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MINISTRY FOR THE ENVIRONMENT

Freshwater Management National Policy Statement

Section 32 Evaluation

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1.0 INTRODUCTION

1.1 OVERVIEW

This report provides an evaluation under Section 32 (s32) of the Resource Management Act 1991 (RMA) of the proposed National Policy Statement for Freshwater Management (NPS). This evaluation builds on the earlier s32 evaluation the NPS, completed prior to the notification of the NPS, and the on the Board of Inquiry (BOI) Report. The evaluation examines the proposed NPS as changed in accordance with changes recommended by the Ministry for the Environment following the BOI report.

1.2 NATIONAL POLICY STATEMENTS

The purpose of national policy statements (NPS) is to state objectives and policies for matters of national significance which are relevant to achieving the purpose of this Act. NPSs can have a significant influence on resource management practice given that:

- Regional policy statements, regional plans and district plans must give effect to them;
- Consent authorities must have regard to a NPS when making a decision on a resource consent application;
- Territorial authorities must have particular regard to a NPS when considering a notice of requirement for a designation and when considering a requirement for a heritage order; and
- Special Tribunals and the Environment Court must have regard to a NPS when considering a water conservation order.

1.3 SECTION 32

Section 32(3) requires that an evaluation must examine:

(a) the extent to which each objective is the most appropriate way to achieve the purpose of this Act; and

(b) whether, having regard to their efficiency and effectiveness, the policies, rules, or other methods are the most appropriate for achieving the objectives.

Further s32(4) requires that the evaluation take account of:

(a) the benefits and costs of policies, rules or other methods; and

(b) the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules, or other methods.

Section 32 of the RMA does not explicitly require an evaluation of whether the NPS is "desirable". This assessment is required under s45 of the RMA. In completing an evaluation in accordance with s32 there is, however an implicit need to assess alternative approaches to the NPS. The key alternative to the NPS is the status quo. The status quo is outlined in section 2.0 of this report and serves as the baseline for the evaluation. Further, a broad consideration of other alternatives is provided in section 4.0.

Section 5.0 of this report provides outlines the evaluation of the specific provision of the Proposed NPS. The approach followed in the evaluation is as follows.

1.3.1 Evaluating Objectives

In considering the appropriateness of the objectives of the NPS, regard is given to:

- The purpose of objectives, which is to state the outcome sought from the resolution of a resource management issue; and
- Whether, through the resolution of an identified resource management issue, the objectives will help achieve the purpose of the RMA, being the promotion of the sustainable management of natural and physical resources.

It is noted that section 3.0 of this evaluation sets out the problem statement in relation to freshwater management. The matters described in the problem statement serve as the resource management issues for the purpose of this evaluation.

1.3.2 Evaluating Policies

Having considered the appropriateness of the objectives, the related policies are then evaluated. In evaluating the policies regard is given to:

- How effective, or successful, the policies will be in achieving the objectives and thereby resolving the relevant issue; and
- The costs and benefits of each policy and, having considered these matters, how efficient the policy would be in achieving the Objective.

Criteria for the evaluation efficiency and effectiveness are set out below.

While s32 requires that each policy is individually evaluated against the NPS objectives, it is noted that the consideration of the appropriateness of the package of policies is necessary. This is the case because while each policy will go some way to fulfilling the objectives, and must do so to be considered appropriate, no one policy will be fully effective in achieving the objectives. In other words, it is very unlikely that a single policy could be considered the 'most appropriate' way to achieve the objectives.

Effectiveness

For the purposes of evaluating "effectiveness" three elements are considered. The first element is whether the policies address the full scope of matters covered in the relevant objectives.

The second element of effectiveness is whether the NPS utilises all relevant policy approaches. In completing this part of the evaluation it is recognised that a more limited range of policy approaches are available for use in a NPS than in other RMA policy statements or plans. The policy approaches considered available to a NPS are:

- Plan/Policy Statement changes – policies that require changes to regional policy statements and regional or district plans to address specific matters;
- Resource consent guidance – policies that provide guidance on matters that need to be considered as part of resource consent applications;
- Non-regulatory – policies that direct action outside of the policy, plan or consent framework.

The third and final element of the evaluation of effectiveness considers the strength of the language used in the policy and whether the outcome anticipated from the policy is likely to be clearly understood.

Efficiency

When considering the efficiency of each policy the costs and benefits associated with the following have been examined:

- The environment;
- Tāngata whenua;
- Local communities;
- Consumers;
- Recreational users and other NGOs;

- Central Government;
- Local government (district, unitary city, and regional councils);
- Primary industries;
- Hydro-electric power generators;
- Other industries;
- Indirect impact on New Zealand's image.

The aim is to demonstrate how successful the policy(ies) will be in achieving the Proposed NPS objectives.

It is hard to avoid some overlap in an assessment disaggregated across so many different parties. For instance, government is a shareholder in hydro-electric power generators as well as offering guidance on the NPS. In a quantified analysis, these overlaps would need to be netted off carefully to avoid double-counting but in a qualitative analysis, such precision is less critical, and it can still be informative to look at the distribution of effects across different parties.

The NPS is expected to primarily affect local government cost. These are mainly the transaction costs associated with gathering information and negotiating processes around regional plans and policies. A second category of costs are submitters' costs. These are the stakeholders, which have a major interest in water quality and water allocation and how the NPS policies are applied in each region. For instance, a policy that directs councils to set environmental limits on fresh water in the region will attract submitters possibly interested in "taking" or "discharging" into water bodies, those who want to preserve current practices, and those who want to increase the flow of water in certain areas.

The precise extent of transaction costs and the water allocation trade-offs remain indeterminate, because regional and local authorities retain discretion in how they implement the NPS. Transaction costs are somewhat more tangible and "certain", while the benefits of water allocation to a diverse group of stakeholders will vary.

In the framework of analysis used here, benefits are primarily the difficult to quantify existence values associated with water quality, the improved efficiency of water use as water values become more clearly defined, and improved voice and role of tāngata whenua in deciding upon allocation and water quality relative to the status quo. Costs are additions to the transaction or real costs, relative to the status quo. The general effects on the parties are expected to be along the following lines.

A positive benefit for the environment that would:

- Benefit local communities to some degree, by improving certainty of water allocation processes and water quality;
- Benefit tāngata whenua through increased collaboration with local government on water issues; but
- Effects on primary industries, hydroelectric generation, and other industries that could be negative with increased submitter costs and unknown impacts on consents and the opportunity cost of further development given possibly a more limited water resource;
- Effects on regional local councils are difficult to determine, as there are large costs in developing plans and policies around water quality and water allocation and at the same time more certainty over these processes.

There can be exceptions to this general pattern, as is apparent in consideration of the separate policies in the NPS.

1.4 INFORMATION SOURCES

A limitation of this evaluation is that it is largely based on a review of existing information and reports relevant to the topic of freshwater management in New Zealand provided by the Ministry for the Environment or known to the authors. It is acknowledged that there is likely to be other information sources which have not been reviewed for the purposes of this evaluation. The reports used for the purposes of this evaluation are referenced throughout the body of the report.

A limited number of conversations have been undertaken with local authority staff to help 'test' assumptions regarding regional plan costs.

1.5 BACKGROUND – A NEW START FOR FRESHWATER

By way of the background to this evaluation, it is noted that in April 2009 Cabinet agreed that water would be one of the ten work areas in Phase Two of the Resource Management Act reforms. In accordance with this, in June 2009 the Government announced a new strategy for the management of New Zealand's freshwater resources. The strategy entitled *'New Start for Fresh Water'* seeks to ensure that water contributes both to New Zealand's economic growth and to its environmental integrity, and is intended to have the following elements:

1. *Ensuring water contributes to economic growth and environmental integrity*
2. *Providing stronger leadership and national direction, and investigating whether water management decisions are made at the right level*

3. *Filling science, technical, information and capability gaps*

4. *Developing management measures to set limits to manage quality and quantity issues, to get the most value from finite water resources, address the impacts of land-use intensification on water quality and to improve the management of water demand.*[1]

Under the strategy, the NPS on Freshwater Management is one of ten priority work streams for water management as follows:

1. Environmental flows and water measuring (National environmental regulation requiring the measurement and reporting of consented water takes and the national environmental standard on ecological flows and water levels);

2. Water quality limits;

3. Proposed National Policy Statement for Freshwater Management;

4. Allocation of water to maximise value;

5. Over-allocation baseline and possible interim interventions;

6. Supporting measures;

7. Rural water infrastructure;

8. Dependable monitoring and reporting;

9. Aligning investment and improving uptake of water research; and,

10. Best practice water governance.

A Proposed NPS was publicly notified on 28 August 2008. Submissions were received over late 2008 and early 2009. In total, 149 submissions and 30 further submissions were received by the Board of Inquiry established to consider the Proposed NPS. A hearing on the Proposed NPS took place over 21 days from 30 June 2009 until 18 September 2009. During the hearing 80 submitters were heard.

Upon completion of the hearing, the Board of Inquiry prepared a report in accordance with section 51(2) of the RMA. The report contained the Board's recommendations and a revised NPS. Overall the Board of Inquiry recommended a significantly less complex approach to the NPS while seeking to

[1] Ministry for the Environment, Implementation the New Start for Fresh Water: Proposed Officials' Work Programme, online: http://www.mfe.govt.nz/cabinet-papers/implementing-new-start-for-fresh-water.html

establish a progressive improvement of water quality via the phasing out degradation and the over-allocation of freshwater resources.

A key recommendation of the Board was the inclusion of transitional provisions on water quality and quantity management that would provide interim control during the period in which amendments to regional plans are prepared to give effect to the NPS.

Any response to the Board of Inquiry report was put on hold pending the outcome of the Land and Water Forum, the terms of reference for which included specific consideration of the Board of Inquiry's recommendations on the Proposed NPS. The Forum's report concluded that a NPS on freshwater management is required quickly. In addition to drafting changes, the report stated that while the Board's recommendation provides a good basis to work from, further issues need to be addressed. These include:

a) Specific measures for dealing with use and development;

b) recognising the benefits of significant infrastructure;

c) making environmental values more specific by adding an objective which protects swimming, fishing and mahinga kai; and

d) providing for allocation efficiency.

Some members of the Forum considered that the issues as detailed above should be addressed in the NPS while other members thought that they could be dealt with in the suite of national instruments being proposed by the Government.

2.0 STATUS QUO

To provide the baseline against which the proposed NPS can be evaluated, the following section provides a summary of the status quo. It focuses on four elements: the state of the freshwater environment; the current use of freshwater; the management framework provided by the RMA, subservient policy and plans and non-statutory initiatives; and, iwi involvement in the management of freshwater.

The problem statement provided in section 3.0 is based on this evaluation of the status quo.

2.1 THE STATE OF THE FRESHWATER ENVIRONMENT

While New Zealand is often thought to have an abundance of freshwater resources, this resource is facing increasing degradation and over allocation pressures.

Demand for freshwater is increasing, particularly in drier parts of the country where there has been an increase in the area of irrigated land. Eighty percent of water allocated for consumption in New Zealand is used for irrigation, while the remainder is shared between public water supply, stock watering and manufacturing[2]. At the same time there is clear evidence that the quality of the freshwater in many water bodies is declining. A key cause of this decline is the intensification of land-use activities.

As a result, of these twin pressures the Government has concluded that the country's freshwater resources are now approaching resource limits[3].

2.1.1 Water Quantity

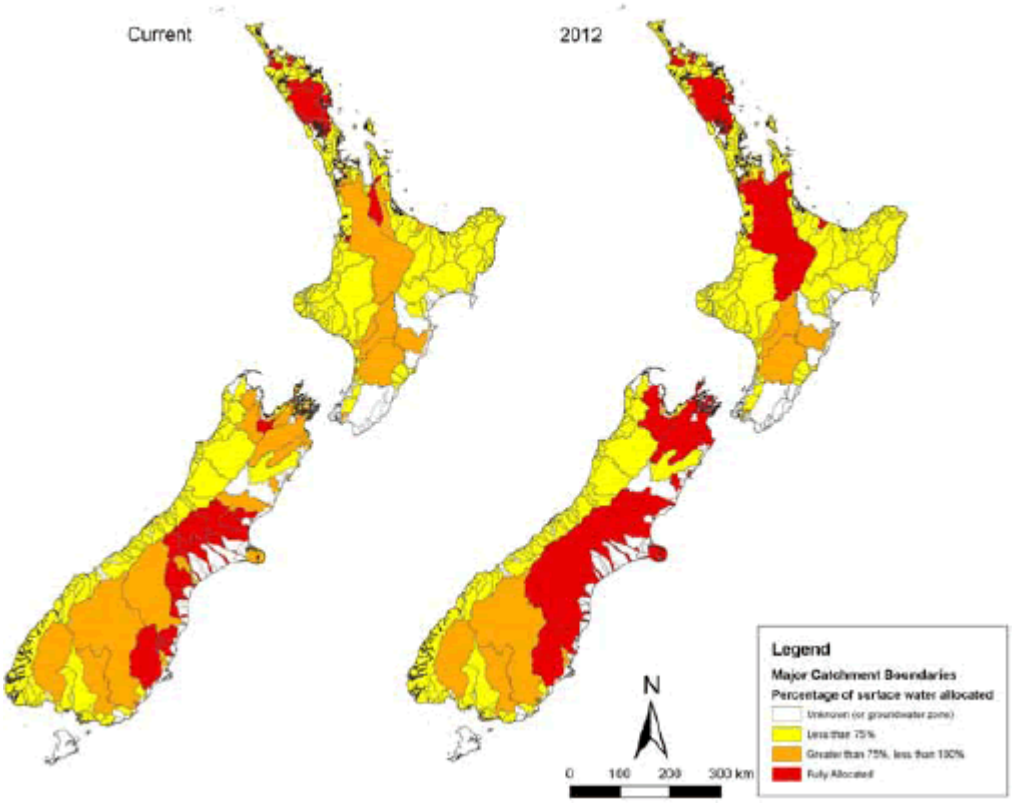
New Zealand has relatively abundant freshwater resources. The Environment New Zealand 2007 Report states that the country has "*more total freshwater per person than more than 90 percent of almost 200 other countries around the world*"[4]. However, this resource is not evenly distributed (both geographically and seasonally), and demand for it is growing in areas that are already facing seasonal shortages and over allocation pressures.

In this regard, between 1999 and 2010, the largest increase in allocated volume was in Canterbury with a growth of 98.2 million cubic metres allocated per week (an increase of 65 percent). The highest percentage increase in more recent years (2006 – 2010) has occurred in Manawatu-Wanganui (51 percent) followed by Northland (41 percent).[5]

In demonstrating this, Figure 1 shows that certain parts of the country, particularly eastern regions, have relatively high levels of water allocation. While the data used for Figure 1 is not complete, this growing and uneven demand is likely to be placing pressure on the availability of freshwater to maintain the ecological values of rivers, lakes and wetlands located in the affected areas.

[2] Page 262, Environment New Zealand 2007 Report, Ministry for the Environment, 2007
[3] Cabinet Paper – New Start to Fresh Water, Office of the Minister for the Environment and Office of the Minister of Agriculture, June 2009.
[4] Ibid, p 262.
[5] Freshwater Allocation National Environmental Indicator, Ministry for the Environment, last updated December 2010

Figure 1 – Percentage of surface water allocated



Source: Aqualinc Research Limited, Sustainable Freshwater Management – Towards an Improved New Zealand Approach, Report No H07004/1, August 2008

Further evidence that some of the country's water bodies have been over-allocated for human use is provided by the fact that eight regional councils (out of 16) recognise the issue of over-allocation and seek to address it through regulatory and non-regulatory mechanisms[6]. While the over-allocation of a catchment or aquifer may be only theoretical (ie, based on consented takes) and not actual (based on recorded use) the recognition of over allocation indicates that the (growing) level of abstraction of freshwater resources is in some instances likely to be adversely affecting the natural processes and values of our freshwater bodies.

2.1.2 Water Quality

Water quality in many parts of New Zealand is declining across a number of indicators and is a key concern in terms of the state of New Zealand's environment[7]. The degradation of water quality is particularly concerning in lowland rivers, streams, lakes, and groundwater. The country's declining water quality is not without cost to the country's economy, which is reflected in the

[6] Sinclair Knight Mertz, 2010, '*Regional Council practice for setting and meeting RMA-based limits for freshwater flows and quality'*, Ministry for the Environment
[7] Environment New Zealand 2007 Report, Ministry for the Environment, 2007

$450 million allocated over the next 10 to 20 years to the clean-up of Lake Taupo, Rotorua Lakes and the Waikato River.[8]

The decline in water quality is closely linked to land-use intensification and the increasing level of water use. In particular the level of discharges to water from diffuse sources has greatly increased in the last 20 years.[9] Levels of nutrients (eg, nitrogen and phosphorus) have increased in our rivers over the past two decades, reflecting the impact of pollution from urban stormwater, animal effluent, and fertiliser run-off.[10]

In urban areas such discharges are closely associated with urban stormwater. Urban intensification, particularly in Auckland has resulted in some of our most degraded streams.[11] Other urban contaminant sources are human wastewater and sewage leaking from broken sewer pipes, sediments laden run-off from paved surfaces, gardens, and earthworked land and run-off from roads can contain pollutants.[12]

In rural areas the decrease in water quality can be attributed to the intensification of agriculture, notably the widespread introduction of dairying onto land previously used for sheep and forestry.[13] During the period from 1992 to 2002 the number of cows in the Waikato increased by 37 percent. Over that period nitrogen levels in the region's streams increased by 40 percent and phosphorus levels by 25 percent.[14]

In contrast to the increasing impact from diffuse sources, contamination and pollution from point source discharges has reduced since the 1980s[15]. This is due to the improved management of point source discharges and the relative ease in controlling 'single site' pollution ie, pollution from wastewater treatment plants, industries, and farm effluent ponds.[16]

2.1.3 Wetlands

Wetlands are some of New Zealand's most diverse ecosystems supporting a greater diversity of native species than most other ecosystems. While only amounting to 1 percent of New Zealand's land area, wetlands contain:

- 11 percent of threatened invertebrates;

[8] Cabinet Paper – New Start to Fresh Water, Office of the Minister for the Environment and Office of the Minister of Agriculture, June 2009.
[9] Freshwater Factsheet, Ministry for the Environment, June 2008
[10] Freshwater Factsheet, Ministry for the Environment, June 2008
[11] Urban Development and Fresh Water webpage, Ministry for the Environment, last updated 2 December 2008.
[12] P. 266, Environment New Zealand 2007 Report, Ministry for the Environment, 2007
[13] Agriculture and Fresh Water webpage, Ministry for the Environment, last updated 18 December 2008
[14] NIWA, 'How Clean Are Our Rivers?' Water and Atmosphere 1, July 2010
[15] P. 261, Environment New Zealand 2007 Report, Ministry for the Environment, 2007
[16] P. 265, Environment New Zealand 2007 Report, Ministry for the Environment, 2007

- 16 percent of nationally critical bird species;
- 18 percent of all rare plants; and,
- 100 percent of all threatened freshwater fish species.[17]

In addition to providing habitat for essential ecosystem processes, healthy functioning wetlands also contribute to managing human impacts on freshwater resources including by filtering sediments, removing nitrogen, storing water, reducing flood impacts and maintaining water flows.[18] Wetlands also have very high recreational, cultural and spiritual values.[19]

New Zealand is a signatory of the Ramsar Convention on Wetlands which, among other things, requires planning of wetlands both to promote the conservation of wetlands designated as Wetlands of International Significance and also to promote the wise use of other wetlands in the nation (Article 3.1). Under this convention six wetlands that collectively cover an area of 39,068 hectares are designated as having international significance.[20]

It is estimated that wetland areas have been reduced by approximately 90 percent since the 1840s as a result of human activities.[21] Of the remaining 10 percent (45,600 hectares), 4.9 percent of the original wetland area remains in the North Island, and 16.6 percent remains in the South Island. Of this amount, less than half is legally protected with many remaining wetlands situated on private land.[22]

Wetlands are particularly at risk of being modified if they occur on, or are adjacent to, prime agricultural land and horticultural land. Poorly managed farming practices causes sedimentation and fertiliser run-off and stock grazing damages vegetation, decreases soil stability and contributes to pollution. Other threats include:

- Drainage of wetland for urban or rural development;
- Sand and gravel extraction causing changes in water level;
- Reclamation of lake and river margins and draining of farm swamps;
- Excess run-off of sediment and nutrients which can pollute wetlands;

[17] National Wetland Trust, Submission on the National Policy Statement for Freshwater Management, 2008
[18] National Wetland Trust, Submission on the National Policy Statement for Freshwater Management, 2008
[19] Ministry for the Environment, 'Indigenous Biodiversity', online: http://www.qp.org.nz/plan-topics/indigenous-biodiversity/wetlands-2b.php
[20] Page 356, Environment New Zealand 2007, Ministry for the Environment, 2007
[21] Page 356, Environment New Zealand 2007, Ministry for the Environment, 2007
[22] Page 356, Environment New Zealand 2007, Ministry for the Environment, 2007

- Plant and animal pest invasion;
- The introduction of barriers to fish flows;
- Loss of natural character;
- Careless recreation practices;
- Careless plant disturbance;
- Loss of vegetation in the surrounding catchment leading to excess sedimentation;
- Forest harvesting in close proximity to wetlands; and,
- Inappropriate surrounding land uses ie, pine forests drawing water away from ground water systems leaving depleted water supply.[23]

2.2 THE USE OF FRESHWATER RESOURCES

2.2.1 Water allocation

In 2010, the majority of consumptive weekly allocations were for irrigation (46 percent) and hydro generation (41 percent) with the remainder shared among public drinking supply, industry and stock watering. It is noted that while most hydro generation schemes are non-consumptive in that the water remains in, or is returned to, the water body, this consumptive element is almost entirely accounted for in the Manapouri Scheme which is considered consumptive as it diverts water and discharges it directly to the sea.[24]

The total area of land irrigated by consented takes in 2010 was more than 1 million hectares. This is approximately 4 percent of the total land area of New Zealand, and about one tenth of the pastoral land cover area.[25]

Peak allocation pressure occurs during summer when consents for irrigation are active.[26] During this period (October – March) there is an increase in water takes by large inland dairy farms that do not have access to reliable water sources. This is especially the case following relatively dry winters where water

[23] Department of Conservation, 'Threats to Wetlands', online: http://www.doc.govt.nz/ conservation/land-and-freshwater/wetlands/threats-to-wetlands/

[24] Freshwater Allocation National Environmental Indicator, Ministry for the Environment, last updated December 2010

[25] Aqualinc Research Limited, '*Update of Water Allocation Data and Estimate of Actual Water Use of Consented Takes 2009–10',* Prepared for the Ministry for the Environment, October 2010

[26] Freshwater Demand National Environmental Indicator, Ministry for the Environment, last updated December 2010

storage is minimal.[27] The allocation of water in New Zealand is growing substantially. Between 1999 and 2010 allocation of freshwater (to uses such as irrigation) nearly doubled, and in the last 4 years increased by 10 percent.[28]

While data shows a significant growth in allocation, it is important to note that it is estimated that the proportion of allocated water that is actually used is 65 percent. However this figure is heavily influenced by the Manapouri Hydro Scheme which uses a large amount of water and has a particularly high use to allocation rate. 12 regions use less than 50 percent of their allocated water.[29]

2.2.2 The contribution of water to New Zealand's economy

Water plays a major part in the economic life of New Zealanders and underpins economic development. Agriculture, electricity generation, tourism and industry in general all require water to operate. Relative to most countries the abundance of water in New Zealand means that it is a key economic advantage which is central to future economic growth. Below we briefly look at some of the industries that depend on water use.

Agriculture

Agriculture is the major source of New Zealand's exports. Since 1992, agricultural products have consistently made up between 50 percent and 55 percent of the country's merchandise exports. The proportion in the calendar year 2010 was 53.8 percent. The definition of agriculture upon which these calculations are based includes horticulture but excludes forestry.

While the proportion of agricultural exports to total merchandise exports has been reasonably stable since the early 1990s, the composition of agricultural exports has changed. The contribution of dairy products has increased from 14 percent to 21 percent, the contribution of wool has fallen from above 6 percent to less than 2 percent and the contribution of meat has fallen from 17 percent to 14 percent.

In the non-pastoral area, wine exports have increased from virtually nothing in the early 1990s to $1,040 million in 2009, a little less than twice the value of wool exports in the same year.

Agriculture amounts to 5.0 percent of New Zealand's Gross Domestic Product (GDP) – a measure of total economic activity in the country. This measure only accounts for agriculture's contribution up to the point where the products leave the farm gate. However, a considerable amount of New Zealand's manufacturing

[27] Water Rights Trust, http://www.waterrightstrust.org.nz/water-is-running-out, 2010
[28] Freshwater Demand (Allocation) National Environmental Indicator, Ministry for the Environment, last updated December 2010
[29] Freshwater Allocation National Environmental Indicator, Ministry for the Environment, December 2010

activity involves the processing of the raw material produced on farms. The processing of primary food products accounts for another 2.9 percent of GDP.

There is also a lot of economic activity involved in servicing agriculture and agricultural product processing industries, including transportation, financing, marketing and wholesaling and retailing. When these aspects of agricultural production and processing are included, the contribution of agriculture to total economic activity increases to around 17 percent of GDP.[30]

In terms of employment, according to statistics published by the Department of Labour, 5.0 percent of New Zealand employees worked in the agricultural sector in 2009. If food processing is added, the share of employees increases to 9.1 percent. These figures take no account of the numbers of employees engaged in servicing agriculture and agricultural product processing indirectly.

Power generation

New Zealand receives an unusually large percentage of its electricity from hydroelectric generation and has a long history in the development of hydroelectric technology – in 1888 a hydroelectric development powered electric street lighting for the streets of Reefton, a first in the southern hemisphere.

Today, roughly 72 percent of New Zealand's electricity comes from power stations directly dependent on fresh water. In terms of installed capacity hydro stations generate 57 percent of power and 17 percent comes from freshwater cooled thermal stations. This water is used to generate power for residential, national industry and heavy industry consumption.

While hydro-electricity generation is largely a non-consumptive use of water it does alter the natural state of water bodies eg, lake levels can change, some water is diverted into river systems that contain hydroelectric schemes, and rivers are dammed.

Without hydro-electric power, electricity would be a lot more expensive, possibly more fossil fuels would have to imported and it is likely that GDP would be at much lower levels than the situation that exists with hydro-electric power.

Tourism

Tourism is a major contributor to the New Zealand economy. Tourism expenditure includes spending by all travellers whether they are international, resident householders, or business and government travellers. In the year ending 2010 total tourism expenditure was $22.4 billion, an increase of 2.1 percent from the previous year. International tourism contributed $9.5 billion to this total with the balance made up of domestic tourists.

[30] Ministry of Agriculture and Forestry, *Contribution of the Land-based Primary Industries to New Zealand's Economic Growth*, 2003, p.5.

Tourism generated a direct contribution to GDP of $6.5 billion, or 3.8 percent of GDP. The indirect value added of industries supporting tourism generated an additional $8.6 billion to tourism. The tourism industry directly employed 92,900 full-time equivalent (FTE) employees (or 4.9 percent of total employment in New Zealand).

Fresh water plays a significant role in attracting the 2.5 million tourists to New Zealand and generating domestic tourism. Activities such as rafting, jet boating, and fishing all depend on the abundant availability of water. Without fresh water, the ability of New Zealand to attract visitors and spend money while they are here would be greatly diminished.

Industry

The use of water in industry is extremely important. The industries that produce metals, wood and paper products, chemicals, gasoline and agricultural processing are major users of water. Probably every manufactured product uses water during some part of the production process. Industrial water use includes water used for such purposes as fabricating, processing, washing, diluting, cooling, or transporting a product; incorporating water into a product; or for sanitation needs within the manufacturing facility.

Industries that use large amounts of water in New Zealand produce include food processing industries (meat, dairy, and other processing), wood processing, and other heavy industry – all use fresh water to some degree. Without adequate supplies business input costs would increase.

2.2.3 Recreational uses of fresh water

Recreational based use of fresh water is a significant part of the New Zealand way of life. A 2004 survey undertaken on behalf of the Ministry for the Environment found that 79 percent of New Zealanders identified themselves as recreational users of freshwater.[31]

In 2004, as part of the Government's Water Programme of Action, the Ministry for the Environment conducted a study to determine potential freshwater bodies of national importance for recreation. The study found that recreational uses of fresh water vary greatly between activities that do not require specific water qualities (eg, picnicking or walking beside a lake), to activities that often require more specific water body conditions such as high water quality, rapids, and habitats for fish (eg, kayaking, white-water rafting and fishing).[32]

[31] Freshwater Recreational Users: Survey of Freshwater Use in New Zealand. BRC Marketing and Social Research, 2004.
[32] Water Bodies of National Importance: Potential Water Bodies of National Importance for Recreation Value, Ministry for the Environment, December 2004.

The study also found that there a vast differences in the levels of expectation and appreciation of water bodies and that these differences exist between general types of recreation and for specific forms of recreation. For example, some people fish for relaxation at the most convenient water body, while others seek out a unique experience at remote and technically difficult locations.[33]

Regarding water quality in relation to the use of fresh water for recreation, regional and district councils monitor water quality for contact recreation on approximately 200 freshwater sites throughout New Zealand. Over the 2009-2010 summer, 57 percent of the monitored freshwater swimming spots had water quality that met the Ministry of Health guidelines for contact recreation almost all of the time (at least 95 percent of the samples taken at these sites had safe *E.coli* levels). Eleven percent of the sites breached the guidelines regularly (more than 25 percent of the samples taken from these sites were non-compliant) and are considered unsuitable for swimming.[34]

2.3 THE CURRENT WATER MANAGEMENT FRAMEWORK

The regulatory environment for fresh water is established under the Resource Management Act 1991 (RMA). National regulations and environmental standards and numerous Regional Policy Statements, Regional Plans and District Plans which have been developed under the provisions of the RMA in relation to water management.

2.3.1 Resource Management Act 1991

Numerous sections of the RMA influence the regulatory regime for freshwater. These are set out below.

Purpose and Principles of the Act

The RMA's overall purpose and specific guiding principles or priorities which are relevant to all decisions made under the Act, including those relating to freshwater, are set out in sections 5 to 8.

All decisions made under the RMA must be consistent with its purpose to promote the sustainable management of the country's natural and physical resources. Sustainable management is defined to incorporate not only the protection of natural and physical resources, but also the use and development of these resources. Therefore, central to the Act is a need to balance or resolve

[33] Water Bodies of National Importance: Potential Water Bodies of National Importance for Recreation Value, Ministry for the Environment, December 2004.
[34] State of the Environment: Snapshot-recreational water quality in New Zealand, Ministry for the Environment, updated 29 June 2010

an inherent tension between the often competing demands of protection on the one hand and various competing uses and development on the other.

Sections 6, 7 and 8 establish issues or values that are required to be given a degree of priority in decision-making and in the application of the RMA's purpose. Priorities of particular relevance to freshwater are:

- The preservation of the natural character of wetlands, rivers and lakes and their protection from inappropriate subdivision use and development (s6(a));
- The protection of significant habitats of indigenous fauna (s6(c));
- The maintenance and enhancement of public access to and along lakes and rivers (s6(d));
- The relation of Māori and their culture and traditions with their ancestral water (s6(e));
- The protection of recognised customary activities (s6(g));
- The protection of the habitat of trout and salmon (s7(h));
- The principles of the Treaty of Waitangi (s8).

Restrictions on the use of water and discharge of contaminants

The RMA establishes a permissive framework for new land-use activities, which in effect means land-use activities are permitted unless a national environmental standard, regional plan or district plan states otherwise (s9). In contrast, a restrictive regime applies to water related activities (ss13, 14 and 15). In this regard the use of beds of rivers and lakes, the take, use, damming and diversion of water and the discharge of contaminants or water into water may only occur if the activity is allowed by a national environmental standard, rule in a regional plan or a resource consent.

A similar contrast exists in relation to existing activities. Existing, lawfully established land-use activities may continue even if the activity contravenes a rule in a district plan or proposed district plan (s10). The same 'exemption' does not apply to takes of, or discharges to water, nor to land-use activities covered by rules in a regional plan.

Functions of councils

Generally the functions of regional and district councils in relation to the RMA are clearly separable with regional councils responsible (under s30) for the management of basic natural resources as air, water, the coastal marine area

and soil, and district and city councils being responsible for the management of land uses and subdivision (under s31).

However an overlap of functions does occur in relation to water management in two respects:

1. Regional councils are required to establish objectives, policies and rules for the integrated management of all natural and physical resources in their region, which includes land and its relationship to water(s30(1)(a));

2. Regional councils have the ability to control the use of land to maintain the quantity of water in water bodies, to maintain and enhance the quality of water and ecosystems in water bodies and to avoid or mitigate natural hazards (s30(1)(c)).

Unitary authorities, of which there are six, combine the functions of both regional and district councils.

Freshwater requirements for Policy Statements and Plans

In order to help fulfil their functions under the RMA and to achieve the purpose of the Act regional councils are required to prepare regional policy statements (RPS) and may prepare a regional plan in relation to specified functions. The purpose of a RPS is to provide an overview of the resource management issues of the region and to include policies and methods to achieve the integrated management of all natural and physical resources of the whole region (s59). Significantly a RPS must be given effect to through regional plans and district plans (s67 (3) and s75(3)).

The purpose of regional plans is assist the regional council to carry out its functions and a regional plan (unlike a RPS) may include rules, in addition to objectives and policies. The RMA requires that such regional rules:

- Do not result in a reduction of the quality of water in any water bodies at the time of the public notification of the proposed rules, unless it is consistent with the purpose of the RMA to do so (s69 (1)); and,

- Shall only permit the discharge of contaminants or water into water where the council is satisfied that, after reasonable mixing, the following adverse effects will not result (s70(1)) in:

  - The production of conspicuous oil or grease films, scums or foams or floatable or suspended materials;

  - Any conspicuous change in the colour or visual clarity;

  - Any emission of objectionable odour;

- The rendering of fresh water unsuitable for consumption by farm animals;
- Any significant adverse effects on aquatic life.

In addition regional councils have the option to use regional plans to manage water bodies in accordance with classes described in Schedule 3 of the RMA. Schedule 3 establishes 11 water quality classes including for example 'aquatic ecosystem purposes' and 'contact recreation purposes' and sets standards that councils must apply in relation to each.

District councils are required to prepare District Plans, the purpose of which is to assist the council to carry out its functions under the RMA. Like regional plans, district plans may include rules controlling land-use activities (including earthworks, farming and urban development) and also subdivision. Of particular relevance to freshwater, district plans may include rules relating to the taking of esplanade reserves at time of subdivision.

The consideration of resource consent applications

Subject to the purpose and principles of the RMA, decision-makers on all resource consent applications must consider any actual and potential effects of the proposed activity, the relevant provisions of a range of RMA policy statements, plans, environmental standards and regulations, and any other relevant matter (s104). In addition to these general requirements, for discharges to freshwater bodies decision-makers must also have regard to (s105 (1)):

- The nature of the discharge and the sensitivity of the receiving environment;
- The applicant's reasons for the proposed choice; and,
- Possible alternative methods of discharge including discharge to another receiving environment.

Likewise Schedule 4 of the RMA states that an assessment of environmental effects completed for a resource consent application should include, among other things, a description of the nature of the discharge, the sensitivity of the receiving environment and possible alternative methods of discharge.

The requirement to consider possible alternative methods of discharge has been considered at the Environment Court[35]. The Court's conclusion suggests that the scope of this requirement is related to the potential adverse effects of the proposed activity. In other words, if it is found that a discharge is likely to have

[35] *Mahuta v Waikato RC EnvC A091/98*, as summarised in Brookers Resource Management Vol. 1, A105.02 (2)

significant adverse effects then greater consideration of alternatives would be justified.

The ability of consent authorities to grant applications for discharge to freshwater is further restricted under s107 of the RMA which states that resource consent shall not be granted for a discharge that would, after reasonable mixing, result in a number of specified adverse effects.

The listed adverse effects are consistent with those that are applied through s70 (1) to permitted activity rules in regional plans, and create a clear and consistent minimum base-line for decisions permitting the discharge of contaminants to water.

Water Conservation Orders

The RMA enables Water Conservation Orders (WCO) to be made in relation to water bodies with outstanding values or characteristics, which impose restrictions and prohibitions on the granting of resource consent applications related to the water body concerned. Under a WCO, restrictions are imposed on a regional councils functions including relating to rates of flow and water levels, allocation and abstraction, contaminant loadings and temperature and pressure (s200)

Any person may make an application to the Minister for the Environment for a WCO. There are currently 16 WCOs[36].

Water Shortage Directions (s329 Notices)

The RMA gives regional councils the power to direct how the take, use, damming and diversion of, and discharge to water is to be apportioned or restricted in times of serious water shortage. Such directions are limited to 14 days, but can be amended or renewed by subsequent directions.

2.3.2 The New Zealand Coastal Policy Statement

While there are several national policy statements in various stages of development which may come into force in the future and which may influence the management of fresh water, at present the only existing NPS that is of direct relevance in relation to freshwater management is the New Zealand Coastal Policy Statement (NZCPS). Much of the NZCPS generally relates to the management of freshwater in the coastal environment, however three policies are particularly relevant. These are policies 21 to 23 that address 'Enhancement of water quality', 'Sedimentation' and 'Discharge of contaminants' respectively.

[36] Source: http://www.mfe.govt.nz/issues/water/freshwater/water-conservation/

Policy 21 sets out methods by which priority is to be given to improving water quality where this has deteriorated so that it is having significant adverse effects on ecosystems, natural habitats, or water based recreational activities, or is restricting existing uses such as aquaculture, shellfish gathering and cultural activities. Policy 22 directs activities intended to reduce sedimentation within the coastal environment. Finally, Policy 23 sets out requirements in relation to the management of discharges within the coastal environment. These include general matters to which decision-makers must have particular regard, as well as specific directions in relation to discharges of human sewage and stormwater.

2.3.3 Regulations and National Environmental Standards

Regulation on measuring and reporting takes

The Resource Management (Measurement and Reporting of Water Takes) Regulations 2010 took effect on 10 November 2010. These regulations require significant water takes to be measured and the results reported to the relevant regional council.

The purpose is to help provide more accurate information about water use. Prior to the introduction of the regulations, most water abstractions in New Zealand were not being measured. The intent of the regulations is to increase the proportion to 98 percent by November 2016.

In addition to ensuring consistent measuring and reporting of actual water taken at national, regional and catchment levels, the regulations are also intended to:

- Enable water users and regulators to easily determine compliance with water take consents;
- Provide accurate information about actual (consented) water taken in any catchment (including the catchments of groundwater resources);
- Improve allocative efficiency through accurate measurement of water abstracted for consumptive uses; and,
- Ensure the comprehensive uptake of water measuring in a cost effective and timely way.

Proposed national environmental standard

A proposed National Environmental Standard (NES) on Ecological Flows and Water Levels in rivers, ground water systems, lakes and wetlands was released as part of a discussion document in March 2008[37]. The proposed NES would set interim allocation and flow limits for water bodies that do not already have

[37] Ministry for the Environment 2008, '*Proposed National Environmental Standard on Ecological Flows and Water levels*'

specific limits. It also sets out a process for selecting the technical methods for evaluating ecological flows and water levels, when water body specific levels are to be set. The intent of the standard is to promote consistency in the way decisions are made regarding the variability and quantity of water flowing.

The submission period for the proposed NES discussion document closed in August 2008 and, at the time of writing, the Ministry is evaluating the feedback received. It is noted that a Proposed NES has no legal effect until it is gazetted.

2.3.4 Regional Policy Statements

All regional policy statements address, at a high level, freshwater resources. There is however variation in the particular focus of each RPS, which appears to a certain degree to reflect the nature and dominant land uses of the region. For examples there appear to be clear differences in focus of regions that are largely rural compared with regions that have large urban centres and that are experiencing rapid urban growth and urban intensification.

By way of example, the Proposed Horizons One Plan focuses largely on matters where they retain control and that is controlled within regional plans. As a largely rural based region and one that is not experiencing significant urban growth or intensification, the policy seeking to address the effects of land-use activities on water quality focuses on dairy farming and agricultural based activities (Policy 6.7). Comparatively, the regional policy statements for regions that have large urban centres and/or experiencing significant urban growth and intensification place a greater emphasis on the effects of stormwater, earthworks, subdivision and urban growth. In this regard, the Greater Wellington Proposed Regional Policy Statement, like the Auckland Regional Policy Statement, includes policies and implementation methods that specifically seek to control the adverse effects of stormwater run-off from subdivision and development and promote low impact urban design techniques (e.g. Policy 41 of the Proposed Greater Wellington RPS).

2.3.5 Regional Plans

All 17 regional councils (including unitary authorities) have prepared regional plans on water management. The following section summarises the approaches taken by the various councils in relation to the management of water quality and quantity.

The key source of information for this section is an unpublished 2010 report prepared for the Ministry for the Environment[38] (the 2010 Report). Unless otherwise stated the statistics used below, and the findings regarding the approach of councils, are taken from the 2010 Report.

[38] Sinclair Knight Mertz, 2010, '*Regional Council practice for setting and meeting RMA-based limits for freshwater flows and quality'*, Ministry for the Environment

Water Allocation

All regional plans address water quantity however the approach taken varies in terms of:

- The degree of specificity to particular water bodies;
- The type of limits (ie, maximum allocation, minimum flow); and,
- The regulatory mechanism used to implement the limits (through objectives and policies or rules).

Table 1 summarises the approach taken by each regional council.

Of the 13 councils which set allocation limits some (Canterbury, Otago, Taranaki) have implemented priority orders by way of tiered allocation systems. Under such a system, water allocated under the lowest tiers is only available at higher flows and is the first to be stopped as stream flows decrease below identified the established trigger levels.[39]

Table 1 – Range of approaches to allocation and flow regimes

	Does the plan set allocation regimes for surface water?		Does the plan set flow regimes?		Does the plan set allocation regimes for ground waters?	
Council	**Catchment specific**	**Default**	**Catchment specific**	**Default**	**Catchment specific**	**Default**
Auckland					✓	✓
Bay of Plenty		✓	✓[2]	✓		
Canterbury	✓P	✓P	✓P	✓P	✓P	✓P
Chatham Islands						
Gisborne						
Hawkes Bay	✓					
Horizons	✓P	✓P	✓P	✓P	✓P	✓P
Marlborough	✓		✓		✓	
Nelson		✓	✓			
Northland			✓	✓		
Otago	✓		✓	✓	✓	
Southland		✓		✓		✓
Taranaki						
Tasman	✓P	✓P	✓P	✓P	✓P	✓P
Waikato	✓P	✓P	✓P	✓P	✓P	✓P
Wellington	✓		✓		✓	
West Coast					✓	

Note: ✓P indicates provisions that are proposed and not yet operative.
[2] Bay of Plenty have only developed one catchment specific minimum flow to date

Source: Table 2, Sinclair Knight Mertz, 2010, 'Regional Council practice for setting and meeting RMA-based limits for freshwater flows and quality', Ministry for the Environment

[39] Improving the Management of Freshwater Resources: Issues and Opportunities, Hill Young Cooper, 2006

Eight regional plans include methods to address over allocation of freshwater bodies. However none of these are specific to identified, over-allocated catchments. These commonly use non-regulatory approaches such as voluntary reductions and water storage. However, the 2010 Report and an earlier 2006 report[40] note that councils provide for use of the resource consent renewal process and mechanisms such as consent lapsing as a means of rectifying over-allocation.

The cost of obtaining detailed flow information is considered by councils to be a key barrier to good surface water management. This is especially the case for those councils that cover a large area where small rivers are coming under increasing abstractive pressure. Councils have also identified the difficulty, and lack of guidance on how to translate intangible freshwater values into allocation and flow limits as a further key barrier to their establishment[41].

Finally, some councils note that, while domestic and stock drinking is permitted, the effects of these takes is not well understood and that the cumulative effects of multiple permitted takes could have a significant impact on water levels and the availability of water for other uses.[42] To this end, a number of regional plans are placing specific limits on the amount of water that may be taken for permitted domestic and stock water supplies (e.g. the Proposed Horizons One Plan).

Water quality

Like water quantity, the approach that is taken within regional plans to the management of water quality varies (see Table 2). Most councils (13) have developed classifications systems for their water bodies, for which region-wide water quality limits are attached. Of the councils with classification systems, the majority are broadly based on the classifications included in Schedule 3 of the RMA, however 4 used alternative methods. In addition, the limits attached to the different classifications are implemented variously through objectives and policies, and rules.

In the Southland Region, for example, water quality limits are provided for each water quality classification and seek to provide for the protection of the critical values identified for that class. Surface water quality limits have regulatory status in the rules as the permitted activity discharge rules and a default discretionary activity discharge rule that requires compliance with a set of water quality limits for the receiving environment after reasonable mixing. Failure to

[40] Ibid
[41] Sinclair Knight Mertz, 2010, '*Regional Council practice for setting and meeting RMA-based limits for freshwater flows and quality'*, Ministry for the Environment
[42] Improving the Management of Freshwater Resources: Issues and Opportunities, Hill Young Cooper, 2006

comply with the limits requires resource consent as a non-complying activity. The non-complying status is intended to give a strong direction that discharges should meet water quality status.[43]

An example of the use of both regulatory and non-regulatory methods is the approach taken by Taranaki Regional Council (TRC). Supported by Council technical reports and public discussion documents, TRC consulted with a wide range of stakeholders to identify values and a policy approach towards water quality. From this consultation, it was decided that limits were not required on all resources and guidelines where more appropriate. Listed in the regional plan, the guidelines are intended to provide details of appropriate numeric limits to support RMA Schedule 3 values in a water body. The guidelines are used in consenting decisions only and have no status in the rules. In addition, as it is considered that 85 percent of inputs that affect water quality in the region are from diffuse sources arising from farming, TRC have also established Sustainable Land Management Programme and a Regional Action Plan under the Dairying and Clean Streams Accord (as further described in Section 2.4). [44]

All councils, including the four that have not established classification systems and associated limits, include activity specific water quality limits in their plans. By way of example, the Waikato Regional Plan sets out specific rules in relation to land-use activities ie, rules relate to, among other things, well and aquifer discharges (Rule 3.5.8.1), discharges of domestic sewage (Rule 3.5.7.4) and discharges of biosolids and sludges and liquids from activated sludge treatment processes (Rule 3.5.6.4).

Table 2 – Approach to limit setting and regulatory methods for surface water quality

Council	Region wide limits[1]	Compliance required in rules?[2]	Considered as assessment matter?	Activity Rule water quality limits
Auckland	None	-	-	✓
Bay of Plenty	Region wide numeric and descriptive limits as standards. Descriptive limits reference guidelines to aid their interpretation		✓	✓
Canterbury	Region wide numeric limits as environmental guidelines	✓	✓	✓
Chatham Islands	None	-	-	✓
Gisborne	None	-	-	✓
Hawkes Bay	Region wide numeric limits as standards		✓	✓
Horizons	Region wide numeric limits as standards	✓	✓	✓

[43] Sinclair Knight Mertz, 2010, '*Regional Council practice for setting and meeting RMA-based limits for freshwater flows and quality'*, Ministry for the Environment
[44] Sinclair Knight Mertz, 2010, '*Regional Council practice for setting and meeting RMA-based limits for freshwater flows and quality'*, Ministry for the Environment

Marlborough	Numeric and descriptive limits as standards	In part[3]	✓	✓
Nelson	Numeric limits as graded water quality classes	✓[4]	✓	✓
Northland	Reference to guideline documents outside the plan		✓	✓
Otago	None	-	-	✓[5]
Southland	Numeric and descriptive limits as standards	✓	✓	✓
Taranaki	Reference to guideline documents outside the plan		✓	✓
Tasman	Numeric and descriptive limits	In part[6]	✓	✓
Waikato	Numeric and descriptive limits	✓	✓	✓
Wellington	Reference to guideline documents outside the plan		✓	✓
West Coast	Descriptive limits		✓	✓

Note: [1] Use of words, standards or guidelines is as used by councils.
[2] Indicates that some but not necessarily all rule require compliance with water quality limited in either the permitted and/or other discharge rules.
[3] Marlborough contains two Regional Plans based on geographic areas. Permitted rules in one plan require compliance only.
[4] Nelson's rules relate to the class of water into which the discharge passes.
[5] Otago has only three rules with minor reference to water quality effects. Their management approach of water quality instead takes a policy approach of maintaining existing quality.
[6] Tasman has limits specific to its water management zones, rules only require compliance with limits in certain zones.

Source: Table 1, Sinclair Knight Mertz, 2010, 'Regional Council practice for setting and meeting RMA-based limits for freshwater flows and quality', Ministry for the Environment

As with setting water quantity limits, councils identify the cost, complexity and the contentious nature (including lack of stakeholder buy-in) of setting water quality limits as key barriers to their implementation. The lack of guidelines on how to go about establishing limits is also considered to be a barrier.

While regional plan approaches have proven successful in relation to point source discharges, the management of non-point discharges remains a difficult challenge for regional councils and is increasingly a focus of regional plan development programmes. The 2010 Report states that 11 of the 16 regional councils identified barriers around setting limits that involved non-point source pollution control. Notwithstanding this, the 2010 Report identifies that some councils are attempting to do so:

- Environment Bay of Plenty at present controls both point source and non point source discharges in the catchment. This approach includes setting a cap on nutrient inputs into identified lakes catchments and requiring consent for activities that will increase their nutrient inputs beyond the set

levels. The Proposed RPS (released November 2010) seeks to promote an integrated catchment approach to future values, objective and limit setting and sets stronger direction to land-use control to achieve water quality outcomes, particularly in the Rotorua Lakes area.

- Horizons Regional Council's Proposed One Plan has identified specific catchments where water quality degradation as a result of farming is a concern. In these catchments, consents are required for dairying activities. In addition, a farm plan is required which sets out limits to nutrient inputs.

- Environment Waikato Variation 5 to the regional plan deals with the declining water quality of Lake Taupo. The council developed a strategy for the Lake in agreement with key stakeholders and agreed on a set of key values. These values were then developed into objectives for the lake including improving the water quality in the lake at the present quality. The result of scientific studies undertaken to determine how to achieve the objectives led to a proposed cap on nitrogen limits and controls on land uses so that they can still be undertaken within the limits set.

In addition to this, the 2010 report notes that two councils (Hawkes Bay Regional Council and Otago Regional Council) are developing provisions to address non-point source discharges.

2.3.6 District Plans

District plans are concerned with the management of land-use activities and subdivision, and generally contain methods and rules to control the effects of activities such as vegetation clearance, urban development and earthworks.

A number of district plans include both regulatory and non-regulatory methods to control such discharges including the development of best practice guidance on low impact urban design and codes of practice for subdivision and development. By way of an example, Kapiti Coast District Council developed the *'Kapiti Coast District Council Subdivision and Development Principles and Requirements 2005'*. Among other things, this document seeks to manage earthworks, water supply, wastewater systems and connections, stormwater run-off, promote low impact stormwater design. The document is linked to resource consent applications for development and subdivision on the Kapiti Coast through a number of rules in the District Plan.

The Waitakere District Plan (now deemed part of the Auckland City plan following recent amalgamation) contains a chapter relating to the effects on water quality and quantity. Within this chapter a number of policies, rules and other methods are included in order to control the effects of subdivision and urban development on the districts freshwater resources.

2.3.7 Non-Regulatory Approaches and Industry Initiatives

A number of non-regulatory methods have been employed by councils either as an alternative to, or as a complement to, the regulatory methods set out in regional policy statements, regional plans and district plans.

The 2010 report states that five councils specifically noted that significant effort was put into the development of non-regulatory methods. In particular, Gisborne District Council noted that non-regulatory methods are a focus. Further, Greater Wellington Regional Council identified that non-regulatory methods often develop outside the plan process as the best way to deal with issues that arise over time. Notwithstanding the general consensus regarding the importance of non-regulatory methods, Environment Waikato noted that non-regulatory methods are insufficient in dealing with water quality issues and that voluntary methods are not enough to deal with the issues.[45]

In addition to the above, industry initiatives and agreements between a number of stakeholders and organisations to address water quality issues are also emerging. An example of this is the 'Dairying and Clean Streams Accord', set in 2003, between Fonterra, regional councils and Ministries of Agriculture and the Environment that sets out to:

1. Exclude all stock from waterways – 90 percent by 2012

2. Bridge or culvert all regular stock crossings – 90 percent by 2012

3. Achieve compliance with effluent discharge regulations – 100 percent by 2010

4. Nutrient management plans used in the application of nutrients to the land – 90 percent by 2012

5. Protect regionally significant wetlands – 50 percent by 2005, 90 percent by 2007.

2.3.8 SUMMARY

Some key elements of the status quo in terms of the freshwater management framework are that:

- The RMA provides the overall direction of freshwater management, particularly in relation to water quality management;

- Water allocation is managed under the RMA based on a 'first-in first-served' basis;

[45] Sinclair Knight Mertz, 2010, '*Regional Council practice for setting and meeting RMA-based limits for freshwater flows and quality'*, Ministry for the Environment

- The focus of regional and district plans varies and is largely dependent on varying geographical and seasonal water quality and quantity issues and council resourcing and capacity;

- Regional policy statements, regional plans and district plans are complimented by a variety of non-regulatory methods; and,

- Regulatory and non-regulatory approaches targeting specific land-use activities as a means of managing water quality and quantity are increasing.

However, it is important to note that the status quo is evolving. Studies such as those provided by the 2010 Report provide a snapshot of the management framework as it existed at that point in time. Since it was completed some councils will have undoubtedly made progress on new policy statement and plan initiatives and will have set timeframes and budgets for the statutory processes associated with these initiatives. The on-going work associated with the Canterbury Water Management Strategy is an example of this.

The evolving nature of the status quo is an important consideration in the evaluation of the Proposed NPS.

2.4 MĀORI INVOLVEMENT IN FRESHWATER MANAGEMENT

Fresh water is an important resource for tāngata whenua. Their perspective on freshwater management is normally expressed through the cultural value of mauri.[46] Mauri is the life supporting capacity of the water; protecting the life supporting capacity of water means using the river in a way that sustains it for future generations.

Further, the Land and Water Forum (2010) p9 report sets out the common tenets of the relationship:

- Fresh water is based on whakapapa, which is the foundation for the relationship between iwi and fresh water that is recorded, celebrated and perpetuated across generations.

- Fresh water is a taonga of paramount importance.

- Kaitiakitanga is the obligation of iwi to be responsible for the well-being of the landscape. The obligation is inter-generational in nature. Kaitiakitanga has been given effect over the generations in many ways and differs amongst iwi across different circumstances.

[46] Environment Canterbury (2004), Waiau River Catchment: tāngata Whenua Values Report and the Report of the Land and Water Forum (2010): A Fresh Start for Freshwater.

The obligation across generations to protect fresh water and maintain and express the spiritual and ancestral relationship with fresh water so that a worthy inheritance is left is fundamental to iwi identity (Land and Water Forum (2010) p9

There are numerous sections of the RMA that influence Māori involvement in decision-making relating to freshwater. Of particular relevance to the development of policy statements and plans is clause 3 of the First Schedule to the RMA. This requires local authorities to consult with *'the tangata whenua of the area who may be so affected, through iwi authorities...'* Clause 3B states that a local authority is deemed as having consulted with iwi authorities if it:

- Considers ways in which it may foster the development of their capacity to respond to an invitation to consult; and
- Establishes and maintains processes to provide opportunities for those iwi authorities to consult it; and
- Consults with those iwi authorities; and
- Enables those iwi authorities to identify resource management issues of concern to them; and
- Indicates how those issues have been or are to be addressed.

Outside of the RMA, the Local Government Act 2002 (LGA) also places obligations on councils in relation to Māori participation in decision-making. These are consistent with some of the requirements contained in clause 3 of the First Schedule to the RMA.

The 2010 Report, commissioned by the Ministry for the Environment, comments on practice in relation to Māori involvement in freshwater decision-making, based on interviews with regional council staff. It notes that all regional councils involved iwi, to varying degrees, in the process around freshwater values, objectives and limits setting.[47] Some councils used specific iwi representatives, some Māori regional representation committees and groups, some iwi representatives on hearings panels, some through consultation with iwi as a part of stakeholder consultation. In addition, most councils advise iwi groups of resource consent applications where they may have a particular interest.

The Ministry for the Environment's *'Two-yearly Survey of Local Authorities 2007/2008'* identifies that for the majority of the period from 1997/1998 – 2007/2008 over 50 percent of councils made a budgetary commitment to iwi/hapū participation in RMA processes.

[47] Sinclair Knight Mertz, 2010, '*Regional Council practice for setting and meeting RMA-based limits for freshwater flows and quality'*, Ministry for the Environment

The 2010 Report noted that in the view of the council staff interviewed the varying level of involvement was due to a lack of capacity (availability and expertise) and a lack of resourcing both within councils and iwi groups. Councils have also indicated that this has lead to fragmented input from iwi, which in some cases is reactive to specific activities or issues, rather than being more constructive and proactive.[48]

Specific examples of where iwi are directly participating in decision-making on freshwater management are the Waikato and Wellington regions.

In the Waikato region, iwi involvement with regards to fresh water, in particular the Waikato River, has been heavily influenced by the Waikato Raupatu Claims (Waikato River) Settlement Act 2010. This Act gave effect to the 2009 Deed of Settlement in respect of the raupatu claims of Waikato-Tainui over the Waikato River. Section 2 of this Act contains Te Ture Whaimana o Te Awa o Waikato – the Vision and Strategy for the Waikato River. The strategy is the primary direction setting document for the Waikato River and its catchments and has an overarching purpose to restore and protect the health and well-being of the Waikato River for future generations. Under section 11 of this Act, the strategy is deemed in its entirety to be part of the Regional Policy Statement without the need for public consultation and without the First Schedule process of the RMA.[49]

In the Wellington region a joint committee has been established (Te Upoko Taiao) to oversee the development of the region's new regional plan. The committee comprises 7 regional councillors and 7 appointed members from the region's mana whenua[50].

3.0 THE PROBLEM STATEMENT

The preceding discussion on New Zealand's freshwater resources and associated regulatory framework identified numerous issues with regard to the status quo. The following discussion brings these together into 7 key problem statements.

Problem 1: Degrading water quality

The water quality in many parts of New Zealand is declining across a number of indicators and is a key concern in terms of the state of New Zealand's environment.

[48] Improving the Management of Freshwater Resources: Issues and Opportunities, Hill Young Cooper, 2006
[49] Proposed Waikato Regional Policy Statement, Waikato Regional Council, 2010
[50] www.gw.govt.nz

Problem 2: The growing demand for fresh water is not sustainable

The allocation of water in New Zealand is growing substantially, with certain areas already fully allocated and projections showing that further areas will be fully allocated in the near future.

Problem 3: The loss of wetlands

The extent of wetlands within New Zealand has declined dramatically over the last 150-200 years. The remaining wetlands will continue to come under pressure as a result of both the direct and indirect effects of land-use intensification.

Problem 4: Variable approaches to the management of fresh water

While regional variation in the management of freshwater is not necessarily a problem, some regions have made limited progress towards a sustainable management framework. Reasons for this appear to include a lack of resources, the contentious nature of the issues and a lack of guidance on appropriate methods.

Problem 5: Lack of integration in the management of land use and water

There is a clear link between degrading water quality and land-use intensification both in urban and rural environments. Only a limited number of regions have reflected this by attempting to integrate the management framework for fresh water and land use.

Problem6: Inefficient allocation

Water allocation operates on a first-in-first served basis and does not reflect the value (i.e economic, environmental, recreational or cultural) of water. Furthermore consents for the allocation have tended to over-allocate water to users, to the extent that many regions use is approximately 50 percent of allocation.

Problem 7: Variable iwi/hapū involvement

The provision for iwi or hapū to be involved in, or consulted on freshwater management is variable.

Finally, while not a problem it is also relevant to acknowledge at this point the significant economic, social and cultural value that is obtained from the current level of use, allocation and discharges to freshwater environment. These activities are a very significant component of well-being within New Zealand, and will be important to the ongoing sustainable management and development in the country.

4.0 ALTERNATIVES TO THE STATUS QUO

4.1 INTRODUCTION

While it is not a requirement of a section 32 evaluation, alternative ways of resolving the issues identified in the analysis of the status quo and in the problem statement have been considered.

In this section, various policy and non-policy options are considered where these might provide appropriate alternatives to the status quo. The alternatives considered in this assessment are:

- Amendments to the RMA;
- Enhancement to the status quo;
- National policy statements;
- National environmental standards;
- Non statutory guidance; and,
- Market-based instruments.

These various alternatives have been evaluated against five broad criteria, being:

1. Does the alternative address the full scope of the problem statement?
2. Would it establish a clear national direction for the management of fresh water?
3. Is the alternative able to provide for sufficient regional and local flexibility?
4. Is the alternative sufficiently strong to ensure change will occur?
5. Will the alternative provide the necessary incentive for change to occur?

4.2 AMENDMENTS TO THE RMA

As detailed in section 2.3.1 of this report, there are numerous sections of the RMA that influence the regulatory regime for freshwater. In particular, the purpose of the RMA expressly requires safeguarding the life-supporting capacity of water in the definition of sustainable management. Further, the preservation of the natural character of the coastal environment, wetlands, and lakes and rivers and their margins and the protection of them from inappropriate

subdivision, use and development is provided in section 6(a) as a matter of national importance.

Given the existing and explicit references to water in Part II of the RMA it is unlikely that further strengthening of these provisions will greatly influence the status quo. It is also noted that changes to Part II do not provide scope for the degree of guidance that can be provided through other methods such as an NPS or non-statutory guidance. Changes to Part II also come with the risk of significant costs in relation to the developing case law on the intent and application of this part of the RMA.

Amendments could also be considered to other parts of the RMA. One such amendment would be to insert into section 67(1) – *'Contents of regional plans'*, a requirement to include water quality and quantity management frameworks of the nature sought through the proposed NPS. To some degree these changes would have the same effect as an NPS. However, it is considered that even through s67 (and possibly also through ss 30 and 31) there would not be scope to address the full extent of the key problems identified within the status quo. To do so would require the insertion of new, very detailed sections or sub-sections into the Act which are much more suited as national policy direction.

Overall it is considered that while amendments to the RMA may usefully support other mechanisms, they would not allow the scope necessary to provide a detailed policy framework that can account for both the national importance of water while, at the same time, recognising that flexibility is required at a regional/local level to respond to particular biophysical, social and economic circumstances.

4.3 ENHANCEMENT TO THE STATUS QUO

Enhancement to the status quo would involve an increase in the consistency and use of instruments currently allowed for under the RMA.

One instrument is 'whole of Government' submissions on publicly notified documents such as regional policy statements, regional and district plans and resource consent applications. Under this scenario Central Government would more regularly engage in regional and local resource management process to ensure that a clear and consistent view on the 'national interest' is provided for these processes. While not a key problem identified in the status quo for water management, it is noted that determining the national interest and how to address this in relation to more local interests is a task that councils have found challenging across a range of resource management issues. However while such submissions may assist councils who have already determined to better address the management of freshwater, they can be seen as reactionary and ad hoc. This approach can be viewed as being 'after-the-fact' in that the submission

would only be made once the proposed regional policy statement, proposed plan or application is notified or lodged with the relevant local authority.

The use of 'whole of Government' submissions would not set a national policy framework or national direction for all regions. Further, the weight that would be afforded to such submissions would be determined on a case by case basis, determined based on the quality of the submission and evidence called in support of it. The fact that it was a whole of government submission would not in itself ensure it was afforded higher weight.

Central Government could also seek improvements to the use and provision of Water Conservation Orders (WCO). Under a WCO, restrictions are imposed on a regional councils functions including relating to rates of flow and water levels, allocation and abstraction, contaminant loadings and temperature and pressure. However WCO's may not apply to entire freshwater systems and the process of attaining a WCO can be lengthy.

At a local government level, changes could be made to methods and rules in second generation regional policy statements and regional and district plans to address regional freshwater issues. While such changes may result in regional improvements in freshwater management, it is unlikely that these changes will, in the absence of a clear national framework, result in significant nationwide improvements in the quality and efficient use of fresh water.

Based on the reasons set out above it is considered that enhancements to the status quo will not result in a nationally consistent approach to the management of freshwater resources.

4.4 NATIONAL POLICY STATEMENTS

The strength of national policy statements is that it enables Central Government to set out a clear national policy framework on the matter that has been identified as being of national significance. As a result, a national policy statement provides scope to address all of the problems identified in the status quo. However, it is considered that a policy mechanism such as a NPS could only partially address the issue of efficiency and in particular is not likely to be able to provide the incentive to encourage existing permit holders to trade or transfer under-utilised allocation. This is likely to also require the implementation of market-based mechanisms as well.

Being a national policy statement, rather than legislation, there is perhaps more scope to provide detail in the direction provided. However, this is not without limit and it is remains likely the non-statutory guidance would be needed to support a NPS, particularly in relation to interpretation and methods for establishing limits relating to water quantity and quality.

NPSs must be given effect to in RPSs, regional plans and district plans. They therefore have the ability to require change to the current regulatory framework. Equally, NPSs can incorporate sufficient flexibility to ensure that local responses to local biophysical, social and economic circumstances can be provided for.

4.5 NATIONAL ENVIRONMENTAL STANDARDS

National environmental standards (NES) could be considered in relation to a range of issues raised regarding the status quo.

As noted as part of the Government's 'New Start to Freshwater' programme an NES on ecological flows and water levels has been proposed. Additional NESs could be proposed to address issues such as specific water quality standards and intensification and management of land-use activities. However, NESs are not an appropriate mechanism to address problems relating to iwi and hapū involvement in freshwater management. This problem is likely to need solutions which are designed to deal with local circumstances.

The strength of the NES option is that it sets regulations which override provisions in regional and district plans, and therefore would have an immediate effect on the regulatory framework for freshwater. However, NESs are not able to provide a clear national policy framework for the management of water. Further, because they effectively set 'national rules', NESs would not be able to effectively provide for the variation in biophysical, social and economic circumstances that exists throughout the country. Accommodating such varying circumstances will be important to a sustainable solution to the current problems.

4.6 NON-REGULATORY METHODS

As detailed in section 2.3.7 of this report, a number of non-regulatory methods have been employed by councils either as an alternative to, or as a complement to, the regulatory methods set out in regional policy statements, regional plans and district plans. In addition, non-regulatory methods relating to a number of aspects of freshwater management have been developed by the Ministry for the Environment and by industry groups and organisations.

The importance of water management, the lack of mechanisms to deal with allocation issues, and the paucity of data on water flows and quality means that a variety of methods – both regulatory and non-regulatory – would usefully be employed, with or without any regulatory interventions. This could include good management practices, auditing, the development of monitoring programmes, and other self management processes.

Non-regulatory methods could be developed to address all issues identified in the status quo and the problem definition. Perhaps the single exception to this is that while non-regulatory methods could be used to suggest frameworks which would improve the transfer or trade in water permits (ie, assist with the efficiency of water allocation), these would not provide the incentive for water permit holders to transfer their permits. A market-based instrument is likely to be necessary for this.

A benefit of non-regulatory methods is that they can be directed specifically to the management of a specific land use e.g. agriculture, forestry, dairy farming and viticulture. Further, these methods can be developed by industry leaders in conjunction with regional councils or the Ministry for the Environment.

The Ministry for the Environment could provide guidance to regional councils by way of model plan provisions relating to freshwater management. While providing a generic basis for councils to start from, councils would be able to adapt the provisions to fit within their regional context.

However, it is recognised that the application of non-regulatory methods be voluntary. Therefore their uptake would be influenced by a range of factors including community values and interests with the need to improve, maintain or protect freshwater resources and turnover amongst council staff and politicians. There are also questions whether non-regulatory methods would have any influence over decisions made by the Environment Court.

On their own, it is unlikely that non-regulatory methods would have sufficient 'strength' to adequately resolve the problems outlined in the problem statement.

While limited on their own, it is likely that non-regulatory methods will continue to be an important complement to regulatory methods. Councils, industry leaders, and central government are likely to continue to develop guidance and non-regulatory methods to deal with issues that arise over time, particularly where these that cannot be addressed quickly and with great detail in statutory planning documents.

4.7 MARKET-BASED INSTRUMENTS

Under the Government's strategy *'New Start for Fresh Water'* 'Allocation of water to maximise value' is identified as one of the ten priority work steams for water management. Under this programme options are being identified for ensuring water capacity (quantity and quality) is allocated to its most values use within set limits, both at the time of allocation and for reallocation through time. The focus of the programme is to evaluate alternatives to the current first-come-first-served consent process including the use of market-based

mechanisms.[51] Market-based mechanisms could include nutrient trading schemes, water pricing, charges on discharging and tradable discharge permits and water take permits.

On its own, the strength and flexibility of market-based instruments are unlikely to deliver outcomes desired under administrative law such as the RMA. Market-based instruments may not reflect all of the total economic values considered by the RMA as important ie, the four well-beings social, economic, cultural and environmental.

A further weakness is that because we have yet to determine the value of water to each stakeholder we do not know how efficiently water is being allocated currently and how stakeholder behaviour will change if market-based instruments are introduced ie, will someone who is only taking a portion of their allocation under the current system suddenly start taking more under a new market-based regime? This applies equally if the new market-based system is a grandfathered scheme or starts with some other allocation process. The introduction of a market-based system could hamper flexibility, favour current use patterns, and not deliver desired outcomes under the RMA.

However, this does not mean that market-based instruments could be not used; a market-based system used in conjunction with other methods could be an important step forward that assists innovation in dealing with water flow and quality limits over time.

While these measures may assist in improvements in the efficiency of allocation and use of water and in managing the effects of land-use activities on water quality, these measures will not be able to address the several other problems identified with current freshwater management. In particular, as identified in the Land and Water Forum Report, prior to the introduction of market-based mechanisms further work is required to determine the level of water or assimilative capacity that is able to be allocated, and to set up the regulatory framework which establishes appropriate allocation limits.

4.8 ALTERNATIVES OR COMPLEMENTARY MEASURES?

Table 3 summarises the assessment of the various alternatives to the status quo. It is considered that the options assessed an NPS would most fully addresses the issues with the status quo.

However it is also noted that the NPS is unlikely to be fully effective on its own and that many of the 'alternatives', would in fact act as complementary mechanisms which would strengthen the benefits that are likely to be obtained

[51] Ministry for the Environment, Implementation the New Start for Fresh Water: Proposed Officials' Work Programme, online: http://www.mfe.govt.nz/cabinet-papers/implementing-new-start-for-fresh-water.html

from a NPS. These alternatives are currently being devised under separate *'New Start to Fresh Water'* work programmes.

The following evaluation of the specific NPS provisions highlights where complementary measures may be useful in the implementation of the Proposed NPS.

Table 3 – Alternatives to the Status Quo

Criteria	RMA changes	Enhanced status quo	NES	NPS	Guidance	Market-based instruments
Address full scope of problem statement	½✓ not scope for detail and limited re efficiency	½ ✓ reactive	½ ✓	½✓ limited re efficiency	½✓ limited re efficiency	-
Set clear nation direction / framework	½ ✓ not scope for detail	-	-	½✓ requires additional guidance	½ ✓ only guidance	-
Flexible	✓	✓	-	✓	✓	½ ✓ favour current users
Strength	✓	½ ✓ – weight of submissions determined case by case	✓ overrides regional and district plans	✓	-	Focuses on economic uses relative to other uses
Provide incentives for change	-	-	-	-	-	✓

Source: Harrison Grierson and NZIER

5.0 NATIONAL POLICY STATEMENT EVALUATION

5.1 WATER QUALITY

5.1.1 Objective A1

Objective A1 of the NPS seeks the following outcome:

> *"To safeguard the life-supporting capacity, ecosystem processes and indigenous species and their associated ecosystems of fresh water, in sustainably managing the use and development of land, and of discharges of contaminants."*

While Objective A1 restates many of the components of the purpose of the RMA, it appropriately reflects the seriousness of the degrading water quality that exists in New Zealand. The Objective does this by giving foremost priority to safeguarding various elements of water, such as 'ecosystem processes', as an environmental bottom line. Notwithstanding the establishment of this bottom line, the term safeguarding does not apply a 'no adverse effects' framework to the management of freshwater quantity. A degree of adverse effects can be accepted while still 'safeguarding' the specified components of fresh water. This approach is appropriate given the 'balanced' nature of the purpose of the RMA.

Further, it is noted that the second half of the Objective provides for use and development of land and for discharges of contaminants. This part of the Objective recognises that such activities, where they are undertaken in a sustainable manner, are a necessary part of the social and economic (in particular) well-being of people and communities. This is therefore consistent with the enabling intent of the RMA.

For these reasons, it is considered that this objective is the most appropriate way to achieve the purpose of the RMA.

5.1.2 Objective A2

Objective A2 of the NPS seeks the following outcome:

> *"The overall quality of fresh water within a region is maintained or improved while:*
>
> *a) protecting the quality of outstanding freshwater bodies*
>
> *b) protecting the significant values of wetlands and*
>
> *c) improving the quality of fresh water in water bodies that have been degraded by human activities to the point of being over-allocated."*

Broadly, this objective seeks the maintenance or improvement of 'the overall quality' within a region. It is therefore consistent with the priority set under s7 (f) of the RMA which requires decision-makers to have particular regard to the *'maintenance and enhancement of the quality of the environment'.*

It also sets three environmental bottom lines being:

a) protecting the quality of outstanding freshwater bodies,

b) protecting the significant values of wetlands, and

c) improving the quality of fresh water in water bodies that have been degraded by human activities to the point of being over-allocated.

These bottom lines build on the more general one included in Objective A1, and are appropriate given the expected value of 'outstanding' freshwater bodies and the expected poor state of 'degraded' ones, the very significant impact that human activity has had on wetlands.

It is recognised that the term 'outstanding' is open to interpretation, and it can be expected that an assessment framework to identify these resources will need to be developed. Definitions in the NPS will go some way to resolving this issue, particularly where they build on understandings of what is outstanding in the landscape context. It is noted that increasingly RPSs around the country are setting assessment matters to be considered when identifying outstanding natural landscapes. These build upon Environment Court decisions and are in some instances incorporated directly into RPS policies. There may be benefit in investigating whether such an approach would be relevant in the NPS.

Further it is noted that the term outstanding is used in relation to Water Conservation Orders. Specifically s199 states that the purpose of WCOs is to recognise and sustain outstanding amenity or intrinsic values which are afforded by waters in their natural state. Environment Court decisions indicate that in this context

> *"the test as to what is outstanding is a reasonably rigorous one and that to qualify as outstanding a characteristic would need to be quite out of the ordinary on a national basis."*[52]

Notwithstanding existing understandings, it can be expected that identifying 'outstanding' in relation to Objective A2 will come at some cost to local government, iwi and hapū, industry and communities in the process. Such costs have been incorporated into the evaluation of Policy A1.

[52] Rangitata South Irrigation Ltd v NZ and Central South Island Fish and Game Council EnvC C109/04

In relation to clauses (a) and (b) it is also noted that 'protecting' sets a high standard. However it is not absolute and protection may be achieved while allowing a level of use. It is further noted that 'protection' is consistent with two of the priorities set in s6 of the RMA (matters of national importance). These relate to areas of significant indigenous vegetation and significant habitats of indigenous fauna, and to outstanding natural features and landscapes.

Notwithstanding these comments it is considered that the high standard sought by the 'protection' of these freshwater bodies gives further need to ensure that a clear definition is provided of what is 'outstanding' in relation to clause (a). Doing so should help ensure that the Objective does not have undue impacts on the use and development of fresh water, and thereby undermine the enabling aspects of Objective A1.

It is noted that the implementation of the bottom line set in clause (c) in relation to 'degraded' water bodies requires regional councils to assess whether the assimilative capacity of a water body is 'over-allocated'. There will be a cost for councils to do so, which is considered in more detail in relation to Policies A1 and A2.

For freshwater bodies that do not fall under the specific sub-clauses, an overall judgement will be required as to whether maintenance or improved is deemed necessary. Through the use of the term 'overall', the objective anticipates a balanced approach to this judgement, in which a level of adverse effects may be allowed within some catchments or water bodies, while others receive more absolute protection and enhancement. This flexibility is consistent with the balanced approach in the purpose of the RMA.

The objective sets the geographic scale at which this 'balance' should occur as being the region. This is appropriate as the region is the level at which regulation on water quality is set. While caution would need to be taken in adopting this approach, it also enables decisions which accept catchment wide effects where these are consistent with the purpose of sustainable management, e.g. activities with significant local, regional or national benefit.

Notwithstanding the potential issue of interpretation, for the reasons identified above it is considered that the objective is the most appropriate way to give effect to the purpose of the RMA.

5.1.3 Policy A1

By every regional council making or changing regional plans to the extent needed to ensure the plans:

a) establish freshwater objectives and set freshwater quality limits for all bodies of fresh water in their regions to give

effect to the objectives in this national policy statement, having regard to at least the following:

i. the reasonably foreseeable impacts of climate change;

ii. the connection between water bodies.

b) establish methods (including rules) to avoid over-allocation.

Effectiveness

Policy A1 requires councils to set 'freshwater objectives' and 'freshwater quality limits'. The inclusion on these terms has been made following the Board of Inquiry report, and will require some councils to make a fundamental change to the way they approach the management of freshwater quality. Even for those that have well established frameworks for the management of water quality it is likely that changes to this framework will be required.

However, the need for such a change to the management of freshwater is considered necessary to arrest current trends in declining water quality. As noted in the review of the status quo, declining water quality is a key concern in relation to the state of New Zealand's environment.

Within this context, it is considered that Policy A1 will be fundamental in ensuring the achievement of Objective A1 and will be effective in helping to resolve the current concerns in relation to degrading freshwater resources. However it is noted that non-statutory guidance or NES direction may be necessary so that the degree of change to regional plans anticipated in A1 is clear to all parties.

It can be expected that the Policy will contribute to the maintenance of water quality sought in Objective A2. If it is assumed that quality limits will be set in a manner which recognises the values of water bodies, then it can be concluded that the Policy will contribute towards the protection of the values of outstanding freshwater resources, again sought in Objective A2. However, a water body specific approach is not explicitly required under the Policy and therefore the protection of outstanding freshwater bodies (as sought in Objective A2) may not be effectively achieved by the Policy.

The policy provides a strong direction to regional councils by explicitly stating that regional councils are to change their regional plans and that these changes are to apply to all water bodies. Such changes will have a flow-on influence on resource consent applications. The use of the term 'methods' allows non-regulatory approaches to be employed where these are appropriate. However it can be expected that an emphasis will be placed on rules over non-regulatory methods given the inclusion of the phrase *'including rules'* and the direction *'to*

avoid over-allocation'. This emphasis is appropriate given the nature of the issue covered in the Policy.

Discretion is provided in relation to how individual councils approach the setting of limits under Policy A1. In this regard it is noted that while clause a) seeks that Freshwater Objectives and limits are set for *all* bodies of fresh water, it does not specify how these should be set. Further, the Policy does not stipulate whether specific limits will be required for each water body or catchment or whether default region-wide limits would suffice.

The use of the term 'methods' as opposed to 'rules' also gives councils the discretion and flexibility to employ both regulatory and non-regulatory methods to address the desired water quality outcomes.

While these areas of discretion enable councils to employ the methods best suited to the characteristics circumstances of the region, this also allows a generic approach to be taken which may undermine the effectiveness of the Policy in relation to Objective A2 (a).

Efficiency

Policy A1 is expected to efficiently achieve the outcome sought in the Objective. By developing a process to set freshwater quality limits, the national benefits of Policy A1 will assist in improving New Zealand's economic, environmental, cultural, and social well-being. It also allows councils discretion as to how they go about complying with the NPS.

Policy A1 will have a large benefit for the environment since the policy actively encourages the establishment of freshwater objectives that guide freshwater quality limits.

For tāngata whenua Policy A1 is likely to be a mixture of medium and small benefits and small cost. The medium and small benefits come from improved collaboration with Regional Councils and participation in monitoring outcomes. The small cost comes from participating in council processes on water quality.

Local communities, recreational users, and environmental NGOs will also experience a medium benefit because of their ability to enjoy amenity values associated with the existence value of fresh water.[53]

Government will have a small cost in its role of offering guidance for the NPS intent. TLAs will have large costs since they will want to have considerable input into regional council policy and planning processes. They may also have to alter their own district plans and policies, particularly on water supply.

[53] Existence values are benefits that come from preserving what we have and also improving on what we have (in this case preserving water quantity and quality and possibly improving it).

The main costs will fall on the regional councils in Policy A1, since this policy is specifically directed at changing their policies and plans. Significant resources will be required to set up monitoring systems, understand the current water quality levels, and set up a process to meet new standards. Not only will they have to use their own staff but also large numbers of outside specialists.

Commercial users of water may also expect costs, although these will vary. Policy A1 is likely to have the biggest impact on the primary sector since they are mostly responsible for the non point pollution in rivers. The primary sector are likely to invest heavily (large costs) in the planning processes that will be developed by regional councils since it will have a direct impact on their business. Once those limits are determined, those that fall within those limits are likely to experience a more efficient consenting process that will reduce costs for them, possibly substantially. However, those who fall outside the limits may find that consenting costs increase as they will have to build a comprehensive case to discharge to water. This will necessarily include scientific and other expert opinion and is likely to add substantially to their consenting costs. Given the uncertainty regarding what limits will be set in each region, and how rigidly these will be applied through methods, it is not possible to be certain regarding the extent of such benefits or costs.

In certain areas, other industries are also likely to invest heavily in the policy and planning processes developed under Policy A1, although it is only likely to be a medium cost for other industries. This is because point pollution can be more easily controlled than non point pollution and monitoring and control are well advanced under the status quo. For hydro-electric generators water quality is of minor concern. Generators are only interested in quality issues if they impact on quantity therefore it is only a small cost.

Water quality is an important issue for New Zealand. Any improvement in water quality is likely to improve New Zealand's national brand, tourism prospects, and products and services. Policy A1 is a small benefit to New Zealand's image and its products and services since we have no reputable studies which allow us to assess the benefits.

Table 4 – Summary of the efficiency of Policy A1		
Efficiency	**Cost/benefit**	**Certainty of cost/benefits attributed**
Environment	Large benefit	✓✓ Although uncertain about size of large benefit since it is not well understood
tāngata whenua	Mixture of Medium benefit, small benefit and small cost	✓✓✓
Local communities	Medium benefit	✓✓ Tied to existence values which are not well understood
Consumers	Neutral	✓✓✓
Recreational users and other NGOs	Medium benefit	✓✓ Tied to existence values which are not well understood
Central Government	Small cost	✓✓✓
Regional Government	Large cost	✓✓ Although costs possibly larger than estimated in this assessment
Territorial Local Authorities	Large cost	✓✓ Possibly large given an uncertain outcome from standard setting process
Primary Sector	Large cost	✓✓✓ Possibly larger depending on other measures
Hydroelectricity generators	Small cost	✓✓✓
Other industries	Medium cost	✓✓✓
Indirect impacts	Small benefits	✓ Difficult to assess given no reputable studies
Note: (1) A large benefit is greater than $1.5m, a medium benefit is between $0.5m and $1.5m and small benefit is under $0.5m. (2) The more ticks the more certain we are of the costs and benefits		
Source: Harrison Grierson and NZIER		

5.1.4 Policy A2

Where water bodies do not meet the freshwater objectives made pursuant to Policy A1, every regional council is to specify targets and implement methods (either or both regulatory and non-regulatory) to assist the improvement of water quality in the water bodies, to meet those targets, and within a defined timeframe.

Effectiveness

Policy A2 relates to water bodies not meeting the levels in Policy A1 and requires a programme of improvement in order for these water bodies to meet the targets. The Policy therefore directly relates to clause c) of Objective A2 which seeks an improvement in the quality of freshwater resources that have been seriously degraded.

Specific reference to the use of both regulatory and non-regulatory methods is deemed appropriate given that a combination of both may be necessary in achieving the desired water quality outcomes. The value of such a combined approach is well recognised, including in the *'Report of the Land and Water Forum'*

While the policy is clear in the outcome that it is seeking, flexibility is provided with the use of the term *'within a defined timeframe'* as opposed to the setting of a specific date or time limit. While this may appear to weaken the strength of the policy, the exclusion of a defined timeframe or time limit recognises that setting levels for all freshwater bodies in the region will occur over time and that requiring the improvement of water quality may have social, environmental, cultural and economic impacts that need to be balanced within a regional context. This flexibility therefore appropriately reflects the importance on water use to social and economic well-being and goes to the sustainable management of the use and development of land and of discharges of contaminants sought in Objective A1.

Efficiency

Policy A2, builds on Policy A1 and goes further directing councils to set specific targets and implement methods to assist improvements in water quality. The costs and benefits fall in a similar way to A1.

The strong direction will provide a large benefit for the environment since it specifically targets implementation methods that are designed to improve water quality. The development of methods that improve water quality will mean that stakeholders such as tāngata whenua, recreational users, other NGOs, and local communities will experience a medium benefit.

Government will have a small cost in its role of offering guidance for the NPS intent in Policy A2. There is also a potentially large cost for the cleanup of specific water bodies under other methods e.g. government has agreed to spend $210 million to improve water quality of the Waikato River. TLAs are likely to have large costs since they will want to have considerable input into regional council policy and planning processes and may need to alter their own district plans.

The main transaction costs will fall on the regional councils in Policy A2, since this policy is specifically directed at specifying targets and developing methods to improve water quality to meet these targets. Significant resources will be required to do this and appeals are likely. There is also a potentially large cost for the cleanup of specific water bodies under other methods.

Commercial users of water will also expect costs that mirror those of Policy A1. Policy A2 is likely to have the biggest impact on the primary sector since they

are mostly responsible for the non point pollution in rivers. The primary sector are likely to invest heavily (large costs) in the policies and planning processes that will be developed by regional councils. There is also a potentially large opportunity cost, depending on how water quality levels are set and how they are administered.

In certain areas, other industries are also likely to invest heavily in the policy and planning processes developed under Policy A2, although it is only likely to be a medium cost for other industries. This is because point pollution can be more easily controlled than non point pollution. For some industries, the opportunity cost may be quite high and may require a major overhaul in the way they do business.

Policy A2 is only a minor concern for hydro-electric generators. Generators are only interested in quality issues if they impact on quantity processes therefore it is only a small cost.

Any improvement in water quality is likely to improve New Zealand's national brand, tourism prospects, and products and services. Policy A2 is a small benefit to New Zealand's image and its products and services since we have no reputable studies which allow us to assess the benefits.

Table 5 – Summary of the efficiency of Policy A2		
Efficiency	**Costs/benefits**	**Certainty of cost/benefit attributed**
Environment	Large benefit	✓✓ Although uncertain about size of large benefit since it is not well understood
tāngata whenua	Medium benefit, small benefit and small cost	✓✓✓
Local communities	Medium benefit	✓✓ Tied to existence values which are not well understood
Consumers	Neutral	✓✓✓
Recreational users and other NGOs	Medium benefit	✓✓ Tied to existence values which are not well understood
Central Government	Mixture of small cost and potential large costs	✓✓✓
Regional Government	Large costs	✓✓ Although costs possibly larger than estimated in this assessment
Territorial Local Authorities	Large cost	✓✓ Impact on town supply, stormwater and waste water
Primary Sector	Mixture of large costs and other uncertain costs or benefits	✓✓ Possibly larger depending on other measures
Hydroelectricity generators	Small costs	✓✓✓
Other industries	Medium costs	✓✓✓
Indirect impacts	Small benefits	✓ Difficult to assess given no reputable studies
Note: (1) A large benefit is greater than $1.5m, a medium benefit is between $0.5m and $1.5m and small benefit is under $0.5m. (2) The more ticks the more certain we are of the costs and benefits		
Source: Harrison Grierson and NZIER		

5.1.5 Policy A3

By regional councils:

a. imposing conditions on discharge permits to ensure the limits and targets specified pursuant to Policy A1 and Policy A2 can be met and

b. where permissible, making rules requiring the adoption of the best practicable option to prevent or minimise any actual or likely adverse effect on the environment of any

discharge of a contaminant into fresh water, or onto land in circumstances that may result in that contaminant, any other contaminant) entering fresh water.

Effectiveness

Policy A3 contains two parts. The first, in clause (a) links the regional plan changes required under policies A1 and A2 to the resource consent process for discharge permits. The second, in clause (b), requires regional councils to, where permissible, include rules in the regional plan which require the adoption of the best practicable option to prevent or minimise any actual or likely adverse effect on the environment of any discharge of a contaminant. Given the connection to Policies A1 and A2 in clause (a) and the direction relating to best practicable options in clause (b), Policy A3 can be expected to have effect in relation to Objectives A1 and A2.

While the clause (b) directs regional councils to include rules that require the adoption of best practicable options, discretion is retained for regional councils to determine the nature of 'best practicable options' to be imposed by way of consent conditions. This is deemed appropriate as such options can be determined within a regional context and in a manner that is specific to the activity to which the discharge permit relates. Further, the inclusion of the qualifier 'where permissible' is intended to reflect s70(2) of the Resource Management Act, which requires councils to be satisfied that the inclusion of a rule which provides for the use of the best practicable option is the most efficient and effective means of preventing or minimising adverse effects on the environment.

This policy is targeted at the resource consent process, which is appropriate.

Efficiency

Policy A3 builds incrementally on Policies A1 and A2 by guiding councils to use best practicable options to ensure Policies A1 and A2 are met. The incremental nature of Policy A3 means that there is a mixture of small costs and benefits across all stakeholders.

The benefits accrue to the environment, tāngata whenua, local communities, recreational users, and other NGOs, while small costs accrue to all forms of government and commercial users of water.

One area where there may be potentially medium costs is for the primary industries and other industries. Depending on the 'best practicable option' adopted in consent conditions, they may be constrained in production, increasing the opportunity cost relative to the status quo.

Table 6 – Summary of the efficiency of Policy A3		
Efficiency	**Cost/benefit**	**Certainty of cost/benefit attributed**
Environment	Small benefit	✓✓✓
tāngata whenua	Small benefit and small cost	✓✓✓
Local communities	Small benefit	✓✓✓
Consumers	Neutral	✓✓✓
Recreational users and other NGOs	Small benefit	✓✓✓
Central Government	Small cost	✓✓✓
Regional Government	Small cost	✓✓✓
Territorial Local Authorities	Small cost	✓✓✓
Primary Sector	Small cost and potentially medium cost	✓✓✓
Hydroelectricity generators	Small cost	✓✓✓
Other industries	Small cost and potentially medium cost	✓✓✓
Indirect impacts	Small benefit	✓✓✓
Note: (1) A large benefit is greater than $1.5m, a medium benefit is between $0.5m and $1.5m and small benefit is under $0.5m. (2) The more ticks the more certain we are of the costs and benefits		
Source: Harrison Grierson and NZIER		

5.1.6 Policy A4 and direction (under section 55) to regional councils

By every regional council amending regional plans (without using the process in Schedule 1) to the extent needed to ensure the plans include the following policy to apply until any changes under Schedule 1 to give effect to Policy A1 and Policy A2 (freshwater quality limits and targets) have become operative:

1. *When considering any application for a discharge the consent authority must have regard to the following matters:*

   a) *the extent to which the discharge would avoid contamination that will have an adverse effect on the life supporting capacity of fresh water including on any ecosystem associated with fresh water; and*

   b) *the extent to which it is feasible and dependable that any more than minor adverse effect on fresh water, and on any ecosystem associated with fresh water, resulting from the use or activity would be avoided.*

2. *This policy applies to the following discharges (including diffuse discharge by any person or animal):*

   a) a new discharge or

   b) a change or increase in any discharge –

   of any contaminant into fresh water, or onto or into land in circumstances that may result in that contaminant (or, as a result of any natural process from the discharge of that contaminant, any other contaminant) entering fresh water.

3. *This policy applies to any application for consent first lodged 28 days or more after the National Policy Statement for Freshwater Management is issued by notice in the New Zealand Gazette.*

Effectiveness

Policy A4 acts as a transitional policy by seeking to appropriately manage activities which adversely affect freshwater resources while the regional plan changes required under the other policies are completed.

Part 1 of the Policy outlines the matters that the consent authority must, to the extent permissible, have regard to when considering activities to which the policy applies. Parts 2 and 3 outline the activities to which the policy applies.

The direction that the consent authority *'must have regard to'* is not strong and in some respects the policy does not add significantly to the direction provided within the RMA itself, such as in section 5, section 104, section 105 and section 107.

However, the policy may have some effect as an interim measure, by further drawing attention to and reinforcing the issue of water quality. It also specifically makes the connection between land use and water quality which is an identified limitation of the status quo. Finally it also gives a degree of priority to avoiding effects or at least encourages investigation into the feasibility of doing so. Therefore, despite the lack of strength in the direction to 'have regard to' it is considered that the policy will have some interim effect in achieving Objectives A1 and A2.

Efficiency

Policy A4 is a transitional policy used to deal with the management of adversely affected water bodies in the short term. While there are some benefits for the environment, tāngata whenua, local communities, recreational users, and other NGOs they are small. There are small benefits because it manages specific water

quality issues. Small costs accrue to regional councils and tāngata whenua (mainly management costs), while costs and benefits to other stakeholders are neutral.

Table 7 – Summary of the efficiency of Policy A4		
Efficiency	**Cost/benefit**	**Certainty of cost/benefit attributed**
Environment	Small benefit	✓✓✓
tāngata whenua	Small benefit and small cost	✓✓✓
Local communities	Small benefit	✓✓✓
Consumers	Neutral	✓✓✓
Recreational users and other NGOs	Small benefit	✓✓✓
Central Government	Neutral	✓✓✓
Regional Government	Small cost	✓✓✓
Territorial Local Authorities	Neutral	✓✓✓
Primary Sector	Neutral	✓✓✓
Hydroelectricity generators	Neutral	✓✓✓
Other industries	Neutral	✓✓✓
Indirect impacts	Neutral	✓✓✓
Note: (1) A large benefit is greater than $1.5m, a medium benefit is between $0.5m and $1.5m and small benefit is under $0.5m. (2) The more ticks the more certain we are of the costs and benefits		
Source: Harrison Grierson and NZIER		

5.1.7 Summary of water quality policies

Effectiveness

Table 8 summarises the analysis of the effectiveness of the water quality policies provided above. This indicates that the package of policies can be expected to be particularly effective in relation to parts of Objectives A1 and A2, particularly the direction to safeguard freshwater bodies and maintain and improve overall quality.

However, clause (a) of Objective A2 is less well addressed in the Policies as only Policy A1 potentially gives effect to it. Assuming that councils reflect the values of particular freshwater bodies in the Objectives, limits and methods required under Policy A1, it can be concluded that Objective A2 (a) would be appropriately given effect to. However it is considered that Policy A1 provides discretion for councils not to take this approach and would allow the use of a more generic or region wide approach. If this was to occur then the Policies may not be effective in relation to clause (a) of Objective A2.

The Policies will influence plan and consent decision-making, as well as providing scope to use non-regulatory methods. Finally in the main the direction provided in the Policies is appropriately strong and, aside from the comments above, the flexibility provided in the Policies is generally appropriate.

Table 8 – Summary of the effectiveness of Policies A1-A4				
Effectiveness	**Policy A1**	**Policy A2**	**Policy A3**	**Policy A4**
Safeguards the life supporting capacity, ecosystem processes and indigenous species and their associated ecosystems of fresh water	✓	✓	✓	✓
Sustainably managing the use of development of land, and of discharges to contaminants.	✓	✓	✓	-
Overall quality of fresh water within a region is maintained or improved.	✓	✓	✓	½ ✓
The quality of outstanding freshwater bodies and significant values of wetlands is protected.	✓	-	-	-
The quality of freshwater bodies that have been degraded to the point of being over-allocated by human activities is improved.	-	✓	-	-
Impacts on council plans	✓	✓	✓	-
Impacts on resource consents and designations	Indirectly	Indirectly	✓	✓
Impacts on non-regulatory methods	-	✓	-	-
Policy strength and clarity	✓	✓	✓	½ ✓
Source: Harrison Grierson and NZIER				

5.2 WATER QUANTITY

5.2.1 Objective B1

Objective B1 of the NPS seeks the following outcome:

> *"To safeguard the life-supporting capacity, ecosystem processes and indigenous species and their associated ecosystems of fresh water, in sustainably managing the taking, using, damming, or diverting of fresh water."*

Objective B1 provides a broad objective for the management of freshwater quantity, compared with the more specific directions contained within Objectives B2 and B3.

Objective B1 seeks a balanced outcome, in which use and development is provided for, while setting an environmental bottom line, ie, the life supporting capacity, ecosystem processes and indigenous species of fresh water. As with Objective A1, such a balanced Objective is appropriate to the purpose of the RMA.

In this respect it is again noted that, while the Objective includes a bottom line, the term safeguarding does not in all circumstances require the application of a 'no adverse effects' framework to the management of freshwater quantity. A degree of adverse effects may be accepted without undermining the intent of this part of the objective.

Further it is noted that the second half of the Objective provides for the taking, using, damming and diverting of fresh water, where these occur in a manner consistent with sustainable management. This part of the Objective recognises the need for such activities to occur and is consistent with the enabling intent of the RMA.

For these reasons it is considered that this Objective is the most appropriate way to achieve the purpose of the RMA.

5.2.2 Objective B2

Objective B2 of the NPS seeks the following outcome:

> *"To avoid any further over-allocation of fresh water and phase out existing over allocation."*

In considering the appropriateness of the Objective it is noted that the over-allocation of fresh water, and predictions that the level of over-allocation will increase, are key problems identified in the preceding discussion on the status quo and in the problem statement.

In this regard the objective seeks to address existing unsustainable practices (over-allocation). It also seeks to prevent future over-allocation. Both elements contribute to safeguarding the life-supporting capacity of freshwater resources and are therefore appropriate in relation to the purpose of the RMA.

Furthermore, while addressing over-allocation of freshwater resources is not a specific priority identified in Part II of the RMA, over-allocation can clearly generate significant adverse effects and avoiding or remedying such effects is consistent with the following priorities outlined in section 7 of the RMA, as well as the purpose of the RMA:

- *Section 7(b) – the efficient use and development of natural and physical resources;*
- *Section 7(d) – the intrinsic values of ecosystems;*
- *Section 7(f) – maintenance and enhancement of the quality of the environment;*
- *Section 7(g) – any finite characteristics of natural and physical resources*; *and,*
- *Section 7(i) – the effects of climate change*

It is also noted that the directives set in the Objective are clear requirements for the subsequent Policies.

For these reasons it is considered that this Objective is the most appropriate way to achieve the purpose of the RMA.

5.2.3 Objective B3

Objective B3 of the NPS seeks the following outcome:

> *"To improve and maximise the efficient allocation and efficient use of water."*

Objective B3 seeks to ensure that water is used and allocated more efficiently.

The analysis of the status quo identified the inefficient allocation of fresh water as a problem with current freshwater management. This is particularly the case where water is scarce and/or under greatest demand.

In addition the Objective is consistent with Section 7(b) of the RMA where particular regard is given to the efficient use and development of natural and physical resources. Seeking to improve and maximise the efficiency with which water is allocated and used is more generally consistent with the sustainable management of freshwater resources. This is because it will help ensure that a

broader range of interests in terms of social and economic well-being are able to be met.

For these reasons it is considered that this objective is the most appropriate way to achieve the purpose of the RMA.

5.2.4 Objective B4

Objective B4 seeks *to protect significant values of wetlands*.

The analysis of the status quo noted that there has been a 90 percent reduction in the extent of wetlands in New Zealand since 1840. Further there is continuing pressure on the remaining wetland areas, both directly and indirectly, from the intensification of land use.

Given the relatively small extent of wetlands which remain in New Zealand, it is considered that the protection of the significant values associated with them goes directly to clauses (a) to (c) of s5(2) of the RMA, ie, their protection is relevant in relation to:

a) Sustaining the potential of this natural resource to meet the reasonably foreseeable needs of future generations;

b) Safeguarding the life supporting capacity of wetlands;

c) Avoiding, remedying or mitigating adverse effects of activities on the environment.

In relation to clause (c) of s5(2), it is also considered that emphasis on avoiding adverse effects which is provided by the direction to 'protect significant values' is appropriate given the extent of past losses.

Further it is noted that s 6 (c) requires decision-makers to recognise and provide for the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna.

For these reasons it is considered that this objective is the most appropriate way to achieve the purpose of the RMA.

5.2.5 Policy B1

> *By every regional council making or changing regional plans to the extent needed to ensure the plans establish freshwater objectives and set environmental flows and/or levels for all bodies of fresh water in its region (except ponds and naturally ephemeral water bodies) to give effect to the objectives in this national policy statement, having regard to at least the following:*

a) the reasonably foreseeable impacts of climate change

b) the connection between water bodies.

Effectiveness

This Policy is fundamental to the achievement of Objective B1 namely sustainably managing the taking, using, damming or diverting of fresh water. By providing the method in which sustainable management will be achieved the policy will also ensure that the life-supporting capacity, ecosystem processes and indigenous species and their associated ecosystems of fresh water will be safeguarded.

The requirement to set allocation limits will also have effect in relation to Objective B2, both in terms of new consent applications (further over-allocation) and re-consenting existing takes (reducing existing over-allocation). By requiring councils to determine environmental flows and/or levels and allocation limits, it is noted that the Policy sets the foundation for Policies B5 and B6 which address the over-allocation of freshwater resources.

The Policy will also have some effect in relation to Objective B4; this is particularly given the inclusion of clause (b) which requires councils to have regard to the connection between water bodies when setting environmental flows and levels. However this conclusion assumes that councils will reflect the significant values of wetlands in flows, levels and allocation limits required under Policy B1. It is noted that Policy B1 provides discretion for councils not to take this approach and would therefore allow the use of a more generic or region wide approach. If this was to occur then Policy B1 may not be effective in relation to Objective B4.

Regarding policy strength and clarity, while the policy is clear that regional plans must set environmental flows and/or levels, discretion is afforded to regional councils to determine limits which reflect community interests and values (including social, cultural, economic and environmental values) associated with water bodies. Consequently, the policy will ensure that the management of the use and development of freshwater resources will enable people and communities to provide for their social, economic, and cultural well-being and for their health and safety.

It is noted that, unlike A1, the Policy does not require councils to develop methods which prescribe the attainment of the limits. However, given the direction in Policy B5 to make no decision likely to result in the future over-allocation of fresh water this is not considered a weakness in the effectiveness of the Policy.

Efficiency

Policy B1 is expected to efficiently achieve the outcome sought in the Objective. By developing a process to set freshwater allocation limits the national benefits of Policy B1 will assist in improving New Zealand's well-being. It also allows councils discretion as to how they go about complying with the NPS.

Policy B1 will have a large benefit for the environment since the policy actively encourages the establishment of environmental flows and/or levels for all bodies of fresh water.

For tāngata whenua Policy B1 is likely to be a mixture of medium and small benefits and small cost. The medium and small benefits accrue from improved collaboration with Regional Councils and participation in monitoring outcomes. The small cost comes from participating in council processes that establish water flow limits.

For the same reason, local communities, recreational users, and environmental NGOs will also experience a medium benefit because of their ability to enjoy the existence value and possibly be involved in the process for setting water flow levels.

Policy B1 will have a small cost for central government in its role of offering guidance for the NPS intent. TLAs will have a mixture of small and medium costs since they will want to submit on regional council policy and planning processes (medium cost) and may also need to alter their own district plans (small cost).

The main costs will fall on the regional councils in Policy B1, since this policy is specifically directed at changing their policies and plans on water flows. Significant resources will be required to set up systems that monitor flows and set up a process to meet new water flow standards.

Commercial users of water will also expect to accrue large costs. Policy B1 is likely to have the biggest impact on the primary sector and hydro generators since they are big users of water. Both the hydro generators and the primary sector are likely to invest heavily (large costs) in the policies and planning processes that will be developed by regional councils. Until water flow levels are set, we are unsure of the impact on consent costs and the opportunity cost of water.

We are uncertain about the direction of consent costs for commercial users because those that fall within the limits determined by regional councils are likely to experience a more efficient consenting process that will reduce costs for them; these savings are possibly substantial. However, those who fall outside the limits will find that consenting costs increase as they will have to build a comprehensive case to "take" or "discharge" water. This will necessarily include scientific and other expert opinion, which will increase costs substantially.

In certain areas, other industries are also likely to invest heavily in the policy and planning processes developed under Policy B1, although it is only likely to be a medium cost for other industries. This is because the impact will only affect certain industries (perhaps specific industrial sites). Similar to the primary and hydro industries, the impacts on consenting costs and the opportunity cost are uncertain because flow levels have yet to be set.

Water flow levels will have a neutral impact on New Zealand's national brand, tourism prospects, and products and services, since quantity is not the main image issue.

Table 9 – Summary of the efficiency of Policy B1

Efficiency	Cost/benefit	Certainty of cost/benefit attribution
Environment	Large benefit	✓✓ Although uncertain about size of large benefit since it is not well understood
tāngata whenua	Mixture of Medium benefit, small benefit and small cost	✓✓✓
Local communities	Medium benefit	✓✓ Tied to existence values that are not well understood
Consumers	Neutral	✓✓✓
Recreational users and other NGOs	Medium benefit	✓✓ Tied to existence values that are not well understood
Central Government	Small cost	✓✓✓
Regional Government	Large cost	✓✓ Although costs possibly larger than estimated in this assessment
Territorial Local Authorities	Medium cost	✓✓✓
Primary Sector	Large cost	✓✓ Possibly larger than estimated, depending on other policies
Hydroelectricity generators	Large cost	✓✓ Possibly larger than estimated, depending on other policies
Other industries	Medium cost	✓✓✓
Indirect impacts	Neutral	✓✓✓
Note: (1) A large benefit is greater than $1.5m, a medium benefit is between $0.5m and $1.5m and small benefit is under $0.5m. (2) The more ticks the more certain we are of the costs and benefits		
Source: Harrison Grierson and NZIER		

5.2.6 Policy B2

By every regional council making or changing regional plans to the extent needed to provide for the efficient allocation of fresh water to activities, within the limits set to give effect to Policy B1.

Effectiveness

Policy B2 serves to complement the direction provided in Policy B1. This policy, in combination with Policy B1, is fundamental to achieving Objective B3 being to improve and maximise the efficient allocation and use of water. As the policy is tied directly to the limits set pursuant to Policy B1, the policy will also indirectly achieve sustainable management of freshwater resources as sought in Objective B1.

The policy is specifically directed to regional plans and decision-making which is appropriate given that it seeks a regulatory framework to provide for the efficient allocation of fresh water. It will however indirectly influence resource consent decision-making.

As noted in relation to Policy B1, discretion is retained for regional councils to set flows and limits within a regional context instead of requiring a 'one size fits all approach'. Further discretion is provided to regional councils to determine the changes needed to provide for the efficient allocation of water. While it is likely that the policy will result in an *improvement* in the efficient allocation of water, the extent of discretion that Policy B2 affords to Councils means that it is unclear whether the policy will result in a *maximisation* of the efficient use and allocation of water as sought in Objective B3.

In this respect it is noted that direction from an NPS Policy will not alone be sufficient to achieve the outcome sought in Objective B3. Other mechanisms will be required. It is noted that options in this regard are canvassed in the report of the Land and Water Forum.

Notwithstanding the risk to the effectiveness of the Policy that is associated with the level of discretion contained within it, it is considered appropriate that this discretion is retained as this will enable regional communities to determine what constitutes 'efficient allocation' based on the values they attribute to freshwater.

Efficiency

Policy B2 builds incrementally on Policy B1 by directing regional councils to specify how efficient allocation of water will be set. The incremental nature of Policy B2 means that there is a mixture of small costs and benefits across all stakeholders.

The small benefits accrue to the environment, tāngata whenua, local communities, recreational users, and other NGOs, while small costs accrue to all forms of government and commercial users of water.

For all parties the impacts on consents and the opportunity cost of water will only become clear once flow levels are set.

Water flow levels will have a neutral impact on New Zealand's national brand, tourism prospects, and products and services.

Table 10 – Summary of the efficiency of Policy B2

Efficiency	Cost/benefit	Certainty of cost/benefit attribution
Environment	Small benefit	✓✓✓
tāngata whenua	Small benefits and small cost	✓✓ Certainty about participation in the process but uncertainty about outcomes
Local communities	Small benefit	✓✓ Certainty about the process but no certainty about outcomes
Consumers	Neutral	✓✓✓
Recreational users and other NGOs	Small benefit	✓✓ Certainty about the process but no certainty about outcomes
Central Government	Small costs	✓✓✓
Regional Government	Small costs	✓✓✓
Territorial Local Authorities	Neutral	✓✓✓
Primary Sector	Small cost	✓✓ Certainty about small costs in participation but no certainty of outcomes
Hydroelectricity generators	Small cost	✓✓ Certainty about small costs in participation but no certainty of outcomes
Other industries	Small cost	✓✓ Certainty of costs and no certainty of outcomes
Indirect impacts	Neutral	✓✓✓
Note: (1) A large benefit is greater than $1.5m, a medium benefit is between $0.5m and $1.5m and small benefit is under $0.5m. (2) The more ticks the more certain we are of the costs and benefits		
Source: Harrison Grierson and NZIER		

5.2.7 Policy B3

By every regional council making or changing regional plans to the extent needed to ensure the plans state criteria by which applications for approval of transfers of water take permits are to be decided, including to improve and maximise the efficient allocation of water.

Effectiveness

Policy B3 directs the inclusion of criteria in regional plans by which applications for approval of transfers of water take permits are to be decided. At a broad level this policy can be expected to be effective in assisting in the efficient allocation and use of water as sought in Objective B3. The policy will therefore indirectly seek to achieve sustainable management of freshwater resources as sought in Objective B1.

However again it is noted that on its own the policy, or any policy in a NPS for that matter, is unlikely to be fully effective in seeking to encourage the transfer of water permits. This is because a policy approach will not provide the necessary incentives to encourage users to either utilise their full allocation limit or to transfer their surplus allocation to another user.

If a policy approach is the only mechanism implemented to seek to increase the transfer of water allocation then it is likely that holders of unused allocation will continue retain their full allocation in case of future need. It is therefore considered that non-regulatory methods may be necessary to support the criteria required in this policy.

The Policy is appropriately focussed on regional plans and will clearly influence applications for the approval of transfers.

Discretion is retained for regional councils to determine their own criteria, so it is also noted that some form of national guidance may improve the effectiveness of this policy.

Efficiency

Policy B3 costs and benefits mirror those associated with Policy B2. Policy B3 builds incrementally on Policy B1 to ensure that transfers of water permits are decided upon in an efficient way. Policy B3 aims at improving allocative and dynamic efficiency at the margin, to increase the likelihood that water allocation goes to its valued use.

Since B3 works at the margin the gains are incremental, therefore the spread of costs and benefits in Policy B3 is small.

The small benefits accrue to the environment, tāngata whenua, local communities, recreational users, and other NGOs, while small costs accrue to all forms of government, tāngata whenua, and commercial users of water.

For primary industries, generators, and other industries, the impacts on consents and the opportunity cost of water will only become clear once the criteria are set. It is also noted that on its own Policy B3 is unlikely to substantially impact on the transfer of water allocation from one party to another. The Policy would need to be combined with a market-based

mechanism to do this. Therefore, it is uncertain that the implementation of Policy B3 by regional councils will result in benefits to industry that outweigh the costs that they will incur through involvement in the regional plan process.

Water flow levels will have a neutral impact on New Zealand's national brand, tourism prospects, and products and services.

Table 11 – Summary of the efficiency of Policy B3

Efficiency	Cost/benefit	Certainty of cost/benefit attribution
Environment	Small benefit	✓✓✓
tāngata whenua	Small benefits and small cost	✓✓ Certainty about participation in the process but uncertainty about outcomes
Local communities	Small benefit	✓✓ Certainty about the process but no certainty about outcomes
Consumers	Neutral	✓✓✓
Recreational users and other NGOs	Small benefit	✓✓ Certainty about the process but no certainty about outcomes
Central Government	Small costs	✓✓✓
Regional Government	Small costs	✓✓✓
Territorial Local Authorities	Neutral	✓✓✓
Primary Sector	Small cost	✓✓ Certainty about small costs in participation but no certainty of outcomes
Hydroelectricity generators	Small cost	✓✓ Certainty about small costs in participation but no certainty of outcomes
Other industries	Small cost	✓✓ Certainty of costs and no certainty of outcomes
Indirect impacts	Neutral	✓✓✓
Note: (1) A large benefit is greater than $1.5m, a medium benefit is between $0.5m and $1.5m and small benefit is under $0.5m. (2) The more ticks the more certain we are of the costs and benefits		
Source: Harrison Grierson and NZIER		

5.2.8 Policy B4

By every regional council identifying methods in regional plans to encourage the efficient use of water.

Effectiveness

Policy B4 directs the inclusion of methods in regional plans to encourage the efficient use of water. The policy can be expected to be effective in assisting to improve and maximise the efficient use of water. By doing so it will also have some effect in relation to sustainable management of freshwater, sought through Objective B1.

The policy is specifically directed to the inclusion of methods in regional plans. It is therefore likely that resource consents and decision-making relating to the use of water will be indirectly affected by this policy. Given the reference to 'methods' it can also be expected that this policy will influence non-regulatory methods.

Regarding policy strength, it is noted that the direction is to every regional council. However the large discretion regarding what a council should include in its plans that is provided through the phrase *'methods ... to encourage'* may weaken the effectiveness of the Policy. This phrase provides councils with flexibility to select the most appropriate method, but it also provides the opportunity for councils to implement a 'do minimum' approach, which may undermine the effectiveness of the Policy.

Efficiency

Policy B4 costs and benefits mirror those associated with Policies B2 and B3. Policy B4 builds incrementally on Policy B1 to ensure that efficient use of water occurs. Importantly, under the RMA this covers all use and non use activities and their associated values (whether measured in the market or not).

While major step changes in efficient use may occur at this stage where these step changes will occur is uncertain. Possibly changes will occur at the margin and the gains will be incremental. In this scenario, the spread of costs and benefits in Policy B4 is possibly small.

The small benefits accrue to the environment, tāngata whenua, local communities, recreational users, and other NGOs, while small costs accrue to all forms of government, tāngata whenua, and commercial users of water.

For primary industries, generators, and other industries, the impacts on consents and the opportunity cost of water will only become clearer once flow levels are set and transfer occur.

Water flow levels will have a neutral impact on New Zealand's national brand, tourism prospects, and products and services.

Table 12 – Summary of the efficiency of Policy B4		
Efficiency	**Costs/benefits**	**Certainty of cost/benefit attributed**
Environment	Small benefit	✓✓✓
tāngata whenua	Small benefits and small cost	✓✓✓
Local communities	Small benefit	✓✓✓
Consumers	Neutral	✓✓✓
Recreational users and other NGOs	Small benefit	✓✓✓
Central Government	Small costs	✓✓✓
Regional Government	Small costs	✓✓✓
Territorial Local Authorities	Neutral	✓✓✓
Primary Sector	Small cost	✓✓✓
Hydroelectricity generators	Small cost	✓✓✓
Other industries	Small cost	✓✓✓
Indirect impacts	Neutral	✓✓✓
Note: (1) A large benefit is greater than $1.5m, a medium benefit is between $0.5m and $1.5m and small benefit is under $0.5m. (2) The more ticks the more certain we are of the costs and benefits		
Source: Harrison Grierson and NZIER		

5.2.9 Policy B5

By every regional council ensuring that no decision will likely result in future over-allocation – including managing fresh water so that the aggregate of all amounts of fresh water in a water body that are authorised to be taken, used, dammed or diverted – does not over-allocate the water in the water body.

Effectiveness

Policy B5, in combination with the levels and allocation limits set pursuant to Policy B1, is fundamental to the avoidance of further over-allocation as sought in the first part of Objective B2. Consequently, the policy is likely to safeguard the life-supporting capacity, ecosystems and indigenous species and their associated ecosystems of fresh water, as sought under Objective B1, and protect the significant values of wetlands (Objective B4).

The policy relates only to future decisions on takes, dams or diversion and does not address existing over-allocations. Further, the policy does not seek to address the efficient allocation of water. The policy will therefore not assist in achieving Objective B3.

It is recognised that unlike policies B1, B2, B3, B4, and B6, this policy does not specifically direct regional councils to make changes to regional plans. However, it is considered likely that councils will reflect it in regional plan rules, including the activity status of applications for takes which exceed allocation limits.

While the provision is likely to have greater weight if reflected in regional plans, the policy will impact on resource consent applications from the time the NPS comes into effect. The policy is therefore likely to be effective in addressing the problem of increasing over-allocation of water.

The direction provided in this policy is without qualification and appropriately strong. In this regard the use of the term 'no decision' sets a clear direction to councils to decline resource consents that will result in an over-allocation of the water body that is subject to the application.

Efficiency

Policy B5 is linked closely with Policy B1 to ensure that regional councils do not over allocate water in the future. The costs and benefits in Policy B5 mirror those of B1 since it reinforces the intent of B1 by ensuring the durability of Policy B1.

Policy B5 therefore will have a large benefit for the environment since the policy aims to actively discourage over allocation of the environmental flows set in B1.

For tāngata whenua Policy B5 is likely to be a mixture of medium and small benefits and small cost. The medium and small benefits come from improved collaboration and ensuring that over allocation is discouraged. The small cost comes from participating in council processes that establish water flow limits.

For the same reason, local communities, recreational users, and environmental NGOs will also experience a medium benefit because Policy B5 actively discourages over allocation.

Policy B5 will have a small cost for central government in its role of offering guidance for the NPS intent. TLAs will have a mixture of small and medium costs since they will want to submit on regional council policy and planning processes (medium cost) and also need to alter their own district plans, particularly on water supply (small cost).

The main costs will fall on the regional councils in Policy B5, since this policy is specifically directed at discouraging future over allocation of water. Significant resources will be required to set up systems that monitor resource consent implementation so that an over allocation can be defined.

Commercial users of water will also expect to accrue large costs. Policy B5 is likely to have the biggest impact on the primary sector and hydro generators

since they are big users of water. Both the hydro generators and the primary sector are likely to invest heavily (large costs) in the policies and planning processes that will be developed by regional councils. Once water level flows are set, they will be particularly interested in the practical definition of over allocation. Until this is understood, the impact on consent costs and the opportunity cost of water is uncertain.

In certain areas, other industries are also likely to invest heavily in the policy and planning processes developed under Policy B5, although it is only likely to be a medium cost for other industries. This is because the impact will only affect certain industries (perhaps specific industrial sites). Similar to the primary and hydro industries, of the impacts on consenting costs and the opportunity cost are uncertain.

Water flow levels will have a neutral impact on New Zealand's national brand, tourism prospects, and products and services.

Table 13 – Summary of the efficiency of Policy B5

Efficiency	Cost/benefit	Certainty of cost/benefit attributed
Environment	Large benefit	✓✓ Although uncertain about size of large benefit since it is not well understood
tāngata whenua	Mixture of Medium benefit, small benefit and small cost	✓✓✓
Local communities	Medium benefit	✓✓ Tied to existence values that are not well understood
Consumers	Neutral	✓✓✓
Recreational users and other NGOs	Medium benefit	✓✓ Tied to existence values that are not well understood
Central Government	Small cost	✓✓✓
Regional Government	Large cost	✓✓ Although costs possibly larger than estimated in this assessment
Territorial Local Authorities	Medium cost	✓✓✓
Primary Sector	Large cost	✓✓ Possibly larger than estimated, depending on other measures
Hydroelectricity generators	Large cost	✓✓ Possibly larger than estimated, depending on other measures
Other industries	Medium cost	✓✓✓
Indirect impacts	Neutral	✓✓✓
Note: (1) A large benefit is greater than $1.5m, a medium benefit is between $0.5m and $1.5m and small benefit is under $0.5m. (2) The more ticks the more certain we are of the costs and benefits		
Source: Harrison Grierson and NZIER		

5.2.10 Policy B6

By every regional council setting a defined timeframe and methods in regional plans by which over-allocation must be phased out, including by reviewing water permits and consents to help ensure the total amount of water allocated in the water body is reduced to the level set to give effect to Policy B1.

Effectiveness

In combination with policies B1 and B5, the policy seeks to address issues surrounding the over-allocation of water as outlined in the problem statement and consequently will have effect in relation to Objective B2. As a result of addressing over-allocation, the policy also indirectly seeks to safeguard the life-supporting capacity, ecosystem processes and indigenous species and their associated ecosystems of fresh water as sought in Objective B1, and will have effect in relation to the protection of the significant values of wetlands (Objective B4).

Policy B6 will directly influence regional plans and will also influence the re-consenting of existing takes where allocation limits are already exceeded.

The discretion afforded to regional councils to set their own timeframes and methods to reduce over allocation realises that allocation limits need to be set in relation to community values and interests. In this regard it is recognised that a 'one size fits all approach' may not be appropriate.

Notwithstanding this, the lack of a definite timeframe does not give a strong direction to councils to implement and provides scope for delays in implementation, particularly given the potentially contentious nature of the issue. The effectiveness of the policy is therefore reliant on the time taken by individual councils to implement.

Efficiency

Policy B6 is linked closely with Policy B1 to ensure that regional councils claw back any over-allocation that has already occurred. The costs and benefits in Policy B6 mirror those of B1 since it reinforces the intent of B1 by ensuring that all water flows are treated consistently within a region.

Policy B6 will have a large benefit for the environment since Policy B6 aims to reduce the levels of over allocation.

For tāngata whenua Policy B6 is likely to be a mixture of medium and small benefits and small cost. The medium and small benefits come from improved

collaboration and ensuring that claw backs occur. The small cost comes from participating in council processes to establish where claw backs should occur.

Medium benefits will also accrue to local communities, recreational users, and environmental NGOs, since the aim is to deal with over allocation. Policy B6 will have a small cost for central government in its role of offering guidance for the NPS intent. TLAs will have a mixture of small and medium costs since they will want to submit on regional council policy and planning processes (medium cost) and also need to alter their own district plans, particularly on water supply (small cost).

The main costs will fall on the regional councils in Policy B6 since this policy is specifically directed at clawing back already over allocated water flows. Significant resources will be required to establish where over allocation is occurring and by how much.

Commercial users of water will also expect to accrue large costs. Policy B6 is likely to have the biggest impact on the primary sector and hydro generators since they are big users of water. Both the hydro generators and the primary sector are likely to invest heavily (large costs) in the policies and planning processes that will be developed by regional councils. Potentially there are also large opportunity costs for primary and hydro generators, since they may be required to forfeit some of their water allocation.

A similar situation exists for other industries, although it is only likely to be a medium cost. This is because the impact will only affect certain industries (perhaps specific industrial sites). A large opportunity cost is expected, given the possibly high abatement costs associated with water allocation claw backs.

Water flow levels will have a neutral impact on New Zealand's national brand, tourism prospects, and products and services.

Table 14 – Summary of the efficiency of Policy B6		
Efficiency	**Cost/benefit**	**Certainty of cost/benefit attributed**
Environment	Large benefit	✓✓ Although uncertain about size of large benefit since it is not well understood
tāngata whenua	Mixture of Medium benefit, small benefit and small cost	✓✓✓
Local communities	Medium benefit	✓✓ Tied to existence values that are not well understood
Consumers	Neutral	✓✓✓
Recreational users and other NGOs	Medium benefit	✓✓ Tied to existence values that are not well understood
Central Government	Small cost	✓✓✓
Regional Government	Large cost	✓✓ Although costs possibly larger than estimated in this assessment
Territorial Local Authorities	Medium cost	✓✓✓
Primary Sector	Large cost	✓✓ Possibly larger than estimated, depending on other measures
Hydroelectricity generators	Large cost	✓✓ Possibly larger than estimated, depending on other measures
Other industries	Medium cost	✓✓✓
Indirect impacts	Neutral	✓✓✓
Note: (1) A large benefit is greater than $1.5m, a medium benefit is between $0.5m and $1.5m and small benefit is under $0.5m. (2) The more ticks the more certain we are of the costs and benefits		
Source: Harrison Grierson and NZIER		

5.2.11 Policy B7 and direction (under section 55) to regional councils

By every regional council amending regional plans (without using the process in Schedule 1) to the extent needed to ensure the plans include the following policy to apply until any changes under Schedule 1 to give effect to Policy B1 (allocation limits), Policy B2 (allocation), and Policy B5 (over-allocation) of the National Policy Statement have become operative:

1. *When considering any application the consent authority must have regard to the following matters:*

a) the extent to which the change would adversely affect safeguarding the life-supporting capacity of fresh water and of any associated ecosystem; and

b) the extent to which it is feasible and dependable that any adverse effect on the life-supporting capacity of fresh water and of any associated ecosystem resulting from the change would be avoided.

2. This policy applies to:

a. any new activity, and

b. to any change in the character, intensity or scale of any established activity –

that involves any taking, using, damming or diverting of fresh water or draining of any wetland; which is likely to result in any more than minor adverse change in the natural variability of flows or level of any fresh water, compared to that which immediately preceded the change – or in the case of intermittent or seasonal activities, compared to that on the last occasion on which the activity was carried out.

3. This policy applies to any application for consent first lodged 28 days after the National Policy Statement for Freshwater Management is issued by notice in the New Zealand Gazette.

Effectiveness

Parts 2 and 3 of the Policy outlines the activities to which the policy relates. Part 1 outlines the matters that the consent authority (being both regional councils and territorial authorities) must, to the extent permissible, have regard to.

Policy B7, like Policy A4 relating to water quality, acts as a transitional policy by seeking to appropriately manage activities which adversely affect the values of fresh water while the Regional Plan changes required under other provisions are developed.

Given the matters covered in part 1 of the policy it is considered that the interim effect will relate to Objective B1 in particular and indirectly to Objective B2. It will also have some indirect effect in relation to Objective B4.

The policy will directly influence resource consent applications.

As noted in relation to Policy A4, the direction that the consent authority *'must have regard to'* is not strong.

However, the policy may have some effect as an interim measure, by further drawing attention to and reinforcing the issues of water quantity. It is also noted that direction provided by the RMA in relation to water quantity is not as specific as it is for water quality and therefore the policy may have more effect as an interim measure. Finally the policy gives a degree of priority to avoiding effects or at least encourages investigation into the feasibility of doing so.

Efficiency

Policy B7 is a transitional policy used to deal with the management of water quantity.

Some small benefits are expected for the environment, tāngata whenua, local communities, recreational users, and other NGOs, since the policy actively manages adverse effects on life supporting capacity associated with water quantity. Small management costs accrue to regional councils and tāngata whenua, while costs and benefits to other stakeholders are neutral.

Table 15 – Summary of the efficiency of Policy B7

Efficiency	Cost/benefit	Certainty of cost/benefit attributed
Environment	Small benefit	✓✓✓
tāngata whenua	Small benefit and small cost	✓✓✓
Local communities	Small benefit	✓✓✓
Consumers	Neutral	✓✓✓
Recreational users and other NGOs	Small benefit	✓✓✓
Central Government	Neutral	✓✓✓
Regional Government	Small cost	✓✓✓
Territorial Local Authorities	Neutral	✓✓✓
Primary Sector	Neutral	✓✓✓
Hydroelectricity generators	Neutral	✓✓✓
Other industries	Neutral	✓✓✓
Indirect impacts	Neutral	✓✓✓
Note: (1) A large benefit is greater than $1.5m, a medium benefit is between $0.5m and $1.5m and small benefit is under $0.5m. (2) The more ticks the more certain we are of the costs and benefits		
Source: Harrison Grierson and NZIER		

5.2.12 Summary of Water Quantity Policies

Table 16 summarises the above analysis of the effectiveness of Policies B1 – B7. It indicates that the package of Policies will in the main adequately address the proposed water quantity objectives in the NPS.

The exception to this is Objective B4, which seeks to protect the significant values of wetlands, not just those values related to water quantity. The policies in section B would have effect in relation to the values of wetlands, but only in terms of water quantity effects. It is noted that water quality effects on wetlands are addressed via Objective A2 and its related policies. Consequently there is not a gap in the National Policy Statement, the issue is that Objective B1 seeks an outcome in relation to wetlands which is broad, while the policies which follow focus on water quantity.

Table 16 also shows that the Policies employ a range of mechanisms to do so, which are appropriate to particular matter being addressed. The lack of strength and clarity of some of the Policies however may weaken their effectiveness in relation to the Objectives. It is therefore considered that these provisions would need to be complemented by other measures.

Table 16 – Summary of the effectiveness of Policies B1 – B7							
Criteria	**Policy B1**	**Policy B2**	**Policy B3**	**Policy B4**	**Policy B5**	**Policy B6**	**Policy B7**
Safeguard the life supporting capacity, ecosystem processes and indigenous species and their associated ecosystems	✓	-	-	-	✓	✓	✓
Sustainably managing the taking, using, damming or diverting of freshwater or of draining of wetlands	✓	✓	½ ✓	½ ✓	Indirectly	Indirectly	Indirectly
Avoid any further allocation	✓	-	-	-	✓	-	-
Reduce existing over allocation	✓	-	-	-	-	✓	✓
Efficient allocation and use of water	-	✓	½ ✓	✓	-	-	-
Protect the significant values of wetlands	½ ✓	-	-	-	½ ✓	½ ✓	½ ✓
Impacts on council plans	✓	✓	½ ✓	✓	✓	✓	-
Impacts on resource consents and designations	Indirectly	Indirectly	✓	✓	✓	✓	✓
Impacts on non-regulatory methods	-	-	-	✓	-	-	-
Policy strength and clarity	✓	✓	½ ✓	½ ✓	✓	½ ✓	½ ✓
Source: Harrison Grierson and NZIER							

5.3 INTEGRATED MANAGEMENT

5.3.1 Objective C1

Objective C1 of the NPS seeks the following outcome:

> *"To improve integrated management of fresh water and the use and development of land in whole catchments, including the interactions between fresh water, land, associated ecosystems, and the coastal environment"*

Integrated management is a core method through which the broader purpose of the sustainable management can be achieved. The concept is central to the RMA and is explicitly stated as a function of Regional Council (s30 (1) (a)) and as a purpose of RPSs (s59). Furthermore, the concept of integrated management is inherent in the fact that the RMA incorporates the management of most natural and physical resources in New Zealand, whereas these were previously addressed under separate pieces of legislation.

In considering the appropriateness of Objective C1 it is also noted that the lack of integration of land use and water management is a key problem identified in the preceding discussion on the status quo and in the problem statement. In particular land-use activities, and their associated diffuse discharges, are a significant contributor to water quality degradation. Therefore, it is appropriate the management of land use and water is integrated, and that such integration considers the interaction between such natural resources.

The direction to 'improve' the integrated management is arguably not as strong as it may otherwise be. However, it is recognised that Objective C1 is largely a procedural direction. It therefore needs to be read in conjunction with the substantive outcomes sought in relation to water quantity and quality, which are more strongly worded.

For these reasons it is considered that this Objective is the most appropriate way to achieve the purpose of the RMA.

5.3.2 Policy C1

> *By every regional council managing fresh water and land use and development in catchments in an integrated and sustainable way, so as to avoid, remedy or mitigate adverse effects, including cumulative effects.*

Effectiveness

The policy is fundamental to the achievement of Objective C1 and places a particular requirement on regional councils to consider how to manage the interaction between land use and water. As the review of the status quo has shown, to date only limited mechanisms have been implemented by regional councils to ensure the integrated management of fresh water and land use. Therefore a policy which requires 'every regional council' to now do so will help ensure the outcome sought in Objective C1 *('To Improve the integrated management...'*) is achieved.

The policy also seeks that fresh water and land use and development is managed at catchment level. This is considered appropriate and consistent with existing Integrated Catchment Management Plan approaches.

The policy is not specific in respect of whether it needs to be addressed through plan, resource consent or non-regulatory methods. However, given that it covers 'integrated management' it is considered likely that councils will apply it at the plan level. In this regard the effectiveness of the Policy could be improved by making this a more explicit requirement.

Efficiency

Policy C1 aims at improving integrated management of fresh water and land use and development. Apart from the primary sector and other industries, Policy C1 is likely to have only a small impact on most stakeholders (small cost or small benefit).

For the environment, tāngata whenua, local communities, recreational users, and other NGOs, Policy C1 is likely to be a small benefit because it contributes to the improvement of water quality and integrates catchments into its surrounds (associated ecosystems and coastal environment).

For all forms of government, Policy C1 means a small cost as they alter their plans to take account of the integrated management approach.

For the primary sectors, there are likely to be medium costs since Policy C1 could possibly restrict commercial activity, although, this will depend on how this policy is applied in practice. To a lesser extent, this also applies to other industries, although the exact nature will depend on the circumstances and details in each case.

For other stakeholders the policy is neutral.

Table 17 – Summary of the efficiency of Policy C1		
Efficiency	**Cost/benefit**	**Certainty of cost/benefit attributed**
Environment	Small benefit	✓✓✓
tāngata whenua	Small benefit and small cost	✓✓✓
Local communities	Small benefit	✓✓✓
Consumers	Neutral	✓✓✓
Recreational users and other NGOs	Small benefit	✓✓✓
Central Government	Small cost	✓✓✓
Regional Government	Small cost	✓✓✓
Territorial Local Authorities	Small costs	✓✓✓
Primary Sector	Medium cost	✓✓✓
Hydroelectricity generators	Neutral	✓✓✓
Other industries	Medium cost	✓✓✓
Indirect impacts	Neutral	✓✓✓
Note: (1) A large benefit is greater than $1.5m, a medium benefit is between $0.5m and $1.5m and small benefit is under $0.5m. (2) The more ticks the more certain we are of the costs and benefits		
Source: Harrison Grierson and NZIER		

5.3.3 Policy C2

> *By every regional council making or changing regional policy statements to the extent needed to provide for the integrated management of the effects of the use and development of land on freshwater, including encouraging the co-ordination and sequencing of regional and/or urban growth, land use and development and the provision of infrastructure.*

Effectiveness

Again this Policy goes directly to Objective C1. While the Policy directs regional councils to 'provide for' integrated management it does not specifically require them to actually complete the necessary methods of implementation. While not explicitly stating so, the Policy provides scope for region councils to use their RPSs to direct territorial local authorities to act.

The inclusion of the last part of the policy being *'the co-ordination and sequencing of regional and/or urban growth, land use and development and the provision of infrastructure'* further implies the need for regional councils to work with relevant district and city councils. Such co-ordination is directly relevant to integrated management anticipated in Objective C1 and is therefore considered appropriate.

It is considered that the particular focus on urban growth appropriately complements the more general focus of Policy C1.

Policy C2 is specifically targeted at Regional Policy Statements. This is appropriate given that the issue addressed by the policy is a matter for both regional and district councils, and given the influence that Regional Policy Statements have over both regional and district plans and the resource consent processes under them.

The requirement that 'every regional council' act provides a clear direction.

Efficiency

The costs and benefits of Policy C2 mirror those of Policy C1. The aim of C2 is to ensure that integrated management practices of fresh water and land use and development are sustained over time. Apart from the primary sector and other industries, Policy C2 is likely to have only a small impact on most stakeholders (small cost or small benefit).

For the environment, tāngata whenua, local communities, recreational users, and other NGOs, Policy C2 is likely to be a small benefit because it contributes to the sustained improvement of water quality by integrating water flow management with land-use practices.

For all forms of government, Policy C2 is a small cost. Costs are incurred by altering their plans to take account of the integrated management approach.

For the primary sectors and other industries, the costs of C2 are the same as C1 for the same reasons.

For other stakeholders the policy is neutral.

Table 18 – Summary of the efficiency of Policy C2		
Efficiency	**Cost/benefit**	**Certainty of cost/benefit attributed**
Environment	Small benefit	✓✓✓
tāngata whenua	Small benefit and small cost	✓✓✓
Local communities	Small benefit	✓✓✓
Consumers	Neutral	✓✓✓
Recreational users and other NGOs	Small benefit	✓✓✓
Central Government	Small cost	✓✓✓
Regional Government	Small cost	✓✓✓
Territorial Local Authorities	Small costs	✓✓✓
Primary Sector	Medium costs	✓✓✓
Hydroelectricity generators	Neutral	✓✓✓
Other industries	Medium cost	✓✓✓
Indirect impacts	Neutral	✓✓✓
Note: (1) A large benefit is greater than $1.5m, a medium benefit is between $0.5m and $1.5m and small benefit is under $0.5m. (2) The more ticks the more certain we are of the costs and benefits		
Source: Harrison Grierson and NZIER		

Table 19 – Summary of the effectiveness of Policies C1 – C2		
Criteria	**Policy C1**	**Policy C2**
Improved integrated management of fresh water and the use of land in whole catchments.	✓	✓
Impacts on council plans	✓ - not explicitly stated	✓- regional policy statements
Impacts on resource consents and designations	✓- not explicitly stated	½ ✓ indirectly
Impacts on non-regulatory methods	-	-
Policy strength and clarity	½ ✓	½ ✓
Source: Harrison Grierson and NZIER		

5.4 TĀNGATA WHENUA ROLES, MĀORI VALUES AND INTERESTS

5.4.1 Objective D1

Objective D1 of the NPS seeks the following outcome;

> *"To provide for the involvement of iwi and hapū, and to ensure that tāngata whenua values and interests are identified and reflected in the management of fresh water including associated ecosystems, and decision-making regarding freshwater planning,*

including on how all other objectives of this policy statement are given effect to."

Objective D1 seeks to reinforce the existing requirements of the RMA (see discussion in section 2.4 above) and provide for the involvement of iwi and hapū and to ensure that tāngata whenua values and interests are identified and reflected, in the management of, and decision-making regarding, freshwater planning.

By doing so the Objective directly addresses one of the problems identified with the status quo, namely the variable nature of the involvement that iwi and hapū have in decision-making relating to freshwater management.

Further, by doing so the Objective is also consistent with several priorities contained in Part II of the RMA in particular s8, which requires decision-makers to take into account the principles of the Treaty of Waitangi, s6 (e) and s 7 (a).

For these reasons it is considered that this Objective is the most appropriate way to achieve the purpose of the RMA.

5.4.2 Policy D1

Local authorities shall take reasonable steps to:

a) involve iwi and hapū in the management of, fresh water and freshwater ecosystems in the region;

b) work with iwi and hapū to identify tāngata whenua values and interests in fresh water and freshwater ecosystems in the region; and

c) reflect tāngata whenua values and interests in the management of, and decision-making regarding fresh water and freshwater ecosystems in the region.

Effectiveness

Policy D1 clearly goes directly to Objective D1. By requiring the involvement of iwi and hapū, reflection of tāngata whenua values and that local authorities work with iwi and hapū, the Policy can be expected to ensure that the full scope of Objective D1 is implemented.

It is noted that the Policy provides direction to all local authorities. It will therefore appropriately require territorial local authorities to involve iwi and hapū in their planning processes where these are related to freshwater management.

The Policy does not specify whether it is intended to be addressed through plans, resource consents or non-regulatory methods. It is anticipated that this is intentional so that the full scope of mechanisms is available.

It is noted that the Policy includes terms that leave discretion to councils. These terms include 'reasonable steps', 'involve' and 'work with'. While this discretion has the potential to undermine the effectiveness of the Policy, it is recognised that such discretion will enable councils and tāngata whenua to establish a relationship that suits their particular context and resources, and in this regard is appropriate.

Table 20 – Summary of the effectiveness of Policy D1	
Criteria	**Policy D1**
Provide for the involvement of iwi and hapū	✓
Ensure tāngata whenua values and interests are identified and reflected in the management of and decision-making regarding fresh water including associated ecosystems.	✓
Impacts on council plans	✓
Impacts on resource consents and designations	✓
Policy strength and clarity	½ ✓

Efficiency

Policy D1 is expected to efficiently achieve the outcome sought in the Objective. It aims to involve iwi and hapū, reflect values and interest in freshwater management, and work with iwi and hapū.

For the environment, Policy D1 is neutral.

For tāngata whenua further engagement over freshwater management is likely to bring a large benefit. Participation in the management of natural resources, such as water, is highly important to tāngata whenua and further recognition of this in NPS reinforces their status under the RMA. They are also likely to experience a small benefit from continued engagement so that their views are heard in each region. However, there will be some (medium) cost since resources will be required to engage with regional councils and other stakeholders.

Small costs, in addition to the large plan costs already discussed, are expected to be incurred by all levels of government and commercial stakeholders for the engagement process over freshwater management with tāngata whenua.

The policy is unlikely to impact on other stakeholders and issues.

In terms of the possible impact on Treaty grievances the answer is unclear as to whether there will be a cost or a benefit. On the one hand, it may provide benefits to the Treaty process in the long term since water quality could improve

along with water flows. On the other hand, since the outcome of the consultation process between councils and stakeholders is uncertain it may also cause friction between stakeholders. If tāngata whenua are unhappy with the consultation outcomes it may generate further transaction costs associated with Treaty claims.

Table 21 – Summary of the efficiency of Policy D1		
Efficiency	**Cost/benefit**	**Certainty of cost/benefit attributed**
Environment	Neutral	✓✓✓
tāngata whenua	Mixture of large and small benefits, and medium costs	✓✓✓
Local communities	Neutral	✓✓✓
Consumers	Neutral	✓✓✓
Recreational users and other NGOs	Neutral	✓✓✓
Central Government	Small cost	✓✓✓
Regional Government	Small cost	✓✓✓
Territorial Local Authorities	Small cost	✓✓✓
Primary Sector	Small cost	✓✓ Potentially costs could be higher than estimated
Hydroelectricity generators	Small cost	✓✓ Potentially costs could be higher than estimated
Other industries	Small cost	✓✓ Potentially costs could be higher than estimated
Indirect impacts	Neutral	✓✓✓
Note: (1) A large benefit is greater than $1.5m, a medium benefit is between $0.5m and $1.5m and small benefit is under $0.5m. (2) The more ticks the more certain we are of the costs and benefits		
Source: Harrison Grierson and NZIER		

5.5 PROGRESSIVE IMPLEMENTATION PROGRAMME

5.5.1 Policy E1

a. *This policy applies to the implementation by a regional council of a policy of this national policy statement.*

b. *Every regional council is to implement the policy as promptly as is reasonable in the circumstances, and so it is fully completed no later than 31 December 2030.*

c. *Where a regional council is satisfied that it is impracticable for it to complete implementation of a policy fully by 31 December 2014, the council may implement it by a programme of defined time-limited stages by which it is to be fully implemented by 31 December 2030.*

d. Any programme of time-limited stages is to be formally adopted by the council within 18 months of the date of gazetting of this national policy statement, and publicly notified.

e. Where a regional council has adopted a programme of staged implementation, it is to publicly report, in every year, on the extent to which the programme has been implemented.

Effectiveness

In effect Policy E1 encourages local authorities to implement the various plan related policies of the NPS prior to 31 December 2014. Where a regional council considers that it is not reasonable to complete the changes by this date, the Policy requires it to establish a defined work programme that will ensure that the changes are fully implemented by 31 December 2030.

Given that the policy is linked to all NPS policies that relate to policy statement and plan changes, it indirectly gives effect to most of the NPS objectives.

The flexibility is intended to recognise that some regions will have significant work to undertake in order to implement the NPS. A tight timeframe would be particularly difficult for such regions to meet. Further the flexibility recognises that numerous other elements of the New Start for Freshwater programme are yet to be completed. These elements will provide relevant assistance to regional councils in giving effect to the NPS's regional plan requirements. It is therefore appropriate that councils are not forced to complete plan changes before these tools are available. If an inflexible and tight timeframe were to be included in the NPS at this point, it could lead to councils needing at least to review their plan change once the other elements of the New Start for Fresh Water programme are completed.

Notwithstanding this, it is noted that the flexibility may weaken the effectiveness of the NPS if it is used by councils to unduly delay the required regional plan changes.

Table 22– Summary of the effectiveness of Policy E1	
Criteria	**Policy E1**
Influence on the effectiveness of 'regional plan' NPS policies	✓
Impacts on council plans	Indirectly
Impacts on resource consents and designations	Indirectly
Policy strength and clarity	½ ✓

Efficiency

It is anticipated that the requirement in Policy E1 to publicly notify and report on a defined work programme will be undertaken through the Long Term Plan, and Annual Plan and Annual Report requirements. Therefore, it can be expected that there will be a marginal cost increase for councils as a result of Policy E1. It is also recognised that parties with an interest in water are likely to engage in submissions on the work programme and therefore they will also experience a marginal cost.

Table 23 – Summary of the efficiency of Policy E1		
Efficiency	**Cost/benefit**	**Certainty of cost/benefit attributed**
Environment	Neutral	✓✓✓
tāngata whenua	Marginal cost	✓✓✓
Local communities	Marginal cost	✓✓✓
Consumers	Neutral	✓✓✓
Recreational users and other NGOs	Marginal cost	✓✓✓
Central Government	Neutral	✓✓✓
Regional Government	Marginal cost	✓✓✓
Territorial Local Authorities	Marginal cost	✓✓✓
Primary Sector	Marginal cost	✓✓✓
Hydroelectricity generators	Marginal cost	✓✓✓
Other industries	Marginal cost	✓✓✓
Indirect impacts	Neutral	✓✓✓
Note: (1) A large benefit is greater than $1.5m, a medium benefit is between $0.5m and $1.5m and small benefit is under $0.5m. (2) The more ticks the more certain we are of the costs and benefits		
Source: Harrison Grierson and NZIER		

6.0 SUMMARY OF THE COSTS AND BENEFITS OF THE NPS

6.1 BENEFITS

In regard to the efficiency of the policies in relation to the Objectives, there is a potential net benefit. However, because of the wide variation in benefit estimates it is difficult to know how much the benefits outweigh the costs.

Further, it is very important to note that the size of the benefits/costs is highly dependent on the attitude of councils and local communities to the NPS. Transaction costs represent friction in the move to a new policy and they can have an important bearing on whether polices are efficiently applied.

The environment and a variety of stakeholders (tāngata whenua, recreational users and other NGOs, and local communities) stand to gain the most benefit from the introduction of the NPS. The key benefit given to the environment under the NPS is the improvement in water quality (existence value) and increased efficient allocation of water to maximise its potential. It is very important to note that the benefits phase in over time as the impact of the NPS is felt; therefore, total benefits are not expected immediately. Having said that, the fact that stakeholders will become aware that a process is being developed to address water management issues will, in itself, be a benefit.

For tāngata whenua the large benefits accrue from improved collaboration with local authorities under the NPS. This is likely to improve the efficiency of the process and reinforce their kaitiakitanga (guardianship) role.

Similarly, local communities, recreational users and other NGOs gain benefit from existence values, certainty around allocation and water quality rules, and participation in the process that decides on those water flow levels and water quality limits.

All forms of government (central, regional and TLAs) also gain from more certainty in the process as do the commercial users (primary, hydro and other industries). It is also likely to improve efficiency of consenting for some, although by how much is not yet known and will be dependent upon the level at which limits are set and how rigidly these are applied through regulatory and non-regulatory methods.

A small benefit is expected for New Zealand's image and will be reflected in increased tourism numbers and sales of products and services.

6.2 COSTS

Costs associated with the policies are substantial, and spread out from 2016 to 2021. These are mainly accrued by local government, primary industries, generators, government, tāngata whenua, recreational groups and other NGOs,

and local communities as they participate in the plan and policy changes associated with the NPS.

The main costs will fall on regional government. The development of plans and policies is likely to be a relatively difficult process given the size of the problem that the NPS is attempting to address. Regional council costs are potentially between $33 million and $49 million with the main costs being around plan and policy changes.

Local communities, tāngata whenua, recreational users and other NGOs are also likely to experience large costs as the NPS is introduced. Their costs will be transaction costs associated with dealing with consent processes and plan changes.

Commercial users of water such as primary industries, generators, and other industries will also have large costs submitting on regional council plans and policies. There are possibly large consenting and opportunity costs for commercial users once water flow levels and quality levels are set

Central government costs associated with guidance, monitoring and review are likely to be relatively small. However, TLAs will face large costs associated with submitting on regional council plans and policies (associated with storm water) and also smaller costs associated with changing their own district plans.

No environmental costs are expected.

In relation to the plan change costs and associated submitter costs that have been quantified, it is acknowledged that in recent experience under the status quo many parties have incurred costs larger than those included in this evaluation. There are 2 key reasons why these higher sums have not been used. First, these higher costs were incurred in relation to highly contentious catchments or regions, with significant competing uses and users. Variation 6 to the Waikato Regional Plan is an example of this. It is considered that many of the catchments and regions which would remain to be addressed under the NPS, would be significantly less contentious and therefore the plan processes less complex.

Second, the recent processes represent the leading edge of changes to freshwater resource management. It can be reasonably expected that the costs incurred in the future processes under the NPS would benefit from the lessons learnt, agreements reached and decisions made during recent processes. The process whereby subsequent plan changes benefit from earlier plan changes can be expected to continue to occur throughout the implementation of the NPS.

Table 24 – Summary of costs and benefits		
Stakeholder/resource	**Explanation**	**Costs/benefits**
Benefits		
Environment	Improvement in water quality and allocation (Existence value and efficiency gains)	Large benefit between $15 million and $396 million
tāngata whenua	Increased participation in management and monitoring of fresh water (Existence value, improve participation, and efficiency gains)	Large benefit not costed
Local communities	Increased participation and improvements in freshwater management (Efficiency gains and existence value)	Large benefit not costed
Consumers	Uncertain impact	Neutral
Recreational users and other NGOs	Increased participation and improvements in freshwater management (Efficiency gains and existence value)	Large benefit not costed
Central Government	Certainty (efficiency gains)	Small benefit not costed
Regional Government	Certainty (efficiency gains)	Small benefit not costed
Territorial Local Authorities	Benefit from certainty (efficiency gains)	Small benefit not costed
Primary Sector	Certainty (efficiency gains)	Small benefit not costed
Hydroelectricity generators	Certainty (efficiency gains)	Small benefit not costed
Other industries	Certainty (efficiency gains)	Small benefit not costed
Indirect impacts	Improve image	Small benefit not costed
Costs		
Environment	No cost to the environment	Neutral
tāngata whenua	Participation in process	Large cost valued between $3 million and $5 million
Local communities	Participation in process	Large cost valued between $7 million and $10 million
Consumers	Uncertain impact	Neutral
Recreational users and other NGOs	Participation in process	Large cost valued at $7 million and $10 million
Central government	Guidance, monitoring and review	Small cost valued at $300,000
Regional government	Plans and policies	Large cost valued at $33 million and $49 million
Territorial Local Authorities	Regional and district plans and policies	Large cost valued at $7 million and $10 million
Primary industries	Submitting on plans and policies + possible large consenting and opportunity costs	Large cost valued at $5 million and $7 million
Hydro-electric generators	Submitting on plans and policies + possible large consenting and opportunity costs	Large cost valued at $5 million and $7 million
Other industries	Submitting on plans and policies + possible large consenting and opportunity costs	Large cost valued at $2 million and $3 million

Table 24 – Summary of costs and benefits		
Stakeholder/resource	**Explanation**	**Costs/benefits**
Indirect impacts	N/a	Neutral
Comparing costs and benefits		
Benefits	**Between $15 and $396 million**	
Costs	**$68 million and $101 million**	
Note: (1) A large benefit is greater than $1.5m, a medium benefit is between $0.5m and $1.5m and small benefit is under $0.5m. (2) Numbers have been rounded to reflect the approximate nature of the values and do not sum exactly. (3) These costs have been calculated with a net present value of 8 percent. (4) Costs referred to in Appendix 2 are actual cost prior to applying the NPV calculations.		
Source: Harrison Grierson and NZIER		

7.0 RISKS AND UNCERTAINTIES

S32 (4) (b) requires that in completing a s32 evaluation account must be taken of:

> *the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules, or other methods.*

Throughout the discussion above, a number of key areas of uncertainty or limited information have been identified. These relate to:

- The wide variation in the estimates for the benefits of the NPS. We know that New Zealanders value water quality as being very important, however the national estimates have such wide variation they make it difficult to be precise about its benefit value.[54]

- The potential costs to third parties from the implementation of Policies A2, C1 and C2 for primary industries and hydro-electric generators

- The potentially large costs to regional and central government under Policy A2.

- The uncertainty of the flow effects of policies once minimum quality standards and allocation takes are set for consents, and the opportunity cost of water for primary industries and hydro-electric generators.

Each of these points presents a risk in relation to the implementation of a NPS on freshwater management.

There is also uncertainty over how large the costs and benefits are likely to be, given that each regional council is likely to implement policies and plans in different ways. At this stage, it is difficult to know how freshwater management will play out "on the ground". This makes the review process in five years (required in the Preamble) crucial to the success of the NPS over the long term.

This is particularly important for the costs associated with regional government since they are highly sensitive to the way the NPS will be implemented. We illustrate this issue by examining what would occur if regional government costs were 50 percent higher than estimated.

[54] See for example the UMR Research Annual Mood of the Nation, December 2010. Issue No. 8.

Table 25 – Impact on increased regional council costs		
	NPS (point estimated) m$	**NPS 50% higher than estimated, m$**
Regional Council costs	41	62
Commercial users	14	21
Non commercial users	20	30
Territorial Local Authorities	8	12
Total costs	84	126
Note: The midpoint of the estimates set out in Table 24 has been used as the base figure to estimate a further 50% cost escalation. Numbers are rounded and do not sum exactly.		
Source: Harrison Grierson and NZIER		

In this respect, how councils implement the NPS has the greatest potential to affect efficiency of the NPS. The approach taken will impact greatly on how the cost and benefits fall.

In the context of these uncertainties proposed review of the NPS, which is provided for in the Preamble, is significant. By requiring that the Minister seeks an independent review of the implementation and effectiveness of the NPS and then consider the need to review, change or replace the NPS, the preamble creates and important process by which potential risks of the noted uncertainties can be mitigated and if necessary remedied. Given the potentially significant risks of the uncertainties, the timeframe (5 years) in preamble is appropriately short. However it is noted that given the flexibility included in Policy E1 Councils may not have to make significant progress with regard to plan changes and therefore the risks noted above may not be realised within the 5 year timeframe.

8.0 CONCLUSIONS

This report provides an assessment of the Proposed NPS for Freshwater Management consistent with section 32 of the RMA. Due to the high level of guidance given by such a NPS it is not feasible to quantify all of its cost and benefits with precision, but broad conclusions can be drawn.

The evaluation of the status quo identifies that the current significant problems are:

- Degrading water quality.
- The growing demand for fresh water is unsustainable.
- Variable approaches to freshwater management.
- Lack of integration in the management of land use and water.
- Inefficient allocation of water.
- Variable involvement of iwi and hapū.

In addition, it is clear that use of water contributes significantly to social and economic well-being within New Zealand.

These issues are undoubtedly resource management issues for which consideration of alternatives to the status quo are warranted. Further, the problems identified with the status quo are likely to continue to grow as increasing demand for the allocation of water, and increasing land-use intensification place greater pressure on New Zealand's freshwater resources.

The benefits of the proposed NPS can be expected to arise largely from improvements on water quality outcomes (or at least the arrest in the decline of water quality) and through improvements in the efficiency with which water is allocated. For numerous groups, and in particular iwi and hapū (given Policy D1), the NPS can be expected to have benefits both in terms of certainty regarding freshwater outcomes and in terms of their involvement in the regional plan processes that will result from the NPS. A small benefit may also accrue to New Zealand's image, which may influence the country's attractiveness as a tourist destination and the attractiveness of our products and services.

Benefits may arise from the certainty generated by water quantity and quality limits. However, these benefits are uncertain given that the level at which the limits will be set, and the rigidity with which they'll be applied by individual regional councils is unknown.

The main quantifiable costs will be incurred by regional councils who will be directed to change their regional plans. Given the significant nature of the changes anticipated by the NPS, particularly in relation to water quality, these regional plan changes are only expected to be relatively large but also contentious. Costs will be incurred to regional councils through the background research necessary, their own plan and hearing processes, and through Environment Court appeals.

Large costs are also expected to be incurred by industry groups, particularly primary industries and hydro-electricity generators, as they engage in and respond to the regional plan changes. Territorial local authorities, local communities, NGOs and iwi and hapū can also be expected to incur costs as part of these processes.

Potentially significant costs, relating to resource consent applications and opportunity costs, have not been able to be quantified. This is due to the uncertainty associated with the exact nature of the water quality and quantity limits that regional councils will include in their regional plans.

Many of the policies of the Proposed NPS can be expected to be effective in achieving the outcomes sought through the NPS. However, there are some aspects of the NPS where the effectiveness is less certain. In particular, uncertainty regarding the effectiveness of clause (a) of Objective A1, and its associated Policy A1 is noted. Further, while the reason for needing to maintain flexibility in Policy E1 (Implementation) is noted, it is recognised that the lack of rigid deadline for the regional plan changes required under the NPS may delay their implementation and therefore the benefits of the NPS.

Several areas of uncertainty have been identified in relation to the effect of the NPS and its associated costs and benefits. The risks associated with such uncertainties can be expected to be mitigated and where necessary remedied, through the review process required under the Preamble. In the context of these risks, the requirement for this review to occur within 5 years of the NPS coming into force in this regard is considered appropriate. However it is noted that given the flexibility in E1, the review required in Preamble may pre-date some or many of the regional plan changes anticipated in the NPS. If this was to occur it would be important that the review is repeated at a later stage. There may be benefit in reflecting this need in the Preamble.

9.0 LIMITATIONS

9.1 GENERAL

This report is for the use by Ministry for the Environment only, and should not be used or relied upon by any other person or entity or for any other project.

This report has been prepared for the particular project described to us and its extent is limited to the scope of work agreed between the client and Harrison Grierson Consultants Limited. No responsibility is accepted by Harrison Grierson Consultants Limited or its directors, servants (including subcontractors), agents, staff or employees for the accuracy of information provided by third parties and/or the use of any part of this report in any other context or for any other purposes.

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APPENDIX 1 – Proposed NPS for Freshwater Management

PREAMBLE

Fresh water is essential to New Zealand's economic, environmental, cultural and social well-being. Fresh water gives our primary production, tourism, and energy generation sectors their competitive advantage in the global economy. Fresh water is highly valued for its recreational aspects and it underpins important parts of New Zealand's biodiversity and natural heritage. Fresh water has deep cultural meaning to all New Zealanders. Many of New Zealand's lakes, rivers and wetlands are iconic and well known globally for their natural beauty and intrinsic values.

The Treaty of Waitangi (Te Tiriti o Waitangi) is the underlying foundation of the Crown–iwi/hapū relationship with regard to freshwater resources. Addressing tāngata whenua values and interests across all of the well-beings, and including the involvement of iwi and hapū in the overall management of fresh water, are key to meeting obligations under the Treaty of Waitangi.

All New Zealanders have a common interest in ensuring the country's freshwater lakes, rivers, aquifers and wetlands are managed wisely.
New Zealand faces challenges in managing our fresh waters to provide for all of the values that are important to New Zealanders. The quality, health, availability and economic value of our fresh waters are under threat. These challenges are likely to increase over time due to the impacts of climate change.

To respond effectively to these challenges and issues we need to have a good understanding of our freshwater resources, the threats to them and provide a management framework that enables water to contribute both to New Zealand's economic growth and environmental integrity and provides for the values that are important to New Zealanders.

This national policy statement sets out objectives and policies that direct local government to manage water in an integrated and sustainable way, while providing for economic growth within set water quantity and quality limits. The national policy statement is a first step to improve freshwater management at a national level.
Setting enforceable quality and quantity limits is a key purpose of this national policy statement. This is a fundamental step to achieving environmental outcomes and creating the necessary incentives to use fresh water efficiently, while providing certainty for investment. Water quality and quantity limits must reflect local and national values. The process for setting limits should be informed by the best available information and scientific and socio-economic knowledge.

Once limits are set, freshwater resources need to be allocated to users, while providing the ability to transfer entitlements between users so that we maximise the value we get from water. Where water resources are over-allocated (in terms of quality and quantity) to the point that national and local values are not met, we also need to ensure that over-allocation is reduced over agreed timeframes.

Given the vital importance of freshwater resources to New Zealand and New Zealanders, and in order to achieve the purpose of the RMA, the Crown recognises there is a particular need for clear central government policy to set a national direction, though the management of the resource needs to reflect the catchment-level variation between

water bodies and different demands on the resource across regions. This includes managing land use and development activities that affect water so that growth is achieved with a lower environmental footprint.
The New Zealand Coastal Policy Statement 2010 addresses issues with water quality in the coastal environment. The management of coastal water and fresh water requires an integrated and consistent approach.

National values of fresh water

Water is valued for the following uses:

- domestic drinking and washing water
- animal drinking water
- community water supply
- fire fighting
- hydro-electricity generation
- commercial and industrial processes
- irrigation
- recreational activities (including waka ama)
- food production and harvesting, eg, fish farms and mahinga kai
- transport and access (including tauranga waka)
- cleaning, dilution and disposal of waste.

There are also values that relate to recognising and respecting freshwater's intrinsic values for: safeguarding the life-supporting capacity of water and associated ecosystems; and sustaining its potential to meet the reasonably foreseeable needs of future generations. Examples of these values include:

- the interdependency of the elements of the freshwater cycle
- the natural form, character, functioning and natural processes of water bodies and margins, including natural flows, velocities, levels, variability and connections
- the natural conditions of fresh water, free from biological or chemical alterations resulting from human activity, so that it is fit for all aspects of its intrinsic values
- healthy ecosystem processes functioning naturally
- healthy ecosystems supporting the diversity of indigenous species in sustainable populations
- cultural and traditional relationships of Māori with fresh water
- historic heritage associations with fresh water
- providing a sense of place for people and communities.

All the values in both lists are important national values of fresh water.

Review

The Minister for the Environment intends to seek an independent review of the implementation and effectiveness of this national policy statement in achieving all its objectives and policies and in achieving the purpose of the Act, no later than five years after it comes into force. The Minister shall then consider the need to review, change or revoke this national policy statement. Collection of monitoring data to inform this review will begin at least two years prior to the review.

This preamble may assist the interpretation of the national policy statement.

TITLE

This national policy statement is the National Policy Statement for Freshwater Management 2011.

COMMENCEMENT

This national policy statement will take effect 28 days after the date of its issue by notice in the New Zealand Gazette.

INTERPRETATION

In this national policy statement:

"Efficient allocation" includes economic, technical and dynamic efficiency.

"Environmental flows and/or levels" are a type of limit which describes the amount of water in a body of fresh water (except ponds and naturally ephemeral water bodies) which is required to meet freshwater objectives. Environmental flows for rivers and streams must include an allocation limit and a minimum flow (or other flow/s). Environmental levels for other bodies of fresh water must include an allocation limit and a minimum water level (or other level/s).

"Freshwater objective" describes the intended environmental outcome(s).

"Limit" is the maximum amount of resource use available, which allows a freshwater objective to be met.

"Over-allocation" is the situation where the resource:

a) has been allocated to users beyond a limit or

b) is being used to a point where a freshwater objective is no longer being met.

This applies to both water quantity and quality.

"Outstanding freshwater bodies" are those water bodies with outstanding values, including ecological, landscape, recreational and spiritual values.

"Target" is a limit which must be met at a defined time in the future. This meaning only applies in the context of over-allocation.

Terms given meaning in the Act have the meanings so given.

A. WATER QUALITY

Objective A1

To safeguard the life-supporting capacity, ecosystem processes and indigenous species, including their associated ecosystems of fresh water, in sustainably managing the use and development of land, and of discharges of contaminants.

Objective A2

The overall quality of fresh water within a region is maintained or improved while:

a. protecting the quality of outstanding freshwater bodies
b. protecting the significant values of wetlands and
c. improving the quality of fresh water in water bodies that have been degraded by human activities to the point of being over-allocated.

Policy A1

By every regional council making or changing regional plans to the extent needed to ensure the plans:

a. establish freshwater objectives and set freshwater quality limits for all bodies of fresh water in their regions to give effect to the objectives in this national policy statement, having regard to at least the following:
    i. the reasonably foreseeable impacts of climate change
    ii. the connection between water bodies
b. establish methods (including rules) to avoid over-allocation.

Policy A2

Where water bodies do not meet the freshwater objectives made pursuant to Policy A1, every regional council is to specify targets and implement methods (either or both regulatory and non-regulatory) to assist the improvement of water quality in the water bodies, to meet those targets, and within a defined timeframe.

Policy A3

By regional councils:

a. imposing conditions on discharge permits to ensure the limits and targets specified pursuant to Policy A1 and Policy A2 can be met and
b. where permissible, making rules requiring the adoption of the best practicable option to prevent or minimise any actual or likely adverse effect on the environment of any discharge of a contaminant into fresh water, or onto or into land in circumstances that may result in that contaminant (or, as a result of any natural process from the discharge of that contaminant, any other contaminant) entering fresh water.

Policy A4 and direction (under section 55) to regional councils

By every regional council amending regional plans (without using the process in Schedule 1) to the extent needed to ensure the plans include the following policy to apply until any changes under Schedule 1 to give effect to Policy A1 and Policy A2 (freshwater quality limits and targets) have become operative:

"1. When considering any application for a discharge the consent authority must have regard to the following matters:

a. the extent to which the discharge would avoid contamination that will have an adverse effect on the life-supporting capacity of fresh water including on any ecosystem associated with fresh water and

b. the extent to which it is feasible and dependable that any more than minor adverse effect on fresh water, and on any ecosystem associated with fresh water, resulting from the discharge would be avoided.

2. This policy applies to the following discharges (including a diffuse discharge by any person or animal):

a. a new discharge or

b. a change or increase in any discharge –

of any contaminant into fresh water, or onto or into land in circumstances that may result in that contaminant (or, as a result of any natural process from the discharge of that contaminant, any other contaminant) entering fresh water.

3. This policy applies to any application for consent first lodged 28 days or more after the National Policy Statement for Freshwater Management is issued by notice in the New Zealand Gazette."

B. WATER QUANTITY

Objective B1

To safeguard the life-supporting capacity, ecosystem processes and indigenous species including their associated ecosystems of fresh water, in sustainably managing the taking, using, damming, or diverting of fresh water.

Objective B2

To avoid any further over-allocation of fresh water and phase out existing over-allocation.

Objective B3

To improve and maximise the efficient allocation and efficient use of water.

Objective B4

To protect significant values of wetlands.

Policy B1

By every regional council making or changing regional plans to the extent needed to ensure the plans establish freshwater objectives and set environmental flows and/or levels for all bodies of fresh water in its region (except ponds and naturally ephemeral

water bodies) to give effect to the objectives in this national policy statement, having regard to at least the following:

a. the reasonably foreseeable impacts of climate change
b. the connection between water bodies.

Policy B2

By every regional council making or changing regional plans to the extent needed to provide for the efficient allocation of fresh water to activities, within the limits set to give effect to Policy B1.

Policy B3

By every regional council making or changing regional plans to the extent needed to ensure the plans state criteria by which applications for approval of transfers of water take permits are to be decided, including to improve and maximise the efficient allocation of water.

Policy B4

By every regional council identifying methods in regional plans to encourage the efficient use of water.

Policy B5

By every regional council ensuring that no decision will likely result in future over-allocation – including managing fresh water so that the aggregate of all amounts of fresh water in a water body that are authorised to be taken, used, dammed or diverted – does not over-allocate the water in the water body.

Policy B6

By every regional council setting a defined timeframe and methods in regional plans by which over-allocation must be phased out, including by reviewing water permits and consents to help ensure the total amount of water allocated in the water body is reduced to the level set to give effect to Policy B1.

Policy B7 and direction (under section 55) to regional councils

By every regional council amending regional plans (without using the process in Schedule 1) to the extent needed to ensure the plans include the following policy to apply until any changes under Schedule 1 to give effect to Policy B1 (allocation limits), Policy B2 (allocation), and Policy B5 (over-allocation) have become operative:

"1. When considering any application the consent authority must have regard to the following matters:

a. the extent to which the change would adversely affect safeguarding the life-supporting capacity of fresh water and of any associated ecosystem and

b. the extent to which it is feasible and dependable that any adverse effect on the life-supporting capacity of fresh water and of any associated ecosystem resulting from the change would be avoided."

2. This policy applies to:

a. any new activity and

b. any change in the character, intensity or scale of any established activity –

that involves any taking, using, damming or diverting of fresh water or draining of any wetland which is likely to result in any more than minor adverse change in the natural variability of flows or level of any fresh water, compared to that which immediately preceded the commencement of the new activity or the change in the established activity (or in the case of a change in an intermittent or seasonal activity, compared to that on the last occasion on which the activity was carried out).

3. This policy applies to any application for consent first lodged 28 days or more after the National Policy Statement for Freshwater Management is issued by notice in the New Zealand Gazette."

C. INTEGRATED MANAGEMENT

Objective C1

To improve integrated management of fresh water and the use and development of land in whole catchments, including the interactions between fresh water, land, associated ecosystems and the coastal environment.

Policy C1

By every regional council managing fresh water and land use and development in catchments in an integrated and sustainable way, so as to avoid, remedy or mitigate adverse effects, including cumulative effects.

Policy C2

By every regional council making or changing regional policy statements to the extent needed to provide for the integrated management of the effects of the use and development of land on fresh water, including encouraging the co-ordination and sequencing of regional and/or urban growth, land use and development and the provision of infrastructure.

D. TĀNGATA WHENUA ROLES AND INTERESTS

Objective D1

To provide for the involvement of iwi and hapū, and to ensure that tāngata whenua values and interests are identified and reflected in the management of fresh water including associated ecosystems, and decision-making regarding freshwater planning, including on how all other objectives of this national policy statement are given effect to.

Policy D1

Local authorities shall take reasonable steps to:

a. involve iwi and hapū in the management of fresh water and freshwater ecosystems in the region

b. work with iwi and hapū to identify tāngata whenua values and interests in fresh water and freshwater ecosystems in the region and

c. reflect tāngata whenua values and interests in the management of, and decision-making regarding, fresh water and freshwater ecosystems in the region.

E. PROGRESSIVE IMPLEMENTATION PROGRAMME

Policy E1

a. This policy applies to the implementation by a regional council of a policy of this national policy statement.
b. Every regional council is to implement the policy as promptly as is reasonable in the circumstances, and so it is fully completed by no later than 31 December 2030.
c. Where a regional council is satisfied that it is impracticable for it to complete implementation of a policy fully by 31 December 2014, the council may implement it by a programme of defined time-limited stages by which it is to be fully implemented by 31 December 2030.
d. Any programme of time-limited stages is to be formally adopted by the council within 18 months of the date of gazetting of this national policy statement, and publicly notified.
e. Where a regional council has adopted a programme of staged implementation, it is to publicly report, in every year, on the extent to which the programme has been implemented.

APPENDIX 2 – Estimates of costs and benefits

1.0 OVERVIEW OF EFFICIENCY

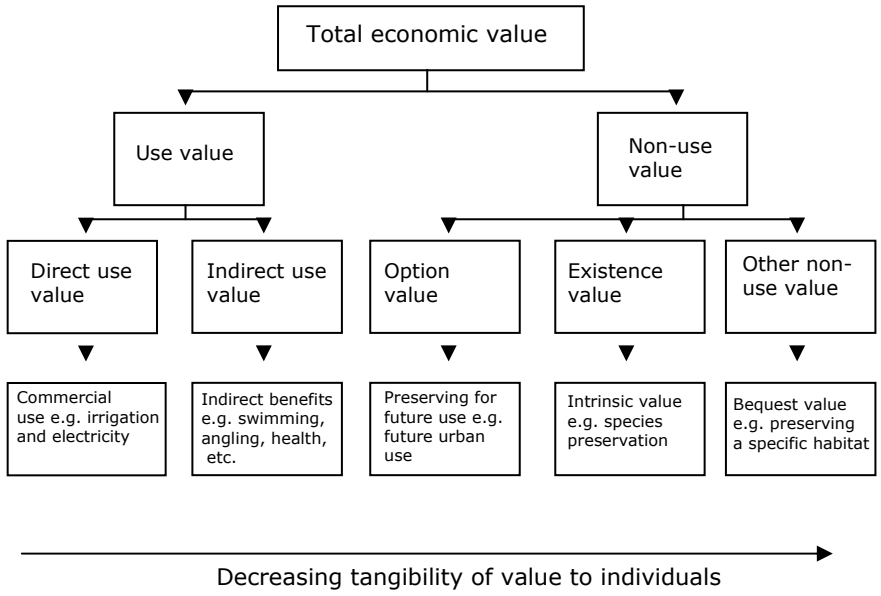
In approaching the cost and benefits, two issues have been important:

- The approach to valuing costs and benefits under administrative law (in this case the RMA)
- Defining what is meant by efficiency and examining efficiency aspects across the four well beings (social, economic, environmental, and cultural).

Below these issues are considered.

1.1 APPROACH TO TOTAL ECONOMIC VALUE

The figure below sets out a way of organising the different costs and benefits associated with freshwater management.



Adapted from Serageldin (1999)

Use values are relatively easily defined into commercial uses and indirect use values such as water sports. A non use value can be an option value (i.e. to preserve it for future use, say when populations grow), the existence value (to preserve what we have and also improve on what we have) and other non use values (such as preserving something for future generations).

Under the RMA, the benefits from use and non use values are all important and as far as possible the assessment considers not only the more easily obtainable costs but the more intangible benefits. In this case, many of the non use values

are not priced in markets; however, this does not mean they are not valuable. In fact, the RMA expressly points to:

"*managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being*" Section 5(2)

Again, this reinforces the point that we need to consider all of the well-beings in the analysis.

1.2 EFFICIENCY

Efficiency is normally broken down into a number of components. These are:

- Technical (or productive) efficiency refers to the most cost effective way of providing a given service, ie, maximising the net value of a particular process or activity. For instance, fixing leaky pipes, taps or improving the infrastructure that delivers water to the end-user. This could potentially reduce the cost on a per unit basis, obtaining the desired outcomes at least cost;

- Allocative (or matching) efficiency refers to the ease with which resources can move across an economy to their most productive uses, ie, maximising the net value of all activities across the economy. For instance, water is directed to its best use where they yield the greatest value under the four well-beings. Developing a process in each region that reflects the best use (or non use) of water is an attempt to do this;

- Dynamic (or innovation) efficiency refers to the optimisation of innovation and rate of change to new activities. For instance, streamlining regional government processes improving the consistency of rules around take and discharge gives more certainty to stakeholders maximising the net value of any engagement with all stakeholders over time.

This is further complicated because allocative and technical efficiency have a dynamic component to them: for instance, a regulatory process that unduly discourages new investment, increases transaction costs, and prolongs use of older, less effective engagement processes would not be efficient in a technical, allocative or dynamic sense. Therefore, the feasibility, effectiveness of polices, and simplicity of any particular action needs to be considered.

1.3 COSTS

Estimating the costs for the various groups such as regional councils and submitters, and interpreting the policies, requires assumptions on numerous variables. Further, it is not within the scope of this project to complete comprehensive interviews with these groups. Therefore, the following estimates

are again based on existing information, the experience of the authors and only limited discussions with regional council staff.

In relation to the plan change costs and associated submitter costs that have been quantified, it is acknowledged that in recent experience under the status quo many parties have incurred costs larger than those included in this evaluation. There are 2 key reasons why these higher sums have not been used. First, these higher costs were incurred in relation to highly contentious catchments or regions, with significant competing uses and users. Variation 6 to the Waikato Regional Plan is an example of this. It is considered that many of the catchments and regions which would remain to be addressed under the NPS, would be significantly less contentious and therefore the plan processes less complex.

Second, the recent processes represent the leading edge of changes to freshwater resource management. It can be reasonably expected that the costs incurred in the future processes under the NPS would benefit from the lessons learnt, agreements reached and decisions made during recent processes. The process whereby subsequent plan changes benefit from earlier plan changes can be expected to continue to occur throughout the implementation of the NPS.

The costs estimated should be taken as an indication of the resources requires rather than an authoritative last word.

1.3.1 Environment

No costs to the environment are expected from this NPS.

1.3.2 Tāngata whenua

As one of the stakeholders, tāngata whenua will incur some costs as they engage in the collaboration process. The importance of freshwater management to tāngata whenua is highlighted by the agreement between Tainui and the Crown over the Waikato River [*Waikato Tainui Raupatu Claims (Waikato River) Settlement Act 2010*].

Specifically, the importance of water management is expressed by tāngata whenua through the cultural value of mauri.[55] Mauri revolves around sustaining the river for future generations by protecting the life supporting capacity of the water. In this respect, particular regard has to be given to kaitiakitanga (guardianship) in accordance with tikanga Māori (ethics of stewardship) in relation to natural and physical resources. In general terms, this sets out the rationale for tāngata whenua to incur costs in engagement with councils and other stakeholders.

[55] Environment Canterbury (2004), Waiau River Catchment: Tāngata Whenua Values Report p6.

Since tāngata whenua have an interest in nearly all policies, a small cost will be incurred in most policies. A medium cost is expected for policy D1 (tāngata whenua roles, Māori values and interests) since this is where tāngata whenua are likely to put most resources into demonstrating their values and interests related to water.

The costs associated with tāngata whenua preparing their submissions have been estimated at 10 percent of council costs. Costs are estimated between at $6 million and $8 million spread over the 10 year period. Costs are incurred between year four and year ten in response to council processes.[56]

1.3.3 Local communities

Local communities will want to participate in decisions around water management in their region. Numerous groups and individuals from a wide variety of backgrounds and points of view will want their opinions heard through submissions. Depending on the region, the availability of water, and quality of water it is expected that local communities will spend up to 20 percent of regional council costs on submissions.

Most effort (resources) is likely to put into water quality (policy A1) and water quantity (policies B1, B5, and B6) since this is where the main benefits are for local communities.

Costs are estimated costs at between $11 million and $17 million spread over the 10 year period.[57] Costs are incurred from year four until year ten in response to council processes.

1.3.4 Recreational users and environmental NGOs

Recreational users and environmental NGOs are also significant stakeholders in water management issues. They have been very active in putting their case to councils, Environment Court and in other RMA processes. Possibly, because of the intense focus on water management issues in the status quo, resource expenditure by these groups will be less in the remaining regional councils. However, this is likely to be counterbalanced by specific water management concerns in particular regions.

While fewer submitters can be expected in each region (relative to local communities) significant resources will be spent by those submitters. Depending on the region and the type of water issues, we expect recreational users and environmental NGOs can be expected to spend up to 20 percent of regional council costs on submissions.

[56] In NPV (8%) terms, this is valued at between $3 and $5 million.
[57] In NPV (8%) terms, this is a value of between $7 and $10 million.

Most effort (resources) is likely to be put into water quality (policy A1 and A2) and water quantity (policies B1, B5, and B6) since this is where the main benefits are for recreational users and environmental NGOs.

Costs are estimated at between $11 million and $17 million spread over the 10 year period. Costs are incurred from year four until year ten in response to council processes.[58]

1.3.5 Government

Government has an interest in the guidance associated with the NPS. Costs are relatively small with approximately $400,000 dollars to be spent on guidance, monitoring, and a review after 5 years.[59]

While the central government spending is relatively light in certain instances, cleaning up selected rivers can be very expensive. Under the status quo, for example, the agreement to clean up the Waikato River, the Crown has committed to spending $210 million over thirty years ($7 million per annum). (*Waikato Tainui Raupatu Claims (Waikato River) Settlement Act 2010)*

1.3.6 Regional Councils

RMA Policy and Plan Costs

The NPS contains numerous provisions which are written in such a way as to require a Regional Plan response. This will require significant resources from regional council to develop processes that deliver on NPS objectives and policies. To understand the costs further it is necessary to look further into the policies that have been developed under the NPS.

The core regional plan policies are A1 and B1. It is noted that B1 does not contain a specific requirement to include methods which prescribe the attainment of the required water quantity standards (compare with A1). But when B1 is coupled with B5, which requires that no decision is made that is likely to result in future over-allocation, direction is provided to link the required standard to Regional Plan rule, at least as a matter of assessment.

Several other provisions in the proposed NPS also have Regional Plan implications, and will require Councils to consider whether their regional plans give effect to these provisions. These include the requirement to:

- Set targets to improve degraded water bodies (A2)
- Provide for the efficient allocation of water (B2)

[58] In NPV (8%) terms, this is a value of between $7 and $10 million.
[59] In NPV (8%) terms, this is a value of approximately $300,000.

- State criteria by which the transfers of water permits are to be decided (B3)

- Identify methods to encourage the efficient use of water (B4)

- Set timeframes and methods to reduce over-allocation (B6).

To determine the costs that will be incurred in giving effect to these requirements three factors need consideration. Firstly, what councils will need to do to give effect to these NPS requirements. Secondly, when will councils need to respond, and thirdly how many councils will need to respond. In relation to what councils will need to do to give effect to the NPS through their regional plans it is noted that by their nature objectives and policies in a NPS do not set definitive requirements, ie, they are not rules or regulations and therefore leave scope and discretion to councils to determine how best to give effect to the directions. Put another way, the NPS provisions provide flexibility for regional councils to respond in a manner that they determine to most appropriate for their region. This may for an example allow councils to change their regional plan in a manner that more easily accommodates local concerns about economic impacts and potentially therefore reduces the costs of objections and appeals. Policy B4 is an example of the flexibility in many of the NPs policies. It seeks to achieve the NPS objectives by:

"…every regional council identifying methods in the regional plans to encourage the efficient use of water."

Given 'flexible' directions such as these, it is reasonable to assume that some councils will respond in a much more detailed (and potentially costly) manner, while others may select more limited (and less costly) options.

To provide for such variation an 'average' Regional Plan cost has been determined based on estimates used in previous cost benefit analysis undertaken for the NPS and for the Ecological Flow National Environmental Standard, brief discussions with councils currently engaged in relevant processes, and on the authors' own knowledge of such costs. These average costs are intended to provide an indicative estimate of the councils' costs (not submitters') for matters such as background research, the plan process (including hearings) and appeals.

In determining when councils will need to give effect to the NPS requirements in their regional plans, the various 'regional plan' policies need to be considered in the context of E1 which sets the timeframe for councils to respond. Policy E1 requires that the regional plan changes occur *'as promptly as is reasonable in the circumstances'*. This timeframe is deliberately flexible because the Ministry recognises that several other aspects of the New Start for Freshwater programme are relevant to the regional plan changes, and further that several

such aspects of the programme are yet to be completed. If a rigid and short timeframe had been set regional councils would, at best, not have been able to utilise these other aspects of the programme, and at worst may have had to revisit the plan changes at a later date, thereby potentially doubling up on costs. However what the flexible timeframe means in terms of determining the costs of the NPS is that councils may choose to delay making changes to their regional plans so that they better coincide with already determined regional plan review programmes. Therefore costs may occur later than they would under a more restrictive timeframe and it may be more easy to, at least partially, accommodate the regional plan costs of the NPS within existing regional plan budgets.

The third factor is how many councils will need to respond to the NPS regional plan requirements. To determine this three reports on freshwater management and the content of regional plans have been examined. These reports are:

- Hill Young Cooper (2006), Improving the Management of Freshwater resources: Issues and Opportunities, Prepared for the Ministry for the Environment.

- SKM (2010), Benefits and costs of options to achieve the policy intent of the Proposed National Environmental Standard on Ecological Flows and Water Levels. Report to the Ministry for the Environment.

- Report of the Land and Water Forum (2010), A Fresh Start for Fresh water. Published by the Land and Water Forum

These reports provide valuable information on the intent of the NPS and regional plan status quo. As a result, of this information we have used the following breakdowns:

- three councils that would not comply with the core regional plan policies in the NPS (A1 and B1 all). Therefore they would spend approximately $5 million over the next ten years on monitoring and plan and policy engagement;

- seven councils that would, in part, not comply with the core regional plan policies in the NPS (A1 and B1 part only). These councils are often those that have allocation provisions for streams, but not for ground water, or only limited water quality standards. These councils would have to spend approximately $3 million over the next years on monitoring and plan and policy engagement;

- seven councils that would largely comply with one or other of A1 or B1 but not both. These councils would require plan changes but only in relation to one of water quantity or quality. These councils would have to spend

approximately $3 million over the next years on monitoring and plan and policy engagement.

These categories take into account the expected status quo between 2012 and 2022 (the period used for the analysis). It has not been within the scope of this study to interview councils to determine the likelihood that they would have made further changes to their regional plans over the next 10 years that would have been consistent with the direction of the NPS, even without the NPS ie, the status quo is dynamic and does not stand still.

Given these considerations, the following distribution of regional plan costs may be expected:

- Years 2–4 monitoring begins so that baseline water quality and environmental flows can be established.
- Years 4–10 the plan changes are distributed evenly across this period.

These calculations set out the costs of monitoring and plan and policy engagement at a lower bound of $57 million spread over 10 years. Because of the uncertainty surrounding these costs, the complexity of water management issues, and to reflect the conservative approach an upper bound of 86 million (50 percent higher than the lower bound) has also been estimated.[60]

Consents

It is recognised that the flow on effects of setting quantity and quality limits in regional plans will have a major impact on the consenting process. However, while the NPS directs decision-makers under the RMA to determine in each region the environmental flows and water quality limits, at this stage it is difficult to determine what these flows and limits will be because:

- Councils will need time to develop processes that will determine the flows, limits and associated allocation processes; and
- Once the allocation process is set up, it will be used along with other RMA tools to assist in putting a value on the water resource. It can be expected that some productive, allocative, and dynamic efficiency gains as end users change their "take and discharge" behaviour in response to the value being placed on the water resource ie, behaviour such as only taking water when it is plentiful and not all year round.

Therefore, the impact, particularly in terms of the opportunity cost of water use relative to the status quo is uncertain.

[60] In NPV (8%) terms, this is valued at between $33 and $49 million.

1.3.7 Territorial Local Authorities (TLAs)

TLAs will also incur costs as they are required to respond to regional plans and alter their own district plans.

Responding to regional plans will be an overall large cost of TLAs, although these costs are spread over most of the policies. The significant costs are regional plan policies A1, B1 and C2. TLAs will need to respond on water quality (associated with storm water) and water allocation issues both in terms of the regional plan and its own district plan. Other policies will incur small or medium costs for TLAs.

We have estimated these costs in the following way:

- Dealing with regional council plans and policies the costs are likely to be 20 percent of regional council costs since they will need to hire outside consultants (eg, scientists on water quality) as well as their own staff.

- District plan changes will be required by 50 councils at an average of $10,000 per council. Large district plan changes are not anticipated, and what changes are made are expected to be combined with other plan changes so that individual costs attributable to the NPS are marginal.

Over the ten years, TLAs are expected to use resources totalling between $11 million and 17 million. Most of that expense will be in years 4 to 10 as they respond to regional council plans and policies.[61]

1.3.8 Primary industries

The three main areas of possible cost for the primary sector are submitting on plan and policies for regional councils, consent costs (which are uncertain), and the opportunity cost of a limited water "take" relative to the status quo.

Plans and polices

The one cost which is relatively certain are the resources required to submit on plans. The importance of water for the industry will mean that the primary industry will put together a large team of outside experts (scientists, lawyers, and economists) to respond to the plans and policies set out in the NPS – in particular, policies A1, A2, B1, B5 and B6. Further policies C1 and C2 have potential large costs for primary industries since they are aimed at integrated freshwater management with use and development of land. Possibly this could lead to restrictions on land use, hence the potentially large cost.

[61] In NPV (8%) terms, this is a value of between $7 and $10 million.

We have estimated that the primary sector will spend approximately 15 percent of total Regional Council costs on submitting on plans and polices. Over the ten years, we expect the primary industries to spend between $9 and 13 million.[62]

Consents

As already suggested (see consents under regional councils), it is difficult to know how primary industries will respond since this NPS is about developing a process to decide on freshwater management quality and allocation issues. Not only are we unsure about the amount of allocation and quality levels we are also unsure about how farmers will react, in efficiency terms, when a value is placed on water.

Opportunity cost

The extent and impact on the opportunity cost of water under the NPS is uncertain. In a paper by Harris (2008) it is suggested that water quantity is not a major issue. The NPS possibly could bring forward changes that would have been made anyway. The NPS is likely to sharpen efficiency of water use but it is difficult to see any other change from the status quo.

Harris (2008) does point to issues associated with quality but it is difficult to tell at this stage the impact of restrictions aimed at improving water quality.[63] To illustrate the issue Harris assessed 10 percent, 30 percent-40 percent and 80 percent reductions in discharge of contaminants from properties (in the Canterbury area).

At the 10 percent restriction range there were costs but the level of impact meant that they were not significant for dairying but more so for the sheep and beef sectors. Possibly this is part of the current status quo and sets out reductions within voluntary industry guidelines.

At the 30 percent to 40 percent restriction range, the impact for all affected farmers was significant. Harris comments that the "*costs for dairy properties are likely to be significant because of the more intensive nature of the properties. However for extensive hill country properties the range of mitigation practices is limited, and reductions … may require land use and farming system changes and significant capital investment*."

At the 80 percent restriction range, major changes in management practices will be required for all farming.

Farm management responses therefore, will depend upon the water take and water quality levels set in each regional plan. While there is uncertainty

62 In NPV (8%) terms, this is a value of between $5 and $7 million.

63 Harris Consulting (2008), Qualitative Assessment of the impacts of the NPS on the Primary Sectors. Report prepared for MAF Policy June 2008.

regarding the outcome of these processes, they are likely to have some impact on farming activity and management practices.

1.3.9 Hydro-electricity generators

Hydro-electricity generators have a major interest in freshwater management, particularly in quantity issues, since it is the quantity of water it can "take" that determines how much power is generated. Therefore, the focus of generators is on policy B1, B5 and B6.

The possible significance of obtaining enough fresh water to generate energy is set out in a paper by Concept Consulting (2010).[64] In that paper, Concept point out that a NPS could lead to changes in river flows and allocation limits. This is of significant concern to the generators who will want to submit on regional council plans and policies. It is estimated that the generators will spend approximately 15 percent of total Regional Council costs on submitting on plans and policies. Over the ten years, it is expected the primary industries will spend between $8 and $13 million, particularly in years 4 to 10.[65] This is a similar level of expenditure to the primary sector.

Consents

This is a similar story to the primary sector. The impact is uncertain given the uncertainty regarding what allocation levels will be set in each region.

Opportunity cost

Similarly the opportunity cost is not known since the allocation levels have not been set. However, the Concept Consulting (2010) report shows that under relatively restrictive conditions the impact of reducing water flows through dams can have a major impact (if applied to all New Zealand rivers). The SKM (2010) report also shows that restrictions on flows could have a significant impact on power generation (based on generation at less optimal times).[66]

1.3.10 Other industries

For a diverse range of other industries, water is important to varying degrees. For some however it is extremely important and the possible restrictions on its use could have major ramifications for their business model. SKM (2010) p43 use the example of a meat works. It cannot operate without water and an inability to process stock can have major animal welfare considerations in times of drought.

64 Concept Consulting (2010), Power Generation and Water in New Zealand. An information paper prepared for Contact Energy, Genesis Energy, Meridian Energy, Mighty River Power, and Trustpower.

65 In NPV (8%) terms, this is a value of between $5 and $7 million.

66 SKM estimate that under certain conditions hydro stations could lose between $11 and $17 million per annum.

Therefore, it can be expected that certain industries will have a major interest in submitting on plans and policies. In particular, they will be interested in quantity and quality issues set out in A1, B1, B5, and B6.

It is estimated that other industries will spend approximately 5 percent of total Regional Council costs on submitting on plans and polices. Over the ten years, it can be expected that other industries will spend between $3 and $4 million particularly in years 4 to 10.[67]

1.4 BENEFITS

The benefits are a mixture of use values and non use values.

1.4.1 The environment

The environmental benefits revolve around efficiency of water use and existence value associated with river values.

Efficiency

While the efficiency gains from the development of the NPS have not been explicitly valued, its implementation is likely to improve water productive, allocative and dynamic efficiency. However, the NPS will not by itself set out clear rules required to fully value water (quality levels and quantity allocation) to stakeholders. To establish the full value for water other complementary methods (such as a NES) that set up specific rules around allocation and quality levels will be required to improve efficiency further.

Existence values

There are very few studies that examine the national perspective of river values. It is national studies rather than regional studies which are of interest because people tend to be more attached to resources that are close by, inferring that the existence values decline with distance, Sharp and Kerr (2005).[68]

Sharp and Kerr (2005) refer to two studies that have taken a national perspective:

- Kerr (1985)[69] which is a study of the Kawarau River values. Kerr's study suggested that New Zealand households would pay $197 ($242 in 2010 dollars) per household to prevent the Kawarau River hydro-electricity development; and

[67] In NPV (8%) terms, this is a value of between $2 and $3 million.
[68] Sharp B and Kerr G (2005) Option and Existence Values for the Waitaki Catchment. Report prepared for the Ministry for the Environment.
[69] Kerr B (1985), Aesthetic and use values associated with proposed Kawarau Gorge hydro-electric developments. In Sheppard D and Rout J (eds) Kawarau Hydro Investigations: River Recreation Economic Study. Ministry of Works and Development, Wellington, 1985.

- Greer and Sheppard (1990)[70] study of funding for biological control of clematis vitalba. This study suggests that New Zealanders were willing to pay $7 ($8.61 in 2010) per household to prevent the spread of clematis vitalba.

This suggests that the existence value is somewhere between $14.7 million and $398 million.[71] This is a wide variation and gives some indication of the lower and upper bound. The real problem of these calculations is that various actors, for their own reasons, play up the extremes of these estimates to support their respective cases. Further, we are not comfortable with picking the midpoint between the two calculations made in each paper, the wide variation and that only two dated studies can be referred to does not give us a great deal of confidence that the midpoint will give us a good approximation. It is also very important to note that the benefits phase in over time as the impact of the NPS is felt; therefore, it is not expected that the full benefits will occur immediately. Having said that, the fact that stakeholders will become aware that a process is being developed to address water management issues will, in itself, be a benefit.

Despite these caveats, the efficiency gains and existence value suggests that the NPS will benefit the environment. In particular, large benefits are expected from A1, B1, B5, and B6 because they set up a process by which water will be valued.

1.4.2 Selected (use and non use) stakeholders

The key benefits are efficiency gains (certainty of process) and existence values. While there are a large number of studies (see SKM 2010 and Sharp and Kerr 2005) that look at individual sites or rivers there are no studies looking at use and non use values nationally except for the two quoted above (environment section).

The Kerr (1985) and Greer and Sheppard (1990) studies have been used to inform the costs and benefits. For local communities, recreational users and environmental NGOs the pattern of benefits follows the benefits that accrue to the environment.

For tāngata whenua the benefits also include improved collaboration with local authorities under the NPS. This is likely to improve the efficiency of the process and reinforce their kaitiakitanga (guardianship) role.

[70] Greer G and Sheppard R (1990), An economic evaluation of the benefits of research into biological control of Clematis Vitalba. Research Report No 203. Agribusiness and Economics Research Unit, Lincoln College.

[71] Sharp and Kerr (2005), numbers updated by CPI, December 2010.

1.4.3 Selected (commercial) stakeholders

Commercial stakeholders consist of primary industries, hydro-electric generators, and other industries.

While not costed, the main benefits will be certainty associated with allocation and management practices and improved efficiency in using the resource.

The establishment of a process that sets out limits in terms of take and water quality levels will allow for certainty in their "use" activities. Also, the partial valuation of water in this process will improve efficiency since users will be rewarded for using less water. As already stated, to improve efficiency further other methods or other RMA tools are required to ensure the true value of water is reflected to the user.

1.4.4 Image

There are benefits to New Zealand from managing its water resources efficiently and ensuring environmental outcomes are positive. Possibly these are more important for water quality than water quantity.

However, we have not come across any reliable estimates of the beneficial impact of maintaining or improving water quality, therefore we have not costed this as part of the NPS.