

# IMPROVING ENVIRONMENTAL PERFORMANCE: THE ROLE OF THE NEW ZEALAND FOREST CODE OF PRACTICE

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## ABSTRACT

New Zealand has built a very successful, intensively managed, plantation forest industry. The key for its future success will be to ensure all aspects of forestry have low impacts on both the environment and the community. Comprehensive planning prior to carrying out operations is considered pivotal for ensuring that environmental standards are not compromised.

The New Zealand Forest Code of Practice provides a planning process that will allow the practical requirements of sound and effective environmental management to be met. Key components of the planning procedure include the impact appraisal procedure, which systematically evaluates the potential impact of proposed operations on identified site values, and the operations database which aids selection of suitable techniques in addition to providing the basis for an operational monitoring programme.

**Keywords:** guidelines; environmental planning; forestry; impact appraisal.

## INTRODUCTION

The New Zealand Forest Code of Practice (FCoP) was first published in 1990 "to provide forest owners with the means of ensuring safe and efficient forest operations that meet the requirements of sound and practical environmental management". It was compiled by the Logging Industry Research Organisation (LIRO) after 3 years of consultation and participation of members of the forest industry, regional councils, and interest groups such as the Department of Conservation. In 1993, the FCoP was revised (Vaughan *et al.* 1993) to improve its format, and also to reflect the introduction of the Resource Management Act 1991 (RMA), an increase in public awareness of forestry operations, and a new urgency from forestry companies to improve environmental performance. The aim of the Code is "to plan, manage and carry out forestry operations in a sustainable manner".

Plantation forestry meets many of the basic criteria for "sustainable management" set out in the RMA. Like many other industries, commercial forestry enables communities to provide for their social and economic well-being by providing wealth, employment, and amenity values. Planted forests help protect our remaining native forest resource for conservation by providing an alternative timber resource. In 1995 over 98% of commercially extracted timber in New Zealand was from exotic forests (Anon. 1995). Long-term research

has shown that careful forest management can safeguard the life-supporting capacity of air, water, soil, and ecosystems (O'Loughlin 1994; Quinn *et al.* 1993; Smith 1994).

Regional and district councils have the responsibility for implementing the RMA. The level of regulation imposed on activities is expected to reflect the associated environmental risk of those activities. For forestry to minimise regulatory restrictions and costs (including delays), the authorities must be confident that forestry can effectively self-regulate to ensure compliance with the objectives of the regional and district plans.

Both council and company environmental objectives are most commonly listed as outcomes or goals to be achieved. The people managing, planning, or carrying out forestry operations must have access to information on how to achieve those goals. The use of a systematic environmental planning process, and the use of the non-prescriptive guidelines in the FCoP, place emphasis on correct implementation of measures to protect site values. A positive approach should ensure that operations are carried out in the most appropriate manner, and that practices are improved as further information or new technology comes to hand.

## THE FOREST CODE OF PRACTICE

The FCoP contains six chapters and three appendices. The *Introduction* highlights the beneficial aspects of the relationship between forestry, the environment, and the community. The Objectives section recommends the protection of the following 10 common production forestry values: soil and water, scenery, cultural, recreation, science and ecology, forest health, site productivity, off-site factors, safety, and commercial viability. This list of values is not intended to be exhaustive, but should provide a useful starting point for addressing specific issues.

The *Use of the Code* section outlines the environmental planning process, and indicates where the different sections are intended to be used. Background information on the importance of protecting the values stated in the objectives is provided in the *Environmental Information* section, which also includes an overview of planning tools such as Geographic Information Systems (GIS). The *Impact Appraisal* section outlines a simple but systematic approach to evaluating the potential impact of proposed operations on the identified site values. The *Operations Database* provides a reference for alternative techniques for carrying out operations, lists key planning considerations, and gives methods of minimising adverse impacts.

The first appendix lists sources of information and references for the basic values stated in the objectives. The second lists the predominant laws that affect forestry, with a brief explanation of each. The third appendix contains key sections from the RMA and the Health Safety and Employment Act (HSE), as well as a copy of the New Zealand Forest Accord. The New Zealand Forest Accord is an agreement between environmental organisations and forest owner and manufacturing groups for the protection of remaining native forest.

## ENVIRONMENTAL PLANNING

Thorough planning is considered to be vital in achieving the best possible environmental outcome. The Environmental Planning procedure as outlined in the FCoP is indicated in Fig. 1.

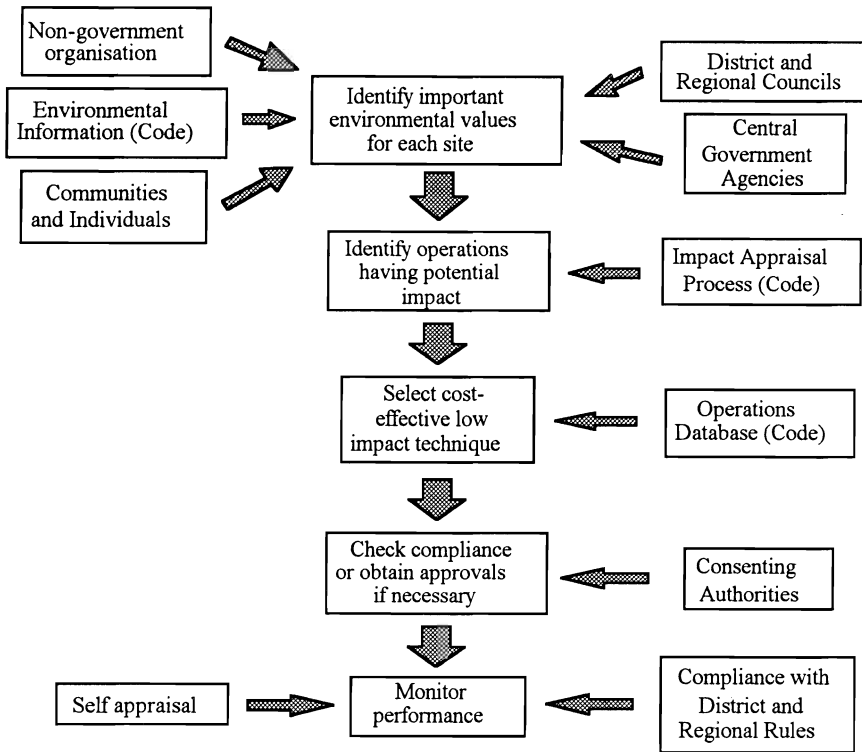


FIG. 1—The FCoP environmental planning process

Minimising adverse effects of operations starts in the planning phase with clear identification of values. The “Objectives” of the FCoP list 10 common values related to production forestry. These are not always present, but by consultation with a wide range of local interest groups the important site-specific values can be established and planned for. Regional and district councils are important sources of site information.

Consideration of how operations might affect identified values is best achieved through a systematic matrix checklist such as the one provided in the FCoP (Table 1). Both adverse and positive effects can be accommodated, using either minus or plus symbols. The checklist is designed for easy use in the field. It is not intended to substitute for a comprehensive environmental plan for the whole forest, but to provide site-specific information and to highlight operations with potentially high impacts, or activities that are likely to be of great benefit, at an early stage.

TABLE 1—The checklist rating system

Length of time affected	Degree of risk/potential effect	Potential impact	Checklist symbol
Short term	Minor	Minimal	
Long term	Minor	Low	+ or -
Short term	Major	Intermediate	++ or --
Long term	Major	High	+++ or ---

Table 2 formed part of a checklist from a Wairarapa woodlot case study (Robinson 1994). By consulting the Regional Council, the Department of Conservation, Fish and Game Council, and the landowner, the values of slope stability, erosion, water quality, wetland areas, and domestic water supply were established for the site. The checklist highlighted areas of concern relative to the identified values for this woodlot.

TABLE 2—Example checklist for a Wairarapa woodlot

Operation	Identified environmental values				
	Slope stability	Erosion	Water quality	Wetland areas	Water supply
Felling	++	•	•	++	•
Roading	--	--	--	•	--
Landings	---	---	---	•	•
Planting	+++	+++	+	--	•
Grazing	---	---	--	---	--
Thinning	+	•	-	+	•

From the checklist in Table 2, for example, it appears that felling the timber would potentially be very beneficial in the short term for slope stability. This is because many of the larger trees were starting to slide on the steep mudstone slopes, creating erosion scars. Roding and tracking could produce long-term adverse impacts on water quality, highlighting the need for careful road and track location and construction. Planting and subsequent thinning would re-stabilise this highly mobile area. Additionally, oversowing was a measure on the checklist worth considering to help stabilise the disturbed surface and mitigate impacts on water quality.

Operational planning decisions such as machine selection and landing location can be based on the identified site values and the potential for impaction, in addition to such information as topography, soil type, and stand characteristics. The FCoP Operations Database contains detailed information that helps identify risks associated with certain operations. It lists key consideration factors for the stages of forest development: access, land preparation, establishment, tending, protection, and harvesting. For each stage the range of methods available for the operation, the potential adverse impacts, and methods for reducing those impacts are listed. It is important to ensure that proposed operations do not contravene regional or local law and the correct approvals have been obtained prior to commencement.

Performance monitoring is expected to be the last step and is essential for achieving the best possible environmental outcome. Fransen (1995) showed that formal environmental auditing in the forest industry is still in its infancy. Self monitoring by the industry can help with compliance to district or regional requirements, can provide a check to see if the plan has been followed, and will allow “mishaps” to be identified and remedied as soon as possible. Implemented alongside a regular maintenance programme, monitoring can protect site values and prevent possible problems.

## CONCLUSIONS

The New Zealand Forest Code of Practice is an environmental planning document and information source that aids the forest industry in planning and carrying out operations in an

environmentally sensitive manner. Emphasis is placed on careful planning to ensure operations meet the practical requirements of effective environmental management. In order to have minimal regulatory requirements applied, the impact on the environment and the community must be proved to be low.

The provision of activity-based information to operators and the monitoring of the planning objectives are important to ensure short-term goals are met. Presenting this information in the form of non-prescriptive guidelines places the emphasis on correct implementation of measures to protect the values at that site. The Forest Code of Practice is intended to be a dynamic set of guidelines, encompassing new information in periodic review that, as a final goal, will lead to the "sustainable management" of New Zealand's planted forestry resource.

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