TELLING THE PERFORMANCE STORY

POLICY PERFORMANCE MONITORING & REPORTING GUIDE

FOR FRESHWATER MANAGEMENT

Landcare Research
Manaaki Whenua

A Freshwater Values, Monitoring and Outcomes Programme Guideline

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GLOSSARY _____

ADAPTIVE MANAGEMENT – Adaptive Management is a decision process that enables policies to be adjusted as outcomes from management actions and other events become better understood. It is not based on a trial and error process, but on a structured learning while doing process

INDICATOR – something that helps us understand where we are, where we are going, and how far we are from the goal

MĀTAURANGA MĀORI – Māori knowledge (traditional, local, historical, contemporary), values, and philosophy, including Maori knowledge frameworks, systems, and beliefs

MEASURES – Data that assess the status of the indicator

OUTCOMES – The consequence that results from specific actions or interventions. Outcomes need to be measurable so that they can be monitored and reported on

POLICY – An intervention taken by a public agency to achieve a specified outcome. Policies can generally be categorised as a regulation, an economic incentive, a service or as information provision and education.

INTRODUCTION _____

This guide provides councils with a framework and method for undertaking performance monitoring and reporting of freshwater policies. Performance reporting is the mechanism by which decision impacts can be evaluated and reflected on, outcomes reported, and learnings communicated. It is also a means of facilitating adaptive management.

The Office of the Auditor General recommended in 2011 that regional and unitary councils' policy performance monitoring and reporting is an area that needed to be improved. An earlier review (Ministry for the Environment 2009) also identified that many councils were not adequately monitoring and particularly not reporting policy effectiveness. The Fresh Water Reform 2013 (Ministry for the Environment 2013) also highlighted the need for improved monitoring to enable adaptive management approaches.

This guide therefore has been developed to help councils improve frameworks and processes to evaluate the effectiveness of fresh water policy. As the approach and principles are generic, the guide can also be used to help evaluate policy effectiveness within other policy issue domains.

What is policy performance monitoring & reporting?

Policy performance monitoring evaluates the influence a specific council policy or a suite of policies has had on achieving a desired council or community outcome. It goes beyond simply monitoring policy outputs and evaluates the impacts those outputs have had, and it goes beyond measuring progress towards a biophysical or socio-economic outcome because it assesses the effectiveness of a specific policy or policies in contributing to that progress or state. Policy performance monitoring and reporting starts by asking two distinct questions: has the policy been well implemented? And if so, does the intervention work the way we expected it to? The former question is important because poor implementation can lead to poor policy outcomes, the latter question evaluates whether, even if well implemented, the policy has proved to be the right intervention to address the fresh water issue at hand.

Why is policy performance monitoring & reporting important?

Policy performance monitoring and reporting enables councils to continually improve policy effectiveness to better meet desired freshwater outcomes. In addition, policy performance monitoring and reporting can:

- provide early warning of problems of policy implementation or policy choice before those problems become serious, costly or irreversible
- identify new exogenous forces that are influencing freshwater policies and outcomes
- support the trialling of innovative new policies that by nature require a process of continuous learning and adjustment
- enable better prioritisation and utilisation of council resources through all of the above, and
- through performance reporting, increase community understanding of progress on water quality issues, and why the council is undertaking specified activities, and, by

demonstrating council progress, encourage community members to play their part in fresh water management.

How the guide was developed

The development of the guide was designed to complement the policy development support tools developed through the Freshwater Values, Monitoring and Outcomes Programme (VMO) programme and has entailed:

- a review of grey and academic literature on best practice approaches for freshwater monitoring and policy performance monitoring

- a review of New Zealand local government monitoring and reporting legislation, to ensure the designed approach is aligned to local government requirements

- consideration of the Fresh Water Reforms 2013 to ensure the guide is aligned to the new direction local government fresh water management is taking

- interviews with LGNZ and regional council staff on current council monitoring and reporting practices and the challenges councils have encountered.

HOW PERFORMANCE REPORTING FITS IN FRESH WATER POLICY DEVELOPMENT _____

Policy performance reporting within the freshwater decision-making cycle

Figure 1 illustrates a typical policy development cycle. Policy performance monitoring is a critical step of that decision making cycle as it ensures a process of constant policy improvement. Monitoring results may feedback into refining the design of policy implementation (step 5) or into re-evaluating the policy option itself (step 3). However, to be able to monitor policies effectively, specific information needs to be developed and captured earlier in the decision-making cycle.
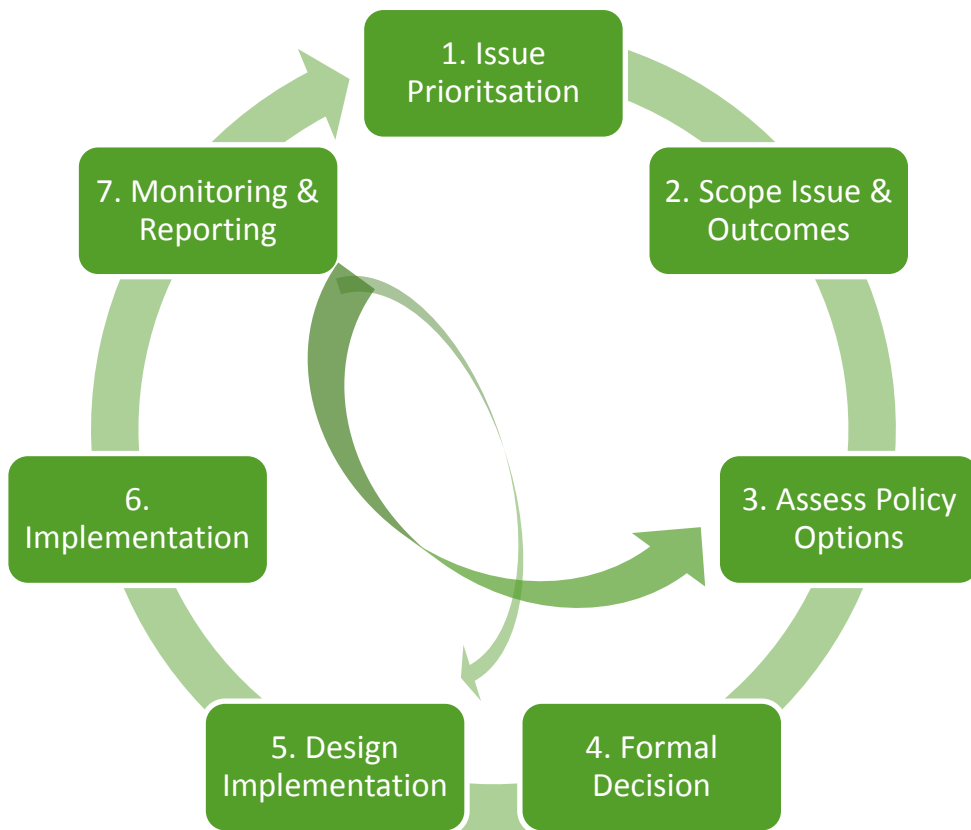
Figure 1: Policy development cycle[1]

Key principles and processes required

Five key principles and processes are required for effective performance monitoring, and these are incorporated into the method outlined in this guide:

1. **Clear measureable outcomes:** Good performance reporting relies on having specific, measurable, achievable, relevant, and time-bound outcomes for the policy or plan. Having clear measureable outcomes in place provides a strong basis for measuring and reporting on whether policy outcomes are being achieved. Outcomes are first developed in step 2, (scope issue and outcomes) of the policy cycle (Fig. 1) and then may be refined throughout the policy cycle, often to make them more specific and measurable.

Principles & processes required for effective performance monitoring

1. Clear measurable outcomes
2. Clear measurable outputs/activities
3. The logic underpinning why a policy will lead to a specific outcome
4. A monitoring framework and baseline

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[1] *This policy cycle was adapted from the policy development cycle developed by regional council representatives in the VMO programme.*

2. **Clear measureable outputs/activities:** These are the policy implementation activities, for example, a new rule in a regional plan, the communication of the rule to farmers, and the compliance monitoring of that rule. These outputs are identified in step 5 of Figure 1 (design policy implementation). Council activities, particularly if they are considered core services, are required, under the Local Government Act, to have identified service performance levels (e.g. timeliness of consent processing) that are developed in a council's annual plan and reported in that council's annual report. A policy-monitoring framework should capture all the policy activities and any related service performance levels.
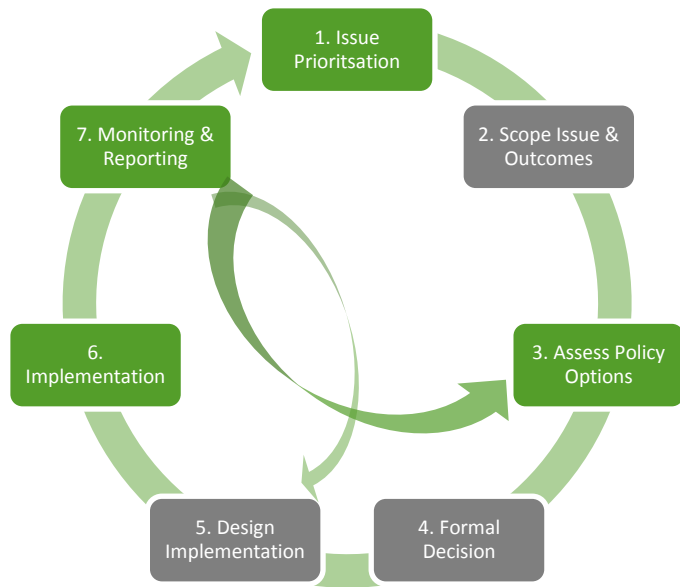
Figure 1: Policy Development Cycle

3. **The logic underpinning why council policy activities will lead to a specific outcome:** Effective policy development should clearly set out why the policy will lead towards the desired outcome. This is generally developed as a series of predicted changes underpinned by an associated series of (hopefully) evidence-based assumptions (see Table 4) as a hypothetical and illustrative example.

Councils often develop this sequence of logic informally and do not explicitly, formally or specifically record the sequence of impacts and assumptions. Formalising the logic underpinning the intervention provides a sequence of expected goals to measure in policy performance monitoring. This formal approach is called intervention or programme logic and would be developed in step 3 of the policy cycle (Fig. 1) when assessing the policy options. Intervention logic is useful for policy evaluation of interventions in complex systems (such as freshwater) where the links between the actions and their anticipated outcomes are not straightforward. The sequence of milestones is particularly useful when a long time lag is expected before there is improvement in environmental states. If milestones are not achieved, this flags that the policy, or its implementation, is not effective and needs to be reviewed. The logic framework can also be a useful communication tool to develop monitoring measures with stakeholders. The process of intervention logic is briefly introduced in the section, *Populating the monitoring framework*.

Measureable outcomes and defined intervention logic have been identified as areas where councils can improve performance reporting. For example, when examining New Zealand policy statements and district plans, Ericksen et al. (2003) found that the logical links between outcomes, interventions, and environmental state indicators were often very weak. This lack of

logic between council interventions and desired outcomes has also been identified by the Auditor General's Office as a major weakness in current council regional plans on freshwater (Auditor General Report 2011:41–42, and other page numbers for a discussion on weaknesses). However, undertaking intervention logics is challenging for councils because

- agencies do not always have hard evidence to support each milestone of their policy logic

- intervention logic forces agencies to create targets that may then not be reached, which creates political risk

- some milestones may have no baseline or monitoring data to track progress.

4. **A monitoring framework and baseline:** A monitoring framework needs to be developed and in place before policy implementation begins. This will sometimes require stakeholder agreement on performance measures, especially if stakeholder agencies are gathering or holding relevant data. Importantly, a baseline of the selected indicators needs to be captured before the policy is implemented to enable monitoring to identify whether anything has changed as a result of the policy. This includes social and economic indicators (e.g. the level of farmer awareness of a water issue, the level of farmer adoption of a water conservation practice, etc.)

5. **Processes that close the evaluation–action loop**: In addition to specified information, a council also needs to build in organisational processes that ensure performance findings can readily be enacted by the council. For example, if an evaluation programme identifies that policy implementation requires improvement then that evaluation needs to trigger an internal council process to undertake such improvements. Likewise, if an evaluation identifies that a well-implemented policy is still ineffective, the council requires processes that allow it to change or refine its policy in a timely fashion

Policy performance reporting within council monitoring & reporting requirements

Policy performance monitoring and reporting is one of a number of interdependent monitoring and reporting requirements for local authorities. Figure 2 describes how policy performance monitoring and reporting fits within these broader council requirements.

Due to its importance in improving policy effectiveness, policy performance monitoring and reporting is required under the Resource Management Act (RMA) and the Local Government Act (LGA). Under the RMA (1991), local authorities must meet the requirements of sections 35(2)(b) and 35(2A) to monitor the effectiveness and efficiency of the policies, rules, or methods in their regional policy statements and plans, and to compile and make the results of this monitoring available to the public at least every 5 years (Auditor General 2011). Under section 62 9(1)(j), section 67(2)(e) and 75(2)(e) of the RMA, a regional policy statement, a regional plan and a district plan respectively must state the procedures that will be used to monitor the effectiveness of the policies and methods contained within each.

Under the Local Government Act, policy performance monitoring is discretionary. However, councils are required to provide the rationale for the groups of activities listed in their Long Term Council Plans (LTCP) and indicate to which community outcomes each activity group

primarily contributes. Councils are also required, in their Annual Reports, to report on performance measures for at least their core services, while the Office of the Auditor General recommends performance level monitoring for all council activities. Councils also are required to communicate in their annual reports any impacts that groups of council activities have had on the social, economic, environmental, or cultural interests of the community. These requirements provide information towards policy performance monitoring.
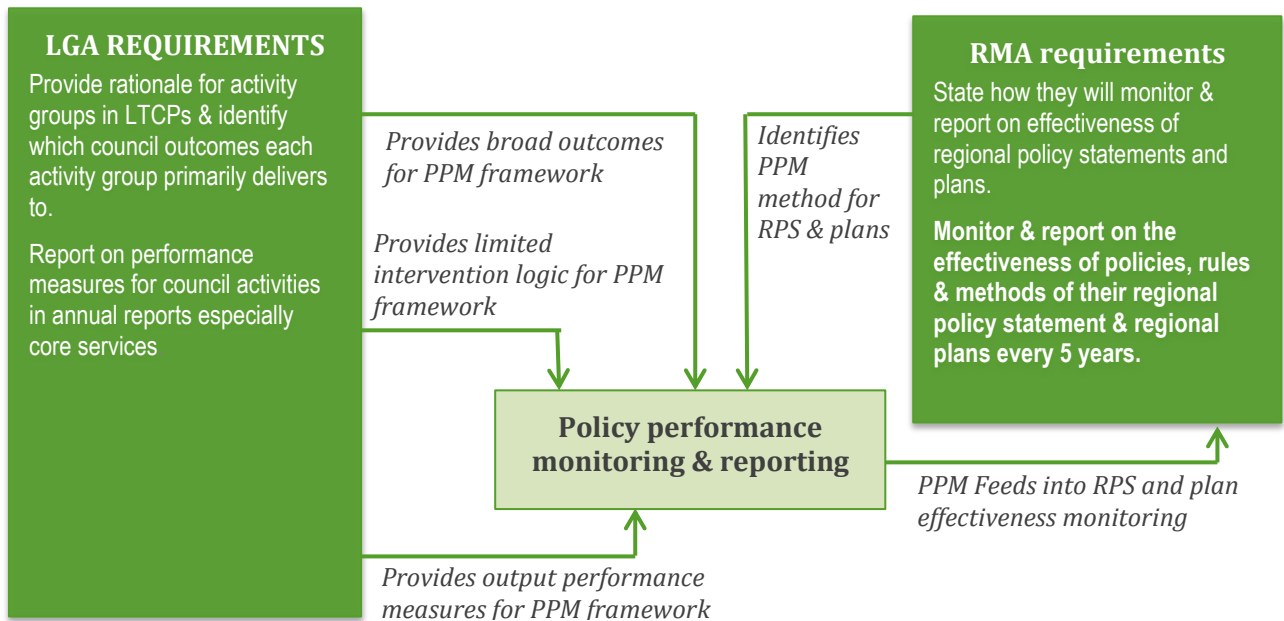

Figure 2: Local Government requirements for policy performance monitoring and reporting

INTRODUCING A POLICY PERFORMANCE MONITORING & REPORTING FRAMEWORK ____

This section introduces a policy performance monitoring and reporting framework. Developing a policy performance framework demands initial time and resources but makes the eventual assessment of the policy or suite of policies more efficient and transparent.

A number of approaches exist to measure policy performance. These include policy implementation effectiveness assessments that largely focus on how well a policy has been implemented, and intervention logic monitoring frameworks (often known as programme logic), cost benefit analysis, and Order of Outcomes monitoring, all of which focus on whether the policy worked in the way that was expected.

Intervention logic monitoring frameworks and cost benefit analysis work best for singular interventions. Order of Outcomes monitoring, developed for Integrated Catchment Management programmes, is more effective for assessing a range of policies and council activities and can incorporate implementation effectiveness assessments.

This guide adopts an adapted Order of Outcomes approach (Olsen 2003) for the reporting framework. It does this because an Order of Outcomes approach can:

- be used for both singular policy and packages of policies. In this way it can be useful for both individual policy evaluation and can also be used to monitor effectiveness of regional policy statements and regional plans as required under the RMA

- incorporate policy implementation effectiveness

- assess whether institutional arrangements required to enable the policy interventions to be implemented have been put in place (such as funding, new organisational processes, etc.). This is important because lack of formal and informal arrangements can be a key cause of failure in policy effectiveness

- incorporate Council Community Outcomes as the fourth order of outcomes, thereby integrating policy performance reporting into some council's current monitoring practice. While councils are no longer are required to monitor community outcomes, some still currently do so.

However, intervention logic monitoring is also introduced in section– *Steps to developing & monitoring the performance framework* because the intervention logic methodology provides a sequence of impacts (or milestones) a policy is expected to achieve over time. If milestones are not achieved, this indicates that the policy, or its implementation, is not effective and therefore needs to be reviewed. This sequence of milestones is developed when the policy is first assessed and can be built into the order of outcomes monitoring framework. Intervention logic is one of the most challenging aspects to policy performance monitoring – trying to assess to what degree the policy has influenced progress towards desired outcomes or to what degree other factors have influenced them.

The Four Orders of Outcomes approach

The Four Orders of Outcomes was initially developed for Integrated Catchment Management programmes (Olsen 2003). An outcome is defined within this field of practice as a measurable consequence that results from specific actions (Feeny et al. 2010:11).

Like intervention logic, the Four Orders of Outcomes identifies a sequence of inputs, outputs, and subsequent series of impacts a policy is expected to facilitate to reach a desired state outcome. This sequence is categorised into four Orders of Outcomes: the first two Orders are process Outcomes – the changes required to reach a desired State Outcome; the second two are state Outcomes – for example, the biophysical or social states a community wishes to achieve (see Table 1).

Table 1: Four Orders of Freshwater Outcomes

Process Outcomes		State Outcomes	
1st Order of Outcomes	2nd Order of Outcomes	3rd Order of Outcomes	4th Order of Outcomes
Effective delivery of policy outputs Institutional arrangements and Council practices that provide enabling conditions for a fresh water policy to be effectively implemented	Specific behavioural and practice changes by people and organisations influencing fresh water outcomes values Specific infrastructure or technological investments	Improvements in specific environmental, social, economic and cultural states that are directly related to the 2nd Order of Outcomes impacts	Broader council community outcomes to which 3rd Order of Outcomes contribute

1. The First Order of Outcome assesses whether:

    - the institutional arrangements and changes to practices that provide the enabling conditions for the fresh water policy are in place
    - there has been effective implementation of the policy outputs

The First Order of Outcomes emphasises the need first to create an enabling organisational and institutional environment to allow policies to be effectively implemented. This is particularly critical if the policies signal a new way for councils and stakeholders to operate in regard to fresh water management. For example, if the new policies require greater collaborative governance of waterways with other parties, then formal and informal arrangements for that collaboration need to be set in place. Equally, if a council's district plan is changed to enable residents to use low impact stormwater devices (e.g. swales, rain gardens) on their properties then council consent staff need to be trained and prepared to consent LID stormwater applications[2].

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[2] Note: one council found that despite making allowances for Low Impact Design (LID) approaches for managing stormwater in their district plan, and despite promoting those approaches publically , their consent offices still routinely turned LID consents down because they were seen as too risky or simply not business as usual (Mortimer 2011).

2. The Second Order of Outcomes assesses the direct impacts or changes that have occurred as a result of the policy outputs

3. The Third Order of Outcomes assesses progress towards the desired ecological and potentially social, cultural, and economic outcomes relating directly to the fresh water issue and policy. They are the desired policy outcomes.

4. The Fourth Order of Outcomes assesses progress towards broader community (or council) outcomes as defined by the council in its community outcomes process.

This guideline has developed the Four Orders of Outcomes into a policy performance monitoring framework (see Table 2). The framework consists of: the hierarchy of outcomes in a series of logic steps; assumptions and evidence underpinning those outcomes; identified outcome risks; measures for each outcome and a baseline of those measures undertaken before policy implementation against which the monitoring will be assessed.

Table 2: Order of Outcomes Monitoring Framework

Outcome order	Logic steps	Assumptions	Evidence	Measures	Baseline	Risks
Issue						
1st Order Outcome *Policy Output*	If......					
Enabling conditions	And					
2nd Order Outcome *(choose number of rows needed)*	Then..if					
	then…if					
	then…if					
	then…if					
	Then..if					
	Then..if					
3rd Order Outcome	then					
4th Order Outcome	which contribute to					

The following section outlines how to use this framework to develop and undertake a policy performance monitoring programme.

STEPS TO DEVELOPING THE PERFORMANCE MONITORING FRAMEWORK _____

This section describes the steps needed to set up a policy performance evaluation process, populate an Orders of Outcomes monitoring framework, and then undertake a policy performance assessment. The steps are illustrated using a case study of a fresh water policy.

Steps to developing & monitoring the performance framework

STEP 1.   Set the terms of reference & team

STEP 2.   Define and describe the policies/programmes under evaluation

STEP 3.   Verify the intervention logic of the policies/programmes

STEP 4.   Populate the Order of Outcomes Framework

STEP 5.   Undertake the baseline

STEP 6.   Undertake the policy performance evaluation

STEP 7.   Tell the performance story

STEP 1. Set the terms of reference & team

A terms of reference should be created clearly stating the scope of the evaluation. For example, are all council activities that contribute to water quality improvements to be evaluated or just a subset of them? If all council activities are to be included then a first step is undertaking an audit to identify those programmes that are relevant, as they may be delivered by different parts of the Council. Are relevant partner agencies programmes to be included in the evaluation, and if so who will undertake that evaluation?

Once the scope has been identified, a project team needs to be identified and resourced. This requires deciding whether the evaluation is to be carried out by council policy staff or whether a more collaborative process will be adopted. Either approach can utilise this guide. Evaluating the performance of policies that are attempting to influence complex dynamics of land use and fresh water values will generally require evaluators to use more than just quantitative data. It will often be important to involve in the evaluation those council staff implementing the policies

(e.g. consents and compliance staff, staff leading farm practice adoption programmes, etc.) as well as people from other groups and organisations who are implementing policies or who are significantly affected by the policies in order to provide qualitative feedback on whether the policies ae working and how they might be improved. This will particularly be the case both for new policies where learning is critical and for policies seeking to influence complex dynamics such as land use and fresh water values where different perspectives can provide knowledge about different parts of a complex fresh water system.

Engaging stakeholders and implementation staff in policy performance evaluation can:

- provide multiple perspectives to an evaluation of the effectiveness and implementation of the policy to build a richer picture of how well the policy and programmes have been implemented, and what new external factors are influencing outcomes.

- further engage policy implementers and stakeholders in the policy issue and outcomes and build their learning and commitment to act on the evaluation findings and improve policy implementation (Patton 1997).

Participatory evaluation, an emerging approach, is an extension of participatory decision-making in natural resource management. It is defined as any evaluation approach that actively involves programme staff or participants in decision-making and other activities related to the planning and implementation of evaluation studies (Mathison 2005:291). If the council has adopted a participatory approach to developing policy then undertaking participatory evaluation may be a natural extension of that process. A comprehensive guide to participatory evaluation can be accessed on the Australian Government's on-line open source repository for natural resource management. See the link in section – *More information and resources*.

The benefits of a participatory evaluation approach need to be weighed up against considerations of the resourcing and time required for such approaches, whether there is an expectation of involvement by partners and stakeholders, and any political risks associated with the approach.

Iwi will be key stakeholders who can add value to the development and assessment of the performance framework. If the council has, in partnership with iwi, identified Māori outcomes for a water policy or plan then they should identify whether iwi have their own specific cultural indicators to incorporate in the performance-monitoring framework. A number of mātauranga Māori cultural monitoring approaches and indicators have been developed, some of which have been adapted or developed for specific iwi and hapu. These approaches are introduced in more detail in section – *Utilising Mātauranga Māori cultural indicators and monitoring methods*.

Once the performance framework has been developed – which should capture the timeframes that behavioural and ecological change is predicted to occur – the Terms of Reference should be revisited and the timeframes for when the policy performance monitoring should take place should be agreed to and recorded. For example, if a policy is expected to take 4 years before any significant behavioural change takes place then an evaluation after 2 years will be able to focus only on how well implemented the policy has been, not how effective.

STEP 2. Define and describe the policies/programmes under evaluation

Succinctly describe and collate information on the policies (new and existing) that are defined within the scope of the evaluation Terms of Reference. During this process identify people whose involvement in those policies can help you populate and/or evaluate the policies.

STEP 3. Verify the intervention logic of the policies/programmes

Check that the intervention logic or rationale for the policies under evaluation has been undertaken and recorded or, in the absence of a rational being carried out, undertake one retrospectively. The following section introduces the basic concept of intervention logic and provides guidance on developing retrospective intervention logic to support policy performance monitoring.

What is intervention logic?

"It is always easy to be logical. It is almost impossible to be logical to the bitter end." Albert Camus

Intervention logic describes the rationale behind a policy or programme. It is a visual process of presenting a sequence of steps leading from policy outputs to policy outcomes, through which the logic between each step is underpinned by stated assumptions and supporting evidence. Intervention logic forces us to explore the underpinning processes that lead to social and ecological change. Intervention logic is also referred to as programme theory, programme logic or a logical framework approach (Australian Agency for International Development 2005), the last originally developed for international development projects.

Intervention logic is particularly helpful for policy performance monitoring when the policies may be only one of a number of factors influencing an outcome, and where there are significant time-lags between policy outputs and desired policy outcomes. However, intervention logic can be challenging as it can quickly reveal how little the evidence we base our policy assumptions on. This is particularly true as we move beyond the immediate impacts of policy outputs to the longer term impacts on outcomes. Intervention logic works best if only singular or linked policy interventions are examined at a time, otherwise the assumptions can
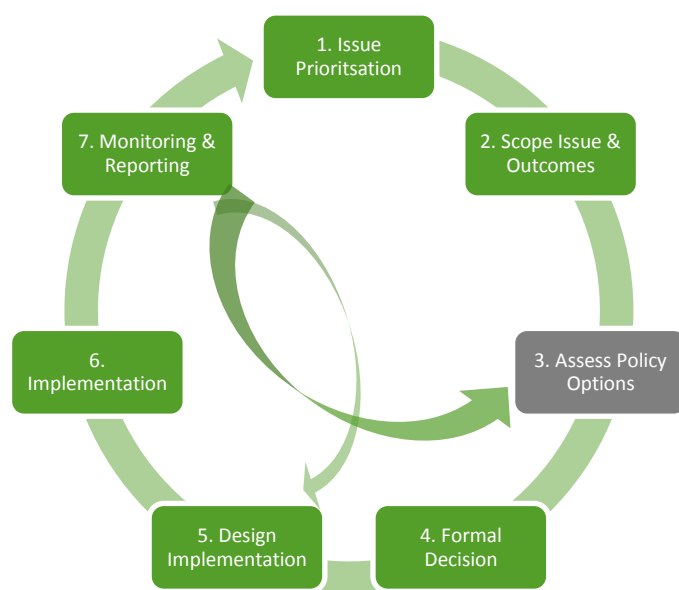

Figure 1: Policy Development Cycle

quickly become too generalised or the logic diagrams get too complex to analyse.

Intervention logic is best developed during step 3, *Assess options,* of the policy development cycle (Figure 1). However, intervention logic can be developed retrospectively to feed into the policy performance-monitoring framework.

Two intervention logic approaches are introduced below. The first approache places emphasis on examining the assumptions and evidence underpinning each sequence of impacts of an intervention. This is referred to as developing an intervention logic backbone. A simpler process is then provided where the assumptions are more descriptive and are not required for each step of the impact sequence. This is commonly referred to as developing a logic framework.

Developing an intervention logic backbone

There are 5 steps to developing an intervention logic backbone. An example is provided below in Table 3 on the following page, which reads from top to bottom. Start by creating a copy of the Framework temple in Appendix 1 and undertake the following steps.

Step A. Describe the issue being addressed in the *Issue* row.

Step B. In the 3rd Order of Outcomes row, list the final desired outcomes that been agreed as important to the council and stakeholders involved in the policy development process. There will always be an ecological outcome in freshwater management (e.g. reduced suspended sediment, enterococci, and ammonia in the waterways) but there is also likely to be related cultural, economic and social outcomes (e.g. Māori values/mauri enhanced in the catchment, clean water for swimming, and viable aquaculture in the catchment's estuary).

The 3rd Order Outcomes need to be specific enough so that people can easily see the connection between the problem, the action, and the expected outcome. An outcome that is too broad may mean different things to different people and it will be difficult to demonstrate the contribution a specific policy will make to it. The 3rd Order Outcomes also need to be specific enough to be easily measured.

Step C. Describe the 1st Order of Outcomes - the planned policy outputs /activities and required enabling conditions in the *Policy Outputs* and enabling conditions row. Policy outputs are the activities that will be delivered to implement a policy.

Step D. Describe the core intervention logic leading from the policy activities to the policy in the *2nd Order of Outcomes* row. Intervention logic is based on creating a narrative of '**if**…**then**…' logic between different steps in the logic framework. This provides the logical links between policy interventions and environmental state indicators. The provision of these linkages was found to be very weak in New Zealand policy statements and district plans (Erikson et al. 2003). The more specific you can get in terms of, for example, the *numbers* of people adopting practices, or the *timeframes* each step takes, the more specific the performance monitoring can be.

Step E. Articulate the assumptions and risks which underpin each logic step and identify evidence to back up those assumptions. Evidence might include related research, modelled scenarios, theories of change, or the experience and evaluation results of similar programmes run by the council or by other councils.

Table 3: Developing the sequence of logical links between a policy intervention and policy outcome

Outcome Order	Logic steps		Assumptions	Evidence	Risks	Rest of table
Problem	*Stock accessing streams are resulting in high levels of faecal enterocci, ammonia & sediment in the X catchments resulting in; reduction in the capacity of streams to sustain aquatic life, health risks for swimming in the estuary, and a reduced quality of environment for aquaculture in the inner harbour.*		• Suspended sediment smothers stream life • Ammonia is toxic to fish and aquaculture • faecal enterocci presents health risks to people swimming	Councils water monitoring programme (reference) has shown a steady decline in water quality in terms of faecal enterocci, ammonia & sediment in the X and Y catchments		
1st Order Outcome Policy Outputs	**If......**	*the council introduces a stock exclusion rule with a 5-year deadline and a $400k fencing fund over five years & promotes the fund & rule to targeted farmers*	Reducing the cost of fencing and heralding a stock exclusion rule will incentivise farmers to fence streams	Focus group findings with farmers to determine key barriers to fencing		
Enabling conditions	**And......**	*Council funding approved in long term financial plan* *Council staff who interact with farmers are knowledgeable and supportive of the policy*	Farmers more likely to find out and apply for funds if any visiting council staff can explain the purpose and processes to them.			
Second Order of Outcomes	**then.....if**	*60 % of targeted farmers will uptake fencing grants within 2 years*	The majority of farmers will hear about the fund and rule, and understand how it applies to their farm and have no other constraints in up-taking the fund	Average uptake of fencing fund introduced by other council		
	then.....if	*60% of farmers will fence approximately 20 km of streams within the catchment within three years*	The farmers who have applied for funds will use them	Calculation of km of streams based on 60% of farm properties		
	then.....if	*35% of the remaining farmers will fence their streams*	All farmers in the catchments will be aware of the rule and fund and	No evidence		

			understand how it applies to their farms The remaining farmers will be influenced by the 60% of farmers who have already fenced their streams and by the threat of the impending rule			
	then…..if	*Then the council can more easily enforce the stock exclusion rule when it comes into force in 5 years*	If the majority of farmers are compliant then there will be fewer farms to monitor and compliance staff can point to compliant famers as the norm	Experience of consent officers and research that indicates that new rules are easier to enforce if the majority of farms are already compliant		
	then…..if	*95% of farmers will fence off streams within 5½ years*	The council has the resources to enforce the new rule and enforcement will lead to compliance	No evidence	Loss of farm profitability due to retirement of some land	
	then….if	*There will be a reduction in faecal enterocci, ammonia and suspended sediment levels in the catchment within 6 years.*	That the farmers have fenced the properties in a manner that excludes stock. That fencing the majority of targeted waterways will reduce pollutants	Water quality research and catchment modelling		
3rd Order of Outcomes	**Then**	*The habitats and ecological communities, and amenity and recreational values of the targeted catchment are maintained and enhanced* *Economic activities are continually well balanced against the preservation of water-based ecological and amenity values and services.*	Faecal enterocci, ammonia and suspended sediment levels are the key factors determining the health of streams (i.e. riparian planting is not required as well) That there will be no financial impact on farming from riparian management			

As shown in Table 3, the assumptions and evidence generally start in the social sphere, grounded on how and why people behave and change their practices and then move towards assumptions on biophysical change, e.g. why would stream fencing lead to a reduction in faecal enterocci, ammonia, and sediment. Invention logic of environmental policies therefore requires socio-economic and biophysical disciplinary expertise. Table 3 also indicates that articulating the assumptions and evidence will often show knowledge gaps, or where additional policy activities or resources might be required to ensure policy effectiveness. For example, there is an assumption stated in the table that the council has the resources to enforce a new rule to meet compliance targets. This is a reminder to the policy development team that they need to ensure this enforcement activity will be properly resourced in the 5th year of the policy implementation. Finally, any potential risks can be captured, e.g. a possible unintended consequence of the policy, or an implementation risk, etc.

The logic steps and the assumptions/evidence are therefore often best developed with a group, to draw on different expertise, experience, and perspectives. This is a process where mana whenua cultural perspectives (see section – *Utilising Mātauranga Māori cultural indicators & monitoring methods*) and other stakeholders' perspectives and expertise can be woven in. The following questions developed by the Tavistock Institute (no date) are useful to explore when collectively developing the core logic:

1. Why do you believe that activity X will lead to output Y and/or outcome Z?
2. Does anyone have another explanation for why activity X would lead to outcome Z?
3. Is there any research evidence linking activity X and output Y, or output Y with outcome Z?
4. Will activity X always lead to outcome Z or only under some circumstances or with some target groups?
5. What might get in the way of activity X leading to outcome Y?

Developing an intervention logic framework

A simpler, more descriptive intervention logic approach is the development of an intervention logic model framework (Fig. 3). This approach is the better option when there are several freshwater policies to review. Although the approach does not provide the rigour of examining the assumptions and evidence underpinning each link between sequences of impacts, it does enable a policy advisor or a collaborative group to discuss and describe the rationale of an intervention or programme diagrammatically on a single page. By doing so it allows a council and its stakeholders to quickly formalise and communicate the thinking behind the policy interventions.
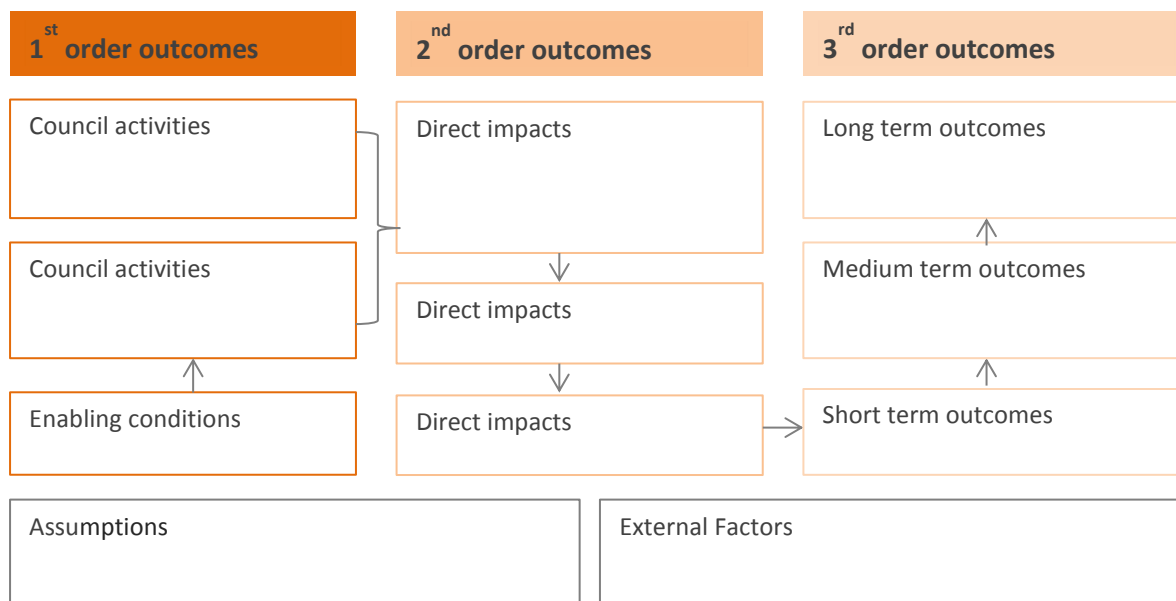
Figure 3: Intervention Logic framework.

The logic framework aligns well with the Orders of Outcomes, and the version illustrated here (Fig. 3) has been adapted from the University of Wisconsin's extension programme logic framework (University of Wisconsin, no date) to align to the Order of Outcomes monitoring framework. Appendix 3 provides a template for undertaking a programme logic framework.

Populating the logic framework can work well as a collaborative process with stakeholders or with a smaller policy development team. The diagram can be populated by creating the main headings on a flip chart or white board, and using small adhesive squares of paper to write up activities, impacts, and outcomes. This way the individual components can be moved, changed, given different interdependencies until the participants are satisfied. Populate the template using the following steps:

A. Populate the 3rd Order of Outcomes boxes with the policy outcomes. These may be broken into short-, medium-, and long-term outcomes. Add boxes as required

B. Populate the 1st Order of Outcomes with the policy activities. Add boxes as required

C. Populate the 2nd Order of Outcomes, that is, the predicted impacts the policy activities will create. Use the *'then...if'* logic thinking to map this.

D. Populate the assumptions box, outlining why the activities are expected to lead to the predicted impacts and why the predicted impacts are expected to lead to the predicted outcomes. Assumptions may be based on common sense (which is more valid if it is built up from different perspectives in a collaborative process), on knowledge of best practice, and on the impacts/outcomes of similar policies/programmes and on theory and research.

Step E. Populate the external factors box. These are factors that are external to the programme/intervention but that can influence the outcomes positively or negatively. They require attention when undertaking the performance monitoring to assess what influence they have on outcomes and whether the interventions need to be changed in response.

Developing the intervention logic of a policy tests the policy's validity, which is why it is best carried out in the policy-assessment stage. It also creates a written record of the thinking behind the policy. Information from the intervention logic framework can be directly transferred to the Orders of Outcomes Monitoring Framework (Step 4).

STEP 4. Populate the indicators of the Orders of Outcomes Monitoring Framework

Step 4 focusses on identifying and capturing the measures which will be used to track performance. More detail about the specific outputs and conditions required for a council to enable them to implement the policy effectively can also be captured. This detail can feed into an implementation plan. Step 4 is illustrated by table 4.

If the Appendix 1 template has been used to create the intervention logic backbone then continue to use that table to populate the measures column. If the simpler Intervention logic framework has been used then transfer the outcomes and assumptions from that framework into a copy of Appendix 1. Carry out the following sub-steps.

4.1 Populate indicators for the 3rd Order of Outcomes row

Third Order Outcomes measures are best developed with relevant stakeholders to increase their contribution and commitment to the policy and outcomes. If limits or targets have been set during the policy development process, these should also be captured as thresholds and target measures in the 3rd Order of Outcome box (Table 4a).

4.2 Populate indicators for the 1st Order of Outcomes row

Enabling conditions and outputs are often identified when carrying out the intervention logic step; however, at this stage more detail can be captured. Check whether the identified policy outputs have associated key performance indicators (KPIs), as these provide greater specificity to the policy performance monitoring. KPIs are required and have usually been developed for Annual Reports and might include:

- Quantity: the quantity of output to be delivered

- Quality: the quality or standard of output expected

- Cost: the cost of output delivery

- Timeliness: the timeframe for delivery of the output

- Location: the physical location where the output will be delivered (ICANZ 2007)

- Audience reach: the specific target audience and % of that population the intervention plans to reach.

4.3 Populate the indicators for the 2nd Order of Outcomes row

Identify indicators that reflect the expected sequence of impacts, or 2nd Order Outcomes arising from the delivery of the policy outputs. These are ideally extracted directly from the

intervention logic assessment of the policy. In the absence of any formalised intervention logic, the 2nd Order Outcomes can be populated by identifying the following measures:

- Indicators of those changes the policy interventions are expected to increase (e.g. riparian planting on farms) that influence 3rd Order Outcomes positively. These are often broken into a sequence of short-, medium-, and long-term change*s*

- Indicators of factors that the policy is attempting to reduce and that influence 3rd Order Outcomes negatively (e.g. stock in waterways).

Finally, policies can negatively affect other outcomes or other groups of people to those targeted. To track whether this does occur, include measures in the risks column of any potential unintended consequences of the policy that have been identified during the policy development process.

4.4 Populate the 4th Order of Outcome row with the relevant council community outcomes

If the council is still monitoring a set of community or council outcomes, those that relate to the 3rd Order Outcomes should be listed in the 4th Order Outcomes box. These outcomes tend to be very broad but many councils have developed sets of measures to track their progress. The 4th Order of Outcome box is not necessary for monitoring the policy performance; however, it links the policy outcomes to the wider outcomes developed by the council and its community. The examples provided are sourced from Waikato Regional Council's community outcomes.

Table 4. Capturing the measures for the Order of Outcomes Monitoring Framework

Outcome order	Logic	Rest of table	Measures	Rest of table
Issue				
1st Order Outcome Policy Outputs	Communication on stock exclusion rule change Targeted promotion of fencing fund Compliance visits on stock exclusion rule		Grants applications processed within 2 weeks % targeted land owners have received a compliance visit	
Enabling conditions	Consent staff & any staff who interact with landowners up-skilled on rule change & fencing fund Administration processes developed to process and monitor fund applications Funding & dedicated staff budgeted in LTCP and long term financial plan		% targeted staff who feel able to explain purpose and logistics of rule changes and fund with landowners Years 1–5 fencing fund allocated. Years 5–7 additional staff allocation for compliance monitoring	

2nd Order Outcome *(choose number of rows needed)*	60 % of targeted farmers up-taken fencing grants within 2 years		Number and % of farmers in targeted catchment that have up-taken grants.	
	All targeted farmers aware of fencing fund and know how to access it		% of farmers surveyed aware	
	All farmers are aware of the impending rule			
	Farmers have fenced of 20 km of streams within 3 years		Km of stream fenced and % of total streams fenced	
	95% of farmers are compliant with rule within 12 months after it has come into effect		% of streams fenced compared with total number	
3rd Order Outcome	The habitats and ecological communities, of the targeted catchment are maintained and enhanced		Stream turbidity/suspended sediment concentrations Nitrogen levels in streams Quality of streams over reference sites (stream health index)	
	The amenity and recreational values of the targeted catchment are maintained and enhanced		Public perceptions of amenity and recreational values Proportion of swimming sites where 95-100% of samples comply with guidelines	
	Economic activities are continually well balanced against the preservation of water-based ecological and amenity values and services.		Farm level profitability within catchment is maintained or enhanced - and the ecological and amenity outcomes are met. Soil nitrogen and phosphorus outputs do not exceed inputs	
4th Order of Outcomes	Our region's waterways have consistently high water quality. We use land management practices that protect and sustain our soil and land Our economy is built on land-based industries and we encourage planning and practices that protect and sustain our productive resources			

Selecting indicators for the Orders of Outcome Framework

"We try to measure what we value. We come to value what we measure." (Donella Meadows, 1998)

This sub-section provides guidance on selecting indicators for populating the Order of Outcomes Framework table. Indicators are a key component of the Order of Outcomes monitoring. Good indicators are measures that have the ability to strip away the complexity of a water situation to enable us to describe what is happening as a result of policy implementation

(Johnston 2006). As highlighted in Donella Meadows' quote above, indicators can become very powerful and therefore we need to pay attention to our selection, use, and reporting of them (Johnston 2006).

Indicators can measure different aspects of freshwater management, including:

- Levels of service within a council's groups of activities, e.g. outputs and timeliness (1st Order of Outcomes)

- Pressures or key influences creating water quality/quantity issues (2nd Order of Outcomes)

- Changes in people's practices that improve water quality/quantity issues (2nd Order of Outcomes)

- Water quality/quantity targets, (3rd Order of Outcomes) and

- Water quality/quantity state, trends, and outcomes (3rd Order of Outcomes)

Any set of indicators selected to track policy performance in achieving freshwater outcomes should:

- be available and affordable

- account for the range of relevant spatial scales (e.g. local hotspots to estuarine impacts)

- account for the interaction with other environmental, social, cultural and economic issues in the catchment/region/nation (though this has proved challenging as many of these interactions are poorly understood or quantified)

- recognise that some policy interventions aim to build co-benefits through their approach

- account for potentially long time lags between cause and effect

- account for natural variability in freshwater flows and quality

- be relevant to and meaningful for the audience. This is especially important when it comes to reporting 3rd Order of Outcomes progress as these indicators represent the community's aspirations. Indicators need to be selected not only to be technically robust but for their ability to represent people's concerns and aspirations. An example for coastal ecological health indicator might be whether people can gather shellfish safely and sustainably, as this is a measure a community can tangibly understand.

A significant constraint to developing indicators is accessing relevant and robust data to measure their status. An important first step in the development of a monitoring framework, and indeed a first step in setting up a monitoring and learning culture within a council organisation, is to identify all current council databases and existing information (e.g. consent compliance, state of environment monitoring, complaints monitoring, customer satisfaction monitoring), and easily accessible and relevant 3rd party data. It can be surprising how much data and research are utilised in different parts of the council.

Regional councils generally have sound frameworks of biophysical state data and understand the trends of their fresh water (Office of the Auditor General 2011). The National Environmental Monitoring and Reporting project (NEMaR), led by Ministry for the Environment, is underway to improve the consistency with which biological variables are monitored across regions to enable better national data and to improve the coverage of the indicators.

There are now a range of mātauranga Māori cultural indicators developed to measure freshwater values and Section – *Utilising Mātauranga Māori cultural indicators & monitoring methods* introduces some of these.

Regional and unitary authorities usually collect and hold less social and economic data. Third-party sources of socio-economic data include Statistics New Zealand data sets (e.g. New Zealand Census data, including the Agricultural Production Census, Industry Statistics, and Measuring NZ's progress using a sustainable development approach), and the Quality of Life survey (www.bigcities.govt.nz). However, these may often not be appropriate data sources for tracking policy performance.

STEP 5. Undertake the baseline

A baseline of the selected indicators needs to be created before the policy is implemented to allow monitoring to identify what has changed as a result of the policy. This includes social and economic measures (e.g. the level of farmer awareness of a water issue, the level of farmer adoption of a water conservation practice, etc.) and ecological measures. A column for capturing baseline results is provided in the Orders of Outcome Monitoring Framework template (Appendix 1).

STEP 6. Undertake the policy performance monitoring

Undertaking the policy performance evaluation entails answering 14 generic evaluation questions in a two-step process listed below. Policy performance monitoring draws on quantitative and qualitative data that are collectively used to answer the 14 evaluation questions. Quantitative data include measures that indicate whether farmers have adopted the policy's intended practices at the rate and timeframes required and whether water quality has improved as a result. Qualitative data include, for example, constraints identified in policy implementation from discussions held with staff involved in implementing a policy. Different monitoring methods will be used to gather data and information, and recommended methods are outline in Table 6.

As explained earlier, performance monitoring can take place by single evaluator or through a collaborative process. In either scenario the two steps and 14 questions essentially remain the same. Appendix 2 provides a template to capture the results of the policy performance monitoring.

6.1. Collate data and information on current outcome progress & compare progress to expected outcomes and baseline.

Step 6.1 records **what** changes or progress have occurred since the policy was implemented. It tends to use quantitative and some qualitative methods and information to identify, for example, the numbers of council activities carried out, how many land managers have applied for fencing funds, levels of compliance to a new rule, etc. It answers the following evaluation questions:

- *Have the identified institutional arrangements and organisational practices been put in place to enable effective policies/programmes implementation (e.g. funding, an agreed plan, etc.)?*

- *Have the intervention outputs been delivered (and delivered against identified criteria or performance level KPIs)?*

- *Did the programme/intervention have its intended 2nd order of outcome impact(s)?*

- *How well are social, ecological and economic trends tracking towards 3rd Order Outcomes?*

Information on the changes that have occurred should be captured on the results table template (Table 5 and Appendix 2). A results chart is a table providing quantitative and qualitative data (primary and secondary) against the outcomes that are stated in the order of outcomes monitoring framework. The table enables results to be easily compared with expected outcomes and the baseline measures.

6.2. Qualify the reasons for current progress and identify ways to improve policy performance

Step 6.2 looks at **why** desired changes have or have not occurred, how the policy context might have changed, and how the policy implementation or design might be improved. Evaluators should draw upon the intervention logic tables to recall why the policy was expected to result in its series of impacts. Step 6.2 tends to use qualitative methods to gather information such as interviews or workshops with key implementation staff or stakeholders. Step 6.2 answers the following evaluation questions:

- *Can we identify any constraints to the policy implementation internal to the organisation or to participating organisations? How might these be overcome and how could implementation be improved?*

- *What activities or characteristics of the programme created the impact? What examples of good practice can be identified?*

- *Did the programme have any unintended consequences, positive or negative?*

- *Did any unanticipated external factors influence the anticipated impacts (e.g. a drought or reduction in milk prices might reduce farmers' investment ability)?*

- *Did any other council activities (aimed at other outcomes) adversely influence the anticipated impacts?*

- *How could the programme be improved?*

- *Can we calculate the relative cost benefit of the programme/intervention?*

- *Can we demonstrate the contribution the policy intervention/s has made to 3rd Order Outcomes? Do we need to review any part of the policy intervention logic?*

- *Have any key extraneous factors influenced the results (e.g. an increase in phosphate prices reducing farmers' phosphate use rather than the intervention)?*

- *Are the policies creating any unintended consequences for ecological, social, cultural, and economic values?*

Information on why changes have or have not occurred should be captured on the Results Table template (Table 5 and Appendix 2).

Table 5: Results Table				
Evaluation questions	Expected Outcome	Baseline	Summarised result	Evidence Source
1st Order of Outcomes				
1. Have the identified institutional arrangements and organisational practices been put in place to enable effective policies & programmes implementation (e.g. funding, an agreed plan, etc.)?	Required enabling conditions			
2. Have the intervention outputs been delivered (and delivered against identified criteria or performance level KPIs)?	Policy outputs	KPIs		
3. Can we identify any constraints to the policy implementation internal to the organisation or to participating organisations? How might these be overcome and how could implementation be improved?				
2nd Order of Outcomes				
4. Did the programme/intervention have its intended second order impact(s)?	Short term			
What % of the target audience was	Medium term			

reached by the intervention? What % of the target audience changed attitudes/practices?	Long term

5. What activities or characteristics of the programme created the impact? What examples of good practice can be identified?
6. Did the programme have any unintended consequences, positive or negative?
7. Did any unanticipated external factors influence the anticipated impacts (e.g. a drought or reduction in milk prices might reduce farmers' investment ability)?
8. Did any other council activities (aimed at other outcomes) adversely influence the anticipated impacts?
9. How could the programme be improved?
10. Can we calculate the relative cost benefit of the programme/ intervention?

3rd Order of Outcomes

11. How well are trends tracking towards 3rd Order Outcomes?
12. Can we demonstrate the contribution that the policy intervention/s has made to 3rd order outcomes? Do we need to review any part of the policy intervention logic?
13. Have any key extraneous factors unexpectedly influenced the results (e.g. an increase in phosphate prices reducing farmers' phosphate use rather than the intervention)?
14. Are the policies creating any unintended consequences for ecological, social, cultural, and economic values?

4th Order of Outcomes (not required for policy performance monitoring)

Evaluation methods

Based on the context of the policy being evaluated, methods and data should be selected by participants to help answer the 14 evaluation questions. Table 7 provides examples of evaluation methods for each of the 14 questions.

Table 6: Evaluation questions and methods examples

Evaluation questions	Possible evaluation methods
6 1. Current outcome progress compared to expected outcomes and baseline	
1. *Have the identified institutional arrangements and organisational practices been put in place to enable effective policies/programmes implementation (e.g. funding, an agreed plan, etc.)?*	Workshop/discussion with policy implementation council staff and relevant stakeholders Check list of what tangible arrangements have occurred against those originally identified in the Order of Outcomes Framework
2. *Have the intervention outputs been delivered (and delivered against identified criteria or performance level KPIs)?*	Council Annual Reporting KPI results Check list of outputs and KPIs in workshop/discussion with implementation staff
3. *Did the programme/intervention have its intended second-order impact(s)? The questions will depend on the specific intervention; however, useful questions for intervention seeking to change people's social and business practices include:* • *What % of the target audience was reached by the intervention?* • *What % of the target audience changed attitudes/practices?*	The second-order impacts will be compared with the baseline. How the second-order impacts are measured depend on each policy's intended impacts but can include surveys, consent compliance monitoring, reporting on uptake of programmes (e.g. km of streams fenced through a funding programme), etc.
4. *How well are social, ecological and economic trends tracking towards 3rd Order Outcomes?*	State of environment reporting, social and economic surveys and NZSTATs data
62. Current outcome progress compared to expected outcomes and baseline	
5. *Can we identify any constraints to the policy implementation internal to the organisation or to participating organisations? How might these be overcome and how could implementation be improved?*	Workshop/discussion with policy implementation council staff and relevant stakeholders
6. *What activities or characteristics of the programme created the impact? What examples of good practice can be identified?*	Workshop/discussion with policy implementation staff and any relevant stakeholders Short narrative stories of programme success form the viewpoint of programme participants (including farmers, etc.)
7. *Did the programme have any unintended consequences, positive or negative?*	Workshop/discussion with policy implementation staff and any relevant stakeholders

8. *Did any unanticipated external factors influence the anticipated impacts? (e.g. a drought or reduction in milk prices might reduce farmers investment ability)*	Workshop or discussion with staff or stakeholders which might include system or influence mapping of the water/land-use system and identification of any new pressures to the system
9. *Did any other council activities (aimed at other outcomes) adversely influence the anticipated impacts?*	Workshop/discussion with policy implementation council staff and any relevant stakeholders
10. *How could the programme be improved?*	Workshop/discussion with policy implementation council staff and any relevant stakeholders
11. *Can we calculate the relative cost benefit of the programme/intervention?*	Cost benefit analysis
12. *Can we demonstrate the contribution the policy intervention/s has made to 3rd Order Outcomes? Do we need to review any part of the policy intervention logic?*	Examination of the results that provide evidence of the sequence of impacts predicted in the intervention logic
13. *Have any extraneous factors influenced the results (e.g. an increase in phosphate prices reducing farmers phosphate use versus the intervention)*	System or influence mapping of the system the policy is seeking to influence and identification of any new pressures to the system
14. *Are the policies creating any unintended consequences for ecological, social, cultural, and economic values?*	Both evidence of downward trends in other values linked to evidence that the policy implementation influenced those trends (this might come form for example local experts experience or other case histories/research)

STEP 7. Tell the performance story

"To hell with facts. We need stories!" Ken Kesey

Policy performance reporting closes the loop on the policy development cycle. It is a critical step for enabling adaptive management, for improving council policy effectiveness, and for improving collective knowledge about fresh water management in New Zealand.

Performance reporting can be challenging however as it attempts to communicate the complex dynamics between fresh water systems, land use, climate and other variables and the influence that a policy intervention has had on this complexity. The quality of the reporting will largely depend on the quality of the monitoring. In addition, quality reporting depends on good communication that is tailored to its intended audience and that brings the performance story alive. Good communication helps engage decision-makers and the public in supporting and improving fresh water policy and outcomes. This section provides guidance on effective performance reporting.

Tailor the reporting to the intended audience
The reporting approach and content will need to be tailored to its targeted audience and associated reported objectives. The key audiences and objectives for policy performance reporting are listed in Table 7. Reports also need to tailor the language of the reports so they make sense to different audiences (e.g. water quality scientists compared with members of the community) and tailor the content so the appropriate level of information is provided to the right audience.

Table 7: Target audiences & reporting objectives

Target audience	Reporting objective/s
Policy team & policy partners	• Adaptive management – looking for continuous improvement
Political representatives & funders	• Communicate council performance in delivering outcomes • Provide rationale for on-going investment • Recommend changes to programmes to improve performance • Highlight new external factors impacting outcomes
Community	• Increase understanding of freshwater issues and solutions • Justify why council is undertaking particular policies • Promote the actions members of public can take

Reporting to the policy team & policy partners
Policy performance reporting to the policy team and external partners can be undertaken as a workshop where findings are presented, discussed, and often given new perspectives. Policy performance reporting to the policy team and external partners should provide:

- A succinct picture of progress towards 2nd and 3rd Order Outcomes

- How the policy or suite of council activities have contributed to those outcomes
- A strong focus on the insights into what's working and what's not and why, in terms both of policy implementation and policy design
- Policy achievements
- The cost benefit of policy activities
- Recommendations for improvements

Political representatives & funders

Policy performance reporting to political representatives and funders can generally be provided as report with a supporting presentation and follow-up, two-way discussion. The report should provide a clear and concise overview of the context, the results, and recommendations. Policy performance reporting to political representatives & funders should provide:

- The wider context that demands and influences the policy
- A succinct picture of progress towards 2nd and 3rd Order Outcomes
- How the policy or suite of council activities have contributed to those outcomes
- The cost benefit of the council activities
- Succinct insights into what is working, what is not, and why, in terms of policy implementation and policy design
- New extraneous factors that might influence outcomes and need to be considered
- Clear recommendations for improvements to the current programmes and potential investment in new ones.

Community

Policy performance reporting to the community needs to focus on providing the context – what the problem is, why it needs to be addressed, and headline findings. Reporting tends to be in the form of on-line and printed reports. A recent report by the Office of the Auditor General (2011) has recommended that councils adopt online reporting rather than printed reports to reduce costs. Policy performance reporting to the community should provide:

- The wider context that demands and influences the policy
- A succinct picture of progress towards 2nd and 3rd order outcomes
- Policy achievements
- How the policy or suite of council activities have contributed to those outcomes
- What the council and the community are doing, or can do, to further remedy freshwater problems

The Waikato Regional Council provides a clear example of web-based reporting on fresh water management (see *http://www.waikatoregion.govt.nz/Environment/Environmental-information/Environmental-indicators/Freshwater/River-and-streams/riv1-report-card/)*. The web-page provides some context and the results (visually), explains how the monitoring is undertaken, what the regional council is doing to improve water outcomes, what the reader can do to improve water outcomes, and where to get more information on the measures and on taking

action. It does not provide the results of policy and monitoring performance of each council policy.

Bring the report alive

Fresh water policies occur in the real world with real people in real places. Policy reports need to engage people, the political decision-makers, and affected communities, in the progress being made towards freshwater outcomes. Reporting should therefore avoid providing sterile accounts of measures, passive language, jargon and too much information without structure or summaries. Reporting should aim to bring the performance report alive. Think of it as creating a story, with a setting, a challenge to overcome, solutions or a quest undertaken, multiple characters and, finally, an outcome.

Policy performance monitoring tends to draw on qualitative (descriptions) results and quantitative (numbers) results and both can be integrated in the performance story. Qualitative results can provide narrative descriptions of the context, of what worked, what didn't, and why. Quotes from members of the community or policy implementers can provide different perspectives and add reality and authenticity to the report. Narrative case studies of specific aspects of the policy intervention can describe policy successes as well as introduce challenges faced on the way to policy success.

Quantitative results (numbers) back-up the narratives with comparable measures. Quantitative results are best presented in visual form, such as tables or graphs, so that findings and interrelationships between factors can be understood at a glance. Tables and graphs are helpful for showing trends and communicating which outcomes are improving and which are declining or for communicating relative progress (Fig. 3[3]). Pie graphs are useful for communicating the relative causes of an issue or the relative influence of different interventions (Fig. 4[4]).

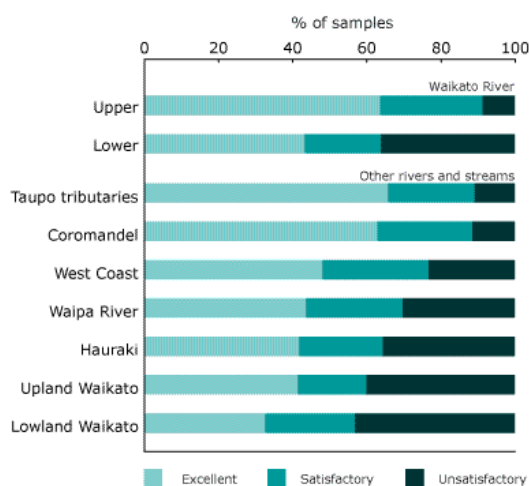**Figure 3**: Waikato Regional Council graph illustrating the relative results for ecological health of river water.
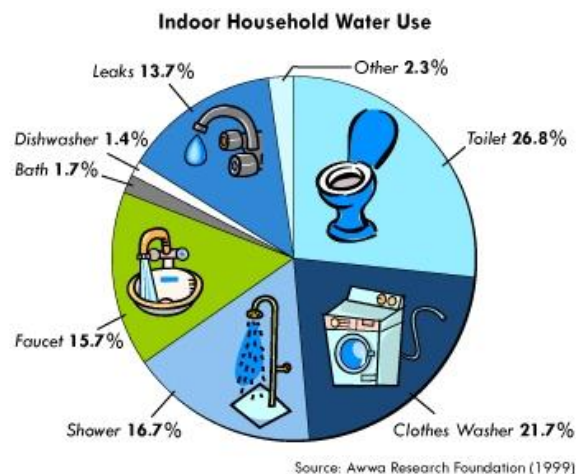

Figure 4: Awwa Research foundation pie chart illustrating the average breakdown of household water use.

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[3] http://www.waikatoregion.govt.nz/Environment/Environmental-information/Environmental-indicators/Freshwater/River-and-streams/riv1-report-card/

[4] http://www.fcs.uga.edu/ext/housing/water_use.php

Communicating any part of the story by visual means can help people make sense of a complex system of cause and effect. Visual aids can also be used to contrast the current problem with what the interventions can achieve, which helps explain to communities why the interventions needed to be undertaken. For example, Figure 5 is an extract from a Darwin Harbour Region Report Card that pictorially compares the water management issues with the policies and desired outcomes.

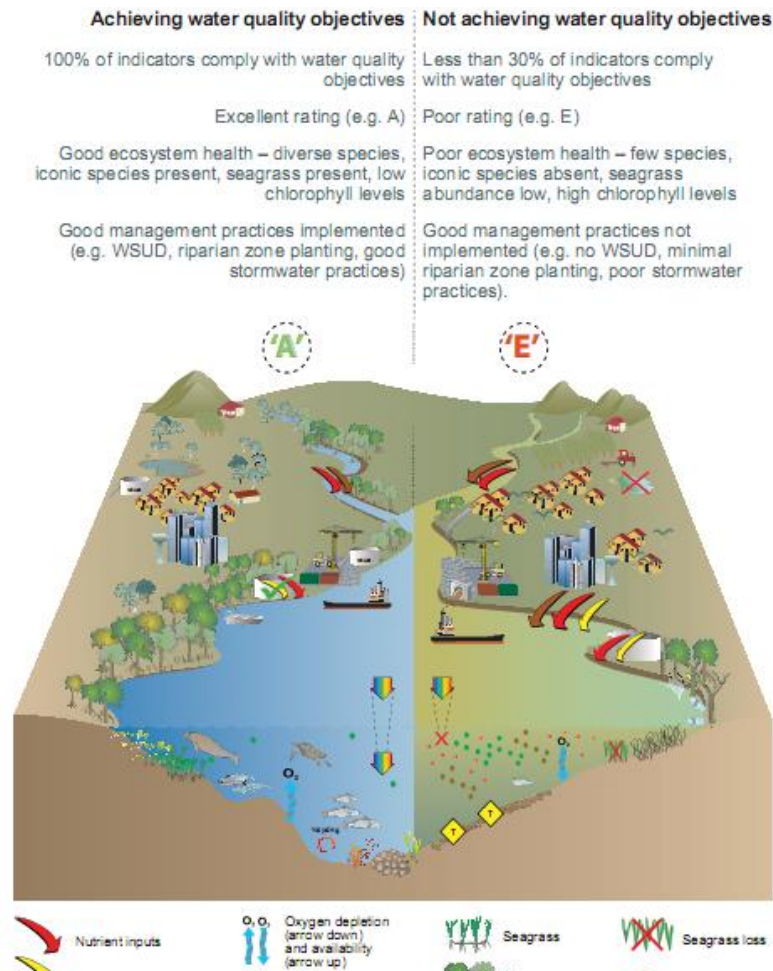| Achieving water quality objectives	Not achieving water quality objectives
100% of indicators comply with water quality objectives	Less than 30% of indicators comply with water quality objectives
Excellent rating (e.g. A)	Poor rating (e.g. E)
Good ecosystem health – diverse species, iconic species present, seagrass present, low chlorophyll levels	Poor ecosystem health – few species, iconic species absent, seagrass abundance low, high chlorophyll levels
Good management practices implemented (e.g. WSUD, riparian zone planting, good stormwater practices)	Good management practices not implemented (e.g. no WSUD, minimal riparian zone planting, poor stormwater practices).

Figure 5: Darwin Harbour Region Report Cards 2011:12. ©2011 Department of Natural Resources, Environment, the Arts and Sport. www.nt.gov.au/nreta/water/aquatic/index.html

Maps can be used to provide a spatial context and allow the audience to orientate themselves to those places that are important to them (Fig. 6). For example, place-based performance monitoring of 3rd Order of Outcomes can be summarised through maps.

Information in the reporting should be layered. Structure the reports so they provide a concise clear and informative overview of results so the audience can see at a glance the headline results and how they relate to each other. The report can then provide more detailed and contextual information and even data sets, so people can explore the results in depths if they wish.

This can be done in written reports; and is even easier with

Figure 6: Darwin Harbour Region Report Cards 2011:5.

online reporting. Online reporting can be flexible and updatable and can allow for layered information where a diagrammatic over view can be provided upfront and people can click through for more detailed information. This allows people to choose the level of information they need and the report to provide both a concise overview and comprehensive detail.

Telling the 'things will get worse before they get better' story

In some situations, e.g. a lake that is receiving historic nitrogen loads, even when effective interventions are implemented, the water quality will continue to decline for some time before it improves. This is a challenging performance story to tell. First, the story must clearly explain why there are no interventions that can immediately reverse the lake quality. Then it needs to describe the predicted decline in water quality if no action is taken and compare that with the predicted water quality decline if the policy interventions are implemented. It can report on whether the water quality is tracking on the later curve. Graphs will be a critical part of this communication (Fig. 7).
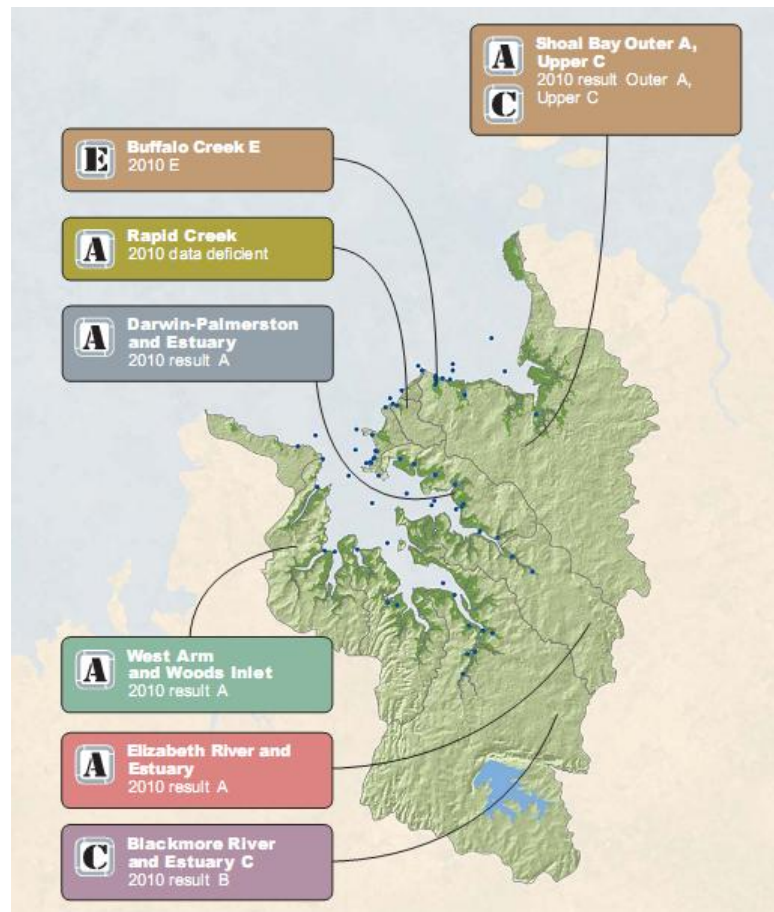
Comparison of lake water quality with nitrogen cap and without

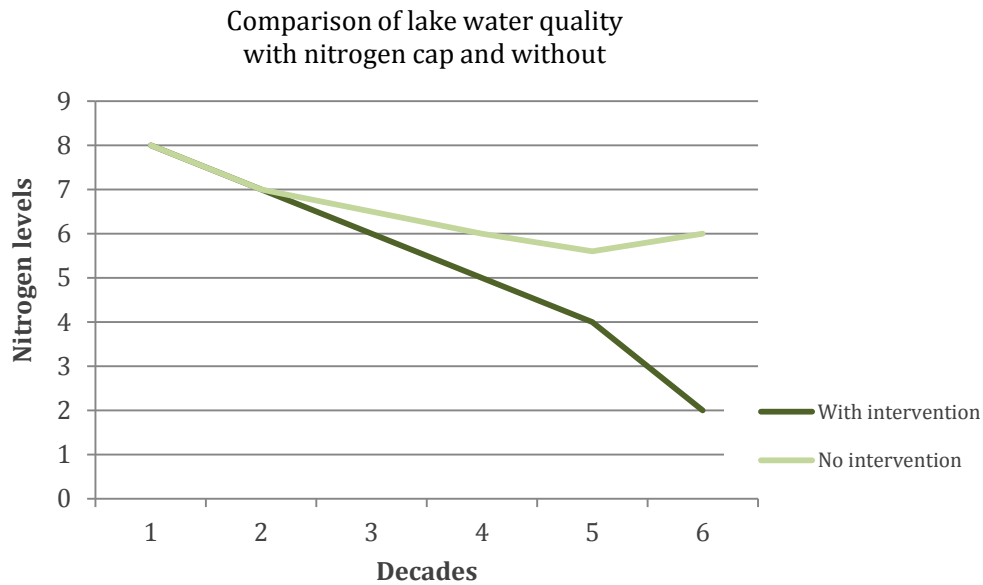**Figure 7:** Comparing water quality with and without a policy intervention.

UTILISING MĀTAURANGA MĀORI CULTURAL INDICATORS & MONITORING METHODS_____

Cultural monitoring based on mātauranga Māori and western science is an assessment method that can identify and articulate iwi/hapū values and perspectives of catchments and freshwater ecosystems spatially and temporally. The methods and approaches can then be used to monitor and report environmental–cultural changes through time from an iwi/hapū perspective. Cultural monitoring approaches and indicators can work alongside conventional council and science monitoring and can be identified as a key component and used to inform an Outcomes Monitoring framework.

Mātauranga Māori cultural monitoring of fresh water outcomes is important because it

- provides a Māori perspective on how the environment is changing – based on Māori values
- identifies issues from Māori perspective
- measures progress towards Māori goals and aspirations (outcomes)
- uses mātauranga Māori (knowledge) and Māori values (relationship or connection to place)
- links environmental health to Māori well-being

Cultural monitoring should be undertaken in partnership with local Māori organisations such as iwi/hapū and kaitiaki groups. Ideally, this partnership would have started at the initial stages of the policy development cycle when the council and stakeholders, including iwi, are collectively defining fresh water values and desired outcomes for the policy intervention/s. If the council

has, in partnership with iwi, identified Māori outcomes for the management of water through a policy or plan, they should then identify whether iwi have their own, specific, cultural indicators to use in monitoring the state of health or mauri of the environment and water through time. A number of iwi/hapū are developing or have developed indicators for freshwater management that are specific to their local area. There are also national tools that are gaining increasing use, for example, the Cultural Health Index (CHI) is a generic tool that allows iwi/hapū to assess the cultural and biological health of a resource and communicate this information to water managers in a way that can be understood and integrated into resource management processes. Many iwi/hapū across New Zealand are adapting and customizing the CHI for monitoring in their local areas. This largely involves incorporating their own frameworks and indicators into the CHI based on their iwi/hapū values and beliefs, and using the CHI to monitor progress towards aspirational goals and standards to protect, sustain, and enhance iwi/hapū values, such as mahinga kai. The use of monitoring tools is also helping build human and social capacity and strengthening local knowledge for iwi to undertake their own assessments. Table 8 provides an example of a cultural framework and indicators (from Tiakina Te Taiao of the Nelson-Motueka region) as part of the development of their Cultural Health Index (CHI), which is helping them assess and report change in the state of their catchments, rivers, and estuaries through time.

In addition to the CHI, councils and iwi can draw on a large number of cultural monitoring approaches that have been developed in different parts of New Zealand to help develop localised measures and methods for performance monitoring. A review undertaken by Harmsworth and Awatere to June 2012 identified the following range of cultural monitoring tools and approaches:

- Cultural Health Index (CHI) (Tipa & Teirney 2003, 2006)
- Cultural indicators of wetlands (Harmsworth 1999, 2002)
- State of Takiwa "toolbox" (iwi environmental monitoring and reporting tool), see www.ngaitahu.iwi.nz
- Adaptation of the Cultural Health Index (CHI) by Tiakina te Taiao for their own use and application in the upper South Island (Te Tau Ihu) (Harmsworth & Awatere. 2012)
- CHI for estuarine environments (Tiakina Te Taiao – Walker 2009)
- Significance assessment method for tangata whenua river values (Tipa 2010)
- Kaitiaki tools: an internet-based iwi Resource Management Planning Tool (NIWA)
- Ngā Waihotanga Iho: Iwi Estuarine Monitoring Toolkit (NIWA)
- Te Mauri model assessment tool (Morgan 2003)
- KEIAR framework (Waikato case study) (Dixon et al. 2011)

Table 8: Cultural Indicators based on the Cultural Health Index (CHI) and organised by Atua domains (from Tiakiana Te Taiao – Nelson-Motueka region). Source: Harmsworth & Awatere (2012)

Tangaroa	Haumia tiketike
• Water Clarity	• Mahinga kai
• Water Flow	• Rongoa
• Water Quality	**Tūmatauenga**
• Shape and form of river, riverbank condition, sediment	• Human activity, Use of river
• Insects	• Access
• Fish	• Cultural sites
Tāne Mahuta	**Tāwhirimātea**
• Riparian vegetation	• Smell
• Catchment vegetation	**Mauri/Wairua**
• Bird life (species)	• Feeling, taste, wellbeing
• Ngahere/Taonga	
• Pests	

OVERCOMING BARRIERS – BUILDING CAPACITY FOR PERFORMANCE MONITORING_____

Performance monitoring and reporting are challenging, and aside from 5-year reviews of regional policy statements and plans, are not common practice in New Zealand local government. The following barriers to undertaking performance reporting were identified through interviews with council policy staff in the development of this guide:

1. It costs too money and staff time

2. The complexity of water dynamics and land use, makes it difficult to determine the influences council activities have on an outcome

3. Accessing all relevant monitoring data, especially socio-economic data, at an appropriate scale is difficult and expensive

4. Policy goals and outcomes are often too broad or vague to measure

5. There is no time to undertake intervention logic in the policy assessment stage

6. Councils are only legislatively required to monitor policy effectiveness of regional policy statements and regional and district plans

7. Councils often do not have a culture of evaluation and adaptive management, so these activities are not prioritised or embedded in organisational decision-making.

As a result, policy performance monitoring and reporting that leads to adaptive management will usually require new practices and a cultural shift within an organisation. A number of recommendations to help build organisational capacity to undertake performance monitoring, including those recommended by the RMA Quality Planning Resource[5] are listed below:

- Start with priority projects where information will be particularly valuable and the need performance information is recognised by decision-makers.

- Design these as catalyst project that have wide profiles within the organisation, which can demonstrate to staff in different areas of the council how policy performance monitoring can help them in practical ways. Also design them to perform as research and learning projects to develop the capability of the organisation to undertake further performance monitoring.

- Find people within the organisation who can work with you. These are staff who either have access to sources of monitoring information or who can use performance monitoring to improve their areas of work. This is likely to include research and monitoring staff, strategy and planning staff, finance staff, and communications staff. Involve them in discussions on the value and best practice of policy performance monitoring. (RMA Quality Planning Resource, ND).

- Develop an informal community of practice with internal staff and staff from other councils. Share your collective learning and best practice.

- Make the most of the data the councils already collect as well as information from other agencies. Consolidate council databases of existing information (e.g. state of environment, compliance and complaints monitoring, surveys) and make it easily assessable to council staff.

- As the organisation builds its capability in performance monitoring, work with business or the process development team in the Council to introduce formal processes to ensure intervention logic and performance monitoring and reporting are embedded in council standard processes. Importantly, the council needs to build in organisational processes that ensure performance findings can readily be enacted by the council, in other words that they *close the evaluation–action loop.*

MORE INFORMATION AND RESOURCES_____

The fresh water values, monitoring and outcomes programme
www.landcareresearch.co.nz/science/portfolios/enhancing-policy-effectiveness/vmo for more information

Intervention logic
Tavistock Institute. Logic mapping: hints and tips for better transport evaluations accessed www.gov.uk/government/uploads/system/.../logicmapping.pdf

University of Wisconsin logic models templates and online guide
www.uwex.edu/ces/pdande/evaluation/evallogicmodelworksheets.html

Best practice RMA planning guidelines
www.qualityplanning.org.nz/index.php/monitor/reporting)

Participatory evaluation
Roughley A, Dart J. 2009. Developing a performance story report – user guide. Commonwealth of Australia accessed at the Australian government's online resource management website
http://nrmonline.nrm.gov.au/catalog/mql:2162

Water indicator guidelines
Australian and New Zealand Environment Conservation Council (ANZECC) guidelines. The ANZECC guidelines provide numerical "trigger values that can be used to assess whether water quality issues need to be assessed further.
Ministry for the Environment water quality guidelines for clarity.
www.mfe.govt.nz/publications/**water/water-quality-guidelines**-2.pdf
NIWA 1998. Stream Health Monitoring and Assessment Kit (SHMAK), National Water and Atmospheric Research, Wellington. Available at: http://www.niwa.co.nz/our-science/freshwater/tools/shmak.

Maori Monitoring methods and indicators
NIWA 2009. Kaitiaki Tools – a web-based tool for Māori resource managers to identify impacts of land-use changes and effluent discharges on mahinga kai resources and other Māori values. NIWA. (The tool is currently being tested with a range of iwi). Currently only IN CONFIDENCE CONC-20769-WATER-AGR Page 11 of 39 available online for registered users at:
http://www.niwa.co.nz/ourscience/freshwater/tools/kaitiaki_toolz

Ogilvie S, Penter B 2001. Stream Health Monitoring Assessment Kit for Māori. NIWA, Christchurch. http://www.smf.govt.nz/results/1027_final report.pdf

Otaraua Hapū 2003. Kaimoana Monitoring Guidelines for Iwi and Hapū. MfE Wellington. http://www.mfe.govt.nz/publications/ser/kaimoana-oct03.html

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APPENDIX 1. ORDER OF OUTCOMES MONITORING FRAMEWORK

	Logic steps	Assumptions	Evidence	Measures	Baseline	Risks
Issue						
1st Order Outcome *Policy Output*	**If……**					
Enabling conditions	**And ….**					
2nd Order Outcome *(choose number of rows needed)*	**Then….if**					
	then…..if					
	then…..if					
	then…..if					
	then…..if					
	then…..if					
3rd Order Outcome	**Then**					

APPENDIX 2. RESULTS TABLE TEMPLATE

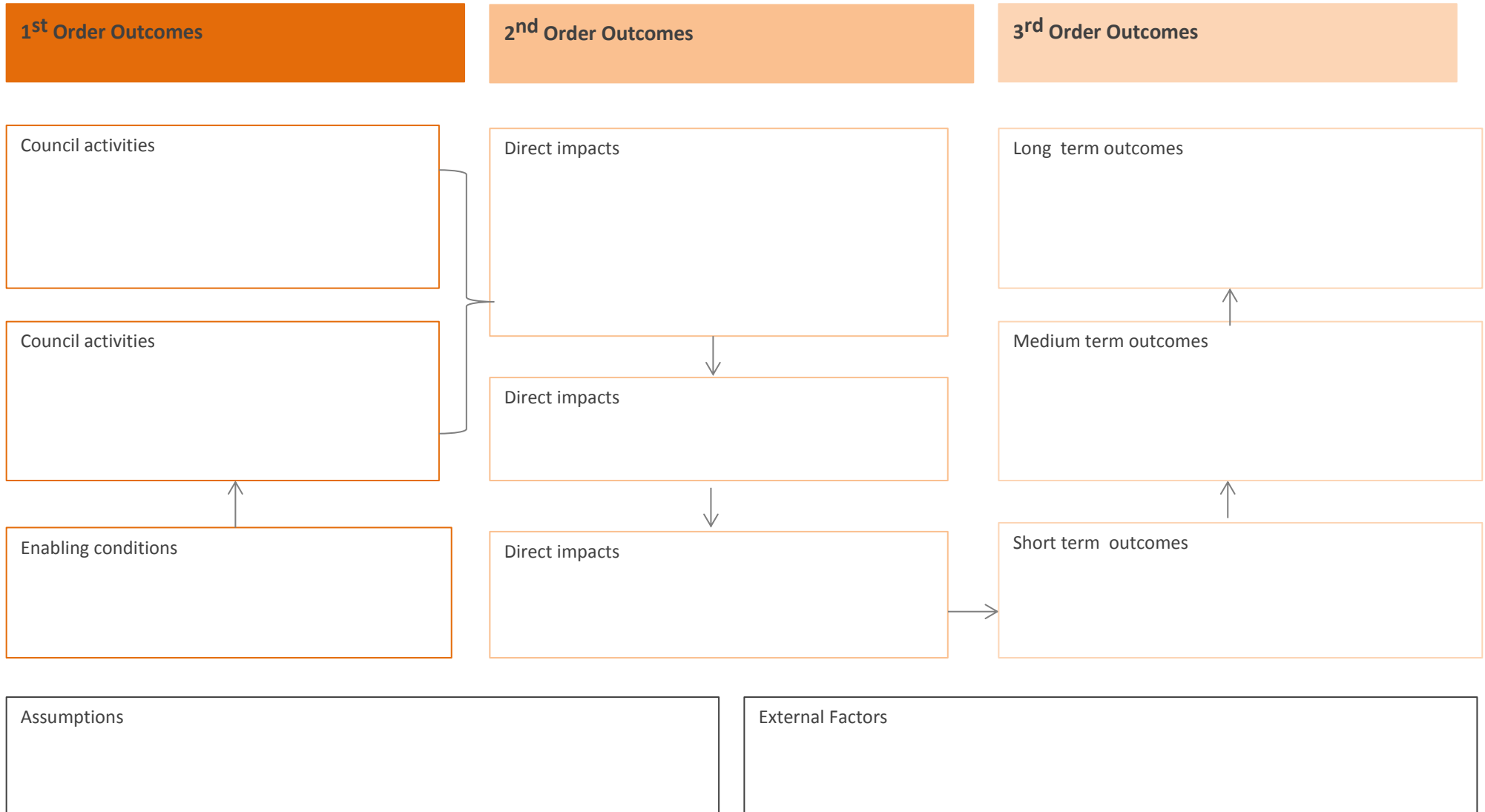| Evaluation questions	Expected Outcome	Baseline Measure	Summarised result	Evidence Source	
1st Order of Outcomes					
1. Have the identified institutional arrangements and organisational practices been put in place to enable effective policies & programmes implementation (e.g. funding, an agreed plan etc.)?	**Required enabling conditions**				
2. Have the intervention outputs been delivered (and delivered against identified criteria or performance-level KPIs)?	**Policy outputs**	KPIs			
3. Can we identify any constraints to the policy implementation internal to the organisation or to participating organisations? How might these be overcome and how could implementation be improved?					
2nd Order of Outcomes					
4. Did the programme/intervent	Short term				

ion have its intended second order impact(s)?	Medium term				
What % of the target audience was reached by the intervention? What % of the target audience changed attitudes/practices?	Long term				
5. What activities or characteristics of the programme created the impact? What examples of good practice can be identified?					
6. Did the programme have any unintended consequences, positive or negative?					
7. Did any unanticipated external factors influence the anticipated impacts (e.g. a drought or reduction in milk prices might reduce farmers' investment ability)?					
8. Did any other council activities (aimed at other outcomes) adversely influence the anticipated impacts?					
9. How could the programme be improved?					
10. Can we calculate the relative cost benefit of the programme/ intervention?					
3rd Order of Outcomes					
11. How well are trends tracking towards 3rd Order Outcomes					
12. Can we demonstrate the contribution that the policy intervention/s has made to 3rd order outcomes? Do we need to review any part of the policy intervention logic?					
13. Have any extraneous factors unexpectedly influenced the results (e.g.					

an increase in phosphate prices reducing farmers phosphate use versus the intervention)?			
14. Are the policies creating any unintended consequences for ecological, social, cultural, and economic values?			
4th Order of Outcomes (not required for policy performance monitoring)			

APPENDIX 3. INTERVENTION LOGIC FRAMEWORK TEMPLATE

1st Order Outcomes	2nd Order Outcomes	3rd Order Outcomes

| Council activities | Direct impacts | Long term outcomes |

| Council activities | Direct impacts | Medium term outcomes |

| Enabling conditions | Direct impacts | Short term outcomes |

| Assumptions | External Factors |

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