressures it is under (MRLF, 2014b). In support of this, a Science and Matauranga Maori Advisory Panel was convened (March 2015) to discuss the current state of the River, key issues and possible solutions to inform development of a revised Action Plan that will document outcomes to be considered by leaders and commit to future actions (Clark, Roygard, Brown, Keohler, & Thompson, 2015).

The Forum stakeholders have met several times yearly since 2011 to discuss progress of the Action Plan's implementation. In addition, they learnt how to facilitate understanding and build capacity of collaboration through Mediated Modelling workshops under Massey University's Integrated Freshwater Solutions (IFS) project. Collaboration tasks in the Action Plan illustrate some projects having drawn on the knowledge of the Forum members in which the IFS project made a significant progress. Massey University also runs an Applied Ecological Economics course based on the Manawatū River that provides postgraduate students with information on issues associated with water quality and mediated modelling.

Information sharing on best farm practices including nutrient management, stock exclusion and riparian planting is one of collaboration tasks implemented by all the Forum members. Education and community awareness have a number of tasks mostly carried out by the HRC and Department of Conservation through consultation meetings with communities. These provide updates on the Action Plan's progress and allow feedback and comments on progress. This can also be through media releases, advertising features, the Manawatū River website, social media and events (MRLF, 2014b). Significantly, information on resource consent compliance results is made available to the public.

4.4. Institutional arrangements

The Forum Action Plan has been integrated among the Forum members developing a number of institutional settings under tasks of the key action priorities. Apart from the One Plan, the Forum's Action Plan has been implemented with an influence and application of more specific plans and rules such as Best Farming Practices and Resource Consents made under the RMA and the One Plan. The Forum members have undertaken their tasks with collaborative leadership as different stakeholders have an opportunity to take the lead in different projects. As a result of this, groups, initiatives, plans and standards have been partially developed to support collaborative actions (MRLF, 2014a). Figure 3.3 below shows the institutional arrangements within the MRLF.

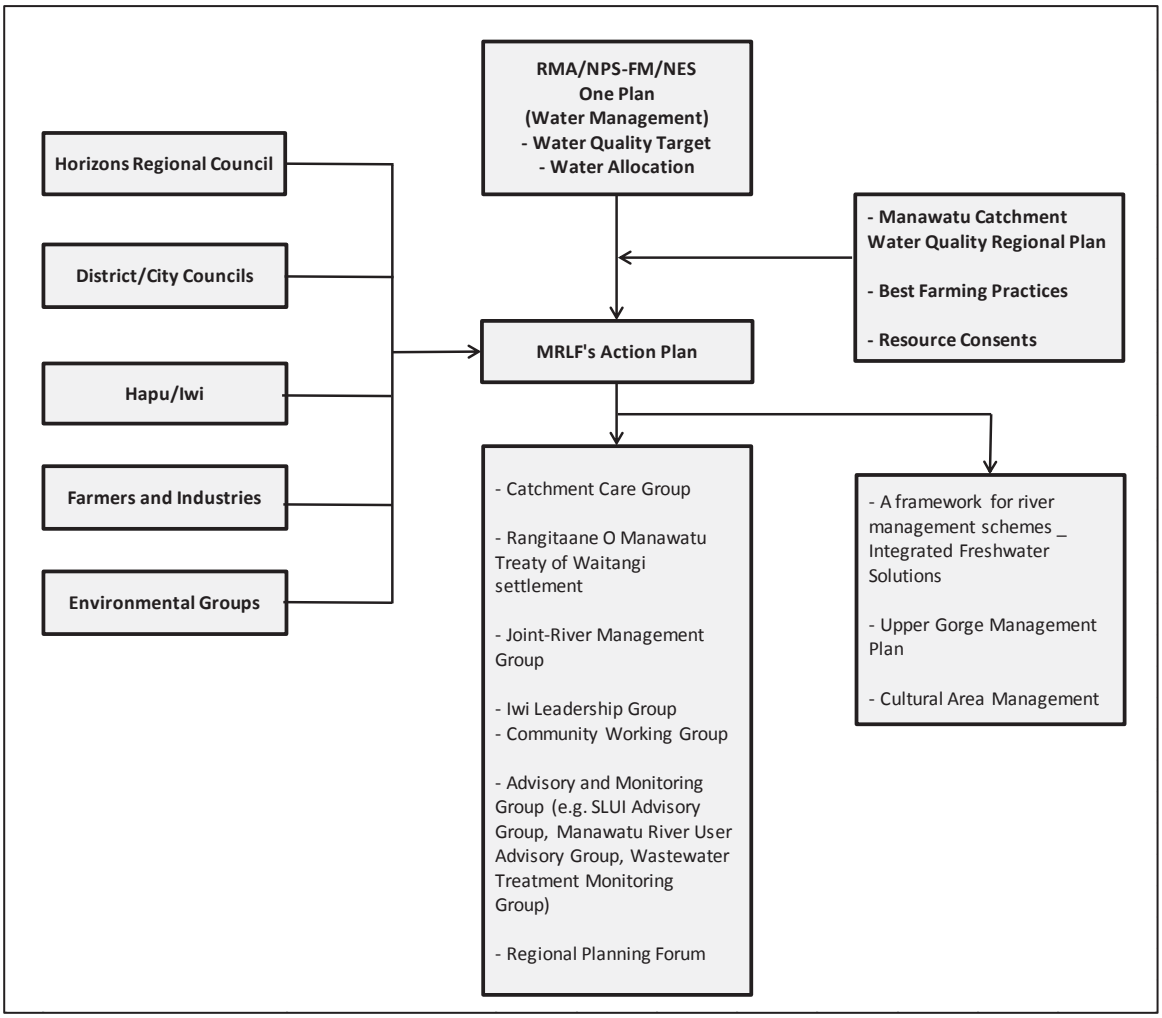

Figure 3-3: Institutional arrangements within the MRLF. Source:, based on MRLF (2011).

5. Summary

In New Zealand, collaborative water governance is comparable to integrated water resource management based on river catchments. This approach has relied on the RMA as a legislative framework together with the NPS-FM and National Environmental Standards as cooperative mandates to manage freshwater resources. Through this, the central government delegates management authorities of regional councils to develop their own regional policy statements and plans for managing freshwater resources within the catchments they serve. To encourage wider implications of this hierarchical institutional structure, wider collaborative governance with more engagement from non-state actors are necessary. The LAWF and MRLF are examples of collaborative

efforts on dealing with challenges of freshwater pollutions at the central and regional levels, respectively.

The MRLF aims to remedy the poor state of the Manawatū River to become acceptable by the public or communities in the 2020s (MRLF, 2011). Shared direction towards management scale, visions, issues and goals are made with commitments to improve the life-force of the Manawatū River as a mind-set of all Forum members. The collective Action Plan indicates that key priorities of actions cover all significant areas of water issues set out in the One Plan and other related institutions that all Forum stakeholders have been accountable for.

Chapter 4 : Research Methods

1. Introduction

Legitimacy is considered to be an acid test for the efficacy of collaborative environmental governance (Hogl, 2012). This chapter outlines research methods and design employed to assess legitimacy in collaborative water governance applied to a case study of the MRLF in managing the Manawatū River's water quality. It firstly determines the theory of research methods selected for this research and then illustrates a design for assessing MRLF's legitimacy by applying selected methods of data collection and analysis to support the assessment.

2. The selection of research methods

The legitimacy of collaborative water governance can be measured using a range of research methods. Case studies, document analysis and interviews are suggested as effective methods for undertaking qualitative research (Barbour, 2013). In contrast, experimentation is used as a key measurement in quantitative research (Hopkins, 2008). According to Yin (2013), each of these strategies can be characterized by the form of research questions, whether they require controls of actual behavioural events, or a focus on contemporary events (Table 4.1).

Table 4-1: Relevant characters for different research designs. Source: Yin (2013).

Research method	**Form of Research Question**	**Requires Control of Behavioural Events?**	**Focuses on Contemporary Events?**
Case study	How, why?	No	Yes
Document analysis	Who, what, where, how many, how much?	No	Yes/No
Interviews	Who, what, where, how many, how much?	No	Yes
Experiment	How, why?	Yes	Yes

Decisions for selecting detailed methods of data collection and analysis underpin philosophical assumptions that research aims to explore (Creswell, 2013). The philosophical assumption of research is that efficacy of collaborative environmental governance can be tested through the lens of legitimacy. In general, this research is very much relevant to social context aiming to explore and understand societal problems ascribed by individuals or groups of people. In social science research, qualitative methods, with a focus on contemporary events are appropriate, while the experimental method is not possible as it surpasses the ability of researchers on controlling behavioural events (McNeill, 2008). Despite limitations, each method has strengths to produce a range of descriptive data applicable to assess the legitimacy. In responding to research questions, three research methods: case study; document analysis; and interview, are chosen with a decision that the case study approach is suitable for the Manawatū River Leaders' Forum. Document analyses and interviews are also conducted in parallel to inform the case study.

2.1. Case study

Case study is defined as a 'systematic inquiry into an event or a set of related events which aims to describe and explain the phenomenon of interest' (Bromley, 1990, p. 302). Case studies, either multi or a single-case designs, enable researchers to compare results for understanding the theory (Barbour, 2013). Case study research is largely carried out by using qualitative methods such as documentation, interviews, archival records, direct observations, participant observation and physical artefacts (Yin, 2013). According to Zucker (2009), case study research aims to reflect significance of the phenomena of interest that can respond to research questions. A range of researchers have largely relied on Yin's (2013) case study design with a focus on the relationship between case study and the theory.

A critical point suggested in Yin's works is that case study method plays an important role in operating the theory; and simultaneously, the theory helps select and design case studies. However, Yin (2013) claims that choosing an appropriate case study faces significant challenges. As indicated above, the decision to use a single or multiple case study, and whether the choice corresponds to a phenomenon and its context that the

theory represents presents challenges. Therefore, this challenge is, to some extent, viewed as a rigid application where case study choice fails to ensure theoretical flexibility. From this Barbour (2013) suggests that researchers should think carefully if a case study design will help them to interrogate data and achieve an understanding in the context of their research projects.

The single case design is favoured for this study where only the Manawatū River Leaders' Forum (MRLF) is chosen as an illustrative example to learn the efficacy of collaborative water governance in New Zealand. A single-case study suggests significant clues directly to a cause-and-effect relationship between the exemplary case and the phenomenon of interest, despite its inability to conduct true experimentation (Yin, 2011). Specific case studies are selected by different rationales with a focus on reflecting strong and positive examples of the phenomenon of interest. The context of the MRLF is comparable to the theory studied with the following reasons. First, it embodies a broad participation of different stakeholders within the region including state, non-state actors and indigenous people. As reported, it is interesting that the group has made progressive results. However, if the results are effective, is far more interesting for the legitimacy concept of how participants morally accept and justify such effectiveness. Secondly, the conflict on water pollution of the Manawatu River reflects on a perceived failure of government regulations and the necessity of collaborative approaches to for resolution. Finally, managing the Manawatu River, particularly stated in the MRLF Action Plan, is also catchment-based with the emphasis on managing point source and non-point source discharges that is similar to other regions of New Zealand.

2.2. Data collection methods

This research relies on two methods of data collection, document analysis and interview. The combination of these methods, where findings of interview further correlates to the document analysis, is useful as it compensates possible shortcomings of the stand-alone method.

2.2.1. Document analysis

Document analysis is a process of systematic document review or evaluation in both printed and electronic (computer-based and Internet-transmitted) materials (Bowen, 2009). Similar to other qualitative research methods, the requirement of document analysis is to examine and interpret data in order to draw on meanings, enhance comprehension, and cultivate pragmatic information (Corbin & Strauss, 2014; Rapley, 2008). Documents include recorded text or words and images that are not yet interpreted by any researchers, and may exclude mute or trace evidence such as cultural objects. Therefore, according to Atkinson and Coffey (2004), documents would more refer to 'social facts' that can be created, shared and used in socially organised ways.

Previous studies can also be considered as an important source of data that encourages researchers to draw more on descriptions and interpretation of data, rather than relying on primary data as a fundamental aspect of the analysis. However, Labuschagne (2003) claims that document analysis is more about exploratory procedures aiming to select, make sense of and integrate data contained in documents in forms of excerpts, quotations or entire passages in order to organise main themes, groups, and case examples that can be done, particularly through content analysis.

Document analysis has both advantages and limitations. Many researchers see that it is basically less time-consuming and less costly than other methods. It requires data selection rather than data collection because the data contained in documents are already available and mostly referred to as secondary data (Bowen, 2009). Various sets of documents have been provided in the public domain, particularly since the arrival of the Internet and accessible without permission from the authors except one that is privately limited by private sector such as industriousness (Merriam, 1988). However, documents usually provide insufficient detail to support and answer research questions as they would be produced independent of a research agenda. Documents are sometimes not retrievable as access is sometimes purposefully blocked (Yin, 2013). The other limitation is about biased selectivity as a result of an incomplete collection of documents (Bowen, 2009).

Document analysis is an iterative process combining elements of content analysis and thematic analysis. Content analysis implies that documents consist of more than transcriptions and other forms of talk (Silverman, 2000). In this process, researchers should be capable of identifying relevant information and separate it from which is irrelevant (Corbin & Strauss, 2014). Thematic analysis is a form of data identification based on emerging themes that become the categories or groups for analysis (Feredey & Cochrane, 2006). It can be completed by a careful review of constructing codes and themes relevant to a phenomenon of interest or central questions of the study. Predefined codes may be applied particularly when document analysis is additional to other research methods employed in the study. Coding and theming are to combine data representing the way of interpreting the meaning of the data that corresponds to the research objectives. Codes and themes can be employed with documents of all types as Merriam (1988) indicated and these can assist researchers to discover meaning and insights relevant to the research problem. How to code and theme the data from documents for analysis can be explained more by the same way of interview transcripts described below.

2.2.2. Interviews

Interview is a standard form of qualitative research that enables participants to share their experiences, attitudes, and beliefs in their own words towards the phenomenon of interest. As mentioned in a large number of qualitative research theories, interviewing includes three aspects (structured, semi-structured and non-structured). The semi-structured style could be the most employed as it allows researchers to investigate answers thoroughly by using follow-up questions and gathering information by observation (Barbour, 2013). In addition, Barbour (2013) has also suggested that semi-structured questions are commonly developed for eliciting data on perspectives of salience to respondents, rather than on the direction dictated by the researcher.

According to Creswell (2013), important advantages and limitations of interviews can be identified. Interview is useful when participants cannot be directly observed and because they can provide the idea about historical or background information and enable researchers to control the line of questioning. However, interview provides indirect information derived from the views of the interviewees. It limits the information in a designed place rather than covering the natural field setting. It seems likely that the document analysis, the major shortcoming of interview, is that researchers may have biased selection of responses and not all respondents are equally articulate and perceptive.

Qualitative research literature suggests coding as a useful approach of interview analysis. According to Rossman and Rallis (2011), coding is the process of organising a materials into manageable segments of text before bringing meaning to information. It is most commonly utilised in relation to gathering text, during data collection, into categories, then labelling those categories with a term, usually based in the exact words of the participants. Coding the data is one process of data analysis in qualitative research that can be undertaken by hand or computer programs. Some researchers see hand code qualitative transcription useful although it is tiring and time-consuming, while others tend to use qualitative computer software as it easier, faster and more efficient (Creswell, 2013).

Generally, researchers should develop codes exclusively based on the emerging information collected from participants. Researcher can also use predetermined codes based on the theory being examined and then fit the data to them. Alternatively, they can use some combination of predetermined and emerging codes. In social science research, emerging codes are typically used as it respects ideas and perspectives of participants emerging during the data analysis. For the case of predetermined codes, the researcher needs to create a qualitative codebook, which is a table or records containing a list of preliminary codes composed with code terms in one column, a description of codes in another column, and then detailed instances in which codes were found in the transcripts.

2.2.3. Mixed methods

A combination of document analysis and interview helps compensate the limitations of applying a single method. As Mason (2006, p. 10) asserts, 'social experience and lived realities are multi-dimensional and … our understandings are impoverished and maybe inadequate if we view these phenomena only along a single continuum'. The qualitative researcher is expected to emphasise at least two sources of evidence in order to seek convergence and corroboration through the application of different methods and sources of data such as interviews, participant or non-participant observation, and physical artefacts (Yin, 2013). Previous work by Bowen (2009) articulates that examining information collected through different sources reduces potential impacts that may arise from a single source or a single investigator's bias.

Documentation and interviewing corroborate well with each other. In further support of this concept, public perceptions that are not published in documents can typically be obtained from interview, while documents provide facts that cannot be justified by perceptions. As mentioned above, an important aspect of the combination between documents and interviews would be associated with thematic analysis used in both methods. Consequently, both methods follow, a bottom-up direction (Figure 4.1), which is the same process of data analysis presented by Creswell (2013). In addition, such combinations show the relationships to support case study methods (Figure 4.2). Document analysis is especially applicable to qualitative case studies producing vast descriptions of a sole phenomenon, event, organisation or programme (Stake, 1995; Yin, 2013). Non-technical documents such as reports and internal correspondence are possible sources of empirical data for case studies (see for example (Mills, Bonner, & Francis, 2006). In addition, the ethnographic case study conducted by Angers and Machtmes (2005) emphasised the need for triangulating the study methods which include interviews to authenticate and substantiate data assimilated during the study.

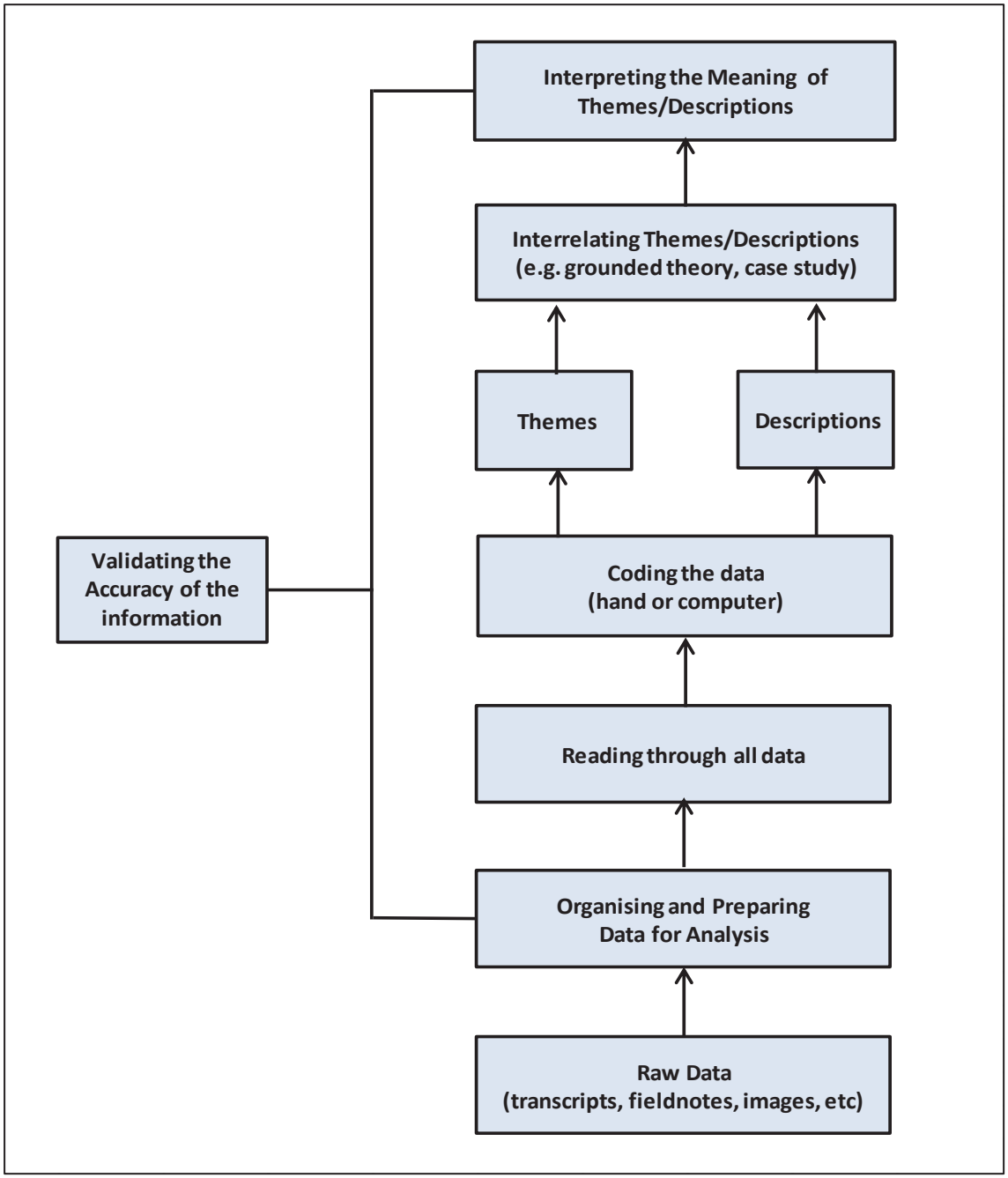

Figure 4-1: Data analysis in qualitative research. Source: Creswell (2013, p. 185).

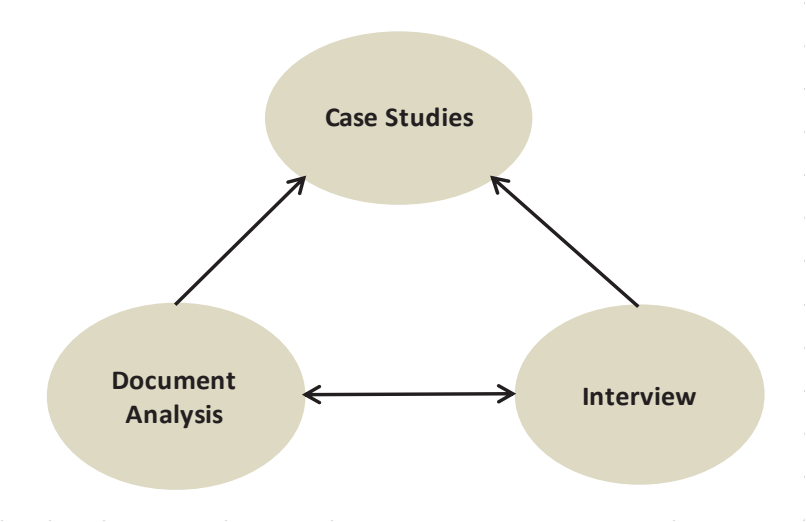

Figure 4-2: Relationship of mixed qualitative methods. Source: Author

3. Assessing legitimacy

The legitimacy indicators framework conceptualised in Chapter 2 were populated to assess legitimacy value among the MRLF's stakeholders by analysing published data and interviews. Published data on the Manawatū River's management explores institutional arrangements to form interview questions reflecting on perception and acceptance of legitimacy among the key MRLF's stakeholders towards collaboration of the Forum.

The decision made in designing this framework is based on the ability to show the relationship of input, output and throughput legitimacy with an aiming to obtain results according to the desired objectives of this research. The aforementioned theories make clear that those dimensions, indicators and criteria can be measured as they are transferable to the case study. However, some indicators might remain ambiguous as application of the broader theory. For example societal change and environmental quality improvement would surpass the capacity of the specific scope of this research. In spite of this, an indication of legitimacy should be identifiable by using this framework because criteria encapsulated from a range theory can be evident.

4. Data analysis

The two selected methods, document analysis and interviews sought to collect and analyse data in order to fulfil the desired objectives of this study. Published data was intended to analyse as an abstract evidence to back up results of legitimacy perception yielded interviews.

4.1. Document analysis

Freshwater management is one of New Zealand's major environmental management domains. The analysis of secondary data in this study is mostly website-based including those from both public and private domains. Areas and possible sources of analysis were mostly retrieved from online materials ranging from institutional arrangements depicting collaboration at central level, to a case study of the MRLF as a local collaborative effort (Table 4.2).

By comparing the assumptive model for assesing legitimacy of collaborative governance, New Zealand's institutional arrangements were analysed to identify the existing hierarchical structure of authority, regulation enforcement, and roles of non-governmental actors involved in this structure. The data was collated in general from the NPS-FM 2014 and National Objectives Framework (NOF). The LAWF have recently provided three reports that will be examined to understand how collaborative governance in New Zealand has been formed and implemented.

The management of the Manawatū River was generally examined in terms of local institutional arrangements formed to managing physical and natural resources within the MWR. The State and Trends of Water Quality in the Manawatū Catchment provides current water quality data together with other relevant empirical studies and technical reports. This can be used to provide comparisons between non-point source and point source discharges for analysing public discourse and conflict of this issue. The One Plan includes the management of the Manawatū River for regulating water quality and allocation and also aims to identify a possible conflict behind the long proposal and litigation by evaluating public hearings related to the plan. This will

ascertain public participation and deliberation in the decision-making process. In addition, observing resource consents under the requirements of the plan can inform how it has been implemented.

The MRLF Action Plan and Progress reports are key elements of document analysis for assessing its legitimacy. In general, the Action Plan can be analysed to show relationships between participatory quality and policy outputs as it was collaboratively built by a diverse group of leaders showing consensus of visions, goals and key actions. The progress reports could be examined as policy outcomes as it shows some achievements of programmes and projects under the MRLF.

Minutes of MRLF's meetings were also assessed to identify participatory qualities such as the number of participants. Moreover, they inform what were discussed on the table and how different ideas and arguments (if mentioned) were raised to the discussion. The Integrated Freshwater Solution (IFS) provided Mediated Modelling (MM) workshops that were analysed to identify the number of MRLF stakeholders participating in the workshops. This reflects an extent to which they see the Mediated Modelling useful for facilitating their collaborative process. As the MRLF was intervened by the Science and Matauranga Maori Advisory Panel, their joint statements are evaluated in terms of transparent information, foreseen results and recommendations to the process.

Table 4-2: Published data sources

Areas of analysis	Possible source
Institutional arrangements	• National Policy Statement for Freshwater Management (NPS-FM) 2014 • National Objectives Framework (NOF) • Land and Water Forum (LAWF)
Managing the Manawatuū River	• State and Trends of River Water Quality in the Manawatū River Catchment • Regional policy statement (The One Plan) • Public hearing process of the One Plan

	• Resource consents
The Manawatū River Leaders' Forum (MRLF)	• MRLF Action Plan • MRLF Progress reports • Meeting minutes • Integrated Freshwater Solution (IFS) • Science and Matauranga Maori Advisory Panel

4.2. Interviews

Interviews were sought to enhance comprehension on context and to validate published data analysis. This was achieved by conducting one-to-one interviews with MRLF's key stakeholders who are recognized as having experience in the processes of development and implementation of the MRLF. Their views could be anticipated to give information in order to draw an understanding of situations surrounding specific events or projects that have not previously been documented. In addition, while documents provide information on the tangible outcomes or progress of collaborative efforts, they do not provide perceptions or why respondents hold those perceptions.

The key MRLF's stakeholders selected to participate in the interviews are representatives from the Horizon Regional Council, district/city councils, Maori communities, farming communities, and industry and environmental interest groups. As the key informants have different experiences and expertise, a structured interview format was not considered to be suitable, so semi-structured questions were developed dependent on the legitimacy indicators framework (Appendix 3). The key participants were asked about their perceptions on their involvements and the outcome effectiveness of the MRLF. The interview anticipated perceptions on the effectiveness as perspectives of salience to respondents, and dictated legitimacy as the key direction for analysis. This reflects a link that shows how respondents perceive the effectiveness of influences and how they accept legitimacy.

Interview requests were emailed to 18 individuals, who acted as representatives in the MRLF from the abovementioned groups in early June 2015. Most of these representatives (13) confirmed to attend the interview, three did not respond, one was not available and one rejected to be interviewed. One-to-one interviews were conducted with respondents from 8th June to 1st July 2015. The 10 guided questions (each had a few following questions that varied based on different types of respondents) were asked accordingly to legitimacy indicators frameworks. After every interview was completed, it was immediately transcribed for analysing in detail by a coding process. Details of this are provided in the following sections.

This research uses a hand code transcription approach as the number of interviews is small and it was reasonable to complete the transcriptions manually. All of the code types as theoretically mentioned support the requirements of this study. Setting and context codes can be used with specific contexts of the case study. Perspectives held by subjects with perception that respondents explain further from answering a semi-structured questions, process codes, activity codes and strategy codes with collaborative processes and policy effectiveness. Although, in social science, emerging codes are typically used as it respects ideas and perspectives of participants emerging during the data analysis, analysing interview's transcripts in this research uses predetermined codes because it assigns legitimacy indicators framework as the theory being examined.

Analysing interview transcripts in this research can follow the process shown in Figure 4.1. Interview transcripts are raw data prepared and organised for the analysis. Predetermined codes are applied to the legitimacy criteria with their descriptions anticipated to emerge in the interview transcripts (Table 4.3). All transcripts were scanned and coded when corresponding to the pre-assigned descriptions of codes, and then grouped into themes described as legitimacy indicators interrelating to legitimacy dimensions. As the literature review suggests that legitimacy types (input, throughput and output) are linked together, coded data for assessing legitimacy is grouped into themes to show their relationship for drawing on the results based on the ground theory (Figure 4.3). The linkage means that codes or descriptions of codes can be

similar. Accordingly, there was some difficulty grouping them into accurate themes. However, the relationship of themes and codes, as shown in Figure 4.4, envisages how the results can be shaped. The themes and descriptions were finally interpreted as the interview results and discussed according to the grounded theory and the case study.

Table 4-3: Predetermined codes applied to the legitimacy indicators framework for analysing interview transcripts. Source: Author

Theme (T)		**Code (C)**		**Description**
T1	Participants	C1	• Incentives to participate	• Incentives for state stakeholders to participate • Incentives for non-state stakeholders to participate
T2	Appropriate representation	C2	• Volunteer	• Stakeholders volunteer to participate • Government solicit volunteer
T3	Policy outputs	C3	• Implementation of restoration projects	• Rights, responsibilities and roles of stakeholders in implementing restoration projects
T4	Policy outcomes	C4	• Institutional change	• New attitudes and behaviours of institutions
		C5	• Societal change	• Changed social perception on environmental quality
		C6	• Fair distribution of costs and benefits	• Weaker stakeholders obtain more voice as a result from fair distribution of costs and benefits
T5	Control and accountability	C7	• Facilitative leadership	• Ability of collaboration organisers to set and maintain clear ground rules, trust and mutual gains
		C8	• Interaction between representatives and constituencies	• Effective representation, public sanction, active communication
		C9	• Availability of information	• Science and knowledge transfer

		C10	• Public access and transparency	• Divergent opinions and minority votes are made public, • Scientific advisory committees promote public consultation
T6	Commitments and deliberative quality	C11	• Fair negotiation and mutual gains	• An effort of collaboratives or making fair negotiation to reach mutual gains
		C12	• Shared ownership	• Stakeholders with divergent opinions share responsibilities to enhance trust and interdependences

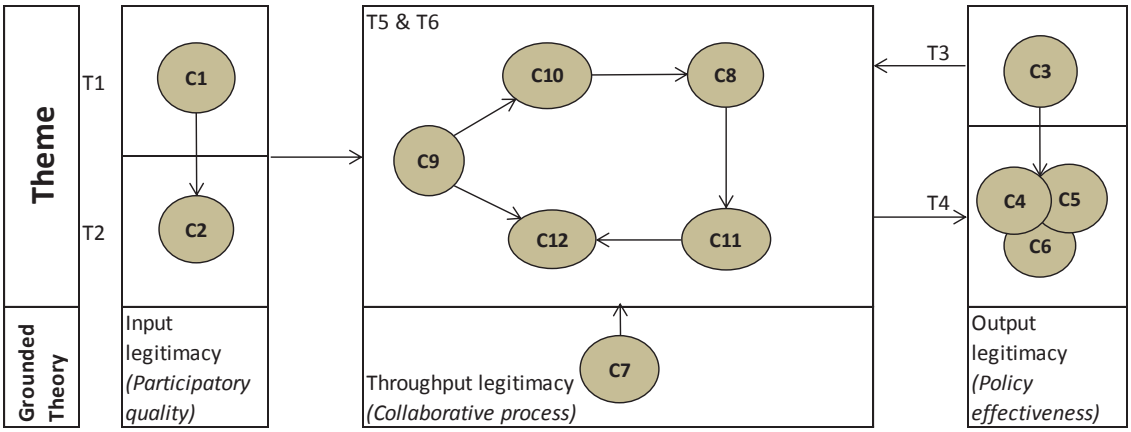

Figure 4-3: Grouping coded data from the interview transcripts. Source: Author

5. Summary

The MRLF has been useful for a case study of collaborative governance as it matches the context and phenomena of interest regarding collaborative governance as mentioned in a wide range of theory. Published documents about collaborative water governance in New Zealand are quite broad, and are difficult for analysis. This study emphasises some significant documents such as the RMA 1991 and NPS-FM 2014 that illustrate water management planning in New Zealand, especially with regards to institutional arrangements. The HRC are in charge of managing the Manawatū River,

having the One Plan as a key regulatory framework and a range of planning documents and technical reports that can be analysed, especially for water quality and catchment management.

The legitimacy is one concept of political science that is usually examined by using qualitative analysis of published data, and most commonly, by interviewing as it draws on people's perception. The legitimacy indicators framework is developed based on the theory of how to assess the three types of legitimacy, and then employed to the MRLF case. A range of documents were scrutinised with an expectation of finding every answer to every set of legitimacy criteria. In parallel with document analysis, interviews were conducted with 13 individuals represented by all types of the MRLF's participants. It was anticipated that it would cover all answers of legitimacy criteria that can possibly be derived from people's perception. Table 4.4 below demonstrates a summarised source of data in which every legitimacy criteria can be found and analysed as the results discussed in the next chapters.

Table 4.4: Summary of expected data sources. Source: Author

Dimension	**Indicator**	**Criteria**	**Source of data**	
			Published documents	Interview
Input legitimacy *(Participatory quality)*	Participants	• The number of participants	X	
		• Incentives to participate	X	X
	Appropriate representation	• Election in a fair system of representation	X	
		• Volunteer	X	X
Output legitimacy *(Policy effectiveness)*	Policy outputs	• Formulated plans with new strategies and actions	X	
		• Implementation of restoration projects	X	X
	Policy outcomes	*Changes*		
		• Institutional change	X	X

		• Societal change • Improved environmental quality	X X	X
		Intermediate outcomes • Achievement of restoration projects • Fair distribution of costs and benefits	X X	X
Throughput legitimacy *(Collaborative process)*	Control and accountability	• Facilitative leadership • Interaction between representatives and constituencies • Availability of information, public access and transparency	X X X	X X X
	Commitments and deliberative quality	• Fair negotiation • Mutual gains • Shared ownership	X X X	X X X

Chapter 5 : Evidence of managing the Manawatū River

1. Introduction

This chapter reports findings of the document analysis. It firstly presents participation to the One Plan process and then emphasises the evidence of participatory quality, policy effectiveness and collaborative processes of the MRLF. Participatory quality focuses on the numbers of participants and types of representation; policy effectiveness focuses on policy outputs and outcomes; and collaborative process focuses on a degree of facilitative control.

2. Participation in the One Plan process

The One Plan provides a regulatory framework for controlling water quality and setting limits for water allocation according to the requirements in the NPS-FM and the RMA (Council, 2014). The decision-making of the One Plan started in 2003 when the Horizons Regional Council (HRC) prepared and proposed it for public hearings and litigation in the Environment Court. The HRC received some 226 water-related submissions to the proposed One Plan from organisations (61%) and individuals (39%). There are a total of 144 hearings classified by type in which the majority (81) is relevant to water quality, which far outweighs the other hearing types (Figure 5.1). After taking a long time in the Environment Court, the One Plan finally became operative in December 2014 as an integrated policy instrument with objectives and limits for managing physical and natural resources within the MWR.

The HRC and district and city councils (DCC) have implemented the One Plan through a large number of resource consents. Table 5.2 shows significant consents that have critical impacts on water quality including wastewater treatment plants of DCC. There are currently ten notified applications and six consents with public hearings. It may be interesting to examine these consents as both are currently notified and have public hearings. This is especially relevant to the Shannon Wastewater Treatment Plant, which has proceeded to a court hearing.

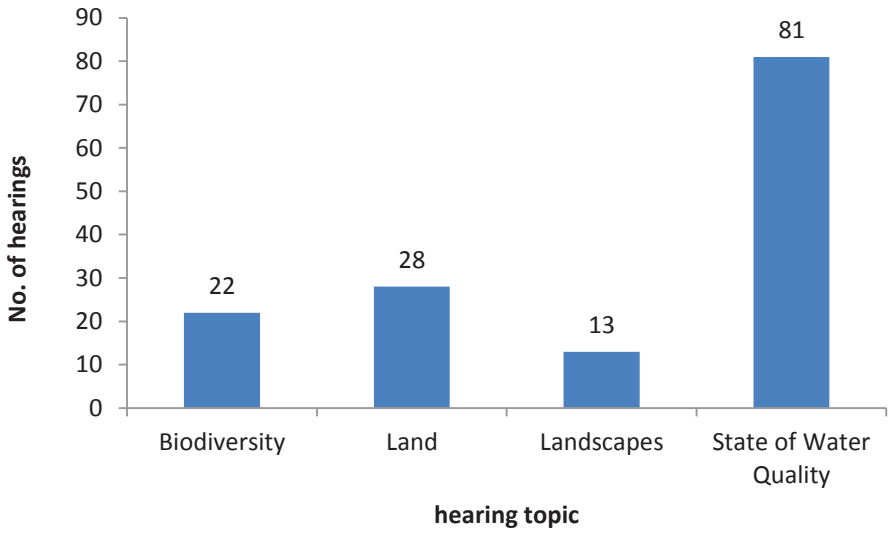

Figure 5-1: Number of hearings to the proposed One Plan by topics that have evidences for the Environment Court. Source: Evidence for Environment Court (n.d.)

Table 5-1: Consents that are currently notified and have public hearings**.** Source: *Consent Hearings* (n.d.) and *Current notified applications.* (n.d.)

Consent	Current notified application	Public hearings
Tararua District Council- Woodwille Wastewater Treatment Plant	✓	
Palmerston North City Council- Palmerston North Wastewater Treatment Plan	✓	✓
Shanon Wastewater Treatment Plant	✓	✓
Manawatu District Council- Fielding Wastewater Treatment Plant	✓	✓
Midwest Disposal Ltd- Bony Glen Landfill	✓	✓
Horowhenua District Council- Levin Water Supply	✓	✓
Horowhenua District Council-Hokio Stream	✓	
AFFCO NZ Ltd-Fielding	✓	
HRC- Lake Horowhenua Restoration	✓	
Wanganui District Council- Wanganui Wastewater Treatment Plant	✓	
NZ energy		✓

3. Participatory quality

Participatory quality was indicated by two criteria, participants and representation. Through analysing documents, particularly the MRLF Action Plan and meeting minutes, it is possible to identify the number of participants reflecting on how particular stakeholders are actively involved in the Forum, and whether power can be balanced or how their representativeness is appropriate.

3.1. Participants

Thirty organisations and groups participated in the MRLF. Table 5.2 below shows the number of participating organisations per signatories in the Manawatū River Leaders' Accord in 2010 and who consequently agreed on the MRLF Action Plan in 2011. The majority of stakeholders are iwi/hapu and environmental groups (7 each). The iwi/hapu includes representatives from Maori tribes and Maori district councils. Although the number of signatories is the same as the organisations, three organisations only have one person to sign on their behalf, while two organisations each have two representatives and the other two have one signatory each. Environmental groups include environmental NGOs and incorporated societies that have three Maori-related groups. The environmental groups have the most signatories in which most of single organisations have two representatives. There are six organisations representing local authorities including HRC, three district councils, one city council and the Department of Conservation (DoC). Although the DoC is counted as a local authority, it is a government agency in which most staff are environmentally inclined. Businesses have four organisations participating; however, there were only two signatories from only two organisations. Research institutes show the least number after farming and industry. The only research institute identified is Massey University, which had two signatories. Farming includes two - Federated Farmers and Landcorp Farming Ltd, and industry includes Fonterra and NZ Pharmaceuticals Ltd.

Table 5-2: Number of organisations involved per signatories in the MRLF. Source: MRLF, 2011

Organisation type	No. of organisations (No. of signatories)
Iwi/hapu	7(7)
Environmental groups	7(11)
Local authorities	6(6)
Farming	3(3)
Industry	2(2)
Business	4(2)
Research institute	1(2)
Total	**30(33)**

There were some 14 meetings since the Forum was established in 2011. Table 5.3 below shows the number of participants who attended the meetings from 2010 to 2015. The number of participants shown does not mean that every single participating organisation was present at a meeting. Most times, one organisation had more than one attendant while representatives for some organisations were absent from meetings. The HRC was never absent from any meetings, and their number of participants also increased, especially from 2011 to 2015. The number of participants from district and city councils was consistent but there were some councils such as Palmerston North City Council (PNCC) that were absent from three meetings held in 2012. Horowhenua and Manawatū district councils attended all meetings and most of the time had more than one attendant. In most meetings, participants from iwi/hapu and environmental groups had the most attendees. It is interesting to note the decrease for the environmental groups in 2014, particularly on November when there was only one attendant. The Water and Environmental Care Association Inc (WECA) that had never previously missed any meetings was absent from this meeting. Participants from research institutes (RI), farming, industry, business and Department of Conservation also seemed to be consistent compared to their number of organisations, although they missed one or two meetings. Importantly, representatives from the Ministry for the Environment (MfE) attended the meetings between 2012 and 2014.

Table 5-3: Number of participants in the MRLF's meetings from 2010 to 2015

Meeting date	local authorities HRC	local authorities DCC	Iwi	EnvG	RI*	Farming	Industry	Business	Central government DoC	Central government MfE
29-Mar-10	2	4	7	5	1	3	3	1	1	
12-Jun-10	2	3	6	9	3	3	0	1	2	
9-Aug-10	2	4	11	11	0	3	1	1	2	
15-Apr-11	3	4	6	9	2	4	2	0	2	
12-Sep-11	5	5	4	11	3	4	1	3	1	
16-Dec-11	6	3	7	12	4	4	0	1	1	
28-Mar-12	8	2	9	12	2	5	0	1	2	2
3-Aug-12	7	3	10	9	2	4	1	1	1	2
7-Dec-12	7	4	7	9	2	3	2	1	0	2
19-Jun-13	8	4	8	8	2	4	1	3	1	2
14-Nov-13	8	9	17	4	1	3	1	1	1	2
11-Apr-14	10	3	18	7	1	2	1	2	3	3
13-Nov-14	12	5	6	1	1	3	1	1	2	2
12-Jun-15	11	4	8	7	2	3	2	1	2	
Total:	91	57	124	114	26	48	16	18	21	15

*Research institute, e.g. Massey University

3.2. Representation

The MRLF stakeholders include state and non-state actors who have different backgrounds of representation. In Table 5.4 below the representation type of each stakeholder is shown. As signed in the Accord, HRC is represented by a chairman elected by councillors. Four mayors are represented in three district councils and one city council. DoC is a government agency that would be considered as similar to HRC and DCC. Therefore, its representative could be elected. Representatives of farming organisations are elected by farming communities in their respective regions. Most iwi representatives would voluntarily come to the Forum and as most environmental groups are NGOs and Incorporated Societies, from political entities, representatives of these groups completely volunteered to participate in the Forum.

Table 5-4: Representation type of each stakeholder

	Stakeholders and no. of representatives					
Representation	HRC	DCC	DoC	Farming	Iwi	EnvG
Type	1	4	1	3	7	11
(Govt) Elected representatives	✓	✓	✓	✓		
Volunteer					✓	✓

4. Policy effectiveness

Policy effectiveness was indicated by two criteria, policy outputs and outcomes. In terms of policy outputs, the MRLF Action Plan was assessed as a formulated plan with new strategies and actions and for the implementation and progress of clean-up (or restoration) projects. Consequently, the effectiveness of policy outcomes in this context can be used for demonstrating the achievement of restoration projects and determining cost distribution.

4.1. Policy outputs

The MRLF Action Plan is a defining document with a clear focus of six key action points for every stakeholder to implement. In supporting the implementation of these action points, 131 tasks are identified (MRLF, 2011). The latest progress report (MRLF, 2014) reveals a range of tasks that are being implemented by all types of MRLF stakeholders. Table 5.5 depicts the proportion of tasks implemented by each organization type. As counted from MRLF (2014), it can be seen that HRC is the most active and have implemented 30.5 % of all tasks. Iwi have acted on around 14.5 % of all tasks, followed by environmental groups, farming and district and city councils accounting for 11%, 10.5% and 10% respectively. The Department of Conservation and industry cover 7% and 6% respectively, while others have rarely implemented identified tasks.

Table 5-5: Percentage of tasks acted by each organization type

Actors	HRC	DCC	DoC	Iwi	EnvG	RI	Farming	Industry	Business	Advisory group	All members	Landowners /users
% of tasks	30.5	10	7	14.5	11	2	10.5	6	2	1	3.5	2

4.2. Policy outcomes

Policy outcomes are assessed by intermediate outcomes demonstrated by the achievement of restoration programmes and cost distribution.

4.2.1. Achievement of restoration projects

In line with analysing tasks performed by different stakeholders, the progress of tasks that have intermediate outcomes were also proportionate (Table 5.6). The status of progress mentioned in the MRLF progress report (MRLF, 2014) includes tasks with 'over 50% complete' and 'lower 50% complete' (actions on-going), '100% complete', 'not started' and not 'active'. The analysis shows that where tasks are 100% completely achieved, they cover most (39%) tasks, while tasks that are above half complete are 23% of all tasks. From this it can be said that the MRLF's prioritised tasks of improving the state of the Manawatū River are implemented by different stakeholders are have achieved a total of 23-39% of all tasks. The tasks with lower 50% of achievement account for 29% and those that are not yet started, and not active, are only 8% and 1% respectively.

Table 5-6: Percentage of tasks by progress

Progress	<50% complete	>50% complete	100% complete	Not started	Not active
% of tasks	29	23	39	8	1

4.2.2. Cost distribution

In March 2012, the MRLF was successful in its bid to the Central Government's Fresh Start for Fresh Water Clean-Up Fund and received $NZD 5.2 million of funding to assist in improving the river over a two-year period.

This funding has been spread across a suite of eight projects selected for their capacity to make the biggest difference towards meeting Accord goals and ability to meet funding criteria. Many were chosen as they target tipping points in catchments where water quality standards are met upstream but not downstream of an activity' (MRLF, 2014, p. 12).

Table 5.7 identifies clean-up fund projects and cost allocation. The total cost for the suite of eight projects is around $NZD 30 million. The focus of the clean-up fund projects is on upgrading wastewater treatment plants in three district councils where the majority of the funding was allocated (93%). The other five projects only received one or two per cent of the funding.

Table 5-7: Cost allocation for clean-up fund projects

	Clean-up fund projects	Cost	% of allocation
1	Tararua district council	$6,450,000	20
2	Manawatu district council	$11,350,000	38
3	Horowhenua district council	$10,594,000	35
4	Stream fencing	$600,000	2
5	Native fish habitat restoration	$160,000	1
6	Whitebait habitat restoration	$160,000	1
7	Environmental farm plans	$630,000	2
8	Community involvement	$210,000	1
	Total:	$30,154,000	100

5. Collaborative process

The degree of control is associated with the role of HRC acting as the encourager to make collaborative processes move forwards. Also, having a facilitative model to help strengthen collaborative processes indicates an ability of control over different stakeholders with divergent opinions in order to draw mutual understandings. The facilitation of the MRLF relates to the application of Mediated Modelling to control the collaborative process.

5.1. Facilitation

The Mediated Modelling was applied as a part of IFS to facilitate dialogue between different stakeholders. In order to make the stakeholders familiar with the modelling and learn how to gain mutual understandings through dialogues, a range of workshops were held from 2010 to 2013. Details in Table 5.8 show the number of participants in these workshops. The environmental groups were the most active attendants as they had the highest number of attendants in most meetings. Iwi, HRC and DCC also never missed any workshop, while DoC, farming, industry and business missed one or two.

Table 5-8: Number of participants in Mediated Modelling workshops

No.	Date	HRC	DCC	DoC	Iwi	EnvG	RI	Farming	Industry	Business
Workshop 1:	20 -21-Oct-2010	2	3	0	4	4	0	3	0	1
Workshop 2:	25-Nov-10	3	2	1	2	4	0	1	2	1
Workshop 3:	13-Dec-10	3	3	1	3	6	0	0	1	0
Workshop 4:	27-Jan-11	4	2	1	3	4	0	1	1	2
Workshop 5:	24-Feb-11	4	1	0	3	4	0	1	1	2
Workshop 6:	24-Mar-11	3	3	0	4	5	0	1	1	1
Workshop 7:	Apr-11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Workshop 8:	2-Nov-11	3	1	1	4	6	1	1	1	2
Workshop 9:	6-Jun-13	2	3	1	4	5	0	1	2	0

5.2. Availability of information

The HRC commissioned an independent report on the state and trends of water quality in the Manawatū catchment. This basically supports the science used and notified by all stakeholders to determine whether the state of water quality was improving or degrading. To support this technical report, the HRC monitoring network collects monthly samples at 76 sites to provide valuable information on water quality and the pressures it is under (MRLF, 2014b). Information sharing on best farm practices including nutrient management, stock exclusion and riparian planting is one of collaboration tasks implemented by all Forum members. Education and community awareness have a number of tasks mostly carried out by HRC and Department of Conservation through consultation meetings with communities to update the Action Plan's progress and allow them to provide feedback and comments on progress. This

can also be through media releases, advertising features, the Manawatū River website, social media and events. More importantly, information on the results of resource consent compliance are made available to the public (MRLF, 2014).

5.3. Transparency

A Science and Matauranga Maori Advisory Panel was convened in the MRLF in March 2015 to discuss the current state of the River, key issues and possible solutions. The discussion aims to help inform development of a revised Action Plan that can document the outcomes to be considered by the leaders and commit to future actions (Clark et al., 2015). The panel includes 17 members from 10 organisations in which HRC is the majority, followed by Massey University, and Fish and Game, while the rest have one representative each (Table 5.9)

Table 5-9: Science and Matauranga Maori Advisory Panel members

Organisation	No. of members
NIWA	1
Massey University	3
Landcare Research	1
Tanenuiarangi Manawatu Incorporate (TMI)	1
Land Water People	1
Dairy NZ	1
Cawthron Institute	1
DoC	1
Fish and Game	2
HRC	5
Total:	17

6. Summary

Published documents, particularly the MRLF Action Plan and Progress reports, correspond to legitimacy criteria 76opulated in the MRLF's context. The findings indicate a degree of legitimacy. Participatory quality was indicated by numbers of participants and types of representation; policy effectiveness was indicated by policy outputs and outcomes; and collaborative process was indicated by numbers of

participants in Mediated Modelling workshops for learning how to move collaboration forwards. Although the analysis was expected to cover all findings reflecting a degree of legitimacy, some criteria such as incentive for participations, institutional change, societal change and interaction between representatives and constituencies could not be found.

Chapter 6 : Stakeholders' perception of managing the Manawatū River

1. Introduction

To corroborate findings yielded from published data analysis in Chapter 5, this chapter reports interview results examining the MRLF's stakeholders' perceptions of the Forum's legitimacy. The perceived conflicts on managing the Manawatū River are firstly presented as a precondition of establishing the MRLF. The results are structured in three legitimacy dimensions: participatory quality; policy effectiveness; and collaborative process whether, or to what extent, the results show that the MRLF is regarded as legitimate.

2. Interview response

Interviews were conducted with MRLF stakeholders who provide responses to questions with different perspectives. Over half of the MRLF's signatories (18 out of 33), representing all types of organisation were requested to be interviewed. Two-thirds of those requested (12 people) agreed to be interviewed (Table 6.1) (See Appendix 3 for list of interviewees). These respondents represent iwi and hapu, environmental groups, local authorities, farming and research institutes. Local authorities and farming are the most active participants in the interview as all requested representatives confirmed their participation. Most interviewees belonged to local authorities including HRC, Horowhenua district council and PNCC. No industry and business representative agreed to be interviewed.

Table 6-1: Number of interview response.

Organisation type	Request	Interview
Iwi/hapu	2	1
Environmental groups	3	2
Local authorities	4	4
Farming	2	2
Research institute	3	2
Industry	1	0
Business	2	0
Independent chairman	1	1
Total	**18**	**12**

3. Perceived conflicts

When asked about conflicts prior to establishing the MRLF (Q.10), some stakeholders talked about the conflicts in the past, while others also mentioned current conflicts. The empirical evidence (Appendix 1) regarding causes of water pollution creates a significant debate between environmental advocates and councils. The ecologist, for example, was concerned that local authorities needed to pay high attention to controlling diffuse from farms to halt the pollution, rather than upgrading wastewater treatment plants that bring about less effect:

> The wastewater treatment plants is not the priority because the minor proportion of nutrient comes from those plants, so the must is stopping the intensity, getting the stocking rate down significantly, and getting trees on the land to stop erosion.

The environmental group criticised the performance of district and city councils in managing their wastewater treatments plants including Fielding, Marton, PNCC and Shannon wastewater treatment plants. The main criticism was that these councils cannot, and will not, commit to a discharge standard.

Interviewees were also asked whether the central government should subsidise upgrading the wastewater treatment plants (Q13). The environmental scientist said subsidies did not address the real problem, which is agriculture intensification:

> The government understand the problem but want to double the agriculture production. What would affect the problem is to halt the agriculture production, so that it is the dilemma. Politically, it is much easier to get the money to the wastewater treatment plant and it is cheaper and stopping farming is more expensive.

Although it is appropriate for upgrading municipal wastewater treatment plants, the environment group criticized district and city mayors regarding their resource consents of wastewater discharges. For example, the Shannon wastewater decision, which has been appealed twice to the Environment Court by the Water and Environment Care Association Inc (WECA), has resulted in the establishment of some new case laws.

Other environmental advocates such as Forest and Bird, however, seem to understand that it is much easier for the councils to manage the wastewater treatment plants because they have suitable infrastructure to provide to their communities. Agriculture is a source of income where individual famers to make their living, so the central government has an initiative to intensify agriculture. They claim:

> It is much easier for Horizons and district councils to emphasise the wastewater treatment plants and say good things they are doing with that, rather than trying to change the whole industry where people can make a lot of money from and has been historically a strong industry in New Zealand.

The former chairman of HRC understood that there is more diffuse pollution as a result of increased cow and sheep stocking densities. However, he considers scientist wants a pure ecology or water:

> I believe it [water quality] is going to improve, but you will never get it clean… If you want to get it clean, you get rid of animals and all the people. The major earner in New Zealand is agriculture if we cut agriculture production, then economy would be cut more than half.

The mayor of Horowhenua District Council disagreed that the government wants to double agriculture:

> The government might want to see the agriculture activities advanced, but all of agriculture activities have to be obliged by the One Plan, which is the defining document that controls all influences.

Additionally, the chief executive of HRC disagreed when being asked whether farmers should be the biggest investors in order to improve the water quality, since they are the biggest polluters (Q.14):

> Dairy farmers have almost zero impact on the river. In summer time when it is hot and dry, there is nothing coming from the land, but there are still pipes coming from the districts/city and factories.

In responding to the same question, a representative from Tararua Federated Farmers also argued that the effect from urban areas needs to be determined as well and the problem is not only about the farmers' effect on the river because it is about the whole community effect on the river.

4. Participatory quality

Participatory quality was indicated by numbers of participants and appropriate representation. Interview results inform the incentives and rationalities of particular type of stakeholders for participating in the MRLF.

4.1. Participants

The number of participants of the diverse group of stakeholders attending meetings is shown in Table 5.4. However, two interviewees indicated that it is more intriguing to note that there were two significant meetings not recorded and so are not included in Table 5.4. The first meeting included everyone except iwi where it was agreed noting would be reported publicly. The meeting included councils, farmers and businesses and they agreed on the problems and decided to have consensus to solve the problem. This sounded positive but a representative from an environmental NGO said they could

not make a decision because they have to report to their constituencies. Although representatives were supposed to take leadership at the very beginning, actually they did not. They did also not consider that they had sufficient delegated authority to commit on their organisation's behalf at meetings. The second meeting included iwi, but there was confusion in what should be the responsibility of iwi groups because there were multiple boundaries of the roles. Given that, politicians were attempting manipulation in leading iwi just for a belief that they could make things sound like they are happening.

Reasons why a particular stakeholder decided to participate in the MRLF are identified. The stakeholders were asked why they decided to become involved in the Forum. Representatives from district and city councils said it was very necessary for them to get involved because their wastewater treatment plants have caused water pollution that people easily recognise. For example, the former mayor of PNCC mentioned:

> It is important for the city council to be involved because people often had the perception and rely on more blame that the state of the Manawatū River was proportionately a result of the Palmerston North's wastewater discharge. It is a big point discharge which is easy for people to identify.

The mayor of Horowhenua District Council also said:

> The wastewater system was and is still disposing the treated effluent to the river and the river is the soul of our community and we are contributing to its downfall. So it would not be realistic if we could not show our interest in improving the water quality of the river for future generation.

Most of respondents considered the involvement of iwi/hapu was very necessary. From a cultural and indigenous perspective the Manawatū River is significant to Maori in terms of natural connections. A representative from a Maori group said:

> Iwi Maori regard all waterways, lakes and rivers as "taonga" to us and through "kaitiakitanga" that is responsibility to take care of or provide guardianship to these taonga.

According to the chief executive of HRC, iwi leaders need to come together to collate their cultural stories for the river, so that interpretive signs could be put along the river bank explaining the history of the river to assist the wider public understand iwi values. Excluding iwi out of the table, these things would fail.

Some environmental groups came with an open-mind to represent their community, but some came with very fixed opinions to criticise and challenge others. Forest and Bird, for example, need to participate in the Forum because they have a responsibility to represent their members and concerned parties who expect them to present their concerns and financial interests. As a volunteer organisation, no one is getting paid and it is difficult for people to have their opinions and concerns voiced on an individual level. The environmental group such as WECA would come with a fixed ideological viewpoint to criticise the performance of district and city councils on management of the wastewater treatment plant.

4.2. Representation

When considering the representation around the table (e.g. Fish and Game and DoC are government agencies) they are reluctant to be publicly criticized because they will lose funding. It is not like other environmental groups such as WECA and Forest and Bird that are volunteers and self-funding. In terms of mind-set representation, Federated Farmers and most chairmen and executives (politicians) across this region are farmers or come from farming backgrounds. Therefore, HRC and district councils see dairy farms as the only source of where the money comes from. Another important point raised by WECA is that voters whether for local, regional or national government mostly vote for their pockets. They said:

> People vote for mayors that offer to keep rates down to a minimum. You never get a mayor who really cares about the environment.

For farming groups such as Federated Farmers and Fonterra, it is quite difficult and challenging because they are only two groups representing productive or land-based sectors that have a lot of people behind them. The former president of Federated Farmers Manawatū/Rangitikei said:

> There is a lot of work for me participating in the forum. I would not say frustrated, but it was about making a lot of people get better understand of what has been done like Horizons did this, Sustainable Land-use Initiative did this and explained to the others.

Some environmental groups such as Forest and Bird see their inputs as being basically another voice and another opinion that is needed to be heard promoting environmental interests. The environmental advocate from Forest and Bird said:

> Forest and Bird has reasonable reputation in New Zealand; all of its branches are effectively voluntary, so their speaking brings some level of significance of issues that they are raising. Forest and Bird is an organisation that is respected by decision makers in Horizons.

There are serious issues in terms of representation. For example, when a new policy or plan is introduced to the public for consultation and submission, it represent people and interest of the region. However, public engagement is needed for their voice in an easy way, but it is generally a difficult process to engage the public in local politics.

5. Policy effectiveness

Policy effectiveness was indicated by policy outputs and outcomes. In terms of policy outputs, interview results corroborate the assessment of MRLF Action Plan as a formulated plan with new strategies and actions and for the implementation of clean-up projects (Chapter 5). Policy outcomes include institutional change, societal change, achievement of restoration projects and cost distribution that are all presented by interview results.

5.1. Policy outputs

Interviewees were asked how they feel about the current progress of the programmes or projects in improving water quality (Q.6). Those representing DCC think there has been good progress, but huge impacts on the river are still not seen because this will take a long time. A representative of Federated Farmers Tararua also mentioned that it

keeps a focus on what should be carried out, identifies the allocation of the role and responsibility and helps recognize what other people are doing.

According to the MRLF's independent chairman, the first round of the Action Plan produced most of the actions from the role of farming sector in the formal initiative. In particular, these would be done by industry bodies such as Dairy NZ. Additionally, there are a lot of actions required for compliance with regulations and meeting targets set in One Plan. Farmers were taking up offers such as the regional council fencing programme where they share the cost of fencing and also the Sustainable Land Use Initiative where they undertake planting. Therefore, it seems to be the farming actions but it tends to be more taking up opportunities of others to try and initiate, rather than a lot of farmers lead the action.

However, the environmental scientist considered few of the key MRLF Action Plan's priorities would have any substantial effect because the major cause of the problem is diffuse nutrient pollution, especially nitrogen coming from high stocking rate and external fertilizers: He raised an example:

> Planting up the river does not help anything, so nothing in the plan can help to resolve this, apart from the One Plan which cover this if it is really implemented. The planting up the river sounds popular and people like them, but at least they will not achieve any outcome.

The chief executive of HRC asserted that the key priorities set in the Action Plan cover all the actions of the district councils on upgrading their wastewater treatment plants. These are also incorporated with the long-term community or annual plan. The district councils are required to synthesize every year regarding allocation of expenditure (often a million or ten million). This financial commitment is to provide districts' communities with improvement of wastewater facilities. Farmers have an industry code of practice that they are using and organizations such as Fonterra require the fencing of waterways and nutrient budgets. The environmental groups are actively involved in coordinating volunteers or members of the public, for example, the catchment care group to meet voluntarily for plantings along the river.

5.2. Policy outcomes

Policy outcomes are assessed by changes and intermediate outcomes. Changes include institutional, societal, and improved environmental quality. Intermediate outcomes include the achievement of restoration programmes and fair distribution of costs and benefits.

5.2.1. Institutional change

Stakeholders were asked how they have changed their working behaviours since participating in the MRLF (Q.2). It was found that farmers spent a lot of time working to improve their environmental performance. As noted by the former president of Federated Farmers Manawatū/Rangitikei, all dairy farmers now recycle dairy waste (i.e. cow dung) back to land. That was an improvement since the last 15 years ago when it was uncommon to do that. He pointed out:

> The whole attitude has been changed since 20 years ago… If you have done the dairy farming and not treated the effluent properly and discharge it into the stream, you got caught by the Horizons … so, this was a bad farming back in 20 years ago and considered such an environmental issue… but now people or farmers do care much more about the environment.

More specifically to a particular council such as PNCC, its former mayor, however, told that their behaviours have not changed dramatically despite a high level of engagement. He claimed:

> In terms of what the council itself was doing probably did not change dramatically because we were already doing probably the best that we could with the part that we were responsible for.

5.2.2. Societal change

The former mayor of PNCC addressed the Forum and indicated that communication between all the different organisations has improved. This was viewed as a positive effect and all parties realised they needed to work together, rather than maintaining a

blaming culture where councils tend to blame farmers, and the farmers blame the councils. According to the mayor of Horowhenua District Council, coming to meetings was a good example of working relation and he said:

> When I originally signed up the Accord, it would be desperate, so it was not a great patience or appreciation to each other's interests. Having now we spend four years working together on developing the improvement that we all want to, we now better understand each other and therefore a far more harmonious on our overall objectives.

Farmers see that they have improved working relationships with others and their activities as a result of getting involved in the Forum. The representative of Federated Farmers Tararua claimed that they became a lot more aware of the other side of the competition, a lot more open and more understanding of other people. They were able to listen to other people's points of view and reasons, and also others listen to them.

Iwi and hapu have become more actively engaged and involved in dialogue around what needs to be done, and have also became parts of a number of projects to take care of the health of the river. However, an iwi leader mentioned that initially there was tension between Iwi Maori and other parties within the Accord. They tried to get themselves to the position that each participant has a greater understanding of Te Ao Maori (the Maori world view). Whilst some people and some groups struggled with this concept, through the presence and active involvement of iwi and hapu with the Accord, they have worked very hard on forming relationships with other stakeholders.

5.2.3. Cost distribution

According to the mayor of Horowhenua, local authorities like councils invest millions of dollars in upgrading the infrastructure to improve the river. HRC has used revenue to support improvement of the river, and the central government agencies subsided millions of dollars as leverage on investments.

It would be interesting when considering whether the financial resource is distributed and allocated fairly. The Ministry for the Environment has some criteria for Fresh Start

for Fresh Water funding. These criteria were around actions that would have the most immediate impacts on the river, so that excluded items like education or monitoring. Therefore, the funding went to the activities that have direct impacts on the river, which is upgrading the point-source dischargers (e.g. in Dannevirke, Woodville, Pahiatua and Fielding). By making a difference in these areas, there is an effective way of measuring and showing immediately what happened. However, iwi/hapu are concerned that Fresh Start for Fresh Water funding has predominately gone to the large point-source dischargers and their community funding has been a relatively small portion of the overall funding.

The former chairman of HRC responded to the claim that funding is not fairly allocated by saying that more money to the Maori people does not make anything better for the river. He said:

> Actually we have to give to people or organisations that are causing the problem… Giving more to Maori seems politically good but they have to prove to the Forum to collectively decide by all of the people on where the money should go and who should receive money and what they can do with it.

The mayor of Horowhenua district council insisted that iwi are seeing extraordinary value to improve the quality of the river that they do not have to find the revenue. They are just investing their culture and expose their knowledge of the river. In general, it would be the responsibilities of the central government, the region and local community to share costs for environmental restoration in order to make a collective difference.

Although financial resources are important for the Forum to be able to make a change, there are concerns whether it is morally right or not. The environmental scientist does not see a reason why all people (ratepayers) should have to pay for a problem in one area, because they failed here to resolve the problem; so why the rest of the New Zealand need to pay and he argued:

> It must be a “users pay” rule meaning that organisations that made the damage should be the ones who clean it up, so it should be a local issue, not a national one.

6. Collaborative process

In interviews, the collaborative process could be assessed by facilitation, transparency and deliberative quality. The analysis of these criteria was however limited because it is captured partly in Chapter 5 and would corroborate the following results.

6.1. Facilitation

Interviewees were asked how they see the Massey University’s Mediated Modelling as an effective facilitative tool to encourage collaboration and gain mutual understanding between different stakeholders. The chief executive of HRC sees Mediated Modelling as a difficult facilitative tool as it is almost about testing theory. However, he suggested that it should be put in place to deal with the collaborative process. It is not a quantitative exercise but deals with human behaviour, and often mediation in collaboration that requires job management relationship skills, interpersonal skills, thinking about alternative ways to keep people connected, observant, and able to understand tensions that may exist with the collaborative process. Particularly those that escalate into the collaborative process.

The former mayor of PNCC also saw the modelling as lengthy and overcomplicated. Rather, he considered the process was about the science, finding out the best place to spend the money and then working out who would spend the money. He thought lots of workshop seemed a long way around to get to it:

> A lot of the group did not enjoy being able to get their views out. Basically it was a scientific and economic problem. Therefore, the science involved then how much money and who pays are questions that need to be answered.

In explaining to the aforementioned arguments, a representative from Massey University’s Integrated Freshwater Solution (IFS) pointed out that the Mediated

Modelling was not aimed at coming up with perfect models or systems of what is happening in the region. It is more about facilitating dialogue between different stakeholders to understand how systems in the catchment works such as the interaction between land and water, between plants and animals, between nutrients and water quality. It could allow people to get an indication of how the decision will impact on the environment or the catchment. One challenge for IFS was that the time was narrowed down from two years to six months for the preparation. However, the data quality was not always good enough at that time. The IFS project picks up some feedback from the participants and develops a more visually interactive mapping system to actually change in a time to a more dynamic way. Therefore, the most important thing is how open participants actually listen to each other and accept there is potentially another view of understanding the world.

She also observed that, via the IFS workshops, iwi and hapu participants took the opportunity to learn more than the other stakeholders in the workshops through dialogue which encouraged shared understanding of both sides. The Maori groups took the modelling further and looked at how they could use it to model their decision making. They felt that it could potentially help with sharing some of the information about iwi/hapu. The ineffectiveness of the Mediated Modelling needs to consider the political processes with the Action Plan within six months. Thus, the Accord was made to trade off time commitment for the quality of the understanding the whole system. The environmental groups such as WECA asserted that IFS is one of the best examples of how to collaborate that work better than the MRLF.

6.2. Transparency

Some following questions seek to ask interviewees how they understand about the science applied in the MRLF. The representative from Massey University's Integrated Freshwater Solution (IFS) again stated that there are two types of science, the western science and "Matauranga Maori".

Matauranga Maori is a form of knowledge, which does not have the status of western science in the western sense, but it is an experience-based knowledge that has a very

important role. The observation from the IFS workshops and the measurement triangles in the Action Plan show that western science looks at discrete measurement like nitrate, phosphate or dissolved oxygen in the river. Iwi and hapu look holistically at trout in the river, so they look at the river as the living entity.

There are two measurement systems. One is the holistic understanding of the well-being of the river and the other is discrete measurement of individual parameters coming together in a micro-invertebrate count. This is where it has been shown that the casual health index that iwi and hapu developed correlate very strongly. It is important to be clear on the meaning of understanding science because some details will not be understood by anybody on their own whether they are for iwi/hapu or other stakeholders. In fact, it was a challenge for Horizons that the science that was intuitive to them and they do not translate the understanding around the table but almost for all stakeholders, not just for iwi and hapu. The representative from Massey University's Integrated Freshwater Solution (IFS) also observed that iwi and hapu had a much more intuitive understanding of the overall health-based criteria they apply.

The representative of WECA asserted that the point-source discharges from city and town includes a lot of trade wastes but information on this was not available for the general public and whether or not they are being monitored. There was just the Trade Waste bylaw in 2008, but this is commercially sensitive and may be environmentally insensitive. Therefore, people are unable to debate this issue because the local government, primarily mayors, are seen to be the most incredibly ignoring people and most of them have little or no idea on what is going on behind technical science at all. For example, she raised the case of the PNCC's WETOX[4] project that is very sceptical and the mayor does not want to talk or share its process and how it is working or not working. She therefore questioned "what is the forum about? Is it about sharing and talking about the problem?"

[4] A well-established technique for the removal of organics, See more detail on www.wetox.co.nz

6.3. Deliberative quality

Some interviewees were asked to give examples of mutual understanding derived from deliberation between participating groups in the Forum. The major mutual understanding between conflicting stakeholders is about the attempt of taking effluent out of the river. As the environmental groups have tried to criticise the wastewater treatment plants of DCC and wanted DCC to discharge the wastewater into land, DCC such as Horowhenua had a commitment in treating effluent out of the river, which represented a significant change. As a consequence of Horowhenua District Council wanting to take effluent out of the river, other authorities further upstream needed to make a commitment as well because the river flows through Horowhenua's community. Industries who also contribute in taking their treated effluent out of the river now realize that they needed to assist in the enhancement of water quality. By taking treated effluent out of the river, the values are added to, not only water quality, but the life of the river as the first source for our community.

7. Summary

The interview results draw on different perceptions of legitimacy among different stakeholders. It substantiates findings from published documents with only one that could not be located under its predetermined codes (interaction between representatives and constituencies). The above presentation of divergent opinions drawn from interview results concludes that half of the respondents perceive the MRLF as a legitimate collaboration (Figure 6.1). A total of seven respondents accept the quality of multi-stakeholder participation, while others (five) see that it is not a real collaboration. At the same time, eight respondents perceive that the MRLF entails the policy effectiveness and collaborative outcomes, while others (four) criticise these dimensions as ineffective actions.

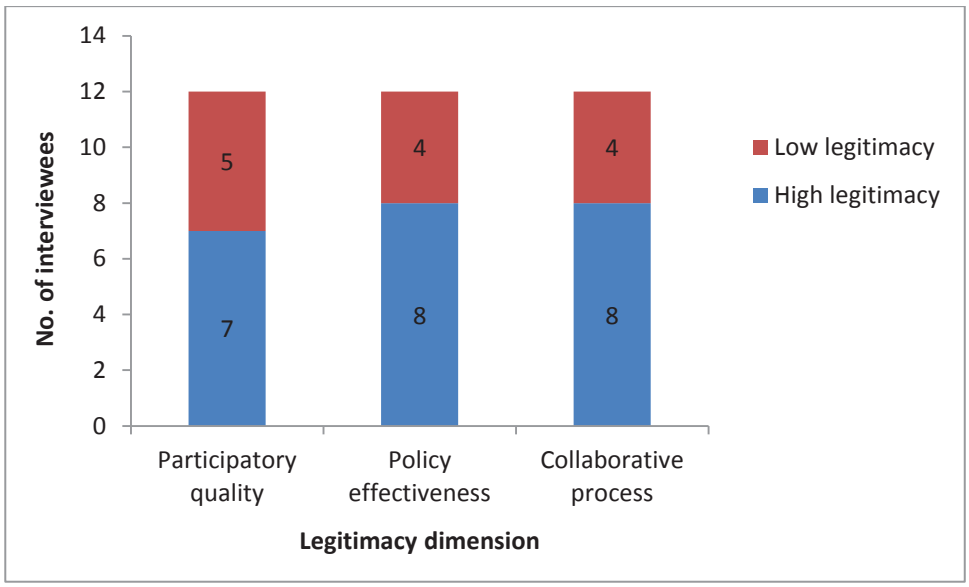

Figure 6-1: Summarised proportion of interview respondents perceiving legitimacy of the MRLF

Chapter 7 : Discussion

1. Introduction

The legitimacy assessment framework is designed with dimension, indicators and criteria populated to examine legitimacy of the MRLF (or the Forum) collaborative by analysing published documents and stakeholders' perceptions (Chapter 4). The two previous chapters report results of published data analysis (Chapter 5) and interviews (Chapter 6) that indicate almost all expected criteria correspondingly to define a satisfied level of legitimacy. This chapter discusses these results based on the theory of legitimacy assessment reviewed in Chapter 2. Therefore, it is structured according to the three legitimacy dimensions: participatory quality; policy effectiveness; and collaborative process. Prior to discussing these dimensions, it is necessary to identify conflicts perceived by stakeholders as a pre-condition of establishing the MRLF. Accordingly, different perspectives of diverse groups of stakeholders discussed in this chapter vary with their level of legitimacy.

2. Data quality

As summarised in Table 7.1 below, almost all data corresponding to legitimacy criteria were found in both published documents and interviews. This indicates good data quality presented in the results to be discussed in this chapter. As mentioned by Bowen (2009), the quality of data analysis is not about numbers, but a degree of validity and accuracy of particular documents where relevant results can be found. The MRLF Action Plan and Progress Reports, for example, have the most relevant data reflecting a degree of legitimacy, especially participation and policy effectiveness. These published data can be proved valid and accurate to the results as it was prepared and provided through collaboration and with support from science. A significant limitation is associated with an ability of the author to analyse some data accurately, for example the progress of the river clean-up projects. Interviews with a satisfied proportion of respondents (12 out of 18) agree with the published data with a substantial level of different perspectives and capture most parts of discussion. However, there was no representative from industry, and particular respondents had

inherent bias and blaming philosophy that are considered in discussing results in a comparison with relevant theories.

Table 7-1: Results found from analysing published documents and interviews

Dimension	Indicator	Criteria	Source of data	
			Published documents	Interview
Input legitimacy *(Participatory quality)*	Participants	• The number of participants	Yes	
		• Incentives to participate	**No**	Yes
	Appropriate representation	• Election in a fair system of representation	Yes	
		• Volunteer	Yes	Yes
Output legitimacy *(Policy effectiveness)*	Policy outputs	• Formulated plans with new strategies and actions	Yes	
		• Implementation of restoration projects	Yes	Yes
	Policy outcomes	*Changes*		
		• Institutional change	**No**	Yes
		• Societal change	**No**	Yes
		• Improved environmental quality	Yes	
		Intermediate outcomes		
		• Achievement of restoration projects	Yes	
		• Fair distribution of costs and benefits	Yes	Yes
Throughput legitimacy *(Collaborative process)*	Control and accountability	• Facilitation	Yes	Yes
		• Interaction between representatives and constituencies	**No**	**No**
		• Availability of information, public access and transparency	Yes	Yes
	Commitments and deliberative quality	• Fair negotiation	**No**	**No**
		• Mutual gains	Yes	Yes
		• Shared ownership	**No**	**No**

Yes = result found, No = result not found

3. New institutional arrangements

Assessing new governance forms and rationalities help to examine an extent to which collaboration and deliberation variables vary a degree of legitimacy. Drawing on many scholarly literatures, it can be assumed that a degree of collaborative and deliberative institutional arrangements vary a perceived level of legitimacy by governance actors or a particular community. Figure 7.1 below suggests an assumptive model for assessing legitimacy of collaborative governance more empirically. The model illustrates that the more network governance is nested with non-state actors, the more it is regarded as 'collaborative' and 'deliberative' shaping legitimacy.

In New Zealand, institutional arrangements where state and non-state actors are more involved in decision-making processes for environmental management that suit criteria of this assumption. In regional levels of government, councils are administrators using regional policy statements (RPSs) as a regulation under requirements set in the RMA. With administrative rationality, resource consent could be implemented as market, and public consultation organised through a decentralised network of decision-makings. Similarly, the hierarchical system is influenced by economic rationality through environmental taxes and by deliberative rationality through public hearings.

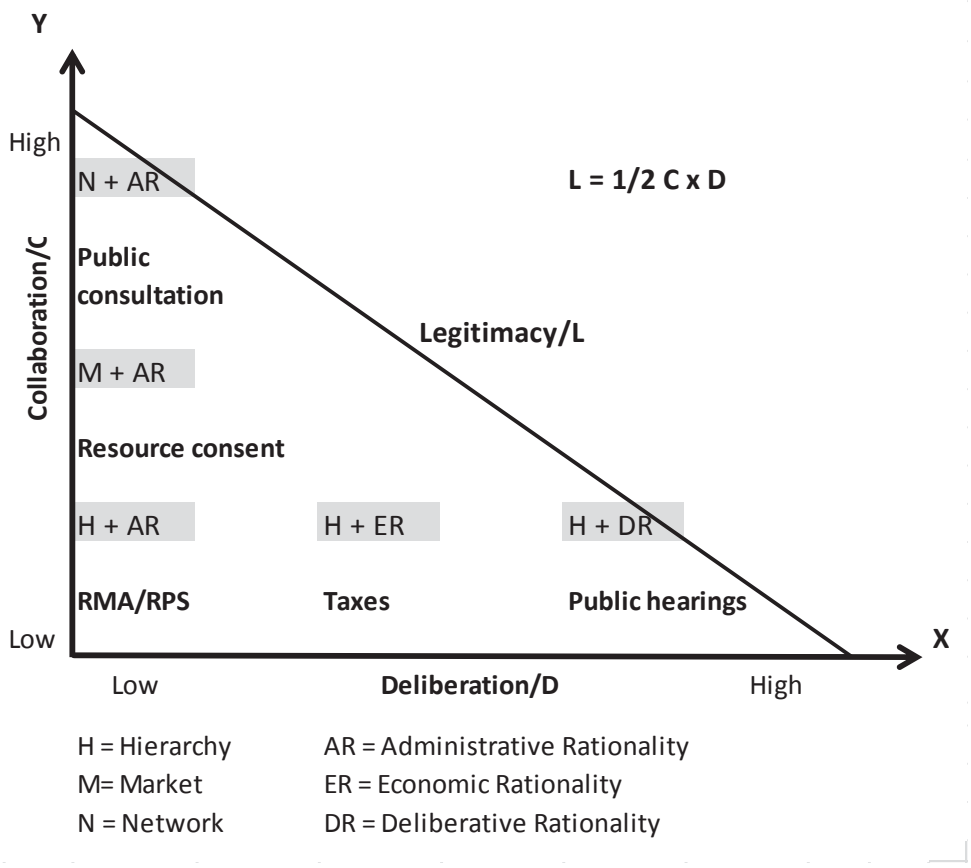

Figure 7-1: An assumptive model for assessing legitimacy of collaborative environmental governance applicable to New Zealand's institutional arrangements

4. Perceived conflicts

Interviewees representing different stakeholders provided useful insights of the MRLF with divergent opinions. The obviously conflicting opinions to some points were raised between those representing environmental advocates such as iwi and hapu, environment groups and those representing local authorities and farming. The divergent opinions provided critical analysis of conflicts historically, and currently, occurred as a precondition of forming the MRLF and a degree to which extent the respondents perceive the MRLF as a legitimate collaboration.

The conflict between city/district councils and iwi or environmental groups regarding the councils' wastewater dischargers is considered contentious. Importantly, iwi and environmental stakeholders suggest that effluent should be discharged to land. Those representing the councils, however, disagreed that it is very expensive to completely

remove effluent from the river. Although the councils were willing to do so, they still need to discharge effluent to the river. This conflict has been delegated to a formal hearing process in the Environment Court.

The conflict that arose from the One Plan is also significant. The evidence from document analysis in Chapter 5 indicates a large number of hearings and submissions to the proposed One Plan and significant resource consents relevant to water management addressed by public deliberation. In terms of implementation, resource consent is the attempt to achieve compliance with the One Plan's bottom lines regulating the allocation of resources. However, the consequence of the One Plan formulation hit public interests and media responses with different concerns and caused a debate about the freshwater. Actually stakeholders seemed to be a bit exaggerated in expressing their particular interests that were necessary and unique to the Manawatū River. The debate was mostly about the different arguments against the One Plan trying to be the winner rather than trying to see the outcomes.

5. A call for collaboration

In responding to aforementioned conflicts, those representing councils and farmers realize collaboration as a better way to resolve the conflicts and want to achieve higher standards than the bottom lines. This requires more actions, mobilized communities, and getting people engaged to make sure behaviours change. The real gains or environmental enhancement cannot be achieved just through regulation. Councils suggested the key element needed to resolve conflicts is mutual understanding. In farmer perspectives, environmental protection should be done as whole community knowledge. Basically, it is true that without considering economic problems, the collaboration will not work. Only one factor of the community would not correspond to a need of sustainable development. Therefore, the MRLF as a collaborative forum is a good initiation of getting the whole community involved to resolve the Manawatū River's water degradation.

The Forum initially sought to get leaders sitting in the table and talking to each other and hearing people viewpoints without a lawyer, consultant or judges. By having at

least 30 farmers, environmental groups, council mayors and iwi coming together, everyone agreed there was a challenge, but the consensus was that something needed to be done to improve the river's water quality. The leaders agreed that they will improve this river for future generations, but also want the river to be used economically or environmentally and this was a common interest for everyone. The interesting question is how do they do it the best? The answer is not about legal fighting - it is about what they can do to make a material difference.

6. Participatory quality

The numbers of participants as an initial indicator informs a degree of involvement of different stakeholders, especially non-state stakeholders such as iwi and environmental groups. Importantly, this reflects on how representation is appropriate and reasons why a particular participant decided to participate.

6.1. Participants

The numbers of participants were assessed to identify MRLF's participatory quality as input legitimacy. Having a total of 33 signatories in the Accord for 30 participating organisations is almost in proportion of representation and is limited by the need to maintain a manageable number of participants. More importantly, incentives for participation indicate whose participation is legitimated and in what ways. Participations of regional and district/city councils represented by elected chairman and mayors are accepted in terms of democratically legitimacy by legal requirements of their positions to represent the community they serve. As the emphasis of participatory governance is on non-state actors (Bernstein & Cashore, 2007; Cashore, 2002; Gulbrandsen, 2005), participations of iwi and hapu, environmental groups and business are basically legitimated by their values of autonomy as self-organising and voluntary participants who have interests in managing the Manawatū River.

Different stakeholders are willing to participate because of different incentives (Ansell & Gash, 2008). Apart from democratic legitimacy, participation by the HRC as a sponsor of MRLF's collaborative process is accepted by others and the community to

bring positive financial incentives for successful collaboration. Participation by district/city councils and farmers are of course legitimated as they are polluters. Except PNCC, the incentives for participations by district councils occurred because the Forum has mainly focused on treated wastewater discharges having sought funding from the central government. The idea behind values of autonomy of non-state stakeholders is associated with power and resource imbalance. Although iwi and environmental groups have the greatest number of representatives and more active participants in the MRLF's meetings than local authorities, they have less power and resources to invest in a collaborative process when it comes to implementation.

As Gray (1989) argues, power asymmetries among actors influence their willingness to come to the table, environmental groups would prefer judgement or hearing processes in the Environment Court where they believe they have more power than in a Forum. The existence of six significant public hearings (Table 5.1, Chapter 5) indicates a degree of legal actions out of the Forum although it is considered to decrease incentives for participation as it is costly, time-consuming and may be conflicting.

Within the Forum, the environmental group such as WECA, would come with a fixed viewpoint to pose criticisms on the performance of district and city councils on managing their wastewater treatment plants. From their perspectives, the Forum is not a real collaboration as collective mayors and executives showed it was a good idea. This would necessarily mean that the MRLF was like "window dressing" and only opportunities to some parties to make public recognition that they are doing a wonderful job.

6.2. Appropriate representation

The appropriate representation of non-government stakeholders should be identified through a fair system of election (Sabatier, Focht, et al., 2005). However, non-government actors in the MRLF were not elected as they are all voluntary organisations. It may be ambiguous to identify a fair system of election from their constituencies. Although election is accepted as a fair representation, collaboration is usually voluntary (Andranovich, 1995; Chrislip & Larson, 1994) or in some cases public

agencies solicit volunteers (Koontz, 2004). The HRC, as an organiser of collaborative institutions, initially solicited volunteers from different organisations and have been accountable for making proper balance of group members and encouraged members of underrepresented group to participate. There have been some smaller advocacy groups that have voted to attend the Forum but were not selected because they represent a small section of the community. These groups were asked to be represented by other groups such as the environmental sector and iwi groups.

The Forum would entail power and resources imbalance as decisions were only made by councils or politicians in regional council and district/city councils. Federated Farmers and most of politicians across the Manawatū-Wanganui region are from farming backgrounds and this is quite challenging for these stakeholders to take accountability and explain what they are doing and answer questions raised by other stakeholders (MRLF's Independent chairman). This probably means that collaborative governance processes within the MRLF are manipulated by HRC and DCC because of weaker actors such as iwi and environmental groups would not have sufficient capacity and resources to participate on an equal footing. However, outside the legal process, the decision-making process is less formal and there has been more support of smaller voters being heard. The less formal decision-making process has become more democratic as it takes into account a wider sector's views and allows more influence by some smaller groups such as iwi who do not represent the democratic process the councils. As a result, the strongest advantage of the Forum is that it seriously considers the voice of iwi in the decision-making process.

7. Policy effectiveness

Policy effectiveness is discussed as a dimension of output legitimacy indicating outputs and outcomes of policy decisions. Policy outputs and outcomes are expected to make changes in environmental quality against a force of time and energy that a collaborative process requires.

7.1. Policy outputs

The MRLF Action Plan and Progress Reports are equivalent to outputs of policy decisions made by the MRLF stakeholders. It is difficult to identify if they are high-quality documents. It remains unclear whether stakeholders are able to justify new action priorities set in the Action Plan or identify clear approaches for implementation as there is no direct feedback on how the Action Plan works for stakeholders. The Action Plan was developed through a very democratic process by everybody being involved in considering their actions and reviewing other people's actions before signing the final draft for implementation by everybody in the Forum. The approval of this consensus-based process fairly considers concerns, rights and responsibilities of stakeholders, which indicates the Action Plan was a collaboratively built plan. The acceptance of the Action Plan is viewed as positive as no group criticised it other than some environmental groups who would like to see more actions and quicker progress. The Action Plan has also been seen as a voluntary framework where stakeholders are offering, willing, but not forced to implement actions.

The MRLF aims to remedy the poor state of the Manawatū River by implementing restoration projects through varying degrees of collaboration. The restoration projects concern the rights and responsibilities of all stakeholders through a range of key action points and tasks being performed and supported by all stakeholders (Table 5.5 in Chapter 5). With this, stakeholders have different roles in tasks relevant to their responsibilities that inform how outputs of their performance can deliver to collective and relevant policy outcomes.

7.2. Policy outcomes

Policy outcomes are associated with institutional change and societal change as a result of policy outputs (Koontz & Thomas, 2006). Institutional change is identified when the Action Plan, new strategies, and actions aim to end conflicts and to change a policy. Additionally, new behaviours of institutions are created in order to integrate the Action Plan into their organisations' activities. As a result of interviewing, institutional change is more about farming fortuity in which famers improved several

aspects such as fencing off the waterways and voluntarily supporting their industry (Fonterra). There are massive changes for district and city councils in managing their wastewater treatment plants in trying to replace discharged treated wastewater to the river with land disposal. This is a significant behavioural change and land disposal elements from wastewater treatment plants are crucial from an iwi and environmental groups' perspectives.

The acceptance of societal change is recognized by: improved working relationships; trust; and collective understanding between stakeholders. In general, there are some factors affecting working relationship between stakeholders who came together face-to-face to preserve the environment in a platform where they can raise issues. Some control is required over how they handle and mediate influences from other people in the room to avoid adversarial fighting. Through the Forum meetings and planning workshops on regular basis, different parties could understand each other positions much better. This is not just a technical process, but it is getting to understand people on what drives their particular interests. For example, the situation that iwi explained why they perceive their cultural connection to water bodies and what it means to them, encourages Europeans to understand why iwi are apparently angry about water degradation issues. Industry representatives, farmers and mayors representing local authorities, can explain some difficulties of raising sources of funding to do what other people want them to do. The environmental groups, by sitting around the table, moved from the purest protection philosophy because they listen to the importance of agriculture, GDP and economics which is important for industry and the economic sector for maintaining resources and jobs. By and large, an improved relationship is important as it helps to gradually move conflict away and provide a mutual understanding of the shared problem.

Intermediate outcomes result from achievements or implementation and progress of the restoration projects as a consequence of quality outputs of the Action Plan. Most (39%) of 131 tasks under key priorities reported (Table 5.6, Chapter 5) shows an implementation progress of the MRLF. Achieving policy outcomes is measured by equity of cost and benefits among stakeholders occurring when they are financially

supported to run collaboration. When stakeholders expressed their opinions on how they think about the financial resource, they all found it significant. The Forum would not happen without funding politically provided by the HRC in terms of organizing meetings and paying for expert advice. These have been critical contributions since the Forum was established. Additionally, the Forum would have not received $NZD 5.2 million unless it was successful and had produced the Action Plan demonstrating commitment and willingness with a clear focus.

The total $NZD 30 million, in which $NZD 5.2 million subsidised by the central government spreading over a suite of eight clean-up fund projects, suggests unfair allocation. Most (93%) was allocated to upgrading towns' wastewater treatment plants of three district councils, while the other five projects only received one or two per cent of the funding. Most of five projects with a minority of funding, is implemented by Maori in line with their catchment care groups' activities. There is a critical analysis behind the reasons of this unfair allocation. The government will only fund the materially tangible activities that make a scientific improvement to the river, such as wastewater discharges, pipeline improvement, or fencing off the waterways. Iwi cultures are far more complicated in terms of what they desire to do. It is about cultural monitoring and connecting iwi leaders and tribal members to the river and therefore, it is not necessarily about making the river cleaner.

8. Collaborative process

As a dimension of throughput legitimacy recognising importance of input and output legitimacy, the collaborative process bridges participatory quality to policy effectiveness (Schmidt, 2013). Control, accountability, commitments and deliberative quality, analysed from document analysis and interviews, are discussed here as a collaborative process addressing the interaction among collaborative stakeholders.

8.1. Control and accountability

Facilitative leadership by the HRC as an organiser of collaborative institutions centres on the idea of control. The Mediated Modelling as an interventionist mediation technique was applied by the MRLF stakeholders to ensure mutual understanding,

negotiation and the integrity of consensus-building process. The environmental groups actively attended the Integrated Freshwater Solution (IFS) workshops from 2010 to 2013 and considered them to be an effective tool to improve understandings with other stakeholders. Nevertheless, most of other stakeholders, especially district and city councils criticised it as a complicated model in practice that fails to facilitate collaboration. Stakeholders found it difficult to understand and it took a long time. The decision to stop using the Mediated Modelling and develop the Action Plan in a more traditional way would be in favour of the majority groups of stakeholders or the fact that the model was ineffectively implementable. However, it would be an incorrect decision as it was very helpful during the development process, particularly for iwi groups who benefit from the information, a lot of discussion, and facilitation where they can better understand others and science.

The Forum leaders' accountability can be measured by an ability to accomplish their responsibilities and effective interaction between representatives and their constituencies. The HRC are accountable for encouraging a collaborative process within the Forum, while other stakeholders are responsible for tasks related to their business and activities. Mayors of district and city councils, for example, are accountable to represent their communities for managing their wastewater treatment plants that generated significant public interest. The data on interaction between representatives and constituencies, however, were not available in both published documents and interviews and therefore, it is ambiguous to identify whether the interaction is effective to ensure legitimate accountability. The legitimate accountability in the MRLF has occurred since it considered the involvement of iwi and environmental groups who act equivalently on behalf of constituencies of district and city councils to intervene in authorising actions and decisions that are incompatible with their values, concerns and preferences.

The accountability within the MRLF is also indicated by the availability of information, public access, transparency and monitoring mechanisms. Science has been accepted and integrated as knowledge transfer among stakeholders to develop the Action Plan as a transparent policymaking process. The intervention of a Science and Matauranga

Maori Advisory Panel in monitoring the MRLF's progress also measures a degree of transparency in which the Action Plan's key priorities has been revised to consider outcomes for future commitment and accountability (Clark et al., 2015). In addition, all related evidence on HRC's website and the Forum's website, will measure transparent scientific policy suggestions as some evidence supports pubic consultation through a range of submissions and public hearings. Yet, divergent opinions and minority votes seem not to be made public, and it is unsure whether the advisory committees routinely maintain high levels of transparency in their business.

8.2. Commitments and deliberative quality

Democratic institutions measure the success of public deliberation that link to a degree of commitments and deliberative quality in a collaborative process (Baber & Bartlett, 2005). Commitment to the collaborative process concerns fair negotiation and mutual gains that influence the desired policy outcomes (Burger et al., 2001). By having representatives of some 35 organisations with different perspectives meeting and discussing issues, they are deliverable as a consequence of relationship, mutual understanding and respectfulness. This indicates a level of deliberation when environmental groups' perspectives are heard and considered. Wastewater treatment plants of district and city councils such as the Shannon Wastewater Treatment Plant, have been deliberated and ended up with appealing in the Environment Court. Through this legal fighting, a significant commitment of district and city councils is attempting to stop the discharge of wastewater to the Manawatu River, and discharging to land as requested by the environmental groups. However, this takes a long time, and district and city councils have been trying to defend the notion that they currently need to continue discharging wastewater to the river. Therefore, this is a key reciprocity showing both sides' commitments and deliberative quality that also affect other stakeholders such as industries to commit accordingly as they also discharge wastewater to the river.

To make sure this commitment will be pursued, it is interesting to consider a frequency of the Forum meetings. During 2010 to 2012, the MLRF stakeholders met three times

per year, but only twice since 2013 until now. Therefore, a question to reflect is how stakeholders obtain mutual understandings within only a two-hour long meeting to discuss, in such a diverse group of people, on what happens in six months. It should be considered that effective information sharing may not happen in the MRLF under the current frequency of meetings.

9. Summary

The involvement of diverse groups of stakeholders informs power and resource imbalance although the numbers of signatories or representatives are manageable. The Forum risks manipulation by strong actors such as district and city councils and farmers. Different stakeholders came to the Forum with different incentives. The HRC is an encourager of collaborative processes within the Forum by its financial contribution as a main accountability on behalf of government in order to drive collaboration. Mayors of district and city councils and presidents of the farming sector are involved to democratically represent their constituencies as their activities are evident and perceived as a major cause of water degradation. They are accountable for controlling and managing them properly. Non-governmental actors such as iwi and environmental groups are involved with pure ecological perspectives and a degree of deliberation to challenge the councils' performance. Although the majority of representatives come from election, collaboration is typically in form of willingness in which the HRC may initially solicit volunteers from stakeholders.

The MRLF's Action Plan was formulated as policy outputs with new strategies and actions indicating implementation of clean-up projects. Policy outcomes are legitimated by an extent of institutional and societal changes and cost distributions. In parallel with district and city councils, having upgraded their wastewater treatment plants, farmers have shown a substantial change in replacing their cow manure disposal to the river with land disposal techniques. Societal change is also legitimated by improved working relationships. For example, other stakeholders are getting to understand more of the Maori worldviews. The cost allocation within eight clean-up projects seem to be low but legitimate as the majority of money goes to upgrading municipal wastewater treatments which is the projects' aim despite a criticism as an

incorrect way to resolve the problem. The commitment and accountability of the stakeholders with the key Action Plan's priorities seems to occur in parallel with existing deliberation occurring as a consequence of divergent opinions. Therefore, a central assumption is that the more deliberation level emerges within a collaborative forum, the higher level of legitimacy is regarded.

Chapter 8 : Conclusion

1. Introduction

This study aims to assess legitimacy of collaborative environmental governance, having the Manawatū River Leaders Forum (MRLF) as a case study. The literature relevant to legitimacy assessment framework was reviewed, designed and then populated to examine the MRLF's legitimacy by analysing published documents and interviews. It is evident that the Forum generally has quality participation and progressive actions, while different perceptions of stakeholders vary a level of legitimacy.

This chapter draws conclusions based on a combination of theory and discussed results. It firstly points out features of collaboration and conflict and briefly identifies institutional arrangements in a relation to legitimacy level. Measuring legitimacy is then concluded as a main theme of this research in terms of what or when each legitimacy type to be accepted and justified. Trust, time and interdependence are discussed to conclude the chapter and then recommendations are made for further research.

2. Collaboration and conflict

Many features of collaboration are theoretically expected to be highly suitable for addressing environmental problems towards sustainable development (de Bruijn & Tukker, 2002). First, collaboration provides an opportunity to bring together experts from diverse group of stakeholders with divergent disciplines and arenas in order to solve complex environmental problems. Second, collective environmental solutions often require a core of political, economic, social and marketing components as new modes of governance, especially network governance. Third, environmental collaboration typically brings new stakeholders to the table for working together in moral ways. As an opposition of command-and-control or adversarial approaches, collaboration is workable outside the formal political, social and economic structures of the society flexibly building governance networks of stakeholders relevant to an

interrelated problem. In sum, collaborative governance is essential to environmental sustainability.

The MRLF is a fundamental collaboration which basically suits the first two collaboration features mentioned above. Collaborative progress shows the forum promotes collective leadership as the members take lead in different projects, and community engagement as it highly acknowledges involvement of hapu/iwi in almost all collaborative tasks. This shows a fabulous opportunity for different stakeholders to solve the Manawatū River's water quality issues. Most of the tasks under the six key actions are half-achieved, and some community-run initiatives or projects are well underway.

As an initiator, the HRC posed a significant political requirement through its facilitative leadership, and additionally, while district/city councils and farmers would have political process through elections. Economic or marketing component of the Forum is associated with related resource consents and environmental taxes which the HRC make money from to invest more in the Forum. The involvement of iwi and environmental group would represent more social interests and values towards the River's water quality. As the establishment of the MRLF resulted from conflicts arose from the One Plan's regulation and hearing process, it means that the Forum's members were not satisfied with command-and-control regulation and adversarial approaches. Therefore, the MRLF represents a good start for collaboration.

However, in practice, collaboration has not been a catalyst for environmental transformation. Cases reviewed by de Bruijn and Tukker (2002) indicated that collaboration's contribution can be low if there is no threat of regulation, sanction or protest. The stakeholders often have their own limited, short term self-interests and therefore, it is quite challenging to encourage them to look beyond such interests and recognise broader and long-term benefits through mutuality and collaboration (Gray, 1989; Harrison, 1998). The threat of regulation and sanction has occurred since the MRLF was formed. The Forum's stakeholders understand and accept the One Plan as a defining regulatory document that each must follow in terms of formal setting of limits and allocation of resources, particularly water. The possible threat would be intrinsic

with a question to what extent the One Plan will be implementable as it just became operative in late 2014. This goes back to a consideration of the long decision-making process of the One Plan similarly with a periodical amendment of the RMA. The example of significant sanction is a situation that environmental groups have a task to monitor performance of district/city councils on managing wastewater treatments. As conflicting opinions have still existed in the Forum, particularly on causes of water pollution and how local authorities have addressed the problem, some stakeholders still have limited and short-term interests.

Although most theories suggest collaboration as a good platform for conflict resolution, collaboration should be learnt as one aspect of conflict management through controversial policy settings (Daniels & Walker, 2001). This means that conflict is common in collaboration derived from divergent stakeholders. However, a thoughtful suggestion made by Sidaway (2013) is that conflict should be viewed as a learning condition, rather than fighting in order to move conflict to consensus. Meanwhile, in environmental reality, where different stakeholders are resistant to change, confrontation would be necessary to initiate a collaborative process, and therefore, to make the synergy between collaboration and conflict (de Bruijn & Tukker, 2002).

This basically suits the MRLF's context in which debates have still been present as mentioned earlier. The debate on wastewater treatment plants between district/city councils and environmental groups, for example, maybe a driver of collaboration at the beginning and a way of learning to gain mutual understanding between both sides and amongst the Forum's members. In line with having the Action Plan as a direction, increasing deliberation in the MRLF would be a stepping stone for long-term consensus of the Forum stakeholders.

3. Legitimacy

The degree of high collaboration and deliberation would refer to environmental transformation that has been suggested as an alternative to better governance affecting a level of legitimacy (Van Kersbergen & Waarden, 2001). In general, the

collaboration variable of administrative rationality and the deliberation variable of hierarchy, are basically legitimated by their contexts of domestically electoral democracy in which politicians are accepted by citizens at large to represent them in such governance systems. However, non-electoral collaborative governance does not correspond to democratic state-centred legitimacy because it includes multi-stakeholders and agencies with the influence of market and network or economic and deliberative rationalities. Therefore, governmental and nongovernmental stakeholders have increasingly perceived high legitimacy levels of new modes of public-private environmental governance (Bäckstrand, 2006b).

The discussion of legitimacy in this study is based on three types of legitimacy through a legitimacy indicators framework, which to most extent indicates a legitimacy level of collaborative governance in the MRLF. Assessing each legitimacy type was concluded in terms of what and when it is perceived legitimate dependent on legitimacy dimensions indicated by indicators and criteria. As previously discussed, results have shown different arguments of the MRLF's legitimacy, the MRLF can be accepted as a positive collaboration initiative.

3.1. Input legitimacy

Participation by government officials including the HRC, district and city councils in the MRLF is legitimated in few normative situations. First, elected regional chairman and district/city mayors are democratically accepted by their legal authorities, requirements of their positions, and accountability to represent their constituencies. Second, by delivering public goods and services to the region's community, the MRLF is possible through economic incentives in which the HRC's participation is justified through revenues earned from resource consents and environmental taxes from resource users and/or polluters. The legitimation may result from financial contribution to administer the Forum and is proportionately distributed from such revenues.

Meanwhile, participation by environmental polluters including district and city councils, farmers and industries, is legitimated through basically changing behaviours

as a consequence of consent hearings, negotiated agreements with the HRC, on the One Plan regulation, and implementing the Forum Action Plan. The involvement of scientists and experts such as advisory and monitoring group (e.g. the Science and Matauranga Maori Advisory Panel) is clearly legitimated by their expertise and experiences. The MRLF's decision-making was more based on expert advice with deliberative ideals to make governance process as transparent as possible.

More importantly, participation by iwi and environmental advocates in administrative decision-making process such as public hearings and court judgement is largely considered legitimate in terms of deliberation. The public involvement is recognised by their voices heard in environmental litigation process where they have legislative right to challenge councils and property right from being inappropriately commanded by other stronger groups.

3.2. Output legitimacy

Collaborative governance is certainly legitimate as it includes a diverse group of stakeholders to policy decisions for collective implementation (Chapter 2). Institutional arrangements within the MRLF (Chapter 3) would be helpful to make the MRLF's action points more effective. The basic outcomes of the MRLF's formulation are derived from institutional and societal changes of councils, iwi and environmental groups and intermediate outcomes of clean-up projects. By addressing the problem-solving capacity, policy outputs consider the capacity of the MRLF stakeholders in developing and implementing the Forum's Action Plan. Therefore, the Action Plan can be accepted as an integrative direction with formal decision rules and resources providing opportunity for deliberation and debates. Obviously, as participation by experts and scientists in the Action Plan decision making is accepted, the Action Plan can be perceived as an evidence-based policy justified by good scientific policy advice and the existence of initiatives (e.g. SLUI) to strengthen the use of evidence in practice.

A long-term challenge is whether, or to what extent, collaboration can entail effective policy outcomes (Borzel, 1998). This challenge is related to time and energy issues. The criticism of environmental groups on district and city councils' performance on

managing their wastewater treatment plants would indicate a low level of trust that is more likely to add some time to improve. However, direct investment in effective collaboration may save substantial time and energy for implementation (Ansell & Gash, 2008). The initial financial contribution from HRC and the central government and having the Action Plan as a working consensus fostered the MRLF as a good start and will be an important steppingstone to make it successful.

3.3. Throughput legitimacy

As a dimension of output legitimacy, the collaborative process would become more legitimate when it considers transparency of the interaction between actors toward policy coordination and science-policy integration processes (Hogl, 2012). However, public choice of science could make a collaborative process within the MRLF more complicated to be legitimated as some scientists have argued that focusing on wastewater treatments is not a right solution while a major problem is agricultural intensification (Joy, 2014). This could mean that political actors like the HRC and district/city councils use scientific knowledge just as an additional resource to enhance their authority or legitimacy and those policy-makers in HRC are supposed to choose other expert advice supporting their expectations and beliefs. This is a legitimacy deficit or symbolic boundaries between science and non-science, good and bad science, and scientific facts. Political values are one of critical problems in science-policy advice (Gieryn, 1983, 1995). Importantly, the distance in boundaries recognises how lay-knowledge or citizens like iwi is promoted, for instance in advisory committees or an advisory process.

The collaborative process considers deliberative quality to be simply legitimated when it results in mutuality, trust building and commitments (Ansell & Gash, 2008). The MRLF would have some sorts of direct dialogue with a degree of deliberation that can deliver a mutual understanding. Clearly, the HRC is an initiator of trust building and power balance among erstwhile opponents. However, facilitative leadership effort is critical to a long trust building process (Vangen & Huxham, 2003a). It is probably quite challenging for the HRC to encourage trust building amongst conflicting stakeholders in a short time as it is difficult for policy-makers themselves to justify schedule and cost in

order to effectively remedy trust building, particularly if stakeholders have a high aggression background.

Interestingly, a statement “everyone owns the river” remains unsure whether it is morally a sense of shared ownership particular organisations or groups to pay a commitment in the MRLF. Nevertheless, up-front willingness would well identify a level of commitment (Ansell & Gash, 2008) meaning that the more involvement increases, the more a sense of ownership or commitment can be enhanced (Gilliam et al., 2002). The public submissions and hearings to the proposed One Plan (Chapter 5) indicated an early deliberation and negotiation prior the MRLF. Therefore, a high level of involvement in the MRLF informs more sense of ownership enhancing the commitments of the stakeholders.

4. Conclusion: Time, trust and interdependence

This study considers time, trust and interdependence, which are important elements to make conclusions on collaborative governance reflecting a level of legitimacy. As noted by several case studies, collaborative governance is a time-consuming process (Day & Gunton, 2003; Imperial, 2005; Margerum, 2002; Roussos & Fawcett, 2000; Till & Meyer, 2001; J. F. Warner, 2006). Collaborative governance is perhaps not suitable for circumstances in which agencies need to make or implement decisions quickly because consensus or trust building requires considerable time (Coglianese & Allen, 2003; Wondolleck & Yaffee, 2003). Ansell and Gash (2008) suggest that direct investment in effective collaboration helps save substantial time and energy for implementation, particularly when stakeholders accomplish a working consensus.

Collaborative agencies should consider an interaction of trust and interdependence amongst stakeholders. In some cases, high conflict are characterised by low trust, but stakeholders are highly interdependent. Therefore, the conflict is still necessary to be managed by collaboration in which interdependence nurtures an aspiration for participation and a commitment to meaningful collaboration which, in turn, is more likely to build trust. In other cases, interdependence is weak, so it is difficult to build trust and the stakeholders will participate in collaboration with a low legitimacy

perception and possibly consider an alternative strategy. Given that one stakeholder surrenders from cooperation, the dedication of all stakeholders is prone to endure, and it will be complicated to make a sense of shared ownership, comprehension, or trust (Logsdon, 1991; Vangen & Huxham, 2003b). Assumingly, the MRLF was initiated by a situation with low interdependence, low trust, and high conflict, which currently have been improved to some extent by working together for a 4-year period.

Stakeholders coming to a collaborative process may not see themselves to be specifically interdependent. However, through discussion with different partners and accomplishment of effective intermediate outcomes, they may get into a new comprehension of a working relationship (Heikkila & Gerlak, 2005; J. F. Warner, 2006). This can suggest that stakeholders become to realise more interdependence through collaborative process. Whether collaborative governance is viewed as 'a sweet reward' to remedy environmental pollution is not a clear expectation. Therefore, a call for better collaboration between state and non-state actors is confidently seen to exist in the future.

In responding to the research question and aim mentioned in Chapter 1, collaborative environmental governance is more legitimated than command-and-control regulation although high conflict, power imbalance, low trust and low interdependence still occur within collaborative process. The MRLF is an interesting example of collaborative environmental management in New Zealand that is basically legitimated as a fundamental commencement for collaboration. Participations by different stakeholders are active and collective decisions have been implemented. However, legitimacy perspectives vary depending on conflicting stakeholders. Through participatory quality, policy effectiveness and collaborative process, governmental stakeholders perceive high legitimacy, while most non-governmental stakeholders perceive low legitimacy.

5. Further research

This study makes recommendations for further research ranging from study methods and scope to discussions of theory to be extended. Assessing legitmacy in this study is only applied in one case, so considering more case studies would be appropriate to test the thoery more accuractly. A survey was not conducted for this study and therefore, a questionare survey could be conducted with a greater number of participants. It would be useful to study collaboration by using a quantitative research method such as quasi-experimental design to draw on more empirical results of testing theory. The framework for assessing legitimacy learnt in this study can be used for further research as it captures important aspects of indicators and criteria to test legitimacy. Yet, some indicators and criteria could not be met as the research method is limited. More detailed indicators and criteria should be learnt to provide supporting evidence from case studies to make them clearer and more valid.

What we recently understand about about collaborative environmental governance is that collaboration bring together a diverse group of stakeholders from both state and non-state actors who can make intermediate outcomes of policy decisions (Koontz & Thomas, 2006). However, a seminal challenge is what we need to know, and to what extent collaboration will deliver effective policy outcomes. This suggests a further study to consider time boundaries in which collaborative governance will be able to decrease conflict and enhance trust and interdependence amongts stakeholders. Consequently, a further research should identify a model or assessing to explore levels of conflict, trust and interdependence. These recommendations are related to the MRLF as it is an example of fundamental collaboration, so more research centering on collaborative governance theory should be conducted for this case to better understand collaboration movement within its timeframe whether collaborative governance really works to achieve policy goals beyond 2020.

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APPENDIX 1: WATER QUALITY

1. Proportions of nutrient load by source type

Elliott et al. (2005) estimated nutrient sources and transport for New Zealand by using a hybrid mechanistic-statistical model. Table 1a shows the breakdown of sources entering streams by source type. For Total Nitrogen (TN), dairy and other pasture (e.g. sheep and beef) makes a disproportionately large contribution to the load, while point source and other non-pasture make a disproportionately small contribution to the total load. For Total Phosphorus (TP), sediment makes the largest contribution to the load, while point source is the smallest.

Table 1-a: Breakdown of sources entering streams by source type

Source Type	Total Nitrogen (TN)	Source Type	Total Phosphorus (TP)
Dairy	38%	Dairy	10%
Other pasture	38%	Non-pasture	18%
Trees	20%	Other pasture	22%
Point source	2%	Point source	1%
Other non-pasture	2%	Sediment	49%
Total: (t/yr)*	373,000	Total: (t/yr)*	143,403

*tonnes per year

Source: Elliott et al. (2005)

2. State and Trends of the Manawatū River

The latest technical report (Snelder et al., 2014) shows the results of grading the river water quality caused by nonpoint source discharges monitored at 57 sites and by point source discharge monitored at 17 sites, and then illustrates the past 5-year and 20-year trends.

The State of Environment (SoE) sites mostly represent nonpoint source discharges. Figure 1a below depicts the proportion of these sites that have water quality variables failed to meet the grading standard set in the One Plan. The four significant variables are Dissolved Reactive Phosphorus (DRP), Soluble Inorganic Nitrogen (SIN), Chlorophyll a (Chla) and Filamentous cover (Per.Fils). The nutrient (DRP and SIN) targets were only met at a smaller proportion of sites. In total, 66% and 77% of the sites for which there were sufficient observations failed the DRP and SIN grades, respectively. Also, the majority (60% and 72%) of sites failed two of the periphyton abundance grades (Chla and Peri.Fils), respectively.

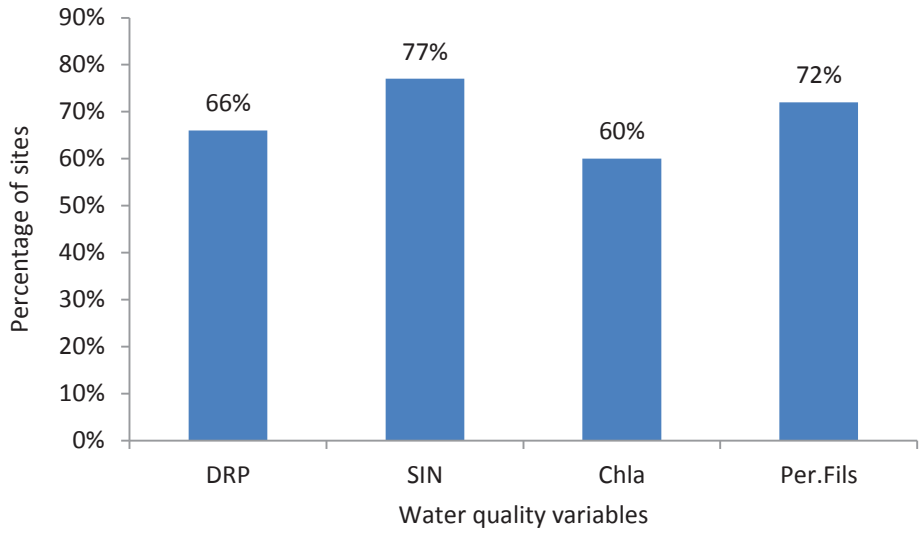

Figure 1-a: Percentages of SoE sites where water quality variables failed to meet One Plan targets. Source: Snelder et al. (2014)

The results of grading the point source discharge sites according to the water quality variable targets are shown in Figure 2a below. The significant variables for point source discharges would be DRP, SIN, water clarity (Clar), and microbial (*Ecoli*.). Most sites failed to meet the nutrient (DRP and SIN) targets. Only one point source discharge site met the DRP grade, and only three met the grade for SIN. The point source discharge sites uniformly failed to meet the targets for Clar and *Ecoli*..

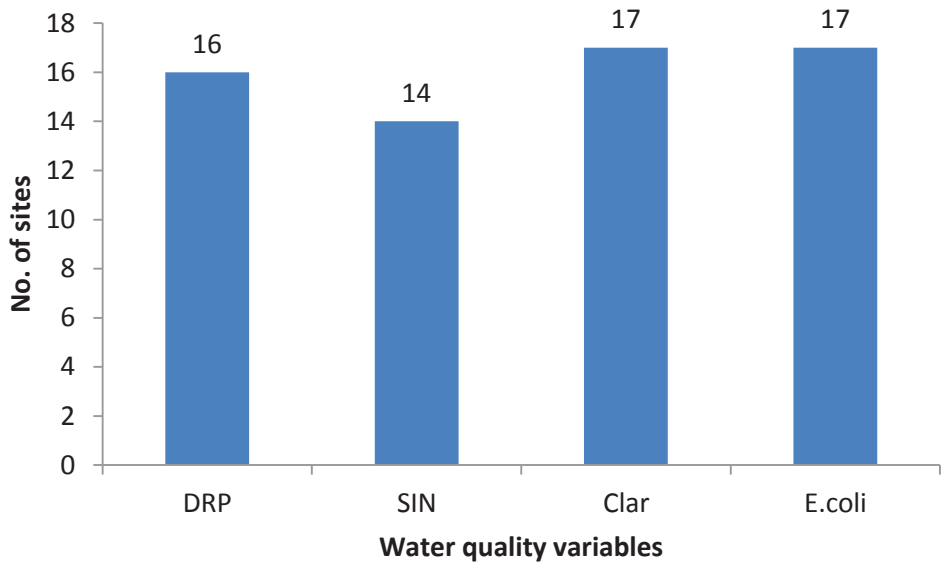

Figure 1-b: Number of PSD sites where water quality variables failed to meet One Plan targets

Source: Snelder et al. (2014)

A comparison of trends indicated that the direction and significance of trends were not consistent between the 5- and 20-year periods (Table 2a). The exception was *E. coli,* for which all trends were downward (negative) for both the 5- and 20-year periods, although only one of the 5-year trends was significant. However, as noted above, the overall 5-year trends were decreasing for DRP, *E. coli* and NOX, which is consistent with the majority of significant trends over the 20-year period.

Table 1-b: Comparison of trends (SKSE values) for the 20- and 5-year periods (Significant trend, i.e. P<0.05 are shaded orange

SiteName	NH_4		Clar		DRP		*E.coli*		NO_x	
	20	5	20	5	20	5	20	5	20	5
Manawatu at Hopelands	-0.001	0.000	0.017	0.015	0.000	-0.002	-18	-12	-0.010	-0.486
Manawatu at Opiki Br	0.001	0.000	0.005	-0.067	-0.002	-0.002	-4	-20	0.000	-0.011
Manawatu at Teachers College	0.001	0.000	-0.017	-0.008	0.000	0.000	-4	-1	-0.010	-0.042
Manawatu at Weber Road	-0.001	-0.001	0.002	-0.005	0.000	-0.002	-29	-69	0.005	-0.041
Manawatu at Whirokino	-0.001	0.006	0.000	-0.094	-0.001	-0.002	-11	-24	-0.006	0.002
Mangatainoka at Brewery - S.H.2 Bridge	-0.001	0.000	0.008	0.344	0.000	0.000	-7	3	-0.010	-0.082
Mangatera at u/s Manawatu confluence	0.004	-0.005	0.030	-0.005	0.009	-0.024	-56	-18	0.006	0.002
Oroua at Awahuri Bridge	0.002	0.020	0.011	0.200	-0.005	-0.004	-26	-23	-0.008	-0.017

Source: Snelder et al. (2014)

APPENDIX 2: SUMMARY OF THE MANAWATŪ RIVER LEADERS' FORUM

1. **Action Plan**

- ***Goals***

Manawatuū River Leaders' Forum signed an Accord to take action to improve the state of the Manawatū River. The Accord set out a focus, vision, and goals for the River.

The Accord's goal is to improve the Manawatuū River, the mauri (lifeforce) of the Manawatū River Catchment, such that it sustains fi sh species, and is suitable for contact recreation, in balance with the social, cultural and economic activities of the catchment community.

This goal represents a community opportunity to develop leadership in catchment improvement and capture the social and economic benefits of such leadership.

1. The Manawatū River becomes a source of regional pride and mana.
2. Waterways in the Manawatuū catchment are safe, accessible, swimmable, and provide good recreation and food resources.
3. The Manawatū catchment and waterways are returned to a healthy condition.
4. Sustainable use of the land and water resources of the Manawatū catchment continues to underpin the economic prosperity of the Region.

- ***Signatories***

The signatories to the Accord represent an extensive participation in the Forum comprising around 30 parties from iwi/hapu, environmental interests, farming and industry, local government and regional council. Theses stakeholders (listed below) are committed to collaboratively find solutions for the Manawatū catchment through gaining a collective understanding of how to balance cultural, social, environmental

and economic values. The group has worked collectively and created actions jointly and individually and these include the following:

1. Raukawa District Maori Council;
2. Te Kaunihera Kaumatua O Rangitane Ki Manawatu;
3. Te Rangimarie Marae;
4. Nga Hapu O Himatangi;
5. Te Mauri O Rangitaane O Manawatu;
6. Tararua District Council;
7. Manawatu Estuary Trust;
8. Palmerston North City Council;
9. Federated Farmers Tararua;
10. Federated Farmers - Manawatu/Rangitikei;
11. Horizons Regional Council;
12. NZ Pharmaceuticals Ltd;
13. Te Kauru;
14. Manawatū District Council;
15. Muaupoko Tribal Authority;
16. Royal Forest and Bird Protection Society of New Zealand Inc;
17. Landcorp Farming Ltd;
18. Massey University;
19. Taiao Raukawa Environmental Trust;
20. Horowhenua District Council;
21. Water & Environmental Care Association Inc;
22. Nga Kaitiaki O Ngati Kauwhata Inc;
23. Silver Fern Farms;
24. Te Runanga O Raukawa Inc;
25. Destination Manawatū;
26. Department of Conservation;
27. Fish and Game NZ;
28. Fonterra;
29. Vison Manawatū;

30. AFFCO; and
31. Richard Thompson - Chairperson Manawatū River Leaders' Forum.

- ***What's happening and where***

The Manawatū catchment is broken down into nine areas, we call sub-catchments. Refer to the action points detailed on the map below to see a summary of what we are planning to do.

To achieve the Accord goals, leaders collaboratively set six prioritised activities with their 131 particular tasks to implement in a specified number of years. The Forum believes that delivering these key actions across the catchment will entail significant progress towards the remediation of the Manawatū River. As stated in the Action Plan (MRLF, 2011), the key actions are:

1. *Reduce sediment run-off from erosion prone farmland, the rural road network, and areas of major earthworks through:*

- implementation of the Sustainable Land Use Initiative (SLUI);
- meeting resource consent conditions, compliance monitoring and enforcement; and
- use of earthworks and road maintenance best management practices.

2. *Reduce the nutrient and bacteria load from point source discharges through:*

- resolution of outstanding resource consent applications;
- ensuring consented discharges meet regional plan water quality standards;
- meeting resource consent conditions, compliance monitoring and enforcement; and
- requiring and obtaining resource consents for storm water discharges.

3. *Reduce the run-off of sediment, nutrients and pathogens from intensive land-uses such as dairying, horticulture and cropping through:*

- meeting resource consent conditions, compliance monitoring and enforcement;

- meeting the Clean Stream Accord targets and successive schemes introduced by the dairy sector; and
- adoption of Nutrient Management Plans and promotion of nutrient use efficiency.

4. *Protect areas of habitat for native fish, birds and trout, and enable movement between these areas:*

- fencing and planting streams and bush/wetland areas, and controlling pests;
- removing fish barriers (unless there are likely to be negative effects on native fish populations); and
- meeting resource consent conditions, compliance monitoring and enforcement.

5. *Reduce the impact of flood control and drainage schemes on the physical character and natural processes of the Manawatu Catchment by:*

- ensuring all works are undertaken in accordance with relevant Codes of Practice;
- meeting resource consent conditions, compliance monitoring and enforcement; and
- making greater use of plants (particularly natives) in riparian zones.

6. *Prevent over-allocation and use of the water resource by:*

- ensuring consented takes meet regional plan water allocation and efficiency of use standards;
- meeting resource consent conditions, compliance monitoring and enforcement; and
- ensuring metering of all major takes.

- ***Milestones***

Table 2-a: Milestines for managing the Manawatū river

Time	Mission
1990s	Manawatū Catchment Water Quality Regional Plan: • Removes effluent discharge from water. • Set standards on phosphate levels for point source discharge.
2000s	• HRC launched Sustainable Land Use Initiative to address erosion of hill-country land. • Palmerston North City Council upgrades sewage treatment plant. • All major water takes in the Catchment meet agreed standards.
2010s	• Manawatū River Leaders Accord signed and action plan agreed. • 2012 Dairy Clean Streams Accord targets met. • All major consent applications resolved. • HRC One Plan becomes operative. • All high value bush and wetlands protected.
	Goals
2020+	• Waterways in the catchment at safe, accessible and provide for recreation and food sources • Sustainable land and water resources of the catchment continue to underpin the economic prosperity of the MWR. • Waterways are returned to a healthy condition. • The Manawatū River becomes a source of regional pride and mana.

APPENDIX 3: INTERVIEW QUESTIONS AND RESPONSES

1. **Questions**

Note: Not all questions were asked in an interview.

Q1. Why did your organisation become involved in the MRLF?

Q2. How has your organisation changed behaviours since participating in the MRLF?

Q3 How has your organisation improved working relationship with other participants?

Q4. The development of the MRLF Action Plan is more likely based on evidence (scientific advice). What do you think about that?

Q5. Do you think that the MRLF Action Plan is well-supported by your organisation's operations?

Q6. According to current progress reports, the programmes/projects in improving the water quality have shown tangible progress and achievement. Can you tell me how do you feel about that?

Q7. As Māori communities are highly considered for getting involved in developing the MRLF Action Plan and implementing the key prioritised activities, how do you fell about that?

Q8. How does the Massey University's Mediated Modelling help your organisation understand collective decision-making processes?

Q9. How are the financial resources from the central government and co-funding important in implementing the MRLF Action Plan?

Q10. Can you tell me the conflict that you have experienced about the management of the Manawatū River?

Q11. In terms of regulation, to what extent do you think the One Plan is effective to manage the Manawatū River?

Q12. Do you think the time set for the MRLF is long enough to achieve the outcomes?

Q13. While some scientists claim that the most impact comes from agriculture, the central government subsidies the MRLF to upgrade wastewater treatment plants, how you do you think whether it is a right or wrong solution?

Q14. According to the scientist claiming that farmers should be the biggest investors in order to improve the water quality because they are the biggest polluters and at the same time the regional council and district councils pay more attention on the wastewater treatment, how do you feel about that?

Q15. How do you think that the MRLF distributes to fair representation or balanced power and democracy?

Q16. What was a concern of the iwi/hapu communities in regard to the state of the Manawatū River before the MRLF was established?

Q17. Have you experienced any complaint from iwi and hapu since participating in the MRLF?

Q18. How have iwi and hapu understood about the science applied in the MRLF?

Q19. Do you think community projects have enough funding from the government?

Q20. Do you think the MRLF was established as a result of the failure of the One Plan or because of other reasons?

Q21. Do you agree or disagree that the MRLF is likely to end conflict on managing the Manawatū River's water quality?

Q22. Do you think collaborative approaches are necessary to resolve water conflicts in this case?

Q23. What can be the important factor to keep the MRLF survives?

2. Response

Table 3-a: List of interviewees

Organisation	Position	Remark	Number
Horizons Regional Council	Former chairman	A	2
Horizons Regional Council	Chief executive	A	
Palmerston North City Council (PNCC)	Former mayor	A	1
Horowhenua District Council (HDC)	Mayor	A	1
Federated Farmers Tararua	President	A	1
Federated Farmers Manawatū/Rangitikei	Former president	A	1
Massey University	Ecologist	A	1
Ecological Economics Research New Zealand (Massey University)	PhD Student	A	1
Nga Kaitiaki O Ngati Kauwhata Inc	Chairperson	A	1
Water and Environmental Care Association Inc (WECA)	Representatives	A	1
Manawatū Royal Forest and Bird Protection Society of New Zealand Inc	Advocacy coordinator	A	1
MRLF independent chairperson		A	1
Manawatu Estuary Trust		NA	0
Fonterra		NR	0
Fish and Game NZ		NR	0
Vison Manawatu		NR	0
Destination Manawatu		R	0
		Total:	***12***

A = attended, NA = not available, NR = not responded, R = rejected