



*Ministry for the*  
**Environment**  
*Manatū Mō Te Taiao*

# **Review of New Zealand Environmental Farm Plans**

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**For the Ministry for the Environment**

**May 2003**

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Published in May 2003 by the  
Ministry for the Environment  
PO Box 10-362, Wellington, New Zealand

This document is available on the Ministry for the Environment's website:  
[www.mfe.govt.nz](http://www.mfe.govt.nz)



## Foreword

Farm planning is basically a mechanism for identifying and documenting actions and timeframes to achieve desired outcomes, these can range from purely financial and production objectives to a wide range of environmental outcomes.

Farm plans have, since the 1940's, assisted New Zealand farmers and the councils in catchment management. Soil conservation programmes dominated early environmental farm plans. However, since the early 1990's, these farm plans have expanded to address a range of farm improvements in addition to soil conservation (e.g. water quality, waste, biodiversity, animal welfare, riparian zones, etc).

The Ministry for the Environment is encouraging self-regulation as a means to reduce agricultural impacts on land and water. The Ministry sees effective industry self-regulation as achieving more positive environmental outcomes than sole reliance on a rule based regime imposed by regulatory agencies. Farm plans and their ability to reflect and document agreement between parties on the work programme and resources required to implement a plan are useful adjunct to self-regulation.

This report consolidates all of the different farm plans currently in use in New Zealand into one document. The report sets out the components of the range of farm plans, how they are used by regional councils and industry and discusses their relative merits and effectiveness in environmental management on farms

By identifying and documenting critical factors/elements and successful methods of farm plans, the Ministry can encourage better environmental farm plans or perhaps the development of a farm plan template.

Finally we wish to acknowledge the assistance of regional councils and the dairy industry for providing the information on existing farm plans without which this report could not have been prepared. We hope that this report in turn provides regional councils, farmers and industry with useful information for the development of new farm plans or when reviewing the effectiveness of their existing farm plans.

## Acknowledgements

We wish to thank many people who have assisted us in this project. At the Ministry for the Environment, James Court was a helpful project manager, and we also had useful discussions with Simon Park and Wayne Bettjeman. We could not have undertaken the project without generous assistance from the following key contact people in regional councils:

Bruce Peplow, Alan Campbell, Rien van der Weteringh, Environment Waikato

Tony Hall, Environment B.O.P

Tony Thompson, Auckland Regional Council

Garth Eyles, Hawkes Bay Regional Council

Dex Knowles, Taranaki Regional Council

Tabitha Anthony, Lachie Grant, Horizons.mw

Dave Cameron, Wellington Regional Council

Phil McGuigan, Environment Canterbury

Ian Brown, Otago Regional Council

Bala Tikisetty, Environment Southland

We also wish to acknowledge with thanks Ron Sutherland, PALMS, for his peer review and the following people for very useful discussions and information:

Kevin Steel, Sustainable Farming Fund, MAF

Jim Barnett, John Russell, Shane Lodge, Charlotte Rutherford, Fonterra

Alec Mackay, Sarah Mackay, Liz Wedderburn, AgResearch

Andrew Manderson, Massey University

Mairi Jay, University of Waikato

Gordon and Celia Stevenson, Putaruru

Don Ross, New Zealand Landcare Trust

Finally we acknowledge with thanks the owners and Trustees of Onuku Maori Lands Trust for permission to reproduce material from their Environmental Programme.

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## Executive Summary

1. This report, commissioned by the Ministry for the Environment as part of its work into Agricultural Impacts, provides a background on current environmental farm plan and other farm planning practice in New Zealand and their potential linkages with industry-led environmental management initiatives.
2. Historically, all catchment authorities in New Zealand undertook environmental farm planning, with financial support from the Government. The traditional farm plans had a strong focus on soil conservation and treatment of land according to its capability.
3. After a phase of uncertainty in the early 1990s, following regional council establishment, restructuring and the withdrawal of central government support, some promising innovations have emerged, as the councils have adjusted to their new responsibilities.
4. Currently, there is fairly widespread use of environmental farm planning in New Zealand, with most regional councils offering assistance in a range of different ways. However, unitary authorities and a few poorly resourced regional councils do not offer any assistance for environmental farm planning.
5. There are many different forms of farm planning currently being undertaken in New Zealand, but not all of them are suitable for the dairy sector. They range from simple riparian plans, that can be prepared very quickly and efficiently, as in Taranaki region, to comprehensive “Environmental Programmes” that address all soil and water conservation issues, and indigenous biodiversity, as in the Bay of Plenty region. Some councils have also adopted policies whereby farmers can prepare their own environmental farm plans.
6. Many regional councils recognise that environmental farm plans are an effective method of achieving good environmental outcomes in a non-regulatory way. This relies on the fundamental principle that the implementation of an environmental farm plan is a voluntary undertaking by the landowner.
7. There is also the potential to integrate environmental farm planning with other on-farm objectives, as well as wider catchment goals. They can be an ideal mechanism for implementing catchment schemes.
8. Core issues that should require attention in environmental management in the dairy sector are:
 

<ul style="list-style-type: none"> <li>▪ Soils and land use capability assessment</li> <li>▪ Soils management</li> <li>▪ Control of runoff</li> <li>▪ Stream margin (riparian) protection</li> <li>▪ Water quality</li> <li>▪ Irrigation management (where applicable)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Use of chemicals</li> <li>▪ Disposal of effluent</li> <li>▪ Protection of significant indigenous habitats from grazing</li> <li>▪ Control of pests which affect farm production</li> <li>▪ Nutrient and fertiliser management</li> </ul>
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9. More comprehensive environmental farm planning would address aspects such as animal welfare, more comprehensive biodiversity protection and pest management, water supply and possibly energy usage, and should also link environmental planning with financial

and business planning. However, not all these aspects can be easily covered in farm plans.

10. While the use of environmental farm plans is reasonably widespread, the uptake by dairy farmers (apart from one or two regions) is very low. The reasons for lack of uptake by dairy farmers are complex, but probably relate to the physical nature of dairy farms, structural relationship of sharemilking and dairy farm ownership, the strong production-lead orientation of the dairy sector, and the historical regulation-driven relationship between dairy farmers and regional councils.
11. In addition, successful environmental farm planning needs to be integrated with financial planning to demonstrate bottom-line advantages to farmers. It appears as though there is little financial incentive for dairy farmers to implement environmental farm plans.
12. Farm planning is one tool for achieving better environmental outcomes in the dairy sector. It is not the whole answer by itself. Farm plans can be a robust framework for implementing industry-driven best management practices and environmental management systems, of which the most important for the dairy sector is *Market Focused*.
13. Environmental farm plans should not be seen as competing with *Market Focused*; rather they can be complementary mechanisms. Farm planning would only be suitable as an *alternative* mechanism to ‘Market Focused’ if farm plans were a ‘one-stop shop’ (incorporated all required criteria for on-farm environmental management), in which case they would be too large and complex to appeal to most dairy farmers. There is potential to further develop the farm map component of *Market Focused* as a useful integrative and presentational tool.
14. Central government withdrawal from farm planning support has resulted in some councils ceasing to offer farm planning assistance, but has also to a wider range of assistance being available. Currently regional councils are putting more emphasis on support for Landcare or other care group activities, rather than support for farm planning. Most regional councils do not have strong linkages between farm planning and Landcare, although there are a few significant exceptions. If carefully developed and supported (using Australian experience), care groups can successfully undertake some types of environmental farm planning and associated activities, with benefits for collective ownership of catchment-wide projects, and making best use of scarce financial resources.
15. Innovations in farm plan development should continue to be supported and monitored nationally and regionally over the next few years, in parallel with the development of dairy sector environmental standards and continuing regional plan development.
16. A number of developments in Property Management Planning in Australia could be relevant to the use of farm planning for the dairy sector in New Zealand. These include close attention to the integration of physical and environmental planning with business and financial planning; strong institutional support, and a strong tie-in with Landcare activities. However if improved environmental performance is desired, then the environmental priorities in integrated farm planning must remain prominent.

# 1 Introduction

## 1.1 Background

The Ministry for the Environment is undertaking various projects that seek to reduce the impacts of agriculture on surface water and ground water. This programme seeks to work with the dairy industry in particular due to the typically greater impacts associated with dairy farming relative to other livestock farming, and includes work on effective industry self-regulation.

Environmental farm plans, that are compatible with the dairy industry's *Market Focused*, have been identified as one mechanism that may contribute towards effective industry self-regulation. This project provides a background on current environmental farm plans and other farm planning practice in New Zealand and their potential linkages with industry-led farm plans. A related project carried out by the Crown Research Institute AgResearch (Mackay *et al*, in preparation) will provide an assessment of the cost range associated with implementing environmental best practice in the dairy farming sector at a minimum level and at a comprehensive level.

The findings of these two projects contribute toward providing integrated advice to farmers, and the development or identification of critical factors/elements in potential environmental farm plan templates for new and existing dairy farms.

## 1.2 Objectives

The objective of this project stated in the project brief: *To provide a national overview of the use and implementation of environmental farm plans in New Zealand.*

A related objective that emerged as the project progressed and was discussed with Ministry for the Environment staff was: *To discuss issues associated with potential uses of farm plan mechanisms for environmental management in the dairy sector.*

## 1.3 Brief

The tasks identified in the brief for the project were:

- (a) Briefly outline the historical use of farm plans in New Zealand.
- (b) Consult with regional councils in order to identify the effectiveness (positives/negatives) of farm plans in promoting/achieving environmental outcomes.
- (c) Identify those regional councils that promote/assist development and implementation of farm plans and the role of farm plans as a method for achieving objectives in regional plans.
- (d) Provide a description of the different farm plan types and methods used to promote and/or assist their development and implementation.
- (e) Consult with dairy industry representatives on probable farm plan criteria needed to satisfy industry environmental policies.

- (f) Provide a brief discussion on the linkages with industry led Environmental Management Systems (EMS) including Richmond's Green Project and the dairy industry's Market Focused.
- (g) Prepare a report describing findings.

## 2 Methods

### 2.1 Contact with councils and questionnaire development

The core of our method was a questionnaire that was sent to all regional and unitary councils that indicated in preliminary phone contact that they were carrying out any form of farm planning. The questionnaire is shown in Appendix 1 and was developed after phone contact with all councils to scope the issues and assess the status of farm plans in their regions. This information is summarised in Table 4.1.

The questionnaire was developed in conjunction with staff in a couple of the councils contacted, to ensure that the questions were pertinent and could be relatively easily addressed. The questionnaire was then sent to a single key contact in each council in early July 2002. The questionnaire was followed up by phone or personal visit to most respondents.

### 2.2 Other information gathering

As per the project brief, we discussed dairy sector contacts with Ministry for the Environment staff, Liz Wedderburn from AgResearch and Kevin Steel (Sustainable Farming Fund Manager, MAF). We subsequently had two meetings with Fonterra staff (in Palmerston North and Hamilton) and gathered information for a number of relevant dairy industry programmes (Chapter 5). We undertook limited consultation with other landowner and industry agencies.

Information about environmental farm planning in Australia was gathered from published literature (principally Campbell 1994), reports and notes from visits to Australia in 1992, 1994, 2000 and 2002 by Paul Blaschke, Simon Park (MFE) and Garth Eyles (Hawkes Bay Regional Council), and from Internet sites. The principal Australian sites accessed were:

<http://www.affa.gov.au> (Department of Agriculture, Fisheries and Forestry Australia, Natural Resources Management section)

<http://www.drdc.com.au> (Dairy Research and Development Corporation)

<http://www.landcareaustralia.com.au> (National Landcare Organisation, with links to state Landcare agencies)

## 3 What Is Environmental Farm Planning?

### 3.1 Terminology

Throughout this report a number of terms dealing with farm planning are used. The following definitions will apply to the different terms (although it is not possible to be fully consistent with all variations that occur):

*Farm Plan* – generic term used to describe any type of planning undertaken on a farm (see below). In Australia a farm plan is generally called a property plan.

*Environmental Farm Plan* – the most commonly used term in this report: used to describe any type of single-property based farm plan that has a significant environmental component.

*Traditional Farm Plan* – Pre-1990s catchment authority farm plan primarily addressing soil and water conservation issues (see Chapter 3.3).

*Comprehensive Farm Plan* – Environmental farm plan that covers other environmental issues (indigenous biodiversity, protection of wetlands, natural features, etc) as well as soil and water conservation values. A comprehensive farm plan may also be integrated with financial or production planning.

### 3.2 Nature and definition

Farm or property planning can be described as “the purposeful area-specific planning of farm activities over a whole farm or contiguous groups of farms, in order to achieve specific objectives for the farm” (Boffa Miskell 2000). Farm planning is undertaken with some aspect or aspects of the sustainability of the farm unit as the primary focus: usually either for increasing the productivity or profitability of a farm through area-specific planning, or for more specific sustainable management purposes such as soil conservation. The official Australian definition of ‘property planning’ reinforces a connection between environmental and financial sustainability:

*“Planning which integrates natural resource planning in the interests of sustainability with farm business planning”*

*Environmental* farm planning has been used as a method of soil conservation in New Zealand ever since the beginnings of organised soil conservation (see below). It has usually been based on the mapping of land use capability, showing areas unsuited for long-term farming because of soil erosion or other hazards. It has also been used in most regions to plan other soil conservation works such as space planting of trees, retirement and fencing, or riparian management, and has often been the means by which national or regional subsidy of soil conservation programmes has been planned and implemented. Grants for soil conservation or other on-farm works have mainly been made on the basis of farm plans. Farm planning has also been commonly implemented on a catchment or wider basis, originally under catchment authorities and continued by many regional councils.

An environmental farm plan usually has had the following components as a basis:

- A map of the land use capability (LUC) and some description of the physical resources of the property

- A list of conservation objectives for the property
- An action plan to achieve these objectives.

Environmental farm planning shares many of the characteristics of an Environmental Management System and as such can legitimately be considered as an option for achieving cost-effective resource management, either as a voluntary activity or as part of a district or region's regulatory planning regime.

An important aspect of more recent farm planning work has been to address wider aspects of sustainability by combining strategies for maximising production within the limits of environmentally sustainable land management. For this type of farm planning, financial planning and decision-making tools are generally used to model the financial effects of various farm management options (e.g. the use of the Stockpol package to model grazing management, or the use of the Overseer programme (section 5.4) to optimise fertiliser application). In this way, least-cost methods of implementing ecologically desirable changes, or to maximise grazing use of available land, etc., can be explored.

### **3.3 Types of farm planning**

There are many different forms of farm planning currently being undertaken in New Zealand. The main types, and some examples, are outlined below. Further discussion of their use is given in Chapters 4 and 5.

#### **3.3.1 Traditional farm plan (soil conservation plan):**

This is the basic type of farm plan developed over many years, primarily based on an assessment of land use capability and farm conservation needs, and aimed at hill country farms with an actual or potential erosion hazard. Soil conservation plans also occurred on flat locations in the South Island, with windbreak schemes developed to reduce wind erosion. They were planned on the basis of susceptibility to wind, and integrated into farm management. Their value went beyond erosion management as they also influenced shelter of pasture, crop production and animal welfare. The land use capability assessment is generally based on a description of the physical resource base – typically rock type, climate, soil, slope, erosion and vegetation – and is then interpreted to develop options for land use and management. This type of farm plan is still used in a number of regions.

#### **3.3.2 Soil-based environmental farm plan:**

The SUBS programme (Soils Underpinning Business Success; Mackay *et al.* 1999) aims to train individual farmers (who work in groups) to produce a soil map of their own property, and then to train them to interpret and apply that knowledge for farm business planning. It has now been used in a number of central North Island farming environments, and appears to be especially successful in situations where there is strong environmental and soils differences within the property. The method relies on strong farmer participation and ownership and is strongly rooted in 'traditional' farm advisory and focus farm approaches.

### **3.3.3 Forestry-oriented environmental farm plan:**

This type of plan involves land owners who are mainly interested in establishing open-spaced or plantation forestry. The plan is usually based on a land resource inventory assessment and then a range of alternative forestry options are proposed, and in some cases tested using the Agroforestry Estate Model or other forest evaluation tool. Establishment and management costs and production returns can be modeled for the various scenarios.

### **3.3.4 Riparian plan:**

Riparian plans with a primary focus on surface water quality are undertaken in a number of regions. For example, as part of its sustainable land management programme, Taranaki Regional Council prepares riparian farm plans, which outline fencing, retirement and planting options for farms on the Taranaki ringplain. The main objective of the programme is to improve water quality in the ringplain's watercourses, but the programme protects the rivers and streams that run through the ringplain and provides many incidental biodiversity benefits from the programme which mainly recommends native tree, shrub and flax riparian planting. At the tops of river banks commercial timber planting of either native or exotic species is often recommended. The regional council has prepared more than 300 of these plans as a free service, but the implementation costs are the responsibility of the landowner. In some priority areas, the Taranaki Tree Trust, an independent charitable trust serviced by the regional council, assists with fencing, planting and protection of forest and wetland remnants.

### **3.3.5 Comprehensive farm plan:**

Bay of Plenty Regional Council (Environment B·O·P) currently operates the most comprehensive type of environmental farm plans, Environmental Programmes. They are designed to assist landowners who wish to protect indigenous biodiversity and water and soil values on their property. They supercede former more restricted types of farm planning in the region and provide for an integrated approach to the protection of indigenous biodiversity and water and soil conservation values. Environmental Programmes are a mechanism whereby public support is given to private landowners seeking to protect indigenous biodiversity and/or address soil and water conservation issues on their property. They are in effect partnerships between the landowners and Environment B·O·P (and other environmental agencies of their choosing, such as district councils, the Department of Conservation, Nga Whenua Rahui, iwi organisations, the Queen Elizabeth II National Trust, the New Zealand Landcare Trust and community organisations. Environment B·O·P assists with the preparation and implementation of the programmes and also undertakes to monitor the effectiveness of each programme. Programmes include an outline of relevant issues, clear objectives and a specific work programme for:

- protection and enhancement of indigenous biodiversity;
- soil and water conservation;
- sympathetic management or removal of plant and animal pests;
- monitoring;
- liaison and technical advice.

### 3.3.6 Environmental standard-based environmental farm plan

The best known example of this type of plan is the Ag-vantage (now called Enviro-Ag) approach, developed by the North Otago Sustainable Land Management Group in association with the Otago Regional Council. Ag-vantage is “a practical farmer based approach to better environmental management. It is an environmental management system that can be applied to a farming business to help manage for better environmental performance”, and is accredited as an Environmental Management System for the ISO 14001 series. The Ag-vantage approach notes that there are three main types of action that farmers can undertake to achieve better environmental outcomes. They are;

- (a) Management changes;
- (b) Procedures and monitoring systems; and
- (c) Physical works.

The workshop manual setting out the Ag-vantage approach can be downloaded for free from the Internet as long as it is not used for commercial purposes. The Ag-vantage approach takes the landowner through a step-by-step process involving the following:

- Producing a farm business plan;
- Assessing land management units on the farm;
- Assessing the environmental impacts and significance of activities carried out on the farm;
- Producing a hazard analysis response table for the farm;
- Producing an environmental enhancement plan;
- Producing an action plan complete with costs of implementation, starting and completion dates.

## 3.4 A brief history of farm planning in New Zealand

The following account is a brief summary drawing principally on Roche (1994) and McCaskill (1973), highlighting aspects that are more relevant to the use of farm planning mechanisms in the dairy sector. Another important reference for this subject is Poole (1983), and more detailed and up-to-date historical information is currently being reviewed by Manderson (in prep.).

The history of environmental farm planning shows close parallels with the history of organised soil conservation and erosion control in New Zealand. Both are tied closely to the philosophy of land use according to its capability, a basic tenet of the American pioneers of soil conservation such as H.H. Bennett. According to McCaskill, Bennett’s dictum that “Each acre must be used according to its capabilities and treated according to its needs”, which was emphatically endorsed in the US Conservation Service, also became the guiding principle for early New Zealand soil conservators.

In New Zealand most of the earliest attempts at soil conservation works on farms were based on land mapping of various types (Roche 1994). Some early soil and land utilisation surveying was carried out in Hawkes Bay in 1937 by the DSIR with assistance from the Department of Agriculture in order to develop a land use capability system. The survey also included a commentary on soil erosion, and claimed that its soil map would “provide a basis for attacking the problem”. Similar surveys were carried out in Northland at the same time by the soil scientists who were to become the leading lights in the DSIR Soil Bureau (principally Norman Taylor), cementing an enduring close relationship between soil and land use capability mapping and environmental farm planning in New Zealand.

In 1941 the Soil Conservation and Rivers Control Act was passed and the Soil Conservation and Rivers Control Council (SCRCC) came into existence. The Council's functions included the carrying out of surveys and investigations to ascertain the nature and extent of erosion in New Zealand. Catchment Boards were also established over much (but not all) of the country in the next few years (Poole 1983) and most of these were carrying out land use capability surveys by the early 1950s. Early surveys in varied environments occurred in the Lake Coleridge (Canterbury), Marlborough Sounds and Pohangina (Manawatu) districts. The Pohangina survey was followed by the first fully constituted and implemented farm plan covering some 430 acres of badly eroded hill country and terrace land. All these initiatives are described in detail by McCaskill.

Early surveys were based on a number of different capability systems but were all based on the premise that every area had particular attributes which suited it to certain types of use and if eroding ought to be treated by specific techniques. Furthermore the various conservation measures ought to be employed in a coordinated fashion, reinforcing their impact. The land capability survey provided a guide to appropriate land use at the farm level, a process operationalised in the form of a farm conservation plan which identified the maximum intensity of land uses across the property.

A series of wide regional land capability surveys began in both the North and South Islands in 1950 and in 1952 the Council adopted an adaptation of the American 8class LUC system (Norton 1939) which has been used until the present. The final publication of this classification was not agreed on and published until 1969 (Ministry of Works 1969) but has been used fairly widely as basis for farm plan capability mapping by catchment boards and regional councils since then.

The original instructions on farm plans issued by the SCRCC to Boards, quoted by McCaskill, serve as a good summary of the basis of these early plans:

*“Farm Conservation Plans will be required in future where more than single self-contained conservation practices are required to combat soil erosion, or where successive follow-up practices are required, or where comprehensive conservation practice are needed on a substantial portion of a holding. To get the rest results for the subsidy money expended, subsidies will be conditional on the farmer adopting a mutually agreed-upon farm conservation plan. This plan will be based on a conservation survey and land capability evaluation of the property, shown on an accompanying plan with legend. This will be used to establish the conservation needs of the property.”*

From the early 1950s right through to the 1980s farm plans were used as a basis for catchment board works, especially in the large South Island high country runs. To create a 'run plan', first a LUC survey of the property was undertaken by a soil conservator, then this was used to identify the soil conservation works and other land use practices that were needed. The philosophy of these run plans was that production benefits from farm planning and soil conservation would make up for the loss of benefits from grazing unsuitable land. After discussion with all parties, a run plan and grant proposal would be submitted to the SCRCC for approval. From 1962 to 1982, 1547 high-country run plans were subsidised by SCRCC and NWASCO in a total subsidy of over \$5m. The changes in land utilisation identified in these runs plans resulted in the retirement of some 480,000 ha from grazing under soil and water conservation plans.

This tradition has more recently resumed in modified form with the process of tenure review of leasehold high country runs carried out by the Commissioner of Crown Lands and the Department of Conservation in association with the leaseholder. Farm planning in the South Island high country also continued under the Rabbit and Land Management Project in the early

1990s. The plans produced were very comprehensive, in particular with some of the early use of financial planning and management modelling integrated with some of the more traditional fencing and pest control planning, with the overall objective of moving towards sustainable land management systems.

Turning back to the national scene, in 1961 the SCRCC produced a report on progress and targets in farm conservation plans, showing generally poor performance against targets which appear to have been very ambitious (Roche 1994, p86). Of about 41,100 farm holdings in 9 catchment districts (not covering the whole country), there were estimated to be about 9550 farm conservation plans needed, of which only 212 had been produced by 1961. Targets of a further 900 were set for the next 5 years, but by 1964 only about 280 of these were operating, less than a third of the target. (A later report quoted by Roche stated that 715 of the 900 had been completed by 1966.) There were high variations in both need and achievements between catchment districts (achievement of 1961-66 targets by 1964 ranging from 5% to 67%).

From the 1960s several North Island catchment boards, particularly the Waikato Valley Authority and Hauraki Catchment Boards developed large catchment schemes that were largely aimed at reducing downstream flood risk. Initiation of these catchment schemes was in part prompted by rapid post-war land development, with little regard to erosion potential of the lands (often with erodible pumice soils) being developed, resulting not only on-farm erosion but also serious downstream effects. Such areas included most of the dairying land in the Taupo District (e.g. the Reporoa Basin). The stability of the whole hydro-electric resources of the Waikato Valley could have been endangered if conservation measures were not incorporated on the land (McCaskill 1971). Nevertheless, both Roche and McCaskill document denial of soil erosion problems and opposition to the concept of land capability planning from land development interests and agencies until at least the 1960s.

In the upstream areas of the catchment schemes, there was extensive space and plantation tree planting and further downstream there was riparian planting as well as flood engineering works and stop banking. These schemes were probably the first to include developed dairy farms, as some of the smaller downstream properties.

In the late 1980s the national soil and water conservation organisation was disestablished and regional and unitary councils took over some of their functions under the Resource Management Act. Apart from the Rabbit and Land Management Programme, environmental farm planning suffered a sharp decline as regional councils restructured and national subsidies for farm planning and farm plan implementation were reduced and lost. However, since the mid 1990s there has been more activity and a greater diversity of types of farm plans, as summarised in section 3.3 above and discussed in greater detail in the next chapter.

## 4 Overview Of Current Regional Council Involvement In Environmental Farm Planning

### 4.1 Involvement in environmental farm planning

There are twelve regional councils and four unitary authorities in New Zealand. Ten of the regional councils have an involvement (to some degree) with environmental farm planning. The four unitary authorities do not have an involvement with environmental farm planning, although Nelson City Council has considered options of undertaking environmental farm planning on the very few farm properties in the Nelson North area in conjunction with Federated Farmers. The councils that do not carry out any environmental farm planning activities generally cite lack of resources as being the primary reason.

Prior to 1987, virtually all councils (or their catchment authority predecessor) carried out some type of farm planning works. However, most of these works ceased during the period 1987 to 1992 when Government grants were phased out.

**Table 1 Summary of environmental farm planning activity among regional councils**

Council	Environmental farm plans	Comment
Northland Regional Council	No	Limited resources, but encourages Landcare based activities
Auckland Regional Council	Yes	Technical or administrative assistance at this stage
Environment Waikato	Yes	Full assistance provided, including grant funding for works
Environment B-O-P	Yes	Full assistance provided, including grant funding for works
Gisborne District Council	No	Lack of resources to address problems using on-farm property plans
Taranaki Regional Council	Yes	Full assistance provided, including arranging grant funding for works
Horizons MW	Yes	Full assistance provided, including some grant funding for works
Hawkes Bay Regional Council	Yes	Technical or administrative assistance provided
Wellington Regional Council	Yes	Full assistance provided, including grant funding for works
Tasman District Council	No	Limited resources and wider range of priorities to address
Nelson City Council	No	Limited rural properties
Marlborough District Council	No	Limited resources and wider range of priorities to address
West Coast Regional Council	No	Limited resources and large area to administer
Environment Canterbury	Yes	Involvement with organisation of materials, contractors etc
Otago Regional Council	Yes (indirectly)	ORC helped to develop the Ag-vantage environmental management system so that farmers can implement their own plans
Environment Southland	Yes	Full assistance provided, including grant funding for works

The table above provides a summary of councils' involvement in environmental farm plans throughout the country. Many of the councils that are marked as not having an involvement have other programmes in place to deliver a range of services to rural landowners. These often include support for programmes such as care programmes (principally Landcare) or tree

planting support programmes. Also, free services are often provided in association with other Council functions (e.g. Gisborne District Council operates a free land use consent function that is used to provide farmers with practical on-farm advice for soil conservation matters and prudent land use).

## 4.2 Council assistance for environmental farm planning

The types of assistance provided for environmental farm planning range from minimal involvement such as co-ordination of works to full involvement with planning right through to assistance with funding works. A number of councils co-ordinate materials (such as planting material, fencing etc) and arrange high quality material at much reduced prices. Some of these methods are quite innovative and use plant materials from other organisations such as Tree Trusts or other programmes.

Where grant funding for works is provided, there is often a depth of background policy that belies the simplicity of the final grant rates. High grant rates for catchment schemes in the 1970s and 1980s (such as the Lake Taupo, Kaituna and Waihou valley Schemes) are no longer seen as being an appropriate way for funding on-farm works. While they have been shown to achieve positive environmental results, they create problems in terms of farmers taking ownership of the problem, as a full partner or stakeholder. Lower grant rates with a more equitable spread of funding encourage landowners to accept responsibility for environmental management on their property, with councils seen in a more “supporting” role rather than “big brother” role. Compounding this rationale is the fact that most high grant rate schemes were driven by community aspirations rather than individual farmer concerns. The farm plans carried out under scheme works were often seen as being “foisted” on farmers whether they were willing or not. Under current Council policies, most environmental farm plans are voluntary, with the initial request coming from the farmer, and the Council therefore “supporting” the farmers aspirations. (Comments from farmers stress that it is important to keep environmental plans totally voluntary.)

Some councils have also provided innovative approaches to funding. Environment B-O-P has developed its environmental plan policies in close co-operation with district councils, such that a number of district councils in the Bay of Plenty region have supporting funding policies that can be used in conjunction with Environmental Programmes. Generally the funding provided by the district councils supports works that address their particular concerns (such as protection of significant heritage sites or natural features). Many councils have close co-operation with other programmes such as those operated by QE II National Trust or Nga Whenua Rahui.

There are also differences between councils in respect of maintenance of on-farm works. Most councils have an on-going involvement with works in the longer term. This may range from minimal involvement (such as occasionally inspecting the works to provide advice and check on their success) to programmed checking and management in the long term. Environment Waikato has a comprehensive programme of “asset management” for all of their completed scheme works that even involves provision of grant funding for maintenance.

**Table 2 Environmental farm plan survey responses**

Question 1.

Does your Council undertake or support on-farm property planning?

	ARC	Env Waikato	Env BOP	HBRC	Taranaki RC	Horizons MW	Wellington RC	Ecan	Otago RC	EnviroSouth
Farm Plans		Yes		Yes	Yes	Yes	Yes			Yes
Environmental Plans	Yes		Yes	Yes	Yes	Yes		Yes		Yes
Riparian Plans		Yes			Yes	Yes	Yes	Yes		Yes
Other						Yes (DIY)	Yes		Promote Agvantage	

Question 2. What type of assistance does your Council provide?

	ARC	Env Waikato	Env BOP	HBRC	Taranaki RC	Horizons MW	Wellington RC	Ecan	Otago RC	EnviroSouth
Technical/Admin assistance	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes
Organisation of materials/contractors			Yes		Yes	Yes	Yes	Yes		
Assistance with funding of farm works		Yes	Yes		Yes	Yes	Yes			Yes
Other			Contestable environmental enhancement fund available for community driven issues					Contestable environmental enhancement fund available for biodiversity issues	ORC helped develop Agvantage system for farmers to pick up on	

Question 3.

3.1 Types of farm where property plans have been traditionally carried out.

	ARC	Env Waikato	Env BOP	HBRC	Taranaki RC	Horizons MW	Wellington RC	Ecan	Otago RC	EnviroSouth
Drystock	Yes	Yes	Yes	Yes	Yes	Yes	Yes			
Dairying		Yes			Yes		Yes			
Mixed pastoral/cropping					Yes	Yes	Yes			Yes
Any rural property			Yes		Yes			Yes		Yes
Other	Yes (Outdoor vegetable production)					Yes - Special purpose reserves etc				Yes Urban

3.2 Types of property where assistance would be provided if requested.

	ARC	Env Waikato	Env BOP	HBRC	Taranaki RC	Horizons MW	Wellington RC	Ecan	Otago RC	EnviroSouth
Drystock				Yes			Yes			
Dairying							Yes	Yes		
Mixed pastoral/cropping							Yes			
Any rural property	Yes		Yes		Yes	Yes				Yes
Other		Yes Any rural property where stock is carried						Lifestyle		Yes Urban

Question 4. Support provided to LandCare or other types of care groups

	ARC	Env Waikato	Env BOP	HBRC	Taranaki RC	Horizons MW	Wellington RC	Ecan	Otago RC	EnviroSouth
Active participant with facilitation and admin support	Yes	Yes	Yes			Yes	Yes	Yes	Facilitation support	Yes
Supports with technical input	Yes	Yes	Yes	Yes		Yes	Yes	Yes		Yes
No support					No support					
Other										
Linkage between Care groups and Env Farm Plans	Possible in future	Sometimes, Yes	Yes				Provides funding	Yes		

Question 5. Effectiveness in Achieving Environmental Outcomes

5.1 Monitoring of Farm Environmental Plans

	ARC	Env Waikato	Env BOP	HBRC	Taranaki RC	Horizons MW	Wellington RC	Ecan	Otago RC	EnviroSouth
No monitoring				No monitoring				Some monitoring	No monitoring	
Compliance monitoring of works		Yes	Yes		Yes		Yes			Yes
Performance effectiveness monitoring		Yes - 3 yrly for scheme works			Yes	Yes	Yes			
Other	Regional land & soil health monitoring									

5.2 Legal agreement to secure works

	ARC	Env Waikato	Env BOP	HBRC	Taranaki RC	Horizons MW	Wellington RC	Ecan	Otago RC	EnviroSouth
No agreement	No agreement			No agreement		No agreement			No agreement	
Informal agreement	Trees for survival	Yes					Yes			Yes
Formal agreement (legally enforceable)		Yes	Yes							
Other		Investigating legal options – To apply agreements when works exceed \$10,000			Binding agreement when Council contributes public funds to project			Agreement for Env Enhancmt Funded works	QEII used when funding provided for wetlands or biodiversity protection	

5.3 Policies and/or methods in regional plans that support or are complementary to Environmental Farm Plan approaches.

	ARC	Env Waikato	Env BOP	HBRC	Taranaki RC	Horizons MW	Wellington RC	Ecan	Otago RC	EnviroSouth
No policies										
Yes, policies		No specific	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Link Farm Plans with permitted or controlled activities	Yes, Proposed Air Land & Water Regional Plan cites Farm Plans as a method that will be utilised to promote sustainable land and soil management	Yes, implicit that farm Env Plans will be the vehicle to promote sustainable land and water mngmt	Yes	The plan infers that plans are one of the tools used by LM officers to encourage farmers to achieve more sustainable land uses.	Yes				Policies refer to education, of which Env farm Plans are seen as one of the approaches	

Question 6. Criteria or issues addressed in Environmental Farm Plans

	ARC	Env Waikato	Env BOP	HBRC	Taranaki RC	Horizons MW	Wellington RC	Ecan	Otago RC	EnviroSouth
Stream margin protection	v	v	v	v	v	v	v	v	v	v
Erosion problems	v	v	v	v	v	v	v	v	v	v
Control of farm runoff	v	v	v		v	v	v	v	v	v
Protection of springs or wetlands	v	v	v	v	v	v	v	v	v	v
Water supply	v	v	v			v		v	v	
Water quality	v	v	v		v	v	v	v	v	v
Pest plants	v	v	v		v	v	v	v	v	v
Pest Animals	v	v	v		v	v		v	v	v
Use of chemicals	v					v		v	v	v
Farm dumps	v							v	v	v
Offal holes	v							v	v	v
Disposal of effluent	v							v	v	v
Protection of landscape or heritage values	v		v		v			v		v
Protection of forested remnants and other natural features	v	v	v	v	v	v	v	v	v	v
Other biodiversity management	v	v	v		v	v	v	v	v	
Tree planting	v	v	v	v	v	v	v	v	v	v
Animal welfare						v				
Fertiliser management	v					v		v	v	v
Soils management	v				v	v	v	v	v	v
Nutrient management	v					v		v	v	v
Land and soils capability	v		v	v	v	v	v			v
Other	Holistic approach	Primarily target water and soil issues								

ARC: Auckland Regional Council  
 Env Waikato: Waikato Regional Council  
 Env BOP: Bay of Plenty Regional Council

HBRC: Hawkes Bay Regional Council  
 Horizons MW: Manawatu Wanganui Regional Council  
 Ecan: Canterbury Regional Council

EnviroSouth: Southland Regional Council  
 DIY: Do it yourself (landowners own plans)

Where councils provide grant funding for environmental farm planning, there is an acceptance that there is a measure of community or off-site environmental benefit that accrues from the work. The grant money is therefore provided in recognition of that community benefit. Community funding of environmental farm planning is also thought to provide an incentive to landowners to undertake the implementation of the plan.

When Environment B·O·P developed their policy of providing grant funding, they commissioned Massey University to undertake a Cost Benefit analysis of the works undertaken, using information derived from a programme of surveys, and results of the Kaituna Catchment Control Scheme (Weber et al 1992). This information was extrapolated to cover the wider Bay of Plenty. The net result was that investment in Farm Plan works was considered to be of benefit to the Bay of Plenty community. The study included a contingent valuation exercise, which concluded that ratepayers in the Bay of Plenty were willing to invest over \$2 million per year to have such work continue.

Councils that fund environmental farm plan works have generally supported the concept of targeting activities where there is a greater off-site or community benefit. Works such as protection of riparian areas or headwaters of catchments are more likely to be supported, rather than other works (such as pole planting on marginal hill country), where there may be a higher on-farm benefit. Riparian protection in particular stands out as providing good value for money (for community investment). This relates to a number of issues including the following:

- Water is a public resource rather than a private resource;
- Riparian protection involves the management of a relatively small area of land that can potentially provide a wide range of benefits out of all proportion to the investment involved;
- Conversely, mismanagement of riparian areas can have severe adverse off-site effects.

A number of regional councils have contestable environmental enhancement funds that may be used for a range of purposes. While these are not generally available for environmental farm planning, they are normally available for community initiatives. This may involve protection of native bush on properties to help protect particular indigenous flora or fauna. This, in turn, may also support environmental farm planning that has been carried out on individual properties.

Otago Regional Council has taken an innovative and influential approach to environmental farm planning, even though its current activity is low. The council helped to develop the Ag-vantage environmental management system for farms, in conjunction with the North Otago Sustainable Land Management Group (see section 3.3.6). The Ag-vantage system is available over the Internet for any farmer to access and use. The *'Market Focused'* programme adopted by Fonterra (section 5.3) was originally based on the Ag-vantage model. Otago Regional Council have essentially helped develop a model for farmers to help themselves, and the Council encourages farmers to take up the Ag-vantage approach to achieve better environmental outcomes. However it appears that more recently, farmer uptake of Ag-vantage beyond the original NOSLM group has been slower than hoped for.

### **4.3 Types of farms where environmental farm planning is carried out**

Historically, councils have undertaken environmental farm planning by on hill and high country properties. The main reason for this is that farm plans have traditionally been soil conservation plans targeting soil erosion problems. Dry stock farms on steeper hill country have therefore been the main area where farm plans have been undertaken. Although many councils now offer

support for environmental farm plans to a range of rural properties, it appears as though most councils still undertake most of their environmental farm planning on dry stock farms / hill country properties, and that this is still where the greatest council expertise is. The main exceptions to this are Taranaki Regional Council, Environment Waikato and Environment B.O.P. Taranaki Regional Council undertake a programme of Riparian Plans on dairy farms based on the ring plain of Mount Taranaki. Last year’s programme resulted in 70 Riparian Plans being produced and implemented. New procedures are being trialled to try and substantially increase that output. Environment Waikato have embarked on a \$10 million “Clean Streams” programme over the next 10 years targeting the fencing of streams in the region. Environment B.O.P have prioritised particular catchments for targeting more resources under their Environmental Programmes.

## 4.4 Components of environmental farm planning

Environmental farm plans can include a number of management aims. These have been set out below under generic headings and are generally arranged in order of priority based on the responses received from the survey results from the ten councils around the country who have an involvement with environmental farm planning. The different aims or issues are rated on a straight pro rata basis, (in brackets) according to how many of the 10 councils marked down that they were issues included in their environmental farm plans.

### 4.4.1 Water management

- Stream margin protection (10/10)
- Control of farm runoff (10/10)
- Protection of springs/wetlands 10/10)
- Water quality (9/10)
- Water supply (6/10)

Water management (including protection of water resources) is rated highly as a priority to target under environmental farm plans. Provision of on-farm water supply is not quite rated as high as protection of water resources.

### 4.4.2 Soil management and/or soil conservation

- Erosion control (10/10)
- Tree planting (10/10)
- Soils management (7/10)
- Land and soils capability assessment (6/10)

Soils management and soil conservation issues are also rated highly as a priority under environmental farm plans. Land and soils capability assessment is not rated quite as high, although it is still an issue for 6 out of 10 of the councils.

### 4.4.3 Pest management

- Pest plants (9/10)

- Pest animals (8/10)

Control over pest plants and animals are rated highly as a priority under environmental farm plans.

#### **4.4.4 Management of natural features, biodiversity or natural heritage values**

- Protection of forest remnants and other natural features (10/10)
- Other biodiversity management (8/10)
- Protection of landscape or natural heritage values (5/10)

Management of forest remnants, natural features and (indigenous) biodiversity scored very highly as a priority for environmental farm plans. Protection of landscape or natural heritage values did not rate quite as high.

#### **4.4.5 Pesticide/Agrichemical management**

- Use of chemicals (5/10)

Pesticide / agrichemical management is seen as moderately important, with 50% of the councils including it as an issue to be addressed.

#### **4.4.6 Fertiliser management**

- Fertiliser management (5/10)
- Nutrient management (5/10)

Management of fertilisers and nutrients is included as an issue for 50% of the councils. It is likely that this issue will become increasingly important for farmers who are concerned with cost-efficient levels of application and well as for some councils, where high quality water resources (such as lakes) are at risk from high nutrient loads as a result of intensive land uses within the contributing catchment. This is exacerbated by the trend to urea application in some areas.

#### **4.4.7 Effluent management**

- Disposal of effluent (4/10)

Management of effluent is only included as an issue for 40% of the councils. Traditionally, effluent disposal is managed under a regulatory approach, and the response is likely to be a confirmation of that approach continuing at least in the medium term.

#### **4.4.8 Waste management**

- Farm dumps (4/10)
- Offal holes (4/10)

Management of waste on farms is an issue that is only addressed by 40% of the councils under an environmental farm plan approach. Presumably, waste management is also likely to be managed under a regulatory approach rather than environmental farm plans.

#### **4.4.9 Animal welfare**

- Animal welfare (1/10)

Animal welfare issues were addressed by 1 out of the 10 Councils. Animal welfare issues are clearly not seen as an environmental issue.

#### **4.4.10 Summary of environmental farm plan components**

Most regional councils that carry out environmental farm planning have concentrated on traditional regional council responsibilities (soil conservation, water quality, pest management) as the main areas of concern. However, other matters such as biodiversity, natural heritage and protection of significant natural features also rate highly. Issues such as effluent management and waste management have normally been managed by regional councils under a regulatory approach, and there appears to be less acceptance that these could be covered under environmental farm plans, which are voluntary, and adapted to suit each property.

### **4.5 Linkages between environmental farm planning and care groups**

Nine out of the ten regional councils that replied to the survey confirmed that they had an involvement with Landcare or other types of care group activities. The exception was Taranaki Regional Council, where there were no Landcare group activities. However, it is interesting to note that much of the on-farm work carried out by Taranaki Regional Council is based on communities with a common catchment interest such as the Tawhiti Riparian Project.

There is clear evidence from regional councils and the Landcare Trust that many Care Programmes are operating successfully around New Zealand. It is also self evident that relatively minor input from regional councils can have substantial benefits in terms of influencing positive environmental outcomes. The involvement of large numbers of people active in Care Group activities has other spinoff benefits such as wider community ownership of environmental concerns, and a more knowledgeable and environmentally aware community.

While environmental farm planning is generally seen as dealing with issues on a property by property basis (i.e. one on one), Care Programmes deal with communities of interest, and can be very successful where there is a clear issue of concern that the group can focus on. The issues addressed by environmental farm planning are often not quite as clear cut, and are often influenced markedly by the personal goals of the farmer and family.

Half of the councils surveyed have linkages between environmental farm planning and Care Groups. As an example, Environment Waikato give higher priority to resourcing areas where there are active Care Groups as it is seen as a good investment and on-farm works will have a higher chance of success. Environment Waikato has also trialed the concept of landowners producing their own environmental farm plans at Mahoenui (south of Te Kuiti). The initiative involved a substantial amount of staff time and had mixed success, partly due to the more complex geology and soil types in the area. Consideration is being given to pursuing a similar approach for riparian protection works with Care Groups under the Clean Streams Programme,

as Environment Waikato staff feel that riparian projects should be simpler to plan and implement.

## 4.6 Environmental farm planning effectiveness in achieving environmental outcomes

Regional councils have patchy records documenting the effectiveness of activities such as environmental farm planning, although there are some very good records relating to the farm plan coverage, and the type and amount of works carried out. However, there is ample evidence to show that many of the management practices and erosion control works carried out under environmental farm plans to address water quality and soil erosion are successful. Riparian protection works carried out under the Kaituna Catchment Control Scheme during the 1980s were essentially carried out as Farm Plans. In comparing water quality information before and after riparian protection work, a NIWA study (Williamson et al 1996) showed that specific yields of suspended sediment appeared to be reduced by 85%, particulate P by 27%, soluble P by 26% and possibly particulate N by 40%, as a result of the stream protection works.

As an example of earlier economic evaluation of farm plan-led conservation works, an ex-post evaluation was carried out in 1981 of the Wither Hills catchment control scheme, Marlborough (Hadfield 1981). This evaluation found that the Internal Rate of Return on the investment in the scheme (through reduced erosion and improved pasture growth allowing a doubling of stock-carrying capacity) was 8%, not including urban off-site benefits.

The survey of councils undertaking environmental farm planning showed that most councils (8 out of 10) undertook some form of monitoring to check on the status or effectiveness of works carried out on farms. Follow up discussions with a number of councils confirmed that works were assessed generally on an annual basis when reviewing the success of the previous year's work and confirming work to be undertaken over the next season. Environment Waikato carries out full assessment of scheme works every 3 years as part their asset management responsibilities.

Regional councils undertake State of the Environment monitoring. Assessment of environmental farm plan coverage coupled with water quality data over time is one method of monitoring effectiveness in the medium to long term. Land-based monitoring is not as advanced as water-based monitoring. A group known as the Regional Council Land Monitoring Forum was established as recently as 1999 to look at methodologies and approaches to land based monitoring, because of this need.

One aspect of environmental farm plans that is critical is that their success can only be measured in the long term. On-farm works that may be in excellent condition two years after implementation will need to be kept in good condition for decades to be effective. Works involving fencing, planting, structures, etc will need to be maintained and replaced if necessary over time. In this respect, long term management of works is a critical element in achieving successful environmental outcomes. Potential problems such as changes in land ownership, different farming practices over time, poor maintenance of works can contribute to failure of the works. Many councils address these concerns by having monitoring programmes in place to maintain contact with the landowners. In addition, a number of councils use agreements that are registered on the title (such as QE II covenant, Kawenata, Memorandum of Encumbrance etc). Traditionally, many councils used a formal Land Improvement Agreement under the Soil Conservation and Rivers Control Act 1941. However, these were not replaced with a suitable alternative mechanism following the demise of government grants, and the enactment of the Resource Management Act 1991. The regional councils' Land Managers Group is currently

discussing options for agreements between landowners and councils in respect of on-farm works.

All of the regional councils who responded to the survey indicated that they had policies in regional plans that support environmental farm plans or are complementary to them.

## 5 Other Organisations' Involvement In Environmental Farm Planning

### 5.1 Overview of On-Farm Quality and Environmental Management (EMS) Systems

A number of primary industry sectors have voluntarily developed EMS-type programmes. Many have been established for some years and are working well, including:

- the dairy industry, with Fonterra/Dexcel's 'Market Focused' Environmental Quality Management System (see section 5.3)
- the wine grape sector's integrated wine grape production system, now called "Sustainable Winegrowing"
- the kiwifruit sector's Customer Gateway Programme, with a "KiwiGreen" component
- the meat sector's 'Green Project'
- the pipfruit sector's 'ENZA Way'
- a group of southern North Island wine producers and a diverse group of primary producers in North Otago have both achieved group certification to ISO 14001
- Organic producers' certification processes
- the New Zealand forest industry has wide adoption of EMS, as well as Forest Stewardship Council certification
- the New Zealand Deer Farmers Association have their own Quality Assurance Programme.

In some sectors, compliance with the programme is a pre-requisite for supply to the exporter; in others, adoption is voluntary.

In support of such EMS processes, a number of nutrient, fertiliser, grazing and water management programmes have been developed by Crown Research Institutes and industry research groups to assist in optimising management. See section 5.4.1 for discussion of one such example for nutrient budgeting.

### 5.2 Ministry of Agriculture and Forestry (MAF)

Most of the primary industry initiatives have received support from the Ministry of Agriculture and Fisheries. One interesting initiative of the Ministry itself is the Sustainable Agriculture Management Systems Network (SAMSN). SAMSN began life in 1997 as the Quality Assurance/Environmental Management Systems (QA/EMS) Group (Morriss *et al* 1998).

The SAMSN group works across sectors and aims to:

- encourage best practice in sustainable management systems, while
- minimising compliance costs.

MAF Policy facilitates the SAMSN group and provides secretarial services, but views the group as owned and driven by the sectors involved. Participants are people interested in primary sector sustainable management systems and include:

- representatives from the meat, wool, dairy, deer and various horticultural sectors
- some regional council staff
- service providers such as AgriQuality and QCONZ
- AgResearch scientists
- representatives from MAF and MfE.

The SAMSN group provides a forum for learning about progress in other sectors and enable networking to informally improve co-ordination and consistency between related sectors. The participants consider that management systems on farms need to be integrated, so quality management, environmental management, animal welfare and human resource management are all part of the sustainable management picture.

The advantages of the Group’s approach to providing a ‘common song-sheet’ for sustainable management systems and reduced compliance costs are that it:

- is voluntary and informal, and therefore more likely to be acceptable to sectors
- has wide representation across the sectors
- does not seek to change existing sector systems, nor to erode the competitive advantage generated by individual company systems, but simply to provide a best practice benchmark for them
- sets a foundation on which future initiatives may be established if the need arises such as an overarching brand such as the UK’s ‘Little Red Tractor’.

### 5.3 The New Zealand dairy industry

The New Zealand dairy industry has developed an Environmental Quality Management System called “*Market Focused*” for New Zealand dairy farmers. Farmers can use *Market Focused* to address on-farm environmental and animal welfare issues to meet industry policies and guidelines. Environmental issues recognised in the industry’s environmental policies and addressed by *Market Focused* include:

- Residues in milk and meat products
- Avoidance of human waste from pastures
- Control of stock access to wetlands
- Disposal of farm dairy effluent
- Maintenance and enhancement of water quality
- Management of fertiliser usage.

*Market Focused* consists of 2 modules with the second module in the final stages of completion. Module one is a 16 page folder providing a format for recording industry and farmer objectives, management practices, monitoring and self-assessment on each issue. It is a starting point for effective environmental and animal welfare management on the farm. Examples of areas that are covered include water management, soil management and animal husbandry. It encompasses all the Dairy Industry environmental policies and guidelines and helps farmers to align these

with their on-farm practices. It is capable of being audited by a third party if necessary. Module two is a more comprehensive and critical identification of individual farm environmental issues. It is on a computer CD and can lead to full environmental accreditation if the individual farmer wishes.

Fonterra Co-operative Group is the company representing over 95% of the dairy farmers in New Zealand. Fonterra is not making it mandatory for dairy farmers to adopt Market Focused, as there are other mechanisms through which farmers could choose to adopt the industry's policies. Fonterra has not made the industry policies a condition of supply, although it appears probable that this will happen at some stage in the future. As of June 2003, Fonterra will be testing for compliance with industry policies, but there will not be any formal compulsion for suppliers to comply. The other two dairy companies in New Zealand are Westland Milk Products and Tatua Co-operative Dairy Company Limited. Westland Milk Products has also endorsed the Market Focused approach but has not made it mandatory for conditions of supply. Tatua Dairy Company has made the industry policies a condition of supply.

It is likely that over the next few years, industry requirements will result in more pressure for dairy farmers to adopt some form of environmental management system (capable of independent audit) to meet the industry policies and guidelines.

## 5.4 Other initiatives

### 5.4.1 Industry-initiated projects

The New Zealand Deer Farmers Association has developed a Quality Assurance Programme that was initially developed for animal health reasons, and has expanded to cover wider aspects of deer farming. The Association is currently developing a more robust environmental component for the QA programme. The programme is audited by qualified auditors appointed by the Association.

Landcorp has an environmental management system called FarmPride. The programme covers product quality, customer satisfaction, environmental responsibility, animal welfare and animal health. The environmental component of the overall programme covers statutory obligations, water quality, landscape protection and enhancement, soil protection and erosion control, and air quality.

The Green Project is a programme aimed at developing a minimum (voluntary) standard for sustainable production on sheep, beef, deer and goat farms. The programme is funded by MAF policy, Sustainable Farming Fund, The Business Council for Sustainable Development, and Richmond Meat Company. The project has involved input from sheep and beef farmers from the North Island, and land managers from a number of regional councils. The standards revolve around three plans:

- Animal management
- Land and environment
- Social responsibility

The Land and Environment plan is based around an environmental farm planning process and farm map production. The programme has involved input from the farmers throughout the whole development process. It is also seen as critical that the standards will require the development of an audit system capable of independent verification.

The Bio-Gro organic certification agency uses farm planning as an integral part of its certification process. All applicants must prepare a comprehensive sustainable land management plan for their whole property, including sections on waste and energy management, soil and fertility management and water supply, ecological values and management of natural areas on the farm. Many of these aspects are to be recorded on a property map. The system module in the certification standard has a strong emphasis on sustainable land management on the whole farm, including biodiversity aspects.

Overseer Nutrient Budget Programme is a software package developed by AgResearch in conjunction with MAF Policy, FertResearch, Ministry for the Environment, HortResearch, Crop & Food Research. The nutrient budget software contains 3 sub-programmes to calculate nutrient budgets for pastoral, cropping or horticultural systems. The Overseer programme calculates inputs and outputs of nutrients (N, P K and S) from data supplied for a particular farming enterprise. The programme presumes “best management practices” are followed. There is a section for Environmental Nitrogen (including a section dealing with farm dairy effluent). Losses or gains of nutrients are shown in summary tables that can be specifically set up to cope with separate blocks within a farm property.

## 5.4.2 Regional council initiatives

Regional councils are looking at industry initiatives that will support sustainable production. While rules in regional plans have the ability to make particular activities permitted, subject to meeting minimum environmental standards, there are councils considering the use of industry quality assurance programmes as one method of meeting those environmental standards.

For example, Environment B-O-P notified the Proposed Regional Water and Land Plan for the Bay of Plenty Region in February 2002. Rules 7, 8 and 10 of the plan deal with the adverse effects of stock on land and beds of streams or rivers. The rules provide disturbance of streambeds by stock to be a permitted activity subject to a range of minimum standards, or alternatively to the landowner implementing approved “Farm Quality Programmes”. A Farm Quality Programme is defined in the plan as:

- (a) An operative Environmental Programme or Property Plan; or*
- (b) An operative Quality Assurance Programme with a robust environmental component that is operated by an appropriate sector of the farming industry that is listed in Schedule 9; or*
- (c) A specific operative environmental management plan for an area of land that is listed in Schedule 9.*

Industry groups are able to apply to have their environmental management systems included in Schedule 9 of the regional plan.

A further example is provided by Environment Waikato’s rules for effluent irrigation to land. Spraying of up to 150/kg N/ha/year is a permitted activity, but the landholder must keep adequate records to show that this level is not being exceeded. A farm plan showing the location, area, dates and rates of effluent irrigation is accepted as a suitable way of presenting this information.

## 5.5 A summary of Australian experience

Farm planning has evolved in Australia similarly in some ways to New Zealand, but also with some interesting differences particularly in the last decade or so. As in New Zealand, farm

planning emerged formally in the early 1950s, with an early emphasis on soil erosion control in the moister and hillier districts of South-East Australia (Campbell 1994, p139). The plans (generally called property plans in Australia) were largely prepared by government catchment authority staff using land use capability assessment as the basis for plan development. Early plans focused on erosion control works, then evolved to include aspects such as property layout, water conservation, tillage methods, pasture development and soil management.

In the 1970s property planning broadened out. Farm management consultants began to offer production-oriented planning advice, and there was much more emphasis on surface hydrology. The potential of computer-based and, later, GIS-based farm planning seems to have been realised earlier than in New Zealand and farm plans began to incorporate early decision support models.

State government agencies in Western Australia, Victoria and Queensland began to develop self-help farm planning courses and resource material in the late 1980s, and most significantly, the Potter Farmland Project ran a series of short courses in ‘whole farm planning’ at which groups of farmers, usually from the same district, were guided through the farm planning process together for half a day per week over six to eight weeks.

*“The interaction between course participants was enlightening. It exposed the benefits of looking with fresh eyes at another’s problems and the willingness of farmers to be more adventurous in their exploration of possibilities for the management of land other than their own” (Campbell 1994, p140).*

As the Potter Farmland Project was a seminal development in the early progress of the Australian Landcare movement, this ensured that there has been a strong connection between farm planning and Landcare groups ever since. Landcare group facilitators, probably in every state, run property planning courses. For example, in the early 1990s the NSW Department of Conservation and Land Management offered either a full property planning service for a fee, or a planning kit with which the farmer could work through the planning process with on their own or together with neighbours or Landcare group members, with the assistance of CALM professionals. This approach enables far more landowners to be reached than the traditional one-on-one service did. In many states, large numbers of farmers in Landcare groups participated in farm planning exercised that are consciously seen as part of a whole district approach, ensuring that “individual farmers’ action make sense when considered at the catchment level” (Campbell 1994, p45).

Campbell (1994) has summarised the evolution of Australian farm planning in conjunction with Landcare. His analysis can be summarised as follows:

- A move away from ‘fixing’ land degradation problems towards developing better land management systems.
- Greater emphasis on integrating production and financial management into the property planning process.
- Consideration of a much wider range of environmental and other farm management issues (similar to the range now offered in New Zealand comprehensive farm plans such as Environment BOP’s environmental plans).
- A continual shift in the degree of participation in, and ownership of, the planning process, away from public servants towards land users.
- Acceptance of catchment and/or district plans which build on individual property plans, which encompass broader environmental issues and sometimes recognise social issues.

- Increasing emphasis on process and flexibility of output. The presentation of the plan is less important than the changes which occur inside the planners' heads and those which are subsequently implemented on the ground.
- Land conservation institutions are learning to respond to requests for assistance rather than designing and running their own planning services.
- The artificial line between researcher, extension agent and land user is being blurred and in some cases dissolved through the planning process. Property planning is now seen as much more of an ongoing learning process.

More recently, the Action Plan for Australian Agriculture has identified that Property Management Planning (PMP) has a critical role in moving Australia's agricultural industries towards a sustainable future. As a result, the PMP process appears to have become considerably more formalised nationally, as a major project of the National Landcare Programme facilitated nationally by the Natural Resource Management Policy Division of the Federal Department of Agriculture, Fisheries and Forestry and implemented by a variety of state extension agencies. There are more than 160 PMP facilitators nationally involved with PMP, and thus PMP appears to be at the core of rural extension services.

In 1999 the Sustainable Land & Water Resources Management Committee produced a national strategy for facilitating change management for family farm businesses (SLWRMC Secretariat 1999), which highlights "an approach to farm extension that creates change in the way rural business people plan and manage their business, largely based in the enhancement and effective use of PMP methodology across a range of extension programmes". The direct strategy outcomes are:

- Farm families effectively managing and creating change;
- Sustainable natural resource management;
- Enhanced farm business economic performance and growth; and
- Farmers highly valuing learning and recognising the true cost of learning.

The contribution PMP has to make to extension delivery has been recognised by a number of industry funded extension programmes, which have sought to have their participants also take part in the PMP process. These programmes include "Dairy Business Focus", developed by the Australian Dairy Research and Development Corporation. Participants in "Dairy Business Focus" appear to have successfully incorporated environmentally sustainable agricultural practices into a clearly production-driven but integrated farm management vision (National Farmers' Federation 1999).

In summary, from this brief and selective survey of farm (property) planning in Australia, there are a number of developments that could be relevant to the use of farm planning for the dairy sector in New Zealand. These principally include:

- Early and continuous attention – for well over a decade – to the integration of physical and environmental planning with business and financial planning;
- Strong institutional support at State and Federal level for Property Management Planning.
- Very strong tie-in with Landcare activities, with a lot of emphasis on group and self-help farm planning, and individual farm plans seen as being components of district or catchment plans.

However, it is not clear what priority is attached to environmental sustainability within this integrated approach. A recent New Zealand study tour in New South Wales, South Australia

and ACT (Eyles 2002) noted, generally, a marked retreat from the strong comprehensive farm planning being carried out in the early 1990s, as discussed above. Except where comprehensive farm planning is required as part of a catchment programme, because of resource constraints field staff appeared to concentrate on simplified methods and ‘coat-tailing’ onto industry QA programmes. It is also possible that different funding streams going towards facilitation of Landcare programmes and implementation of PMP has meant that the integration of environmental and business planning at farm level is not as strong on the ground as it is intended to be.

## 6 Discussion

The previous two chapters have shown the relatively wide range of property plans in operation or under development at present in New Zealand and Australia. The aspects of property plans coverage discussed in Chapter 4.4 suggest that property plans can be a useful mechanism for many aspects of sustainable land management. They are also an effective method of documenting environmental issues and management approaches to environmental issues on a property basis in a simple but integrated and effective way.

In particular, property planning has been claimed to be an especially useful mechanism for bringing biodiversity management considerations into production land management (MAC 2000; Boffa Miskell 2000; Blaschke 2002). However this is probably not the most pressing priority in dairy sector environmental management, as expressed in dairy industry environmental policies, at present. The extent to which property planning can fulfil the current priorities is discussed in the following sections.

### 6.1 Types of environmental farm planning and suitability for the dairy sector

It can be seen from discussion in preceding chapters that most existing environmental farm plans have remained close to the traditional soil conservation plan typically developed for hill country properties on which erosion was regarded as the principal long-term constraint to use. There are now, however, a number of exceptions to the traditional model, principally:

- Taranaki Regional Council riparian plans: these are highly effective for their purpose and at present are the only kind of operational property plans which are designed for and carried out principally for dairy farms.
- Environment B·O·P Environmental Programmes: these are targetted at a range of farm types including dairy farms and designed to cover a number of environmental issues other than soil erosion.
- Environment Waikato property plans which are due to expand to cover dairy farms.

There are of course a number of different farming systems within the dairy sector and we should not expect them to have the same environmental characteristics, nor should we expect that they do not have an erosion constraint or potential erosion constraint. For example, as dairying expands onto more marginal land, stocking rates increase or some type of dairy stock go onto more erodible land, erosion constraints may arise which are far more significant than in traditional farming districts. In addition, runoff land is often steeper than the land on which milking cows graze, or calves go onto hill country for winter rearing.

Therefore, not all types of environmental farm plan described in Chapters 4 and 5 would be suitable for the dairy sector. However, in the main, the most important environmental issues to be addressed are likely to be those discussed in the next section, with a focus on water, soils and nutrient management.

### 6.2 Criteria for environmental farm plans for the dairy sector

From consideration of the environmental factors addressed in current farm plans, as discussed in Chapters 4 and 5, and our discussions we consider that the following are the core criteria or

issues that would require attention in comprehensive environmental farm plans for the dairy sector:

- Soils and capability assessment: the basic resource mapping component of farm plans, consisting of some element of soil mapping, and some element of land capability assessment (in New Zealand most likely to be land use capability).
- Soils management: some assessment of soils and description of management required to address soil properties and variability across the farm.
- Control of farm runoff: Show watercourses/drains on map and assess how water flow into these is to be managed to avoid water erosion. Any other erosion issues to be addressed also. In a number of areas subsurface drainage has been widely adopted in dairy and intensive farming areas such as Southland. Subsurface drains, either piped or mole plough, also contribute to point source discharges from a drainage viewpoint. This also has an effect in Stream Margin Protection and Disposal of Effluent and Nutrient (below) from ‘on paddock’ where high concentrations of animals introduce nutrients and waste into the soil and water environment.
- Irrigation: Irrigation for increased pasture production is becoming a widespread activity in some dairying districts. Almost all irrigation is subject to consent. There are issues of over watering, and the leaching of nutrients and decline in soil condition to be addressed with groups using these systems.
- Stream margin protection and water quality: Riparian management: identifying and addressing fencing of riparian margins and planting of riparian strip. Management of any riparian margins which are not to be fenced, e.g. ephemeral waterways, streams which are rarely used by stock. Addressing any water quality issues on farm and any water testing required.
- Disposal of effluent: Indicate location of cowshed effluent treatment and disposal and any other point source discharges.
- Biodiversity management: Indicate significant remnants of indigenous habitat, animal habitat etc and indicate any fencing or other protection to be undertaken. Indicate pest management, at least of pests (plant and animal) that affect farm operations or new tree planting etc).
- Nutrient and fertiliser management: Budgetting of content and rate of application of optimum nutrient and fertiliser levels, and indication of where fertiliser is to be applied. Includes planning for dealing with concentrations of animal nutrients from “hotspots” around farm: races, water troughs, etc. This element of farm planning was often not dealt with in traditional soil conservation plans, but has been well dealt with recently by a number of fertiliser and nutrient management programmes.
- Use of chemicals: Planning for dealing with other chemicals used in farm operations, eg pesticides and herbicides, animal health products, cowshed chemicals, etc.

More comprehensive environmental farm planning would address aspects such as animal welfare, more comprehensive biodiversity protection and pest management (e.g. covenanting arrangements, control of ‘conservation’ rather than ‘production’ pests), water supply, waste management and energy usage.

In order to be incorporated into a farm’s business operation, all these elements need to be costed, and this is the aim of the current AgResearch project (MacKay *et al* 2002) that is complementary to this project. In other words, environmental planning needs to be linked to financial and business planning, and this may require modification of financial decision support models such as Stockpol that are widely used for farm management planning. The above list is

very similar to that used by AgResearch to base costing of environmental best practice, but were independently derived.

### 6.3 Availability and uptake of assistance for environmental farm planning for dairy farms

The regional council responses to our questionnaire (Questions 2 and 3) clearly show that a wide range of assistance is potentially available to a range of farms in the regions where farm planning is supported, including for dairy farms. However it is equally clear that dairy farmers do not commonly take up this assistance.

The reasons for lack of uptake by dairy farmers are complex. They probably relate in large part to both geographical and historical factors: the physical nature of dairy farms compared with farms usually targeted by traditional soil conservation-oriented farm plans. For example: dairy farms have not usually been seen as having an erosion problem, and that therefore they did not require a soil conservation plan. It is also possible that regional councils saw farm planning as *potentially* available to the dairy sector but have not seen it as a priority to promote it to that sector, or to adapt it to the particular needs of the sector. Typically, regional councils have used regulatory methods to address potential adverse effects of dairy farm practices (e.g. effluent disposal systems, irrigation) rather than partnership options such as environmental farm plans. Therefore, the historical relationship between regional councils and dairy farmers may be different in many regions to the historical relationship between regional councils and dry stock farmers.

However, there are probably also more complex reasons behind this gap in uptake, relating to the strongly individualistic motivation behind many dairy farmers, and the very strong production ethic that drives the whole structure of the dairy sector. This has not only contributed to the gap in uptake, but to what is now perceived as a lack of attention to environmental issues in the sector generally.

Important recent research on motivation and attitudes of dairy farmers towards environmental issues (Jay 2002; Parminter *et al.* 2002) indicates that dairy farmers are risk averse even though they are strongly motivated to maximise milk production and farm profitability in order to build a strong farm business. Therefore they tend to be cautious about ‘new’ ways of relating to the land that may involve taking land out of production, reducing productivity or spending time or money on non-productive uses. However, protection of nature, aesthetic/amenity values and farm/land health are also very important concepts to many dairy farmers. It is also clear from Parminter *et al.*'s research that the above conclusions are generalisations and that there are different groups of farmers who would have to be targeted differently in terms of environmental policy. The applicability of farm plans to present or implement such policy to different farmer groups would also vary.

As discussed in section 4.2, assistance for traditional (pre-1988) farm planning in terms of central government subsidy of farm conservation works identified by the farm plan, is no longer available anywhere in the country. Central government withdrawal from farm planning support has resulted in some councils ceasing to offer farm planning assistance, and it is of some concern that no unitary authority and a number of regional councils with significant dairying activity but limited regional resources, do not offer assistance for farm planning activities. Although outside of the brief for this project, we have the impression that the dairy sector may be missing out more generally on attention from this group of regional councils.

On the other hand, central government withdrawal from soil conservation subsidies has gradually lead to a wider *range* (probably not greater *amount*) of assistance being available for

soil conservation and support for sustainable management in the farming sector. Such support includes:

- Contestible regional environmental enhancement funds
- Contestible national environmental enhancement funds (Sustainable Management Fund and Sustainable Farming Fund )
- Industry –supported environmental management initiatives
- Commercially sponsored environmental management initiatives
- Funding through the Landcare Trust and covenanting organisation such as Queen Elizabeth II National Trust and Nga Whenua Rahui.
- Tenure review funding
- National and regional pest control funding

## 6.4 Linkages between environmental farm planning and care group activities

Chapter 4 showed that while there were linkages between environmental farm planning and care group activities, there were few active linkages. A number of councils have plans to develop stronger links, but the only current exception is the work undertaken by the North Otago sustainable land management (NOSLM) group. The advantage of this approach is that it enables farmers to work together towards achievement of environmental standards.

In addition, some of the more recent plans SUBS approach (Chapter 3.2) are currently being developed by focus groups. As discussed in Chapter 4.5, Environment Waikato are now preparing to expand their farm planning activities significantly through their Project Watershed, and generally to undertake more farm plans as efficiently as possible, including working with landholder groups to do this.

Perhaps it is not surprising that there is not more overlap between the two approaches at this stage. While environmental farm plans generally use a one to one approach, dealing with landowners on an individual basis, Landcare activities are community based approaches, even though work may be programmed to be carried out progressively on individual properties.

The linkages between farm planning and care group activities need careful examination. New Zealand policy-makers will have to carefully consider the somewhat confusing signals coming from Australia (chapter 5.4) and the differences between Australia and New Zealand in the evolution of Landcare. Given that there is now a high level of interest in care groups across most of the country, it will probably be important to establish some worthwhile linkages if farm planning is to make progress in the New Zealand setting. Environment Waikato programmes have historically demonstrated the importance of integrated catchment management, and having individual property plans prepared in the context of an overall catchment strategy. Their new programmes should provide important information about the current applicability of this approach.

## 6.5 Uptake of environmental initiatives in the dairy sector

Up until the last two years, there has been very little environmental farm planning carried out on dairy farms, apart from the Riparian Plan work undertaken in Taranaki Regional Council. However, with the restructuring of the dairy industry, and the development of environmental

policies, guidelines and Market Focused, there have been rapid developments to work with regional councils and address environmental concerns. These were discussed in chapter 5.

In addition, the policy context for these initiatives is relevant. In May 2002, Fonterra Co-operative Group Ltd, Ministry of Agriculture and Forestry, Ministry for the Environment, and Environment Waikato (representing regional councils) agreed to work together to achieve clean healthy water in dairying areas. An Action Plan is to be finalised before the end of 2002: the goal is to minimise the impact of dairying on New Zealand's streams, rivers, lakes, and wetlands so that they are suitable where appropriate for fish, drinking by stock and swimming.

Despite this activity it is acknowledged that the uptake of *Market Focused* by dairy farmers has been patchy to date. *Market Focused* will have to be strongly promoted and supported if it is to be widely taken up. In addition, it would be unrealistic to expect *Market Focused* to solve all the environmental issues in the dairy sector. It should be remembered that the current milk quality standards that are widely quoted as a highly effective precedent for development of environmental standards, took nearly 20 years to get to their current state and acceptability. It would appear that until the need for environmental planning is shown to be of monetary value (in terms of increased income, or less income from penalties or non-compliance with standards) then most dairy farmers would not see environmental issues as high priority compared with maximising production.

As discussed in the preceding chapters and sections, environmental farm plans can provide a robust framework for implementing best management practices and environmental standards. They are also a good presentation tool for implementing regional council regulatory or non-regulatory standards, especially if they use a digital aerial photograph/GIS base. These potentials are further discussed in the final sections below.

## **6.6 Environmental farm planning and improved environmental standards in the dairy sector**

### **6.6.1 Dairy sector initiatives**

It appears as though *Market Focused* will be the main driver of environmental standards in the dairy sector over the next few years. *Market Focused* is driven by the priority environmental issues in the sector, as shown by the general concurrence of issues addressed in *Market Focused* with those discussed in the current project (both this report and AgResearch's work). It is well integrated into the dairy sector's production and auditing systems and has the potential to further tie in with animal welfare and milk quality standards.

The industry itself has by far the greatest ability to motivate farmers, through the current structure having significant power to set standards and to enforce them financially on a rapid and consistent basis.

Farm planning is only one implementation method. Its most important use would be to check and record progress towards environmental quality standards. A farm map is available within the current *Market Focused* format, but only as a simplified diagram at the end of the work folder. Apparently it is not commonly used in this format, compared to the preceding descriptive modules. But if brought forward in order and promoted as a way of recording and presenting information, it could be more useful for some users than currently promoted, as many of the critical environmental parameters (especially stream margin and water management) have a strong spatial basis.

If this was done, the dairy industry has a relatively large number of extension agents and consultants assisting farmers, who are in a good position to support and complement *Market Focused* in achieving environmental objectives, supported by regional council staff where appropriate. The recent development of Property Management Planning in Australia, including in the dairy sector there, shows that when environmental and financial management planning are well integrated they can be effectively promoted as a powerful mechanism for planning farming businesses.

However, environmental farm plans should *not be seen as competing* with *Market Focused*; rather they can be *complementary* mechanisms. Farm planning would only be suitable as an *alternative* mechanism to ‘Market Focused’ if farm plans were a fully comprehensive ‘one-stop shop’ (incorporating all required criteria for on-farm environmental management), in which case they would be too large and complex to appeal to most dairy farmers. Environment B·O·P’s environmental farm plans come closest to the ‘one-stop shop’ model, and are suitable as a vehicle for integrated environmental management on large complex farms.

### 6.6.2 Regional council linkage mechanisms

Under their Resource Management Act functions and responsibilities, regional councils will continue to have an important role for setting and implementing bottom line environmental standards. As such, councils can strongly back and support *Market Focused* to set and monitor specific standards that can be demonstrated to be sufficient for stated environmental outcomes. Therefore regional councils will still need to set standards for environmental performance. Two regional councils, Canterbury and Otago, have recently published useful guidelines for dairy farming in their regions which identify and discuss issues that could become subjects of such standards in the future (Otago Regional Council 2000; Environment Canterbury 2001).

Council may provide farm planning support on a number of levels as it is doing at present. For example Taranaki Regional Council provides a range of farm planning services funded by the general rate for different types of farm property. The Council has continued to implement Riparian Plans on dairy farms (over 70 plans in last 12 months), and is working with Fonterra to increase the output of Riparian Plans substantially.

Currently all farm planning is done on a non-statutory, voluntary basis, and that is the very strong desire of landholders involved in farm planning. However, if environmental standards in some sector of the industry became mandatory, then farm planning could become an effective way of developing and presenting the means of implementing that standard. For example, the Taranaki Regional Council riparian plans now occur widely enough that they could relatively easily be used to underpin a regulatory standard if such a standard was set at a level that the plans are designed to achieve. Additionally, if dairy farm operations require a resource consent (e.g. for effluent or water discharge), then the conditions of consent can be usefully appended to or integrated with the farm plan.

Discussions with land management staff of Taranaki Regional Council and Environment Waikato indicate that farmers often wish to take up environmental farm plans on their own cognisance, and largely under their own control, rather than have standards forced on them, even from their own industry.

On a different farming system, Ministry for the Environment and Gisborne District Council recently commissioned work to explore the use of voluntary or mandatory farm plans as a mechanism (among others) for achieving desired environmental outcomes for severely erodible pastoral hill country in the District (Boffa Miskell 2000). In this case there is the advantage of a financing mechanism (the East Coast Forestry Project forestry grants) to fund

implementation of farm planning measures. The Council is currently consulting on these possibilities.

The development of Environment Waikato's Project Watershed will be important to monitor, because it combines different approaches: individual property and catchment basis, different farm types, farms covered by old farm plans and those not covered to date, and individual farmer and care group approaches. It is important to remember though that the farm plan itself can never provide certainty of outcome.

As a final perspective on linkages with regulatory functions, this could potentially occur in a national rather than a regional perspective. For example, there could be a move towards national environmental standards that were relevant to the dairy sector. Or the planned National Policy Statement on biodiversity protection could require that regional councils provide for the protection of certain significant habitats (e.g. wetlands). In both these cases, environmental farm plans could be a suitable mechanism for planning, presenting and implementing such requirements, especially if their preparation was seen as a 'carrot' undertaken without charge to the landowner.

## 6.7 Opportunities for further development

As we have discussed, farm planning is developing well at present in many New Zealand regions, after a period of stagnation. Aspects of farm planning development that are particularly promising include:

- Integration with new farm management planning tools for soils, water, nutrients and fertilisers
- Integration with best management practices and environmental standards
- Incorporation of biodiversity aspects
- Incorporation of 'farm health' aspects
- Integration with on-farm financial planning
- Development and implementing farm plans by care groups
- Promotion as part of catchment-wide projects.

Because of the momentum of current developments, now is not a good time to attempt a more rigorous national evaluation and stock-taking than provided in this report. Innovations in farm plan development should continue to be supported and monitored nationally and regionally over the next few years, in parallel with the development of dairy sector environmental standards and continuing regional plan development. As farm plan development proceeds, training in techniques and approaches will need to be provided.

## 7 Conclusions

### Current New Zealand regional council use of farm planning

1. There is fairly widespread use of environmental farm planning mechanisms in New Zealand regional councils.
2. Unitary authorities and some poorly-resourced regional councils do not currently use environmental farm planning.
3. The current use and content of environmental farm plans is tied quite strongly to its historical soil conservation basis, with an emphasis on soil conservation and land capability.
4. Some promising innovations have emerged in the last few years, after a phase of uncertainty in the early 1990s regional council establishment, restructuring and the withdrawal of government support. There are many different forms of farm planning currently being undertaken in New Zealand. Not all of them are suitable for the dairy sector.
5. Environmental farm plans are seen as an effective method of documenting environmental issues and management approaches to environmental issues on a property basis in a simple but integrated and effective way. They are also an effective method of achieving environmental outcomes using a non-regulatory process.
6. Some regional councils are recognising the potential of aggregating individual environmental farm plans for environmental management on a catchment basis, as occurred widely in the past. They can be an ideal mechanism for implementing catchment schemes.
7. Generally, successful environmental farm planning needs to be integrated with financial planning and production management to demonstrate bottom-line advantages to farmers.

### Criteria for farm planning

8. *Core* criteria that should require attention in environmental management in the dairy sector are:
  - Soils and LUC assessment
  - Soils management
  - Control of runoff
  - Stream margin (riparian) protection
  - Water quality
  - Irrigation management (where applicable)
  - Use of chemicals
  - Disposal of effluent
  - Protection of significant indigenous habitats from grazing
  - Control of pests which affect farm production
  - Nutrient and fertiliser management
9. More comprehensive environmental farm planning would address aspects such as animal welfare, more comprehensive biodiversity protection and pest management, water supply and possibly energy usage, and should also link environmental planning with financial and business planning. However, not all these aspects can be easily covered in farm plans.

### Support and uptake of farm planning

10. Most regional councils offer some form of assistance for farm planning, but such assistance is not commonly taken up by dairy farmers.

11. The reasons for lack of uptake by dairy farmers are complex, but probably relate in part to the physical nature of dairy farms, structural relationship of sharemilking and dairy farm ownership, the strong production-led orientation of the dairy sector, and the historical regulation-driven relationship between dairy farmers and regional councils.
12. Central government withdrawal from farm planning support has resulted in some councils ceasing to offer farm planning assistance, but has also led to a wider range of assistance now being available.
13. Currently regional councils are putting more emphasis on support for Landcare or other care group activities, rather than support for farm planning. There are few current linkages between farm planning and Landcare, with a few significant exceptions. If carefully developed and supported (using Australian experience), care groups can successfully undertake some types of environmental farm planning and associated activities, with benefits for collective ownership of catchment-wide projects, and making best use of scarce financial resources.
14. Comprehensive on-farm riparian protection is currently being implemented very effectively by Taranaki Regional Council, through environmental farm planning..

### **Farm planning as a vehicle for environmental management in the dairy sector**

15. Farm planning is one tool for achieving better environmental outcomes in the dairy sector. It is not the whole answer by itself.
16. Farm plans can be a robust framework for implementing best management practices, especially to protect resources with a wide stakeholder interest such as lakes and estuaries.
17. Environmental farm plans should not be seen as competing with *Market Focused*; rather they can be *complementary* mechanisms. Farm planning would only be suitable as an *alternative* mechanism to 'Market Focused' if farm plans were a 'one-stop shop' (incorporated all required criteria for on-farm environmental management), in which case they would be too large and complex to appeal to most dairy farmers.
18. There is potential to further develop the farm map component of *Market Focused* as a useful integrative and presentational tool.
19. Environment B-O-P's Environmental Programmes come closest to the 'one-stop shop' model, and are suitable as a vehicle for integrated environmental management on large complex farms.
20. For any farm activities requiring a resource consent, the conditions of consent (or permitted activity standards) can be usefully appended to or integrated into the farm plan.

### **Applications and future development**

21. Innovations in farm plan development should continue to be supported and monitored nationally and regionally over the next few years, in parallel with the development of dairy sector environmental standards and continuing regional plan development.
22. A number of developments in Property Management Planning in Australia could be relevant to the use of farm planning for the dairy sector in New Zealand. These include close attention to the integration of physical and environmental planning with business and financial planning; strong institutional support, and a strong tie-in with Landcare activities. However if improved environmental performance is desired, then the environmental priorities in integrated farm planning must remain prominent.

23. Aspects of farm planning development that are particularly promising include:

- Integration with new farm management planning tools for soils, water, nutrients and fertilisers
- Integration with best management practices and environmental standards
- Incorporation of biodiversity aspects
- Incorporation of ‘farm health’ aspects
- Integration with on-farm financial planning
- Development and implementing farm plans by care groups.

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## Appendix 1: Survey Questionnaire

1. If your Council undertakes or supports on-farm property planning, please insert a tick ✓ in the shaded box below:

<input type="checkbox"/>	Farm Plans (primarily soil conservation purposes)
<input type="checkbox"/>	Environmental Plans (range of environmental issues)
<input type="checkbox"/>	Riparian Plans (protection or specialised management on margins of water bodies)
<input type="checkbox"/>	Other (please describe these or provide other comments):

2. In the shaded box below, please insert a tick ✓ that best describes the type of assistance that your Council provides:

<input type="checkbox"/>	Council does not provide any technical or administrative assistance to planning or implementation of Farm Plans/Environmental Plans.
<input type="checkbox"/>	Council provides technical and administrative assistance in planning and writing the Farm/Environmental Plan.
<input type="checkbox"/>	Council provides assistance with implementation by organising materials or contractors, but does not give financial support to actual work carried out.
<input type="checkbox"/>	Council provides full range of support for implementation including provision of grant money for specific work.
<input type="checkbox"/>	Other (please describe these or provide other comments):

3. If your Council undertakes or supports on-farm property planning, please insert a tick ✓ the types of farms supported (one or more boxes)

<input type="checkbox"/>	Predominantly drystock farms
<input type="checkbox"/>	Predominantly dairy farms
<input type="checkbox"/>	Mixed pastoral and cropping farms
<input type="checkbox"/>	Other (please specify these or provide other comments)

4. If your Council works with “Landcare” or other types of “Care” Group on farms, or actively supports such groups please indicate with a tick ✓, the type or level of support provided in the shaded box below:

<input type="checkbox"/>	Council is an active participant in landcare and provides facilitation, administrative support etc
<input type="checkbox"/>	Council supports community land care initiatives with technical expertise
<input type="checkbox"/>	No landcare support provided
<input type="checkbox"/>	Other (please describe):
<input type="checkbox"/>	Is there any linkage between care group activities and farm plans ?

5. Effectiveness of Farm Plans/Environmental Plans in achieving environmental outcomes:

- 5.1 Does your Council undertake monitoring of Farm Plan work? Please insert a tick ✓ in the shaded box below:

<input type="checkbox"/>	No monitoring undertaken
<input type="checkbox"/>	Compliance monitoring to ensure works are maintained
<input type="checkbox"/>	Environmental performance monitoring to measure effectiveness of works
<input type="checkbox"/>	Other monitoring (please describe or provide other comments):

- 5.2 Does your Council have a legal agreement to secure the works carried out under Farm Plans or property plan approaches? Please insert a tick ✓ in the shaded box below:

<input type="checkbox"/>	No agreement
<input type="checkbox"/>	An informal agreement that is not legally binding
<input type="checkbox"/>	A formal agreement that is legally enforceable

Other form of agreement (please describe or provide other comments):

5.3 Does your Council have policies and/or methods in regional plans that support or are complementary to Farm Plans, Environmental Plans or similar property-based approaches? Please insert a tick ✓ in the shaded box below:

<input type="checkbox"/>	No policies/methods in regional plans
<input type="checkbox"/>	Clear policies /methods in regional plans
<input type="checkbox"/>	Policies that link plans with permitted or controlled use conditions
Comments/Details:	

6. Please list the criteria covered in your Farm Plans/Environmental Plans or insert a tick ✓ next to the issues in the shaded box below:

Criteria or issues addressed in Farm Plans/Environmental Plans	
<input type="checkbox"/>	Stream margin protection
<input type="checkbox"/>	Erosion problems
<input type="checkbox"/>	Control of farm runoff
<input type="checkbox"/>	Protection of springs/wetlands
<input type="checkbox"/>	Water supply
<input type="checkbox"/>	Water quality
<input type="checkbox"/>	Pest plants
<input type="checkbox"/>	Animal pests
<input type="checkbox"/>	Use of chemicals
<input type="checkbox"/>	Farm dumps
<input type="checkbox"/>	Offal holes
<input type="checkbox"/>	Disposal of effluent
<input type="checkbox"/>	Protection of landscape or heritage values
<input type="checkbox"/>	Protection of forested remnants and other natural features
<input type="checkbox"/>	Other biodiversity management
<input type="checkbox"/>	Tree planting
<input type="checkbox"/>	Animal welfare
<input type="checkbox"/>	Fertiliser management
<input type="checkbox"/>	Soils management
<input type="checkbox"/>	Nutrient management
<input type="checkbox"/>	Land and soils capability
<input type="checkbox"/>	Other:
<input type="checkbox"/>	Comments/Details:

7 Please comment on the potential applicability of farm planning activities to the development of environmental standards for the dairying sector in your region:

Comments
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7 Please record your contact details in the shade boxes below:

Name:	
Organisation:	
Phone number and email:	

If you have any queries about this survey, please contact:

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or;

Paul Blaschke: Environmental and ecological consultant, Tel: 04 384 9783 or 027 246 2848,  
eMail: [sj.rutherford@xtra.co.nz](mailto:sj.rutherford@xtra.co.nz)

# About the Ministry for the Environment

The Ministry for the Environment works with others to identify New Zealand's environmental problems and get action on solutions. Our focus is on the effects people's everyday activities have on the environment, so our work programmes cover both the natural world and the places where people live and work.

We advise the Government on New Zealand's environmental laws, policies, standards and guidelines, monitor how they are working in practice, and take any action needed to improve them. Through reporting on the state of our environment, we help raise community awareness and provide the information needed by decision makers. We also play our part in international action on global environmental issues.

On behalf of the Minister for the Environment, who has duties under various laws, we report on local government performance on environmental matters and on the work of the Environmental Risk Management Authority and the Energy Efficiency and Conservation Authority.

Besides the Environment Act 1986 under which it was set up, the Ministry is responsible for administering the Soil Conservation and Rivers Control Act 1941, the Resource Management Act 1991, the Ozone Layer Protection Act 1996, and the Hazardous Substances and New Organisms Act 1996.

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