

Effectiveness and efficiency of the Regional Soil Plan for Taranaki

Taranaki Regional Council
Private Bag 713
Stratford

July 2009

Executive Summary

The Resource Management Act 1991 requires that the Taranaki Regional Council (the Council) monitor the efficiency and effectiveness of policies, rules or other methods in its plans and to report on the results of its monitoring every five years.

In 2001, the Council adopted the *Regional Soil Plan for Taranaki* (the Plan) to assist it to carry out its soil conservation functions under that Act. The Plan is the fourth (and last) in a suite of effects-based regional plans prepared by the Taranaki Regional Council addressing its resource management functions. The Plan sets out objectives and policies to address two key issues – accelerated erosion and degradation of soil health as a result of inappropriate land management practices.

The Plan differs significantly from other regional plans prepared by Council in that it largely enshrines a non-regulatory approach. Non regulatory methods include the provision of information and advice to land users, promotion of sustainable land management practices, and the provision of property planning services. Through its Sustainable Land Management Programme, Council works closely with landholders to promote their voluntary adoption of sustainable land management practices on erosion prone land in the hill country and coastal sand country. The generally non-regulatory approach to soil conservation is complemented by two generally permissive regional rules that target vegetation disturbance of over five hectares in area on land that has a slope greater than 28°.

Eight years on it is timely to carry out an interim review of the Plan. The purpose of the interim review is to set out the findings of an internal evaluation of the effectiveness and efficiency of the Plan. Have the outcomes sought been achieved? Did the Council implement what it said it would implement in the Plan? Finally, do the benefits of having the Plan outweigh the costs? From its evaluation to date, the Council has concluded that the objectives and policies established in the Plan are generally on track. Key preliminary findings are:

- Plan's objectives, policies and methods for accelerated erosion have been largely effective to date.
- Between 1994 and 2007, the percentage of privately-owned hill country sustainably managed increased from 84% to 87.4%.
- Council has largely met, or is on track to meet, most of the environmental results anticipated for accelerated erosion.
- Only one of the indicators – namely that there will be no net loss in the area of indigenous vegetation on steep privately owned land – looks like it will not be achieved. Monitoring indicates a 3% loss of indigenous vegetation on monitored hill country sites.
- A review of the methods of implementation set out in the Plan identifies that the Council has delivered on its implementation – of particular note is the Sustainable Land Management Programme whereby, as at 1 July 2008, 293 hill country farms had comprehensive or agroforestry farm plans. These plans cover 178,580 ha or 58% of privately owned land in the hill country.
- An internal analysis of the Plan shows that it has been efficient with it delivering benefits that are believed to be substantially greater than its costs.
- In terms of the resource consents process, only one resource consent has been required. This was non-notified with Council officers working closely with applicants and other landholders to ensure vegetation disturbance activities were carried out in a manner that protects our soil resource. Low levels of non-compliance indicate the issue is being managed adequately.

The report also identifies a number of 'change' factors (e.g. changing environmental issues or community attitudes, changes to legislation and government policy, and development of best practice), which have emerged since the adoption of the Plan. However, the review has not so far identified cause for making immediate changes to the Plan. However, it is recommended that, when preparing the next Plan, Council take these and other Government reviews, strategies and initiatives into account where they are relevant to the purpose of the Plan.

The Council now seeks feedback from key stakeholders who have interests in the management of Taranaki's soil resources on the preliminary findings and as to whether changes to the Plan are urgently required. You are invited to provide comments on the following:

- Whether the plan is achieving its purpose and the issues remain relevant
- Whether the Plan has been effective in terms of achieving stated outcomes and implementing its methods
- Whether Plan provisions are useful and readable
- Whether the Plan has been efficient in terms of its benefits being greater than its costs
- Whether any changes are urgently required (having regard to the criteria set out in Appendix I of the report) to improve the effectiveness and efficiency of the Plan and/or to ensure its ongoing relevance in terms of new national and regional initiatives and policies?

Please address comments to:

Chief Executive
Taranaki Regional Council
Private Bag 713
STRATFORD

Comments are required by **Friday, 28 August 2009**.

Table of Contents

Executive Summary	i
Table of Contents.....	iii
List of tables	iv
List of figures	v
1 Introduction	1
1.1 Purpose	1
1.2 Scope of the review.....	1
1.3 Structure.....	2
2 Background.....	3
2.1 Taranaki’s land and soil resource.....	3
2.2 Legislative requirements and policy development.....	4
2.3 The Regional Soil Plan for Taranaki.....	5
2.4 The Sustainable Land Management Programme	6
2.5 Monitoring Plan effectiveness and efficiency	6
3 Effectiveness of the Plan – have outcomes been achieved?	9
3.1 Accelerated erosion – the environmental outcomes achieved	9
3.1.1 What the objectives and policies say	9
3.1.2 What the monitoring shows.....	9
3.1.3 Summary of progress.....	11
3.2 Soil health – the environmental outcomes achieved	12
3.2.1 What the objectives and policies say	12
3.2.2 What the monitoring shows.....	12
3.2.3 Summary of progress.....	16
4 Effectiveness of the Plan – have methods been implemented?	17
4.1 Accelerated erosion – the outputs achieved	17
4.1.1 Methods of implementation for accelerated erosion.....	17
4.1.2 Application of regional rules	17
4.1.3 Provision of general advice and information	18
4.1.4 Implementation of the Sustainable Land Management Programme	19
4.1.5 Promotion of sustainable management techniques.....	20
4.1.6 Working with other stakeholders	20
4.1.7 Economic instruments	21
4.1.8 Application of the enforcement provisions of the Act	21
4.1.9 Monitoring and investigations	22
4.1.10 Advocacy.....	22
4.1.11 Summary of progress	22
4.2 Soil health – the outputs achieved.....	23
4.2.1 Methods of implementation for soil health	23
4.2.2 Provision of advice and information	23
4.2.3 Advocacy	24
4.2.4 Application of the enforcement provisions of the Act	24
4.2.5 Promotion and education.....	25

4.2.6	Monitoring and investigations	26
4.2.7	Summary of progress.....	26
5	Effectiveness of the Plan – its suitability and usefulness.....	28
5.1	Internal audit of the Plan provisions	28
5.2	Stakeholder feedback on the Plan	29
6	Efficiency of the Plan	30
6.1	Costs of the Plan	30
6.1.1	Administration costs	30
6.1.2	Compliance costs	31
6.1.3	Broader economic costs	31
6.1.4	Summary of the economic costs of implementing the Plan	32
6.2	Benefits of the Plan	33
6.3	Benefits and costs of the Plan.....	33
7	On going relevance of the Plan	35
7.1	Regional council experiences in implementing the Plan	35
7.2	Changing environmental issues, community attitudes and priorities.....	35
7.3	Changes to legislation	36
7.3.1	Amendments to the Resource Management Act	36
7.3.2	Enactment of the Local Government Act 2002.....	37
7.3.3	Treaty settlement legislation.....	38
7.4	Government strategies, policies and initiatives.....	38
7.4.1	National Environmental Standards	38
7.4.2	Afforestation Grants Scheme	38
7.5	Best practice.....	38
7.6	Summary of key changes and the on-going relevance of the Plan.....	40
8	Conclusions.....	41
	References.....	42
	Appendix I: Criteria for review	45
	Appendix II: Reporting on objectives and policies of the Plan.....	47
	Appendix III: Guidelines and information sheets	48
	Appendix IV: Advocacy to other agencies	50
	Appendix V: Summary of findings from the internal audit on the usefulness and suitability of the Plan.....	51

List of tables

Table 1:	Natural erosion rates in the region.....	3
Table 2:	Summary of progress: implementing regional objectives and policies on soil erosion.....	12
Table 3:	Summary of progress: implementing regional objectives and policies on soil health.....	16
Table 4:	Number of public requests received	18
Table 5:	Summary of progress: implementing methods of implementation addressing soil erosion	22

Table 6: Enforcement action involving land incidents.....	25
Table 7: Summary of progress: implementing methods of implementation addressing soil erosion	27
Table 8: Average costs for processing non-notified (land use) consents in 2005/2006	31
Table 9: Assessment of costs of implementing Plan.....	32
Table 10: Summary of the benefits and costs of the Plan.....	34

List of figures

Figure 1: Landforms of Taranaki.....	3
Figure 2: Land susceptible to severe erosion.....	5
Figure 3: Sustainable Land Use Monitoring Programme	6
Figure 4: Soil health sampling and research sites	7
Figure 5: Current land uses in the hill country at representative sites	10
Figure 6: Changes in land use at representative sites from 1994 to 2007.....	10
Figure 7: Tonnes of superphosphate based fertiliser used in Taranaki	15
Figure 8: Coverage of comprehensive and agroforestry plans	19
Figure 9: Extent of farm plans and bare sand in south Taranaki.....	19
Figure 10: Low cost plants provided to landowners for soil stability purposes	20
Figure 11: Land and soil incidents since Plan was adopted.....	25

1 Introduction

1.1 Purpose

The purpose of this report is to outline the Taranaki Regional Council's (the Council) findings on the effectiveness and efficiency of the *Regional Soil Plan for Taranaki* (the Plan).

1.2 Scope of the review

Reviewing the effectiveness of policy is an important component of resource management, completing the circle of policy development, delivery of that policy through regulatory and non-regulatory methods, monitoring the outcomes of delivering that policy and taking appropriate actions to deliver on the policy.

Section 35(2A) of the Resource Management Act 1991 (the Act) requires that the Council undertakes and makes available to the public a review of the results of its monitoring into the efficiency and effectiveness of policies, rules, or other methods in the Plan. This report, amongst other things, gives effect to that requirement and summaries the findings of an internal review on the efficiency and effectiveness of the Plan. Stakeholder feedback on these findings, through the distribution of this report, is a vital part of that review process to test assumptions, identify deficiencies, and/or identify improvements.

Through this review process, the Council is seeking to ensure that the Plan remains relevant, lawful and appropriate and that it is achieving its purpose in an efficient and effective way. Depending on the conclusions drawn from the review, the Council will then need to determine whether changes to the Plan are required now or can wait until the 10-year review of the Plan.

In deliberating as to the necessity to make immediate changes to the Plan, regard will be had to the following criteria:

- The effectiveness of the Plan in achieving its objectives and the environmental results anticipated
- The effectiveness of the Plan in terms of its delivery of the methods of implementation.
- The efficiency of the Plan in terms of its benefits and costs.
- The ongoing relevance of the Plan in terms of section 32 matters. Part of this assessment will need to include consideration of the:
 - timeliness of any change (particularly in view of any proposed changes in legislation, and roles or responsibilities); and
 - costs to the Council or resource users.

Evaluation of the effectiveness, efficiency and ongoing relevance of the Plan includes consideration of the scope of the Plan including issues addressed or not addressed, certainty and clarity of its provisions, practicability and affordability of the methods of implementation, equity of the methods in addressing the issue, and the lawfulness of its provisions (refer Appendix I for more information).

In the event of any deficiencies in the Plan the Council must consider whether the deficiencies are significant or minor. If the deficiencies in the Plan are significant, changes to the Plan may need to be made immediately as a matter of urgency, i.e. sooner than the end of the statutory life of the Plan. If the deficiencies in the Plan are relatively minor then suggested changes can wait until the Council undertakes a full review in 2011.

The methodology for carrying out the reporting on effectiveness and efficiency of the Plan is similar to those previously undertaken by the Council for its other regional plans, i.e. the *Regional Coastal Plan for Taranaki* and the *Regional Air Plan for Taranaki* (both of which were completed in 2002) and the *Regional Freshwater Plan for Taranaki* (completed in 2007). The methodology also takes into account best practice guidelines set out in the report *Evaluating Regional Policy Statements and Plans – A Guide for Regional Councils and Unitary Authorities*.¹

1.3 Structure

The report is divided into six sections.

Section 1 introduces the purpose, the scope of the interim review, and the structure of the report.

Section 2 provides an overview on Taranaki's land and soil resource, the Resource Management Act, policy development leading up to the preparation of the Plan, the Plan, the Sustainable Land Management Programme, and research and investigations essential to monitoring the effectiveness and efficiency of the Plan.

Section 3 examines the **effectiveness** of the Plan in terms of whether the Council achieved the outcomes sought from the implementation of the Plan, i.e. the objectives and environmental results anticipated.

Section 4 examines the **effectiveness** of the Plan in terms of whether the Council implemented programmes, actions and activities identified in the Plan (i.e. methods of implementation).

Section 5 examines the **effectiveness** of the Plan having particular regard to the experiences of Council staff using the Plan and their views on the suitability and usefulness of Plan provisions.

Section 6 examines the **efficiency** of the Plan. In particular, this section assesses the Plan in relation to its cost (in terms of administrative, compliance and broader economic costs) and its benefits.

Section 7 examines the **on-going relevance** of the Plan taking into account potential 'change' factors or matters, which have emerged since the adoption of the Plan and which should be taken into consideration when assessing the ongoing relevance of the Plan and whether any changes are appropriate or necessary.

Section 8 presents the report's conclusions.

The appendices set out the criteria for the interim review, a checklist identifying where the review of specific Plan objectives and policies have been addressed in this report, and the results of an internal audit on the usefulness and readability of the Plan.

¹ *Enfocus Limited, July 2008: 'Evaluating Regional Policy Statements and Plans – A Guide for Regional Councils and Unitary Authorities'*.

2 Background

2.1 Taranaki's land and soil resource

Soil is one of Taranaki's most important resources. Taranaki has a wide range of soil types, from the fertile well-drained soils on the ring plain and coastal terraces to the steep, erodible and relatively infertile soils of the inland hill country and on the upper slopes of Mount Taranaki. Different levels of natural erosion rates in the region are set out in Table 1.²

Table 1: Natural erosion rates in the region

Part of the region	Level of natural erosion rates	Reasons for accelerated erosion rates
Mount Taranaki	High	Erosion rates may be accelerated where pest animals damage vegetation.
Taranaki ring plain & western fringe of the hill country	Low	Any accelerated erosion is insignificant when compared with the long-term soil accumulation beneath vegetation that has occurred in the past, & which has been augmented by volcanic ash during eruptions of the Taranaki volcanoes.
Inland hill country	High	Erosion rates can be accelerated by land use activities – highest in areas cleared for pasture, less in areas planted in plantation forestry & even less in bush-clad areas.
Coastal sand country	Moderate	Erosion rates can be exacerbated by land use activities that expose topsoil to wind causing blow-out and the re-deposition of the underlying sand in localised areas.

Over large parts of the region, Taranaki is fortunate to have naturally robust soils that retain their structure, nutrients and organic matter, a product of the volcanic nature of Taranaki soils. However, good management is still required.

While erosion is a natural process, human activities may increase the rate of erosion. Accelerated erosion is a significant problem in the eastern hill country and, to a lesser extent, the coastal sand country (refer Figure 1). Accelerated erosion leads to the loss of the topsoil, and so reduces the land's productivity and capability. It also may lower water quality, degrade aquatic habitat and increase the risks of floods from river beds filling up with silt, gravels and debris.

Retaining soil on the land is one thing, but safeguarding the health of our soils is equally important. Soil health refers to the biological, chemical and physical state of the soil and the maintenance of soil ecosystems. Unlike the impact of accelerated erosion, soil health problems are not immediately evident, but are no less important.

Market forces and policies from both central and local government have influenced changes in land use patterns. Vegetation change, application of fertilizers and other land use pressures are driven largely by

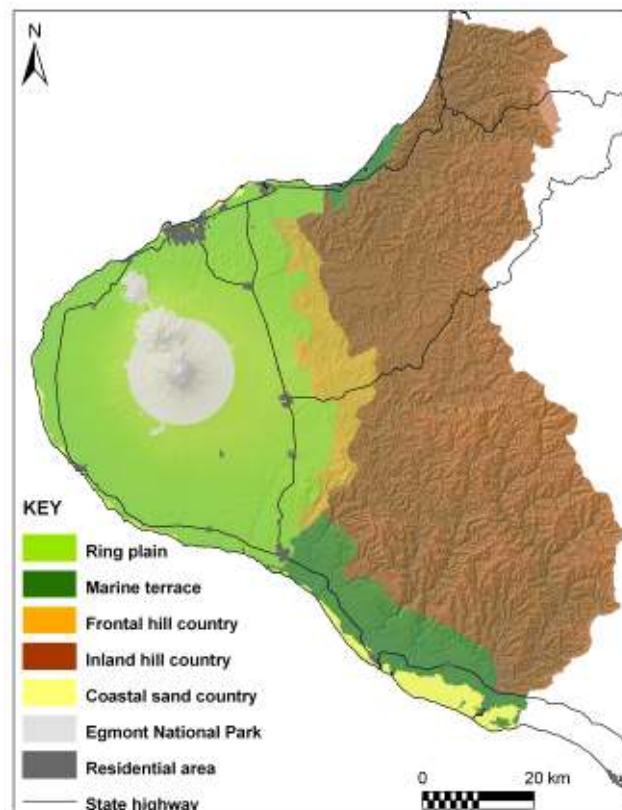


Figure 1: Landforms of Taranaki

² Hicks, D.L, 1998: 'Soil Erosion in Taranaki – A Summary of Research Findings'. Ecological Research Associates Report prepared for the Taranaki Regional Council.

economics and have fluctuated with export prices. In the past, government subsidies encouraged land clearance on lands that were never going to be feasible to farm sustainably (economically or environmentally). Encouragingly, some of that cleared land, has been allowed to revert back to scrub, even during times when the market was relatively buoyant. Current government policies may further accelerate this trend to retire unsustainable land or convert to plantation forestry through carbon emissions trading schemes which may make economic the retiring or reforestation of steep hill country.

Livestock farming, horticulture and forestry are examples of land uses that have the potential to cause pressures on soil health of the region through soil compaction, nutrient depletion and residual soil contamination.

2.2 Legislative requirements and policy development

The Resource Management Act 1991 (the Act) is the principal statute for the management of natural and physical resources and the environment. The Act established an integrated framework for the management of natural and physical resources and introduced provisions for the preparation and implementation of a hierarchy of policies (such as regional policy statements) and plans (such as regional and district plans) to enable local government to carry out their statutory functions under the Act.

Part III of the Act sets out restrictions in relation to land, the coast, river and lake beds, water, discharges and other matters. With regards to land, and in accordance with section 9(3) of the Act, *"...no person may use any land in a manner that contravenes a rule in a regional plan or a proposed regional plan unless that activity is -*

- (a) Expressly allowed by a resource consent granted by the regional council responsible for the plan; or*
- (b) Allowed by section 20 (certain existing lawful uses allowed)."*

The word 'use' in section 9 of the Act includes any use, erection, reconstruction, demolition etc of any structure in, on, under or over land, any excavation, drilling, tunnelling or other disturbance of the land, any destruction of, damage to, or disturbance of, the habitats of plants or animals in, on, or under the land or deposit of any substances in, on or under the land.

The restrictions in relation to the use of land under section 9 of the Act are different to the restrictions relating to the use of air and water resources. Section 9 is permissive rather than restrictive. That is, the use of land (excluding subdivision of land or the use of river and lake beds) is permitted under section 9 of the Act, unless it is restricted by a rule in a regional or district plan. The presumption that an activity is permitted unless deliberately restricted by rules in a plan is a reversal of the restrictions placed on the use of other resources such as air, water and the coast.

Under the Act, regional plans are used to influence the use, development and protection of natural and physical resources for which regional councils have responsibility for.

The *Regional Policy Statement for Taranaki* (1994) included a number of methods that committed the Council to prepare a regional plan or plans to govern the management of a number of land management related issues. As part of the Plan preparation process, the Council prepared a suite of discussion documents, research papers and a section 32 report. Through these documents and papers, the Council signalled the scope of the Plan and its preferred management approach to address the issues, including key findings to stakeholders, and sought stakeholder feedback which was encapsulated into the draft Plan. The *Proposed Regional Soil Plan* was publicly notified for submissions on 27 February 1999.

A total of 20 submissions were received by the closing date, and a further seven submissions were received supporting or opposing the initial submissions. The Council then prepared a

report on submissions containing recommendations for changes to the plan. Pre-hearing meetings took place with 11 submitters resolving many points of submission. The Council’s decisions on submissions were released in early 1999 after a hearing. A single appeal was lodged with the Environment Court, which was struck out by the Environment Court in September 2001.

The Plan was subsequently adopted by Council on 26 September 2001 and became operative on 8 October 2001.

2.3 The Regional Soil Plan for Taranaki

The over-riding purpose of the Plan is to assist the Council to carry out its soil conservation functions under the Act. Two issues are identified as regionally significant in the Plan, these are:

- accelerated soil erosion (soil loss) as a result of inappropriate land management practices – targeting lands most susceptible to accelerated erosion, i.e. hill country and coastal sand country (refer Figure 2); and
- the degradation of soil health as a result of inappropriate land management practices.

For each issue above, objectives, policies and methods of implementation are identified. For the accelerated erosion issue, methods of implementation include the application of regional rules. However, the Plan principally relies on non regulatory methods such as the Sustainable Management Programme, advice and information, and monitoring to achieve the objectives and policies.

Non-regulatory methods are also complemented by two permissive regional rules that target vegetation disturbance of over five hectares on land that has a slope greater than 28°. In these circumstances, vegetation disturbance, for example forest clearance or harvesting, is permitted only if certain conditions can be met. These conditions deal with the prevention or mitigation of soil erosion, and effects on water quality. If these conditions cannot be met, a resource consent is required and an erosion and sediment control management plan prepared.

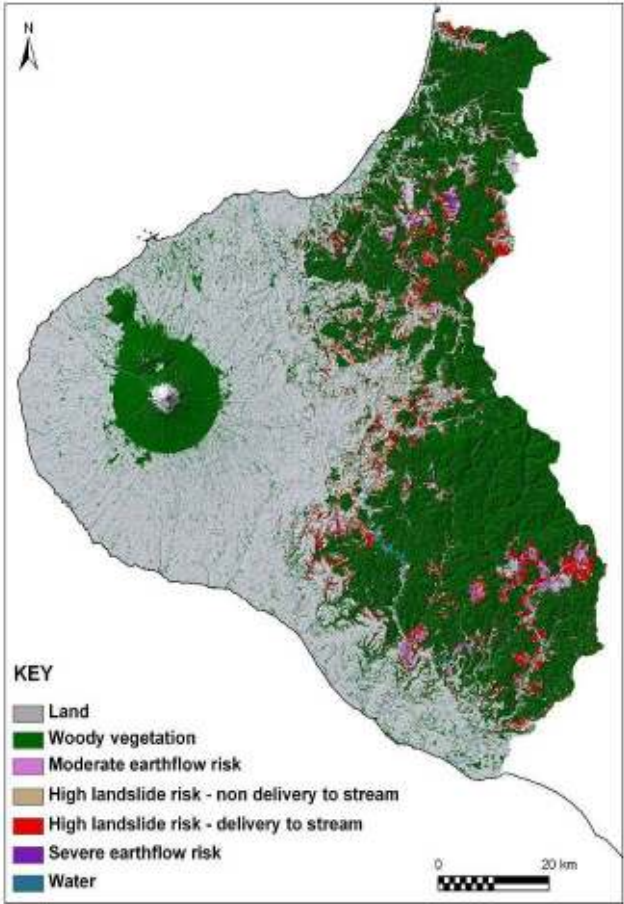


Figure 2: Land susceptible to severe erosion

Land activities and issues not addressed in the Plan

As noted the Soil Plan addresses two issues – accelerated erosion and soil health. Land activities impacting on water, coastal and air are addressed in other regional plans.

During the preparation of the Soil Plan, consideration was given to the inclusion of other land related issues. These included accelerated erosion as a result of clearing riparian vegetation, point source residual soil contamination, and the reduction of soil versatility as a result of urban and industrial expansion on highly productive soils. However, through the Plan’s consultative process it was agreed that these issues did not warrant inclusion in the Plan. It is noted, however, that the Council and district councils continue to address such issues by other means. For example, the Council investigates potential contaminated sites with district councils applying land use controls through the district planning process.

2.4 The Sustainable Land Management Programme

The Sustainable Land Management Programme is a significant and integral part in the delivery of the Plan’s objectives for accelerated erosion.

The Sustainable Land Management Programme involves a planning, advisory and extension service to land owners. The Council will prepare sustainable management plans setting out options and recommendations for individual hill country properties. The plans are prepared in close consultation with landowners and are offered free of charge.

A comprehensive farm plan covers all soil conservation aspects of a farming operation, including land and stock management, while maximising the property’s productive capability. These plans are based on a detailed land resource inventory, derived from soil type, geology, vegetation, slope and present erosion. Recommendations may include planting of erosion control species or exotic forestry on slopes not suited to pastoral use, or retirement of very steep land to enable regeneration of native vegetation.

Other types of farm plans prepared include agroforestry plans, which are prepared for farmers interested in diversification by establishing woodlots or plantations, and conservation plans, which address more localised site specific issues, e.g. shelterbelts and sand drift control.

In addition to farm plans, the Council provides low cost poplar and willow plants to plan holders for soil stability purposes. Ongoing one-to-one liaison between Council and plan holders is the most important component to ensuring that farmers implement plan recommendations over time.

2.5 Monitoring Plan effectiveness and efficiency

As previously stated, plan evaluation is a statutory requirement but even if it was not, it is still good practice. Only by learning from previous experience can policy be refined and improved. It is also a means for maintaining public and political support for any intervention.

Monitoring policy effectiveness involves: checking the **outcomes** sought to be achieved by the Plan through, for example, state of the environment monitoring of soil intactness and soil health; checking the **outputs** to determine whether policies and methods have been implemented (e.g. number of farm plans prepared, permits issued, and/or advocacy undertaken); and evaluating whether objectives, policies and methods were **suitable and useful**.

The Plan identifies the means and programmes by which the Council will monitor its effectiveness and efficiency. They include:

- The Sustainable Land Use Monitoring Programme, which involves the analysis of aerial photographs on 25 representative hill country sites and four coastal sand country sites to assess changes of land use and ‘sustainability’ in the targeted areas (Figure 3).



Figure 3: Sustainable Land Use Monitoring Programme

- Monitoring the area covered by production forestry, soil conservation plantings and indigenous forest through analysis of either the aerial photographs at the 25 hill country sites referred to above or using the land cover database.
- Monitoring soil health at a number of representative sites throughout the region to enable trends to be reported on in terms of soil structure, nutrient levels and residual contamination. A soil study was repeated in 2008 into the biological, chemical and physical characteristics of soil on properties representative of the major agricultural land uses and soil types within Taranaki³. This study updated a national monitoring project implemented in 1999-2001 (the '500 Soils' project). Sites are illustrated in Figure 4.
- Monitoring residual soil contamination through receipt and analysis of residual contamination levels found in the region's primary agricultural produce. This data gathered by the dairy and meat industries was accessed during the preparation of this Plan and will be accessed again during the anticipated life of the Plan to provide an update indicating soil health. Ancillary information on agrichemical and fertiliser use will also be collated and incorporated into the analysis.
- Compliance monitoring carried out in relation to individual resource consents and unauthorised incidences.
- Recording and evaluating unauthorised vegetation disturbance activities and public complaints.
- Utilising information on the implementation of the Sustainable Land Management Programme contained in the database and annual significant activity reports for land management. Such information includes the number of requests and responses for information, the number of property plans prepared, and the land area and land use capability classification covered by these plans and land user implementation of the plans' recommendations.
- Utilising community surveys.
- Utilising monitoring and research programmes carried out by other agencies where appropriate.

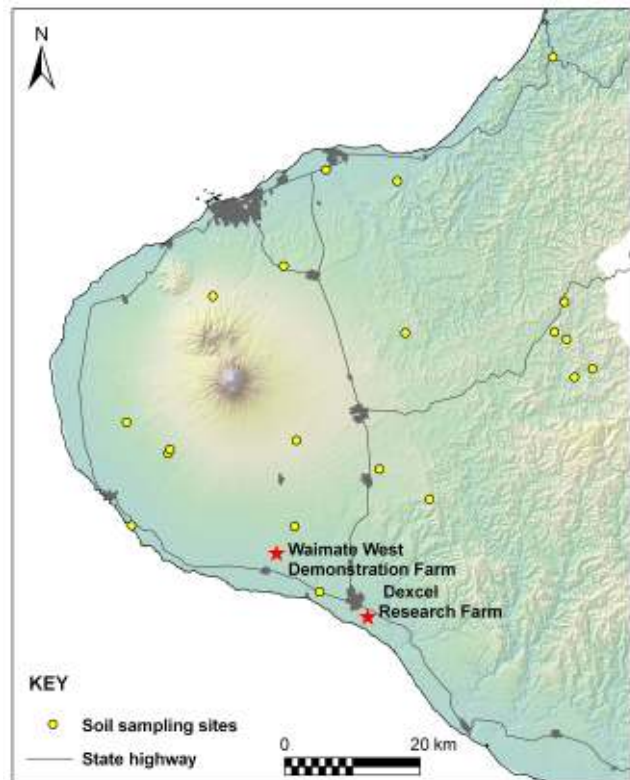


Figure 4: Soil health sampling and research sites

As appropriate, the Council has commissioned separate studies and trials, particularly in relation to soil health. A separate study (2007) looked at how soil health has changed over a longer timeframe⁴. This involved re-sampling seven sites sampled 20-30 years ago, and included data

³ Sparling, G; Stevenson, B. 2008: 'Soil quality in Taranaki Region: Characteristics of New Sites, and Current Status of Previously Sampled Sites.' Landcare Research Report prepared for the Taranaki Regional Council.

⁴ Parfitt, RL and Ross C. 2007: 'Soil Profile Re-sampling for Carbon, Nitrogen and Phosphorus after 21 to 31 years.' Landcare Research Report prepared for the Taranaki Regional Council.

from eight additional sites re-sampled in 2005. All sites were dairy farms except for one beef farm. Two new trials explored the possible effects of livestock intensification upon soil and pasture quality for several years. The location of these research farms is illustrated in Figure 4 above.

3 Effectiveness of the Plan – have outcomes been achieved?

Reviewing the effectiveness of the Plan, at its simplest, is a measure of whether outcomes sought have been achieved (refer sections 3.1 and 3.2 below) and if progress is being made at an acceptable rate (refer section 4 below).⁵ Plan outcomes are contained in the objectives and the environmental results anticipated.

This section assesses state of the environment monitoring results relevant to the Plan and, in relation to each Plan objective and environmental result anticipated, whether:

- The outcome sought has been achieved.
- The Council is on the right track towards the objective.
- The Council is making progress at an acceptable rate.

3.1 Accelerated erosion – the environmental outcomes achieved

3.1.1 What the objectives and policies say

Explanations of Plan objectives and policies relating to accelerated erosion are presented below. Appendix II of this report sets out the Plan objectives and policies relating to accelerated erosion, including sections of this report that are reporting against the achievement (or otherwise) of individual objectives or policies.

Objective 1 of the Plan seeks to “...maintain and enhance the soil resource of the Taranaki region by avoiding, remedying or mitigating accelerated erosion”.

Policy 1.1 of the Plan notes that the Council will encourage sustainable land management practices that control the adverse effects of soil and vegetation disturbance on erosion prone land, with a particular focus on those parts of Taranaki most at risk to accelerated erosion (refer Figure 1 overleaf), namely, the hill country and the coastal sand country.

Policy 1.2 identifies matters that the Council will consider when assessing land use capability and the susceptibility of land to accelerated erosion (i.e. soil type and erodibility, soil parent material, slope angle and aspect, climate, and vegetation).

Policy 1.3 refers to encouraging the retention of appropriate vegetation cover on erosion prone land with a particular focus on the hill country land and coastal sand country.

Policy 1.4 notes that the Council will monitor and gather and provide information on accelerated erosion in the Taranaki region.

3.1.2 What the monitoring shows

Taranaki hill country

Land that is used sustainably is less susceptible to erosion. Therefore, the Council, through the Sustainable Land Use Monitoring Programme, monitors changes in the sustainability of land use in the eastern Taranaki hill country.

The Sustainable Land Use Monitoring Programme involves the use of aerial photos to identify and map vegetation and land use at 25 representative sites, each 900 hectares in area, spread evenly throughout the hill country. The exercise was undertaken in 1996⁶, 2000⁷ and 2008⁸ and

⁵ *Enfocus Limited, July 2008: 'Evaluating Regional Policy Statements and Plans – A Guide for Regional Councils and Unitary Authorities'*.

⁶ *O'Leary, S.M.; Stephens, P.R.; Willoughby, E.J.; DeRose, R.C.; Gibb, R.G.; White, M.F.; Sutherland, A. 1996: 'Land-use*

involves aerial photographs to map and compare land use change over time. The information obtained provides a representative picture of private land use in the hill country and the way the land use has changed over time.

Changes in vegetation over the 25 monitoring sites has seen a reduction in the area of pasture (from 49.0% in 1994 to 46.3% in 2007) and an increase in the area of plantation forestry, which increased from 2.4% to 4.7% over the 13 years. The total area indigenous forest decreased slightly in the monitored sites from 3,380 ha in 1994 to 3,295 ha in 2007.

Figure 5 shows the current land uses at the 25 representative monitoring sites. Land use changes between 1994 and 2007 were dominated by a sustained decrease in the area of meat and wool farming from 53.9% to 46.0%. Meat and wool farming land use shifted to either scrub (referred to as 're-vegetated meat and wool farming land') or plantation forestry. Land reverting to scrub increased from 24.1% to 30.8% over the three monitoring periods.

The area of land changing in land use from 1994 to 2007 is illustrated in Figure 6.

Land is described as physically sustainable if the use of that land carries only a moderate or low-risk of accelerated erosion. Unsustainable land use is that which carries a severe or higher risk of accelerated erosion into the long term. The

Indigenous forestry in the hill country

Under the Forests Amendment Act 1993 the milling of indigenous vegetation on privately owned land is subject to a registered Sustainable Forestry Management Plan or a Sustainable Forestry Permit issued by the Ministry of Agriculture and Forestry.

There are 187, 619 ha of indigenous forest in the eastern Taranaki hill country – of which 64,060 ha is on privately owned land. Taranaki is one of the regions with the greatest harvest of indigenous vegetation in New Zealand. In mid-2008 there were 102 registered permits accounting for almost 25,000m³ of the 122,000m³ (20.5%) of timber being harvested nationally under the permit system.

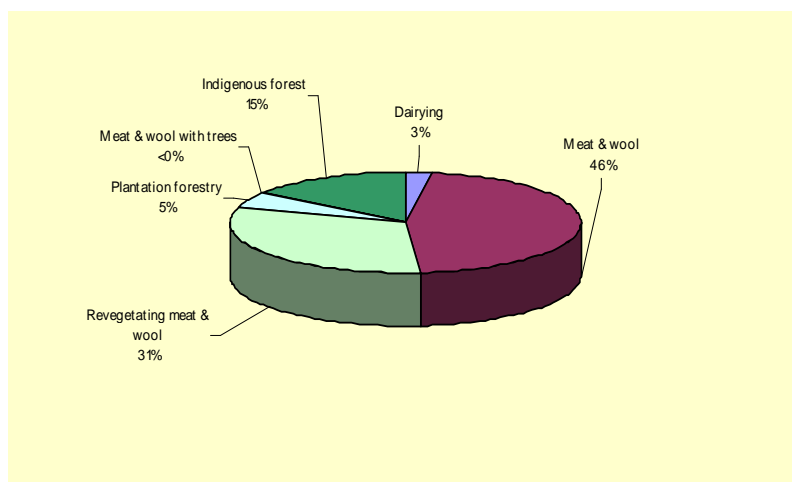


Figure 5: Current land uses in the hill country at representative sites

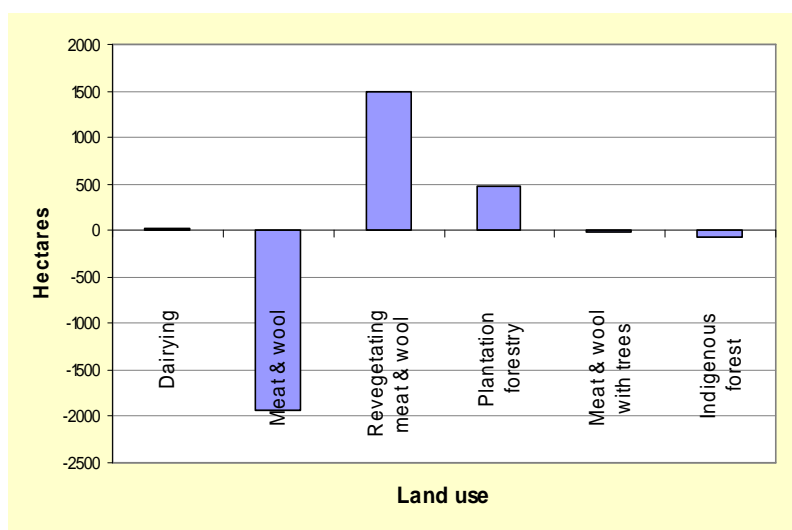


Figure 6: Changes in land use at representative sites from 1994 to 2007

Monitoring in the Eastern Taranaki Hill Country'. Landcare Research Contract Report: LC9596/134.

7 Jessen, M.R.; Betts, H.D.; Sutherland, A.; Willoughby, E.J. 2000: 'Sustainable Land-use Monitoring in the Eastern Taranaki Hill Country and Coastal Sand Country'. Landcare Research Contract Report: LC9900/125.

8 Betts, H.D.; Lynn, I.H. 2008: Sustainable Land-use Monitoring in the Eastern Taranaki Hill Country and Coastal Sand Country – 2007 Re-survey'. Landcare Research Contract Report: LC0708/116.

sustainability of land use is measured by comparing the type of land use that can be physically supported by that land with what it is actually being used for.

From 1994 to 2000, overall sustainability of land use improved by about 1.1 ±0.7%. In 1994, 83.9% of the area was used sustainably, that is, almost 84% of the hill country was being used for the land use that suited its geology, slope and soil type. Land use sustainability improved to 85.0% in 2000 and to 87.4% by 2007 (a 2.4% increase in land use sustainability ±1.5%). The improvement in sustainability of land use was the result of a move away from the meat and wool farming land use after 2000, and a reversion of that land to scrub or to forestry. State of the environment monitoring noted that increases in the area under plantation forestry also contributed to improved land use sustainability.

Of significance also in this result is the fact that the trend towards increasing sustainability is accelerating, from the 1.1% improvement in sustainability between 1994 and 2000 and to an increase of 2.4% in sustainability between 2000 and 2007. This is a very positive and encouraging result, particularly given that there had been good economic years for the meat and wool sector during the monitoring period which have in the past encouraged some unsustainable land use practices such as the clearing of steep land.

Coastal sand country

Coastal sand country makes up 12,648 ha, which is less than 2% of the region. This type of land is mainly pasture land, but 428 ha have been identified as consisting of bare sand. The majority of sand country in the region is in south Taranaki with other areas around the cape and in North Taranaki. Almost all of this area is susceptible to wind erosion.⁹

To monitor sustainability in the sand country, Council has monitored changes in the area of bare land at four representative sites widely separated from near Cape Egmont in the north, to north of Wanganui in the south¹⁰. The sites combined represent 25% of the coastal sand country, and capture the range of conditions along the coast. Aerial photos have been used since 1994 to map any change in the amount of bare sand at those sites.

Between 1994 and 2000, the area of bare sand increased at two of the sites – possibly due to tracking and treading damage, while replanting of forest at the site near the Waitotara River mouth helped reduce the amount of bare sand at that site. Between 2000 and 2007, no significant change was recorded in the area of bare sand at any of the sites. Most of the changes noted after 2000, albeit insignificant, appeared to be related to natural causes such as blowouts of unstable dunes near the beach rather than to land management ones.

3.1.3 Summary of progress

The Plan sets out environmental results anticipated over the ten year life of the Plan. As shown in Table 2 below, the Plan's objectives, policies and methods have been largely effective to date in managing accelerated erosion. Council has met, or is on track to meet, most of the environmental results anticipated for accelerated erosion.

Only one of the indicators – namely that there will be no net loss in the area of indigenous vegetation on steep privately owned land – looks like it will not be achieved. As previously noted, monitoring indicates a 3% loss of indigenous vegetation on monitored sites. This decline has biodiversity implications. However, in the overall scheme of things, its consequences on soil conservation have been offset by the other land use changes occurring in the hill country (e.g. the increase in scrub and plantation forestry).

⁹ Quite aside from being a soil erosion issue, bare sand does occur naturally and can form an important habitat for threatened species such as katipo and pingao.

¹⁰ Betts, H.D and Lynn, I.H. 2008: 'Sustainable Land-use Monitoring in the Eastern Taranaki Hill Country and Coastal Sand Country – 2007 Re-survey.'

Table 2: Summary of progress: implementing regional objectives and policies on soil erosion

Issue	What do we want to achieve?	Where are we at?	Conclusion
Accelerated erosion	An increase from 84% to 89% of privately-owned hill country sustainably managed	87.4% of the hill country is managed sustainably	On track to meet target
	A 5% reduction in the area of bare sand in the coastal sand country	Overall decrease in area of bare sand at monitoring sites	On track to meet target
	A 50% increase in area covered by production forestry and soil conservation plantings on privately-owned hill country (Class VIe and VIIe)	Area of plantation forestry in Taranaki (most of which is in the hill country) increased 47.7% between 1999 and 2007 ¹¹	Target achieved
		Information not available at time of this report. The Council is developing its database systems to enable implementation of plan recommendations to be analysed.	Information needed to confirm achievement of target (or otherwise).
	No net loss in the area of indigenous forest on steep hill country land	3% decrease in area of indigenous forest on monitored sites	Concern target might not be met
	50% of privately-owned hill country covered by farm plan	58% of privately-owned land in the hill country have a farm plan	Target achieved
	50% of privately-owned sand country covered by farm plan	41% of privately-owned land in the coastal sand country have farm plan	On track to meet target
	70% of property plans implemented in whole or in part	Information not available at time of this report. The Council is developing its database systems to enable implementation of plan recommendations to be analysed.	Information needed to confirm achievement of target (or otherwise).

3.2 Soil health – the environmental outcomes achieved

3.2.1 What the objectives and policies say

Explanations of Plan objectives and policies relating to soil health are presented below. Appendix II of this report sets out the Plan objectives and policies relating to soil health, including sections of this report that are reporting against the achievement (or otherwise) of individual objectives or policies.

Objective 1 of the Plan seeks to “...maintain and enhance the soil resource of the Taranaki region by avoiding, remedying or mitigating the degradation of soil health as a result of inappropriate land management practices”.

Policy 1.1 of the Plan states that the Council will encourage sustainable land management practices and techniques that avoid, remedy or mitigate soil structural degradation and compaction, particularly on soils with moderate, high and very high structural vulnerability.

Policy 1.2 states that the Council will encourage sustainable land management practices that avoid, remedy or mitigate depletion of nutrient levels of soils in the Taranaki region.

Policy 1.3 states that the Council will encourage sustainable land management practices that avoid, adverse increases in residual soil contamination levels in the Taranaki region.

Policy 1.4 notes that the Council will monitor and gather and provide information on soil health issues in the Taranaki region.

3.2.2 What the monitoring shows

Soil compaction

Taranaki’s soils, particularly its volcanic and organic soils, are generally more resistant to compaction than other soil types, although they are not altogether immune to damage. Ninety-seven percent of Taranaki soils were assessed as being moderately vulnerable to very resistant to

¹¹ Statistics New Zealand: Land Use by Regional Councils. Agricultural production survey results as at 30 June 1999 and 2007.

soil compaction (with 52% in the very resistant category).¹² Taranaki's volcanically - based soils have a naturally high resistance to structural damage and are generally able to withstand intensive land uses while maintaining essential soil physical qualities. Other types of soils such as those found on river and stream margins, coastal sandy soils, or alpine and sub-alpine soils are very vulnerable to soil compaction but comprise only 3% of Taranaki soils.

Notwithstanding the generally good soil structure found in Taranaki soils, the '500 soils' study identified some evidence of soil compaction at 16 of the 32 dairy farm sites investigated¹³. Problems typically associated with soil compaction were reduced aeration, a tendency for the soil to sour, decreased water infiltration and retention capacity, accelerated runoff, and reduced pasture productivity. In the 2008 soil study, 60% of the sites sampled showed soil compaction problems; six of seven dairying sites and four of five drystock sites showed soil compaction over target levels. However, it should be noted sites were sampled at the end of winter, a 'worst case' situation.

The most likely cause of increased soil compaction has been identified as the 'pugging' of soil by cattle during wet weather (when the soil is saturated), with paddocks either excessively stocked or left stocked for extended periods. Compaction is generally reversible. The rate of recovery depends on subsequent pasture and stock management, climate and soil type factors.¹⁴

The Dexcel stocking rate intensification trial showed that paddocks left unstocked had the best soil health in terms of soil compaction. Interestingly, different stocking rates did not show any difference in compaction rates. One trial showed soil structure improving regardless of stocking rate as good pasture management was put in place. The biggest effect on soil compaction, irrespective of stocking rate, occurred when paddocks were grazed during heavy rainfall. Under these circumstances, moderate pasture damage occurred as a result. The results of these trials indicate that pasture management regimes (e.g. rapid movement of cattle from susceptible paddocks, grazing of cattle on higher ground during heavy rainfall, and not over grazing paddocks) had a far greater potential effect on pasture quality and soil health than stocking intensity.¹⁵

It was noted during the trials that increased stocking rates led to increased loss of vegetative cover on the pasture. This affects the potential for soil erosion and sedimentation due to run-off. Thus soil health can be mitigated by adopting appropriate farm management techniques such as movement of cattle from susceptible paddocks, grazing cattle on higher ground during heavy rain fall and not over -grazing paddocks.

Nutrient depletion

Organic matter in the soil is important for soil moisture and nutrient retention, soil structure, availability of trace elements, and plant growth.

Popular perception is that pastoral farming depletes the organic content and nutrient levels of soil. However, the 2008 soil study showed that the carbon content of the dairying soils was actually overall higher than for the two sites in native bush, indicating that no or little 'carbon mining' is taking place and that the reverse may actually be occurring¹⁶.

¹² Hewitt, AE, 1998: 'Structural Vulnerability of Taranaki Soils'. Landcare Research report prepared for the Taranaki Regional Council.

¹³ Sparling, G. 2001: 'Interpretation of Taranaki Region Soil Health Data from the 500 Soils Project, 1998-2000.' Landcare Research report prepared for the Taranaki Regional Council.

¹⁴ Sparling, G. 2001: *Op.cit.*

¹⁵ Dexcel Research, 2006: 'Whareroa Sustainable Pasture management Project – March 2006 Update'. Update report provided to 21 July 2006 Policy and Planning Committee of the Taranaki Regional Council.

¹⁶ Sparling and Stevenson, 2008: 'Soil quality in Taranaki Region: Characteristics of New Sites, and Current Status of Previously Sampled Sites.' Landcare Research Report prepared for the Taranaki Regional Council.

The 2007 long term soil study of sites first analysed 30 and 20 years ago, also found that on average, the total soil organic matter and the carbon:nitrogen ratio had not changed. The common soil type in Taranaki is derived from volcanic ash. The soil particles with volcanic content may bind to the organic matter and so prevent the loss of organic matter from the soil. The finding that levels of organic carbon in soil in Taranaki are being maintained under pastoral livestock management, has implications not only for the aim of protecting the quality and fertility of these soils, but also for 'carbon crediting' in greenhouse gas emission inventories.

Residual soil contamination

As noted in the Plan, excessive nitrogen levels (which may arise through excessive fertiliser application or importation of feed) can lead to nitrate leaching into either surface water or groundwater. The contamination of soil through the application of agrichemicals is also a potential issue.

The 2008 soil study found that total nitrogen levels were above recommended levels on almost all dairy farms and that the average total nitrogen level on dairy farms had slightly increased over the past ten years. However, the 2007 long -term soil study found that total soil nitrogen in the dairy farm sites probably has not changed when assessed against 30 or 20 years ago.

The majority of nitrate leaching comes from fertiliser and animal excreta, not the decomposition of organic nitrogen. The stocking rate intensification trials found there was no significant difference in loss of nutrients and trace elements (total nitrogen, calcium, and magnesium) via leaching, even though stocking rates and the amount of feed imported increased. For the duration of these trials it was apparent that higher stocking rates do not necessarily lead to an increase in leaching to groundwater, but rather the issue is more one of balancing nutrient application and uptake by pasture. The studies showed that appropriate farm management could improve soil quality (structure and chemistry) even at higher stocking rates, and that more highly stocked soils can be as good as those stocked at a lower rate.

The Council has also reviewed data from national and specific Taranaki studies^{17,18} on whether cadmium (a contaminant found in phosphate rock) and zinc (an animal remedy) are accumulating in pasture soils to an extent that poses an environmental risk such as toxicity in produce. In these studies, the average cadmium concentration in dairying soils in Taranaki was in the range 0.52-0.66 mg/kg, and for all soils the averages were 0.47-0.66 mg/kg. Very few results lay above 1.0 mg/kg, with the highest reported in any study 1.7 mg/kg. Generally cadmium levels were highest on grazed pastures (but there was little distinction between pastoral soils and plantation soils), and lowest within indigenous forestry soils.

Internationally, guideline values for cadmium in agricultural soils (including beef, mutton, and horticultural soils) are in the range 1-12 mg/kg, with the lower values being used for triggering the need for further investigation (1.0-1.4 mg/kg). The majority of Taranaki sites were about half the lower guideline values. At the average rate of increase found in some of these studies, it would be approximately 100 years before the average for dairy sites exceeds the guideline values triggering the need for further investigation.

Modelling of cadmium accumulation predicts that cadmium concentration levels in Taranaki soil will reach a limiting value around 1.3 mg/kg or a little higher, depending upon phosphate fertiliser application rates¹⁹. However, it is noted that the rate of superphosphate application has

¹⁷ Taranaki Regional Council. 2005: 'Cadmium in Taranaki Soils: An Assessment of Cadmium in Taranaki Soils from the Application of Superphosphate Fertiliser.'

¹⁸ Sparling, G. 2001: 'Interpretation of Taranaki Region Soil Health Data from the 500 Soils Project, 1998-2000.' Landcare Research report prepared for the Taranaki Regional Council.

¹⁹ Taylor M et al. 2007: 'Soil maps of cadmium in New Zealand'. Landcare Research.

declined over time (Figure 7)²⁰, and the current cadmium concentration in superphosphate is less than half of what it was over the preceding four decades. These factors would considerably extend the period before levels were reached that would necessitate further investigations.

A national working party is examining options for controlling cadmium accumulation in agricultural soils. The working party also advises that, in any case,

“...dairy (milk), muscle meat and fruit products are unlikely to be at risk of high cadmium levels, due to the low capacity of these products to store cadmium”²¹.

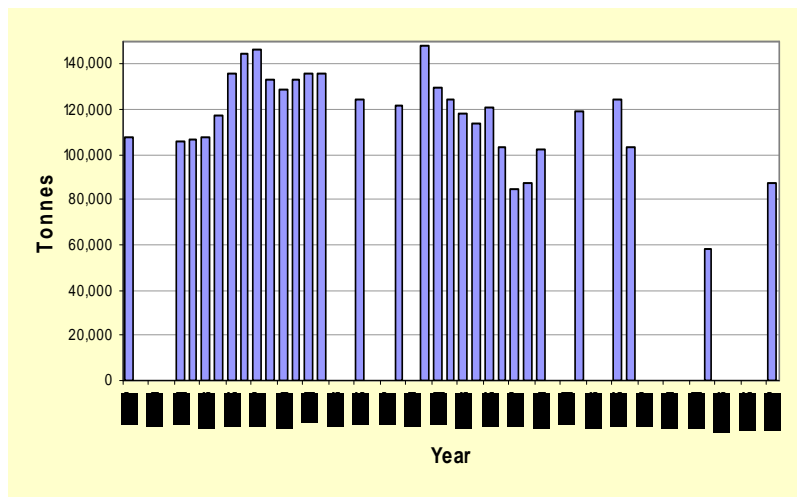


Figure 7: Tonnes of superphosphate based fertiliser used in Taranaki

Zinc concentrations at all sites were also far below guideline limits. While the highest soil concentration was found in one dairy pasture site, generally levels were similar in all land uses surveyed: indigenous bush, plantation forest and beef pasture sites.

As part of the 2008 soil survey, samples were also collected for analysis for evidence of residual contamination by agrichemicals. All sites were tested for a suite of 18 different acidic herbicides (including acetochlor, chlorpyalid, dicamba, 2,4-D, haloxyfop, MCPA, MCPB, pentachlorophenol, picloram, 2,4,5-T, 2,4,5-TP, and triclopyr). Sites were also tested for a suite of 72 different chemicals that are used to control insects or fungus. These included acephate, atrazine and its derivatives, captan, chlorpyrifos, cyfluthrin, diazinon, dichlorvos, malathion, parathion, permethrin, simazine, trifluralin, and vinclozolin.

The limits of detection for the herbicides were in the range 0.008-0.02 mg/kg. The limits of detection for the pesticides were in the range 0.009-0.04 mg/kg.

Out of 72 pesticides tested for on 20 sites (1,440 results), 12 results were positive (in each case, just on the limit of detection). That is, 99.2% of all results were negative for the presence of any pesticide. One site had five positive detections, while a second had two (these two sites were the two cropping sites tested). Five other sites (two drystock farms and three forestry plots) had a single pesticide (out of 72) confirmed as present. No agrichemicals were detected in the soil at any dairy farm site, the predominant land use on the ring plain of Taranaki.

The herbicide *acetochlor* was detected at five sites (some drystock, market gardening, and indigenous forest sites), otherwise no agrichemical was detected at more than one site. Acetochlor is used for pre-emergent weed control in cropping. It is strongly absorbed by soil, with little leaching, and a half life of 8-18 days i.e. it degrades rapidly and is not persistent or cumulative.

On the basis of these results, there is no evidence of any issue of residual or cumulative agrichemicals in the soils of the region.

²⁰ Note: Data on tonnes of superphosphate not available for all years.

²¹ Cadmium Working Group's summary report one, 'Summary of risks from cadmium in agricultural soils' November 2007.

3.2.3 Summary of progress

The Plan sets out environmental results anticipated over the ten year life of the Plan. Council investigations confirm that Taranaki has no significant or immediate soil health problems. As shown in Table 3 below, the Council has met, or is on track to meet, its environmental results anticipated for soil health.

Table 3: Summary of progress: implementing regional objectives and policies on soil health

Issue	What do we want to achieve?	Where are we at?	Conclusion
Soil health	No adverse change in soil structure on privately owned land	Monitoring shows soil compaction at some sites but no evidence to date of long term change in soil structure	On track to meet target
	No adverse depletion in the nutrient levels of soils on privately owned land	No evidence of adverse depletion of soil nutrients or organic content	On track to meet target
	No adverse increase in residual soil contamination on privately owned land	No evidence of adverse increase in residual contamination from diffuse activities	On track to meet target

4 Effectiveness of the Plan – have methods been implemented?

This section identifies Plan methods of implementation relating to accelerated erosion and soil health and assesses whether and to what extent the Council has delivered on Plan commitments (as set out in the methods of implementation of the Plan). A distinguishing feature of the Plan is its reliance on non regulatory methods to achieve its objectives and implement its policies.

4.1 Accelerated erosion – the outputs achieved

4.1.1 Methods of implementation for accelerated erosion

The Plan states that the Council will use eight methods to implement its policies for accelerated erosion. These are:

- 1 Apply regional rules contained in section 5.0 of this Plan, to allow and regulate vegetation disturbance.
- 2 Provide information and advice and promote, to land users, sustainable land management practices by:
 - (a) Providing information in response to individual enquiries, and publishing newsletters, pamphlets and information sheets on matters identified as important from public enquiries and by the Council, on such matters as erosion control techniques for vegetation clearance;
 - (b) Organising and/or participating in field days;
 - (c) Encouraging the use of industry recognised guidelines or codes of practice such as the Logging Industry Research Organisation’s Forestry Code of Practice and other relevant industry guidelines; and
 - (d) Encouraging the adoption of environmental management systems by industry.
- 3 Implement the Sustainable Land Management Programme with the aim of achieving:
 - (a) In the hill country, a target of 50% (or 143,000 hectares) of the land in private ownership being subject to the Programme over the 10-year anticipated life of this Plan; and
 - (b) In the coastal sand country, a target of 50% of the land in private ownership being subject to the Programme over the 10-year anticipated life of this Plan.
- 4 Promote to land users, sustainable land management principles and techniques through the preparation of property plans targeting land users who have not adopted sustainable land management practices.
- 5 Recognise the benefits of, and promote to land users, the protection or retirement of areas of indigenous forest on highly erosion-prone land supporting, as appropriate, the work of:
 - (a) The Taranaki Tree Trust;
 - (b) The district councils;
 - (c) The Department of Conservation; and
 - (d) Other appropriate organisations such as the Queen Elizabeth II Trust.
- 6 Consider the use of economic instruments, such as rate relief and providing plant materials at low cost to land users, for land stabilisation and soil conservation purposes.
- 7 Apply the enforcement provisions of the Act in circumstances where unacceptable adverse effects on the soil resource occur as a result of inappropriate land use practices.
- 8 Monitor and gather information on the state of the soil resource and the extent of accelerated erosion within Taranaki, with a particular focus on the hill country soils and site-specific cases including the sandy soils of the Taranaki coast.

4.1.2 Application of regional rules

The Plan identifies the use of regional rules in its methods of implementation for accelerated erosion. Regional rules are used to regulate or allow activities that have potential to result in significant adverse environmental effects and to provide certainty to land owners. As previously

noted, non-regulatory methods are complemented by two permissive regional rules that target vegetation disturbance of over five hectares on land that has a slope greater than 28°.

Since the preparation of the Plan, forest clearance or harvesting activities of over five hectares on land that has a slope greater than 28° but which are having no or very little environmental effect are 'permitted' under Rule 1 without the requirement (and cost) to obtain a resource consent. Permitted activities are still required to meet certain conditions dealing with the prevention or mitigation of soil erosion, and effects on water quality.

In circumstances where the conditions of the permitted rule cannot be met, a resource consent is required under Rule 2 and an erosion and sediment control management plan must be prepared. Since the Plan was made operative, only one resource consent has been granted under it.

In 2005, vegetation disturbance activities associated with the extraction of logs from Te Wera Forest resulted in the Council investigating and requiring the forestry owners to obtain a resource consent under the Plan. The resource consent conditions included, amongst other things, requirements to have and implement an approved site erosion and sediment control management plan, for harvested lands to be replanted as soon as practicable, and for slash piles on landings not to be positioned where they will avalanche down a slope. To date, there have been no issues of non compliance with the resource consent granted.

The low number of consents granted so far was expected at the time of adopting the Plan. As noted in the Council's response to submitters on the Plan:²²

"...The Council considers that the rules are necessary in that they will provide guidance and certainty to resource users as to the standards to be met and will improve the ability of the Council to take enforcement action in rare circumstances when this will be appropriate. The Council further considers that the benefits of these rules outweigh their costs and that these rules will impose minimum costs on the Council and resource users (as few resource consents will be required)."

4.1.3 Provision of general advice and information

Since the adoption of the Plan, the Council has prepared a large number of guidelines and information sheets. These are identified in Appendix III of this report.

Each year, the Land Management section of the Council receives and responds to numerous requests from the public for information on sustainable land management. In 2007/2008, the Council responded to 554 requests for advice and assistance on a wide variety of land management matters (Table 4). Most public requests relate to riparian management, others may relate to vegetation clearance, native logging, aerial photography, planting advice, and new property plan enquiries. It is conservatively estimated that 10% of the requests for information on land management directly relate to hill country issues.

As noted in Table 4, public requests for advice and information on sustainable land management have increased over time. All requests for general

Table 4: Number of public requests received

Year	No. of public requests on	
	Land management*	Hill country issues
2001/02	383	38
2002/03	374	37
2003/04	455	46
2004/05	594	59
2005/06	572	57
2006/07	633	63
2007/08	554	55

* Includes all public requests for information on land management, including those on riparian management. Of these, it is conservatively estimated that 10% related to hill country issues.

²² Taranaki Regional Council, 1999: 'Taranaki Regional Council decisions report on submissions to the Regional Soil Plan for Taranaki.'

information and assistance are responded to within ten working days. The Council also regularly provides advice and information to land owners through other avenues such as seminars and field days.

In addition to the above, the Council regularly liaises with and provides supplementary advice to plan holders. In 2007/2008, the Council liaised with existing comprehensive and agroforestry farm plan holders on 287 occasions.

4.1.4 Implementation of the Sustainable Land Management Programme

The accelerated erosion objective of the Plan is principally delivered through the Sustainable Land Management Programme.

Over the past 10 years, the Council has achieved good coverage of property plans and has maintained ongoing liaison with plan holders to assist with the implementation of plan recommendations.

The extent of farm plans prepared by the Council prior to the adoption of the Plan was 68,441 ha or 22.2% of privately-owned land in the hill country. As at 30 June 2008, this had increased significantly to 178,580 ha or 57.9 % of privately-owned hill country land (Figure 8). As at 30 June 2008, a total of 269 comprehensive farm plans and 24 agroforestry plans have been prepared by the Council.

The Council is also on track to meet its target for farm plan coverage in the coastal sand country. The Council works with landowners of sand country by preparing property plans to sustainably manage sand country.

Conservation plans specifically address sand blow problems and riparian plans make recommendations for the retiring and planting of waterways and for the provision of shelter belts which can minimise the risk of sand blow outs. As at 30 June 2008, the Council has prepared property plans covering 5,233 ha, or 41% of the region’s coastal sand country, the extent of which in south Taranaki is illustrated in Figure 9.

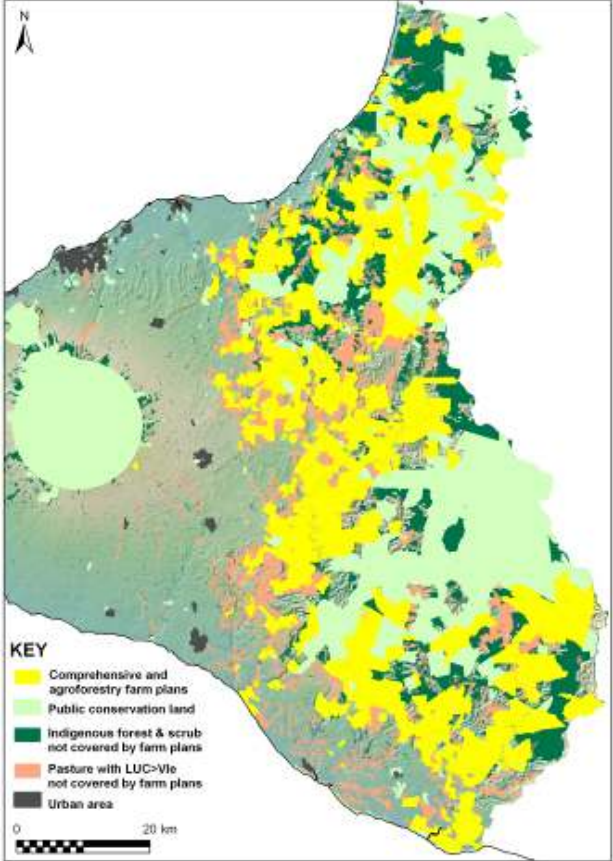


Figure 8: Coverage of comprehensive and agroforestry plans

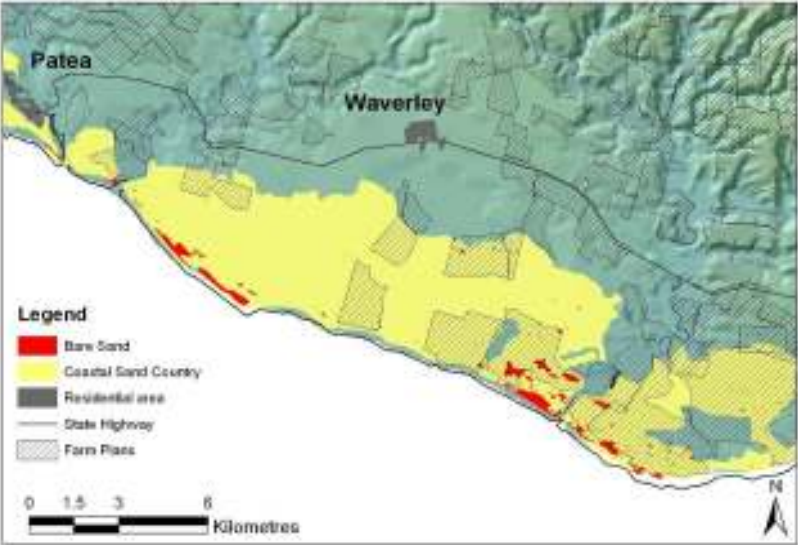


Figure 9: Extent of farm plans and bare sand in south Taranaki

4.1.5 Promotion of sustainable management techniques

The promotion of sustainable management techniques is principally delivered through the Council’s property planning and extension services, which are delivered through the Sustainable Land Management Programme (refer sections 4.1.3 and 4.1.4 above).

In addition to the delivery of general advice and information and its property planning service, the Council operates a scheme involving the supply to property plan holders of low cost poplar and willow plants for soil stability purposes. During the 2007/2008 financial year, the Council provided 12,569 poplars and willows to 73 landholders. Over the past 10 years, the Council has supplied over 90,000 poplars and willows to landholders (Figure 10).

The provision of planting material at cost was highlighted in the State of the Environment Report (2009) as a key component in the success of the Council’s Sustainable Land Management Programme and the Plan itself.

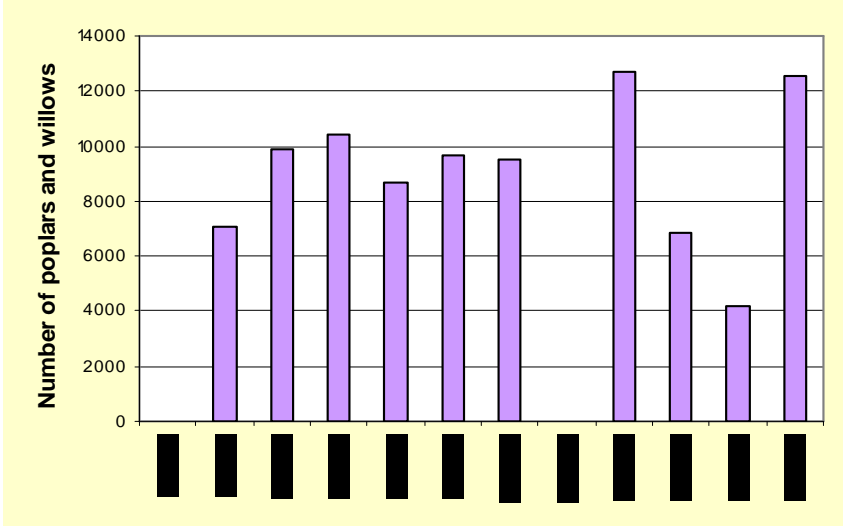


Figure 10: Low cost plants provided to landowners for soil stability purposes

4.1.6 Working with other stakeholders

This method recognises the benefits of maintaining indigenous vegetation cover on highly erosion-prone land as protection against accelerated erosion in the hill country. In particular, the Council undertook to encourage the voluntary protection of forest remnants on steep land soils by supporting the initiatives of other organisations.

The previous Government introduced policies to promote the removal of carbon from the atmosphere, including schemes to encourage land owners to retain land in trees and thus earn carbon credits. The Council has entered into a legal agreement with the Crown and facilitates land owner access to the Afforestation Grant Scheme to encourage retirement of indigenous vegetation on at risk land. At present, 320 hectares of land in the region has been earmarked for planting under the Afforestation Grant Scheme. This represents \$757,020 of funding and almost 14% of the total fund available to regional councils for 2009/2010.

In addition, the Council has actively assisted the Taranaki Tree Trust and community groups in projects involving the retirement and enhancement of indigenous vegetation cover. With regards to the hill country, the Council has provided property planning services, financial assistance, and/or other assistance (e.g. enhancement plantings, weed and pest control) to:

- East Taranaki Environment Trust: the Trust – undertakes extensive predator and possum control work on erosion prone land to protect 3,000 hectares of kiwi habitat in the Matau/Pouiatoa area in eastern Taranaki
- Rapanui Grey-faced Petrel Trust – established to manage, conserve and monitor the Rapanui grey-faced petrel colony, particularly the predator exclusion fence
- Rotokare Scenic Reserve Trust – established a restored pest free sanctuary, east of Eltham, and has undertaken extensive pest control.

The Council has also assisted the Ngati Tara Oaonui Sandy Bay Society, which is undertaking significant dune restoration works near Oaonui (coastal sand country) involving planting, fencing, weed and pest control.

4.1.7 Economic instruments

This method seeks to consider the use of economic instruments by the Council for land stabilisation purposes. Presently, the Council provides quality conservation plant materials at low cost to property plan holders (refer section 4.1.5 above). This service reduces the cost to the land occupier of adopting land stabilisation measures.

On occasion, the Council has considered other forms of economic instruments. Most notable, in the Waitotara catchment following significant storm events in 2004 and 2006, which resulted in significant landslides and downstream flooding (refer to the case study).

The Council also continues to administer and service the Taranaki Tree Trust - a charitable trust dedicated to the protection and enhancement of the region's ecosystems and landscapes. The Council allocates \$30,000 per annum to the Trust from its Environmental Enhancement Grant.

Helping out in the Waitotara catchment

After the floods in 2004, Landcare Research analysed satellite imagery to find 465 ha of landslides in the Waitotara catchment. Of these, 20%-25% comprised of slip scars with the remainder being trails of debris spread approximately 10-20cm thick. Compared to pasture, closed canopy forest (exotic and indigenous) reduced landslides by 90%, while scrub reduced landslides by about 80% and space-planted trees by 60%.

The Council subsequently took an action plan to local land owners, built around the assistance available through its Sustainable Land Management Programme. This involved the Council supplying, free of charge, 3,000 pole plants to local land owners.

Another heavy downpour in July 2006 resulted in further flooding and silt deposition, particularly in the Moumahaki and mid to lower Waitotara catchments. In response to requests for assistance, the Council offered land owners a relief package of \$8,000 for mainly 3m poplar and willow poles and \$10,000 for half the cost of grass seeding.

The pole plants and grass seed were for the re-vegetation of slip erosion debris trails - not for the re-sowing of flats covered in silt. The 2006 flood also resulted in more demand for information on soil conservation options.

4.1.8 Application of the enforcement provisions of the Act

The Council provides a 24-hour, seven days a week environmental incident response service for the Taranaki region. Environmental incidents include incidents of non-compliance with the conditions of a resource consent, the rules of a regional plan, or Part 3 duties and restrictions of the Act.

Since the adoption of the Plan, there have been 236 public enquiries or complaints received by the Council in relation to land and soil incidents.²³ However, very few of these related to vegetation clearance (most related to harvesting and tracking activities impacting upon water and, to a lesser extent, soil health). It is estimated that the Council receives about 3-4 complaints each year on vegetation clearance activities.

All complaints are investigated and appropriate action taken. The Council's response varies according to the circumstances. For example, in some cases, investigations will confirm that the vegetation clearance is a permitted activity and no further action (besides possibly advice and information) is required. On other occasions, investigations will confirm that the vegetation clearance activities require the land occupier to obtain a resource consent under the *Regional Fresh Water Plan for Taranaki* (reflecting the effects of erosion on nearby water bodies). This has happened on at least three occasions involving large scale vegetation clearance on steep slopes near Tarata and the Waitotara valley in 2002/03, and Mangawhero in 2009. Conditions on these

²³ The 236 land and soil incidents represents 6.3% of all unauthorised incidents reported to Council.

consents addressed erosion mitigation measures. On another occasion, vegetation disturbance activities associated with the extraction of logs from Te Wera Forest resulted in the Council serving an abatement notice on the land occupier and requiring the forestry owners to obtain a resource consent under the Plan (refer section 4.1.2).

So far, no prosecution action under the Plan to resolve non-compliance issues has been necessary.

4.1.9 Monitoring and investigations

This method outlines the Council's commitment to monitor the state of the soil resource in the Taranaki region and, in particular, the incidence and rate of accelerated erosion on hill country and coastal sand country soils. As outlined in sections 2.5 and 3.1.2, the Council has implemented monitoring programmes targeting changing sustainability, vegetative cover and land uses. The monitoring results have been reported in the Council's state of the environment reports and have been used for this review of the effectiveness and efficiency of the Plan.

4.1.10 Advocacy

In addition to the above methods, the Plan identifies a number of administrative procedures that the Council will undertake for the purposes of integrated management. These include advocacy and liaison.

Since the adoption of the Plan, the Council has advocated to relevant agencies to achieve certain things (e.g. to promote sustainable management, to include rules in district plans to safeguard erosion prone land from land use, for the inclusion of provision relating to erosion hazards etc). Appendix IV lists submissions made by the Council that commented on or sought to address accelerated erosion (and soil health) matters in national policy, legislation and guidelines and district plans.

4.1.11 Summary of progress

The Plan sets out methods for implementing the Plan objectives and policies for accelerated erosion. As shown in Table 5 below, the Council is implementing all the methods of implementation set out in the Plan addressing accelerated erosion.

Table 5: Summary of progress: implementing methods of implementation addressing soil erosion

What did we promise to deliver?	Where are we at?	Conclusion
Application of regional rules	Rules applied. One resource consent granted	Commitment is being delivered
Provision of advice and information	Responded to public requests for information Provide ongoing advice to plan holders (on 287 occasions in 2007/08) Prepared and distribute guidelines and pamphlets	Commitment is being delivered
Implementation of the Sustainable Land Management Programme	Prepared 293 comprehensive and agroforestry farm plans covering 58% of the hill country Prepared farm plans covering 41% of the coastal sand country	Commitment is being delivered
Promotion of sustainable management techniques	Ongoing	Commitment is being delivered
Working with other stakeholders	Facilitated land holder access to carbon credits Worked with and assisted care groups contributing to the retirement or indigenous vegetation on erosion prone slopes	Commitment is being delivered
Economic instruments	Provided low cost soil conservation plants to plan holders Financial assistance (\$18,000) provided to plan holders for pole planting and grass seed for soil stabilisation purposes Serviced and supported the Taranaki Tree Trust	Commitment is being delivered
Application of the enforcement provisions of the Act	Responded to about 3-4 incidents per annum involving vegetation clearance At least 4 activities have been required to obtain resource consents under the <i>Fresh Water Plan</i> or the <i>Soil Plan</i> . One abatement notice delivered, no prosecutions	Commitment is being delivered. Note, however, most enforcement issues are being addressed through other regional plans
Monitoring and investigations	Repeated Sustainable Land Monitoring Programme in 2008	Commitment is being delivered

4.2 Soil health – the outputs achieved

4.2.1 Methods of implementation for soil health

The Plan states that the Council will use five methods to implement its policies for accelerated erosion. These are:

- 1 Provide advice, information and technical assistance to land users:
 - (a) To encourage the adoption of sustainable land management practices and techniques that avoid, remedy or mitigate soil structural degradation and compaction, soil nutrient depletion, residual soil contamination, or any other soil health issues of significance that may arise;
 - (b) To enable the identification of areas of soils of moderate, high and very high structural vulnerability in the region;
 - (c) To encourage the use of industry recognised guidelines or codes of practice and other relevant industry guidelines, such as: the *New Zealand Standard 8409: Agrichemical Users' Code of Practice*, June 1995, developed by the New Zealand Agrichemical Education Trust; and the *Code of Practice for Fertiliser Use*, developed by the New Zealand Fertiliser Manufacturers Research Association, 1998; and
 - (d) To encourage the adoption of environmental management systems by industry.
- 2 Advocate, as appropriate:
 - (a) To industry that they reduce or avoid the use of those elements in agricultural compounds that have the potential to cause residual soil contamination;
 - (b) To industry that they establish or continue to revise standards in relation to the use of agrichemicals, fertilisers, or other agricultural compounds; and
 - (c) To government departments or agencies that they introduce, or amend, regulations in relation to the importation of or manufacturing standards associated with the use of agrichemicals, fertilisers, or other agricultural compounds as they relate to soil health issues.
- 3 Apply the enforcement provisions of the Act in circumstances where unacceptable adverse effects on the soil resource occur as a result of inappropriate land use practices.
- 4 Promote, through education programmes, greater awareness of the adverse effects on soil health arising from inappropriate land management practices.
- 5 Monitor and gather information on the state of the soil resource and the extent of soil structural degradation, soil nutrient depletion, residual soil contamination or any other soil health issues of significance that may arise.

4.2.2 Provision of advice and information

The Council responds to all requests from the public for information on soil health. The provision of information and advice can raise awareness of issues and problems and provide simple cost-effective solutions enabling land users to make well-informed decisions to prevent or minimise the effects of their land use practices on soil health.

The Council also promotes the use of guidelines, codes of practice, and standards, particularly on the application of pesticides, fertilisers and other agricultural compounds. This applies especially for those developed by the industry for the agricultural sector such as the *Code of Practice for Nutrient Management*²⁴ and the *Spreadmark Programme*²⁵.

Since the adoption of the Plan, the Council has also prepared its own guidelines and information sheet for land users concerned about soil health issues, including:

- A guide to regional plans in Taranaki for dairying, sheep and beef farming activities

²⁴Fert Research, 2007: 'Code of Practice for Nutrient Management'.

²⁵New Zealand Groundspread Fertilisers Association, 1994: 'Spreadmark Programme'.

- Managing stock on wet soils
- Managing the farms natural resources for intensification.

4.2.3 Advocacy

This method involves the Council advocating to industry to reduce or avoid those elements in agricultural products that monitoring or research shows have the potential to cause significant increase in residual soil contamination.

Since the adoption of the Plan, the Council has advocated to relevant agencies to achieve certain things (e.g. to promote sustainable management, to include rules in district plans to safeguard soil health, policies relating to pesticides and agrichemicals etc). Appendix IV lists submissions made by the Council that commented on or sought to address soil health (and accelerated erosion) matters in national policy, legislation and guidelines and district plans.

The Council is a member of the National Cadmium Working Group, which is reviewing the level of risk around cadmium in phosphate fertilisers, including the level of usage, levels of contamination in phosphate rock, soil quality monitoring throughout New Zealand, pathways of exposure, and cadmium availability and its consequences for livestock and human consumption. The Group has met several times in 2008/2009. It includes representatives of the fertiliser manufacturing and fertiliser application sectors.

The Council has also been placed on the Environmental Risk Management Authority's default notification list for notification of new agrichemicals, to maintain a watching brief on new products that could result in residual soil contamination or loss of soil health in any other way.

In addition to the above, Council has worked closely with the dairy industry on the *Dairying and Clean Streams Accord*.²⁶ The Accord is a national agreement among the dairy industry (Fonterra), regional councils, the Ministry for the Environment and the Ministry of Agriculture and Forestry, which aims to reduce the environmental impacts of dairy farming in New Zealand. The Accord is implemented at the local level through the *Regional Action Plan for Taranaki*, which was jointly developed and released by the Council and Fonterra in May 2004. Of particular relevance to the Plan is the target for dairy farms to have nutrient management systems in place to manage nutrient inputs and outputs (100% of dairy farms to have systems in place by 2007). By June 2008, 99.1% of dairy farms had a nutrient budget in place. This was up from 22% in 2004-2005. With Fonterra proposing financial penalties for farms that do not have a nutrient budget, it is anticipated that by the 2008-2009 dairy season all supply farms will have nutrient budgets – a quadrupling within four years and a very positive situation for the health of Taranaki's soil resources.

4.2.4 Application of the enforcement provisions of the Act

While, the Plan does not include regional rules regulating activities in relation to soil health, the Act does provide enforcement procedures enabling the Council to undertake inspections and stop activities generating unacceptable environmental effects.

As noted in section 4.1.8 above, land and soil incidents, on average, make up only about 6.3% of all unauthorised incidents reported to the Council. Despite increases in resource pressures, the number of land use incidents has declined over the last seven years (Figure 11).

Of the 236 land related incidents received by the Council, approximately 15% related to soil health matters covered under the Plan (i.e. soil compaction, residual soil contamination and

²⁶ Fonterra Co-operative Group, regional councils, unitary authorities, the Ministry for the Environment, and the Ministry of Agriculture and Forestry, 2003: 'Dairying and Clean Streams Accord'.

nutrient depletion). Most land incidents are associated with discharges to land from dairy farms, cleanfills, meatworks and transport operators, which may impact on water quality.

It is estimated that the Council receives about 7-8 complaints each year on soil compaction and residual soil contamination issues. The increased use of feedlots in Taranaki has resulted in a noticeable increase in incidents involving the pugging of soil by livestock. However, the number of incidents is still relatively small at 3-4 complaints a year.

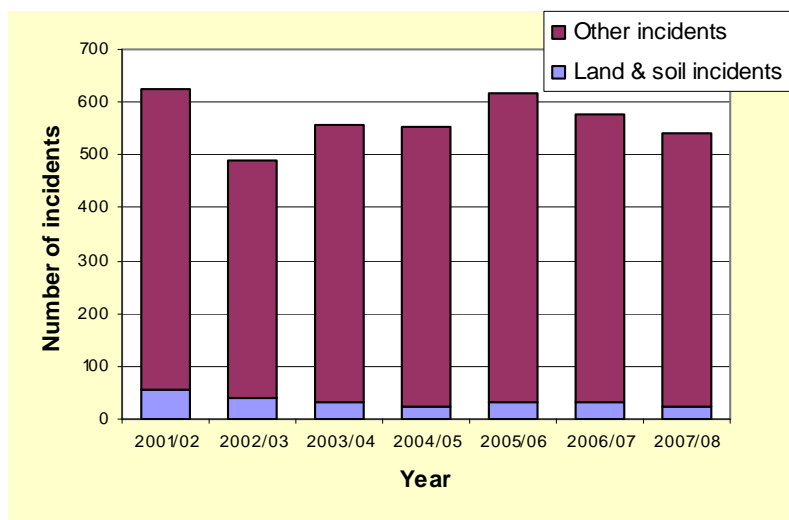


Figure 11: Land and soil incidents since Plan adoption

Since the adoption of the Plan, the Council has also responded to incidents involving soil contamination, fertiliser application, and chemical spills. In most circumstances, enforcement issues are addressed under the *Regional Fresh Water Plan for Taranaki* (because of rules addressing their impacts upon surface and groundwater quality) and, to a lesser extent, the *Regional Air Quality Plan for Taranaki* (e.g. application of fertiliser causing dust and odour).

All complaints are investigated and appropriate action taken. However, despite increased land intensification over time, the number of incidents has declined over time resulting in a significant drop in abatement notices served and only the periodic use of infringement notices. So far, prosecution action under the Plan to resolve non-compliance issues has not been necessary (Table 6).²⁷

Table 6: Enforcement action involving land incidents

Year	No. of land incidents	No. of abatement notices	No. of infringement notices	No. of prosecutions
2001/02	54	29	0	0
2002/03	39	18	0	0
2003/04	32	8	0	0
2004/05	25	13	0	0
2005/06	31	7	0	0
2006/07	31	2	2	0
2007/08	24	2	0	0

4.2.5 Promotion and education

This method seeks to promote greater awareness among land users of the potential adverse effects that can result from inappropriate land use practices. Greater awareness of soil health issues is the first step in encouraging land users to adopt or continue the use of sustainable land management practices.

²⁷ There is significant overlap between soil health issues addressed under the Soil Plan and associated effects that are addressed under other regional plans. Therefore, for the purposes of this review, it has been necessary to consider all enforcement actions undertaken for all land and soil incidents.

Since the adoption of the Strategy, the Council has promoted soil health issues through a variety of methods including media releases, advice and information, and the Council's Recount newsletter, which is distributed to over 1,000 key stakeholders, organisations and media. In addition, soil health information is maintained on the Council's website, which includes links to the Council's Plan, publications and information sheets. Examples of the latter include information sheets on the management of stock on wet pastures, and managing a farm's natural resources for intensification in a manner that avoids the loss of soil health or water quality. Guidelines and technical reports that the Council makes available through its website include reviews of the extent of sustainable land use.

4.2.6 Monitoring and investigations

This method recognises the need to monitor the effect of land use activities on soil health. This method is particularly important given that, unlike the visual impact of accelerated erosion, soil health problems are not immediately evident.

As outlined in sections 2.5 and 3.2.2, the Council has implemented monitoring programmes and commissioned studies to track trends in soil health indicators. The monitoring results have been reported in the Council's state of the environment reports and have been used for this interim review of the Plan.

Of note, the most recent round of regional soil quality monitoring (the '500 soils' programme) included for the first time in 2007-08, measurement of ecological health indicators (biomass content, the abundance and composition of nematode communities, and soil respiration), as well as tracking new physico-chemical indicators (organic carbon) and indicators of potential contamination such as cadmium (fertiliser), zinc (animal health treatment), and herbicide residues.

Investigations that have been concluded within the timeframe of the Soil Plan, or are still underway, include:-

- The first year of a three year investigation of the effects of cropping disturbance of soil upon levels of soil nutrients, soil structure, and loss of nutrients through leaching
- The effects of stocking intensification upon soil ecological communities
- The effects of land farming of hydrocarbon exploration wastes, upon soil ecological state, and recovery following mechanical disturbance and wastes application
- The commencement of a long-term study of the performance of nitrification inhibitors upon soil fertility, nutrient retention, and the emission of greenhouse gases under Taranaki conditions (soil, meteorology, farming practice)
- An investigation into the distribution of cadmium, fluoride, and phosphate through soil profiles across the region
- Ongoing participation in the Waiokura "best practice" catchment study, integrating land management, nutrient budgeting, nutrient loss, productivity, and profitability
- Participation in a recently commenced study calibrating nutrient budgets and developing a farm environmental evaluation framework specific to Taranaki.

4.2.7 Summary of progress

The Plan sets out methods for implementing the Plan objectives and policies for soil health. As shown in Table 7 below, the Council is implementing all the methods of implementation set out in the Plan addressing soil health issues.

Table 7: Summary of progress: implementing methods of implementation addressing soil erosion

What did we promise to deliver?	Where are we at?	Conclusion
Provision of advice and information	Responded to requests for information on sustainable land management practices Prepared and distributed guidelines and pamphlets	Commitment is being delivered
Advocacy targeting industry and government	Advocated to relevant agencies to address soil health or policies relating to pesticides and agrichemicals etc). Developed and implementing <i>Regional Action Plan for Taranaki</i> with Fonterra	Commitment is being delivered
Application of the enforcement provisions of the Act	236 unauthorised incidents investigated relating to land 79 abatement notices delivered, 2 infringement notices, no prosecutions Responded to about 3-4 incidents per annum involving soil compaction and residual soil contamination	Commitment is being delivered. Note, however, most enforcement issues are being addressed through other regional plans
Promotion and education	Prepared and distributed press releases and Recount newsletters, maintain information on website	Commitment is being delivered
Monitoring and investigations	Repeated 500 soils project, undertaken two trials on the effects of stocking rates on soil health; study into Cd, F, and PO4 concentrations and distribution through Taranaki's soil profiles; investigating the effects of cropping on soil structure and composition; calibrating nutrient models for Taranaki's conditions; evaluating the performance of nitrifier inhibitors in Taranaki; studied the effects of mechanical disturbance and wastes application in relation to hydrocarbon drilling wastes; continued participation in Waiohira 'best practice' study.	Commitment is being delivered

5 Effectiveness of the Plan – its suitability and usefulness

This section examines the effectiveness of the Plan having particular regard to the experiences of Council and stakeholders using the Plan and their views on the suitability and usefulness of Plan provisions.

5.1 Internal audit of the Plan provisions

As part of this review into the effectiveness and efficiency of the Plan, Council staff were surveyed to assess the suitability, usefulness, and relevance of the Plan. This involved the distribution of a questionnaire to key Council staff involved in the implementation of the Plan on the usefulness and suitability of the Plan followed by an internal workshop.

The questionnaire and internal workshop targeted Council staff familiar with using the Plan on a daily basis. This included planning, land management, inspectorate, consents and technical services officers. In particular, feedback was sought on the effectiveness of the Plan in terms of whether the provisions provide adequate guidance, comply with best practice and the law, are enforceable, and promote integrated management. Further feedback was also sought on whether the methods have been implemented, the adequacy of monitoring and public information. They also provided staff with an opportunity to identify any issues that should be addressed when preparing the next Plan.

Staff feedback indicates that, in the main, the Plan has been effective in terms of its suitability and usefulness of Plan. With regard to issues raised, few related directly to the Plan's provisions but rather to the need to ensure the Plan continues to be relevant (i.e. take into account change factors), the accessibility of information to monitor implementation of comprehensive farm plans, and concerns about the management of indigenous vegetation where the issues do not relate to soil conservation or water quality (e.g. natural values). The main themes highlighted by staff were that:

- The Plan is largely effective and is achieving the outcomes sought.
- The Environmental Results Anticipated provided good guidance as to the outcomes and targets to be achieved through the implementation of the Plan and any future plan should seek to maintain this level of detail.
- Plan provisions are readable and easy to understand.
- With regards to the implementation of the Plan, it was questioned whether isolated incidents of indigenous vegetation clearance are being adequately enforced via regional and district rules. There was general consensus by staff that Council's **soil conservation** functions were adequately enforced and that regulatory issues relating to **indigenous biodiversity** were the responsibility of district councils.
- The generally non-regulatory approach to soil conservation, complemented by two generally permissive regional rules, was supported.
- While Plan rules were based upon best practice for vegetation clearance activities, some of the standards terms and conditions (particularly relating to less than 10% of subsoil being exposed as a result of vegetation clearance) are difficult to measure in the field and should be reviewed in 2011 as part of the full review of the Plan.
- With regards to Council rules controlling vegetation clearance activities, it was noted that the provisions of the *Regional Fresh Water Plan for Taranaki* were generally more applicable in enforcement situations.
- The overlap between the different regional plans – whereby land use activities are effectively being addressed by more than one plan – was highlighted. It was suggested

that opportunities to merge the Plan with the *Regional Fresh Water Plan for Taranaki* should be considered when next reviewing these two plans.

- Some areas were identified where the Plan may need to be updated to take into account changes to legislation and Government policies, particularly in relation to the Government's emissions trading scheme and indigenous biodiversity (this is discussed further in Section 7 below).

A summary of the findings from the staff survey are summarised in Appendix V.

5.2 Stakeholder feedback on the Plan

To date the Council is unaware of any difficulties experienced by stakeholders with using the Plan. However, this needs to be tested and views canvassed. Stakeholder feedback on the suitability and usefulness of Plan provisions (plus other findings) is therefore sought through the distribution of this report.

Stakeholder feedback on this review will be analysed to test assumptions, identify any deficiencies in the Plan provisions, and/or identify improvements.

6 Efficiency of the Plan

Reviewing the efficiency of the Plan, at its simplest, is a measure of the benefit of the Plan relative to its cost. That is, does the delivery of the Plan represent value for money?

This section assesses the Plan's methods of implementations in relation to:

- The cost of the Plan in terms of administrative, compliance and broader economic costs
- The benefits of the Plan.

6.1 Costs of the Plan

One way of considering cost implications of regulatory provisions is to focus on the design of regulation.²⁸ It is generally accepted that regulation of effects rather than activities is likely to be more efficient as it provides greater flexibility for resource users as to how requirements are met. Similarly, prescriptive provisions that attempt to predict resource use and demand are more costly than more 'enabling' provisions. Provisions that lock up resources are also potentially costly. Certainty and clarity is also important as uncertainty can deter investment.

As part of this review into the effectiveness and efficiency of the Plan, Council officers involved in the administration and implementation of the Plan were surveyed and their views canvassed on the costs of the Plan.

6.1.1 Administration costs

Administration costs are the costs incurred by Council to implement the regulatory and non-regulatory methods of the Plan.

As noted in Table 9 on page 31, Council has evaluated the administrative costs associated with the regulatory provisions of the Plan (considering and issuing consents, monitoring and enforcement) and rated these as low. Only one resource consent has so far been granted in relation to vegetation clearance activities. The consent involved 17.8 hours of staff time (or 0.01 of a full time equivalent (FTE)) with the Council recovering about 90% of the resource consent processing costs from the applicant.

Non recoverable administrative costs are incurred by the Council. In relation to enforcing the provisions of the Plan, again the administrative costs are assessed as being low due to the relatively low number of unauthorised incidents needing to be followed up – on average 10-12 soil erosion and health incidents are investigated per year, each taking about 4 hours. This would add up to 48 hours per year, or about 0.03 of a full time equivalent (FTE).

Other non recoverable costs incurred by the Council in administering the Plan relate to policy and planning costs associated with the preparation of the Plan, monitoring and reviewing the implementation of the Plan (including state of the environment reporting) and the *Regional Action Plan for Taranaki*, responding to public enquiries on the rules and the consent process, and general advocacy. It is estimated that about 22 hours per annum, or 0.01% of an FTE would be spent on such activities across the life of the Plan.

Of more significance, are the non recoverable administrative costs incurred by implementing the non-regulatory provisions of the Plan. Three and a half (3.5) FTEs are involved in the delivery of

²⁸ The Enfocus report 'Evaluating Regional Policy Statements and Plans' (2008) identifies other ways of assessing efficiency including value for money assessments, selective evaluations and full-cost accounting. However, rating the design attributes of policy can be a way of estimating or rating cost when more detailed 'on the ground' assessment is too burdensome.

the Sustainable Land Management Programme in the hill country and coastal sand country. The total cost of delivering this part of the Programme is approximately \$400,000 per annum. This represents a significant investment by the Council; however, the costs are low in comparison with the nett environmental benefits and in comparison with other management options (such as having a stronger regulatory approach for addressing soil conservation and soil health issues).

6.1.2 Compliance costs

Compliance costs are the costs incurred by resource users to comply with regional rules in the Plan (e.g. costs associated with applying for and complying with consents, and physical works and equipment required to comply with consent conditions).

So far only one resource user has been required to apply for and comply with resource consent under the Plan. Other vegetation clearance activities were considered to have minor or no adverse impacts on soil conservation and were therefore a permitted activity under the Plan.

So what did it cost the applicant to get a consent and were the costs unreasonable or excessive? The resource consent granted was non-notified, it was processed in 13 working days, with the applicant being charged \$1,084. This was significantly more than the Council’s median charge of \$383 for non notified (land use) consents and the national average of \$442 (Table 8). The higher than expected cost for the consent was attributed to the scale of the activity and the multitude of issues being addressed (conditions addressed not only accelerated erosion but also the protection of regionally significant wetlands in the vicinity).

Voluntary costs
 This section of the report focuses on the costs incurred by resource users to comply with the vegetation clearance rules of the Plan. However, not captured by this, is the suite of measures that land users have voluntarily adopted to enhance their land’s sustainability and which give effect to Plan objectives for accelerated erosion.

A recent review²⁷ of the level of community investment in environmental improvements found that the average farmer expenditure is over \$13,400 per year on implementation of sustainable land management practices such as environmental planting, forestry/agroforestry development, or fencing and retirement of erosion-prone land.

The annual cost was adjusted according to the Farm Expenses Price Index published by Statistics New Zealand. Thee total annual farmer expenditure under this programme is therefore \$2.2 million per annum on hill country protection.

Other compliance costs relate to the imposition of costs on resource users through requirements to modify their practices and equipments. However, any additional compliance costs are considered to be low in comparison with the nett environmental benefits. The standards, terms and conditions of the regional rules and resource consent are consistent with industry best practice for land clearance and therefore should not impose costs that exceed community and industry expectations.

Table 8: Average costs for processing non-notified (land use) consents in 2005/2006

Costs for processing non-notified consents	
Soil Plan	\$1,084
Median charge – Taranaki Regional Council	\$515
Median charge – nationally*	\$425

* Ministry for the Environment survey of 15 regional councils undertaken for 2005/2006

6.1.3 Broader economic costs

Broader economic costs refer to costs associated with a regional plan constraining production and innovation, or resulting in the sub-optimal allocation of resources.

²⁹ Wu, J; Sanderson, K. June 2008: ‘Community Investment in Environmental Improvements in Taranaki.’ Report prepared by Business and Economic Research Limited for the Taranaki Regional Council.

As previously noted, the largely non regulatory approach involves working with land owners to implement sustainable land management practices. Regulatory constraints imposed through the Plan are limited to significant vegetation clearance in Taranaki’s most erosion prone areas. Few land use activities are therefore potentially affected or constrained. Furthermore, standards, terms and conditions set out in the regional rules and resource consent are consistent with industry best practice for land clearance. The Plan evaluation to date has not identified any issues where the Plan has unnecessarily constrained production and innovation, constrained new entrants to forestry or agriculture, or resulted in the sub-optimal use of resources. These findings will be tested by seeking the views of stakeholders.

6.1.4 Summary of the economic costs of implementing the Plan

A summary of the economic costs of implementing the Plan is set out in Table 9 below.

Table 9: Assessment of costs of implementing Plan³⁰

Type of costs	Measures	Evaluation			Comments
		Low	Moderate	High	
Administrative cost (costs incurred by Council to administer the Plan & implement non-regulatory methods)	Number of resource consents issued	√			One resource consent for vegetation clearance
	Proportion of consent costs not recovered by Council	√			90% of consent costs recovered from the applicant
	Consenting costs incurred by Council	√			0.01 of a FTE consenting activities under the Plan
	Enforcement actions taken under the Plan	√			On average 10-12 soil erosion & health incidents per annum
	Investigations & enforcement related costs incurred by Council	√			0.03 of a FTE investigating & enforcing land activities related to the Soil Plan only
	Costs incurred by Council to deliver Sustainable Land Management Programme		√		3.5 FTE delivering Sustainable Land Management Programme in the hill country & coastal sand country. Total cost for delivering this part of the Programme is approximately \$400,000 per annum
	Other non-chargeable costs incurred by Council to deliver non-regulatory methods	√			0.01% of an FTE delivering advocacy, & policy development, monitoring & reporting activities
Compliance costs (costs incurred by resource users to comply with regional rules)	Resource consent costs charged to resource users	√			One non notified resource consent for vegetation clearance - cost to the applicant was \$1,085
	Other costs of meeting Plan requirements & consent conditions (e.g. modification of practices and equipment)	√			The standards, terms & conditions of the regional rules & resource consent are consistent with industry best practice for land clearance & should not impose additional costs
Other economic costs (broader costs associated with Plan constraining production & innovation, or resulting in the sub-optimal allocation of resources)	Constraints imposed by Plan limiting resource users' flexibility to achieve environmental results anticipated	√			Largely non regulatory approach involving working with land owners to implement sustainable land management practices over time
	Production constraints placed upon targeted sectors	√			The standards, terms & conditions of the regional rules & resource consent are consistent with industry best practice for land clearance & should not unnecessarily constrain production
	Constraints imposed by Plan that limit new entrants to a sector or industry, or limit resource use flexibility	√			The standards, terms & conditions of the regional rules & resource consent are consistent with industry best practice for land clearance & should not limit new entrants or resource use flexibility
	Constraints imposed by Plan by the lack of certainty given to existing or potential new resource users about what they can do & how they manage resources	√			No issues so far identified
Overall economic cost of Plan provisions		√			Approximately \$400,000, per annum, spent by Council in delivering the Sustainable Land Management Programme in the hill country & coastal sand country. Other administrative costs relatively minor. Approximately \$2.2 million, per annum, spent by farmers voluntarily on hill country protection

³⁰ Table 9 is based upon a matrix set out in Enfocus report 'Evaluating Regional Policy Statements and Plans' (2008).

6.2 Benefits of the Plan

The benefits of the Plan are the environmental outcomes outlined in sections 3.1 and 3.2 above). These benefits cannot be quantified but are considered to be significant. Unsustainable land use can have (and historically have had) significant adverse environmental and economic costs through loss of soil and productive capacity of the land, impacts on water quality, increased flood risk and damage to property and infrastructure. However, over the last decade, state of the environment monitoring confirms that land is being used more sustainably thereby protecting soil productivity, capacity and versatility. This, in turn, protects water quality and aquatic habitats from siltation and downstream flooding from aggradation of riverbeds.

State of the environment monitoring also confirms Taranaki has no evident significant or immediate soil health issues. The Plan, alongside the *Regional Freshwater Plan for Taranaki*, is also contributing to protecting soil productivity, capacity and versatility, while also minimising the degradation of surface and groundwater quality arising from soil compaction and residual soil contamination.

In addition to the environmental outcomes of the Plan, the Plan's largely non regulatory approach has enabled appropriate use and development of land resources. That is the Plan does not unnecessarily restrict activities. The Plan includes rules that target large scale vegetation clearance activities on 'at risk' land. Other land use activities, in other parts of the region are not constrained for soil conservation purposes.

The benefits of the rules also include increased certainty and clarity to resource users as to the standards to be met to with regards to vegetation clearance activities.

6.3 Benefits and costs of the Plan

Monetising all benefits and costs is impracticable. While Council costs with implementing programmes can be quantified (although not necessarily in monetary terms), it is less easy to quantify community and land occupier costs. It is less easy again to quantify the monetary value of the environmental outcomes achieved. Assessing the Plan has necessarily relied on a combination of qualitative and quantitative evaluation.

Table 10 summarises the results of the Council's assessment of the benefits and costs of the Plan. In brief, the Plan has been assessed as being very efficient with the benefits being substantially greater than the cost. Through this document, Council will be seeking the views of stakeholders on their views on the efficiency of the Plan and whether they believe the benefits of the Plan outweigh its costs.

Table 10: Summary of the benefits and costs of the Plan

Benefits (Summary from cost effectiveness assessment)	Costs (Summary from cost estimation)
<p>Environment (outcome) benefit</p> <ul style="list-style-type: none"> ▪ An increase of 2.4% in privately-owned hill country sustainably managed (from 85.0% to 87.4%) ▪ Overall decrease in area of bare sand in coastal sand country ▪ No evidence to date of long term change in soil structure ▪ No evidence of adverse depletion of soil nutrients or organic content ▪ No evidence of adverse increase in residual contamination from diffuse activities 	<p>Administrative costs</p> <ul style="list-style-type: none"> ▪ 3.5 FTE delivering Sustainable Land Management Programme in the hill country and coastal sand country ▪ Approximately \$400,000 per annum is spent by the Council in the delivery of the Sustainable Land Management Programme targeting the hill country and coastal sand country <p>Compliance costs</p> <ul style="list-style-type: none"> ▪ Only 1 resource consent required costing the consent holder \$1,085 ▪ Another \$2.2 million is spent by farmers voluntarily on hill country protection
<p>Other benefits</p> <ul style="list-style-type: none"> ▪ Protection of soil productivity, capacity and versatility, while also minimising the degradation of surface and groundwater quality arising from soil compaction and residual soil contamination 	<p>Economic costs</p> <ul style="list-style-type: none"> ▪ Few constraints on resource users in terms of Plan constraining production and innovation, or resulting in the sub-optimal allocation of resource
<p>Summary Benefits of Plan assessed as high. There has been an increase in erosion prone land being sustainably managed. Increased monitoring and investigations also confirm that Taranaki continues to have no significant soil health issues.</p>	<p>Summary Costs and constraints associated with Plan administration and implementation have been assessed as low with the exception of costs associated with implementing the non regulatory methods, which have been assessed as moderate.</p>
<p>Conclusion</p>	
<p>The Plan has a positive ratio of benefit to cost</p> <p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p>This conclusion is based on Council's assessment that:</p> <p>The Plan is meeting or is on track to meet its targets set out in the Plan. There has been an increase in the proportion of land sustainably managed in the hill country. In addition, there has been no evidence to date of adverse increase in soil compaction, nutrient depletion or residual soil contamination.</p> <p>The Plan's non-regulatory methods are complemented by two permissive regional rules that targets vegetation disturbance of over five hectares on land that has a slope greater than 28°. Since the preparation of the Plan, only one resource consent has been required. There have been no issues of non compliance with the resource consent granted so far. The Council has undertaken enforcement action for non consented activities not complying with the duties and restrictions set out in the Resource Management Act. However, enforcement activities relating to land management issues represent only 6.3% of all unauthorised incidents reported to Council with most of these being addressed under other regional plans.</p> <p>Accordingly the administrative costs associated with the consenting and enforcement regime are exceptionally low with minimal costs on resource users. Achieving the Plan's targets is based largely on the delivery of the Sustainable Land Management Programme and other non-regulatory methods. While the costs of implementing the Sustainable Land Management Programme are not insignificant nevertheless the costs are relatively minor in comparison to the environmental outcomes being achieved. Accordingly, the largely non regulatory approach set out in the Plan is considered an appropriate response to the issues and a more efficient approach for achieving the environmental outcomes sought than adopting a more regulatory approach.</p>	
<p>The efficiency of the Plan is regarded as:</p> <p><input checked="" type="checkbox"/> High (the benefit is substantially greater than the cost)</p> <p><input type="checkbox"/> Medium (the benefit is moderate in relation to the cost)</p> <p><input type="checkbox"/> Efficient (the benefit is marginally greater than the cost)</p>	

7 On going relevance of the Plan

This section of the document identifies a number of potential ‘change’ factors or matters, which have emerged since the adoption of the Plan and which have been taken into consideration when assessing the ongoing relevance of the Plan and whether any changes are appropriate or necessary.

7.1 Regional council experiences in implementing the Plan

After eight years experience with the implementation of the Plan, the Plan has stood the test of time well. There have been no Environment Court proceedings, which have raised issues relating to the lawfulness or appropriateness of the Plan. Nor has any issues been raised involving difficulties in implementing the 13 methods identified in the Plan. The Council is implementing all the methods listed in the Plan.

As discussed in section 5 and Appendix V of this report, Council staff involved in the implementation of the Plan were surveyed to assess the usefulness, relevance, lawfulness and effectiveness of the Plan. In summary, Council staff identified no difficulties in implementing the Plan, nor were any Plan provisions identified as requiring immediate substantial or fundamental change to the Plan.

The Council has recently reviewed its *Regional Policy Statement for Taranaki*, which, amongst other things reviewed, objectives, policies and methods of implementation relating to land. Of note, the review of the *Regional Policy Statement for Taranaki*, which has involved considerable public consultation, confirmed the Council’s approach for soil conservation as encapsulated in the Plan. Also of note the review process did not identify any new land management issues that should be included in the Plan.

7.2 Changing environmental issues, community attitudes and priorities

Community attitudes are a significant influence on what and how much progress is made in achieving the outcomes sought in the Plan.

In 2001, as part of its state of the environment reporting, the Council undertook a telephone survey of general environmental attitudes in Taranaki.³¹ This survey provided an indication of the Taranaki public’s attitudes, perceptions and awareness of the environment. In brief, the vast majority of respondents (92%) rated the overall quality of Taranaki’s environment as good or excellent. The most frequency raised issues were those relating to water (85% of respondents), followed by pests and weeds (67%), followed by erosion (38%).

In a survey of Taranaki residents carried out in 2003 as part of the process of identifying community outcomes under the Local Government Act 2002, respondents were asked to rate the importance of certain statements for Taranaki: Four of the top 10 statements of importance related to the natural environment - protect the quality of water in our streams, rivers and lakes, protect the quality of water around our coastline, protect the natural character of the region’s coastline, and protect our native bush and wildlife. Significantly, however, these environmental considerations were not considered to be in the ‘top ten’ areas needing increased effort over the next decade. ³² This indicates that although Taranaki residents consider that the natural environment is very important, they are reasonably happy with the current level of effort that is being taken to protect, maintain and enhance it.

³¹ Taranaki Regional Council, January 2001: ‘Environmental Attitudes of Taranaki’s Residents’.

³² AC Neilsen, December 2003: ‘Process to identify community outcomes: Telephone survey.’

In 2008, the community was surveyed again as part of the reporting on progress in achieving the community outcomes. Respondents were asked their views on, amongst other things, their satisfaction with the management of the natural environment. Almost 88% of respondents noted that they were satisfied with the management of Taranaki's natural environment.³³

Another indicator of community attitudes and priorities concerning the environment is the large number of important voluntary industry-led initiatives that contribute towards achieving Plan objectives. These initiatives, which include the *Dairying and Clean Streams Accord*, Project Green³⁴, and the development of the *Agrichemical Users Code of Practice*, *Code of Practice for Fertiliser Use*, and the *Forestry Code of Practice*, are in response to a complex mix of signals involving overseas market demands and consumer pressures, economic imperatives as well as the regulatory environment.

7.3 Changes to legislation

7.3.1 Amendments to the Resource Management Act

Since the Plan was adopted, the Resource Management Act has been amended a number of times – more recently in 2004/2005 with the enactment of the Resource Management Amendment Act 2005. Amendments to the Resource Management Act with the potential to impact upon the Plan include:

- New section 30 functions for regional councils relating to establishing, implementing and reviewing objectives, policies and methods for maintaining indigenous biodiversity.
- A new section 66(2A) [Matters to be considered by regional councils], which states that local authorities, when preparing or changing regional plans, must now "...take into account" Iwi planning documents.
- A new section 32 – consideration of alternatives, benefits and costs.
- A new section 67(1) and (2) [Contents of regional plan], which, amongst other things, reduced those content matters that must be included in regional plans.
- A new section 67(3) [Contents of regional plan] requires the Plan to "...give effect to a national policy statement or New Zealand coastal policy statement" (rather than simply not being inconsistent with them).
- A new section 94 providing for the limited notification of resource consent applications thereby enabling better and faster decisions on resource consents.
- Provisions that confirm the ability of regional councils to allocate natural resources through regional plans.
- New provisions for processing resource consent applications.
- Provisions for decisions on proposals of national significance - when decisions are considered too big for local decision making.
- Requirements that consent authorities have regard to the value of the investment of the existing consent holder.

As noted, in 2003, changes to section 67(1) and (2) [Contents of regional plan] reduced those content matters that must be included in regional plans to objectives, policies and rules (if any) to

³³ Taranaki Regional Council, December 2008: 'Future Taranaki – Three Yearly Report on Community Outcomes for Taranaki'. Report prepared on behalf of the Future Taranaki Facilitation Group.

³⁴ In 2001, the Ministry of Agriculture and Forestry, the Business Council for Sustainable Development and Richmond as the lead meat company initiated Project Green. Project Green involves the development of a minimum voluntary New Zealand standard for sustainable production on sheep, beef, deer and goat farms. The standards address food safety, animal welfare and sustainable resource management.

implement the policies. The changes provided that a regional plan may (but need not) include the issues that a regional plan seeks to address, methods (other than rules) for implementing the policies, reasons for adopting the policies and methods, the environmental results anticipated, and procedures for monitoring the efficiency and effectiveness of the policies and methods. It is proposed that when the Council next reviews the Plan, it will take advantage of the opportunity to reduce the content matters. However, the Council may still wish to include other material in the Plan to improve understanding or workability, or achieve integrated management etc.

More recently the Resource Management (Simplifying and Streamlining) Amendment Bill 2009 has been introduced into Parliament and referred to the Local Government and Environment Committee for consideration. The Bill, amongst other things, aims to: remove frivolous, vexatious and anti-competitive objections to proposed plan and resource consent applications; streamline processes for projects of national significance, create an Environmental Protection Authority; improving plan development and plan change processes; improve resource consent processes; streamline consent decision making; and increase compliance. Public submissions have been received and the Committee is to report back to the House of Parliament on 27 July 2009.

The above amendments have not so far required Council to amend the current Plan although clearly there are implications when preparing a new plan in 2011.

7.3.2 Enactment of the Local Government Act 2002

In 2002, the Government passed the Local Government Act 2002. Under the new Act, local authorities have acquired new broad powers and assumed new obligations to their communities. The new Act signals a strong commitment to the principles of sustainable development with regional and district councils now having a leading role in promoting the social, economic, environmental and cultural well-being of their communities.

As part of an adjusted accountability, local authorities must identify community outcomes and must monitor and report back to the community on progress in achieving these outcomes. From May 2003 to February 2004, the Council and the three district councils worked together to consult with the people of Taranaki to identify the things that the community thinks are important for its well-being. As a result the Taranaki community identified the following seven broad community outcomes for the region, which were included in the Council's *2004/2014 Long Term Council Community Plan* and *2009/2019 Long Term Council Community Plan*:

- **Connected Taranaki** – a region that delivers accessible and integrated infrastructure, transport and communications systems, which meet the needs of residents, business and visitors.
- **Prosperous Taranaki** – a region that boasts a sustainable, resilient and innovative economy that prospers within the natural and social environment.
- **Secure and healthy Taranaki** – a region that provides a safe, healthy and friendly place to live, work or visit.
- **Skilled Taranaki** – a region that values and supports learning so that all people can play a full and active role in its social, cultural and economic life.
- **Sustainable Taranaki** – a region that appreciates its natural environment and its physical and human resources in planning, delivery and protection.
- **Together Taranaki** – a region that is caring and inclusive, works together, and enables people to have a strong and distinctive sense of identity.
- **Vibrant Taranaki** – a region that provides high quality and diverse cultural and recreational experiences, and encourages independence and creativity.

The Council's *2009/2019 Long Term Council Community Plan* identifies activities and programmes

for achieving these community outcomes that can also be incorporated into the Plan where these are relevant to the purpose of the Plan.

7.3.3 Treaty settlement legislation

Since the Plan was made operative, the Crown has settled historical Treaty of Waitangi claims with Ngati Ruanui, Ngati Tama, Nga Rauru, and Ngāti Mutunga. The Ngati Ruanui Claims Settlement Act 2003, the Ngati Tama Claims Settlement Act 2003, the Ngaa Rauru Kiiitahi Claims Settlement Act 2005 and the Ngāti Mutunga Claims Settlement Act 2006 include statutory acknowledgements for areas of particular cultural, spiritual, historical and traditional association to those Iwi. The settlement legislation requires information on statutory acknowledgements to be included in the Plan.

The Crown is processing Treaty of Waitangi settlements with other Taranaki Iwi. At this time, it is not clear when settlements with these individual Iwi will be reached. However, the Council, when preparing the next Plan, will endeavour to take into account any progress on Treaty of Waitangi settlements as they occur.

7.4 Government strategies, policies and initiatives

7.4.1 National Environmental Standards

The Government has commenced work towards two national environmental standards under the Resource Management Act that may be of relevance to the Plan:

- A discussion document is currently been prepared to facilitate the development of a National Environmental Standard for contaminated land. This may have implications in terms of the Council's monitoring.
- The Minister for the Environment has also recently agreed to establish a reference group to develop a National Environmental Standard for Forestry Activities.

7.4.2 Afforestation Grant Scheme

The Afforestation Grant Scheme was established in 2007 and is part of the government's package of climate change initiatives. Thirty million dollars of contestable funding over five years has been allocated to the Scheme to encourage the establishment of new forests in New Zealand in order to stabilise greenhouse gases in the atmosphere. Of note, priority will be given to afforestation proposals that will also reduce the risk of erosion, improve water quality and improve biodiversity.

Participants in the Afforestation Grant Scheme will own the new forests and any income generated from the sale of timber, while the Crown will retain the carbon credits generated and takes responsibility for meeting harvesting and deforestation liability. In Taranaki, landowners can apply for an Afforestation Grants Scheme grant through the Council. The Council assesses the applications against the broad categories of soil erosion, water quality and biodiversity for approval under the Scheme. The Council then submits all approved applications to a National Allocation Panel for funding approval.

7.5 Best practice

Since the adoption of the Plan, other regional councils have prepared their regional plans. Consequently there are now a number of examples that might provide useful models to follow in relation to the form, content and structure of regional plans. There have also been various reviews by the Ministry for the Environment, local government and planning professionals evaluating the overall quality of policy instruments such as regional plans and suggesting where

improvements could be made.^{35 36 37 38 39} These reviews have highlighted the following as good practice:

- Regional plans should clearly state their purpose and mandate and explain the relationship between regional policy statements and other plans and policies.
- Regional plans should be user friendly. They should not be too lengthy, detailed or complex and should contain a table of contents, index, users' guide, glossary and cross-referencing to aid understanding and improve accessibility to readers.
- Provisions in the regional plans should be based on sound issues identification. The focus should be on identifying a smaller number of genuinely significant issues for the region. Often sub-issues can be 'bundled' under a single key issue. Issues must be resource management issues and must not lie outside the scope of the Resource Management Act.
- Regional plans should show clear links between issues and the objectives, policies and methods that address those issues.
- Objectives and policies should provide explicit, clear guidance to decision-makers about what is relevant and important.
- Objectives and policies determine what methods of implementation are to be used, not the other way round.
- Procedural issues such as cross-boundary issues and monitoring need to be addressed but do not need to be part of the objectives and policies framework.
- Objectives should state the aim or the purpose or target for the issue being addressed. They can either be open (setting a general direction) or closed (a finite statement) and should add value to the Resource Management Act rather than merely repeat the Act.
- Policies are statements of a course or general plan of action and can be either substantive (what is to be done) or procedural (how and by whom) and be inflexible or flexible, broad or narrow. Policies should not simply state methods.
- Environmental results anticipated should specify what is expected to happen from the combined effect of the objectives, policies and methods. They link to future monitoring and should therefore be capable of being measured.
- In drafting issues, objectives, policies etc it is important to be succinct and not include excessive or unnecessary detail or long lists (as this reduces clarity and focus). It is also important to be clear. Explanations of issues and policies etc should use simple language that should not need 'expert' interpretation. Definitions for terms should be provided when needed.
- Avoid duplication (adopt a structure that avoids repetition).
- Be fact based (grounded on accurate information).
- Be set in the local context (clearly addresses local or regional activities, resources and effects etc).

³⁵ Berke, P, Crawford, J, Dixon, J and Erickson, N, September 2000: 'Plan Quality in District Councils'. *Planning Quarterly*, number 138.

³⁶ Erickson, N, Berke, P, Crawford, J, and Dixon, J, 2003: 'Planning for Sustainability: New Zealand Under the Resource Management Act'. ISBN 0473 098148.

³⁷ Erickson, N, Crawford, J, Berke, P, and Dixon, J. 2001: 'Resource Management, Plan Quality and Governance - A. Report to Government'.

³⁸ Hawkes Bay Regional Council, Taranaki Regional Council, Manawatu-Wanganui Regional Council, Otago Regional Council and Southland Regional Council, March 1998: 'Regional Policy Statements and Regional Plans – A Guide to their Purpose, Scope and Content'.

³⁹ Willis, G, July 2003: 'Drafting Issues, Objectives, Policies and Methods in Regional Policy Statements and District Plans'. Report prepared for the Ministry for the Environment. ISBN 0-478-18902-8.

Advice on improving the quality of regional plans from this and other reviews will be taken into consideration when drafting the next Plan. The Plan already recognises opportunities to combine some issues in the Plan, move the discussion of the issues closer to the objectives, policies and methods and recognises the linkages with regional policy statements and other regional plans by avoiding duplication of policies and methods detailed in those other documents.

7.6 Summary of key changes and the on-going relevance of the Plan

As outlined above, there have been a number of potential 'change' factors or matters, which have emerged since the adoption of the Plan. A review of these change factors has not identified information that warrants immediate changes to the Plan. However, Council, when preparing the next Plan, will take these and other Government reviews, strategies and initiatives into account where they are relevant to the purpose of the Plan.

Of particular note, the Council has recently reviewed its *Regional Policy Statement for Taranaki*, which involved considerable public consultation and confirmed the Council's approach for soil conservation as encapsulated in the Plan. Also of note the review process did not identify any new land management issues that should be included in the Plan.

8 Conclusions

The *Regional Soil Plan for Taranaki* was made operative in 2001. The Plan is standing the test of time well and is assisting the Council in carrying out its soil conservation responsibilities. The Plan has been both effective and efficient and no issues have been identified that would warrant an urgent review.

This conclusion is based on Council's assessment that:

- The Plan is largely on track to meet all its targets set out in the Plan. There has been an increase in the proportion of land sustainably managed in the hill country. In addition, there has been no evidence to date of adverse increase in soil compaction, nutrient depletion or residual soil contamination.
- Only one of the indicators – namely that there will be no net loss in the area of indigenous vegetation on steep privately owned land – looks like it will not be achieved. Monitoring indicates a 3% loss of indigenous vegetation on monitored hill country sites.
- Methods for implementing Plan objectives and policies have been implemented.
- Regional rules targeting vegetation disturbance of over five hectares on land that has a slope greater than 28° has only resulted in one resource consent to date meaning low administrative and compliance costs associated with the Plan.
- There have been no issues of non compliance with the resource consent granted so far. The Council has undertaken enforcement action for non consented activities not complying with the duties and restrictions set out in the Resource Management Act. However, enforcement activities relating to land management issues represent only 6.3% of all unauthorised incidents reported to Council and most of these were addressed under other regional plans.
- Administrative costs associated with the consenting and enforcement regime are exceptionally low with minimal costs on resource users. Achieving the Plan's targets is based largely on the delivery of the Sustainable Land Management Programme and other non-regulatory methods. While the costs of implementing the Sustainable Land Management Programme are not insignificant nevertheless the costs are not large in comparison to the environmental outcomes being achieved.
- No change factors have been identified warranting immediate change to the Plan. Of particular note, the Council has recently reviewed its *Regional Policy Statement for Taranaki*, which involved considerable public consultation and confirmed the Council's approach for soil conservation as encapsulated in the Plan. Also of note the review process did not identify any new land management issues that should be included in the Plan.

Section 35(2A) of the Act requires that the Council undertakes and makes available to the public a review of the results of its monitoring into the efficiency and effectiveness of policies, rules, or other methods in the Plan. This report gives effect to that requirement. Stakeholder feedback on these findings, through the distribution of this report, is the next step in the review process to test assumptions, identify deficiencies, and/or identify improvements.

References

- Berke, P, Crawford, J, Dixon, J and Erickson, N, September 2000: *Plan Quality in District Councils*. Planning Quarterly, number 138.
- Betts, H.D; Lynn, I.H, 2008: *Sustainable Land-use Monitoring in the Eastern Taranaki Hill Country and Coastal Sand Country – 2007 Re-survey*. Landcare Research Contract Report: LC0708/116.
- Cadmium Working Group's summary report one, November 2007: *Summary of risks from cadmium in agricultural soils*.
- Day, M; Backhurst, M; Laurian, L; Crawford, J; Ericksen, N, 2005: *Monitoring Plan Implementation in New Zealand*. Planning Practice Guide 2. Planning under cooperative mandates. ISBN: 978-0-9582624-4-6.
- Enfocus Limited, July 2008: *Evaluating Regional Policy Statements and Plans – A Guide for Regional Councils and Unitary Authorities*.
- Erickson, N, Berke, P, Crawford, J, and Dixon, J, 2003: *Planning for Sustainability: New Zealand Under the Resource Management Act*. ISBN 0473 098148.
- Erickson, N, Crawford, J, Berke, P, and Dixon, J, 2001: *Resource Management, Plan Quality and Governance - A. Report to Government*.
- Fert Research. 2007. *Code of Practice for Nutrient Management*.
- Fonterra Co-operative Group, regional councils, unitary authorities, the Ministry for the Environment, and the Ministry of Agriculture and Forestry, 2003: *Dairying and Clean Streams Accord*.
- Hawkes Bay Regional Council, Taranaki Regional Council, Manawatu-Wanganui Regional Council, Otago Regional Council and Southland Regional Council, March 1998: *Regional Policy Statements and Regional Plans – A Guide to their Purpose, Scope and Content*.
- Hewitt, AE, 1998: *Structural Vulnerability of Taranaki Soils*. Landcare Research report prepared for the Taranaki Regional Council.
- Hicks, D.L 1998: *Soil erosion in Taranaki – A Summary of Research Findings*. Ecological Research Associates Report prepared for the Taranaki Regional Council.
- Jessen, M.R.; Betts, H.D.; Sutherland, A.; Willoughby, E.J. 2000: *Sustainable Land-use Monitoring in the Eastern Taranaki Hill Country and Coastal Sand Country*. Landcare Research Contract Report: LC9900/125.
- Ministry for the Environment, 2007: *Resource Management Act: Two-yearly survey of local authorities 2005/06*.
- New Zealand Groundspread Fertilisers Association. 1994: *Spreadmark Programme*.
- O'Leary, S.M.; Stephens, P.R.; Willoughby, E.J.; DeRose, R.C.; Gibb, R.G.; White, M.F.; Sutherland, A. 1996: *Land-use Monitoring in the Eastern Taranaki Hill Country*. Landcare Research Contract Report: LC9596/134.

Parfitt, RL and Ross C. 2007: *Soil Profile Re-sampling for Carbon, Nitrogen and Phosphorus after 21 to 31 years*. Landcare Research Report prepared for the Taranaki Regional Council.

Sparling, G. 2001: *Interpretation of Taranaki Region Soil Health Data from the 500 Soils Project, 1998-2000*. Landcare Research report prepared for the Taranaki Regional Council.

Sparling, G; Stevenson, B. 2008: *Soil quality in Taranaki Region: Characteristics of New Sites, and Current Status of Previously Sampled Sites*. Landcare Research Report prepared for the Taranaki Regional Council.

Taranaki Regional Council, 1996: *State of the Environment, Taranaki Region*.

Taranaki Regional Council, 1999: *Taranaki Regional Council decisions report on submissions to the Regional Soil Plan for Taranaki*.

Taranaki Regional Council, January 2001: *Environmental Attitudes of Taranaki's Residents*.

Taranaki Regional Council, October 2001: *Regional Soil Plan for Taranaki*.

Taranaki Regional Council, October 2001: *Regional Fresh Water Plan for Taranaki*.

Taranaki Regional Council, February 2002: *Efficiency and Effectiveness of the Regional Air Quality Plan for Taranaki*. Interim review report on the Regional Air Quality Plan for Taranaki.

Taranaki Regional Council, November 2002: *Efficiency and Effectiveness of the Regional Coastal Plan for Taranaki*. Interim review report on the Regional Coastal Plan for Taranaki.

Taranaki Regional Council, 2003: *Taranaki – Our Place, Our Future*. Report on the state of the environment of the Taranaki region.

Taranaki Regional Council, June 2003a: *State of the Environment Monitoring 2002 Pesticides in Shallow Groundwater in Taranaki*. Technical Report– 2003-21.

Taranaki Regional Council, 2005. *Cadmium in Taranaki Soils: An Assessment of Cadmium in Taranaki Soils from the Application of Superphosphate Fertiliser*.

Taylor M et al. 2007: *Soil Maps of Cadmium in New Zealand*. Landcare Research.

Taranaki Regional Council, March 2005: *Nitrates in Shallow Groundwater, Technical Report 2003-22*. ISSN: 0114-8184.

Taranaki Regional Council, 2006: *2006/2016 Long-Term Council Community Plan*.

Taranaki Regional Council, 2006b: *Proposed Regional Policy Statement For Taranaki*.

Taranaki Regional Council, February 2007: *Assessment of Public Involvement in Non-notified Resource Consents 2004/2005, and Comparison to 2005/2006*. Memorandum from Greg Severinson, document no. 329538

Taranaki Regional Council, December 2008: *Future Taranaki – Three Yearly Report on Community Outcomes for Taranaki*. Report prepared on behalf of the Future Taranaki Facilitation Group.

Taranaki Regional Council, February 2008: *Efficiency and effectiveness of the Regional Fresh Water Plan for Taranaki*. Interim review report on the Regional Fresh Water Plan for Taranaki.

Taranaki Regional Council, 2009: *Proposed 2009/2019 Long-Term Council Community Plan*.

Taranaki Regional Council, annual significant activity reports.

Willis, G, July 2003: *Drafting Issues, Objectives, Policies and Methods in Regional Policy Statements and District Plans*. Report prepared for the Ministry for the Environment. ISBN 0-478-18902-8.

Willis, G. May 2008: *Plan and policy evaluation: background, theory and typology*. Background paper for workshop on policy evaluation.

Wu, J; Sanderson, K. June 2008: *Community Investment in Environmental Improvements in Taranaki*. Reported prepared by Business and Economic Research Limited for the Taranaki Regional Council.

Appendix I: Criteria for review

The following criteria were applied when considering making changes to the *Regional Soil Plan for Taranaki*.

- (a) **Issues:**
- There is a new issue of regional significance that has emerged since adoption of the Plan that is not addressed in the Plan or in other policies, strategies or plans and, after considering criteria (b) to (g) below, it is necessary and appropriate for that issue to be included in the Plan; or
 - An issue already identified in the Plan is no longer appropriate or necessary and after considering criteria (b) to (g) below, that issue should be removed from the Plan.
- (b) **Lawfulness:**
- The Plan is clearly leading directly to outcomes that are contrary to the **purpose and principles** of the Act; or
 - The Plan is clearly failing in its purpose of achieving **integrated management** and this failure is a consequence of the Plan itself; or
 - The provisions of the Plan are *ultra vires* and require immediate change in the interests of clarity and certainty and the efficient, effective and legally correct administration of the Act.
- (c) **Clarity:**
- The provisions of the Plan are so **unclear or uncertain** that those provisions are causing confusion and problems in administration and implementation of the Plan to the extent that the Plan requires immediate change.
- (d) **Practicability and affordability:**
- The provisions of the Plan have emerged as being not practical or affordable and cannot realistically be undertaken **and** these provisions are causing problems in administration of the Plan that require its immediate change.
- (e) **Efficiency:**
- The provisions of the Plan do not promote the efficient management of resources, result in excessive compliance costs or are not cost-effective for the community (ie, costs are too high relative to the benefits expected) to the extent that the Plan requires immediate change.
- (f) **Equity:**
- The provisions of the Plan impose unacceptable costs or benefits on one sector and not others to the extent that the Plan requires immediate change.
- (g) **Section 32 duties:**

Any change to the Plan is subject to the duties imposed under section 32 of the Act and these must be considered in the review process. In proposing any changes to objectives, policies, or methods the Council must have regard to:

- The extent to which the objective, policy or method is **necessary** in achieving the purpose of the Act;
- **Other means** to achieve the purpose of the Act;
 - The **reasons** for adapting the objective, policy or method, the principal alternative means available or of taking no action where the Act does not require otherwise;
 - **Benefits and costs** of the principal alternative means;
 - The **appropriateness** of the objective, policy or method having regard to its efficiency and effectiveness relative to other means.

Part of this assessment will need to include consideration of the:

- **Timeliness** of any change (particularly in view of any proposed changes in legislation, and roles or responsibilities); and
- **Costs** to the Council in processing a change to the Plan and compliance costs imposed on resource users.

Appendix II: Reporting on objectives and policies of the Plan

Plan objectives and policies			Link to relevant section of report
Accelerated erosion	Objective 1	To maintain and enhance the soil resource of the Taranaki region by avoiding, remedying or mitigating accelerated erosion	Section 3.1
	Policy 1.1	The Taranaki Regional Council will encourage sustainable land management practices that control the adverse effects of soil and vegetation disturbance activities on erosion-prone land throughout the Taranaki region, with particular focus on: <ul style="list-style-type: none"> (a) Accelerated erosion of soil on hill country land; and (b) Localised accelerated blow-out and re-deposition of sand in the coastal sand country. 	Sections 4.1.1, 4.1.2, 4.1.3, 4.1.4, 4.1.5, 4.1.6, 4.1.7, 4.1.8, 4.1.9, 4.1.10
	Policy 1.2	The Taranaki Regional Council will encourage the adoption of appropriate land management practices on erosion-prone land with particular focus in the hill country and coastal sand country, having regard to an assessment of land use capability and the susceptibility of the land and soil resource to accelerated erosion. <p>In its consideration of what constitutes appropriate land management practices, the Taranaki Regional Council will consider, but is not limited to, the following matters:</p> <ul style="list-style-type: none"> (a) Soil type and erodibility; (b) Soil parent material (rock type); (c) Slope angle and aspect; (d) Climate; and (e) Vegetation. 	Section 4.1.4
	Policy 1.3	The Taranaki Regional Council will encourage the retention of appropriate vegetative cover on erosion-prone land by: <ul style="list-style-type: none"> (a) Discouraging soil or vegetation disturbance where that disturbance is likely to cause significant accelerated erosion; (b) Encouraging re-vegetation as soon as practicable following soil or vegetation disturbance on land susceptible to accelerated erosion; and (c) Encouraging the voluntary retirement of highly erosion-prone land for the purpose of soil conservation, where this is the most appropriate land use option. 	Sections 4.1.2, 4.13, 4.1.4, 4.1.5, 4.1.6 and 4.1.7
	Policy 1.4	The Taranaki Regional Council will monitor soil loss, and gather and provide information on soil loss issues in the Taranaki region.	Section 2.5, 3.1.2 and 4.1.9
	Objective 2	To maintain and enhance the soil resource of the Taranaki region by avoiding, remedying or mitigating the degradation of soil health as a result of inappropriate land management practices.	Section 3.2
Soil health	Policy 2.1	The Taranaki Regional Council will encourage land management practices and techniques that avoid, remedy or mitigate soil structural degradation and compaction, particularly of those soils which have moderate and high to very high structural vulnerability.	Sections 4.2.1, 4.2.2, 4.2.3, 4.2.5
	Policy 2.2	The Taranaki Regional Council will encourage land management practices that avoid, remedy or mitigate depletion of nutrient levels of soils in the Taranaki region.	
	Policy 2.3	The Taranaki Regional Council will encourage land management practices that avoid adverse increase in residual soil contaminant levels in the Taranaki region, by promoting: <ul style="list-style-type: none"> (a) The careful consideration of the appropriateness of types of agrichemicals and fertilisers and quantities to be applied; and (b) The careful use of other agricultural compounds that may also give rise to soil health issues. 	
	Policy 2.4	The Taranaki Regional Council will monitor soil health, and gather and provide information on soil health issues in the Taranaki region.	Section 2.5, 3.2.2 and 4.2.6

Appendix III: Guidelines and information sheets

Guidelines

- *A Guide to Regional Plans in Taranaki for dairy, sheep and beef farming activities*
- *Guidelines for Earthworks in the Taranaki Region [October 2006]*
- *Hearings for Resource Consents under the Resource Management Act: A Guide for Regional Council Staff*
- *Hearings for Resource Consents under the Resource Management Act: A Guide for Applicants and Submitters*
- *Hearings for Resource Consents under the Resource Management Act: A Guide for Committee Members*

Information sheets

- *Applying for a resource consent: a guide for applicants*
- *Making a submission: a guide for submitters*
- *Pre-hearing meetings and hearings: a guide for applicants and submitters*
- *Riparian management for hill country farms*
- *Joint ventures and cutting rights*
- *Radiata pine*
- *Land resource inventory mapping*
- *Douglas fir*
- *Indigenous forestry*
- *Farm track construction - principles & practices*
- *Eucalyptus, general information*
- *Eucalyptus species for Taranaki*
- *Poplar and willow planting guide*
- *Shelter and timber belt design*
- *Poplars and willows for fodder*
- *Poles - why plant them?*
- *Pole planting - what are the benefits?*
- *Pole planting - general principles and practices*
- *Pole planting - maintenance*
- *Poplar and willow varieties available from Taranaki Regional Council*
- *Poplars for timber production*
- *Secure the future of the farm with a property plan*
- *Conservation plans*
- *Agroforestry plans*
- *Comprehensive plans*
- *Riparian plans*
- *Establishing a radiata pine woodlot*
- *Managing trees in a radiata pine woodlot*

- *Harvesting a radiata pine woodlot*
- *Worksheet for estimating costs and returns for a farm woodlot*
- *Control of earthflow and slump erosion*
- *Managing the farms natural resources for intensification*
- *Bush retirement.*

Appendix IV: Advocacy to other agencies

Financial year	Agency	Document submitted on
2008/09	New Plymouth District Council	Rural review discussion paper (February 2009)
2007/08	Stratford District Council	Proposed District Plan (Plan Change 14 and 15) (Nov 07)
	Ministry of Agriculture and Forestry	Feedback on the option of including pre-1990 indigenous forests in the New Zealand Emissions Trading Scheme (November 2007)
	Ministry of Agriculture and Forestry	Feedback on indigenous forests and the New Zealand Emissions Trading Scheme (October 2007)
2006/07	ERMA	Application by ERMA to vary HASNO controls for petrol on farms (April 2007)
	New Plymouth District Council	District Plan Change 1 (February 2007)
	Ministry for the Environment	Working towards a comprehensive policy framework for managing contaminated land in New Zealand (February 2007)
	New Plymouth District Council	Application by Dow AgroSciences (NZ) Ltd re the operation of the existing secure waste containment facility on land at the Waireka Research Station, Omata. (October 2006)
	Ministry for the Environment	National Implementation Plan – Persistent Organic Pollutants (July 2006)
2005/06	New Plymouth District Council	Draft District Tree Policy (November 2005)
2004/05	South Taranaki District Council	South Taranaki District: Plan change 1: Subdivision (June 2005)
	Education and Science Committee Secretariat	Hazardous Substances and New Organisms (Approvals and Enforcement) Amendment Bill (April 2005)
	South Taranaki District Council	Operative South Taranaki District Plan: Submission on Plan Change 1: Subdivision (March 200)
2003/04	Ministry for the Environment	Hazardous substance strategy proposed to amend the HSNO Act 1996 (June 2004)
2002/03	Standards New Zealand	Organic Production (December 2002)
2001/2002	Ministry for the Environment	Towards a Pesticides Risk Reduction Policy for New Zealand (June 2002)

Appendix V: Internal audit on the usefulness and suitability of the Plan

Assessment questions		Assessment criteria	Performance
Does the Soil Plan provide guidance?	Is the Soil Plan readable, easy to be understood?	Plan clearly outlines land management problems & issues	YES
		Plan clearly outlines objectives	YES
		Plan clearly outlines policies, methods & rules	YES
		Plan contains transparent flow from issues to objectives, policies, methods & environmental results anticipated	YES
		Staff able to describe how issues are addressed through the Plan	YES – Plan also supported by procedure documents & user guides. Training & information dissemination also undertaken
	Has the Soil Plan clearly identified environmental values associated with land?	Scientific studies & consultation undertaken	YES
		Environmental values are included in the Plan	YES
		Objectives for accelerated erosion appropriately address the issue	YES
Does the Soil Plan adequately address land management issues?	Objectives for soil health appropriately address the issue	YES	
	Land management issues not addressed in the Plan are being adequately addressed through other mechanisms	IN PART – some concerns noted related to the enforcement of regional and district responsibilities relating to the clearance of indigenous vegetation	
Does the Plan comply with best practice & the law?	Are objectives measurable?	Objectives set a clear direction & guide policy	YES – objectives are goal type statements but are measurable through environmental results anticipated.
	Do policies specify a course of action?	Policies flow from objectives	YES
		Policies deal with existing uses & potential future uses	YES – but new initiatives/change factors(e.g. emissions trading scheme) highlighted
		Policies provide guidance when processing resource consents & implementing other methods	YES – Regional Policy Statement specifies methods for territorial authorities to consider in relation to land management. Plan also outlines the respective responsibilities of the Regional Council & territorial authorities
	Do methods include a range of regulatory methods, education initiatives & economic instruments?	Range of methods deal with existing activities & potential future uses	YES – rules target land clearance in high risk areas. Other activities in other parts of the region best addressed by other means. The Sustainable Land Management Programme, supported by other methods, promotes sustainable land use practices. Advice & education, advocacy and financial incentives also applied. However, new initiatives/change factors(e.g. emissions trading scheme) also highlighted
	Are the environmental results anticipated achievable within the life of the Soil Plan?	Targets are set for what will be achieved over the period covered by the Plan	YES – objectives are goal type statements but are measurable through environmental results anticipated
	Does the Soil Plan outline how policies & methods will be monitored for effectiveness & efficiency?	Plan states how policies & methods will be monitored for effectiveness & efficiency	YES – includes a section identifying key monitoring programmes for assessing the effectiveness of the Plan
		Each policy & method has a specific monitoring approach	IN PART – monitoring indicators, parameters and techniques applicable to individual environmental results anticipated. However, limitations relating to GIS and land management database to measures some targets were highlighted
		Systems in place so that lessons learned can be carried through to the next Plan	YES
	Have lwi management plans been taken into account in the Soil Plan?	Lwi management plans taken into account & evidence of lwi consultation	YES – no lwi management plans in Taranaki. lwi consultation during development of the Plan documented in officer & hearing committee reports
		Staff have an appreciation of lwi issues, needs & values	YES – policies set out in policy documents, including declaration of understanding & code of conduct set out in the Regional Policy Statement. Further guidance provided in procedure documents & staff training provided as required
Staff & councillors trained to recognise activities that may have implications for tangata whenua		YES – see comments above	

Assessment questions		Assessment criteria	Performance	
Have Plan methods been implemented?	Have regulatory methods specified in Soil Plan for vegetation clearance been implemented?	Regulatory methods implemented	YES – however Council experience is that most regulatory action is taken under the <i>Regional Fresh Water Plan for Taranaki</i>	
		Regulatory methods effective in addressing accelerated erosion issues	YES – Regulatory measures not a significant measure but are included in the Plan. Plan prepared with policy guidance for resource consent applications in terms of adverse effects to be addressed. Compliance with consent conditions achieved through a compliance & enforcement regime	
	Have property planning, advice & extension services been implemented?	Property planning & extension services implemented	YES – Sustainable Land Management Programme includes the provision of property planning services and ongoing advice and support (such as provision of low cost poles)	
	Have advisory and education initiatives been implemented?	Education initiatives implemented, or provision made to implement initiative	YES – all education initiatives implemented in full or part. It includes school educational programmes, the preparation of guidelines & the implementation of the Sustainable Land Management Programme	
	Have economic instruments identified in Soil Plan been implemented	Economic instruments implemented	YES – environmental enhancement grants used and pole planting provided at cost to plan holders	
	Is there a system in place to ensure policies & methods are implemented	Systems in place to ensure policies & methods are implemented	YES – implementation factored in to the LTCCP & annual plans as appropriate. Progress on implementation is reviewed after 5 years of the planning documents becoming operative. Of note 100% of Regional Policy Statement and Plan methods have been implemented	
Is there adequate monitoring of the Plan?	Is monitoring planned?	Plan objectives & environmental results anticipated are linked to appropriate monitoring programmes	IN PART – monitoring indicators, parameters and techniques applicable to individual environmental results anticipated. However, limitations relating to GIS and land management database to measures some targets were highlighted	
		Clear strategies for state of the environment, compliance, & Plan effectiveness & efficiency monitoring	YES – regular & comprehensive monitoring & procedures for undertaking 5-yearly reviews. File maintained on possible changes to be considered for next Plan	
	Is data managed & shared?	Monitoring information is in a useful & accessible form for all Regional Council staff who require it	IN PART – Compliance monitoring information is maintained on the Council's database & is readily access to all staff across all departments. However, information relating to incidents, plan implementation is less accessible and usable. Council is currently reviewing its databases to address this issue	
		Is state of the environment monitoring adequate for monitoring Plan objectives & environmental results anticipated?	There is regular state of the environment monitoring of appropriate parameters at sites representative of the region	YES – Sustainable Land Monitoring Programme involving 25 sites representative of privately owned land in the hill country. Coastal sand country also monitored
			There are benchmarks for assessing soil quality	YES – the Regional Council uses a number of benchmarks to assess soil quality
	Is compliance with resource consent conditions monitored?	State of the environment data is analysed to determine trends in soil quality	YES – state of the environment monitoring indicates improved sustainable land management in the region	
		Resource consents contain conditions that can be monitored & enforced	YES	
		Resource consents are monitored	NO – consented activity of a type and duration not requiring regular ongoing monitoring	
	Are the effectiveness & efficiency of policies & methods in planning documents monitored?	Resource consent data is analysed to determine compliance	Not applicable	
		Specific monitoring approach for each policy & method & which are linked to objectives & environmental results anticipated in planning documents to determine their effectiveness & efficiency	YES – this report addresses the efficiency & effectiveness of the Plan in relation to the outcomes (having regard to the environmental results anticipated) and outputs achieved, and the benefits and costs of the Plan's effectiveness in terms of the environmental outcomes achieved. However, this monitoring is not targeted to specific policies, methods or environmental results anticipated that are specified in the planning documents	

Assessment questions		Assessment criteria	Performance
Is the Plan enforceable?	Are the enforcement options under the RMA applied in incidences of non-compliance with the Plan/resource consents?	Policies developed & applied in relation to enforcement action	YES – well established protocols & procedure documents relating to enforcement, including reporting requirements
		Regional Council takes enforcement action for serious non-compliance	YES – this may involve warnings, the issue of abatement notices & infringement notices, enforcement orders or prosecution. However, so far no enforcement action has been required
	Are procedures in place for responding to complaints?	Procedures are in place to respond to complaints	YES – pollution hotline. The Council's has well established protocols & procedure documents relating to enforcement, including reporting requirements & the Annual Plan sets targets for responding to public complaints YES – policies set out in policy documents, including declaration of understanding & code of conduct set out in the RPS. Further guidance provided in procedure documents & staff training in encouraged
	Are causes for complaints investigated?	Causes of complaints are responded to	YES – all pollution incidents investigated & responded to. Procedures include reporting back to complainants & the Council on the result of any investigations
	Is action taken to prevent further incidents & address adverse environmental effects?	Action is taken to prevent repeat pollution incidents & address their adverse effects	YES – see comments above
Enforcement action is taken when necessary		YES – see comments above	
Does the Plan promote integrated management	Does the Plan contribute to integrated management of natural and physical resources?	Plan provisions are consistent and aligned with the Council's other plans	YES – however the recent review of the Regional Air Quality Plan for Taranaki did result in some changes with regards to Plan content that Council might later wish to consider applying to the Soil Plan
		The management of all land management issues are effectively addressed via the suite of Council plans The Plan is complementary to other plans	YES – no changes to policy documents necessary to date. However, processes are in place to review issues & identify possible changes to future documents
	Does the Plan explain the roles & responsibilities of the Regional Council & the territorial authorities?	Expectations for territorial authorities & land use controls are clear	IN PART – the Plan contains a section outlining the scope of the Plan and the function and responsibilities of regional and district councils. There are also protocols with territorial authorities for resolving cross-boundary issues. However, staff raised significant concerns regarding to clearance of indigenous vegetation & impacts on biodiversity purposes
Public information	How accurate & understandable is the information that is provided to the community?	Information on land management issues in the region is accurate & made available to the community in an understandable form	YES – e.g. state of the environment reports, website. Also responsive to requests for information
		The Regional Council publicly reports on whether objectives & environmental results anticipated have been achieved	IN PART – Council reports broadly on issues in its state of the environment report & interim review reports for plans. However, the Council does not directly link & report publicly its monitoring against all objectives & environmental results anticipated