

**SUSTAINABLE
LAND MANAGEMENT
AND THE EAST COAST
FORESTRY PROJECT**

Office of the
PARLIAMENTARY COMMISSIONER FOR THE ENVIRONMENT
Te Kaitiaki Taiao a Te Whare Pāremata

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Preface

E ngā iwi, e ngā reo, e ngā karangatanga maha o te Tairāwhiti whānui, tēnei te mihi atu ki a koutou katoa.

Changing land use to enable a move towards sustainable land management is not easy. A lack of development capital, a lack of bridging finance, and a loss of day-to-day cash flow are often insurmountable problems for individual landholders.

In 1989 the Planning and Development Committee of the House of Representatives recommended that Government should continue to fund part of the cost of water and soil resource management in the context of a sustainable land use policy for the East Coast, in recognition of the off-site benefits and the benefits to future generations. The East Coast Forestry Project is, in part, a response to that recommendation.

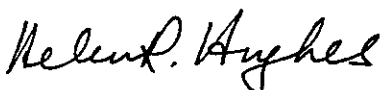
Government has recognised how difficult it is to change land use in the arid high country lands of Central Otago and Canterbury and assistance has been provided through the Rabbit and Land Management Programme. That programme ensures accountability for public moneys by having property management plans, vegetation monitoring programmes and a reporting mechanism. A consistent Government sustainable land management policy should follow a similar approach for the Gisborne District.

The use of public moneys to promote commercial activities (such as agriculture production) has in the past created distortions in the economy and led to unwanted environmental effects. The use of public moneys to promote commercial forestry could also lead to similar distortions. There is, however, good reason for the use of public moneys to change land use. The tendered grant mechanism of the East Coast Forestry Project, which is an important innovation, shows signs that it can achieve the desired objectives efficiently. The changes to the Project that are suggested in this report could help to deliver those objectives more effectively. The promotion and release of as much information as possible to bolster public confidence, and to give the Project more certainty, is a crucial element.

The East Coast Forestry Project has the potential to contribute to more sustainable land management but it's not the only option. An integrated framework of land management initiatives in the region, supported by Government and the Gisborne District Council, may be more suited to achieving sustainable land management.

Assistance by way of public moneys needs to be matched by approved property or forestry management plans and monitoring programmes that can show sustainable land management is being achieved.

The country is only slowly learning which practices are sustainable and which aren't. There is no doubt, as greater understanding is achieved, programmes such as the East Coast Forestry Project will continue to evolve.



Helen R Hughes
Parliamentary Commissioner for the Environment

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Chapter 1

INTRODUCTION

The Gisborne-East Coast region of the North Island comprises some 8500 km² of rugged hill country with small areas of rolling land and river flats. The region is underlain by erodible sedimentary rocks and subject to regular high intensity cyclonic storms and very high rates of uplift and natural erosion. As the natural forest cover has been replaced by pasture for extensive grazing, erosion rates have increased further.

A connection between deforestation and increased erosion and flooding in the region, and the need for reforestation, have been recognised by some for many decades. There have been a number of proposed or implemented schemes of government intervention aimed at land stabilisation and more sustainable land use patterns. However, changes in land use by landholders have been slow in the face of significant economic and social barriers, and pastoralism has continued to be the dominant land use in a depressed regional economy.

In March 1988 Cyclone Bola, a very severe cyclonic storm, caused widespread damage from on-site erosion and downstream flooding. Direct government relief payments totalled NZ\$111M; private losses and expenditure may have been at least as high.

Following Cyclone Bola, the Parliamentary Commissioner for the Environment was requested by the Planning and Development Select Committee of the House of Representatives to examine the effectiveness of flood mitigation policies and practices and to assess the likely effects of new policies on future flood protection measures.¹ The Commissioner's investigation formed the basis for a report by the Planning and Development Select Committee² which emphasised Government's role in assisting changes to more sustainable land management. In late 1992 the Commissioner decided to review progress on implementing the recommendations in the earlier reports concerned with changes in land use and some aspects of flood protection. This later review³ emphasised that only about 5% of at-risk land had changed to more sustainable land uses over the preceding four years.

The East Coast Forestry Project (ECFP), announced in July 1992, represented an attempt to accelerate the rate of land use change. However, several aspects of the Project became controversial, especially the nature of the multiple objectives of the Project, the targeting of grants to land at risk, and the clearance of areas of regenerating native scrub for afforestation under the Project. The Project has also been controversial because of its public policy aspects: in its use of public subsidy for private commercial activity it represented a significant departure from central government initiatives at the time. These concerns were expressed

1.1 Background to the investigation

¹ Parliamentary Commissioner for the Environment (1988).

² Planning and Development Committee (1989).

³ Parliamentary Commissioner for the Environment (1993).

to the Commissioner during the preparation of the 1993 report and in that report the Commissioner suggested that she may undertake a separate investigation into aspects of the Project.

1.2 Terms of reference

To assess the likely contribution of the East Coast Forestry Project to sustainable land management in the East Coast region; in particular by:

- assessing the effectiveness of the Project's decision-making processes during development and implementation; and
- assessing the effectiveness of the Project's targeting mechanisms, including weighting systems.

This investigation has been undertaken under sections 16(1)(b) and 16(1)(c) of the Environment Act 1986.

1.3 Methods of investigation

This investigation was initiated and the terms of reference developed during the latter half of 1993. Members of the investigation team visited the region in November 1993, January, August and November 1994, including a day's field inspection, a flight over the whole region, numerous interviews, and three meetings (at Gisborne and Tokomaru Bay) with wider groups, viz. the Gisborne Rural Network, members of the Ngati Porou and Ngati Porou Whanui Forests Ltd, and the ECFP Gisborne Consultative Committee. Appendix 1 lists the people and organisations with whom substantive discussions have been held.

1.4 Scope of this report

Chapter 2 sets up a framework for defining, characterising and monitoring sustainable land management, against which the Project can be evaluated. In this chapter the constraints and opportunities for more sustainable land management are summarised. A number of projects preceeding the ECFP, aimed at erosion and land management problems in the region, are briefly described in an associated appendix (appendix 3).

Chapter 3 discusses consultative and decision-making processes during the Project's development and since its announcement, and the information base available to decision-makers and stakeholders. Much of this chapter focuses on the issues surrounding the controversy over the Project's provisions for clearance of indigenous scrub.

Chapter 4 is a detailed analysis of the Project design and targeting mechanisms. The latter are seen as crucial to the achievement of the Project's erosion control objective by focusing the Project areas on the most at-risk land. However they also have important implications for the economic and social aspects of the Project.

Chapter 5 is a brief discussion of the potential physical, economic and social impacts of the Project. It also draws attention to work in progress on economic and social impacts.

Chapter 6 is a discussion of several issues that encompass other sections of the report, including an overall assessment of the potential contribution of the Project to sustainable land management in the region. The whole report is summarised by a series of conclusions, followed by recommendations.

Chapter 2

SUSTAINABLE LAND MANAGEMENT IN THE EAST COAST REGION

The primary purpose of this part of the chapter is to discuss the term 'sustainable land management'. Although no treatment of the subject can be definitive or universally applicable, the following framework has been developed as a necessary precursor for fulfilling the terms of reference and evaluating the likely contribution of the Project to sustainable land management.

2.1.1 Context for sustainable land management

A framework for sustainable land management in a regional context is provided by the concept of sustainable development. This is most commonly defined as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs".¹ Following the United Nations Commission on Environment and Development meeting (the "Earth Summit") in 1992, a number of international memoranda and conventions², to which New Zealand is a signatory, amplify and give further expression to the concept of sustainable development. In New Zealand, section 5(2) of the Resource Management Act 1991, although it uses the term 'sustainable management', defines a similar concept.

It should be noted that the concept of sustainable development as discussed in this report is essentially an anthropocentric one, in that it is centred on the meeting of human needs rather than the intrinsic values of all species.

2.1.2 Definition and characteristics of sustainable land management

Many definitions of sustainable land management or sustainable land use have been suggested³ but none commonly accepted. A definition of sustainability cannot be absolute, but is more an expression of principle. Most definitions recognise three components of sustainable land management, viz. biophysical or ecological, economic and social. Many commentators argue that the ecological component is the most fundamental in that the natural environment is the context

2.1 Framework for analysis of sustainable land management

¹ World Commission on Environment and Development (1987).

² These include Agenda 21, the Convention on Biological Diversity, and the Statement of Forestry Principles (see box 2, chapter 3).

³ Some are discussed in Blaschke *et al* (1992).

for land management, but the context of sustainable development also requires economic and social aspects to be addressed. The relative importance of the three components may change in different circumstances. For example, the Working Party undertaking the recent review of the Rabbit and Land Management Programme in the South Island High Country⁴ expressed the following two basic 'philosophies' for sustainable land management:

1. In the long term, economic and social needs are secondary to ecological sustainability.
2. In the short to medium term, the economic and social considerations associated with the process of achieving ecological sustainability are fundamental.

In an international context, the Brundtland Report⁵ stated:

"... physical sustainability cannot be secured unless development policies pay attention to such considerations as changes in access to resources and in the distribution of costs and benefits. Even the narrow notion of physical sustainability implies a concern for social equity between generations, a concern that must logically be extended to equity within each generation."

It can be easier to recognise and define **unsustainability** rather than sustainability (see section 2.2), particularly in defining a reference for the process of replacing unsustainable with more sustainable uses or methods.

In applying the concept of sustainability to a specific issue, more specificity can be gained from defining the **characteristics** or criteria rather than the concept. Such an approach was suggested in 1991 in work carried out for the International Federation of Agricultural Producers⁶ and has also been used in assessing the development of forestry plantations in an international context.⁷ A list of sustainable land management characteristics in the East Coast region, shown in table 2.1 and further described in appendix 2, has been adapted from the former source.

2.1.3 Indicators of sustainable land management

The concept of sustainability only has value as a vision for human activity if it can be assessed or monitored. One advantage of defining sustainable land management in terms of its characteristics is that each characteristic can be more easily assessed and monitored, through one or a number of indicators, than sustainability taken as a whole. Such monitoring is now a requirement of regional councils under the Resource Management Act 1991 (section 35).⁸

⁴ Working Party on Sustainable Land Management (1994).

⁵ World Commission on Environment and Development (1987).

⁶ Cited in Campbell (1992); see also Lefroy *et al* (1991) for an interesting Australian application.

⁷ Adlard (1993a).

⁸ Further detail on indicators for land management in New Zealand is available in Ward and Beanland (1992), and Basher *et al* (1993), and the subject is under active development by a number of Crown Research Institutes and regional councils.

Table 2.1 Characteristics and Indicators of Sustainable Land Management

Characteristics	Examples of Indicators
<p>Ecological Ecosystem processes maintained Biodiversity maintained Reversible processes Regenerative Resilient Appropriate</p>	<p>Soil quantity indicators Soil quality indicators Sediment loads Soil water availability Biodiversity indicators: - terrestrial - freshwater - coastal Soil nutrient levels Water quality indicators Pest/disease incidence</p>
<p>Economic Productive Profitable Resilient Accessible</p>	<p>Biomass production levels Production input levels Farm/forestry financial margins</p>
<p>Social Appropriate Equitable Self-reliant Participatory Resilient In accordance with Treaty of Waitangi principles</p>	<p>Population levels Employment levels Consumption levels Degree of local control over resources Participation in local institutions Levels/types of decision making</p>

Table 2.1 shows some possible indicators of sustainable land management characteristics. Many of the indicators listed are collective indicators for a number of properties.

2.1.4 Government's sustainable land management outcomes

Another set of policy-related criteria by which the sustainability of land management could potentially be evaluated is the set of desired land management outcomes agreed to by Government in 1992.⁹ There is considerable congruence between these outcomes and the sustainable land management characteristics outlined above. The outcomes seek to:

- minimise soil degradation;
- maximise water quality;
- avoid, mitigate, and remedy flood, slip and erosion damage;

⁹ Marshall (1992).

- maintain Maori and other cultural values;
- maintain aesthetic, ecological and conservation values of land and water; and
- educate the community so it can do its own sustainable land management.

Government ministries are developing policies for sustainable land management in their own sectors¹⁰ that are compatible with the above sustainable land management outcomes. The Ministry of Forestry is currently revising a draft Forest Strategy for Sustainable Land Management.

2.2 Constraints to achieving sustainable land management

In the East Coast region there are physical, social and economic constraints that, taken together, make change to more sustainable land management more difficult than for other regions. The extent and the erosion severity of the Category 3 land in the East Coast area is unique. As many of the constraints have been documented in past reports on land use and erosion¹¹ a brief summary is given to present the background to the various responses to the soil erosion problem. This summary applies more or less to the whole East Coast region. The area specifically covered by the ECFP is Gisborne District, some 8,340 km² (see figs 4.2 and 4.3).

Physical

The geology of the East Coast is essentially predisposed towards rapid or accelerated erosion. Two of the main rock types (mudstones and argillites) are inherently unstable and have been weakened by the extensive faulting and crushing that has occurred throughout much of the region, in response to tectonic activity.

The East Coast climate is temperate with mild wet winters and warm dry summers. Droughts are a frequent occurrence; erosion inducing storms occur reasonably regularly and large cyclonic storms occur infrequently.

Much of the erodible or eroding land is moderately steep to very steep, dissected terrain in the middle and upper reaches of the Waipaoa and Waiapu catchments. Widespread accelerated erosion was initiated through clearance of native forest mainly between the 1880s and the 1920s. Further conversion of land use from forest or scrub to pastoral use was encouraged through various Government initiatives such as Land Development Encouragement Loans. These loans were introduced in the mid 1970s to encourage increased agricultural production throughout the nation.

The outcome of this widespread erosion has been the transfer of sediment from the hill country into the region's rivers and beyond to the coastal environment. River channels in the region were V-shaped valleys with beds of hard boulders. Today these original beds have, in some places, been covered by up to tens of metres of eroded material.

¹⁰ eg Ministry of Agriculture and Fisheries (1992).

¹¹ eg Ministry of Works and Development (1987).

On some farms, inadequate levels of farm inputs, including fertiliser, has resulted in scrub reversion. Pasture production data show that immediately after erosion, annual pasture growth is depressed by 80% or more. Although slips and earthflows re-grass within 10-20 years, pasture growth on the re-vegetated surfaces remains depressed by 10-40% compared with adjacent stable ground.¹²

Infrastructure

Transport routes out of the region are vulnerable to closure due to slips, as are the internal access roads. The rail link to Hawke's Bay was closed for five months after the Bola Storm.

Rural services such as shops and small service industries closed throughout the 1950s and 1960s. Many components of community infrastructure, including Government department offices, health services, post offices and schools, have closed in the smaller towns in more recent times.

Economic

The regional economy has, in the past, been based on some of its natural and physical resources, and has been reliant on pastoral agriculture. Uncertain terms of trade for the major pastoral products, eg wool and meat, have been evident over recent years. Prices for sheep and beef have been affected by structural changes in the meat industry and competition for stock.

The district's small population (about 44,360) has 19,360 ratepayers in an area of some 833,100 ha.¹³ Maori comprise about 40 per cent of the district's population, giving it the highest proportion of persons of Maori descent in any region in New Zealand. The Gisborne District Council expenditure of some \$65,700,000 is a proportionately bigger burden than ratepayers in other districts have to shoulder. (For example, Tasman District Council is also a unitary authority with a population of some 36,300, a ratepayer base of some 15,410 in an area of 966,500 ha and an expenditure of some \$19,002,000.)

Social

The region has experienced 20 years of large-scale outmigration with people leaving to gain further education or jobs in other centres. There have been decreasing employment opportunities in the rural sector both for Maori wanting to return to their land and for other people. There is a sense of isolation and a tendency for a conservative outlook on new ideas. Social tensions have been present in the recent past.

Unemployment is above the national average at about 15% for the region and is greater than 50% in some rural areas. Although jobs are being created in the region, unemployment is still high compared to other regions.

¹² Trustrum *et al* (1984), Miller (1991).

¹³ Gisborne District Council (1994a).

Maori economic and social needs

This report is not intended to focus solely on Maori land. However, as much of the land in the East Coast is Maori owned, the social and economic needs and aspirations of local Maori, the historical development of their land and its institutional characteristics need to be understood and addressed if the land is to be successfully incorporated into policies for changes in land use.

Maori identity is firmly linked with the land. The Government has moved to establish policies to ensure that the link is maintained, for example through Te Ture Whenua Maori Act 1993 which provides stronger provisions than those of previous statutes to ensure that Maori land is retained in Maori ownership. Such policies need to be developed on a multitude of levels if the relationship between hapu and iwi and their land is to be maintained.

Comments made to the investigation team highlight a number of factors that have acted as major constraints for the owners and users of Maori land in making practical changes to land management. Aside from the distance and isolation that affect land in the north of the region, additional constraints include:

- economic/institutional issues;
- access to capital: policies of lending institutions are not favourable to providing capital for activities on multiply owned land which is not available to be used as collateral. Some Maori land has never been surveyed and has no title as is necessary for normal farm mortgage lending;
- the need for a short-term cash flow and the lack of capital to make major changes to land use;
- costs and time involved in decision making, particularly where decisions outside the terms of trust orders or incorporations are required to be made through the Maori Land Court;
- the physically and economically degraded state of many Maori land blocks that have been managed through former Government schemes (for example under Part XXIV of the Maori Affairs Act which required that lessees remove natural cover as a condition of the lease).

A report prepared in 1986, which documents the implications of financing policies of the time, canvassed a number of options for development within the Ngati Porou rohe.¹⁴ The report was intended to set a framework for the Runanga o Ngati Porou to develop and explore when it was finally established, taking the view that Ngati Porou needed to develop their own plans for the future.¹⁵ The report suggested that considerable areas of hill country needed to be retired from pastoral farming and set aside for other uses or simply managed for conservation. It suggested a range of options for resource management be considered, including the consolidation of Maori exotic forests, horticulture, pig, deer and goat farming and tourism.

The report also pointed out that population outflow must be reduced and the area prepared for the return of Ngati Porou people who wished to return home. It emphasised the need for support from the Government and the private sector

¹⁴ Centre for Maaori Studies and Research (1986).

¹⁵ J Ritchie, pers comm (November 1994).

in providing resources and expertise. However, it also pointed out that “the people are tired of continually being the victims of external processes. They have a vision of a future shaped by the control of their resources, talents and skills. In short, it is a vision of a people who would be masters of their own destiny and for which a precedence exists”.¹⁶

Although there are significant constraints to achieving sustainable land management in the area, there are also several factors that present opportunities for change. There are natural advantages in the area such as fertile soils, scenic landscapes and opportunities for conservation of a good representation of the natural biodiversity of the region.

The diversification of the regional economy is also presenting opportunities to change towards more sustainable land uses. Activities such as forestry, tourism, viticulture and horticulture are playing an increasing role in the regional economy. Manufacturing based on horticulture has been part of the economy since the 1950s. Recently organically grown vegetables have been requested by one of the large food processors.

The corporatisation of the New Zealand Forest Service in 1987 and the subsequent purchase of cutting rights for the former State forests by private forestry companies has reduced the private capital available for new planting during the late 1980s and early 1990s. However, as revenue from harvesting is generated, new plantings are likely to increase as there has also been considerable investor interest in forestry in the last few years. Rising prices for logs have encouraged investment companies to offer shares in afforestation ventures for investment and/or superannuation purposes.

The establishment of forestry-related industry in the area has given added impetus to forestry with an alternative to exporting raw logs from the region. For example, Juken Nissho has established a plywood mill in Gisborne.

Indigenous silviculture has been encouraged by the Forest Research Institute and the East Cape Restoration Fund which was formed in 1990 to promote and assist approved projects for propagating, planting and maintaining trees on the East Cape to achieve long-term ecological, social and economic improvement.

Forestry on farms has increased in the area with an estimate of at least 70 farmers per year planting between 5 and 15 ha into pines or alternative commercial timber species.¹⁷

Beekeepers use the East Coast extensively for the production of manuka honey.¹⁸ The domestic market for manuka honey is robust at present and the export demand, especially for organically grown Bio-gro certified honey, cannot be fully met.¹⁹

2.3 Opportunities for achieving sustainable land management

¹⁶ Centre for Maori Studies and Research (1986), p 81.

¹⁷ G Hope, pers comm (1993).

¹⁸ N Wallingford (1994).

¹⁹ B Foster, pers comm (1994).

Manuka is understood to have been used in traditional Maori healing practices.²⁰ The use of manuka to produce manuka oils which have antiseptic properties has been under investigation for some time. The potential for commercial production of oils is very large, provided compliance with international requirements is met. Establishment of a manuka oil industry in the north of the region would require the retention of naturally occurring manuka for the next ten years.²¹

2.4 Responses to erosion control problems

The passage of the Soil Conservation and Rivers Control Act in 1941 signalled the start of Government's response to erosion control problems in many parts of New Zealand. The benefits of changing to more sustainable land uses have been recognised as conferring not only on-site benefits for landowners but also substantial off-site benefits for downstream landowners and downstream communities. Cabinet first approved an erosion control scheme in the East Coast area in 1959, although warnings of the need to address erosion problems of the East Coast were given as early as 1910.

There have been both large-scale and farm-scale initiatives undertaken over the succeeding years. The ECFP has not been designed in isolation from these previous initiatives which were based on the establishment of forests and the installation of soil conservation measures on agricultural land used for pastoral farming. The assumption that forestry would be a more sustainable land use than pastoral farming over much of the region is discussed in chapter 5.

Earlier central government and regional schemes were a response to the large-scale erosion problem whereas the ECFP is a response on a broader front than just erosion control. The emphasis on encouraging land use changes in the north of the region is new.

As a background to the development of the ECFP, appendix 3 briefly outlines these past schemes. Farm-scale initiatives have been developed by other regional councils in New Zealand to address changing to more sustainable land uses and some of these are also summarised in appendix 3.

²⁰ Durie (1994), p 21.

²¹ N Porter, pers comm (1994).

Chapter 3

THE DECISION-MAKING PROCESS

The objectives of the East Coast Forestry Project (ECFP) are:

to promote large scale commercial forestry as a means of controlling soil erosion, providing employment and regional development and to recognise environmental needs on individual properties.¹

This chapter discusses the consultation process prior to and following the announcement of the ECFP. It also assesses the information available to officials and the Government on the implications of the ECFP, how and when it was obtained and how decisions were made. The chapter contains two main parts: the first documents the development of the project, including participants, prior to and following its announcement; the second focuses more specifically on the debate that developed over the issue of vegetation clearance. This issue is treated as a case study not only because it highlights problems with the way the project was developed, but also because it raises questions about the boundaries between the ecological, social and economic components of sustainable land management and how consensus about those boundaries might be reached.

It is to be noted that while there are a number of hapu and iwi based in the East Coast region, the debate directly involved members of Ngati Porou, mainly through the Ngati Porou Runanga and Ngati Porou Whanui Forests Limited (NPWFL), a company established to coordinate forestry on Ngati Porou lands. The focus on Ngati Porou is not intended to diminish the importance of the issues for other hapu and iwi or indeed other non-Maori landowners. Instead it serves to bring into focus issues that are likely to be relevant to all. Other tangata whenua whose rohe are either partly or wholly in the East Coast region include: Te Aitanga A Hauiti, Te Aitanga A Mahaki, Ngai Tamanuhiri, Rongowhakaata, Paikea, Nga Ariki O Mangatu, Ngati Kahungunu, Whakatohea, Ngai Tai, Te Whanau A Apanui and Te Whanau a Te Ehotu. It is understood that the Gisborne District Council is clarifying issues associated with tangata whenua representation as it considers its draft Regional Policy Statement.

3.2.1 Consultation and the availability of information prior to announcement

Table 3.1 sets out in schematic form the development of the Project with reference to the consultation that took place before and after its announcement in July 1992.

3.1 Introduction

3.2 Development of the ECFP

¹ Ministry of Forestry (1994).

The National Party, in its 1990 election manifesto, stated that it would support the replanting of erosion prone lands, particularly on the East Coast, and the retention of forests on those lands.

In 1991 the Minister of Forestry appointed the East Coast Forestry Task Force, consisting of regional government and industry representatives, to look at ways of increasing the rate of planting in the region. The Task Force reported back to the Minister with a range of options, including the establishment of a charitable trust to fund the planting of 203 000 ha of land through an interest-free loan.

Papers submitted to Cabinet by the Minister of Forestry in early 1992 put forward the proposals of the Task Force. Other proposals put forward by the Minister suggest that the area in need of urgent targeting amounted to 104 000 ha of moderately to severely eroding Category 3 land which was still in pasture. The Ministry of Forestry considered that this area was unlikely to attract investment on a commercial basis without Government funding in the establishment phase and recommended that options be developed to target that land.

In March 1992 Cabinet directed officials to develop options to achieve "the dual objectives of erosion control and creation of employment and social benefits in the East Coast Region, at least cost to the Crown", and to "determine to what extent the objectives could be achieved through commercial forestry and to what extent a subsidy may be necessary".² Officials were directed to report back to the Cabinet Committee on Enterprise Growth and Employment (CEG) on the options under the following terms of reference by 28 April:

- A identify options for achieving the objectives and set out their physical, financial and social dimensions including the location and areas to be planted and land owners' arrangements;
- B identify the financial, social and political benefits of the options;
- C evaluate the costs and risks of the options including those faced by the Crown and the options for the Crown's involvement;
- D recommend the approaches to the management of costs, risks and liability by the Crown;
- E identify the character and involvement of the Crown and other parties including the transparency of those relationships and the form of financial entity;
- F identify interactions with other Government and private initiatives and their impacts on them;
- G consider the initiative proposed by the East Coast Task Force and the Ngati Porou;
- H make recommendations on implementation.

By 27 April, officials reported back to CEG through the Department of the Prime Minister and Cabinet with a proposal for a scheme to establish 200 000 ha of forest in the region, targeted not only at Category 3 land but also at Category 2 land still in pasture (see appendix 6 for explanation of categories). The larger

² Cabinet paper CEG (92) 62.

scale of the project would be required to develop areas of contiguous forest to provide economies of scale to overcome the natural impediments in the region, in particular the cost of roading and the distance from ports or processing outlets. It would begin with an initial emphasis on the northern part of the region and would be delivered through a grant mechanism. The benefits identified also included the role of forests in acting as a carbon sink.³ It was recommended that officials report back within two months on detailed implementation.

An important component of the proposal involved the issues of unemployment and the need for sustainable economic development in the region, particularly in the large areas of Maori land. Annexes to the Cabinet proposal point out that the Gisborne region has one of the highest rates of unemployment in the country with rates of unemployment in the northern part of the region reaching as high as 84%. It was also pointed out that 37% of those unemployed in the region could be employed in the forestry industry.

The proposals also showed that of the 104 000 ha of land urgently requiring afforestation for erosion control purposes, only 18% is Maori land. However, although much of the Maori land in the region was noted to be reverting to scrub and is less prone to erosion, it could be more appropriately used for forestry rather than pastoral farming.⁴ It was explained that Ngati Porou, through its runanga, identified commercial forestry as an economic development priority for the iwi and had assessed Maori land in the northern part of the coast best suited to forestry at 60 000 ha.⁵

Because of the location of land in the northern region, much of which is owned by Ngati Porou, the focus of previous erosion control funding to the south, particularly through the ECCFS, had the effect of excluding owners of land in the Ngati Porou rohe from measures which might have assisted them to make land use changes.

In June 1992, officials reported back with proposals for the delivery of a scheme with the objective of dealing with "a long-standing and intractable soil erosion problem and also local unemployment through a shift from unsustainable pastoral use of land to sustainable forestry use, whilst at the same time creating a forest resource that will achieve both long-term commercial and social advantages".⁶ The scheme would be delivered through a tendered grant. The annual sum provided would be confidential to the Crown in order to maintain its efficiency.

³ The Framework Convention on Climate Change called for all parties to reduce greenhouse gas emissions and to enhance greenhouse gas sinks.

⁴ CEG (92) 62.

⁵ Indeed in 1988, following Cyclone Bola, submissions were made by the Chairperson of Te Runanganui A Kiwi on behalf of both that Runanga and Te Runanga o Ngati Porou on the East Coast Project Review. In answer to the question of whether or not there is a case for the Government to intervene in the region to maintain the social benefits of the project, it was pointed out that "...Government has a continuing commitment to the East Coast Project and it cannot expect the Commercial Sector to pick up where the New Zealand Forest Service finished. From a purely commercial point of view, there is no incentive to continue any form of afforestation in those areas of the East Coast Project". The submission concluded that "...financial support from Government is essential to form long term policy for afforestation and to encourage commercial investment".

⁶ CEG (92) 101.

Table 3.1 Development of the East Coast Forestry Project

Year	Level of Consultation	Other Events
1990	The National Party undertakes to support replanting of erosion prone lands, particularly on the East Coast, and the retention of forests on those lands.	
1991		New Zealand Forest Accord signed by forestry interests and environmental groups.
1992	<p>East Coast Forestry Task Force established.</p> <p>Officials of TPK, DOC, Treasury, MAF, MfE directed to develop options to achieve dual objectives of erosion control and creation of employment. Dept of PM & C to convene (March).</p> <p>Consultation by officials with Labour Dept, Ngati Porou Runanga and task force. Informal consultation with investment analysts, Federated Farmers, Mangatu Incorporation and Gisborne District Council. Environmental groups asked to be involved but were declined due to budget secrecy.</p> <p>Announcement of scheme in budget (July).</p> <p>Officials' group and local government representatives form a Technical Advisory Group to advise on bids.</p> <p>Consultation at local level (July - August).</p> <p>Conflict with NZ Forest Accord identified where vegetation clearance is concerned (particularly felling of kanuka/manuka). Some environmental groups object to vegetation clearance criteria.</p> <p>Nature Conservation objective added to scheme. Interim changes made to regulations governing vegetation clearance (December).</p>	<p>UNCED Conference. Biodiversity Convention and Forestry Principles signed (June).</p> <p>Tasman Forestry Ltd and NPWFL develop joint venture proposals for forestry and develop applications for bids under the ECFP.</p>
1993	<p>Attempts by Accord partners to negotiate a compromise on vegetation clearance and other issues. Attempts by Environmental Groups to persuade Government to consider alternative proposals. Consultation with Ngati Porou representatives (January- March). Meeting between Ministers, Tasman, Ngati Porou and environmental groups left issues unresolved (March).</p> <p>Landcare Research vegetation cover information available. Tasman and Ngati Porou Whanui Forests Ltd (NPWFL) continue to negotiate on scrub and undertake further surveys. Further discussions fail to reach agreement (April - July).</p> <p>Accord partners develop a series of proposals for changes to the regulations (July).</p> <p>Amendments to scheme involving changes to criteria surrounding erosion targeting and vegetation clearance announced by the Minister of Forestry (August).</p>	<p>Tasman withdraws from joint venture with Ngati Porou.</p>

See appendix 4 for details of agencies involved with the Project.

Its aim was to target both Category 2 and 3 land in the Gisborne District Council area of at least 50 contiguous hectares. The officials' paper recommended that consultation at the local level take place over the fine details of the scheme and that the scheme be reviewed in each of the initial years and then at least at three yearly intervals.

On 2 July 1992 (budget night) the Government announced its intention to implement the Project as proposed. Details of implementation would be finalised following consultation with interested parties.

3.2.2 Consultation and information following the announcement of the Project

Following the announcement of the Project, the Government initiated a consultation process at the local level. Meetings were held with the Gisborne District Council, Ngati Porou, the Mangatu Incorporation, private landowners, major forestry owners, the Farm Forestry Association and the East Coast Forestry Task Force. The timetable for consultation as set out in the initial discussion document provided for two weeks local consultation, with the scheme being open for tenders by the end of July. Receipt of tenders was expected by 30 September 1992 with results being advised by 30 October. Planting would commence by May the following year.

Claims have been made to the investigation team that some of the problems that are apparent now were identified at the first local meeting but that they were not addressed at that time.

A local consultative committee (Gisborne District Consultative Committee) was established soon after the Project was announced. The committee consisted of people who represented a range of interests including those of local government, forestry, Maori, the Department of Conservation and Ministry of Forestry. While it is not clear that the committee was to have an ongoing role, it does in fact still meet and its membership has expanded to reflect the growing range of interest in the Project. For example, a local member of the Royal Forest and Bird Protection Society has begun to attend meetings.⁷ The Committee views its role as that of a sounding board and a 'barometer' on the views of the community. It has also been the means by which most of the detailed information on the Project is released by the Ministry of Forestry.

A Technical Advisory Committee was appointed through the Ministry of Forestry to assist with the establishment of bid criteria and selection. It consisted of officials from the Ministry for the Environment, Ministry of Agriculture, Te Puni Kokiri, and also Treasury and the Prime Minister's Department in the first tender round. A member of the Gisborne District Consultative Committee has also been coopted as an observer.

Following the announcement of the Project, an intensive round of consultation was held at the local level and included a number of hui. As outlined below, a number of issues, chiefly surrounding vegetation clearance and targeting, became the subject of debate and negotiation between major stakeholders.

⁷ The local branch of the Royal Forest and Bird Protection Society has approximately 430 members.

BOX 1: THE NEW ZEALAND FOREST ACCORD

In August 1991, the New Zealand Forest Accord was signed between conservation groups and representatives of the New Zealand forestry industry. Conservation groups who signed the Accord included the Royal Forest and Bird Protection Society, the Environment and Conservation Organisations of New Zealand Inc (ECO), Federated Mountain Clubs (FMC), Friends of the Earth, Beech Action Committee, Pacific Institute of Resource Management (PIRM), World Wild Life Fund (New Zealand)(WWF), Japan Tropical Forest Action Network, Tropical Rainforest Action Group and the Maruia Society. Those representing the forest industry were the New Zealand Forest Owners Association, the New Zealand Farm Forestry Association, the New Zealand Wood Panel Manufacturers Association, and the New Zealand Timber Industry Federation.

The objectives of the Accord are to:

- define those areas where it is inappropriate to establish plantation forestry;
- recognise the important heritage values of New Zealand's remaining natural indigenous forests and the need for their protection and conservation;
- acknowledge that the existing area of natural indigenous forest in New Zealand should be maintained and enhanced;
- recognise the commercial plantation forests of either introduced or indigenous species are an essential source of perpetually renewable fibre and energy offering an alternative to the depletion of natural forests;
- acknowledge the mutual benefits emanating from an accord between New Zealand commercial forestry enterprises and conservation groups and the example that this unique Accord can provide for the international community.

Areas for which clearance is to be avoided include any area greater than five hectares, areas greater than one hectare which have an average canopy height of more than six metres, and areas which have been or might be recommended for protection under the Protected Natural Areas Programme or as a Site of Special Wildlife Interest.

As was explained by the parties at the time of signing, the Accord emphasised that plantation-grown forestry is an environmentally acceptable alternative to the depletion of natural indigenous forests. Conservation groups viewed the Accord as a "major landmark in New Zealand Conservation" and a "hard won prize for mediation and dialogue and a model for the other industry sectors" while the Chief Executive of the Timber Industry Federation referred to the Accord as a "positive measure supporting promotional efforts internationally".⁸

A full copy of the New Zealand Forest Accord is attached as appendix 5.

⁸ Press statement released by the signatories to the New Zealand Forest Accord, 14 August 1991.

3.3 The issue of scrub⁹ clearance

It was intended at the time of implementation of the ECFP that removal of natural vegetation would be subject to a Regional Plan to be developed by the Gisborne District Council under the Resource Management Act 1991. However, until that plan became operational, clearance would be subject to a ground inspection and joint certification by the Ministry of Forestry and the Department of Conservation prior to approval of any tender.¹⁰ The clearance of manuka, kanuka, tauhinu or mingimingi would be permitted provided "that these plant genera" were "not interspersed with emergent indigenous tree species".¹¹

In the months following the announcement of the Project, environmental groups that had signed the New Zealand Forest Accord with representatives of the New Zealand Forest Industry asserted that under the Project's vegetation clearance criteria, signatories to the Accord, if they wished to participate in the Project, would do so in conflict with the Accord's criteria (see box 1). Although the debate centred on the specific issue of kanuka, and whether it fell under the forest definition contained in the Accord, there is an underlying issue of whether public funds in the form of a subsidy should be used for the clearance of indigenous vegetation.

Tasman Forestry Ltd was negotiating a proposed joint venture arrangement with Ngati Porou Whanui Forests Ltd and had developed forestry proposals as part of the first round of bids under the Project. The vegetation clearance debate was, however, crucial to Tasman's continued involvement in the Project, given its commitment to the New Zealand Forest Accord, and to Ngati Porou, given the area of reverting land and the need to keep farming clear areas for cash flow. It seemed that large areas of the land involved in the joint venture were covered in kanuka/manuka, much of it reaching heights of over six metres.

Members of Ngati Porou involved in the debate are understood to have viewed kanuka as no different from manuka, and as a scrub species with no cultural significance. Removal from the scheme of kanuka covered land would reduce the economic viability of Ngati Porou's forestry venture. Areas of up to 70 000 ha have been estimated as eligible Maori land covered in kanuka/manuka.¹²

By November 1992, the Government responded to this difficulty by reconsidering aspects of the Project's criteria. A new nature conservation objective was included as part of the Project, for which further measures such as indigenous tree establishment would be added, for example under Taskforce Green. Further, the vegetation clearance regulations would be interpreted so as to "largely prevent the clearance of higher canopy height kanuka-dominated shrublands."

⁹ The term 'scrub' as used in this report is a botanical one (see glossary) and does not imply a judgement as to the value of such vegetation.

¹⁰ Ministry of Forestry (1992), p.3.

¹¹ Ibid.

¹² Paper to CEG, November 1992.

prevent the clearance of higher canopy height kanuka-dominated shrublands." Given the objectives of the Project, a key issue identified was the extent to which the Government should subsidise the clearance of vegetation that is already addressing the soil conservation problem. It was recognised that there may be a risk period between the time that indigenous scrub is cleared and the time that the new trees become established.¹³

In submissions to Cabinet a number of information gaps were pointed out as particularly important given the new nature conservation objective. Officials recommended that further research be done to ascertain the extent of kanuka-covered land needing protection, and also that the Department of Conservation carry out work under the Protected Natural Areas (PNA) Programme. DOC commissioned a PNA survey to identify Recommended Areas for Protection (RAP) which would be excluded from land available for afforestation. Other proposals included research into stand density and alternative species.

Between January and March 1993, the Accord partners attempted to reach agreement amongst themselves and with Ngati Porou Whanui Forests Ltd (NPWFL) over the issue of vegetation clearance and appropriate targeting. Although not a signatory to the Accord, Greenpeace also participated in the discussions.¹⁴ It was hoped that agreement could be reached prior to the 1993 bid round.

Meetings were held between some of the environmental groups concerned, Tasman and Ngati Porou on the East Coast. At this time, different proposals were submitted to the Government by the Maruia Society on the one hand and the remaining conservation signatories (including Forest and Bird and ECO) on the other. By January, the environmental groups were not able to reach agreement in their discussions with the other Accord parties and Ngati Porou over the Project's criteria, and Forest and Bird stated that it could not endorse the proposals that had been developed. In a letter to the Minister of Forestry, Forest and Bird explained that they sought:

- the exclusion of all closed canopy kanuka from clearance;
- funding for conservation forestry, protection and conservation management;
- adequate wildlife and vegetation surveys;
- conservation credits for landowners who protect natural vegetation on erodible land; and
- establishment of conservation corps and Taskforce Green projects in consultation with Ngati Porou.¹⁵

¹³ Bergin *et al* (1993) conclude that a substantial decrease in landsliding on steep erosion-prone hill country during major storms can be expected within 10-15 years of establishment of indigenous scrub. However, there is a period of vulnerability between the clearing of scrub and the establishment of pine plantations of at least five years.

¹⁴ Greenpeace did not sign the Accord because of its concerns about the environmental impacts of exotic plantation forestry.

¹⁵ Letter from Kevin Smith to Accord parties and Ngati Porou, 27 January 1993.

Meanwhile, the Maruia Society advocated that at least a third of Project funds be allocated to Category 3 land (for which an area of 116 000 ha is quoted) and that the clearance of scrub should be subject to the principle of net conservation benefit, that is, where benefits with equivalent reserves and or erosion prevention could be created. Other proposals, such as line planting and lower stocking rates, were also advocated.¹⁶

Forest and Bird rejected the concept of net conservation benefit and reminded the Minister of Forestry by letter that, to date, only two of the conservation signatories to the Accord had been involved in discussions. The views of the other signatories would also have to be considered.

While the Accord partners continued to clarify the terms of their relationship, Ngati Porou made their perspective and priorities clear. Reasons for Ngati Porou's involvement in the ECFP were stated to include:

- survival of Ngati Porou;
- retention of the land;
- economic development gains in the long term;
- erosion control on a sustained basis;
- employment gains;
- control of commercial development;
- commercial participation as a means of "Government proofing" the Project;¹⁷ and
- pursuit of commercially viable options for development.

Essential conditions for Ngati Porou participation were then stated to be:

- that legal title to the land not be encumbered;
- that Ngati Porou have meaningful control of operations;
- that economic value be sufficient to justify the effort and cost;
- that access to the economic benefits of the Government programme must take account of previous deprivation and recognise the need for even-handed participation; and
- that recognition be given to the contribution that Ngati Porou make to the social and biological diversity of the region and the country.

Thus, Ngati Porou's position with respect to the Project criteria were:

- the conservation groups support the Ngati Porou survival value and the contribution the Project will make to that value;
- the conservation groups agree that the Government programme facilitates the creation of value that is of public benefit which is additional to the conservation value;
- the cost of reserve protection and enhancement not fall on the land owners;
- additional reserves not materially affect the economic return of the land owners;

¹⁶ Letter from Guy Salmon to the Ministry of Forestry, 16 February 1993.

¹⁷ This statement points to the view that a non-commercially based government programme is unlikely to provide any certainty over the long term.

- no individual block that satisfy the scheme be withdrawn;
- any modification sought to the Government scheme shall not further prejudice Ngati Porou participation.¹⁸

The statement also alluded to the difficulties which would be faced by Ngati Porou if certain percentages of land were to be set aside.

In March, Tasman proposed to the Minister of Forestry that he and the Ministers of Conservation and Environment meet with the environmental groups in order to reach some consensus on the issues. A final meeting, held between the Ministers, Ngati Porou representatives and environmental groups did not reach a consensus. The Maruia Society was critical of Ministers and the other environmental groups, while Tasman and Ngati Porou were placing pressure on the environmental groups to reach an accommodation over the Accord. Moreover, the environmental groups were critical of the Government for introducing a policy that could induce violations to the Accord. Much of the argument centred upon whether the Project should be redesigned to accommodate the Accord, or whether the Accord could be interpreted in such a way as to accommodate the Project. Tasman and Forest and Bird agreed to continue attempts to reach agreement over the design of the Project.

While the environmental groups refused to agree to the Project as it stood, they did so on the basis that they endorsed the objectives, but that these could not be met because of the Project's poor design.¹⁹ They proposed that the Project could be altered while continuing to provide for regional development assistance and employment. Using the Waikato University "Ngaati Porou Report" of 1986, some of the environmental groups, under the name of the New Zealand Rainforests Coalition, put forward a range of alternative options for implementing a scheme in the Ngati Porou rohe, including a contestable fund for development options that covered a whole range of activities, not just commercial forestry. Such options included tourism development, honey production, establishment of indigenous plantations, horticulture and viticulture. Proposals for assessing the Raukumara State Forest Park for National Park status were also put forward.²⁰

By June 1993 the interim results of the vegetation mapping commissioned from Landcare Research were available. They showed that of 135 000 ha of Ngati Porou land, 34 000 ha was covered in kanuka/manuka. The area in manuka was estimated to amount to 3000 hectares.²¹ Table 3.2 shows the areas of vegetation cover in Ngati Porou ownership.

¹⁸ Ngati Porou: ECFP (undated paper from members of Ngati Porou).

¹⁹ Letter from C Wallace to the Editor, *New Zealand Herald*, 26 April 1993.

²⁰ New Zealand Rainforests Coalition (1993).

²¹ It is apparent from comments made by Ngati Porou that there is some uncertainty about the figures given for land in Ngati Porou ownership. The surveys suggest 135 000 ha whereas Ngati Porou assume 102 000 ha based upon a survey of Maori Land Court records undertaken in 1989.

A further survey of vegetation cover on Ngati Porou land was carried out by Tasman and NPWFL in order to determine the implications of applying various height criteria for clearance. The results showed the range of heights and corresponding areas that would have to be set aside if certain height limitations were to be applied.²² On the basis of the survey, discussion took place on the area of Ngati Porou land that might be able to be set aside while continuing to ensure that a viable commercial forestry venture was still possible on Ngati Porou land. However, agreement on a percentage area was not reached. While environmental groups sought higher proportions of reserve (up to 44%), and Tasman considered it could continue on the basis of 28% of the total area, Ngati Porou Whanui Forests Ltd considered the percentages to be too high.²³

It should be noted that Ngati Porou Whanui Forests Ltd was faced with two levels of negotiation as follows:

- 1 with individual landowners: the blocks which were and have the potential to be brought under the management of NPWFL are owned by different families within the iwi, either under single title or multiple ownership (either in Incorporations or Trusts), and those owners would also need to be consulted and agree to the implications of the Project's criteria before allowing their land to become involved in the venture. Thus NPWFL would have to have gained broad agreement from land owners before agreeing to accept changes to the Project's criteria;
- 2 with the Government and parties to the Accord.

Herein also lies an equity problem as far as Ngati Porou landowners are concerned: where one block has been kept relatively clear of scrub and assuming it is eligible for the scheme, it would have every chance of being accepted. However, landowners who had not had the capital to keep their land clear of scrub, and whose block contained a high percentage, could be entirely excluded. If taken on a block by block basis, owners in the latter situation face little hope of obtaining assistance to manage their land with some prospect of gaining an economic return.

²² For example, if all kanuka above four metres was to be reserved, then the proportion of the planned first three year planting programme by NPWFL on Ngati Porou land which would be eligible for planting would amount to 55% (45% reserved). However, it was estimated that over the total 50 000 ha area that was targeted for planting, the proportion which would have to be reserved would amount to 28%, leaving 72% available for planting. The survey was carried out in two stages: the first covering areas included in the first three year plan, the second from a sample of areas outside the first three year programme but still within the Ngati Porou area.

²³ J Kopua, NPWFL, pers comm (1994).

Table 3.2 Areas of Vegetation Cover in Ngati Porou Ownership by LUC Class and 'Red Report' Subcategory

Vegetation Cover (area in ha)	Red Report Subcategories							
	1a	1b	2a	2b	3a	3b	3c	4
	LUC Classes							
	Class II & III	Class IV & VI	Class VII					Class VIII
Beech Forest				43				18
Primary Forest dominated by broadleaved species	15	240	84	1149	1107	72	400	4338
Podocarp Forest	95							
Secondary Broadleaved Forest/Scrub	184	580	174	1481	1392	87	614	514
Kanuka/Manuka	1218	7617	3956	4266	7997	1087	3813 ²⁴	1245
Exotic Forest	298	1926	871	741	3103	949	1325	274
Fernland				51			13	6
Pasture	13 809	19 814	10 186	10 196	2472	4726	9694	1684
Bareground	2657	903	443	622	181	332	1027	650
Undefined	235	306	87	140	69	30	90	56
Total	18 511	31 386	15 801	18 689	16 321	7283	16 976	8785

Source: Landcare Research (1994), using updated classification of Landsat TM image received January 1993.

Note: The reliability of tenure information in the Landcare report used to distinguish General, Maori, and Ngati Porou land has been questioned and the areas used in table 3.2 are probably overestimated.

²⁴ Total kanuka/manuka cover on Class VIIe/Class VIe land is 28 616 ha; total Class VIIe/Class VIe land in pasture is 55 767 ha.

A further problem surrounds the fact that in the short term, relatively clear land producing an income from grazing is less attractive for forestry than reverting land producing no income, even if the former is eroding/erodible and the latter not. This represents a direct conflict between the objectives of soil conservation and regional development. The provisions relating to vegetation clearance reinforce this point (see chapter 4.3). Once bidding becomes competitive, even Category 3 land covered in kanuka/manuka, while eligible, will not be given a favourable weighting.

By July 1993, signatories to the New Zealand Forest Accord had developed a series of proposals to the Government for inclusion into regulations governing the Project. The proposals included, amongst other things:

- 50% of annual funding to be set aside for planting clear Category 3 and severely eroding Category 2 land;
- a range of reserves with funding for fencing;
- other measures for rehabilitating retired eroding land;
- annual environmental audits; and
- a greater range of tree species eligible for planting.

As far as vegetation clearance is concerned, it was proposed that kanuka (closed or discontinuous canopy)²⁵ three metres tall or less on average could be cleared subject to the requirement that for every hectare of kanuka cleared in any tender or group of tenders, two hectares of kanuka should be protected. Kanuka taller than three metres could be cleared where necessary to create rational boundaries or where some flexibility is required because of land owners in meeting the 1:2 reserve ratio.²⁶

The Minister of Forestry announced changes to the Project regulations on 12 August 1993, including the implementation of a new weighting system that would ensure that:

- 1 preference would be given to applications that set aside a higher proportion of closed canopy indigenous scrub which qualifies for clearance under the Project's criteria;
- 2 preference would be given to applications that contain higher proportions of Category 3 and severely eroding Category 2, Class VII land with a target of 50 per cent of grants being applied to such land.

²⁵ For the purpose of the agreement, closed canopy means a continuous canopy of kanuka; discontinuous closed canopy means groups of continuous canopy kanuka generally greater than five metres in extent. Areas less than five hectares are regarded as scattered kanuka not included as indigenous forest and can be cleared.

²⁶ Further, the total area of kanuka over three metres that can be cleared must not exceed 10% of the kanuka set aside for protection in any tender or group of tenders in any one year and is only agreed for the first ten years of the ECFP.

Thus the criteria agreed to by the Accord partners were not directly translated into the regulations. The reaction from environmental groups was mixed, with the Maruia Society publicly critical of the other Accord partners for not consulting Ngati Porou whose land was affected, Forest and Bird expressing concern that forestry companies that had signed the Accord would be disadvantaged in comparison to those that had not, and ECO taking the matter to the 1993 World Conservation Union meeting.

3.4 Problems with the development of the ECFP

Once officials were given terms of reference for the development of a forestry project, the level of consultation they were able to undertake appears to have been governed by:

- 1 the constraints imposed by the Government's terms of reference, ie large commercial forestry would be the means for implementing the objectives;
- 2 a tight timeframe: officials were given six weeks to develop options for the Government to consider prior to a budget night announcement. A similarly tight timeframe applied to local consultation prior to advertising for tenders;
- 3 budget secrecy and lack of public consultation in the development of the Project design.

The actual area of reverting kanuka and manuka was not known at the time the Project was being developed; the most recent data available to officials was derived from fieldwork carried out in the 1970s. However, according to staff of the Gisborne District Council, it seems that more up to date information on vegetation cover would have been available through them. This lack of information meant that the ramifications of the New Zealand Forest Accord were underestimated and attempts to resolve the issues following the Project's announcement were made as the first round of bids was being developed and considered.

Similarly, it was certainly not clear in the early development of the Project what areas of indigenous vegetation were of value for protection and management in the region, what the appropriate conservation priorities were and what resources should be directed to them. At the start of the ECFP, a large part of the East Coast had not been surveyed by DOC under the PNA Programme. The Waiapu Ecological District has subsequently been surveyed and RAP identified (refer chapter 4.3).

The Accord appears to have had serious implications for the ability of Ngati Porou to attract investment and therefore fully participate in the Project. It is not clear how the Accord and the decision of Tasman to pull out of their joint venture will affect other potential investors.

The significance of biodiversity, the importance of the relationship between people, communities and the natural environment, and the rights of indigenous peoples are some of the issues that have been recognised at the international level by many countries including New Zealand (see box 2). The way these issues are implemented in practice is for each country to determine.

The Government has a responsibility to address the full range of issues and to assist communities to make the changes necessary to find a balance between ecological, social and economic needs where those communities are unable to make the change themselves. As the debate on vegetation clearance suggests, it may not be possible in the short term for that balance to be achieved on the East Coast under the ECFP. It is also not clear that other options would help achieve that balance any more quickly.

The New Zealand Forest Accord represents a private agreement between non-government organisations and the forestry industry, shifting the focus of exotic timber production away from areas of indigenous forest. The agreement is significant in that it shows that environmental groups and the forestry industry can agree on issues that have been the subject of much debate between them in the past. There are likely to be commercial advantages to the industry in being recognised as environmentally responsible.

The Accord is liable to have a significant influence in giving weight to ecological issues in the 'market place'. However it does not deal specifically with the impacts of its provisions on communities. While the Accord signatories could well argue that as non-Government organisations they are not obliged to do so, they did attempt to reach an agreement that would allow a joint venture between NPWFL and Tasman Forestry Ltd. However the failure of that attempt raises a number of questions including the role of the Government in facilitating resolution of such issues, the inclusion of affected parties in the resolution of the issues and the role of the wider public in determining what is of conservation value.

3.5 The role of the Government in implementing policy for sustainable land management

BOX 2: INTERNATIONAL CONVENTIONS AND PRINCIPLES

The following two agreements signed by New Zealand at the United Nations Conference on Environment and Development, held in Rio De Janeiro in June 1992, are examples of international agreements that have a bearing on policy for sustainable land management.

The Biodiversity Convention:

The objectives of the convention are:

“The conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies (taking into account all rights over those resources and to technologies) and by appropriate funding”.

The convention contains forty-seven Articles outlining steps to be taken to meet the objectives. Biological diversity is defined as the variability among living organisms from all sources including *inter alia* terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.

Statement of Forestry Principles [Non-legally binding authoritative statement of principles for a global consensus on the management, conservation and sustainable development of all types of forests]

This statement contains 15 principles. The preamble to the principles states that “the subject of forests is related to the entire range of environmental and development issues and opportunities, including the right to socio-economic development on a sustainable basis” (a), and that they “represent a first global consensus on forests” (d). In committing themselves to the implementation of the principles, “countries also decide to keep them under assessment for their adequacy with regard to further international cooperation on forest issues.”

Principles include:

5 (a) National forest policies should recognise and duly support the identity, culture and the rights of indigenous people, their communities and other communities and forest dwellers. Appropriate conditions should be promoted for these groups to enable them to have an economic stake in forest use, perform economic activities, and achieve and maintain cultural identity and social organisation, as well as adequate levels of livelihood and wellbeing, through, *inter alia*, those land tenure arrangements which serve as incentives for the sustainable management of forests.

6(d) The role of planted forests and permanent agricultural crops as sustainable and environmentally sound sources of renewable energy and industrial raw material should be recognised, enhanced and promoted. Their contribution to the maintenance and ecological processes, to offsetting pressure on primary/old growth forest and to providing regional employment and development with the adequate involvement of local inhabitants should be recognised and enhanced.

Chapter 4

THE EAST COAST FORESTRY PROJECT DESIGN AND TARGETING MECHANISMS

This chapter summarises the East Coast Forestry Project (ECFP) regulations and guidelines as well as the changes that have been made to the regulations and guidelines since the initial tender round in 1992. The summary is followed by an analysis and discussion of the effectiveness of the ECFP design and targeting mechanisms.

Note: For complete details about the Project refer to the Forestry (East Coast) Grant Regulations and the Ministry of Forestry 'Guide to the East Coast Forestry Project'.

The central concept of the ECFP is the use of a competitive tender mechanism for central government grants for forestry planting and silviculture, with various pools, restrictions, and weighting criteria applied to tenders to determine their eligibility for grants. The competitive tender mechanism allows any interested landholders to tender for forestry grants (after meeting certain criteria), but only those grant applications that will help achieve the objectives of the ECFP receive grant approval.

The ECFP grant is intended to 'top-up' the difference between the private rate of return for a commercial forestry investment on eroding and erodible Class VII land in the East Coast region in comparison to the private rate of return for a typical commercial forestry investment in other regions. The commercial rate of return for forestry on this at-risk land is low compared to other regions because of the physical and economic constraints of the East Coast region (as discussed in section 2.2). Without a financial incentive, such as a grant, to improve the private rate of return of commercial forestry, this at-risk land would only be slowly planted and this would hinder the region's ability to move towards more sustainable land management.

It was anticipated that the tender mechanism would ultimately reduce the cost of the Project to the Government: with competition for grants, applicants would need to lower the price of their tender to ensure a successful application. With increasing forestry and infrastructure development in the region, economies of scale would assist by lowering the cost of establishing forestry. This would also contribute to lowering the price of tenders and the cost of forestry grants to the Government.

4.1 Outline of the Project design and regulations¹

¹ Primary sources for this section are the East Coast Forestry Project Guidelines: Ministry of Forestry (1992); Ministry of Forestry (1993); Ministry of Forestry (1994).

All information about the financial cost of tenders, grant cutoff points, and the identity of grant holders is confidential to the Crown to ensure the continuation and the efficient operation of the competitive tender mechanism. This is in accordance with an instruction from Cabinet requiring that "the forecast expenditure on this item remain confidential to the Crown"² to avoid compromising the success of the tender mechanism (see section 6.6).

Applications and tender eligibility

The Ministry of Forestry (MOF) considers applications for ECFP grants for up to three years of forestry establishment. A landholder is allowed to submit only one application for any one block of land. Applicants for an ECFP grant may schedule planting over a period of three years in each tender round and each application may consist of different blocks for planting. This period is to provide applicants with some flexibility to coordinate forestry development with other activities and to ensure ongoing commitment to the Project. The ECFP grants are transferrable as they apply to the land for which they were issued, so that if a landholding is sold any new landholder may apply to the Secretary of Forestry to continue with the grant.

Approval of a tender reduces the grant area and finance available to subsequent tenders for that tender year. The grant area that is available for any tender round (7000 ha/yr less previous years' commitments) is not announced by MOF. New guidelines that explain the Project to potential investors have been published by MOF for each of the three tender rounds.

Qualifying area

For the first year of planting under the Project in 1993, the qualifying area for ECFP funding was the Gisborne District, excluding the southern catchments still eligible for the East Coast Conservation Forestry Scheme (ECCFS) (for details see appendix 3). The southern area was disqualified from participating in the first year of planting under the Project in 1993 as it would have competed with the final year of the ECCFS.

In subsequent planting years the qualifying area consisted of the entire Gisborne District, with the available grant area and funding allocated to two pools. A Northern Pool (approximately more than 75 km from Gisborne) was to receive 2/3 of the available yearly grant area (4667 ha/yr) and finance and a Southern Pool was to receive 1/3 of the available yearly grant area (2333 ha/yr) and finance.

In the 1992 tender round, the grant area for which funding was available was the Class VIIe (Category 2 and 3) land (for further details on land classification see appendix 6). However, associated Class VIe land was also planted as non-grant plantings (partially subsidised by the ECFP grant) to enable practical forest boundaries and a profitable forestry venture.

² CAB (92) M 26/7.

A change to the regulations in 1993 allowed the inclusion of up to a maximum of 40% of an area as Class VIe land. This change recognised the additional soil conservation control benefits for downstream Class VIIe land by the planting of tributary Class VIe land (with the reduction of runoff) while enabling a feasible forestry venture. The formal inclusion of Class VIe land removed the cross-subsidisation of Class VIe land by Class VIIe land and increased the transparency of funding of grant areas. The change was also recognition that accurate identification of different classes was difficult as a potential forestry site could consist of a mosaic of Classes VIe and VIIe.

The grant area must now consist of a minimum of 60% of Class VIIe land with a maximum of 40% of Class VIe land. The Class VIe land must be in the same tributary watershed as the associated Class VIIe land and the Class VIe planting must be required for practical forest boundaries.

Target land

In the 1992 tender round, the qualifying and target land for which funding was available was the Class VIIe, Category 2 and 3 land. However, for 1993 and subsequent tender rounds, the Project gave priority to applications containing greater percentages of Category 3 and severely eroding Category 2 land. Severely eroding land is defined as land which had reached a present severe, very severe or extreme erosion ranking (see section 4.2.3 and appendix 6). A "target" for the Project "of approximately 50% Category 3 and severely eroding Category 2 land planted"³ was expressed, but the timetable to achieve this target was not specified.

The Project has utilised two land classification weighting scales for assessing the relative priority of grant applications in 1993 and 1994. In 1994 the land classification weighting system used for the 1993 tender round was modified to ensure that applications with a higher percentage of targeted land would receive a proportionally higher priority ranking according to the percentage of target land included in the application.

The land classification weighting system multipliers that were used for the 1994 tender round are shown below:

Multiplier	3.0	2.1	1.7	1.4	1.15	1	0.9	0.8	0.7	0.65	0.6
Target area %	0	10	20	30	40	50	60	70	80	90	100

For example, a grant application for \$300/ha with 30% target land would be ranked at the nominal price of \$420/ha, while a grant application for \$500 with 90% target land would be ranked at the nominal price of \$325/ha. The second application would receive a higher priority for grant funding but the nominal price would have no influence on the amount of the grant that is paid to the successful applicant.

³ CAB (93) M 29/8.

Size of area for planting

In 1992 the ECFP regulations provided for 7000 ha to be tendered for per year. However, to provide for both large and small scale forestry plantings, two pools for grant funding were made available:

- For commercial forestry purposes the Project provided for a 6500 ha main pool to be allocated per year, with a minimum tender area of 50 ha/yr.
- To provide for small farm-scale plantings, a separate pool of 500 ha per year was reserved with a minimum area of planting of 25-50 ha per year. If any area of the small pool was not drawn upon, the remaining area would return to the main pool for allocation.

For the 1993 and subsequent tender rounds, the minimum area of planting for the small planting pool was reduced to 25 ha which could be planted over three years (ie a small pool grant holder could plant approximately 8 ha/yr), to better facilitate small farm-scale plantings that were able to be funded from typical farm operations and farm-derived cash-flows.

Clearance of indigenous vegetation

The clearance of established or regenerating indigenous forest is against the Project's objectives. All Sites of Special Wildlife Interest (SSWI), Recommended Areas for Protection (RAP), Protected Natural Areas (PNA), and recognised riparian strips are ineligible for grant approval. If an area of manuka, kanuka, tauhinu or mingimingi is interspersed with emerging indigenous tree species (EITS) then that area is not eligible for grant funding and it is not allowed to be cleared for planting. Emerging indigenous tree species are defined as those more than 50 cm in height and at more than 50 stems per hectare, that have reached or have the potential to reach 30 cm or more in diameter. They are also trees that form the final canopy of a mature indigenous forest.

An applicant is required to obtain from the Department of Conservation (DOC) an ecological certificate which states the location of RAP or SSWI that are excluded from the Project because of the above criteria. The Ministry of Forestry and DOC then conduct a joint ground inspection and approval process to verify if a grant application area has any areas with EITS and to verify the boundaries of RAP or SSWI. These areas are not eligible for funding and are excluded from the grant area. If applicants subsequently alter these excluded areas, any portion of the forestry grant at any stage can be withdrawn.

The Gisborne District Council Vegetation Removal and Earthworks Regional Plan (a proposed regional plan under the Resource Management Act 1991) requires that for clearance of vegetation greater than two metres in height on areas greater than two hectares of Class VIe and VIIe land, a resource consent is required from the Gisborne District Council. Any grant areas that do not meet resource consent criteria (eg riparian areas) are not eligible for grant approval and grant funding.

Set aside indigenous areas

If applicants set aside areas of closed canopy indigenous scrub (CCIS) that are eligible to be cleared according to Project criteria, a notional credit of \$300/ha of CCIS set aside is credited to the tender for ranking purposes as part of the grant allocation process (ie subtracted from the total tender price) (see section 4.3.3).

Fencing

Applicants may include the cost of fencing the set aside indigenous areas of any stature, diversity, and quality in tenders (for cost recovery purposes). The cost of fencing will then not be included in the tender as part of the tender ranking process.

Approved tree species

The Project regulations specify a list of approved tree species, and an applicant for a grant can choose to plant under either an intensive tending regime or a minimum tending regime. The intensive tending regime requires applicants to tend forestry blocks and prune trees, which imposes additional costs on the applicant, but the applicant may receive a greater return on the investment as the quality of the forestry resource is improved.

Planting densities

The Project requires different planting densities according to the land use classification (LUC). On Class VIIe land, planting densities of either 1250 stems per hectare or 1500 stems per hectare are required according to the value of erosion on the LUC unit (specified in the guidelines) and on Class VIe land the planting density is 700 stems per hectare. If the land that is to be planted is a mosaic of different density groups, the land is required to be planted at the stocking rate which best achieves the Project's objectives.

Grant payment

After a tender is accepted and a block is planted, an applicant formally applies to MOF for that portion of the grant allowable for planting. To ensure accountability the applicant's claim is then audited and verified with a ground inspection by MOF before any grant is paid. Subsequent grant payments for silvicultural operations are applied for, audited and verified in the same way.

Assessment of applications

The terminology and definitions of key areas associated with the ECFP are shown in figure 4.1.

Grant applications are assessed by MOF and the Department of Conservation (DOC) for compliance with indigenous vegetation criteria and they are then assessed and ranked by MOF according to Project criteria. A Technical Advisory Committee (see chapter 3) then makes recommendations to the Secretary of Forestry regarding the establishment of pool criteria and the selection of tenders.

Grant applications are assessed for inclusion in the Project using the following criteria:

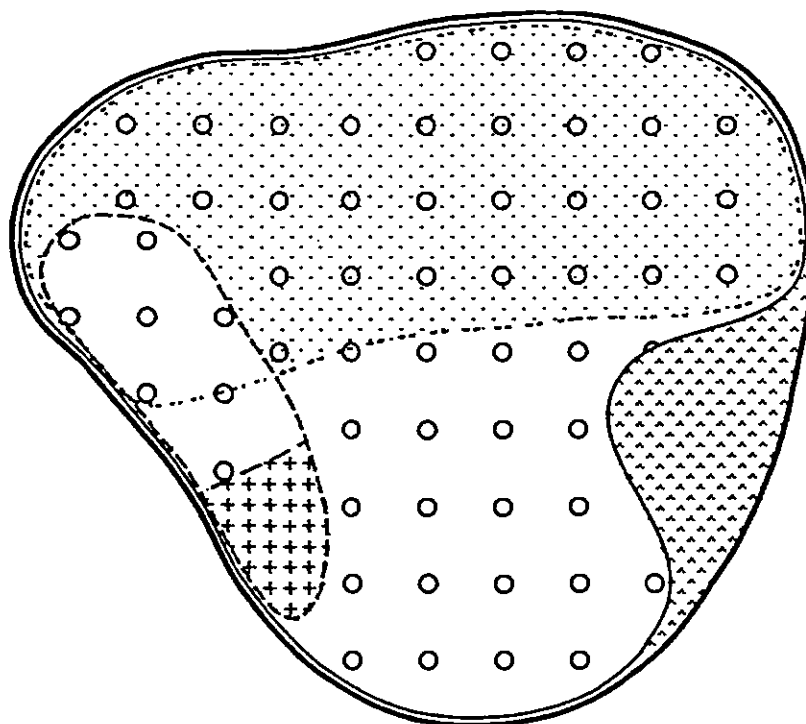
- a maximum acceptable price per hectare for the Northern and Southern Pools (based on the net present value of a typical forestry investment in each Pool area that is calculated for each tender round);
- a tender ranking process using two weighting mechanisms:
 - a land classification weighting scale is based on the percentage of Category 3 land and severely eroding Category 2 land.⁴ Severely eroding land is defined as land that had reached a present severe, very severe or extreme erosion state. This scale gives priority to applications for ECFP grants to tenders that include greater proportions of target land in grant applications. The weighting system is applied to the area of bare plantable target land defined as the net target area (ie target area less any closed canopy indigenous scrub to be cleared); and
 - an indigenous vegetation retention weighting system that provides a nominal credit for tenders that set aside areas of indigenous vegetation that would have been eligible for clearance. This scale gives priority to tenders that set aside areas of vegetation that could have been cleared.
- a Northern (2/3) and Southern (1/3) Pool maximum area and funding allocation (the total area available to be allocated is 7000 ha per year; the total funding available per year is confidential).


The grant applications are ranked by adjusting the actual price of the tender using the above two weighting mechanisms to establish a nominal price for the tender. However, the ranking does not affect the actual price of a tender that is granted. The ranking process is simply to assess and give priority to those tenders which best meet the Project's objectives.

The ECFP regulations and weighting criteria have evolved since the initial tender round in 1992 in response to earlier problems with the system. For a description of the ECFP provisions by tender year see table 4.1. A description of the Ministry of Forestry ECFP grant application and assessment process is provided in appendix 7.


⁴ Anon (1978); see appendix 6 for more details.

Figure 4.1 East Coast Forestry Project Terminology

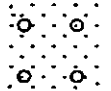



 **ECFP application area boundary.** Must contain a minimum of 60% of LUC Class VIIe land. Any LUC Class VIe land must be within the same tributary watershed as the LUC Class VII land and be required for practical planting boundaries.

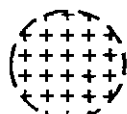
 **Qualifying area boundary**


 **Target area boundary:** target area = category 3 land and severely eroding category 2 land (severely eroding is defined as land which has reached a present severe; very severe or extreme erosion ranking).

 **Closed canopy indigenous scrub (CCIS) boundary:** scrub eligible to be cleared under the ECFP.

 **Net target area:** target area less CCIS intended to be cleared for planting. The target % used in the Land Classification Weighting Scale is calculated as: target % = net target area/approved grant area.

 **Non-qualifying area:** excluded because of RAP, SSWI or EITS criteria as assessed by MOF or DOC; or GDC resource consent criteria e.g riparian strip. Part of this area may be withdrawn from the application area prior to a grant application.

 **CCIS credit area:** scrub voluntarily excluded from the project and from clearance. This area is used as the credit area for the indigenous vegetation retention weighting system.

 **CCIS intended for clearance for planting under the ECFP.**

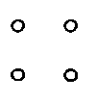
 **Approved grant area for planting:** the actual grant area is only established after verification of planting boundaries.

Table 4.1 The East Coast Forestry Project Provisions by Tender Round Year

Year	East Coast Forestry Project Area: 7000 ha/yr	Qualifying Area	Size of Planting Area	Target Area Multiplier for ranking of applications ¹	CCIS Credit	Fencing of SAIA	Primary Tree Species ²
1992 ¹	Gisborne District excluding the Southern Catchments for the 1993 planting year then 2/3 of available area and finance to Northern Pool and 1/3 to Southern Pool.	Class VIIe land. Not RAP, SSWI, EITS or GDC RMA excluded areas.	6500 ha/yr available to be allocated with a 50 ha/yr minimum area; 500 ha/yr for small scale plantings with minimum area, 25-50 ha/yr.	n.a.	n.a.	n.a.	- Pinus radiata - Cupressus - Acacia
1993	Gisborne District, 2/3 of available area and finance to Northern Pool and 1/3 to Southern Pool.	Class VIIe land and up to 40% Class VIe land. Not RAP, SSWI, EITS or GDC consent excluded areas.	6500 ha/yr available to be allocated with a 50 ha/yr minimum area; 500 ha/yr for small scale plantings with minimum tender area 25 ha over 3 years.	Linear scale: if 0% net target area, price of tender multiplied by factor of 1.9; if 100% net target area, price of tender multiplied by factor of 0.1. Priority for grant approval to tenders with the highest nominal ranking.	Tender nominally credited \$300/ha of CCIS set aside.	Cost of fencing SAIA can be included in tender to allow for cost recovery.	- Pinus radiata - Douglas fir - Cupressus - Acacia - Poplar - Indigenous
1994	Gisborne District, 2/3 of available area and finance to Northern Pool and 1/3 to Southern Pool.	Class VIIe land and up to 40% Class VIe land. Not RAP, SSWI, EITS or GDC consent excluded areas.	6500 ha/yr available to be allocated with a 50 ha/yr minimum tender area; 500 ha/yr for small scale plantings with minimum tender area 25 ha over 3 years.	Inverse exponential scale: if 0% net target area price of tender multiplied by a factor of 3; if 100% net target area price of tender multiplied by a factor of 0.6. Priority for grant approval to tenders with the highest nominal ranking.	Tender nominally credited \$300/ha of CCIS set aside.	Cost of fencing SAIA can be included in tender to allow for cost recovery.	- Pinus radiata - Douglas fir - Cupressus - Acacia - Poplar - Indigenous

¹ For the 1992 tender, two pools with 2/3 of finance to intensive tending regime and 1/3 to minimum tending regime. From the 1993 tender round, no more than 30% of available funding was to be allocated to the minimum tending regime.

² Net target area for land classification weighting system purposes and ranking of tenders = all Category 3 land + severely eroding or worse Category 2 land - CCIS intended to be cleared.

³ Two tending regimes, intensive (with thinning, pruning and final thin) or minimum tending (final thin only). Planting densities for pinus radiata and douglas fir of 1250 and 1500 stems per hectare on Class VIIe land and 700 stems per hectare on Class VIe land. The ratio of grant payments between establishment/silviculture/final thinning stages for intensive tending regimes was 35/50/15 and for minimum tending regimes was 70/0/30.

Grant applications for the 1992 and 1993 tender rounds required a Certificate of Title, a Productive Capability assessment by a forestry consultant, a Land Use Capability assessment by a MOF certified land use consultant, and in addition in the 1994 tender round an ecological certificate from DOC.

n.a. = not applicable

CCIS = Closed Canopy Indigenous Scrub

SAIA = Set Aside Indigenous Areas

4.2 Analysis of the Project design and regulations⁵

Note: The approved and conditional grant areas discussed in the following sections represent only that area applied for and not what may finally be planted. Final confirmation of the actual area planted and other data for any tender round will only be possible after the verification of the total planting for that tender round. The Ministry of Forestry regards all information in this report relating to tender rounds as provisional.

The present report does not include an analysis of the actual cost of ECFP grants, although the Parliamentary Commissioner for the Environment has had complete access to this information (see section 6.6).

4.2.1 Summary of tender round results

For the first three tender rounds of the ECFP the available grant area to be allocated, the number of applications and the eligible forestry grant area of applications, and the number of applications accepted and the approved or conditional grant area are shown in table 4.2. The total potential grant area that could have been allocated over the three tender rounds was 35 000 ha, subject to funding limitations.

In the first three tender rounds more than 29 800 ha of ECFP grants have been applied for, although some applications have been retendered. The 1993 tender round was the most fully subscribed of the initial tender rounds with the largest grant area applied for and approved. The application area for the 1993 Southern Pool far exceeded the area and allocated finance available with a resulting low rate of grant approval. In contrast, for the 1994 tender round the number of applications, the total application area and the approved/conditional grant area decreased from that applied for in the 1993 tender round. However, in the 1994 tender round there was a small increase in the application area for the Northern Pool and this is a positive achievement to obtain increased rates of planting in the Northern Pool.

The timing of the tender rounds (applications closed on 30 November 1992, 31 August 1993, and 30 April 1994) has affected the total area and the type of area that has been tendered for under the Project. The Project was announced in July 1992 with only four months to the first tender round, and this resulted in a modest application and approval rate. The second (1993) tender round was heavily subscribed but significant changes to the Project were announced only two weeks prior to the close of the tender round and this affected the target percentage achievements. The Ministry of Forestry believes that the competitive nature of the 1993 tender round may have deterred some potential 1994 applicants. Another contributing factor to the reduction in the area applied for in the third (1994) tender round, after the heavily subscribed second tender, has been the shortened time period between the second and third tender rounds (eight months). Subsequent tender rounds have been set down for 30 April of each year and this will improve the timing and processing of applications.

⁵ Source of information in tables: Ministry of Forestry East Coast Forestry Project internal reports and spreadsheets.

Table 4.2 Forestry Project Applications by Tender Round

Grant application area before Ministry of Forestry or Department of Conservation exclusions for RAP, SSWI, or EITS.

	TENDER ROUND YEAR					
	1992	1993		1994		1992 - 1994
		Southern Pool	Northern Pool	Southern Pool	Northern Pool	Total
Potential Grant Area to be Allocated (ha)	7000 * 3 years	2333 * 3 less prior allocation	4667 * 3 less prior allocation	2333 * 3 less prior allocation	4667 * 3 less prior allocation	7 000 * 5 years = 35 000 ha
		7000 * 3 years less prior allocations		7000 * 3 years less prior allocations		
Number of Grant Applications	39	39	25	20	18	141
		Total = 64		Total = 38		
Qualifying Area (ha) of Grant Applications¹	5530	9234	6338	2263	6502	29 884
		Total = 15 589 ha		Total = 8765 ha		
Number of Grant Applications Accepted or Conditional	24	10	12	19	10	75
		Total = 22		Total = 29		
Qualifying Area (ha) of Applications Accepted/Conditional²	3720	3372	4074	2016	3229	16 411
		Total = 7446 ha		Total = 5245 ha		

- ¹ For the 1992 tender round the eligible grant area was the Class VIIe area whereas for the 1993 and 1994 tender rounds the eligible grant area was Class VIIe and up to 40% Class VIe.
- ² For the 1992 tender round, the Class VIe planting area associated with the grant area was estimated to be 2477 ha, a total gross planting area of 6197 ha before exclusions for RAP, SSWI or EITS.

The majority of the ECFP grants have been for *Pinus radiata* although approximately 1000 ha of alternative species (including acacia, macrocarpa and indigenous species) have been approved for planting.

4.2.2 Land category and target area

Land category

As part of a review of the earlier East Coast Project in the mid 1970s (see appendix 3), a Committee⁶ used the experience gained in Land Use Capability (LUC) mapping throughout the region (both for the New Zealand Land Resource

⁶ The Committee consisted of the Poverty Bay Catchment Board, the Ministry of Works and Development, the Department of Lands and Survey, Ministry of Agriculture and Fisheries and the New Zealand Forest Service.

Inventory and for farm-scale LUC mapping), to group the 54 LUC units recognised in the regional LUC Extended Legend into eight categories and subcategories. The categories and sub-categories reflected potential for erosion, long-term productive capabilities and perceived most suitable land use. This grouping of categories (see appendix 6) was the essence of the 'Red Report'⁷ and has been influential in subsequent responses to erosion problems in the region.

All Category 2 and 3 land in the region is Class VII (51% of the total area of the region), ie by definition it has severe limitations to use for grazing or forestry. Apart from very small areas of swamp land, recent river terraces and sand dunes, it all has at least strongly rolling relief and is mainly steep or very steep hill country and mountain land with severe to extreme erosion potential. However, it varies considerably in all other properties, including present erosion and productivity.

The area of the LUC Classes and associated 'Red Report' subcategories in the Gisborne District are shown in table 4.3. A table showing the area of Class VIe and VIIe land and accompanying vegetation cover for Gisborne District is in appendix 8.

Table 4.3 Area of LUC Classes and 'Red Report' Subcategories

LUC Class	II & III	IV & VI	VII					VIII
LUC Units ¹	All	VIe 1 - 13	1, 2, 5, 7	3, 4, 6, 8, 19, 21	9, 10, 11, 17	12, 14, 16, 20	13, 15, 18	All
'Red Report' Subcategories	1a	1b	2a	2b	3a	3b	3c	4
Area (ha)	70 016	267 740	119 220	107 031	80 132	51 087	70 724	62 040

Source: Landcare Research (1994).

Subcategory 3a modified for error with area distributed to Subcategory 2b.

¹ Only LUC Class VIe and VIIe units shown (see appendix 6 for explanation of 'e' subclass).

Note: No LUC Class I or V. Total area = 834 265 ha

Total LUC Class VI = 257 590 ha of which subclass VIe = 256 649 ha

Total LUC Class VII = 428 194 ha of which subclass VIIe = 428 154 ha

⁷ Anon (1978).

Summary of allocation

The approved/conditional grant areas from the first three tender rounds are shown in tables 4.4 and 4.5. The total grant area that has been allocated is estimated to be 15 358 ha and, with the associated planting of 2477 ha of Class VIe land from the 1992 tender round, in total 17 835 ha could be planted from the first three tender rounds of the ECFP. This figure is conditional until final verification, as grant holders may, with the approval of the Secretary of Forestry, vary the size and composition of any grant area.

The excluded area that does not qualify for Project funding because it is either RAP, SSWI, or EITS is also shown in table 4.4 with approximately 1000 ha of land excluded according to the ECFP criteria. In table 4.5 the effect of those grants already approved or conditional on the grant allocation that is available for future tender rounds is demonstrated. The possible grant area allocation for the 1996 and the 1997 tender rounds is already less than the 7000 ha, with approximately 5900 ha and 6100 ha available due to allocations made in 1993 and 1994.

Table 4.4 Allocated Grant Area by Tender Round

Approved and Conditional Grants only.

ECFP Area (ha)	TENDER ROUND YEAR					
	1992	1993		1994		1992 - 1994
		Southern Pool	Northern Pool	Southern Pool	Northern Pool	TOTAL
Application Area ¹	3720	3372	4074	2016	3229	16 411
Non-qualifying Area ²	118	225	240	71	399	1053
Approved Grant Area	3602 ¹	3147	3834	1945	2830	15 358
Total Approved Grant Area per Year	3602 ¹	6981		4775		15 358

¹ For the 1992 tender round only Class VIIe land was eligible for grant approval. In the 1993 and 1994 tender rounds Class VIIe and up to 40% of Class VIe land was eligible for grant approval. For the 1992 tender round, associated planting of Class VIe land with the eligible Class VIIe grant area was estimated to be 2477 ha.

² Area excluded by MOF or DOC according to RAP, SSWI, or EITS criteria (see table 4.10).

Table 4.5 Allocated Grant Area by Year of Planting

Approved and Conditional Grants Only.

	Intended Year of Planting					
	1993	1994	1995	1996	1997	1993 -1997
TENDER ROUND	Area Approved/Conditional (ha)					TOTAL
1992 ¹	2591	545	498	-	-	3602
1993	-	4211	2183	587	-	6981
1994	-	-	2418	1547	810	4775
Total Area Allocated	2559	4756	5099	2134	810	15 358

¹ In 1992 only Class VIIe land was eligible for grant funding and associated Class VIe land that was also intended to be planted totalled an estimated 1150 ha in 1993, 682 ha in 1994, and 645 ha in 1995. The total area that could be planted from the three tender rounds is 17 835 ha.

Estimated target area and LUC Class area

To achieve the Project's soil conservation objective and to prioritise ECFP grant applications, a land classification weighting system was introduced to the Project in 1993. This system was to provide those applications that contained a greater percentage of target land with a more favourable ranking in the prioritisation and consideration of tenders. The target area for the ECFP is all Category 3 land and severely eroding Category 2 land. Severely eroding land is defined as land which had reached a present severe, very severe or extreme erosion state and this area is assessed as part of the LUC assessment which is required for a grant application. The Project has a proposed target of 50% of such land being approved for planting.

In applying the land classification weighting system as part of the assessment of applications for grant approval, MOF calculates the net target area (ie the target area less any area of closed canopy indigenous scrub that is to be cleared) and then applies the land classification weighting system multiplier (as detailed in section 4.1). The net target area achievement cannot be compared directly to the 50% target area that is specified as a proposed target. The 50% target is an arbitrary figure and it is dependent on what is designated as the target area and how that area is interpreted (as discussed in this section).

The net target area per tender round for the 1993 and 1994 tenders is shown in table 4.6. Because of a Project administration calculation error, the 1993 net target area of 36% is underestimated as it does not include Category 3 land that was not severely eroding.

In 1994 the net target area of grants was less than the 1993 result with a decrease to 21%. The 1994 Southern Pool had only a net target area of 12% which was the lowest net target area achieved for all of the Pools in both years. After two tender rounds the Project has approved grants with a net target area of more than 30%. Given the miscalculation of the 1993 result and that some of the closed canopy indigenous scrub that is to be cleared will be on Category 3 land, the Project may be approaching the proposed 50% target.

The low Southern Pool net target area resulted from the tradeoff of increasing the grant allocation area to increase the scale of planting (ie 19 out of 20 grants were approved for the Southern Pool in 1994) as opposed to ensuring a high net target area with a lower grant area approval rate. Low individual net target areas (0% to 10%) in some grants approved for the 1994 Southern Pool were the main reason for the decrease in the 1994 net target area. After two tender rounds the trend of the net target area cannot be established and the 1994 result must be treated with caution. However, for the Project to be seen to be addressing targeted land this issue will need to be resolved (see later discussion of minimum net target areas).

For this report the detailed breakdown of the grant area by Subcategory has not been available but in future years this will be able to be calculated by MOF. Table 4.7, in an analysis of the content of Class VIe and VIIe land in forestry grants that have been approved or that are conditional, shows that the percentage of Class VIIe land that is being approved is increasing and the percentage of Class VIe land is decreasing. For the 1994 grants, 75% of the allocated grant area is Class VIIe land, the highest total of the three tender rounds. The increasing trend of more Class VIIe land being included in tenders is in contrast to the increasing trend of less net target land being included in tenders. However, some grant areas (particularly in the Northern Pool) have low net target areas because of the removal from the net target area of areas of closed canopy indigenous scrub (CCIS) signalled for clearance. Some of this CCIS area will be Category 3 land, although this area is not included in the net target area.

The difficulties in comparing target area to net target area, there having been only two tender rounds with an assessment of the net target area and the inclusion of Class VIe land for grant funding, prevent definitive statements from being made about the above trends and they should be treated with caution. However, it would be of some concern if grants with small percentages of target area (<20%) were continued to be approved under the Project.

Table 4.6 Net Target Area by Tender Round

Conditional and Approved Grants Only.

	TENDER ROUND YEAR				
	1993		1994		1993 - 1994
	Southern Pool	Northern Pool	Southern Pool	Northern Pool	TOTAL
Grant Area (ha)	3147	3834	1945	2831	11 756
Target Area in Grant Area (ha)¹	1218	1314	228	780	3540
Target Area as % of Grant Area	39%	34%	12%	28%	30%
Total Target Area in Grant Area (ha)¹	2532		1008		3540
Total Target Area as % of Grant Area	36%		21%		30%

¹ In the 1993 tender round the applied target area consisted of severely eroding Category 2 and 3 land. This was because of a miscalculation of the actual target area of all Category 3 and severely eroding Category 2 land.

For the 1994 tender round the applied target area consisted of Category 3 and severely eroding Category 2. Therefore the total target area for 1993-94 is underestimated.

Table 4.7 Estimated LUC Class Area and Percentage

Approved and Conditional Grants Only.

TENDER ROUND YEAR	Area of Class VIIe land (ha)	% of Class VIIe land	Area of Class VIe land (ha)	% of Class VIe land	TOTAL AREA (ha)
1992 ¹	3602	59%	2477	41%	6079
1993	4886	70%	2095	30%	6981
1994	3581	75%	1194	25%	4775
TOTAL	12 069	68%	5766	32%	17 835

¹ For the 1992 tender round the forestry grant was only available for Class VIIe land and associated Class VIe land that was planted to achieve practical forest boundaries is also shown in this table.

4.2.3 Discussion of land category and targeting mechanisms

Assessment of erosion

One of the most important factors influencing the ECFP criteria and grant allocation process is the area of presently or potentially eroding land. In the past these areas have been mapped and classified as part of the New Zealand Land Resource Inventory (NZLRI) and these results, together with a current land use capability assessment, are used in the ECFP.

During field work for the NZLRI in the early 1970s, the type and severity of erosion occurring in every delineated map unit (1:63 360 scale) were assessed and recorded.⁸ Up to three types of erosion were recorded in each map unit and the severity of each type was assessed on a scale of 0 (insignificant) to 5 (extreme). For most of the erosion types occurring in the East Coast region (mass movement and fluvial types) the severity of erosion was assessed on the basis of the proportion of map unit affected, the volume of eroded regolith and the difficulty of repair.

For each application for a grant under the ECFP, the certifying land use consultant assesses the severity of erosion in each land category in the tender area, on a similar basis to that used in the NZLRI. The application area is mapped for 0-2 and 3-5 erosion severity, resulting in a simple two way assessment for calculation of target land (this assessment is the basis of the estimate of percentage of severely eroding Category 2 land which together with the percentage of Category 3 land, is used to rank applications for grant approval).

In erosion prone areas such as the East Coast, the severity of present erosion, especially as assessed visually by the extent of landslide scars and slips, largely reflects the time since the last erosion-inducing storm. This varies considerably over the region;⁹ for example, over the whole region there are far fewer evident signs of active erosion now than there were immediately after Cyclone Bola in 1988.

In the NZLRI, the potential maximum erosion severity was also assessed for each land use capability unit as a whole.¹⁰ Obviously this assessment has an element of subjectivity as it is based on a number of factors such as climate (especially frequency and extent of erosion-inducing storms) steepness, and the underlying geology and erosion recorded through the geographical range of the Land Use Capability (LUC) unit.

Potential erosion severity was assessed independently from present erosion and is recorded in the extended legend of LUC units for the region.¹¹ The potential erosion is an important component of the overall land use capability assessment. For example, Class VII land has a severe or very severe limitation for pastoral use. For the VIIe (erodibility) subclass, this limitation is based on a severe erosion

⁸ Eyles (1985).

⁹ D L Hicks, pers comm (1994).

¹⁰ Eyles (1985).

¹¹ Driver (1974).

hazard, very steep slopes, and/or very erodible rock types.¹² For non-arable LUC classes, potential erosion is assessed assuming a grass cover and that no soil conservation measures are undertaken.

Comment on the land classification weighting system and assessment of erosion

The current land classification weighting system was developed for MOF by Gisborne District Council soil conservators in conjunction with the Ministry for the Environment and Landcare Research. Both present and potential erosion assessments are used as criteria to assess the land targeted by the ECFP. Category 3 land (ie a LUC assessment based heavily on potential erosion) is targeted, regardless of present erosion, while Category 2 land is targeted only on a criterion of severe present erosion, regardless of potential erosion. There are some contradictions in this approach. For example, much Subcategory 3a land is relatively stable and is classified as Class VII mainly because of shallow, low fertility, drought-prone soils.¹³ Therefore this land is not of high priority for afforestation on erosion control grounds and, although about 11 000 ha (12% of the Subcategory 3a area) is currently part of the total East Coast forest estate, it is not of particularly high potential for commercial growth.¹⁴ Alternatively, all land in Subcategories 3b and 3c is subject to very severe or extreme erosion and it is the severity of erosion under pasture on this land which makes the region unique in New Zealand.

On Category 2 land the distinction between presently severely eroding land and other land in Subcategory 2a is somewhat arbitrary; as explained above in the section on the assessment of erosion, it is largely a matter of storm frequency. It is possible that in the long term, all land within an LUC unit has an approximately equal potential for sediment production, regardless of erosion severity at any given time.¹⁵ Some areas that have been accepted under the ECFP suffered severe slipping during Cyclone Bola but in 1993 these areas were assessed as having little severe present erosion. These areas would have easily qualified for the former ECCFS and the ECFP in 1989 but if submitted in subsequent years these areas would have declined in priority owing to grass regrowth obscuring the erosion scar.

The current grouping of erosion severity rankings into 0-2 and 3-5 also creates some problems in assessing the relative priority of grant applications. For example, it is not possible with the present erosion severity grouping to prioritise an area that contains extreme erosion over an area that contains severe erosion only. It is also not possible to prioritise an area containing moderate erosion over an area containing nil or slight erosion. A change in the way erosion is mapped and a change to the targeting system to recognise all erosion severity rankings would overcome these problems.

¹² Ministry of Works (1974).

¹³ Anon (1978); M Page, Landcare Research, pers comm (1994).

¹⁴ Ministry of Works and Development (1987).

¹⁵ Landcare Research is planning a sediment budget study which will test this assertion by estimating the amount of sediment produced from different types of land over the long term in the Waipaoa Catchment (M. Page, Landcare Research, pers comm (1994)).

The contradictions in the targeting regime in terms of present and potential erosion on the targeted land appear with the comparison of the targeting of Subcategory 3a land regardless of present erosion compared with the targeting of only some Category 2 land. For example, if an area of 100 ha of Subcategory 3a land is tendered, it has 100% of targeted area and receives a very high priority for funding, even though it may be relatively stable and contain insignificant erosion (LUC erosion scale = 0). This first area could be contrasted to another area of 100 ha of Category 2 land with a moderate erosion level (LUC erosion scale = 2). This second area does not contain any targeted land and so receives a very low priority for funding even though it has a much higher priority for planting from a soil conservation viewpoint. Until land reaches the threshold LUC erosion subclass 3, it is not classified as target land. In addition, the land that has a LUC erosion subclass of 4 or 5 receives no higher priority and is only classified under the weighting system as target land.

By definition, all Class VII land is severely erodible. The 'Red Report' states that a pastoral regime can only be maintained indefinitely on Category 2 land by application of intensive erosion control measures, and that this will be difficult on Subcategory 2b land. The key category in this regard is Subcategory 2a land (119 200 ha) which is regarded by many as having good agricultural potential (see section 5.2). Hicks' work provides some indication that soil conservation measures on some Class VII land are capable of reducing erosion impacts to the point where agricultural production can be maintained indefinitely, but this information is not specific to categories of land, nor is the cost-effectiveness of such measures clear (see box 3 for further discussion).

Alternative land classification weighting systems

The criteria for the selection of a land classification weighting system should include:

- the recognition of both present and potential erosion;
- the recognition that in the long term potential erosion is at least as important as present erosion;
- the recognition of the different rankings of erosion (eg moderate, severe, very severe, and extreme);
- the recognition of the mosaic of LUC Classes;
- ease of assessment (practical and able to be evaluated);
- simplicity to applicant (to encourage understanding).

Two alternative land classification weighting systems compared to the present system are suggested for consideration for the ECFP. They are presented because of the anomalies of the present system as discussed earlier in this section. These systems target both present and potential erosion but any new system should be compared against previous tender round grant applications to assess the system's effectiveness before it is introduced.

BOX 3: PERFORMANCE OF DIFFERENT CATEGORIES OF LAND IN CYCLONE BOLA

The performance of different categories of land was studied in detail by Hicks (1989a) for pastoral land in the Waihora Catchment and Phillips *et al* (1989) for forested land in the Tokomaru Forest. Hicks found that mass movement in the catchment occurred on all classes of hill country land, but was significantly higher on Category 3 Class VIIe land (11% of area affected) than on Category 2 Class VIIe land (8% of area affected) than on Class VIe land (5% of area affected). There was also more damage to roads and farm tracks on Class VIIe land than Class VIe. The degree of erosion on hillslope watercourses (very significant in terms of sediment generation) was not significantly different between LUC classes, but was greater on Category 2 than Category 3 land. Phillips *et al* found landslides were similar on LUC units VIIe1 (2a) and VIIe14 (3b), sometimes less than on VIIe9 (3a), but all three were much less than on VIIe16 (3b). There was a lot of variability between LUC Class units which was not closely related to categories, but all VIIe units experienced severe landsliding.

It appears from Hicks' work that all slopes steeper than about 20° contribute significant amounts of sediment. This has recently been confirmed by the analysis of the sources of sediment in the 3200 ha Lake Tutira catchment (south-west of Gisborne) which comprises hill country similar to the East Coast region and which was severely affected by Cyclone Bola.¹⁶ The researchers found that scarp slopes, moderately steep hillslopes and steep hillslopes covering 9%, 9%, and 6% of the area of the catchment produced 18%, 22% and 33% respectively of total sediment generated by Cyclone Bola. Further work on comparing the performance of different LUC units and categories over long periods of time is required.

Effect of Soil Conservation Measures on Different Classes of Land in Cyclone Bola

Hicks (1989b, 1992) found that soil conservation measures, such as space planting of willows and poplars on hillslopes, paired poplar planting in small gullies and small debris dams, significantly reduced damage on both Class VI and VII land in the Waihora catchment during Cyclone Bola. Where adequately installed and maintained, soil conservation measures had reduced erosion by 74% relative to adjacent unplanted land. Because plantings were present in only parts of the catchment and because many plantings had not been maintained, Hicks estimated that the existing measures had reduced erosion over the entire catchment by about 20%. Unfortunately there was no breakdown between Category 2 and Category 3 land. The actual economic benefit conferred by such soil conservation measures would depend on the cost of installation, the number of storms likely during their lifetime, and the productivity of the land being protected.

Phillips *et al* (1990) and Marden *et al* (1992) found that afforestation with pines reduced erosion by 90% or more, once trees formed a closed canopy and continuous root network, at age 6-8 years. These reductions were maintained in maturing stands (20-30 years) thinned to 300 stems per hectare. However, young trees (< 7 years old) did not reduce erosion.

¹⁶ Page *et al* (1994).

Option 1:

In this system the ranking and selection of tenders would be according to three factors:

- a) Land Subcategory ratio: $2b + 3a + 3b + 3c / 2a + 1b$

The Subcategory 1b would only apply to Class VIe land and a maximum ratio of 40% of Class VIe and Subcategory 2a land to 60% Subcategories 2b, 3a, 3b, and 3c would apply. Including Subcategory 2a with Subcategory 1b (Class VI) recognises the potential for other alternative soil conservation measures on this land (see section 5.2).

- b) Target Subcategory percentage: $2b + 3b + 3c$

This percentage will give priority to those areas with greater amounts of potential erosion. This percentage recognises that Subcategories 2b, 3b, and 3c are more erosion prone than 2a or 3a and so they should receive priority for grant funding.

- c) Erosion percentage: moderate or worse erosion severity ranking

This percentage will give priority to those areas with larger areas of present erosion. In a further refinement, the degree of erosion (eg moderate, severe, very severe, and extreme) could also be used to prioritise applications.

Option 2:

This system is to identify and give priority to areas with both high levels of present erosion and potential erosion. This system recognises that in the long term all Class VIIe land has the potential for severe erosion and so it should receive a higher priority for funding. The result of this new system would allow tenders with high percentages of Class VIIe and high percentages of actively eroding land to be given priority for grant funding, while tenders with lower percentages of Class VIIe land and lower percentages of actively eroding land would be given a lower priority for grant funding.

The ranking and selection of tenders would be according to:

- a) Class ratio: Class VIIe/Class VIe

This primary multiplier that would be based on the Class VIIe to VIe ratio, with tenders containing more Class VIIe land receiving a higher priority. This is to recognise the potential erosion rating of Class VII.

- b) Erosion percentage: moderate or worse

This secondary multiplier would give priority to areas with larger amounts of present (active) erosion.

- c) The continuation of the minimum area of 60% of Class VIIe land and an additional minimum area of 30% of targeted land of moderate or severe erosion severity (see below) are suggested bottom line requirements for areas to be eligible for grant approval.

Minimum target area

The 1994 tender round grant allocation resulted in a low net target area achievement of 12% for the Southern Pool, reducing the overall net target area achievement for the Project. This result occurred because many of the 1994 tenders had very low individual net target areas and, in some cases, a nil net target area. If low percentage net target areas continue to be approved for planting under the Project (such as in 1994), this could make it difficult for the Project to achieve its goal of planting 50% of targeted land. However, this will depend on how land is targeted in the future and how areas planted on cleared closed canopy indigenous scrub on Category 3 land is interpreted.

To enable the Project to achieve its goal of planting 50% of targeted land, a minimum area of 30% of targeted land could be required for any tender area that is put forward for approval. For smaller blocks less than 50 ha, a larger minimum area of 40% could be required to more precisely allocate funding to targeted land. A minimum target area may reduce the area of land that is offered for tender and the 7000 ha per year allocation area may not be achieved. The targeting of erosion severity rankings 2-5 with a minimum target area could also be investigated.

The main types of vegetation cover that could be affected by the ECFP will primarily consist of pasture with decreasing proportions of the kanuka/manuka, secondary broadleaved forest/scrub and fernland vegetation types. The vegetation cover for Classes VI and VII that qualify for the ECFP are shown in appendix 8. The aggregated LUC Class area of the affected vegetation cover types is shown in table 4.8.

The majority of the area of the secondary broadleaved forest/scrub and some of the area of the kanuka/manuka and fernland will not be eligible for planting under the ECFP criteria which exclude areas with emerging indigenous tree species, SSWI or RAP. Any vegetation clearance will also be required to meet the Gisborne District Council regional plan requirements.

A map of the vegetation cover of the Gisborne District is shown in figure 4.2 and the legend is shown in appendix 8.¹⁷

4.3 Vegetation category and target area

¹⁷ Source: Landcare Research (1994). The vegetation is primarily derived from a classified Landsat TM image acquired 24/1/93. The accuracy of the classification is 90%. Map production was funded through the Foundation for Research, Science and Technology. Produced and supplied by J R Dymond, M J Page, and L J Brown, Manaaki Whenua Landcare Research New Zealand Ltd. Reproduced by permission of the clients. See also Dymond *et al* (in press).

Figure 4.2

Vegetation Cover of the Gisborne District

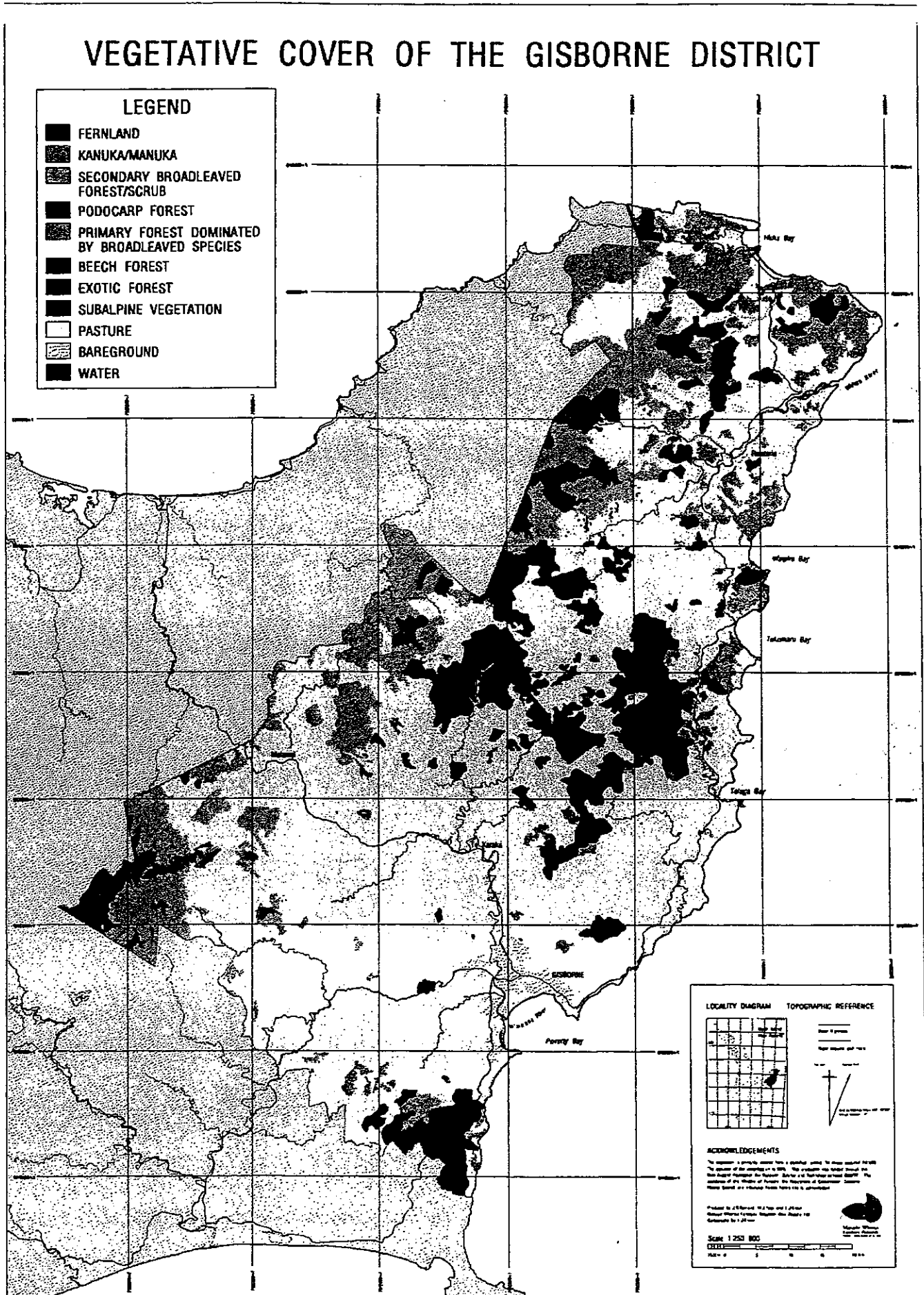


Table 4.8 Area of Main Vegetation Cover Types on ECFP Qualifying Area

Vegetation Cover Type (area in ha)	Class VIe	Class VIIe	TOTAL
Secondary Broadleaved Forest/Scrub	9644	17 403	27 047
Kanuka/Manuka	16 453	38 917	55 370
Fernland	175	1159	1334
Pasture	179 074	234 098	413 172
TOTAL AREA	205 346	291 577	496 923

Source: Landcare Research, 1994.

4.3.1 Excluded areas

The area excluded from grant approval by MOF and DOC and the type of area that has been voluntarily set aside by grantholders is shown in table 4.9. In total, more than 2600 ha has been set aside for conservation purposes through the Project. This is approximately 15% of the total area that has been approved for planting under the Project.

Table 4.9 Excluded Area by Year

Approved and Conditional Grants Only.

Type of excluded area	TENDER ROUND YEAR					TOTAL
	1992	1993		1994		
		Southern Pool	Northern Pool	Southern Pool	Northern Pool	
Recommended Area for Protection (ha)	118 ¹	143	-	-	219	480
Site of Special Wildlife Interest (ha)	- ¹	43	2	-	-	45
Emerging Indigenous Tree Species (ha)	+ ¹	39	238	71	180	528 +
SUBTOTAL (ha)	118 +	465		470		1053 +
Voluntary set aside areas (ha)	1011	75	293	46	272	1697
SUBTOTAL (ha)	1011	368		318		1697
TOTAL (ha)	1129 +	833		788		2750 +

¹ For the 1992 tender round, the Sites of Special Wildlife Interest and Recommended Areas for Protection were only available in the same category. The area of EITS for 1992 was not established but it was significant.

Scrub covered land signalled for clearance

As part of the application form for an ECFP grant, landholders are asked to indicate the area of scrub that they intend to clear to enable forestry planting. No definition of scrub is provided to applicants and so the scrub area that is indicated is composed of many different types and densities of scrub. From this information no assessment of the conservation value of the scrub or further classification of the area that is signalled for clearance is possible. The area is not specifically evaluated by DOC or MOF as the entire application area is assessed for RAP, SSWI or EITS which are excluded from the grant area.

The area intended for scrub clearance to enable planting under the East Coast Forestry Project is also the area applied for before areas are excluded from grant approval according to Department of Conservation or Ministry of Forestry criteria. The exclusion of areas according to RAP, SSWI or EITS criteria would significantly reduce this area. Resource consent conditions imposed by the Gisborne District Council will restrict the clearance of scrub near riparian areas, further reducing the area that is cleared.

The area of scrub that has been signalled for clearance as indicated on the application sheets before areas are excluded was estimated to be 1449 ha in the 1992 tender round, 534 ha in 1993 and 1739 ha in 1994. The majority of the intended scrub clearance area is in the Northern Pool, with the largest area of clearance signalled for the 1994 tender round. The total area of 3722 ha over the period 1992-94 is a maximum which includes area that will be excluded. No further analysis of inferred or actual scrub clearance is possible at this time. Some of this intended area for clearance will not be cleared if forestry grants are not taken up by grantholders.

4.3.2 Natural areas protection

Basis for natural areas protection

Under the ECFP regulations all Sites of Special Wildlife Interest (SSWI), Recommended Areas for Protection (RAP) and Protected Natural Areas (PNA) are ineligible for grant approval. Depending on a property's size, productivity and balance of vegetation cover, the presence and subsequent exclusion of these areas from grant approval may be a significant factor as to whether a competitive tender can be made. Boxes 4 and 5 describe the process and the implications of the designation of these areas.

BOX 4 SITES OF SPECIAL WILDLIFE INTEREST (SSWI)¹⁸

SSWI were designated as a result of a 1983-85 survey of the entire region by the then New Zealand Wildlife Service, as part of a national programme. SSWI were identified on both Crown-protected areas and on private land (including Maori land). The results were later published as a Department of Conservation report.

SSWI were systematically identified within a region on a 100 000 yard grid using reconnaissance wildlife survey techniques, information on 1:63360 topographic maps, and personal knowledge. In some regions of the country where there was little natural vegetation remaining, all or almost all natural areas greater than the cutoff qualifying area of 10 ha for forest and scrub or 0.5 ha for wetlands were designated as SSWI. In the more extensively forested East Coast region, most primary forest areas, but only a proportion of secondary forest scrub areas (probably about a quarter), were designated as SSWI. The boundaries of SSWI were delineated on topographic maps, and a survey card for each area was filled out.

In total 535 SSWI were visited and classified in the East Cape region, of which 343 were within the present Gisborne District, covering an area of 105 400 ha at an average of 307 ha. Each SSWI was classified as one of Forest, Scrub and Shrubland, Freshwater Wetland and Lake, or Coastal. The survey did not include rivers, but riparian areas are also excluded from ECFP grants. By far the biggest proportion of SSWI by area are forests.

The SSWI were ranked into five categories of Outstanding, High, Medium-High, Medium or Potential. All ranks of SSWI are excluded from ECFP grants although Department of Conservation staff indicate that they exercise discretion in delineating boundaries on the ground and sometimes delete fringe areas of Potential rank scrub to fit sensible boundaries. The criteria for ranking SSWI are set nationally and are based on the presence of rare, restricted or endemic species, areas important to breeding or migration of wildlife, and modification, size and representativeness of habitat. The Potential rank refers to areas whose wildlife values are limited by small size or heavy modification, but which would have increased wildlife value if left to regenerate or if managed or developed for wildlife. This includes habitat which functions as a corridor or which may be necessary for maintaining genetic diversity.

¹⁸ Sources: Rasch (1989); C. Ward, Department of Conservation Gisborne Conservancy, pers comm (1994).

BOX 5: RECOMMENDED AREAS FOR PROTECTION (RAP)

Survey under the Protected Natural Areas (PNA) Programme commenced in the early 1980s and has continued throughout the country under the Department of Conservation. Survey for the PNA Programme is done on the basis of Ecological Districts (EDs).¹⁹ Gisborne District contains all or part of seven EDs; in order of decreasing area they are Waiapu, Motu, Tiniroto, Turanga, Pukeamaru, Waioeka, and Waimana. There are also very small areas of several other EDs on the fringes of Gisborne District. PNA surveys have been completed for Motu, Pukeamaru, Turanga and Waiapu EDs.²⁰

Survey for the PNA Programme is carried out by reconnaissance and detailed field survey. The main emphasis of the PNA Programme is the survey of areas not already legally protected by the Crown and identification of the most significant of these areas as RAP. Study areas are delineated on 1:25 000 aerial photos, with a minimum size criterion of five ha or smaller in areas with little remaining indigenous vegetation. Vegetation is sampled and classified and vegetation units are combined with a landform and bioclimatic classification to give a large number of ecological units. Evaluation of these units is based on criteria of representativeness, diversity and pattern, rarity and special features, naturalness, long-term viability, size and shape, buffering and surrounding landscape. This objective evaluation process, and the emphasis on representativeness, appears to be the main methodological difference from the SSWI process.

For each surveyed natural area, scores for these criteria are totalled to give a ranking and the RAP are drawn from this ranked list to enable as many as possible of the ecological units to be adequately represented. The ranking of scores is sometimes subjectively altered to reflect the special significance of some surveyed areas, particularly small ones. RAP are ranked into three but sometimes four categories. The third category comprises RAP which tend to be smaller, in poorer condition or of a type better represented in other RAP.

There is considerable variation in the area and proportion of RAP in different EDs within Gisborne District. For example, in Turanga ED, surrounding the Gisborne Plains, only approximately 20% of existing natural diversity is represented in existing PNA, and therefore all 36 remaining surveyed natural areas are recommended for protection, but almost all of these are small, and the total area of both protected and recommended natural areas is only 1.4% of the area of the ED. By contrast, a very large proportion of Motu ED lies within Raukumara Forest Park and other existing PNAs, so the number of further RAP is smaller, but the total area of protected and recommended natural areas is much greater than in many other EDs.

The Waiapu ED (364 000 ha) covers a large proportion of the ECFP area, north of Gisborne. The RAP identified in the Waiapu ED have a total area of 20 000 ha or 5.5% of the ED. Almost half of this area is scrub or early secondary forest (most of which is dominated by kanuka). About 30% of the total area of substantial closed canopy indigenous scrub - early secondary forest in the district is identified as RAP.

In general the number of RAP in an ED is a subset of the number of SSWI, but some RAP occur where SSWI did not and vice versa because of different size criteria, regeneration since the time of the SSWI survey, not having been included in the PNA survey because of refusal of access, or change of professional judgement. In a number of cases the boundaries between SSWI and RAP at the same site have not coincided because of vegetation changes since the SSWI survey or because of the addition of a fringe area of scrub around a forested area.

¹⁹ McEwen (1987).

²⁰ Clarkson *et al* (1986); Regnier *et al* (1988); Clarkson *et al* (1991); Leathwick *et al* (in press).

4.3.3 Discussion of vegetation category and targeting mechanism

Comment on natural areas protection

Together the SSWI and PNA surveys recognise a large area of land as worthy of protection. The 105 400 ha of SSWI represent exactly half of the existing 'natural vegetation' in the Gisborne District²¹ and 12.6% of the total area of the District but it includes a substantial area of primary forest in a large PNA on the western fringe of the Gisborne District. RAP would add to this an unknown but probably small area, as explained above. However, there is wide variation between Ecological Districts (ED) in the proportion of land protected or recommended for protection.

Some aspects of both survey methodologies are less than ideal. The method of choosing and delineating SSWI appears to have been quite arbitrary and inconsistent between regions, although no doubt dictated by time and resource constraints. The PNA Programme survey methodology is more explicit and, in particular, has a well-documented method of assessing representativeness. However, in many EDs a synthetic vegetation classification system has been used to erect a very detailed ecological unit classification (eg 122 units in the 80 000 ha Turanga ED) which by its nature ensures that full representativeness is very difficult to secure. A subjective assessment is sometimes required to recognise special values and this may override the PNA rankings.

The protection of all SSWI was seen at the time of survey as an ideal that was unlikely to be achieved; thus the SSWI ranking system. The SSWI report stressed the relative importance of protection of forest and scrub in Tiniroto, Turanga and Waiapu EDs, and of wetland in all EDs. The ECFP exclusion process allows for informal protection of systematically identified natural areas and this is an important opportunity to promote comprehensive nature conservation in the region, as provided for by the revised objectives of the ECFP. However, it is important that this opportunity should not disadvantage landholders with SSWI and RAP, particularly in regions with large remaining natural areas. Thus the concept of a credit for formal protection of SSWI and RAP deserves consideration (see below).

Therefore, a priority on secure protection of the most highly ranked RAP and SSWI for protection seems to be a key requirement. Undue emphasis on the exclusion of all closed canopy indigenous scrub, including Potential Rank SSWI, at the expense of Category 1 and 2 RAP and Outstanding SSWI would be a major inconsistency and the loss of an important opportunity. For instance, the exclusion of closed canopy scrub under a simple height criterion of three metres under the New Zealand Forest Accord seems somewhat arbitrary, particularly as kanuka reaches this height in less than five years.²² The total area of this type of regenerating vegetation is likely to vary significantly over time, largely according to economic conditions (ie in a recession this area can increase and with economic growth can decrease). For example, the amount of secondary

²¹ Estimated figures from the Landcare Research vegetation cover analysis, comprising total area of all forest and scrub categories.

²² Bergin *et al* (1993).

broadleaved scrub and manuka/kanuka dominant vegetation in the region, recorded during NZLRI fieldwork in the early 1970s, was less than 70 000 ha compared with nearly 90 000 ha in 1993.²³ The concept of a credit for formal RAP protection, which by any conservation criterion would be of higher priority than conservation exclusion or even formal protection of non-identified scrub, deserves attention.

A further consideration is that until secure protection for RAP and SSWI is achieved, it is unlikely that they will receive significant management for conservation values, eg weed and pest control.

Indigenous vegetation retention weighting system

The indigenous vegetation retention weighting system has not yet been applied to ECFP grant applications as no grants have had areas of voluntarily set aside closed canopy indigenous scrub (CCIS). The current indigenous vegetation weighting system provides for a nominal credit of \$300/ha to be deducted from a tender for ranking purposes where an applicant elects to exclude an area that could be cleared under the ECFP criteria.

For example: An application for an area of 100 ha with 20 ha tall kanaka (height eight metres, no understory), which is eligible for clearance, would qualify for a credit against the cost of the tender of \$6000 (based on \$300/ha) if the applicant elected to set aside the 20 ha of tall kanaka.

However, a problem with the CCIS criteria is that it provides an incentive (a credit of \$300/ha) for retaining areas which are eligible to be cleared, even though these areas may have lower conservation values compared to RAP, SSWI, or areas with EITS which are excluded from grant approval. In contrast to the CCIS areas, the retention of these more important conservation areas generates no credit for a tender, as they are simply excluded from eligibility for grant approval.

A possible solution to this inconsistency would be to apply the credit to identified conservation areas (eg RAP, SSWI, and EITS) to provide a financial incentive to the areas being retained. Combined with effective fencing provisions (see below) these areas would contribute substantially to achieving the conservation objective of the ECFP.

The actual value of the credit may also have little effect on the nominal ranking of the tender as the area of target land and the land classification weighting scale plays a dominant role in determining the nominal value of grant applications.

²³ Sources of this information are DSIR Land Resources analysis of NZLRI data, performed for the Ministry for the Environment, April 1992 (W Bettjeman, Ministry for the Environment, pers comm), and Landcare Research (1994).

For example: A grant for \$500/ha is applied for on 200 ha of land with a 40% target area. The landholder is going to set aside an area of 40 ha of CCIS and the land classification weighting scale multiplier is 1.15 (see section 4.1 for complete scale). The nominal value of the tender is calculated as below:

$$\begin{aligned} 160 \text{ ha} \times \$500 \times 1.15 &= \$92\,000 \text{ (clear pasture for planting)} \\ \text{less } 40 \text{ ha} \times \$300/\text{ha} &= 12\,000 \text{ (CCIS credit for area set aside)} \\ &= \$80\,000 \end{aligned}$$

$$\text{Nominal ranking value} = \$80\,000/160 \text{ ha} = \$500/\text{ha}$$

If a second 200 ha application is applied for at \$500/ha with 55% of net target land (target land less any cleared CCIS) and 40 ha of CCIS was to be cleared and not set aside, the nominal value of the tender for ranking purposes would become:

$$\$500 \times 0.95 = \$475/\text{ha}$$

At a nominal ranking of \$475/ha this second tender would have a greater priority than the first tender even though it involves the clearance of 40 ha of CCIS. The crucial issue is what priority should be given to the setting aside of CCIS as compared to the planting of target land. The actual value of the credit to obtain the setting aside of areas that are eligible for clearance may need to be reinvestigated.

Processing of excluded areas

A change to the processing of the 1994 tender round resulted in applicants (as part of the certification process) being required to obtain from DOC an ecological importance certificate signed by a DOC officer before submitting a grant application to MOF. This enabled the Department to delineate any SSWI or known RAP on detailed photo-maps of the proposed area. This change helped to increase certainty for an applicant as to which area might be finally approved for a grant although EITS criteria still require a joint DOC and MOF ground inspection after the application is submitted. The exclusion of SSWI and RAP provides MOF with a penalty mechanism to withhold future grant payments if any officially excluded area is subsequently altered. This is a powerful sanction under the ECFP process.

However, in a hypothetical situation if an applicant excludes an area of significant conservation value before final boundaries of an area are submitted to MOF, then there can be no penalty mechanism (as the significant area was not in the grant area) and the applicant is not bound by the ECFP procedures if they decide to alter the land. Requiring applicants to obtain the DOC certificate before they finalise application boundaries may inadvertently increase the risk to more significant areas (RAP or SSWI) while the generally less significant EITS areas gain a greater degree of protection through the penalty mechanism.

The timing at which RAP or SSWI are identified as part of a grant application need to be investigated and the penalty mechanism may need to apply to any significant conservation area within or abutting a grant area. Alternatively, if a credit was offered for the protection of significant RAP and SSWI, this could provide a financial incentive for an applicant to set aside these identified conservation areas.

Secure protection for set aside areas

Grantholders with excluded areas or areas set aside for CCIS credit purposes cannot utilise these areas without risking the loss of the remaining proportion of the forestry grant. However, at the completion of Project funding there is no long-term mechanism to protect these areas for conservation purposes.

To enhance the long-term protection of these areas, the secure protection of significant conservation areas (based on the relative importance of the conservation values of the area) could be considered. This would help to achieve the conservation objective of the ECFP.

An alternative indigenous vegetation weighting system

The ECFP criteria allows an applicant to obtain a nominal credit of \$300/ha for every hectare of CCIS that is set aside and not cleared. For example, if an applicant has an area of 100 ha of CCIS (that is eligible for clearance) and clears 80 ha and sets aside 20 ha, the applicant gets a credit for 20 ha. The weighting system provides a credit for the retention of 20 ha while 80 ha are cleared.

A new weighting system is proposed that is based on the net retention of CCIS. In the above example, if the applicant proposes to clear 80 ha and leave 20 ha, this would give a penalty of -60 ha at \$300/ha to be applied to the nominal value of the tender for ranking purposes. However, if an applicant proposes to clear 40 ha and leave 60 ha, this would give a net area of 20 ha credit at \$300/ha to be applied to the nominal value of the tender for ranking purposes. If an area has no scrub to be cleared the weighting system would be neutral and would not apply.

The value of the credit/penalty may need to be increased to promote the retention of areas of CCIS as \$300/ha may not be sufficient to affect nominal tender values significantly. An analysis of the appropriate level of incentive or disincentive is required to set the correct level of credit/penalty.

Fencing provisions

Provision for the fencing of set aside indigenous areas (to be funded under the ECFP) was first included in the 1993 tender round to assist the achievement of the conservation objective of the Project. The fencing of areas would help to prevent stock from grazing in them, although uncontrolled wild animals (eg goats and possums) would limit regrowth.

While the fencing of excluded significant conservation areas is desirable it is not always possible because of the physical constraints of the region (eg steep slopes and gullies). If applicants have indigenous areas set aside from clearance, they can include the full cost of fencing those set aside areas in an application, and this cost (where clearly identified) is not included in the assessment and ranking of tenders.

For example: \$400/ha tender - \$30/ha fence = \$370/ha nominal tender
If the tender area was 100 ha, then the cost of the fence = \$3000

Although the fencing provisions are an important initiative to safeguard conservation areas and to protect set aside areas from browsing animals, there are problems with the fencing provisions. If a successful applicant fences a set aside area at the start of planting to protect the indigenous vegetation, the landowner pays the full cost of the fencing in year one. However, the identified fencing cost is paid over the life of the forestry grant, which may be more than ten years. In the first year an applicant will only recover 35% of the fencing cost. This provides no real incentive to applicants to apply for the recovery of fencing costs.

To solve this problem the full component of the cost of fencing should be paid in the first year by MOF after verification that the fencing of the protected area has occurred. A maximum cost for fencing (eg cost/metre of fence) of the set aside area should also be included in the Project guidelines by MOF with a range of 'typical costs' according to the terrain and fencing requirements of any set aside area.

Promotion of the inclusion of fencing costs

There were no applications in the 1993 tender round that included the cost of fencing and in the 1994 tender round there were only three such applications. Apart from the existing financial disincentive, more explicit promotion of the fencing option could result in areas being fenced and set aside to help achieve the conservation objective.

Applicants could be informed of the potential for recovering costs associated with the fencing of set aside areas when these areas are identified in the case of SSWI or RAP. In other cases it could be possible for the fencing of excluded areas to be identified by DOC and MOF officers during the field inspection of grant applications. The costs of fencing could then be funded even though they were not included in the original grant application.

The area of land in each Pool that is intended for planting is shown in table 4.4 and the approximate location of ECFP plantings is shown in figure 4.3.

Although the Northern Pool is eligible for two-thirds of the available funding and area allocation, major interest in the Northern Pool by forestry investors has not yet resulted. This may reflect the level of actual and perceived risk of planting in the Northern Pool. Risk factors include the increased distance to port, the issue of scrub clearance and grant approval, the lack of a joint venture partner for Ngati Porou Whanui Forests, the lack of capital for forestry development, and the additional costs of establishing forestry in the Northern Pool.

4.4 Geographical location of grant areas

The number of tenders for each round will affect the success of the ECFP, as for the competitive tender system to function efficiently and for competition to reduce the cost of tenders in subsequent years, there needs to be sufficient interest in the Project. The present limited interest in the Project in the north may affect the success of the tender system to lower the cost of grants. However, in 1994 there was an encouraging increase in the area of grant applications for the north and further interest has continued to be shown in this area.

The grant area size class and size class area distribution is shown in table 4.10. The 1992 tender round areas are for Class VII grant land only and the planting of associated Class VI non-grant land would increase all 1992 planting areas.

In all tender rounds, the grant distribution was characterised by the high number of grants in the 25 to 50 ha, the 51 to 100 ha, and the 101 to 250 ha range. In the 1994 tender round there was a high proportion of grants for areas less than 50 ha, particularly in the Southern Pool. The 1993 tender round had five approved grants in the greater than 501 ha range. In contrast, the 1994 tender round had only one grant area greater than 500 ha and this contributed to the lower total grant allocation for the 1994 tender round compared to the 1993 tender round. However, it should be noted that there were two applications for the Northern Pool for more than 500 that were declined, and if these areas had been approved the 1994 tender round would have increased by more than 1000 ha.

The number of small grant areas will increase the number of small-scale forestry blocks but the costs of administering the ECFP will increase with each grant approved.

To allocate 7000 ha of grants for forestry planting each year under the ECFP will require large forestry investors to be involved in the Project. The present lack of a joint venture partner for Ngati Porou Whanui Forests Limited (see chapter 3) may restrict the level of planting in the Northern Pool and this may ultimately affect the degree of competition for grants in this Pool.

The type of investor and the level of interest from different categories of investors is shown in table 4.11. The investor category represents the situation at the time of a grant application and if a property is sold or a joint venture is entered into, the investor category will change. The table shows that the largest number of grants and the largest investor grant area have been made to the investor category of farmer or farming company.

4.5 Management unit sizes

4.6 Type of investor

Table 4.10 Grant Area Size Class and Class Area by Year for Approved and Conditional Grants

Note: The figures in brackets in the 'number of grants' column, are the total number of applications in that grant size class.

GRANT AREA CLASS	TENDER ROUND YEAR											
	1992 ¹			1993			1994			1992 - 1994		
	Number of Grants	Class Area (ha)		Southern Pool	Northern Pool		Southern Pool	Northern Pool		Southern Pool	Northern Pool	TOTAL
25 - 50 ha	6 (11)	163		3 (14)	0 (2)	0	10 (10)	3 (4)	103	22	693	
51 - 100 ha	10 (12)	701		2 (8)	2 (5)	163	4 (4)	1 (2)	86	19	1380	
101 - 250 ha	4 (12)	556		2 (10)	6 (8)	1056	3 (4)	2 (3)	300	17	2778	
251 - 500 ha	2 (-)	733		1 (3)	1 (7)	384	2 (2)	3 (6)	1072	9	3458	
> 500 ha	2 (4)	1449		2 (4)	3 (3)	2231	0 (0)	1 (3)	1269	8	7049	
TOTAL	24 (39)	3602		10 (39)	12 (25)	3834	19 (20)	10 (18)	2830	75	15 358	
TOTAL	24 grants (39) for 3602 ha			22 grants (64) for 6981 ha			29 grants (38) for 4775 ha			75 grants 15 358 ha		

¹ For the 1992 tender round only Class VIIe land was eligible for grant funding. An associated planting area of 2477 ha of Class VIIe land was not eligible for ECFP grant funding, with a combined Class VIe and VIIe total for the 1992 tender round of 6079 ha.

Table 4.11 Category of Investor
Approved and Conditional Grants Only.

CATEGORY OF INVESTOR	TENDER ROUND YEAR										TOTAL		
	1992					1993		1994		1992 - 1994			
	Number of Grants	Class VIIe Land	Associated Class VIIe Land ¹	Total Area	Number of Grants	Total Area	Number of Grants	Total Area	Number of Grants	% of Total	Total Area	% of Total	
Forest Investors using Joint Venture Mechanism on Farmland	18	1175	1548	2723	4	872	7	1127	29	39%	4722	26%	
Farmers/Farming Companies on own Land	5	1590	735	2325	13	3804	22	3648	40	53%	9777	55%	
Forest Investors on own Land	1	837	194	1031	3	808	-	-	4	5%	1839	10%	
Joint application - Farmers/Farming Companies and Forest Investors on Farmland ²	-	-	-	-	2	1497	-	-	2	3%	1497	8%	
TOTALS	24	3602	2477	6079	22	6981	29	4775	75	100%	17 835	100%	

¹ For the 1992 tender round, associated Class VIIe land that was intended to be planted with the Class VIIe grant land was not eligible for ECFP grant funding.

² The two grants involve both farmers and forestry investors on farming land.

4.7 Issues arising from the Project design

The design of the ECFP has evolved since the initial tender round in response to several problems with the Project that had become apparent. The complexity of the Project, the changes to the design, and the timing of the changes to the Project have caused some confusion for investors with resulting investment uncertainty.

In a major three year review of the ECFP in the 1995-96 financial year, MOF intends to coordinate a Government review of the ECFP to assess how effective it has been in meeting its objectives. It is envisaged that there will be wide consultation with Government and other agencies as part of this review. The following issues arising from the present investigation should also be addressed as part of the three year review.

Annual appraisal of the ECFP

In the past, changes to the ECFP have been made to assist the Project to meet its objectives and to allow for more efficient targeting of the forestry grant. To maximise the effectiveness and to achieve general support for the ECFP, a regular appraisal of the Project is required. With the involvement of all parties, any apparent and/or potential problems with the Project could be quickly rectified with resulting changes to the regulations and criteria. Regular appraisal and feedback could report on the progress of the Project and any problems during the year. There is a definite role for the Technical Advisory Committee and the Gisborne District Consultative Committee in the annual appraisal of the Project.

Yearly target

The present ECFP regulations allow for a maximum of 7000 ha to be allocated to forestry grant applicants for any planting year. However, the planting of 7000 ha/yr may not be achieved for several reasons. Grantholders may decide not to take up the forestry grant and this will reduce the amount of land that is afforested under the Project in any year. In other years, investors may be able to obtain higher returns from other sectors, there may be fluctuations in returns from the forestry sector, and different levels of financial risk may reduce the level of interest in the Project.

To accommodate these fluctuations in investor interest, the economy, and the acceptance of Project grants, it would be more efficient for the Project to allow an average of 7000 ha/yr over a three year cycle. If this occurred, grants could then be allocated when tenders that met ECFP criteria were received, thus maximising investment in the Project. To ensure that high cost grant applications with low net target areas were not approved under this system, a minimum net target area and further limits on maximum grant costs per hectare would be required.

Administration

For applicants to understand the competitive tender round application process, the guidelines that are published by MOF need to contain examples of possible tender options and all of the details of the ranking process need to be clearly displayed. If there is confusion regarding the way the ranking system is applied, discontented applicants may not retender their grant application if it is not clear why their application was not accepted. The use of a net present value (based on a realistic return for commercial forestry on the East Coast) as a cut-off point

for the maximum tender value in each Pool that will be accepted and the clear identification of targeted land for the land classification weighting system are two requirements.

Promotion of the Project

For the Project to achieve a planting level of 7000 ha/yr there will need to be significant interest shown in the Project by forestry investors. To maximise interest and subsequent investment in the Project, MOF will need to increase its promotion and advertising of the Project.

As part of the increased information provision the clear separation of promotional material from the Project guidelines would help to avoid any investor confusion with the Project's regulations, criteria and targeting mechanisms. The use of calculated examples demonstrating the various Project targeting mechanisms, along with a flowchart of the MOF tender allocation process, would help applicants in the design of the tenders. If applicants fully understand the tender process, and the rationale for the acceptance or non-acceptance of tenders, confusion and possible future disinterest in the Project may be avoided.

Net present value cutoff

As part of the assessment of grant applications, MOF applies a maximum acceptable price per hectare as a cutoff point to eliminate high cost applications. The price is calculated on the net present value (NPV) of a typical forestry investment for each Pool that is calculated for each tender round. The purpose of the NPV cutoff is to prevent high cost applications from qualifying for the Project and assist the achievement of the Project's objectives at the lowest cost to the government. The elimination of high cost grant applications occurs as an initial step before the use of the Project weighting systems to rank and prioritise applications for grant approval. The cutoff point is confidential to prevent grant applicants maximising the value of their grants.

The NPV cutoff is calculated by assuming a constant value for different investment variables (eg land costs, establishment costs, harvesting costs, market prices for forest products) based on the typical cost of a forestry investment in each Pool, allowing for an additional risk factor to establish forestry on the East Coast. However many variables, such as the terrain (including the percentage of target eroding or erodible land) or the distance to ports, are not constant and these variables will greatly influence the cost of individual grant applications.

A grant application that contains a higher percentage of target land (eg 70-100% of Category 3 or severely eroding Category 2 land) will probably be submitted at a higher cost per hectare than an application with a lower percentage of target land. The effect of the NPV cutoff is that it eliminates high cost grants regardless of the target area and this works against high target land percentage applications (which are probably higher cost applications) being approved. This also limits the target achievement of the Project.

In the 1994 tender round several applications were rejected on account of the NPV cutoff even though they contained high target land percentages. However applications with high target percentages are required if the Project is to meet

its soil conservation objective. The rejected applications would have received a favourable ranking in the assessment and allocation of grants if they had not been eliminated at the NPV cutoff.

To overcome this problem of eliminating high cost applications that contain large percentages of target land, one approach could be to use two or more NPV cutoff points according to the area of target land in an application (eg a lower NPV for 0-50% target land compared to a higher NPV for 50-100% target land). The overall effect of one lower NPV and one higher NPV could be neutral. This system would remain simple to use (as the NPV is only calculated and used by MOF) but it would have the desired effect of eliminating some high cost applications containing low percentages of target land while giving approval to applications containing higher percentages of target land if at a slightly higher cost.

ECFP planting densities

As part of the intensive tending regime the ECFP requires high planting densities for radiata pine and douglas fir on Class VIIe land (1250 or 1500 stems per hectare depending on the LUC unit) to meet the Project's soil conservation objective. On Class VIe land a planting density of 700 stems per hectare is required. The required planting densities were established by the Forest Research Institute after research into the stability of tree planting on the East Coast.²⁴ The densities reflect tradeoffs between the time to canopy closure and the erosion prevented and the additional costs of planting and tending. The higher densities would require more intensive silvicultural work and would "improve the value of the forest and increase employment opportunities and financial returns".²⁵

Some forestry investors have questioned the need for the high planting densities for radiata pine of 1250 and 1500 stems per hectare compared to 'typical' stocking rates of 800 stems per hectare. The higher planting densities for Class VIIe land add additional costs per hectare to planting (eg increased costs of seedlings, planting, supervision of planting and identification of planting boundaries) and tending of approximately \$250-400/ha compared to 'typical' planting densities.

The Forest Research Institute work shows that higher planting densities affect the time of root network establishment and canopy closure, hence the land's susceptibility to erosion in the first years after planting (the different densities investigated do not affect susceptibility after canopy closure). However, the conclusions of the research have certain limitations. They assume a uniform storm frequency distribution over the region, which is not the case.²⁶ The research only investigates a few combinations of planting density, planting stock, and silvicultural treatment, and it appears from the results shown that significant differences in planting density can be overshadowed by silvicultural differences. The effect of planting technique, which is known to have a critical effect on later tree stability and survival,²⁷ is not investigated at all.

²⁴ Kelliher, *et al* (1992).

²⁵ Ministry of Forestry (1994), p 6.

²⁶ D Hicks, unpublished data.

²⁷ K Bradshaw, pers comm (1994).

Some clarification of this important aspect is therefore required, as the consultants suggest in their report. In the interim, it appears as though the difference between the recommended Class VII planting densities does not make any significant difference to the stability model being simply to account for higher losses on earth-flow prone land. Therefore the difference between 1250 and 1500 stems per hectare does not fulfil any of the Project's objectives and the decision between these two densities should be a commercial one.

However a minimum stipulation of 1250 stems per hectare on Class VII is supported, in recognition that the Project is partly designed to meet a soil conservation objective as quickly as possible. For the investor the greater selection of trees at the thinning stage may also allow the best trees to be selected, which will maximise the forestry investors' return. If applicants are concerned about the increased costs, they can always include in a tender a proportion of the additional cost but with the risk that the higher the tender the less likely it is to be accepted.

Catchment planting

The ECFP as a commercial forestry project did not intend forestry grants to be used to plant Class VIII land (with the only recommended landuse - protection forestry). The proposed Gisborne District Council vegetation removal and earthworks regional plan²⁸ does not allow harvesting of forestry on Class VIII land (because of the soil conservation risk) and there is no commercial incentive to plant in these areas.

Nevertheless, it is important that stabilisation of Class VIII land be attempted because some areas of Class VIII land are major sources of sediment. The stabilisation of these areas may not be possible in the short to medium term but if the surrounding area is planted, any Class VIII land that is contained within the area will receive the benefit of a reduction in runoff and drainage. With time this reduced drainage will assist the slow stabilisation of the Class VIII land and this will possibly allow the revegetation of the Class VIII land.

Because of the increased risk of planting up to the boundary of unstable Class VIII areas and to provide an incentive for the revegetation and management of these areas, a nominal credit or incentive could be offered where an applicant includes any Class VIII land as part of a forestry grant application. By according a higher priority to those applications, this would recognise the benefits of planting entire catchments or major gully systems for erosion control. The encouragement of the planting of entire catchments by the ECFP would contribute to an eventual reduction in the amount of sediment material that is being eroded from catchments.

Apart from this possible mechanism it would appear that the requirements of Class VIII and the worst eroding Class VIIe need to be addressed by a separate specially targeted soil conservation/rehabilitation programme (see section 6.4). The selection of appropriate tree species for planting in these areas will be a crucial factor and indigenous species may be the best option.

²⁸ Gisborne District Council (1992).

Priority catchments

Applications for ECFP grants are entirely at a land owner's discretion and this may result in a wide geographical spread of tenders for planting under the Project. However, because tenders may come from anywhere in the East Coast region, they may not target the critical headwaters of eroding catchments or previously identified target areas for afforestation.

To achieve planting in priority areas, as well as the current Northern and Southern Pool criteria for allocating ECFP funding and area, a list of priority catchments could target ECFP grants to critical areas. Giving these areas greater priority for grant funding would assist the Project to fulfil its soil conservation objective and mitigate downstream flooding risks in intensively used catchments more quickly. The use of higher NPV values as cutoff points (see above) for priority catchments could assist in the planting of these catchments.

New Zealand Historic Places Trust

The Historic Places Act 1993 is to promote the identification, protection, preservation, and conservation of the historical and cultural heritage of New Zealand. An archaeological site is defined in the Act as "any place in New Zealand that either was associated with human activity that occurred before 1990". It is not lawful for any person to destroy, damage, or modify any archaeological site except with an authority granted by the New Zealand Historic Places Trust (NZHPT). Any person commits an offence if they intentionally destroy, damage, or modify any historic place, area, or thing vested in the control of the NZHPT, or without an authority from the NZHPT. An offence under the Act may be punishable by a fine.

Forestry development (ie forestry establishment, tending, or harvesting operations) has the potential to destroy, damage, or modify an archaeological site (eg through roading and tracking) and once a forest is planted the recognition of sites becomes increasingly difficult. To protect these sites, the ECFP guidelines state that archaeological sites are ineligible for grant approval. The identification of these sites is the responsibility of a grant applicant who is required under the Project to pay for a site inspection to assess the value of potential archaeological sites and any identified areas are then excluded from grant approval. The sites may also be identified by the Department of Conservation who will indicate to a grant applicant whether or not an application area may contain an archaeological site as part of the ecological certificate process.

The obligation for an applicant to undertake an archaeological site inspection is voluntary although penalties are provided for by the Historic Places Act 1993 and through the Project. The current ECFP process may inadvertently result in the destruction or alteration of unknown archaeological sites. To provide for the exclusion of archaeological areas from grant areas, an archaeological certificate (signed by an approved archaeological consultant recognised by the NZHPT) should be required as part of a final forestry planting and management plan. This certificate would complement the present ecological certificate and if the archaeological certificate was not required after conditional approval of a grant, it would not impose undue costs on grant applicants or restrict interest in the Project.

This chapter has provided an overview of the East Coast Forestry Project regulations and guidelines and an analysis of the effectiveness of the Project design and targeting mechanisms since the initial tender round in 1992. This analysis indicates that the Project has achieved mixed results from the first three tender rounds.

Both the application area and the allocated grant area have fluctuated over the tender rounds, with significantly less (but increasing each year) than the maximum available grant area of 7000 ha per year allocated to grant applicants. Considerable interest has been shown in the Southern Pool planting area although there has also been an increase in the area of grant applications for the planting of land in the Northern Pool. This is considered desirable to achieve the Project's intention of planting land in the Northern Pool. The net present value cutoff has eliminated high cost grant applications (as intended), but this has been at the expense of planting areas of target land.

In the allocated grant areas there has been a variable percentage of the target area of Category 3 and severely eroding Category 2, particularly in the Southern Pool. While not of particular concern at this stage, continuation of successful grant applications with very low target area percentages would be of concern. There has been an increasing percentage of LUC Class VIIe land in allocated grants. This is desirable because of the need to target potentially erodible land. There have been few applications for the recovery of costs associated with the fencing of voluntarily set aside areas of indigenous vegetation. The indigenous vegetation weighting system which provides a credit for areas of closed canopy indigenous scrub that are set aside has not been used.

Significant areas of scrub have been signalled for clearance, but significant areas of indigenous vegetation have also been set aside for conservation purposes. However, the setting aside of these areas has not resulted in their secure protection and the areas set aside do not reflect the ranking and priorities derived from the protected natural areas programme or sites of special wildlife interest surveys. This reflects the conflict between ECFP provisions and the New Zealand Forest Accord.

Key issues that have also been addressed in this chapter include:

- the land category and erosion area targeted by the Project;
- criteria for the selection of a land classification weighting system;
- the types of conservation areas, their priority for protection, and recognition of these areas by the Project; and
- the Project weighting systems.

Several alternative weighting systems to target eroding and erodible land and to promote the conservation of significant areas of indigenous vegetation are discussed. Elements of the Project design (eg administration, promotion, net present value cutoff, planting densities, and catchment planting) can also be improved upon or to meet sustainable land management goals for the region.

Chapter 5

IMPACTS OF THE EAST COAST FORESTRY PROJECT

This chapter briefly surveys the range of impacts in the region that are occurring or are suggested will occur as a result of the Project. A number of studies of impacts of the Project are under way or planned (principally as part of the Ministry of Forestry's 1995-96 review of the Project). This chapter aims only to summarise the type of impacts that could be expected to occur, briefly review existing work on these impacts, and indicate the further work under way or planned.

For twenty years or more there has been extensive discussion about actual or potential impacts of plantation forestry in New Zealand and its sustainability. The most recent summaries of these discussions are a seminar on New Zealand plantation forestry at the 1994 New Zealand Institute of Forestry Conference¹, a guide to commercial forestry and the Resource Management Act 1991² and a review of the environmental effects of exotic monoculture tree plantations in Aotearoa/New Zealand by Greenpeace New Zealand.³

5.1 Biophysical impacts of commercial forestry

5.1.1 Effects on erosion

Most of the erosion occurring in the East Coast region is various types of mass movement. It is now well accepted from research throughout the world and New Zealand, and from the East Coast region,⁴ that the incidence of such erosion, especially landslides, is significantly less under intact forest than under grassland. Forest Research Institute surveys in the region following Cyclone Bola indicated a reduction in erosion (based on assessment of surface area of landslide scars) of approximately 90% under six - eight-year-old pine forest compared to pasture, and 94% under mature pine forest and native forest, compared to pasture.⁵ Hicks' work, on the frequency distribution of different severities of erosion under forest

¹ New Zealand Institute of Forestry Inc. (1994).

² New Zealand Forest Owners Association *et al* (1994).

³ Rosoman (1994).

⁴ New Zealand and international reviews of this subject include Sidle *et al* (1985) and O'Loughlin and Owens (1987). Relevant recent studies from the region include Hicks (1991); Bergin *et al* (1993), Phillips *et al* (1990); Marden *et al* (1992); Marden and Rowan (1993).

⁵ Pine trees less than six years old were as susceptible to erosion as pasture.

and pasture, showed that under pasture there was a consistently higher proportion of severely eroded hillsides. In Cyclone Bola, afforestation in the Waipaoa catchment resulted in significantly less damage on the Gisborne Plains than would have otherwise been the case.⁶

These surveys showed that reverting indigenous scrub was intermediate in its susceptibility to landsliding between pasture and mature forest. However, the stands examined in these surveys were of mixed age. Bergin *et al* (1993) examined kanuka and manuka scrub stands of different ages, and found that in high density eight-year-old stands landsliding was reduced by 54% compared with pasture, in high density 16-year-old stands by 91%, and in scrub more than 30 years old, damage was said to be minimal. However, low density stands provided significantly less protection, particularly in older age classes. Grazing pressure would be a significant factor in the incidence of low density stands.

Intact forest and scrub is less susceptible to erosion because their root network provides mechanical reinforcement to the soil. Also, tree canopy interception of rainfall decreases the amount and erosive impact of raindrops reaching the soil.⁷

Direct comparison of other forms of erosion between pasture and forest is difficult, but rates of earthflow movement under forest and the rate of gully initiation are less under forest than under pasture.⁸ However, there appears to be less or no difference in erosion rates in active gullies or hillslope watercourses between pasture and forests,⁹ meaning that existing major gullies in pasture can readily expand into adjacent forest and continue to expand in major storms.^{10, 11} Much effort, only partly successful, has gone into trying to control these large complexes in Mangatu Forest¹² and they are likely to continue to supply large amounts of sediment into river systems, regardless of the type of vegetation. Some of the larger gullies in the region already existed under native forest but forest clearance escalated their rate of expansion.¹³ Also, the rate of new gully formation under forest and scrub is thought to be lower than under pasture.¹⁴

Impact of commercial forestry: For commercial forestry, one needs to consider erosion caused by forestry operations over the whole forestry cycle, compared to on- and off-site effects of not having forest established. In particular, the potential for erosion from forest roading and from logging operations on steep land is well known.¹⁵ When trees are planted into pasture, there is a period of vulnerability to erosion until the root network increases to maximum strength.

⁶ Parliamentary Commissioner for the Environment (1988).

⁷ Pearce *et al* (1987).

⁸ Phillips *et al* (1990); Zhang *et al* (1993); Ministry of Works and Development (1987).

⁹ Hicks (1991).

¹⁰ Phillips *et al* (1990).

¹¹ Dolman (1982).

¹² Dolman (1982).

¹³ M Marden, Landcare Research, pers comm.

¹⁴ D L Hicks, pers comm.

¹⁵ O'Loughlin (1986, 1994).

In subsequent rotations the period of vulnerability is much shorter as the roots of the felled trees still provide strength in the soil for several years after harvest.

No New Zealand studies over the full forestry cycle, compared to erosion from pasture land for a similar period, have yet been completed. However, long-term monitoring of experimental steep-land catchments in the Maimai and Big Bush catchments¹⁶ has been taking place over fourteen years. Results from Maimai show an approximately 40% increase in sedimentation levels at harvesting time in a cable-logged catchment compared with an undisturbed forest catchment, and a 700% increase in a skidder-logged catchment.¹⁷ However, after the first two or three years of highly elevated sediment yields, there is a gradual reduction towards undisturbed forest levels. It is likely that for these catchments, over a 25-30 year period, total sediment yields, while not insignificant, are likely to be far less than from the higher rates of storm-induced erosion in similar pastoral catchments.

Techniques for minimising erosion during forest operations are well known, and best practices are presented in the voluntary *New Zealand Forest Code of Practice*. Harvesting of the early-established exotic forests is now proceeding or about to get under way at Mangatu, Ruatoria and Wharerata Forests. Harvesting plans at Mangatu were subject to an Environment Impact Assessment and harvesting is being monitored as part of resource consent requirements.¹⁸

Reducing the erosion impacts of forestry operations to satisfactory levels in this difficult steep-land environment will require careful planning, early identification of environmental values and hazards, and considerable flexibility of operations to cope with site specific hazards. For example, on some highly erodible sites, there may have to be a move away from clearcutting and planting toward selective harvesting and more natural systems of replenishment and growth. In some sensitive sites detailed zoning may be necessary to delineate areas where permanent retention of vegetation may be warranted, or where special techniques such as line planting, or establishment of willows in gullies may be needed. Helicopter logging has been used in some areas. Marden and Saunders concluded at Mangatu that "the short-term on-site environmental impacts of harvesting had been reduced to an acceptable level. The real measure of success, however, will not become apparent until the second rotation becomes established and rates of mass movement, soil erosion and sediment transport are determined."¹⁹

¹⁶ In North Westland and southern Nelson regions respectively. Monitoring initiated by Protection Forestry Branch, Forest Research Institute, and now maintained by Landcare Research. Most recent results summarised by Fahey (1994) and O'Loughlin (1994).

¹⁷ Relative increases may be significantly lower in East Coast catchments with a high rate of natural erosion. (C Ward, Department of Conservation, pers comm).

¹⁸ Marden and Saunders (1992), Marden (1994).

¹⁹ An intensive monitoring programme at Mangatu Forest between Landcare Research and the former managers, described by Marden and Saunders (1992) and Marden (1994), has now been discontinued, the new owners preferring to rely on their own monitoring procedures and a 'best practices' policy. (P Langston, Rayonier NZ, pers comm).

5.1.2 Soil quality

Trees affect soil chemical and physical properties through nutrient and water uptake, litterfall, and soil activity of roots and associated mycorrhizae and fauna.²⁰ The most significant effects of commercial forestry on soils in New Zealand are thought to be nitrogen removal, soil compaction and topsoil removal during harvesting. Hunter *et al* (1991) classify North Island soils according to the potential for soil erosion and rank them according to the probability of encountering a stand deficient in a particular nutrient. East Coast soils show a highly variable potential for soil degradation. Soil pH declines after afforestation have been documented in some New Zealand regions but there is no data specific to the East Coast. The natural variability of soil properties in the region may well be greater than any likely change due to afforestation.

The degree of soil degradation during harvesting also obviously depends on the type of machinery used for harvesting, eg degradation is much more localised using a cable logging system rather than a skidder. In the East Coast, because of the steep terrain, most harvesting is more likely to use the former system.

Intensive harvesting trials are being conducted at six sites throughout the country by New Zealand Forest Research Institute, in collaboration with the forest industry and Landcare Research, to determine the effect of harvest removals of nutrients on long-term site productivity in radiata pine plantations.²¹ None of these trials is located in the East Coast or any North Island Tertiary hill country soils.

Any degradation through forest growth or operations must be balanced against the effect of trees in reducing mass movement erosion which has a significant effect on soil quality as the topsoil is preferentially removed by such erosion.²²

5.1.3 Water quantity and quality

In general, conversion of land use from pasture to pine plantation leads to a decline in water yield of between 30 and 50% (excluding groundwater). The conversion of scrub to pine plantation is somewhat variable but would normally not be expected to have much impact on water yield.²³ On the East Coast, Pearce *et al* (1987) estimated that reforestation of pastoral land at Mangatu reduced annual runoff by about 30%, depending on elevation. On a large catchment scale, Dons (1986) showed that for the 906 km² Tarawera catchment, afforestation reduced mean flows by approximately 13%.

These decreases in runoff, while very beneficial in terms of reducing flood peaks and flood volumes, could potentially have significant impacts on downstream water availability if East Coast Forestry Project planting targets are met. Land

²⁰ Smith (1994).

²¹ Smith (1994).

²² Trustum *et al* (1990).

²³ Fahey (1994), although there may be no decline in catchments where rainfall is > 2000 mm/yr (D L Hicks, pers comm).

use on the Gisborne Plains is intensifying and already requires large volumes of water in summer for irrigation. Some intensification on flat land north of Gisborne (eg Tolaga Bay flats, Ruatoria) is also quite likely. It is possible that the most significant effect could be on summer low flows, when Gisborne's domestic supplies are augmented by a river source. Effects of afforestation on groundwater resources in the region do not appear to have been studied.

Some fluctuations within this general trend resulting from forestry harvesting could be expected. After harvesting, large increases in water yield can be expected for three to four years, then gradually coming back to reach pre-harvesting levels after about eight years.²⁴ If large areas within a catchment are planted, then catchment-wide fluctuations are less, as only a proportion of the catchment is harvested each year.

Water quality in undisturbed pine plantations is generally high, comparable for most of the forest rotation to that from indigenous forests growing under similar conditions, and with significantly lower exports of nitrogen and phosphorus than from pasture catchments.²⁵ The main fluctuations in water quality again arise after harvesting when nutrient levels, especially of nitrogen, and especially if harvesting is followed by burning of slash, rise sharply. As with water quantity, nutrient levels gradually fall to undisturbed levels over a few years and catchment-wide effects are lower if only a proportion of the catchment is harvested each year.

5.1.4 Biodiversity

It has frequently been claimed that *Pinus radiata* monocultures, which are the major type of vegetation in commercial forestry in New Zealand, reduce biodiversity.²⁶ In the recent survey of attitudes towards large-scale afforestation in the East Coast region²⁷ 46% of respondents disagreed with the statement that exotic forestry development was preferable to forestry development based on indigenous tree species. There is concern about concentrating on a single species for planting.

The truth of this claim depends on what vegetation these monocultures have replaced. In the East Coast region, most afforestation to date has taken place on pasture land so will not have directly replaced native biodiversity.²⁸ However, it is clear that under existing ECFP regulations some closed-canopy scrub will be cleared. Using the estimated proportional area of scrub clearance involved in bids approved for 1992-94 as a guide, this area could potentially total more

²⁴ Fahey (1994).

²⁵ O'Loughlin (1994).

²⁶ eg Rosoman (1994), but specifically referring to indigenous biodiversity. If mixed species plantations are established, total biodiversity may not be reduced to the same extent.

²⁷ Wall and Cocklin (1994a).

²⁸ It is likely that some scrub clearance took place under the old East Coast Project (appendix 3) but no data on area are available. No scrub clearance took place under the East Coast Conservation Forestry Scheme but some scattered scrub areas were afforested by spot planting (Gisborne District Council (1993)).

than 30 000 ha if a full 200 000 ha is afforested through the Project. Although RAP and SSWI (see section 4.3) are specifically excluded from grants under the Project, some loss of biodiversity could conceivably occur from unprotected land in the Project area, particularly of invertebrates or other inconspicuous biota not noted in PNAP and SSWI surveys. Through grazing, some of the scrub that will be cleared has relatively little species diversity.

Because of the large area of scrub excluded from ECFP applications due to SSWI, RAP or riparian criteria, and the economic disincentive from clearing scrub for planting (ie additional costs of \$250-500/ha), the figure of 30 000 ha is thought to represent an upper limit. Significant biodiversity loss could also take place from unsubsidised clearance on land adjacent to and being afforested in conjunction with land under the East Coast Forestry Project, or through commercial afforestation unconnected with the Project. In neither situation are RAP or SSWI with a scrub cover protected.

In assessing net losses or gains of biodiversity through commercial afforestation in the East Coast region, the key seems to be whether afforestation is to be accompanied by secure reservation of RAP/SSWI and fencing to stop grazing in them (section 4.3). If this occurs, it would seem that any potential losses to biodiversity from scrub clearance could be more than offset by gains through protection of natural areas on a landscape/ecosystem basis, as allowed by the PNAP survey methodology. Retention of biodiversity will also be favoured by exclusion of riparian and freshwater wetland areas from clearance and afforestation. There may be some situations where afforestation links areas of previously separated indigenous habitat, allowing movement of some types of animals between areas of indigenous habitat to resume.

Biodiversity in coastal habitats along the East Coast is known to have been severely affected by sedimentation since Cyclone Bola. It is likely that significant losses in biodiversity in off-shore habitats have taken place in the century since rapid deforestation. Afforestation of large areas of eroding land in the region, as it reduces rates of sedimentation, could be expected to have a significant long-term positive effect in reducing loss of biodiversity in these habitats.

There have been a number of reviews of the susceptibility of radiata pine monocultures in New Zealand to new pests and diseases, compared to more diverse forests.²⁹ Handiside (1994) concludes that they are not, and also disagrees with the view of Sweet (1989) that the health of radiata pine in New Zealand had declined significantly over the last 30 years. However, there are about 300 known insect and fungal pathogens not at present in New Zealand that are considered to have the potential to attack living radiata pine in the country, and there is thus an obvious need to continue import inspection and forest health surveillance systems to provide the greatest possible cost-effective protection against arrival and spread of pathogens, as discussed by Handiside (1994). Nevertheless, the resilience of our pine plantations to a major pest or disease outbreak must be considered untested. Rosoman (1994) stressed the advantages of a mixed species forests, preferably of indigenous species.

²⁹ The most recent are Handiside (1994) and Rosoman (1994), which present contrasting points of view. References to earlier reviews in these two works.

5.1.5 Climate change and greenhouse gases

Because growing forests have a much higher rate of carbon uptake than pasture, afforestation on the scale envisaged for the East Coast is claimed to have a significant negative effect on New Zealand's net carbon dioxide balance. It was estimated that planting under the ECFP, at a rate of 7000 ha per year, would by the year 2000 sequester an amount of carbon dioxide equal to 3% of New Zealand's 1990 carbon dioxide emissions.³⁰ From information available it is unclear to what extent this estimate takes account of harvesting, transport and processing of existing forests in the region.

Most recent analyses of predicted climate change patterns in New Zealand envisage north-eastern regions of New Zealand, such as the East Coast, becoming drier overall but subject to more frequent extra-tropical cyclones. Establishment of large areas of pine plantations in the region would have two principal, countervailing effects on these trends. On one hand these forest areas would reduce the amount of mass movement erosion resulting from more frequent storms, but on the other hand increased water uptake and reduced runoff from these forests could exacerbate water shortages in downstream areas. Even under current climatic conditions, pine forests are vulnerable to wind damage, as shown by a moderate windy storm in early November 1994 which caused significant windthrow in Mangatu Forest and surrounding districts.

5.1.6 Use of chemicals

There is little information specific to the region. Pine forests in the region are managed according to standard silvicultural practices, such as the application of fertilisers and herbicides. There are a number of past and present treatment sites, including a large plywood mill recently established in the Gisborne District, using several potentially toxic chemicals.³¹ However, no significant problems with the use of these chemicals have come to the Commissioner's notice in the last few years.

5.1.7 Fire

All timber plantations are subject to uncontrolled fires and the East Coast region is no exception, especially plantations established in more drought-prone areas. If uncontrolled, these fires can also destroy adjoining natural forests, scrub or crops. Farmers adjacent to forests face restrictions on burn-offs.

³⁰ Ministry for the Environment (1994a).

³¹ Effects of these chemicals are documented in Rosoman (1994).

5.1.8 Summary

Because of the primary importance of erosion as a constraint to land use in the region, and the clear reduction in mass movement erosion resulting from forest establishment, on balance it would seem that the net biophysical impacts of large-scale forest establishment projects in the extensive steeper areas of the region will be favourable. However, potential detrimental impacts of commercial forestry, particularly those associated with harvesting in a fragile steepland environment, may be significant and will require good planning and implementation of best practices to be minimised. There may be some very steep slopes or gully bottoms where alternative species are more suitable than pines or on which harvesting should not take place. Furthermore, the potential impact of broad-scale afforestation on downstream water availability may be significant and unavoidable, thus requiring careful planning to minimise impacts on downstream land uses, or identifying alternative allocation mechanisms.

5.2.1 Concerns about forestry impacts on agriculture

Since the East Coast Forestry Project was announced in mid-1992 there has been considerable concern expressed within the region about perceived negative impacts of the Project on agriculture, which is still the dominant land use and economic activity in the region. These concerns have been expressed strongly from sections of the farming community but also from some other groups in the region. Concerns have been expressed about commercial forestry in general and the ECFP in particular. Because of the lack of information about successful tenders, most of the concerns were attached to the Project, even though the forestry developments that more obviously affect the farming community appear to be unsubsidised ones (see section 5.3). For example, Juken Nisshu Limited has recently announced plans for 30 000 ha of afforestation (over the next 30 years) that is likely to go onto good quality land.

The most frequently expressed concern was the lack of targeting in the Project, leading to good pastoral land going to a forestry land use. This perception has continued through the changes in targeting made in 1993 to the present.³² The loss of land was leading to a loss of stock capacity, which was expected to have a ripple effect on stock prices throughout the southern North Island.³³ In recent years, the local freezing works were widely believed to be seriously affected by declining throughput although the closure of the works in August 1994, along with all other Weddell works in the country, was not thought to be directly linked to local factors.

³² MAF's November 1993 post-election briefing on policy issues facing the primary industries referred to "local support for the Project ... undermined by a perception of poor targeting to severely eroding land" (Ministry of Agriculture and Fisheries, (1993a)) and its June 1994 farm monitoring report (North Central Region) referred to "government subsidy for good pastoral land into forestry ... major concern in the entire district".

³³ Grant Allen, Weddell Kaiti livestock manager, reported in *The Dominion*, 16 July 1993.

5.2 Impacts on agriculture

Other concerns expressed to the investigation team during the investigation³⁴ included, in summary, the following:

- the multiple objectives of the Project, which seem to be largely incompatible (see section 6.2);
- the principle of subsidised forestry was objected to, on the basis that it does not encourage ownership of the risk, nor does it adequately recognise the risk of planting a crop whose value in the marketplace was not realisable for 30 years;
- physical feasibility of commercial forestry on steeper land (see section 5.1);
- employment effects: there was resentment that the Project was 'sold' on job creation grounds which are disputed (see section 5.4);
- taxation advantages to forestry investment (specifically the 1991 changes bringing forward tax deductibility) seen to give forestry a comparative advantage for personal investment to limit tax liability (see section 5.3);
- these taxation advantages were seen to allow forestry companies to compete unfairly for land, thus pushing up the price of land for farming purchasers;
- whole farms rather than parts of farms were going into forestry;
- social impacts of rural depopulation: effects on rural services, roading, electricity supplies etc;
- forestry company profits were seen as leaving the district, unlike agricultural profits;
- secrecy of the tender process, especially the announcement of successful tenderers, increased the uncertainty over the Project and its impacts, compared with other forestry investment.

Many of these concerns have also been expressed in other regions experiencing growth in forestry.³⁵ The social and economic impacts identified above are discussed in section 5.4 below: the following notes refer only to direct impacts of forestry expanding onto former agricultural areas.

It should also be noted that many farmers support the ECFP and that farmers and farming companies form the largest group of successful applicants to the Project to date (see table 4.11).

³⁴ Principally at a meeting with Gisborne Rural Network Group (comprising representatives of the pastoral and agribusiness sector), 30 November 1993; also discussion with Agriculture New Zealand consultants and information from newspaper files. Many of the concerns are also identified by a recent survey of attitudes towards large-scale afforestation in the region (Wall and Cocklin [1994a]).

³⁵ University of Otago Consulting Group (1993) refers to principal studies for key areas eg King Country.

5.2.2 Factors involved in agriculture-forestry changes

Appropriate mix of forestry and farming

There is strong support for forestry development in the region,³⁶ and little disagreement about the need for afforestation of some badly eroding pastoral land in the region. The disagreement is about which land is regarded as 'good farming land' and the risks of erosion on this land. This applies particularly to LUC units VII1 and VII2 (Subcategory 2a: 111 000 ha). There is a perception among some farmers and farmers' representatives that some of the badly eroding land is fertile and productive and that erosion does not have a very great effect on this land. Most farmers are said to believe that pole planting is a more suitable and efficient use of resources for erosion control than blanket afforestation, and that they would increase erosion control through pole planting if funding allowed.³⁷ Gisborne District Council³⁸ has provided estimates of the costs of protecting this land for agricultural production by pole planting which are significantly cheaper than afforestation. This protection has taken place over a significant portion of Gisborne District, but principally at taxpayers' cost.

The discussion on erosion categories and LUC units (section 4.2.3) indicated that almost all Class VII land is subject to severe erosion and is appropriate for afforestation from a soil conservation point of view except for, arguably, Subcategory 2a land on which adequate soil conservation measures had been installed. The Commissioner accepts the argument that this Subcategory can be sustainably maintained in agricultural production provided adequate soil conservation measures are installed and maintained and hence has suggested a targeting option which should have the effect of making less of this land eligible for ECFP grants (see section 4.2.3).

Land value

An important question is whether the land sale market recognises that Subcategory 1b and 2a land can be more sustainably maintained in agriculture and therefore assigns it a greater long-term value for agricultural sales. An analysis of land valuation issues is beyond the scope of this investigation but deserves further attention. It is known that general rural property prices for both agriculture and forestry (see section 5.3) have risen significantly in the last few years. However, this rise is consistent with national trends and was occurring before the ECFP got under way.³⁹

Analysis of agricultural property sales is frequently done on the basis of \$/stock unit. This can reflect relatively short-term fluctuations, including farming beyond long-term productive capacity. A more relevant basis for analysis may thus be land category, eg examine the relationship between \$/ha and proportion of

³⁶ Wall and Cocklin (1994a).

³⁷ Hayes and Andrew (1992).

³⁸ Gisborne District Council (1994c).

³⁹ Hayes and Andrew (1992).

Category 1 and Subcategory 2a land. Also, the effect of installation of soil conservation measures on land value should be examined. Gisborne District Council soil conservators have provided estimates of the total cost of protecting this land for agricultural production, principally by pole planting.⁴⁰

Declining agricultural production

There have been claims about recent losses of stock-carrying capacity through sale of farms for forestry. The MAF Farm Monitoring report for June 1994 documents the sale of 12 Gisborne-Wairoa (not all within Gisborne District) 'Small Hill Farm Model' and nine 'Large Station Model' farms for forestry, with a stock carrying capacity of 46 500 and 99 600 stock units representing an annual value of \$1.58 m and \$3.08 m respectively.

These losses must, however, be put into the context of many years of declining farm production. For example, there has been a fairly steady decline of total cattle numbers in the district from 450 000 in 1970 to 343 000 in 1992 (24%) and an overall decline in total sheep numbers from 2.58 m in 1970 to 2.18 m (16%) in 1992 (figures from Agricultural Statistics). These trends have been reflected in falling throughput at the Gisborne meat works.⁴¹

During this time, Agricultural Statistics land occupancy data show that total farmed area and areas in pasture stayed fairly constant, so that the production decrease appears to be largely a productivity decrease.⁴² Fertiliser use declined significantly during periods of economic downturn in this phase, and this may have played a very important part in productivity declines, as have droughts (particularly in 1982).

However, another important but less acknowledged factor in these declines is the effect of erosion, analysed by Hicks (1990a). Applying work by Trustum *et al* (1984) on measured production losses on landslide scars in the Wairoa district, and Miller (1991) in the Gisborne district, Hicks analysed production losses in the East Coast region as a factor of storm frequency and presence or absence of maintained soil conservation measures. He found that as well as slow but irreversible long-term production losses from erosion, there were short-term losses ranging from 11% to 23% of potential pasture production. These changes have been largely masked by productivity increases during the same period, due to fertiliser application, paddock subdivision, more productive new grass and animal varieties and other improved management factors, which is a reason why the effects of erosion on farm productivity have not been more widely acknowledged.

⁴⁰ Gisborne District Council (1994c).

⁴¹ A further factor in this reduced throughput is the recent trend of stock being sent outside the district for processing. Although this occurs throughout the country and stock has undoubtedly also been coming into the district for processing, there have been suggestions that over half the stock of the East Coast region was being sent out of the region for processing (Wall and Cocklin [1994a]), a proportion well above the national average.

⁴² There are some discrepancies in the land use data for this period, principally the relationship between farmed land and new plantation forest areas.

The economic impact of these production losses is extremely difficult to assess, due partly to the above masking effects.⁴³ However, from data from other North Island East Coast districts, Trustrum and Hawley (1986) estimated that permanent pasture loss induced by erosion was approximately 20%, and could be expected to drop gross farm income by about 10%. These estimates are thought to be applicable to the East Coast region. Furthermore, they do not include the impact of short-term production losses which Hicks' data indicate are even more important than the long-term ones.⁴⁴

A further factor in loss of pastoral production is the increase in horticultural production and the intensification of land use that is occurring on the Gisborne Plains. This is resulting in less prime land being available for finishing lambs and other pastoral uses.

5.2.3 Implications of further afforestation

Table 5.1 shows a possible comparison of present total stocking levels with those possible on a future smaller pastoral area resulting from continued afforestation. Various scenarios of the amount and type of afforestation and the degree of intensification on the remaining agricultural land are shown. Clearly these projections are based on a number of important assumptions but they allow some options to be explored.

There are two broad groups of possibilities. Firstly, under extensive afforestation (180 000 ha or more)⁴⁵ there will almost certainly be a significant decrease in total stocking levels. This may be between a quarter and a half of present stocking levels, depending on the type of land afforested and the intensification of remaining farming. Secondly, under moderate afforestation (no more than 100 000 ha), the decrease in total stocking levels would be much less and may even be zero if there is a significant intensification of remaining agriculture.

⁴³ Discussed in Clough and Hicks (1993).

⁴⁴ Hicks (1989b, 1990, 1992).

⁴⁵ A net area of 180 000 ha rather than 200 000 ha used for calculations to allow for afforestation on areas at present under scrub cover or not grazed.

Table 5.1 Comparison of total stock numbers on hill country in region at present and under future forestry expansion scenarios

TOTAL STOCK NUMBERS (millions of stock unit equivalents)									
	Present farmed area ¹	Future restricted area						Moderate afforestation ³	
		Extensive afforestation ²			Soil conservation emphasis			Commercial	Soil con.
		Commercial emphasis		High Intensification	Soil conservation emphasis		No Intensification		
None	Moderate	High	None		High	None		High	
LUC Class VI	1.866	0.977	1.075	1.239	1.427	1.645	1.372	1.965	
LUC Class VII	1.289	0.795	0.874	1.036	0.679	0.804	1.014	1.193	
Total	3.155	1.772	1.949	2.275	2.106	2.449	2.386	3.158	
% of present	100	56	62	72	67	77	76	100	

Notes: All calculations based on Appendix 2 of Andrew (1994), using 'present average' and 'top farmer' assessed stocking rates on Class VI and VII LUC units.

- Present area of 423 920 ha based on Landsat data as interpreted in 1993; differs by 2.4% compared to total shown in Landcare Research (1994). The total stock numbers is the sum of (area of LUC unit x present average stocking rate) for all Class VI and VII LUC units respectively (the total of 3.155 M stock units (s.u.) is 17% less than the total based on Agricultural Statistics for 30 June 1991. Main reason for discrepancy cited by Andrew is that calculations shown here do not take account of stock grazed on LUC Classes II, IV and VIII.
- Assuming a further 180 000 ha afforestation in Gisborne District, split on a ratio between LUC Classes VI and VII of:
 - 50:50 for 'commercial emphasis' scenario
 - 32:68 for 'soil conservation emphasis' scenario (same as achieved by 1992-94 ECFP grant allocations). Total stock units calculated using resulting total area LUC Class VI and VII, and averaged stocking rates for all Class VI and VII LUC units respectively.
- Assuming a further 100 000 ha afforestation in Gisborne district, split as above.
- Calculations based on averaged stocking rates as follows:
 No intensification: Present average; ie 9.88 su/ha for LUC Class VI, 5.48 su/ha for LUC Class VII
 Moderate intensification: 110% of present average; ie 10.87 su/ha for LUC Class VI, 6.03 su/ha for LUC Class VII
 High intensification: Top farmer; ie 12.53 su/ha for LUC Class VI, 7.14 su/ha for LUC Class VII

Lifting agricultural performance from present average to 'top farmer' stocking levels (up to 30%) may seem very optimistic but is not necessarily so over a 30 year period. Increases of at least this magnitude have taken place over similar periods in the past. The moderate intensification scenario (10% increase in average stocking levels) is certainly not ambitious over 30 years and, in fact, this improvement may have occurred in just the last 15 years in the region.⁴⁶

A significant intensification of pastoral management would require a concentration onto Category 1 and Subcategory 2a land. This is consistent with the 'soil conservation emphasis' afforestation option. The possibility of this strategy was raised by Mr Simon Cave, a Gisborne District Councillor, in his early comments on the East Coast Forestry Project:

"although the run-down in stock numbers was a worry, long-term forecasts showed it would be compensated by increased production on better land, so the net loss was not going to be as great as anticipated. 'We will always find ways of doing everything better. At the moment there seems to be a rush on, but we have seen this before. I don't think we want to panic too much' he said."⁴⁷

This option requires access to capital for development, and a ready availability of technical and research information. It also requires further research into sustainable pastoral-based and farm-forestry systems for the region.

A further option has been promoted by Tolaga Bay farm-forester Mr Ian Salmon⁴⁸ who is also concerned at the underutilisation and undervaluation of better farming land which was then more liable to be purchased for afforestation. He claims that between 140 000 and 200 000 ha of land in the region are available for tree planting without planting good pastoral land, and that up to one-third of many farm units could be planted up, many in relatively small woodlots, without affecting farm production.

A significant expansion of forestry in the Wairoa district is occurring and also causing concern to local agriculturally-based communities. The Wairoa District Council has commissioned the Rural Resources Unit of MAF Agriculture Policy and Landcare Research to study the likely impacts of increased afforestation.⁴⁹ This study, aimed at completion in early 1995, includes the following aspects:

- review of relevant literature;
- analysis of demographic, agricultural, and economic trends;
- farmer and business surveys;
- analysis of property sales; and
- testing of possible change scenarios against existing land use models.

Some but not all conclusions from this study will be relevant to the East Coast region.

⁴⁶ A comparison of the stocking levels assessed by Andrew (1994) with those assessed in a similar exercise in the late 1970s (Land Resources Group, 1981) would be able to test this assertion.

⁴⁷ *Gisborne Herald*, 10 July 1993.

⁴⁸ Speech to Gisborne Rotary Club, August 1994 (reported *Gisborne Herald*, 25 August 1994), and pers comm.

⁴⁹ M Krausse, Landcare Research, pers comm.

5.2.4 Summary

The ECFP, along with other forestry development, will have a significant impact on land availability and stock-carrying capacities in the region. It appears likely that the wide-scale purchase and conversion of whole farms to forestry will cause long-term changes to some rural communities. In order for the Project to contribute to more sustainable land management in the region, local stakeholders, including all parts of the farming community, need to be fully informed and involved in the future development of the Project.

However, impacts of all types of forestry on agriculture have to be put in the context of continuing changes in the pastoral farming sector, particularly the declining productivity over nearly two decades prior to 1992.⁵⁰ It is possible that these trends have not been fully recognised and accepted by parts of the farming community, in particular the impact of erosion on farm productivity, and this has hindered moves to match land use to land capability.⁵¹ In spite of a great deal of effort by Catchment Board and Gisborne District Council soil conservators over the last 20 years, and considerable taxpayer and ratepayer subsidy, the uptake of soil conservation measures has been very patchy in the region.

This section is a fragmentary review of a very complex topic with many interacting variables. MAF Agriculture Policy have recently commissioned a pilot project to survey the impacts of the ECFP on individual farm businesses that have successfully tendered for Project grants, including farm employment and stock-carrying capacity changes. It will be important to recognise the variability of impacts around the region. For example, the impacts of loss of carrying capacity resulting from afforestation may be far greater on multiply-owned Maori land in the north with less access to capital for pastoral intensification on remaining pastoral land holdings.

5.3 Impacts on other forestry investments

The intention of the ECFP grant was to increase the internal rate of return of commercial forestry in the East Coast region to a level of return that was similar to other regions (see section 4.1). An economic incentive was required to encourage forestry planting on targeted eroding and erodible land in the Gisborne District, which it was recognised would involve increased costs compared with other regions, especially in the north of the district.

However, the use of a grant can also create distortions in the market if the rate of the grant is more than the actual costs it was intended to offset (see section 6.4). If investment decisions do not reflect the true cost, then there is the potential for inappropriate decisions to be made. In particular, if not effectively targeted, the intended ECFP grant allocation of 7000 ha/yr could affect the rate of non-grant forestry planting in the region and create economic and social distortions.

⁵⁰ There has been a significant improvement in farming returns the last two years, reflected in increased fertiliser use and productivity (P Andrew, Agriculture New Zealand, pers comm).

⁵¹ A point made in previous reports by the Parliamentary Commissioner for the Environment (1988, 1993).

To compare planting rates before and after the ECFP, table 5.2 shows the estimated forest area and planting rate for the Gisborne District between 1989 and 1994.

Table 5.2 Estimated Forest Area and Planting Rates in the Gisborne District

Year	Total Forest Area (ha)		Total New Planting Rate (ha/yr)	New Planting Rate by Category (ha/yr)		
	NEFD ¹	Modified NEFD ²	PCE Estimate based on Modified NEFD data	ECCFS	ECFP ³	Other Planting ⁴
1989	64 700	68 100	5100	2000	-	3100
1990	62 500	73 200	6100	2500	-	3600
1991	74 000	79 300	5600	1700	-	3900
1992	71 300	84 900	7000	3000	-	4000
1993 ⁵	74 800	91 900	11 600	4400	3000	4200
1994	n.a.	103 500	> 10 000?	-	3900	6000?

n.a. not available

- ¹ National Exotic Forest Description (NEFD): Compiled yearly (April) by Ministry of Forestry from a variety of records, adjusted for agricultural census data. The NEFD data underestimates the forest area as it does not include all small planting areas.
- ² Estimated total area by PCE modification of the NEFD.
- ³ The area planted under the ECFP includes associated planting of Class VI land which did not qualify for grant funding in the 1992 tender round.
- ⁴ Other planting (estimated) consists of all other new planting not associated with the ECCFS or the ECFP.
- ⁵ Compared with the January 1993 satellite mapping estimate of exotic forest area = 108 400 ha.
This survey did not capture areas of plantings <4 years old (the satellite mapping was unable to distinguish these areas from non-forest areas) and some of this area will include tracks and cuttings and other plantings that were not intended for production forestry, eg shelter belts and amenity plantings.

A significant contributing factor to the rate of recent forestry development in the East Coast and Hawke's Bay regions has been the planting of forestry blocks for superannuation investments by private investment partnerships. These investments have been heavily promoted in recent years with increasing investor interest, largely because of perceived taxation benefits. These investment plantings have mainly developed on relatively easy hill country between central Hawke's Bay and Tolaga Bay, within about 80 km of the port of Gisborne.

Many of these plantings are unsubsidised by the ECFP as the majority of the investment plantings to ensure a low risk, high return investment are on LUC Class VI and good Class VII land that is not steep and eroding. Therefore, the areas of planting are either of low priority for ECFP grant subsidy or they are not eligible, but there is nothing to prevent these partnerships from applying for ECFP grants. To obtain good quality, low-risk land for planting, these investments are reported to be paying above average prices for farmland and they are a

significant factor contributing to renewed fears from the agricultural sector about forestry expansion on to productive farmland.

Other influences on the rate of forestry expansion cited in a national literature review⁵² include the subdivision of rural land, the increase in small scale forestry, changes to taxation regimes, and new attitudes and categories of land ownership.

If the ECFP targeting mechanisms are ineffective then the effect of the Project on the rate of other forestry plantings will become apparent. However, initial results would indicate that the Project is slowly encouraging planting in the north; it is increasingly targeting Class VII land and half of the grant area has been allocated to applicants who were in the investment category of farmers or farming companies (see section 4.6). These areas and investors are not participating significantly in unsubsidised forestry investment, even in the current buoyant forestry investment climate. In contrast, the rate of unsubsidised forest planting has continued to increase through the first years of the Project.

With every ECFP grant area allocated there will be improvements to economies of scale and this should only improve investment returns for both unsubsidised and subsidised plantings. It would thus appear from the initial tender rounds of the ECFP that with the current interest in forestry, the impact of the ECFP on other forestry plantings is not significant and that overall, if the ECFP is well targeted and designed, there should be few distortions to the forestry sector.

5.4 Impacts on employment, infrastructure, the regional economy and regional development

The objectives of the ECFP include that the Project will create benefits for the regional economy and for employment on the East Coast. Monitoring must assess how far the Project achieves those benefits.

A recent survey of East Coast residents identified a range of attitudes towards the potential effects of forestry on the East Coast. The majority of those surveyed considered that there were benefits associated with forestry, the principal benefit being employment. There was also a perception that benefits would flow on and stimulate regional development in other industrial sectors.⁵³ At the same time, a high number of respondents claimed that there were problems associated with forestry. These related not only to infrastructure, including the costs relating to roading, who pays, and associated levels of traffic and noise, but also to physical concerns, such as productivity of the soil and harvesting.⁵⁴ Some concerns were expressed about foreign ownership of forestry, and the unskilled nature of the jobs that would be generated. Other concerns were expressed about the potential for skilled work to go to people from outside the region with profits also flowing out. There was a perception amongst a small percentage of those surveyed that outside workers were being used to carry out unskilled forestry work.⁵⁵

⁵² University of Otago Consulting Group (1993).

⁵³ Wall and Cocklin (1994a), p 15.

⁵⁴ Wall and Cocklin (1994a).

⁵⁵ Ibid, p 16.

Research has been carried out on the impacts of forestry developments since the early 1980s.⁵⁶ While there are common characteristics in the communities studied, which include rural depopulation, ageing population, declining rural services and unemployment, the range of positive and negative impacts on those communities reflects differences in the pattern of characteristics and the relative time periods in which changes occurred.⁵⁷

The range of benefits and disadvantages identified includes:

Forestry development benefits:

- rural employment opportunities;
- injection of spending derived from forestry employment in rural service towns;
- reduction in the rate of decline of rural populations;
- changes to the age class of rural populations, with an upturn in school rolls slowing trends towards an ageing population;
- diversification of the rural economy.

Forestry development disadvantages:

- changes to the composition of 'traditional' rural communities, for example with an influx of more skilled and more highly paid people causing potential for conflict;⁵⁸
- changes to patterns of rural service delivery;⁵⁹
- encouragement of rural depopulation.

What has been perceived to be of benefit in some studies has been perceived to be a disadvantage in others. For example, a study in Waiapu County found that forestry slowed down the rate of population decline while a study of the effects of corporatisation on Tapanui found that a definite population loss occurred.⁶⁰

The impacts of the ECFP are likely to have an uneven effect on various community groups in the district including farmers, Gisborne businesses and Maori. Potential for the first three benefits to occur has been strongly refuted by farming community leaders in the region (see section 5.2). While forestry development is certain to bring changes to employment, settlement, communities, and increase pressure on services such as roading and transport many of these impacts may be difficult to separate from the ongoing land use and population change that will result from unsubsidised forestry. Furthermore, employment benefits created through forestry may rise and fall during the life of the Project so that planning will be required to address such fluctuations.

⁵⁶ University of Otago Consulting Group (1993). This study involved a literature review of studies carried out on the impacts of exotic forestry since 1980.

⁵⁷ Ibid.

⁵⁸ Ministry of Works and Development and Northland United Council (1982), cited in University of Otago Consulting Group (1993).

⁵⁹ University of Otago Consulting Group (1993). Aldwell suggests that such changes can threaten those seeking an "alternative lifestyle away from development".

⁶⁰ Aldwell (1984); Houghton *et al* (1987); cited in University of Otago Consulting Group (1993).

The social and economic impacts of the Project will need to be analysed in the context of the sluggish regional economy led by a poorly performing agricultural sector. In a recent study for the Gisborne District Council, it was found that between the period 1986/87 and 1991/92, Gisborne District's gross output fell by 0.8% in real terms (allowing for inflation) and value added fell by 3.3%. Primary (agriculture, forestry, fishing, and mining) and manufacturing industries increased their output but added less value. In the five year period from 1986 to 1991 employment fell by 13.2% and unemployment increased from 10.7% of the workforce to 13.1%. Future projections for growth (1.8% p.a.) and employment (0.3% p.a.) are less than the national average. These figures are acknowledged as pessimistic because Gisborne is a small region where small changes to production and employment can have a large impact on projected figures.⁶¹ Most recent reports suggest that economic activity is currently greater than was predicted in 1993, although this may reflect national trends.

In the period 1984 to 1991 the number of full-time employees in agriculture decreased from 1447 to 875 with an increase to 1010 in 1992. In this period the number of farms decreased from 1603 in 1984 to 1465 in 1992.⁶² The development of farm-scale forestry may assist increasing employment on a farm by farm basis.

Submissions from Maori on the East Coast Project Review, and also following Cyclone Bola, proposed that Government support was essential to developing a long term policy for afforestation and to encourage commercial investment. Some Maori landowners have been able to maintain their farming operations and contribute to the costs of forestry based upon their farming operations.

The Mangatu Incorporation whose land is located in the Southern part of the region have already made progress in planting land that is unsustainable for grazing. Nevertheless, of special significance to those Maori and other landowners who need to fund forestry through joint ventures will be the level of control they are able to maintain over forestry operations on their land, including who might be employed. There may also be impacts associated with a change in lifestyle from farming to forestry where a complete change in land use is required. Issues for further research into the ECFP are being identified as part of its first major review.

⁶¹ Business & Economic Research Limited (1993).

⁶² Agricultural Statistics - Land Occupancy.

Research into the social and economic effects of the ECFP will include the following projects:

- an investigation of the social and community effects of the ECFP by the Department of Geography, University of Auckland, and the Forestry Research Institute. This research will focus on employment and socio-demographic characteristics of workers, attitudes of East Coast residents to forestry, and the level of involvement by Maori and implications for Maori communities;
- a joint MOF/MAF project to prepare a regional input-output analysis model of the economic effects of the ECFP on the Gisborne district by the Forest Research Institute.

An associated report for Landcare Research in 1994⁶³ has also investigated the impacts of land use change and sustainable rural landuse.

Initial findings from a preliminary investigation into the level of employment generated by the ECFP have been presented.⁶⁴ A change that was identified in the level of forestry sector employment cannot all be attributed to the ECFP as other forestry plantings were continuing in the District, especially in 1993 with the final year of the Conservation Forestry Scheme. A best estimate of the effect of the ECFP on employment creation in 1993 was that it involved 178 people, working for approximately 3229 work days.⁶⁵ While the authors had some difficulty in their preliminary survey with employment monitoring techniques, they are currently working on a more robust and accurate means of monitoring employment.

As only two years of planting have been carried out under the ECFP, many of the perceived community and employment impacts have not yet been tested or realised. The research into the effects of the ECFP by MOF and MAF will be able to document changes in employment and may provide an insight into how the projected increases in forestry development on the East Coast and subsequent improvements to economies of scale may affect further change and infrastructure development. For example, the development of a forestry port or barging facility in the north may open up further areas for forestry development with consequent social and economic change.

⁶³ Cross and Houghton (in press).

⁶⁴ Wall and Cocklin (1993).

⁶⁵ Census data prior to the ECFP shows that 93 full-time equivalents were working in forestry within the Gisborne region in 1991. However, unpublished Ministry of Forestry employment surveys show that in March 1992, 326 full-time equivalents (402 part-time and full-time employees) were working in the forestry sector in the Gisborne District. A comparative 1993 survey estimate recorded a total of 558 part-time and full-time employees that were working in the forestry sector. The differences between the census data and the MOF surveys reflect census inaccuracies because of rounding and the recording of a respondent's primary occupation and not seasonal work.

5.5 On-going monitoring requirements

the environment monitoring. The former is the responsibility of MOF and the latter that of the Gisborne District Council. This is long-term monitoring because achieving sustainable land management will take a long time. (The Taylor Report in 1967 saw the benefits of the old East Coast Project accruing over a 50 year time frame).

There are other agencies whose information base would be needed to give an integrated picture of what is being achieved (see section 6.8) in sustainable land management in the region. The framework for sustainable land management presented in chapter 2 and, in particular, the indicators of sustainable land management characteristics (section 2.1.2) provide a preliminary and partial list of monitoring requirements.

Another useful recent compilation of monitoring requirements for plantation forestry has been made as part of the Shell/WWF Tree Plantation Review.⁶⁶ The overall monitoring objective, however, should be to measure the contribution of the Project to more sustainable land management in the region.

Effectiveness of the ECFP

Monitoring the impacts of the Project will be a long-term requirement because many of the impacts will only occur after several years. The development of performance measures based on the indicators in table 2.1 is needed. The extent to which the impacts of the Project on employment, agriculture, and regional development can be distinguished from other effects will have to be carefully assessed.

There are many other organisations whose information would be useful to include in a monitoring regime, for example, trends in land values (especially if land values could be related to the different land use classes on a property), population trends, and employment information from the Census Surveys.

It is essential that all three components of sustainable land management (ecological, economic and social) be monitored. The monitoring of effects of land use changes on communities would involve a number of agencies as well as local communities.

This could cover all land use changes, not just the ECFP, and would be expressed in indicators such as population trends, and provision of housing, education and health needs.

⁶⁶ Adlard (1993b).

This suggests that a considerable number of agencies would be involved in monitoring. The two principal ones would be the Ministry of Forestry and Gisborne District Council but Ministry of Agriculture and Fisheries, Ministry for the Environment, Te Puni Kokiri and a number of other national and regional social service agencies could be involved. It is also important that the Ministry of Forestry and Ministry of Agriculture and Fisheries maintain their existing monitoring programmes for agriculture and forestry, particularly the Natural Exotic Forestry Description.

The investigating team has received many comments that the coordination of monitoring of the Project needs improvement. The interface between the monitoring requirements and responsibilities needs to be carefully delineated. Given the complexity of the Project and associated developments towards more sustainable land management, a coordinating group may be useful, or alternatively a lead agency responsible for monitoring, with other agencies contributing as appropriate.

Effectiveness of other land use changes

The effectiveness of other land use changes to achieve sustainable land management needs to be monitored.

These would include farm forestry, on-farm soil conservation works to ensure that suitable land is retained in pastoral use, and diversification of crops. There is a role for Gisborne District Council through their State of the Environment monitoring responsibilities under the Resource Management Act 1991. Areas for monitoring include the following:

- the effectiveness of the Gisborne District Council's proposed Regional Land Management Plan;
- any consents to clear land, harvest trees etc under the proposed Regional Land Management Plan by Gisborne District Council;
- the establishment and achievements of LandCare groups set up by Federated Farmers and the Gisborne District Council;
- the cumulative effect of changes in land uses as they affect the development of infrastructure, including transportation of timber around the region or to export or processing facilities;
- the extent to which non-subsidised forestry is occurring in the region, together with the effect that the ECFP is having on private sector forest planting.

Gaps in the present monitoring framework

There is a lack of information on a number of aspects that would assist management decisions for sustainable land management. These include the following:

- the changes in biodiversity including changes in land cover need to be identified. Information on land vegetation cover was inadequate at the time the ECFP was announced, but was speedily redressed because of the need to have up-to-date information for changes to the Project design. The technology to monitor such changes is available;
- changing long-term patterns of erosion and sedimentation due to the influence of storms;
- the impacts of agriculture on soil quality and water quality;
- the impacts of planting the whole of the catchment of a river or stream should be investigated to see if there might be a significant reduction in water yield to the Poverty Bay Flats and the Tolaga Bay Flats where intensive horticulture has been developed;
- the forestry industry's harvesting of logs at forests other than Mangatu Forest should be monitored and checked against the proposed Regional Land Management Plan.

Chapter 6

DISCUSSION OF SOME STRATEGIC ISSUES

Up to the end of 1994, only three annual tender rounds out of a planned 28 have taken place and less than 7000 ha out of an intended 200 000 ha planted. Therefore it is difficult to evaluate the contribution of the Project to more sustainable land management on the basis of its present achievement, or to expect any clear effects, either positive or negative, to be evident (chapter 5). Even many years into the future it will be difficult to evaluate the effects of the Project definitively as the plantations it is establishing will form part of an extensive mosaic together with plantations established earlier and at the same time as those of the Project.

As the basis of an initial evaluation, an assessment of the Project's potential to promote change to more sustainable land management is shown in table 6.1, using the framework of sustainable land management characteristics that was established in chapter 2 and appendix 2. This analysis is made mainly at the regional scale.

Many of the uncertainties about ecological characteristics depend on an appropriate monitoring and regulatory regime for assessing and controlling biophysical impacts.

The uncertainties regarding economic characteristics are those of future prices and markets for long-term crops such as timber. The economic contribution of the Project depends significantly on the time and spatial scale of interest. For example, profitability (ie the benefits being greater than costs) is likely to be favourable to the individual participant in the medium term, even though the risk is perceived as high. The flow-on benefits to the region should also be positive, regardless of the way that the Project is targeted. (However, in the longer term, if erodible land is not afforested, the basis for individual or regional profitability is likely to be lost.) From a national point of view, although the Project has been designed as a least-cost solution, profitability cannot readily be assessed using present Cost-Benefit Analysis methodologies.¹ If a commercial forestry scheme creates additional infrastructural costs to the region, for example for roading², the scheme must be sufficiently profitable at the regional scale that this infrastructure can be maintained, either privately or publicly.

A change from a grassland-based to a forest-based economy inevitably involves some loss of economic resilience (reversibility) in the short term, simply because

6.1 The potential contribution of the ECFP to sustainable land management in the region

¹ See for example Pelt (1993) for discussion of the limitations of Cost-Benefit Analysis in sustainability-oriented project appraisal.

² As commonly claimed, but this cannot be assumed in the light of potential technological or industrial changes requiring far less transport of raw logs than at present.

Table 6.1 The potential contribution of the East Coast Forestry Project to more sustainable land management in the region

Characteristics	Assessment and Comment	
Ecological		
Ecosystem processes maintained	(+)	Requires careful control and monitoring of harvesting impacts.
Biodiversity maintained	(+)	Requires secure reservation and maintenance of high-priority RAP and reserves.
Reversible processes	+	(Only over the long term).
Regenerative	(+)	More sustainable than pasture but some research still required.
Resilient	?	Resilience to major windstorms, pathogens untested.
Appropriate	(+)	Proven environmental adaptation in many parts of NZ, except highly erodible land.
Economic		
Accessible	=	Entry to both forestry and farming restricted by lack of landholder finance.
Productive	+	
Profitable	(+)	Dependent on continuation of market trends.
Resilient	(-)	Perception of risk limits uptake at present. Resilience may increase if regional economy diversifies and strengthens.
Social		
Appropriate	(+)	Surveys indicate would be welcomed if some changes made
Equitable	?	Highly contentious.
Self-reliant	(=)	Not an local initiative, but may increase regional economic independence if benefits shared in region.
Participatory	(-)	Likely to be difficult for some aspects of commercial forestry.
Resilient	?	Some stresses apparent but change ongoing with or without Project.
In accordance with principles Treaty of Waitangi.	(+)	Approach sound but process limited by inadequate information.

Key:

- + Potentially significant positive impact
- Potentially significant negative impact
- = No significant net impact
- () Conditional
- ? Very uncertain

of the longer-term nature of the crop. Few rural areas of pine plantation in New Zealand have been converted back to pasture or other land uses. However, millions of hectares of natural forest have been converted to pasture and, more recently, pine plantations have given way to dairying in the central North Island and apple orchards in the Tasman district. In the long term the maintenance of the soil through a forest rather than a grass cover on steep land would increase some aspects of the resilience of the system because of the positive impact on erosion (chapter 5.1).

It appears from table 6.1 that the Project is weak in terms of conferring resilience in all three groups of sustainable land management characteristics. The inherent or perceived risks in the Project at present are one of its greatest problems. This is significant in a region that is subject to such severe climatic stresses.

The social characteristics are the most difficult to assess. The most problematic characteristic is that of equity. There is a case for national intervention, as occurs in other regions of the country (eg Rabbit and Land Management Programme). However this case can only be sustained as long as the intervention is seen as complementary and encouraging of other changes towards more sustainable land management by regional stakeholders, not as an alternative to or postponement of them.

The way that the Government intervenes should also be assessed in terms of the principles of the Treaty of Waitangi. Are the choices available to iwi in the region likely to increase as a result of the ECFP? How far will they be able to develop self-reliant and resilient communities in accordance with their own values. Will the outcomes ensure that their resources remain under their own control?

In spite of the limitations indicated, there seem on balance to be no insuperable barriers to the Project contributing to more sustainable land management in the region. Commercial forestry is at least an adequate means of achieving the objective(s), as long as the targeting is appropriate to overcome market limitations of commercial forestry for erosion control. The most significant problem has been the widespread confusion of the objectives of the Project with the means of achieving those objectives (see below). In other respects, the Commissioner believes that officials have performed well in designing a project to fulfil Cabinet's intentions and address the broad problems of sustainable land management in the region.

There are two principal qualifications to this tentative conclusion. Firstly, the Project on its own cannot solve all the constraints to sustainable land management in the region, for example:

- control of the worst eroding land;
- protecting productive hill country pasture land with continuing limitations (ie Subcategories 2a and some 1b);
- making a large impact on employment problems in early years;
- providing diversity of land use.

Secondly, one cannot be confident that the ECFP is the best option for the problem, because of the limited analysis of alternative options that appears to have taken place.

One suggested option to the Project (but certainly not the only one) is the previous East Coast Conservation Forestry Scheme (ECCFS) as administered by the Gisborne District Council. It does appear as though the ECCFS successfully and efficiently targeted severely eroding land, and that over the area covered it carried fewer risks in achieving its objectives than the present Project, especially at the individual level. The earlier ECCFS had specific short-term objectives emphasising protection of infrastructure in the southern part of the region. However, the regional funding component requirement for the ECCFS (28%) was a severe strain on Gisborne District Council³ and could not have been sustained for the entire region.

6.2 Assessment of multiple objectives of the ECFP

There has been much criticism of the Project's objectives, both about the number of objectives and whether the objectives are conflicting. For example:

"... the Government has mixed the objective of soil conservation with those of employment creation and economic development. It will be difficult for the ECFP to achieve either, as the two objectives are almost mutually exclusive."⁴

It appears that much of this criticism arose because of unclear wording and different expectation and interpretation of the objectives at different times.

The objectives of the Project do not seem to have been explicitly stated in papers presented for Cabinet approval in early 1992, but it is apparent that Government saw the dual objectives of "erosion control and creation of employment and social benefits in the East Coast region" as of equal importance. During the months prior to the Project's announcement in July 1992 Cabinet clearly wished to proceed with a large scale commercial forestry project as a means of achieving these objectives.

The objectives have been expressed subsequently as "To promote large-scale commercial forestry as a means of controlling soil erosion, providing employment and regional development and to recognise environmental needs on individual properties", (Project Guidelines in 1993 and 1994). This wording meant widespread confusion between the objectives and the means of achieving them.

During the development of the ECFP, there did not appear to have been any significant assessment of how potentially conflicting multiple objectives could be achieved, nor any assessment as to the implications of such conflict. The controversy that subsequently arose regarding scrub clearance (chapter 3) was, broadly speaking, about the conflict between environmental objectives and regional development/employment objectives. An attempt was made to resolve this conflict, in part, by explicit recognition of a further objective related to nature conservation.

³ Parliamentary Commissioner for the Environment (1993).

⁴ Ministry of Agriculture (1993a).

However, the wording of the nature conservation objective as to “recognise environmental needs on individual properties” has created problems in interpretation. To achieve this objective in this stated form requires an indication of the relative importance of the various types of areas excluded from the ECFP. A rewording of this objective could help clarify the intention to protect only regionally significant examples of indigenous vegetation (ie identified through survey for the PNA Programme).

There are claims that another, implicit objective for this Project is to assist Ngati Porou to establish a commercial forestry resource on their land in recognition of the constraints to its development. The questions that must be addressed include whether one group of landowners need this kind of assistance to achieve changes to more sustainable land uses and, if so, who should carry the financial liability.

Several stakeholders assume that the dominant or primary objective is the control of soil erosion. The ECFP is the first central government forestry scheme for the East Coast area that has had explicit multiple objectives although past schemes have had implicit multiple objectives. The Taylor Report (see appendix 3) was clear that afforestation was recommended for erosion control purposes but that it would have additional benefits, including the establishment of dual-purpose forests with a productive value as well as a protective value. Afforestation was widely promoted on this basis.

If the control of soil erosion was to be considered the primary objective of the ECFP, there is some evidence from previous erosion control schemes that the objectives of regional development and employment would follow as the primary objective is being achieved.

The debate about these objectives is secondary to the main issue of whether a policy or programme, like the ECFP, is effecting change towards more sustainable land management. Whether this can best be achieved by a number of single objective programmes or a multi-objective programme is not so important as making the change to land uses that are more sustainable than present uses. It would be unusual for complex land management issues not to require multiple objectives to be achieved. It can be expected that the relative importance of different objectives may change at different phases of the project. However, whichever way is chosen, the objectives must be clear and progress towards them should be measurable, principally by monitoring the change in land uses that occurs, against some benchmark indicators. Each objective should contribute to more sustainable land management.

Thus a restatement of goal and objectives could be:

Goal: To achieve sustainable land management in the East Coast region by changing land use and assisting regional development and employment.

Objectives: To control present and potential soil erosion by planting 200 000 hectares of forest by the year 2020;
To safeguard nature conservation values by a programme of secure protection of priority areas.

6.3 Policy development and the ECFP: the role of environmental assessment

The full implications of the ECFP were not identified prior to the Project's implementation. Had a form of environmental assessment which included adequate consultation with interest groups been introduced, the advent of unexpected issues might have been avoided.

In the development of environmental policies or projects, the Government has a duty under the Environmental Protection and Enhancement Procedures to ensure that a system of environmental protection and enhancement is incorporated in its policies and operations and that a system of environmental assessment is implemented.

Environmental impact assessment is a process whereby a conscious and systematic effort is made to assess the environmental consequences of choosing between various options.⁵

Public consultation is an efficient and important method of information gathering to make an assessment of 'problem issues' and to assess the implications of options. It may also serve as a forum for the disclosure of information necessary for the public to understand the background to particular proposals and provide a basis for public education about relevant issues.

6.4 Cost-effectiveness of the Project

Government subsidies

The use of a public subsidy is explicit recognition of the public benefits that result from a private activity and that a subsidy may be required to obtain the desired level of supply of a beneficial private activity. A monetary grant, such as is made in the ECFP, is a direct method of government subsidisation compared to indirect methods of subsidisation like taxation provisions or funding of research and development.

Several types of subsidies for agricultural production have been used in New Zealand in the past (eg supplementary minimum prices, land development encouragement loans, fertiliser subsidies) to support the development of agriculture.⁶ It is commonly recognised that these general subsidies, even if they brought some economic benefits, created economic distortions and at times encouraged unsustainable agricultural practices with accompanying adverse effects on the environment.

The crucial element of any subsidy is its design and, in particular, how it is targeted to achieve the desired result. Unless carefully designed, a subsidy will distort production practices in unintended ways. If a subsidy is successfully targeted and reflects the difference between the public and private costs and benefits of an action, it should create few distortions in the market and bring the supply of a desired public benefit. However, the use of a subsidy will incur additional costs as a result of government intervention in the market because of transaction costs and the need to monitor the use and the effectiveness of the subsidy and to assess the environmental effects.

⁵ Ministry for the Environment (1987).

⁶ Ministry of Agriculture and Fisheries (1993b).

The ECFP grant

The ECFP grant was never intended to and does not cover the total cost of establishment and tending. It is intended to 'top up' the rate of return for a private forestry investment on eroding and erodible land in the East Coast region to the rate of return for a typical forestry investment in other parts of New Zealand.

The justification for the ECFP grant is thus based on the public benefits that accrue from the private planting of forests on eroding and erodible land in remote areas of the East Coast region. Without the ECFP grant, this at-risk land would have only been slowly planted (if ever) through the normal functioning of the market, no matter how buoyant the forestry sector was in general. As long as this land had no or limited erosion control measures, there would remain an increased level of risk to the government and an ongoing public cost.

If the ECFP grant is not correctly targeted to at-risk land it may create distortions in the regional economy. The grant may distort the level of inputs and outputs, the locality and distribution of production systems, and thus have the effect of crowding out investment in private forestry and other land uses such as agriculture. Crowding out of private investment occurs when an increase in investment (supported by a government subsidy) distorts land prices, the cost of production and the private level of return. The efficiency test for the ECFP grant will be what level of grant is required to achieve the Project's objectives (in comparison with other investment alternatives) and what effect the grant has on other unsubsidised sectors.

Comment on efficiency

It is difficult to separate out the costs and benefits of the various objectives of the ECFP. There are many intangible values (eg environmental and social values) that are affected by the ECFP, and these costs and benefits are difficult to define and quantify accurately. There has been considerable speculation on the cost-effectiveness of the ECFP compared to the earlier East Coast Conservation Forestry Scheme (ECCFS) whose costs are known. Apart from the confidentiality of ECFP financial information and the limited time the ECFP has been operating, a number of factors make cost comparisons difficult. ECCFS grants covered establishment costs only while ECFP grants cover more than ten years of silviculture. The ECCFS applied only in the area covered by the Southern Pool of the ECFP, where establishment costs are somewhat lower than further north, but ECCFS planting was more heavily concentrated on Category 3 and severely eroding Category 2 land (see appendix 6) where establishment costs are somewhat higher. It is also difficult to compare the target area achievement of the ECFP and the ECCFS.⁷

⁷ For the ECFP the average target area achievement after the 1993 and 1994 tender rounds was more than 30% (see section 4.2.2), whereas for the ECCFS the target achievement was 63% of Category 3 land or severely eroding Category 2 land. The ECFP percentage is actually the net target area which is calculated by deducting from the target area any closed canopy indigenous scrub (CCIS) that is intended for clearance (ie the net target area only applies to bare plantable land, eg pasture. The ECFP target area percentage (see figure 4.1) is expressed as:

$$\text{(Target area - CCIS to be cleared)/Approved grant area.}$$

This formula excludes from the target ECFP percentage Category 3 land that has been cleared of CCIS. The ECCFS planted primarily pasture land whereas the ECFP plants a mix of both pasture and scrub. Any comparison of the target achievements of the ECFP and the ECCFS should acknowledge this variance.

However, a simple comparison of the average direct public cost of forest establishment under the ECCFS and the ECFP in the Southern Pool (establishment costs comprise 35% of the ECFP grant), suggests that the public cost of planting land in the Southern Pool of the ECFP is significantly less than in the ECCFS. In addition, a simple comparison of grant levels in the first three tender rounds of the ECFP shows that the public cost of the ECFP has decreased over this time.

6.5 Participation of stakeholders in the ECFP

With 24 grants approved in 1992, 22 in 1993 and 29 in 1994, there is as yet no established trend in the number of grants approved in the first years of the ECFP. However, the number of hectares of land approved for planting has gradually increased, although the target of 7000 ha per year has yet to be reached (refer table 4.5).

Participation in the ECFP may be affected by a number of factors outlined below. There have been some claims that the 25 ha minimum size is still too large for individual land holders, but there has been an increase in the number of grants for smaller areas, particularly since the advent of the blocks in the 25 to 50 hectare range which can be established over a three year period (see table 4.10).

While large scale forestry does not necessarily depend upon large companies, investor confidence is crucial if it is to succeed. One of the issues which has caused concern to investors surrounds the changes that have been made to the Project's criteria in its first three years. Continued uncertainty undermines the potential of any commercial solution. To help stability in the short term, there should be no significant changes to the Project until after the first major review. Nevertheless, further changes may well be necessary once the major review is completed in 1996. Any changes that do take place should be based upon adequate consultation and should allow adequate time for the Ministry of Forestry to fully inform stakeholders of the nature of the changes and why they are necessary.

A number of barriers to participation in the ECFP by Maori have been identified in a recent study.⁸ These include:

- the extent of communication between the Ministry of Forestry and Maori communities about the ECFP;
- the level of scepticism and suspicion held by Maori towards government initiatives, based on past State performance and potential political instability;
- the quantity of kanuka and manuka on their land which has restricted the amount of eligible land and increased land preparation costs for Maori;
- the perception of a conflicting influence of environmental groups, who are perceived as representing interests from outside the East Coast region;
- the linked problem of a joint venture partner and an undermining of the credibility of Ngati Porou Whanui Forests Ltd;
- increased complications associated with leasing land for forestry that is held under different types of multiple ownership.

⁸ Wall and Cocklin (1994b), p12.

The report also points out that Maori do perceive the ECFP as something which could be beneficial. However, as well as overcoming the above constraints, other issues also need to be addressed, including:

- forestry skills in all areas of forestry and forest management held by East Coast Maori;
- the ability to capture employment generated by the ECFP;
- the level of multiplier effects, which are believed to be largely dependent on the extent of foreign investment, either from outside the region or outside New Zealand as a whole, and the existing underemployment and underutilisation of services.⁹

It is as yet too early to assess the likely contribution of the Project to changes in land use in the Ngati Porou rohe. The barriers identified must be carefully considered if Ngati Porou lands are to be included in the Project to any large degree. One of the contributing factors to these barriers was the inadequate level of information and analysis carried out into the potential conflict between soil erosion objectives and social/economic ones during the Project's design, and the issue of conservation values relating to indigenous vegetation.

The outcome of the debate over the Forest Accord has meant the loss of the capital that could have been provided through the joint venture between Tasman Forestry and Ngati Porou Whanui Forests Ltd. This has meant that some of the bids that were accepted in the first round have not been planted. Because of the Gisborne District Council's requirement that cleared LUC Class VII land be replanted, some areas accepted for the ECFP and cleared of kanuka and manuka have had to be planted, leaving unplanted some of the clear land that was also accepted.

The constraints that face landowners in converting LUC Class VII pasture into forestry need to be closely monitored. Major long-term changes may require compromises between the ecological and social/economic aspects of sustainable land management in the short term if any change is to be achieved at all. For example it is often more viable for landowners or managers, in the short term at least, to offer reverting land or a mix of reverting and clear land for participation in the Project, and continue to graze some clear land in order to maintain a short term cashflow. However, if there is adequate competition in each bidding round, the weighting of bids disadvantages eligible kanuka covered land. Therefore these landholders are less likely to be disadvantaged while the Project remains undersubscribed.

In order to remove constraints associated with a lack of capital, the relationship between the New Zealand Forest Accord, the Project's criteria and Ngati Porou involvement may need to be revisited. In part, that may depend upon the ability of Ngati Porou Whanui Forests Ltd, or indeed those owners who may prefer to enter the Project independently, to attract alternative sources of capital. However for the Government and for the Accord partners there are other issues to consider.

In chapter 3, questions were raised about the role of the Government in facilitating the resolution of conflicts or inconsistencies between private agreements which

⁹ Ibid.

have an affect on third parties, as in the case of the New Zealand Forest Accord, and its own obligations to assist communities to promote land use changes which are not only ecologically sound but which will also meet their social and economic needs. The Government remained aloof from the negotiations between Accord partners. Ngati Porou Whanui Forests Ltd had some input but was apparently not consulted on the criteria agreed to by the Accord parties.

In a recent investigation carried out by the Commissioner, similar concerns about the Government's Treaty of Waitangi negotiations with Maori were raised by public interest groups. It was asserted that unless some provision for public consultation was made within the settlement process, the full environmental implications of settlement options would not be identified.¹⁰

In terms of process, there are some parallels between the negotiations that take place between the Crown and Maori where there is a potential for other parties to be affected, and those that have been carried out by parties to the New Zealand Forest Accord. While the Accord is a private agreement, its impacts spread beyond those who have signed it. In the Commissioner's view, the final outcome of any policy or agreement can only be strengthened if the proponents identify and address the interests of affected parties. The New Zealand Forest Accord is no exception.

It may well be in the Government's interests, if it wishes both to facilitate the participation of Ngati Porou and other landowners who require joint venture capital and to promote agreements such as the New Zealand Forest Accord internationally, to facilitate resolution of the conflict between the New Zealand Forest Accord and ECFP criteria.

6.6 The role of information in increasing participation

Public awareness

The provision of more information to the public should help to increase participation in the ECFP. Recent studies suggest that knowledge of the ECFP is limited.¹¹ Those aware of the Project had received their information primarily through newspapers, radio and word of mouth. Only a small proportion of respondents were aware of any public consultation regarding the ECFP and a number of those surveyed expressed a desire to have future involvement in decisions relating to the ECFP and to be kept aware of the issues. At the same time, the survey points out that there is some confusion amongst the public in the region about what the Project is doing. For example, the report points to a mistaken belief that most of the forestry currently being planted on the East Coast is part of the ECFP and there are concerns that non-eroding productive farmland is being incorporated. The report also points to confusion over the targeted area. Many people remain unaware of the changes that occurred to the target area in 1993. Also of interest is the identification by the researchers of a difference in attitudes towards forestry by rural Maori and urban dwellers of the region, who regard forestry in a positive light, and other non-Maori rural dwellers, who are rather more critical.

¹⁰ Parliamentary Commissioner for the Environment, (1994), p7.

¹¹ Wall and Cocklin (1994a).

Information on tenders

In the preparation of this report, the Commissioner has been provided with full information by the Ministry of Forestry on the understanding that information relating to tender values is commercially sensitive and should not be released. The Commissioner has respected that undertaking.

The ECFP utilises a confidential, competitive tender process to determine the allocation of ECFP grants with the lowest priced tenders (after the use of several weighting systems to determine the ranking of applications) receiving ECFP grant approval. Competition for grants is assumed to bring the most efficient allocation of resources. It was anticipated that, with time, the competition for ECFP grants would force the grant level down and reduce the cost of the grants to the Government. This trend has been observed over the first three tender rounds of the ECFP, with not only average grants but successive bid levels from individual applicants for similar blocks of land coming down significantly in value. It is accepted that because the Project is currently undersubscribed the confidential nature of the value of both individual and single-year averaged successful tender applications is paramount to the success of the competitive tender process and for the downward trend of grant applications to continue. The problem with the publication of the value of ECFP grants or an average grant level is that this could create a benchmark level around which subsequent applications would revolve, and that this would affect the efficiency of the competitive tender system. There have been some views expressed that releasing such information has the potential to bring down benchmark levels as people bid lower in order to gain funding. However, in an undersubscribed tender, publication of an average has the potential to increase that benchmark.

It should be noted that confidentiality of information does create problems of accountability and transparency where it is not clear to the public how public funding is being spent and with what results. Many comments have been made during the preparation of this report that political and community support for the Project will rest on public confidence that taxpayer funds are being spent efficiently and openly. There is a risk that without more openness about the costs of the Project, secrecy will be viewed as a means of the Government protecting the ECFP from comparison with other options for achieving its objectives.

On balance the Commissioner believes that at present the best compromise between public accountability and the maintenance of the competitive bidding system is for a rolling three-year average grant level to be made public each year. Given the present weighting system, it would be difficult to use this information to determine the most individually advantageous bid. There is also an arguable case that if in the future the Project becomes highly competitive, release of annual average costs could provide an incentive for further competition. Thus the policy of commercial confidentiality requires periodic review.

Project results

There is further concern about delays in releasing information about specific Project achievements. For example, in 1994 nearly four months elapsed between the time that individual applicants were advised of the results of their application and full details of the 1994 tender round were made available to the ECFP Gisborne Consultative Committee (although limited information was made

public by the Minister of Forestry in a press release on 12 October 1994). A final determination is awaited from the Ombudsman on an application by the Gisborne District Council for publication of full details of the Project.

The Ministry of Forestry has argued that in the first years of the Project only limited definitive data about Project achievements which was not commercially sensitive have been available. This year the Ministry has put significant effort into installing a geographic information system into its Gisborne office to allow detailed analysis of applications and grants, and it has been reluctant to release provisional information which could be subject to change (section 4.1).

The Commissioner believes that all information on the identity and area of successful grant applications, as well as the subsequent planting achievement of successful applicants, should be made freely available. Among present and potential applicants spoken to by the investigation team, none wished their identity to be kept confidential. All information should be available within one month of the information being available to applicants.

6.7 Role of Gisborne District Council

The Gisborne District Council is the key public authority to give effect to sustainable land management in the region under the Resource Management Act 1991. The Council can use regulation, financial incentives or education to assist land use change.

The draft Regional Policy Statement¹² includes a section on land management. Soil erosion is recognised as the major issue. The Council has signalled in the draft Regional Policy Statement its intention to introduce a Regional Land Management Plan incorporating all aspects of erosion control, preservation of significant natural vegetation and habitats, control of diffuse-source discharges to water, management of riparian margins and other aspects of sustainable land management.

The Gisborne District Council has in place a proposed Vegetation Removal and Earthworks Plan. The Plan outlines the regional rules on what activities are permitted, controlled or prohibited in order to avoid, remedy or mitigate any adverse effects on the environment caused by vegetation removal and earthworks. These controls apply to all landowners.

Table 6.2 illustrates the relationship between the controls in the Gisborne District Council's Vegetation Removal and Earthworks Plan and the requirements under the ECFP and the New Zealand Forest Accord for vegetation removal. There is a contradiction in the criteria between scrub clearance for agriculture and private forestry under the Project. To resolve this contradiction the principles for criteria derived from the sustainable land management framework (chapter 2) have been suggested and are included in the table. Such criteria could be further developed in the Regional Land Management Plan.

¹² Gisborne District Council (1994a).

The Gisborne District Council has indicated it will carry out a study which will identify whether it is feasible and appropriate to:

- extend existing controls to all practices which cause soil erosion;
- develop an 'eroder pays' principle;
- identify and levy off-site beneficiaries of soil conservation measures.

Table 6.2 Eligibility of Indigenous Species for Clearance

	Areas of Emerging Indigenous Tree Species ¹	Areas of Closed Canopy Indigenous Scrub ²
East Coast Forestry Project	No.	Yes - clearance allowed.
East Coast Forest Accord	No.	Yes - clearance allowed if indigenous species less than 3 m in height and an area is formally reserved at a ratio of 2 ha reserved to 1 ha cleared. No clearance allowed if indigenous species greater than 3 m in height.
Gisborne District Council - proposed regional plan³	<p>Clearance of vegetation < 2 m allowed.</p> <p>Clearance of closed canopy stand (vegetation > 2 m tall and closed canopy) controlled by the regional plan with resource consent categories:</p> <p>Permitted activity: scrub or tree clearfelling on LUC Classes I to IV and VI and VII if not a controlled activity.</p> <p>Controlled activity: Scrub or tree clearfelling on LUC Classes VI and VII where closer than 20 m from any permanent watercourse or > 2 ha on any one legal land parcel over a 6 month period. Consent conditions will address retention and replacement of vegetation cover, minimal disruption of soil and water quality.</p> <p>Prohibited activity: scrub or tree clearfelling on LUC Class VIII land.</p>	
Sustainable Land Use - total land use	Not normally but should be excluded from grazing for effective protection.	Yes, clearance normally allowable (if area grazed or land bare under canopy).

¹ Emerging indigenous tree species (EITS) are defined in the ECFP guidelines as those more than 50 cm in height at more than 50 stems per hectare which have reached or will reach 30 cm or more in diameter. They are also tree species that form the final canopy of a mature forest.

² Closed canopy indigenous scrub is defined in the ECFP guidelines as those areas eligible for clearance under the ECFP which do not contain existing indigenous forest, RAP, SSWI, riparian zones, and areas of EITS.

³ Gisborne District Council, 1992, *Vegetation Removal and Earthworks - a Proposed Regional Plan*.

This study was scheduled for 1994 but has been delayed by hearings on the Regional Policy Statement and work on the Coastal Plan and the District Plan. The completion of this study and the Regional Land Management Plan should be a matter of urgency after the Regional Policy Statement is completed.

The proposed Regional Land Management Plan is important because it will set the regional framework for sustainable land management in the region and will enable the contribution of the ECFP to be appreciated along with other programmes to effect change in land uses. Policies to effect land use change will be required. For example, one policy could be that where a significant proportion of a farm comprises LUC Class VII land, then the whole farm should be the subject of a property plan. Another policy could be that if the landowner wants to keep farming Class VII land, then a property plan must outline the soil conservation measures which will be carried out to ensure that the farming is sustainable and does not contribute to off-site effects.

These two policies imply that pastoral farming on LUC Class VII land should become a controlled activity. Pastoral farming on LUC Class VIII land should be prohibited.

The purpose of producing a property plan would be to:

- identify how the whole farm is managed within the opportunities and constraints of the property;
- plan the property development within an LUC framework;
- identify the soil conservation measures that are required to continue farming erodible land.

Much of the information will be already available as part of normal farm management practice. This suggested framework and the alternative targeting outlined in section 4.2.3 are suggestions for maintaining productivity on the best LUC Class VII land. Other regional councils have approached the issue of sustainable land management in a variety of ways (see appendix 3). Gisborne District Council has addressed soil conservation options and priorities.¹³

Monitoring the change in land uses is a responsibility of Gisborne District Council for the State of the Environment monitoring under the Resource Management Act 1991, the Ministry of Forestry for the effectiveness of the ECFP and the Ministry of Agriculture and Fisheries for the impacts on the agriculture sector. There is a need to co-ordinate the monitoring to ensure that the various aspects are complementing the information from each source (section 5.5).

6.8 A future framework for addressing land degradation

The ECFP should form part of a comprehensive approach to future sustainable land management in the region, complemented by a range of other land uses, all within an integrated planning framework.

Any regional planning framework that is developed should take account of the national framework for sustainable land management. Government policy is being effected through: the Sustainable Land Management Outcomes (chapter 2); the National Science Strategy on Sustainable Land Management and the recent statement of Government's strategy on the environment.¹⁴

¹³ Gisborne District Council (1994c).

¹⁴ Smith *et al* (1994), Ministry for the Environment (1994b).

A suggested planning framework for integrated land management in the region is presented in figure 6.1. This framework recognises that there is a range of land uses possible on land described by most of the land use categories.

Diversification of land uses within the region should be encouraged. Options could include: intensive farming including horticulture on small areas of arable land on a property; utilisation of manuka for honey or essential oils; spaced plantings of poplars for dual purpose woodlot and soil conservation and forest woodlots, including indigenous and introduced species. The opportunities of incorporating tourism into farming on all types of land where landscape values are significant could also be explored, eg farm stay holidays and eco-tourism. Some of these options require much more intensive investigation before their viability on a regional scale can be confirmed.

While forestry has been identified by members of Ngati Porou as having great potential for a sustainable future, a broader range of measures and advice should be made available as not all land will be eligible for the ECFP. Having regard to the broader framework of sustainable land management, such measures may have little to do with soil erosion but instead might concentrate on other measures to address land development through diversification of land uses.

Just as property plans can be regarded as useful for farm management, so could forest management plans for properties where significant afforestation can take place. The production of a forest management plan for the establishment of large-scale forestry could be required as part of the application process for the ECFP. If consents are required by the Gisborne District Council for establishment or harvesting then a forest management plan could be used for this too. The information in a plan would comprise the information needed for application for the ECFP or the information needed for any consent for forest operations. Forest and property management plans would ensure some accountability for public moneys.

As the ECFP does not apply to LUC Class VIII land, there is a need to address the severe erosion on this land in another way. Section 4.7 discussed a possible 'credit' within the ECFP for planting around some areas of Class VIII land. The Gisborne District Council's Vegetation Removal and Earthworks Plan prohibits the removal of vegetation from Class VIII land.

Funding for the framework shown in figure 6.1 would have to be determined. A contestable pool, identified in the Gisborne District Council's Soil Conservation Options and Policies document, could be funded in part by the revised Resource Management Subsidy programme administered by the Ministry for the Environment and by redirecting some of the ECFP funding, where the Project has been undersubscribed. There should also be a regional fund for promotion of sustainable land management activities.

Funding for small-scale forestry could be either through the provisions of the ECFP or through the suggested contestable pools. A forest management plan could be produced if less than 25 ha of land is in pastoral use, otherwise a property plan could be developed. Funding could be used for soil conservation plantings, establishment of small forestry blocks or other measures.

Figure 6.1 Suggested Planning Framework for Integrated Land Management in the East Coast Region

LAND CLASS	Most severe limitations	Least severe limitations
LAND USE OPTIONS	Protection forestry, Managed regeneration	Broad-scale erosion control/production afforestation
PUBLICLY FUNDED PROGRAMMES	Integrated production/erosion control forestry and farming	Pastoral Farming
MANAGEMENT PLANS/ CONSENTS	Proposed erosion control programme	Intensive agriculture including horticulture, woodlots, etc
	Within Property or Forest Management Plan, as appropriate	Proposed Contestable Pool for Resource Management
	Forest Management Plan	None
	Forest Management Plan if <25 ha pastoral use, otherwise Property Management Plan	(Private Business Plan)
	Pastoral use conditional on producing Property Management Plan on LUC Class VII land	

Chapter 7

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

1. **The East Coast region has very serious constraints to achieving sustainable land management.** The combination of physical, social and economic constraints to sustainable land management in the region is well documented. The extent and severity of erosion in the region is unique. The Gisborne District Council and the individual landholders do not have the financial resources to make significant changes towards more sustainable land management. Government assistance is clearly needed to change land use.
2. **A consistent Government policy on sustainable land management is highly desirable.** The East Coast Forestry Project should be based on broadly similar principles to those of the Rabbit and Land Management Programme in the South Island High Country.
3. **The East Coast Forestry Project, based on facilitating the development of commercial forestry, has the potential to assist the change to more sustainable land management in the region provided that:**
 - targeting of at-risk lands is improved;
 - potential erosion is recognised to be as important as present erosion;
 - opportunities are provided for secure protection of indigenous vegetation with high conservation value;
 - stakeholders are able to participate in ongoing decision-making and implementation;
 - all eligible landholders have effective access to the Project;
 - investment risks are recognised and provided for;
 - the Project is promoted more extensively;
 - accountability is provided by approved forestry or property management plans and monitoring programmes.
4. **The inherent or perceived risks of commercial forest establishment by investors and landholders is constraining achievement of land use change under the Project.**
5. **The use of public moneys to change land use for sustainable land management is acceptable.** The public cost of the Project has decreased over the first three years. No significant distortions to the regional economy have been apparent to date.
6. **The East Coast Forestry Project is not the only means of sustainable land management of the region.** Achievement of sustainable land management is an ambitious goal requiring a mix of measures and agencies. Ideally, the Project should form part of a comprehensive approach to future sustainable land management in the region, complemented by a range of other land uses, all within an integrated planning framework.

7. **The Gisborne District Council has a vital role to play in the Project as well as in other sustainable land management initiatives. Further regional policies to effect sustainable land management are required; funding arrangements for these also need to be worked out.**
8. **Involvement in commercial forestry has been identified as a key opportunity for sustainable economic development by Maori in the region.**

Objectives

9. **There has been serious confusion between the objectives of the Project and the means of achieving them.**
10. **The multiple objectives of the Project were not adequately assessed for potential conflict before the Project was announced. Cabinet originally specified three equal objectives and Government officials have done well to implement this intention through the East Coast Forestry Project. However, the Project will better fulfil a goal of sustainable land management if the objectives are separated from the goal and are more clearly defined and measurable.**

Project design and targeting

11. **There appear to be some inconsistencies in the present targeting systems. Potential erosion is as important as present erosion, thus targeting only severe to extreme present erosion is inappropriate.**
12. **To achieve changes to more sustainable land management in the region, targeting of most LUC Class VIIe land is desirable. Afforestation, or other soil conservation measures where feasible and justified, on at-risk land should be achieved as quickly as possible.**
13. **The present goal of a 50% target area for all the tenders in a tender round is arbitrary and non-achievement to date is not a concern. However, continuation of the approval of bids with a very low target area would be a serious concern.**
14. **The current NPV cut-off is inhibiting the approval of applications with significant proportions of target land.**
15. **Rehabilitation of LUC Class VIII and the worst eroding LUC Class VII land is not adequately provided for at present but is not appropriately addressed through a commercial forestry project.**

Nature conservation

16. **Protection of indigenous vegetation is not well targeted, nor is it secure under the Project.**
17. **The interests of all landowners in negotiating the protection of indigenous vegetation must be recognised. There will be instances where some clearance of indigenous vegetation, where not identified as a priority conservation area, is justified to effect change towards sustainable land management.**
18. **The New Zealand Forest Accord contains important principles, and there is good reason for Government to formally recognise the Accord. However, it must be recognised that the Accord was devised without the involvement of key stakeholders, such as tangata whenua and landholders, and appropriate application of the Accord principles may vary in different contexts. There would be merit in establishing more ecologically-based criteria to identify land for exclusion from clearance or disturbance.**

The decision-making process

19. **The development of the Project and its decision-making process was driven by the perceived need to facilitate commercial forestry.**
20. **Consultation was limited during the Project design, partly because of budget secrecy.**
21. **There was limited assessment of the environmental implications of the Project, especially in consideration of options for ways to progress sustainable land management in the region.**
22. **Some essential resource information was lacking at the time of the Project design, eg vegetation cover and values. Information about implications of this type of information emerged only after the Project was announced. The response resulted in ad-hoc adjustments being made to the Project.**
23. **Some aspects of administration of the tender round have not been handled in a timely manner, in particular the release of information from the 1994 tender round. This has exacerbated local concerns about the Project and its impact on the agricultural sector.**

Impacts

24. **It is too soon for either positive or negative effects of the East Coast Forestry Project in the region to be confirmed. Monitoring of effects that can be specifically attributed to the Project will always be difficult because of other forestry investment and ongoing social and economic change in the region.**
25. **The net biophysical effects of large-scale afforestation are likely to be favourable. However, potential detrimental impacts of commercial forestry, particularly those associated with harvesting in a fragile steep-land environment, may be significant and will require good planning and implementation of best practices to be minimised.**
26. **Long-term forestry establishment in the region will have a significant impact on total pastoral agricultural production. It is likely that this will result in permanent changes in some rural communities.**

Monitoring and review

27. **Required changes to the Project are best addressed through a fundamental and independent review in early 1996, followed by a renewed long-term Government commitment to the Project. The Project has suffered from a lack of consistency in its first three years which has affected long-term certainty for potential investors.**
28. **The design of an ongoing monitoring framework to assess the effectiveness of the Project to assist change to more sustainable land management is crucially important.**

1. Continue the East Coast Forestry Project as an important means of change to more sustainable land management in the East Coast region.
(section 6.1)

2. Reword the goal and objectives of the East Coast Forestry Project to:

Goal: To achieve sustainable land management in the East Coast region by changing land use and assisting regional development and employment.

Objectives: To control present and potential soil erosion by planting 200 000 ha of forest by the year 2020; and

To safeguard nature conservation values by a programme of secure protection of priority areas.
(section 6.2)

3. Seek approval to transfer any unallocated East Coast Forestry Project funding to the revised Resource Management Subsidies Programme for other sustainable land management initiatives in the East Coast region.
(section 6.8)

4. Continue and expand the roles of the East Coast Forestry Project Gisborne District Consultative Committee and the Technical Advisory Committee, the former to be formally involved in discussion of Project policy and both to be involved in overseeing monitoring programmes.
(section 4.7)

5. Increase the promotion of the Project to stimulate investor interest and improve public understanding by:
 - (a) clarifying the *Guide to the East Coast Forestry Project* so that it includes definitions of areas and examples of Project grant application procedures and assessment processes;
(section 4.7)

 - (b) separating the guidelines to the Project from promotional material;
(section 4.7)

 - (c) making information on successful bids publicly available in a more timely fashion;
(section 4.7)

 - (d) making information available on why any bids were unsuccessful so that stakeholders can appreciate the reasons for non-acceptance of bids.
(section 4.7)

6. Review the current Net Present Value cutoff so that it is dependent on the target area.
(section 4.7)

7. Clarify the interpretation and reporting of the Project target percentage achievement compared to the net target percentage that is used in the land classification weighting system.
(section 4.2.2)
8. Require an archaeological certificate as part of the certification process after conditional grant approval but before final planting boundaries are established.
(section 4.7)
9. Assist the secure protection of excluded areas by:
 - (a) promoting the fencing provisions for the protection of Recommended Areas for Protection and Sites of Special Wildlife Interest;
(section 4.3.5)
 - (b) developing and publishing guidelines for the cost of fencing in relation to the importance of the set aside indigenous area, the length of the perimeter, and the total area;
(section 4.3.5)
 - (c) paying the total cost of fencing in the first year of the grant.
(section 4.3.5)
10. As part of the grant verification process, calculate the actual area of scrub clearance (closed canopy and scattered scrub) that has occurred.
(section 4.3.1)
11. Design a coordinated and ongoing monitoring framework to assess the effectiveness of the Project in association with other public authorities.
(section 5.5)
12. Make no additional changes to the Project (apart from those above) until after the major review of the Project.
(section 6.5)

In relation to the forthcoming review of the East Coast Forestry Project

13. Ensure the major review of the East Coast Forestry Project due in early 1996 is independent and develop terms of reference that will provide an integrated assessment of the effectiveness of the Project in assisting change to more sustainable land uses. In particular, the following should be considered as part of the major review:
 - (a) change the present maximum tender round area of 7000 ha/yr to an average of 7000/ha over a three year cycle, to allow for the lapsing of approved grants;
(section 4.7)

- (b) investigate the use of a new land targeting system that is based on criteria that include:
- the recognition of both present and potential erosion;
 - the recognition of the full scale of erosion severity (0-5);
 - the recognition of the mosaic of different land classes; and
 - provision for consistent and practical verification by a land use consultant;
- (section 4.2.3)*
- (c) investigate the use of a minimum target area percentage as a requirement for grant approval;
- (section 4.2.3)*
- (d) review the basis for indigenous vegetation protection under the Project (in consultation with the Minister of Conservation);
- (section 4.3.3)*
- (e) provide a nominal credit for the secure protection of priority conservation areas (ie Rank 1 and 2 Recommended Areas for Protection and Outstanding category Sites of Special Wildlife Interest) (in consultation with the Minister of Conservation);
- (section 4.3.3)*
- (f) investigate a new indigenous vegetation weighting system based on the net retention of scrub (ie the difference between the area cleared and the area retained) (in consultation with the Minister of Conservation);
- (section 4.3.3)*
- (g) research an average planting density for LUC Class VII land in order to simplify the planting rates;
- (section 4.7)*
- (h) investigate the provision of a nominal credit for the planting of areas surrounding LUC Class VIII land;
- (section 4.7)*
- (i) investigate the development and use of a list of priority catchments as part of the assessment and ranking of grant applications;
- (section 4.7)*
- (j) require applicants to include a forestry management plan with a grant application. The plan would include information required for an application to be considered in a tender round.
- (section 4.7)*

RECOMMENDATION to the Minister for the Environment

14. Give priority to East Coast landholders within the revised Resource Management Subsidies Programme to fund changes to more sustainable land uses in the region.

(section 6.8)

RECOMMENDATION to the Ministers of Conservation and Forestry

15. Prepare a position paper to Government on the feasibility of formal Government recognition of the New Zealand Forest Accord.
(section 6.5)

RECOMMENDATIONS to the Gisborne District Council

16. Produce a Regional Land Management Plan and associated policies as a matter of urgency, including:
- (a) making farming a controlled activity on LUC Class VII land;
 - (b) requiring a property plan for farms with a significant proportion of LUC Class VII land.
(section 6.7)
17. Promote the revised Resource Management Subsidies Programme to landholders and other agencies.
(section 6.8)
18. Establish a regional fund to promote sustainable land management.
(section 6.8)

RECOMMENDATION to the Ministers of Forestry, Conservation and Environment, and research providers

19. Promote additional research on the following subjects:
- (a) intensive tree harvesting trials on Tertiary hill country;
(section 5.1.2)
 - (b) downstream water availability following extensive afforestation in the East Coast region;
(section 5.1.3)
 - (c) scrub height/age and ecological criteria for exclusion of indigenous vegetation from Project funding;
(section 4.3.3)
 - (d) intensive trials of silviculture and growth of promising alternative species, especially poplars, cypresses, and indigenous softwoods.
(section 6.8)

Appendices

Appendix 1 ORGANISATIONS CONSULTED DURING THE INVESTIGATION

Agriculture New Zealand, Gisborne *

W Armstrong, Armstrong Associates, Wellington

C Cocklin, Department of Geography, University of Auckland *

Department of Conservation, Gisborne *

Department of Conservation, Wellington *

East Coast Forestry Project Gisborne District Consultative Committee, Gisborne *

Environment and Conservation Organisations of New Zealand, Wellington *

Federated Farmers, Gisborne

Forest Research Institute, Rotorua

B Foster, Gisborne

M Galloway, Forestry Consultant, Gisborne

Gisborne District Council, Gisborne *

Greenpeace New Zealand, Auckland *

Hikurangi Forest Farms Ltd, Gisborne

J Hogan, Albany

Juken Nisshu Ltd, Gisborne

Kohntrol Forest Services, Gisborne

J Mackie, MP for Gisborne

Manaaki Whenua-Landcare Research NZ Ltd, Gisborne *

Manaaki Whenua-Landcare Research NZ Ltd, Palmerston North *

Maruia Society, Nelson *

Ministry for the Environment, Wellington *

Ministry of Agriculture and Fisheries, (MAF Policy), Gisborne *

Ministry of Agriculture and Fisheries, (MAF Policy), Wellington *

Ministry of Forestry, Gisborne *

Ministry of Forestry, Wellington *

New Zealand Forest Owners Association, Wellington *

New Zealand Historic Places Trust, Wellington

Ngati Porou Whanui Forests Ltd, Ruatoria *

PF Olsen & Co, Gisborne

Rayonier New Zealand Ltd, Gisborne

Royal Forest and Bird Protection Society, Wellington *

Rural Network, Gisborne

J Ruru, Gisborne

I Salmon, Tolaga Bay

Hon P Tapsell, MP for Eastern Maori

Tasman Forestry, Rotorua *

Te Puni Kokiri, Wellington *

Te Runanga o Ngati Porou, Ruatoria *

* Commented on all or part of the report.

Appendix 2

CHARACTERISTICS OF SUSTAINABLE LAND MANAGEMENT IN THE EAST COAST REGION

Ecological characteristics:

Ecosystem processes maintained:

Resource use does not disrupt ecological systems or over-exploit natural resources. There is a rational use of renewable resources; the physical, chemical, and biological condition of the soil is maintained and there is no build-up of weeds, pests, or diseases.

Biodiversity maintained:

The genetic range and diversity of plant and animal species and ecosystems is conserved.

Reversible processes:

Options for future generations as to how to use the natural resource base remain open.

Regenerative:

Minerals and nutrients removed by crops and livestock are replenished in the soil.

Resilient:

Ecosystem can absorb changes, retaining characteristics in the face of disturbances, such as climatic extremes or attacks by pests or disease.

Appropriate to the physical environment:

Adapted to the environmental constraints of geology, soils, topography, and climate.

Economic characteristics:

Productive:

Capable of continuous reliable production levels.

Accessible:

Participation in economy (primarily through access to capital) open to all.

Profitable:

Production units create surpluses above survival.

Resilient:

Financial risks are minimised.

Social characteristics:

Appropriate to the socio-economic environment:

Adapted to the local socio-economic environment and to the needs, skills, and training of land users.

Equitable:

At local, regional, and national levels.

Self-reliant:

Based on the efforts and ideals of land users in the region - minimising the dependence on non-renewable, often imported resources.

Participatory:

Stakeholders can participate in decision-making on use of resources.

Resilient:

Land use system can absorb changes in the local community or in the socio-economic environment.

Treaty of Waitangi Principles:

Ability for Maori to define their own social and economic needs according to their own values and to have control over how these needs are met.

Appendix 3

RESPONSES TO LAND DEGRADATION PROBLEMS

A3.1 Previous East Coast responses to erosion control problems

A3.1.1 East Coast Project

The East Coast Project, to acquire land and plant trees in the critical headwaters of the Waipaoa River catchment, grew out of previous attempts to instigate erosion control measures. A technical committee, chaired by Dr Taylor, was set up by the Soil Conservation and Rivers Control Council in 1963. The Committee recommended comprehensive erosion control measures for the East Coast area, for both the critical headwaters area and the pastoral land.¹

The East Coast Project was never precisely defined but is generally considered to be land acquisition and afforestation at Mangatu, Tokomaru and Ruatoria Forests in the period 1968 to 1987. It never had a formal identity or staff but was implemented through the former New Zealand Forest Service (afforestation) and the former East Cape Catchment Board (soil conservation plantings).

The East Coast Project was to be implemented over a 50 year period and to afforest about 100 000 ha.² Many of the projected benefits from erosion control were expected to occur over 50 to 100 years. The project was stopped in 1987 with the corporatisation of the New Zealand Forest Service after some 36 100 hectares had been planted.

Objectives

The objectives of the project were to establish an effective long-term programme for controlling erosion and to develop the maximum sustained productivity from the land. In addition, the Taylor Report saw the project as having additional objectives, viz. the promotion of economic and social development of the region, and the establishment of dual-purpose forests with a productive value as well as a protection value.

Targeting

The Taylor Report had divided the East Coast area into two broad zones based on the need for erosion control. The critical headwaters area was declared as unsuitable for pastoral farming but able to be effectively afforested while the pastoral foreland zone was considered to have a long-term future in pastoral farming.

¹ Taylor (1967).

² Ibid.

Reviews

Three reviews of the East Coast Project were undertaken: two in the 1970s and one in 1987. In August 1976 the National Water and Soil Conservation Organisation suggested to the Poverty Bay Catchment Board that they examine the land use plan in the Taylor Report after eight years of implementation. The resulting report, known as the 'Red Report'³ recommended that the principles of the Taylor Report be reaffirmed but did change the description of the targeted land by developing land management categories. The Project was then focused on Subcategory 3b and 3c land (for further discussion of the land use descriptions, refer to chapter 4 and appendix 6).

In 1976 the Government directed the then Ministry of Works and Development to prepare a regional plan and works programme for the East Coast region. The Ministry reviewed the economics of forestry development as they considered this a key element in the region's future. The report was released in September 1979.⁴ The study examined from the national viewpoint the relative costs and benefits of three different afforestation scenarios:

- stopping the afforestation programme in 1980;
- continuing the existing programme on the most erodible land at a rate of about 2300 ha per year;
- expanding the existing planting programme to about 6000 ha per year to include some of the less erodible land (Subcategories 2b and 3a in the 'Red Report'), giving a total forest estate of about 220 000 ha by the year 2011.

The maximum afforestation option was predicted to give the best returns at two discount rates and, although a recommendation was made to Government to increase the planting rate, this was not implemented.

The last review, conducted in 1987, was required by the Government as the proposed establishment of the Forestry Corporation would mean the Corporation could have only commercial objectives. The review examined the water and soil conservation benefits of the project as well as its social and economic consequences.⁵

The review concluded that the East Coast Project "has clearly helped control erosion and maintain productivity". The review report was presented to Government in February 1988. Government established an Officials Committee to report by July 1988 on the review findings, submissions made on the review and the future of the East Coast Project.

³ Anon (1978).

⁴ Anon (1979).

⁵ Ministry of Works and Development (1987).

Achievements

The New Zealand Forest Service programme of acquiring land and planting the most erodible land (mostly Subcategory 3b and 3c land) carried on at a rate of about 2000 hectares per year until 31 March 1987. In all, some 36 100 ha of highly erodible land were stabilised by afforestation. The major forests established were: Ruatoria Forest 11 817 hectares; Tokomaru Forest 7320 hectares; Mangatu Forest 10 000 hectares. Some 400 ha of Subcategory 2a land and some 4700 ha of Subcategory 2b land were also afforested.

A further 75 000 ha of Subcategory 3b and 3c land needing afforestation lies mostly in tributary catchments of the Waiapu River, particularly the Mata catchment, and tributaries west of Ruatoria in the north of the region.

A3.1.2 Protection/Production Forestry Encouragement Grants Scheme

This grant scheme was made available to farmers and small companies during 1971-1985 and was responsible for some 5328 ha of land being planted on the East Coast. An additional scheme, the Protection/Production Forestry Encouragement Scheme, was introduced in 1981 to cover the costs associated with land where planting was necessary for soil protection purposes. This scheme was piloted on the East Coast and, before it was stopped, enabled some 1809 ha to be planted. Two forest regimes were practised: clearwood and framing. Generally, clearwood regimes were carried out on the better parts of any grant area and framing on the balance of the area.

A3.1.3 East Coast Conservation Forestry Scheme (ECCFS)

This short-term, highly focused scheme for catchments in the south of the region was announced in 1988 following the Officials Committee report of July 1988. The Committee's recommendations to Government were strongly influenced by Cyclone Bola's effect on the region which altered perceptions of the benefits of afforestation in terms of both erosion control and flood mitigation. Funding was shared between central government (67%), local government (28%) and landowners (5%). The Scheme subsidized the planting of trees (and protection from livestock) but did not make provision for continued pruning and thinning or for purchase of any land. However, a legal agreement requires minimal thinning for tree health.

The northern region of the East Coast was excluded from this programme because of the limited funding available and the higher priority for protection of assets in the south of the region. The Officials Committee report acknowledged, however, that the erosion problem in the north is of greater areal extent than those targeted catchments in the south.

Objective

The objective of this Scheme was to afforest badly eroding areas in the critical headwaters of the Poverty Bay Flats and Tolaga Bay catchments.

Targeting

The land eligible for the subsidized planting was identified using the land categories of the 'Red Report' and were: severely eroding Category 2 land and Category 3 land with inclusions of land with a potential for severe erosion and that land necessary to achieve stable, practical boundaries.⁶

Review of the Scheme

The Scheme was evaluated each year by the Gisborne District Council and a report sent to the Ministry for the Environment detailing the land planted, its land use category and the costs associated with the Scheme.

Achievements

The Scheme resulted in some 13 674 ha of land being planted over five years. Of the total area planted, 63% was Category 3 land or severely eroding Category 2 land and some 13% was land with potential for erosion.⁷

A3.1.4 Other forestry

Private sector forestry has also been established in the East Coast region, mainly on the Class VI land. It includes commercial forest plantings inland of Tologa Bay and afforestation of Maori leasehold land at Tokorarangi near Te Araroa.

A3.1.5 East Coast regional schemes

Soil conservation plantings which have been partially funded by central government have been carried out by landowners on both a farm scale and a catchment scale. Both catchment control schemes and on-farm works included conservation forest blocks. The Gisborne District Council has recently completed the report *Soil Conservation Options and Priorities* to set a direction for soil conservation work in the region.⁸

⁶ Anon (1978).

⁷ Gisborne District Council (1994b).

⁸ Gisborne District Council (1994c).

Catchment Control Schemes

Between 1989 and 1992 the Gisborne District Council had four catchment control schemes operating. These schemes had started before the Bola storm but were continued through the period 1989 to 1992. A variety of soil conservation techniques were used to stabilise land including the planting of willow or poplar poles. The Waihora Valley Scheme was evaluated soon after the Bola storm and the evaluation showed the benefits of the on-farm works in preventing major damage to the land in this catchment only where on-farm works had been adequately installed and maintained. It is of some concern that two-thirds of the East Cape Catchment Board's on-farm works have not been adequately installed and maintained.⁹

Individual farm plantings

On-farm erosion control techniques have been advocated by the Gisborne District Council and the former catchment boards over the past 30 years. By 1987 the catchment board had conservation plans completed or operating on 455 farms, covering an area of some 304 000 ha.

The on-site benefits of implementing soil and water conservation plans in order to maintain agricultural productivity of the land have been conservatively estimated for the East Cape region as retaining 44 000 stock units.¹⁰

Resource Management Subsidies continue to be made available by central government for on-farm soil conservation works although the total amount of subsidy money is \$5 million per annum throughout New Zealand.

Table A3.1 shows a brief comparison of the main central government schemes that have been in the region.

A3.2 Other regional responses to land degradation problems

A3.2.1 Rabbit and Land Management Programme

In the drier South Island high country, rural communities have been largely dependent on pastoralism for over 100 years. Over the last decade, the physical sustainability and financial viability of many properties has become more tenuous because of land degradation, increasing rabbit populations, and the extent of vegetation loss. In 1988 extreme rabbit populations led to a Task Force examining the many factors affecting sustainability. As a result, a five year Rabbit and Land Management Programme (RLMP) was established.

The primary goal of the Programme is to assist the transition to more sustainable land uses. The RLMP is a collaborative effort between landholders, regional, and central government. The Ministry of Agriculture and Fisheries (MAF) is responsible for Programme funding and direction while the on-the-ground delivery is by farmers and regional council staff. The Crown's interest in this Programme is to invest in long-term change to patterns of more sustainable land use.

⁹ Hicks (1989a,b); (1992).

¹⁰ Parliamentary Commissioner for the Environment (1988).

Table A3.1 Comparison of central government schemes

	FORMER EAST COAST PROJECT	EAST COAST CONSERVATION FORESTRY SCHEME	EAST COAST FORESTRY PROJECT
Area - target (ha) - planted	100 000 - 140 000 36 100	15 000 13 674	200 000 c. 15 400 (allocated by 1994)
Duration	1968 - c.2018 (stopped in 1987)	1989 - 1993	1992 - 2020
Purpose	Erosion control Sustained productivity Economic/social development	Erosion control	Promote large scale commercial forestry to control soil erosion Provide employment and regional development
Mechanism	State afforestation on acquired land	Direct (95%) subsidy for private planting only	Tendered subsidy for private planting and tending
Land Purchase	Provided for	Not provided for	Not provided for
Targeting	Very broad initially (critical headwaters), later refined by LUC	Severely eroding land in Southern catchments	Severely eroding and erodible land, weighted to the north
Rate of Planting	2000 ha per year	2700 ha per year	7000 ha per year (target)
Cost \$/ha	\$6540 total cost \$2630 direct cost	\$800 direct cost Administration cost: 12-15% of direct cost	not available
Species	90% <i>P. radiata</i> 10% corsican pine, douglas fir	Mainly <i>P. radiata</i> , willows in gullies	Mainly <i>P. radiata</i> but alternative species allowed

Note: Direct cost = planting, tending, and pruning costs.

Total cost = direct and indirect costs (e.g. overheads)

The Programme was examined by the Parliamentary Commissioner for the Environment as a follow up to an earlier report on land management.¹¹ It was also reviewed under contract to MAF in January 1991, twelve months after the formation of regional councils. The latter review concluded the Programme should be continued but with some changes in emphasis.¹² A further review was carried out in 1993/94 by a working party chaired by the Chief Executive of the Otago Regional Council.¹³

A vegetation monitoring programme is an essential part of RLMP. This programme was designed and implemented by MAF, Landcare Research, the regional councils, and landholders. The primary aim of the programme is to report on the impact of the RLMP policies and practices on the land condition. The monitoring programme has demonstrated that after four years there has been a significant improvement in vegetation status.¹⁴

A3.2.2 MAF Farm Partnership

In October 1990 the Minister of Agriculture announced the FARM Partnership Scheme (Facilitation of Action for Risk Management). This programme was designed to promote sustainable agriculture in areas where land uses and farming methods have, over time, brought about significant degradation of the land, thus putting it at risk from adverse climatic events.

This policy initiative was developed throughout 1990 with consultation of the affected stakeholders but the policy was deferred following a change in Government in late 1990.

A3.2.3 Farm Partnership in Hawke's Bay

The Farm Partnership concept was based on a proposal made in the Hawke's Bay region in an area also devastated by the Bola storm. The then Hawke's Bay Catchment Board considered it had a leading role to play in the guiding of land use decisions both at the individual level and the district and regional level. The Board, in conjunction with MAF and Federated Farmers, was active in discussing land use changes with landholders in the Kahika district but the proposal lapsed.

The Hawke's Bay Regional Council has continued to encourage changes to more sustainable land management through a variety of measures. The council is working proactively in areas of the region that have been assessed as the highest risk. The measures include:

- assistance with the development of Farm Plans when requested;
- the council administers a Regional LandCare Incentive Scheme. The Scheme

¹¹ Parliamentary Commissioner for the Environment (1991).

¹² Taylor Baines and Associates (1991).

¹³ Working Party on Sustainable Land Management (1994).

¹⁴ *Rabbit and Land Management News*, September 1994.

aims to help landowners and other members of the Hawke's Bay community to control land degradation and work towards more sustainable land use and management systems. Applications are assessed in terms of the objectives of the Sustainable Land Management Programme and other criteria to ensure feasibility and accountability;

- the council has worked with Federated Farmers to produce Pastoral Guidelines;
- the council runs training courses for farmers on aspects of sustainable land management, eg provision of shelter belts;
- the council will enter into a joint venture with landowners to afforest the Class VII land that is commercially unattractive to plant.

A3.2.4 LandCare in Waikato

Environment Waikato has made provision for environmental education within its draft Regional Policy Statement, one component of which is the promotion of community group involvement in order to achieve the objective of sustainable land management across the region. Community involvement could take the form of a LandCare group and this concept is now being promoted in the region. The LandCare groups are formed to identify local environmental problems and take action to solve them. Currently there are seven landCare groups with some eight BeachCare groups also set up. The Council has an Interim Landcare Policy that identifies the purposes for involvement in LandCare.

A3.2.5 Farm Planning in Taranaki region

The Taranaki Regional Council has approached the issue of how to achieve more sustainable land management practices in a different way. The West Coast of the North Island is subject to significant damage producing rainstorms every 15-20 years. Erosion in the hill country is causing erosion which can be severe for land in pasture. Research has indicated that tree and scrub canopies are significantly more effective at minimising soil loss than pasture cover. The Council has participated, together with a farmer and scientists, in trialling a farm management plan for more sustainable land use. The results of the study were communicated at a field day on this farm. The methodology developed through the study has been applied to other farm plans.

A3.2.6 Manawatu-Wanganui Regional Council grant programme

The Manawatu-Wanganui Regional Council has set up a regional soil conservation grants programme. This comprises a \$1.1 million contestable fund paid for by ratepayers.

Appendix 4

AGENCIES INVOLVED WITH THE EAST COAST FORESTRY PROJECT

Ministry of Forestry:

The Ministry is responsible for administering and monitoring the Project. The Ministry undertakes pre-selection inspections of grant areas, evaluates grant applications, audits planting and tending of grant areas, and makes grant payments.

Department of Conservation:

The Department is involved in the grant application certification process (ecological certificates) and participates in a joint ground inspection with MOF to identify conservation areas that are excluded from being eligible for grant funding.

Gisborne District Council:

The council is responsible for Resource Management Act 1991 processes, including resource consents, and council staff are used as consultants by ECFP grant applicants to assess the landuse capability of grant areas (part of the grant application certification process).

New Zealand Historic Places Trust:

Inspections of grant areas for archaeological sites (any place associated with human activity before 1900) under the Historic Places Act 1993 are at a grant applicant's expense. The prior authorisation of the Trust is required if a grant area that contains an archaeological site within its boundaries is intended to be modified (eg construction of tracks/roads and the planting of trees).

Technical Advisory Committee:

The Technical Advisory Committee (TAC) makes recommendations to the Secretary of Forestry on pool criteria and the selection of grant approvals. The Committee consists of representatives from the following agencies and groups:

- Ministry of Forestry
- Department of Conservation
- Ministry of Agriculture and Fisheries
- Ministry for the Environment
- The Treasury
- Te Puni Kokiri
- Department of Prime Minister and Cabinet
- A member of the Gisborne District Consultative Committee

Gisborne District Consultative Committee:

The Gisborne District Consultative Committee (GDCC) consists of representatives from government departments and organisations based in Gisborne and this group provides advice to the Ministry of Forestry. The membership of the GDCC consists of the:

- Ministry of Forestry
- Department of Conservation
- Gisborne District Council
- Local Member of Parliament
- Tangata whenua
- Farming interests - farmers
- Forestry interests - forestry companies/consultants
- Financial sector

THE NEW ZEALAND FOREST ACCORD

This accord is between the New Zealand Forest Owners' Association (Inc.), the New Zealand Timber Industry Federation, the New Zealand Farm Forestry Association, the New Zealand Wood Panel Manufacturers' Association

and

the Royal Forest and Bird Protection Society of New Zealand (Inc.) together with the following environmental or recreational organisations who collectively comprise the New Zealand Rainforest Coalition:

- Environment & Conservation Organisations of N.Z. Inc.
- Federated Mountain Clubs
- Friends of the Earth
- Beech Action Committee
- Pacific Institute of Resource Management
- World Fund for Nature (N.Z.)
- Japan Tropical Forest Action Network
- Tropical Rainforests Action Group

and

Maruia Society

OBJECTIVES OF ACCORD

To:

- define those areas where it is inappropriate to establish plantation forestry
- recognise the important heritage values of New Zealand's remaining natural indigenous forests and the need for their protection and conservation.
- acknowledge that the existing area of natural indigenous forest in New Zealand should be maintained and enhanced
- recognise that commercial plantation forests of either introduced or indigenous species are an essential source of perpetually renewable fibre and energy offering an alternative to the depletion of natural forests

- acknowledge the mutual benefits emanating from an accord between New Zealand commercial forestry enterprises and conservation groups and the example that this unique accord can provide for the international community.

INSTRUMENTS OF ACCORD

1. The parties agree that for the purposes of this accord a native tree is defined as any indigenous woody plant which ultimately forms part of the canopy of a naturally occurring forest in the locality under consideration and also includes any indigenous tree species which attains a diameter at breast height of 30cm or greater.
2. It is the policy of N.Z.F.O.A. that members, when establishing plantation forests, will exclude from land clearing and disturbance all areas of naturally occurring indigenous vegetation with the following characteristics:
 - i. any area of 5 hectares or greater which has an actual or emerging predominance of naturally occurring indigenous tree species of any height.
 - ii. any natural indigenous forest vegetation of between 1 and 5 hectares in area with an average canopy height of at least 6 metres which is practical to protect. This recognises that in some instances small pockets of native vegetation within a commercial forest cannot practically be protected from disturbance. However, viable stands will be excluded from clearance and every reasonable effort made to ensure such areas are not damaged in subsequent forestry operations.
 - iii. any vegetation recommended for protection in a survey report in the Protected Natural Areas Programme or classified as a Site of Special Wildlife Interest (S.S.W.I.) in a published report by the former Wildlife Service.

- iv. in ecological districts where such surveys have not taken place, areas that would qualify as a Recommended Area for Protection (R.A.P.) or S.S.W.I. in the professional opinion of the Department of Conservation, using established criteria for such surveys.

3. The parties support the production management and harvest of naturally occurring indigenous forest only where such activity is conducted on a sustainable basis and principally for the production of added value solid wood products in New Zealand. A "sustainable basis" is considered to be a rate and method of tree extraction that does not exceed the replenishment so that the forest ecosystem in the area under consideration is maintained in perpetuity.

4. The conservation groups undertake to:
 - acknowledge the importance of plantation forestry as a means of producing wood products and energy on a sustainable basis while promoting the protection and conservation of remaining natural forests, and to promote these understandings both within New Zealand and internationally;

5. The parties agree that this accord excludes high country Crown land, Crown pastoral leases and lands controlled by the Department of Conservation.

6. The parties agree that existing arrangements for the supply of native timber authorised by past Government decisions are not covered by this accord and that this accord will not be used by them to have effect on, nor to influence, negotiations with the Crown for forest arrangements referred to by the West Coast accord and the transitional arrangements in Southland.

7. The parties to this accord agree to meet from time to time to monitor the implementation and address issues which may arise.

Signed by the following parties, in Wellington on the 14th day of August 1991:

New Zealand Forest Owners' Association (Inc.)

Environmental and Conservation Organisations of New Zealand (Inc.)

World Wildlife Fund (New Zealand)

The New Zealand Farm Forestry Association (Inc.)

Federated Mountain Clubs

Japan Tropical Forest Action Network

The New Zealand Wood Panel Manufacturers' Association (Inc.)

Friends of the Earth

Tropical Rainforests Action Group

The New Zealand Timber Industry Federation (Inc.)

Beech Action Committee

Maruia Society

The Royal Forest and Bird Protection Society of New Zealand (Inc.)

Pacific Institute of Resource Management

Appendix 6

LAND USE CLASSIFICATION SYSTEMS AND CATEGORIES

The New Zealand Land Resource Inventory (NZLRI) land classification system was developed by the then Ministry of Works and Development and is now administered by Landcare Research. This system has been in general use throughout New Zealand since the 1950s. This classification provides an assessment of any given piece of land's capacity for sustained productive use, taking into account physical limitations, management requirements and soil conservation needs.

There are eight Land Use Capability (LUC) Classes. Progressing from Class I land through to Class VIII land brings increasing limitations to the productive use of land and a decrease in land use versatility. In general terms the LUC Classes are:

- Class I** Land with no significant limitations to use for horticulture, cropping, grazing or forestry.
- Class II** Land with slight limitations to use for horticulture or cropping. No significant limits to grazing or forest use.
- Class III** Land with moderate limitations to use for horticulture or cropping. No significant limitations to grazing or forest use.
- Class IV** Land with severe limitation to use for horticulture or cropping. No significant limits to grazing or forest use.
- Class V** Land unsuitable for horticulture or cropping. Slight limitations to grazing or forest use.
- Class VI** Land unsuitable for horticulture or cropping. Moderate limitations to grazing or forest use.
- Class VII** Land with severe limitations to use for grazing or forestry.
- Class VIII** Land unsuitable for productive use.

A second level of classification consists of four LUC subclasses which specify a particular limitation or hazard. These subclasses are:

- e Erodibility;
- w Wetness;
- s Soil limitations within the rooting zone;
- c Climate.

At the most detailed level (third category) of land use classification, those inventory units which have similar characteristics and management requirements are grouped into LUC units. In the East Coast region, the majority of Class VI and VII LUC units have the erodibility subclass.

Erosion assessment

The present approach to erosion assessment used by regional councils is based on evaluating the severity of the erosion that is already present and on assessing the capability of the land according to its potential for future erosion. Present erosion is assessed and recorded on the following scale:

- 0 None;
- 1 Slight;
- 2 Moderate;
- 3 Severe;
- 4 Very Severe;
- 5 Extreme.

However, soil conservation works tend to be targeted towards the control of existing erosion and not to the prevention of future erosion. By concentrating on existing erosion, there is a tendency to place less emphasis on the implications of current management practices for long-term land use sustainability. From a long-term land use perspective, it is more appropriate to place an increasing emphasis on the land's potential for erosion and to increasingly match the erosion potential rating to genuinely sustainable land uses.

The erosion potential approach can be used to indicate how much land would need to be treated if erosion was to be comprehensively controlled. It also shows the state to which pastoral land would ultimately deteriorate if erosion control works are not undertaken. The erosion potential of land is one of the parameters derived as part of land classification according to the NZLRI system.

Land use capability coverage

Full land use capability assessment for the East Cape region is provided at a scale of 1:63 360 as part of the New Zealand Land Resource Inventory Survey. Relevant extended legends are those for Northern Hawke's Bay Region and Gisborne-East Cape Region.

The Gisborne District Council and its predecessor, the Poverty Bay Catchment Board, have completed more detailed assessments at a scale of 1:15 800 over a substantial part of the region's pasture lands. It is this more detailed scale that is required for farm scale planning of conservation work and land use change.

Land use classes used in the 'Red Report'

In the 'Red Report' the then Poverty Bay Catchment Board used an interpretation of the NZLRI classes and created 11 Categories and Subcategories of land that required similar land management.¹⁵ The Categories and Subcategories and their descriptions are as follows:

- Category 1:** Land with a long-term future in farming and requiring, at most, moderate soil conservation treatment.
- Category 2:** Land with a long term future in pastoral farming only if intensive erosion control practices are carried out.
- Category 2a:** Land considered suitable for farming with soil conservation measures and farm scale forestry.
- Category 2b:** Recommended uses are farming with soil conservation measures, farm scale forestry and, in some areas, large scale forestry.
- Category 3:** Land predominantly more suitable for afforestation but includes some land with a future for pastoral farming.
- Category 3a:** Land is appropriate for large scale production forestry and with low priority for protection.
- Category 3b:** Land most suitable for farm scale and large scale conservation forestry and with medium priority for protection.
- Category 3c:** Land recommended for large scale conservation forestry and with the greatest priority for protection.
- Category 4:** Land with no potential for primary production.

The relationship between the NZLRI classification system and the 'Red Report' interpretation is presented in Table A6.1.

Figure A6.1 displays the land Categories and Subcategories in the region, with land use capability units, across rock types, grouped according to conservation needs and urgency of attention, as assessed by Gisborne District Council soil conservators. It is important to note that land Categories and Subcategories have a range of potential uses rather than a single recommended land use, consistent with their limitations.¹⁶

¹⁵ Anon (1978).

¹⁶ Gisborne District Council (1994c).

Table A6.1 East Coast Land Use Categories

Category	Recommended Use	LUC Classification	Total Area (ha)
1	(a) Arable farming (b) Arable and pastoral farming	Classes II & III Classes IV & VI	70 016 267 740
2	(a) Conservation farming and farm scale forestry (b) Conservation farming, farm scale and large scale forestry on some areas	Units VIIe1, 2, 5, 7 and VIIw Units VIIe3, 4, 6, 8, 19 and 21	119 220 107 031
3	(a) Large scale production forestry (low priority for protection) (b) Large scale and farm scale protection/production forestry (medium priority for protection) (c) Large scale production/protection forestry (high priority for protection)	Units VIIe9, 10, 11 and 17 Units VIIe12, 14, 16 and 20 Units VIIe13, 15 and 18	80 132 51 087 70 724
4	Protection forest	Class VIII	62 040

Sources: Anon (1978); Landcare Research (1994).

Note: No LUC Class I or V in the region.

Figure A6.1 Land Categories

Land use capability units, across rock types, grouped according to conservation needs and urgency of attention, as assessed by Gisborne District Council soil conservators.

Source: Gisborne District Council (1994c).

Category	Land Suitability					
	Arable Farming	Pastoral Farming	Conservation Farming	Production Forestry	Conservation Forestry	Protection Forestry
1(a) [II and III]	✓	✓	✓	✓	✓	✓
1(b) [IV and VI]	✓	✓	✓	✓	✓	✓
2(a) [VIIe1, 2,5,7 and VIIw]	✓	✓	✓	✓	✓	✓
2(b) [VIIe3,4,6,8, 19 and 21]	✓	✓	✓	✓	✓	✓
3(a) [VIIe9,10,11 and 17]	✓	✓	✓	✓	✓	✓
3(b) [VIIe12,14,16 and 20]	✓	✓	✓	✓	✓	✓
3(c) [VIIe13, 15 and 18]	✓	✓	✓	✓	✓	✓
4 [VIII]	✓	✓	✓	✓	✓	✓

- Arable Farming:** Nil erosion control
- Pastoral Farming:** Nil to moderate remedial and preventative erosion control
- Conservation Farming:** Intensive erosion control which may include scattered forestry blocks
- Production Forestry:** No additional erosion control measures required
- Conservation Forestry:** Specific additional erosion control measures required
- Protection Forestry:** Not harvestable

Appendix 7

THE EAST COAST FORESTRY PROJECT APPLICATION AND ASSESSMENT PROCESS

The East Coast Forestry Project application process

- An applicant identifies a potential forestry area with a minimum qualifying area of 25 ha. The application must contain a minimum area of 60% of Class VIIe land and any Class VIe land in the grant area must be in the same tributary watershed and be required for planting to maintain practical forest boundaries.
- An applicant may tender for and schedule planting over a period of three years after the tender round and the area may consist of different blocks.
- An applicant contracts a land use consultant to assess the different land use capability classes in the area and the area of severe to extreme erosion prone land.
- A forestry consultant is contracted to assess the forestry management units, including an assessment of practical forest boundaries, fencing, and what access is required for forestry establishment, silvicultural operations and logging.
- The applicant chooses to apply for either an intensive tending regime (with compulsory pruning and thinning) or a minimum tending regime (only a compulsory final thin).
- Planting densities are determined by the class of land that is to be planted. For radiata pine and douglas fir, planting on Class VIIe land is at either 1250 or 1500 stems per hectare and planting on Class VIe land is at 700 stems per hectare. For alternative exotic species, the minimum planting rate is 500 stems per hectare and for alternative indigenous species the minimum stocking rate is 100 stems per hectare.
- Radiata pine is the main species to be planted under the Project but applicants may choose to plant alternative species where planting on suitable sites will meet the Project's objectives. For example, *Cupressus* and *Acacia* species may be interplanted in scrub; Douglas fir may be planted on higher and more exposed sites; poplar species are eligible to be planted on moister areas; and slow growing commercial indigenous species such as kauri, totara, and rimu can be interplanted in scrub.
- If there are potential archaeological sites in the application area, the applicant must pay for an archaeological inspection and any identified sites are ineligible for grant approval. The New Zealand Historic

Places Trust has the discretionary power to issue an authority for the modification of an archaeological site.

- All sites of special wildlife interest, recommended areas for protection, and protected natural areas are ineligible for grant approval. These areas are identified on an ecological certificate by the Department of Conservation before an application is submitted to the Ministry of Forestry.
- Applicants who set aside areas of closed canopy indigenous scrub (CCIS) which qualify for clearance under the Project criteria (not any of the above areas excluded from grant approval) will have their tender nominally credited \$300/ha of CCIS set aside.
- Where applicants set aside indigenous areas, the cost of fencing these areas may be included in tenders with the cost of fencing excluded from the tender during the ranking process.
- An applicant then submits a tender for a block or blocks of land and multiple landowners should be represented by a trust or an incorporation. Proof of land ownership, lease, forestry right or some other forestry investment mechanism is required by an applicant.
- Tenders must provide the Ministry of Forestry with:
 - a Certificate of Title or some other form of forestry investment right;
 - a Land Use Certificate certified by a land use consultant approved by the Secretary of Forestry;
 - a productive capability certificate from a forestry consultant acceptable to the Secretary of Forestry;
 - an ecological importance certificate signed by a Department of Conservation officer.

The Ministry of Forestry Assessment Process

- A joint ground inspection by representatives of the Department of Conservation and Ministry of Forestry may be required to establish if emerging indigenous tree species are present in an area, and these areas are excluded from grant approval. Emerging indigenous tree species are defined as those more than 50 cm in height at more than 50 stems per hectare that have reached or will reach 30 cm or more in diameter. They are also trees that form the final canopy of indigenous forest.
- All ecologically important areas (including recommended areas for protection, sites of special wildlife interest, and areas of emerging indigenous tree species) and voluntary excluded areas (eg closed canopy indigenous scrub) are excluded from the application area to provide a grant area.

- Tenders are first assessed with the net present value of the grant application compared to the cost of a typical forestry investment on the East Coast. Tenders greater than a maximum grant value are then excluded from further consideration.
- The East Coast Forestry Project erosion weighting scale is then applied to the net area, which gives a higher ranking and priority to tenders with greater areas of Category 3 land and severely eroding Category 2 land. Severely eroding land is land with a present severe, very severe, or extreme erosion ranking.
- The area of voluntarily set aside closed canopy indigenous scrub is credited to the tender at a rate of \$300/ha.
- Tenders are placed in a priority order on the basis of adjusted tender value. Most favourable tenders selected to meet maximum area and funding criteria for the Northern and Southern Pools subtracting area and funding committed to meet previous tender round approvals.
- The Technical Advisory Committee considers the applications, establishes Pool criteria and makes recommendations on selections to the Secretary of Forestry.
- Final approval of tenders is at the discretion of the Secretary of Forestry.
- After approval verification and planting, grant holders apply to the Ministry of Forestry for payment. The grant payment application is then audited and the actual planting is verified by ground inspection. Subsequent payment applications for tending and final thinning are audited and verified following the same process. Note: Only at this stage of the process is the actual planting area determined.
- Grant holders may apply to the MOF for changes to the ownership of the grant, the planting year or the area to be planted.
- If grant holders do not comply with the ECFP regulations, there is provision for fines to be issued and grant payments to be withheld.

Appendix 8

AREA OF LUC CLASS VIe AND VIIe

Table A8.1 Area of LUC Class VIe and VIIe and 'Red Report' Subcategories and vegetation cover for the Gisborne District

See legend for description of vegetation cover.

Landcover Type (area in ha)	Class VIe	'Red Report' Subcategories					Total Class VIIe	
		1b	2a	2b	3a	3b		3c
Subalpine vegetation	19		146					146
Beech Forest	2860		5052	2878		5		7 935
Primary Forest dominated by broadleaved species	18 903	753	23812	14739	517	2021		41 842
Podocarp Forest	11	6				109		115
Secondary Broadleaved Forest/Scrub	9644	3211	6288	5569	695	1625		17 403
Kanuka/Mamuka	16 453	9715	6121	14 114	2607	6352		38 917
Exotic Forest	26 763	14 424	10 146	11 226	16 287	24 725		76 808
Fernland	175	15	412	660	7	65		1159
Pasture	178 979	89 165	53 380	29 907	28 989	32 640		234 098
Bareground	2066	1092	1362	399	1863	3207		7923
Undefined ¹	1519	799	312	640	13	84		1848
Total	257 413	119 180	107 031	80 132	51 087	70 724		428 194

Source: Landcare Research, 1994.

¹ Subcategory 3a has been modified for error from the original report with the area distributed to other Subcategories.

Note: The total Class VIe and VIIe land = 685 607 ha

Legend:

The following legend applies to all tables and maps in this report with 'Source: Landcare Research (1994)'.

Subalpine Vegetation:

Subalpine scrub and tussock grasslands above the timberline.

Beech Forest:

Red or silver beech dominated forest (red predominant at lower altitudes replaced by silver beech towards the timberline).

Primary Forest Dominated by Broadleaved Species:

Primary or advanced secondary forest containing a significant element of broadleaved species (usually tawa, or kamahi in wetter areas) - may contain podocarp and/or beech elements.

Podocarp Forest:

Podocarp dominated forest with various mixtures of kahikatea, totara, matai, rimu, and tanekaha.

Secondary Broadleaved Forest/Scrub:

Secondary forest/scrub dominated by broadleaved species (also coastal forest).

Kanuka/Manuka:

Kanuka scrub/forest or manuka scrub (also *Cassinia*).

Exotic Forest:

Mainly *Pinus radiata* (also other conifers and eucalypts).

Fernland:

Ferns, primarily bracken, hard or ring fern, including shrubs. Usually associated with pasture reversion.

Pasture:

Introduced grasses (also crops).

Bareground:

Ground with no vegetation cover (eg towns, river beds, ploughed fields, coastal sand, and erosion scars).

Water:

GLOSSARY AND ABBREVIATIONS

CCIS	Closed Canopy Indigenous Scrub: scrub that is eligible for clearance under the ECFP regulations but the area can be set aside to obtain a credit in the ranking of grant applications.
DOC	Department of Conservation
ECCFS	East Coast Conservation Forestry Scheme
ECFP	East Coast Forestry Project
ED	Ecological District: A local part of New Zealand where geological, topographical, climatic, and biological features and processes, including the broad cultural pattern, interrelate to produce a characteristic landscape and range of biological communities. New Zealand has been divided into 268 such districts. It represents the level for assessing the representativeness of major ecosystem types in the national network of Protected Natural Areas.
EITS	Emerging Indigenous Tree Species: more than 50cm in height at more than 50 stems per hectare that have reached or will reach 30cm or more in diameter. Tree species that form the final canopy of a mature forest.
GDC	Gisborne District Council
GDCC	Gisborne District Council Committee
Grant area	The planting area approved for funding under the ECFP.
hapu	Band, subtribe
iwi	Tribe, people
Kanuka	<i>Kunzea ericoide</i>
LUC	Land Use Capability
Manuka	<i>Leptospermum scoparium</i>
MAF	Ministry of Agriculture and Fisheries
mana whenua	Customary authority: over land and other <i>taonga</i> (treasures, property) within the tribal rohe.

MfE	Ministry for the Environment
MOF	Ministry of Forestry
monoculture	A single species, even aged, artificially created stand of plants, crops, or trees.
Mycorrhizal	An association between a fungus and the roots of a higher plant. The fungus may be located on or in the root, and in some cases it breaks down proteins or amino acids that are soluble and can be absorbed by the higher plant.
Non-qualifying area	All sites of special wildlife interest, recommended areas for protection, protected natural areas, areas that do not meet resource consent approval (eg riparian strips), and archaeological sites are ineligible for grant approval.
NPV	Net Present Value: the present value (ie in year 0) of the difference between a discounted stream of benefits and a discounted stream of costs.
Planting density	The number of stems (trees) planted per hectare, eg 1500 stems per hectare.
PNA	Protected Natural Area as identified under the Protected Natural Areas Programme survey and subsequently protected. A legally protected area, characterised by indigenous species or ecosystems, in which the principal purpose of management is retention of the indigenous state.
RAP	Recommended Area for Protection as identified under the Protected Natural Areas Programme survey. An area identified as priority for protection because it contains the best example or examples of its type or class of natural ecosystem and/or landscape in an ecological district.
regolith	Soil and weathered or unconsolidated rock.
RLMP	Rabbit and Land Management Programme
RMA	Resource Management Act 1991
rohe	Territory, boundary: defines area within which tangata whenua group claims traditional association and mana whenua (customary authority).
SAIA	Set Aside Indigenous Area
Scrub	Woody plants with a trunk diameter of less than 100 mm at breast height.
Shrubland	Woody vegetation in which shrubs are the predominant growth form but they do not form a closed canopy.

SSWI	Site of Special Wildlife Interest: After a formal survey, identified sites are given a conservation ranking based on the area's value to wildlife. A ranking of outstanding, high, moderate-high, moderate, or potential is assigned based on factors of habitat size, modification, rarity, and the status (common, threatened, or endangered) of the wildlife on the site.
Target area	For the East Coast Forestry Project the target area consists of all Category 3 land and severely eroding or worse Category 2 land. The target area percentage = net target area / approved grant area.
TAC	Technical Advisory Committee
tangata whenua	people of the land: the Maori iwi (tribe, people) or hapu (band, subtribe) which has mana whenua (customary authority) over a particular area.
TPK	Te Puni Kokiri

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