

ENVIRONMENTAL AUDITING IN NEW ZEALAND FORESTRY

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Environmental Audit	Forestry Operations Checklist
Division:	Date:
Activity: Harvesting	Time:
Forest:	Setting size (ha):
Audit Team:	Contractor:
	Supervisor:

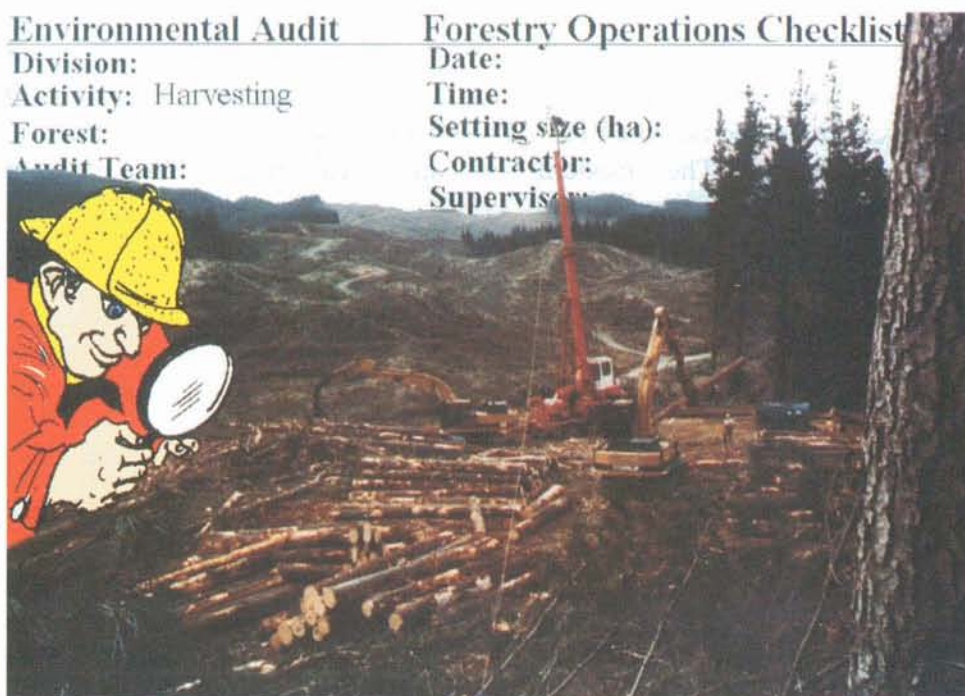


Figure 1 - The auditing process aims to verify a business's environmental performance

ABSTRACT

This report examines the status of environmental auditing practice in New Zealand forestry. A written questionnaire was sent to forestry and environmental managers in the forest industry, and to local authorities, Regional Fish and Game Councils, and Government agencies. Environmental audits are carried out voluntarily by the forest industry, and may

be self administered or involve local authorities and consultants. Most of these audits have focused on operations that can potentially cause adverse impacts on soil and water. Operational and environmental issues considered important for environmental auditing were ranked to enable the future development of appropriate auditing guidelines.

INTRODUCTION

Governments and regulatory authorities involved in the protection of environmental values are encouraging companies to take a responsible approach. One way in which this responsibility is being managed by businesses is through the environmental audit process, which has become the focus of effort worldwide.

Environmental auditing means different things to different people. Auditing can be defined as the formal and planned examination of a business's procedures and practices with the aim of verifying compliance with a pre-determined set of (environmental) standards. The standards may include legal requirements, company policies and prescriptions and accepted best management practices. The modern environmental audit should report the findings, have a plan of action and follow-up programme to correct major non-compliances identified in the review.

The tendency to assess compliance with external regulations is considered the first stage of evolution of environmental auditing (Lambert, 1991). The second stage is a move to assessing compliance with company environmental policy. A third stage of environmental auditing is when companies adopt sustainable development as a corporate objective. Audit programmes in these companies are aimed at assessing whether the companies are continually moving towards sustainable development.

A study of the environmental auditing industry in New Zealand was carried out by Tozer (1993). He found that nine logging and two pulp and paper companies had been subjected to environmental audits, but no details were given about the type or focus of these audits. The larger forestry companies (that is, owning greater than 100,000 ha) in New Zealand are in the

process of developing internal auditing procedures.

However, small to medium forest owners and managers are also considering adoption of the environmental audit as a management tool. Because it is an evolving practice, there are few auditing standards and considerable diversity of audit (Greeno, Hedstrom and Diberto, 1985). Currently, there is no standard approach or methodology for environmental audits within the forest industry in New Zealand. An idea put forward by one of the largest international auditing firms is that *"it may be easier to standardise the methodology of audits than to draw up a list of environmental standards against which companies in widely differing businesses can be measured"* (Anon, 1990).

Development of an environmental auditing code of practice for the New Zealand forest industry would enable the small to medium forest businesses to take stock of their environmental performance.

OBJECTIVES AND METHODS

LIRO intends to produce guidelines on environmental auditing catered specifically for the New Zealand forest industry.

Before developing environmental auditing guidelines, it is necessary to find out more about current forest environmental auditing practice in New Zealand. A questionnaire was designed to:

- identify the level of involvement and objectives that forestry companies, local authorities, and other interest groups have in the environmental auditing of forests in New Zealand

- identify and prioritise specific areas to begin the development of guidelines for environmental auditing protocols.

The written questionnaire was sent to 65 district and corporate managers and environmental personnel responsible for harvesting, forest resources and silviculture in all major forestry companies, as well as some forestry consultants and small forest owners. In total, 24 companies/owners are represented in the forest industry sample. Environmental managers and planners from local authorities (85 in all) were also included in the survey, because of their legal responsibilities in administering the Resource Management Act 1991. Regional Fish and Game Councils (11) were picked to obtain a response from a forest interest group. Government agencies also included in the survey questionnaire were, Ministry for the Environment (one), the Department of Conservation (two), and Ministry of Forestry (policy sector) (one).

The questionnaire was structured in three parts. The first section aimed to identify how many organisations had conducted audits to date, their future intentions, and what they felt the likely benefits of conducting an audit would be.

In the second part, respondents who had carried out environmental audits were asked: "Who requested the audit?", "Who conducted the audit and for what reasons?", "What type of audit was undertaken?", and "What forestry operations and environmental issues did the audit focus on?".

All respondents in the third part of the questionnaire, were asked to identify what operations and environmental issues were important for the proposed development of environmental auditing guidelines.

RESULTS AND DISCUSSION

Response rate

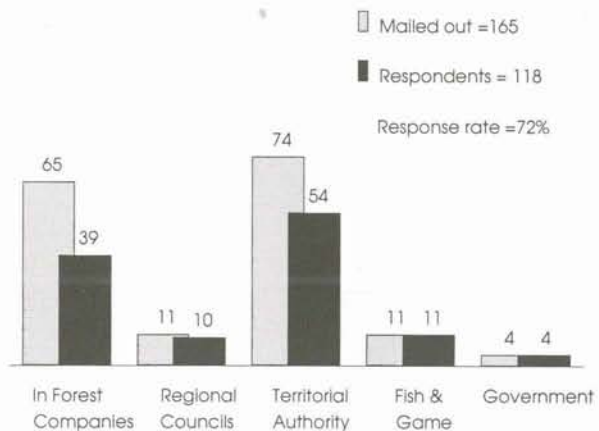


Figure 2 - Response rate to questionnaire

The response rate by individuals is shown in Figure 2.

Responses to questions by individuals were assumed to express the experience or position on environmental auditing in the organisation they represent. However, for the forestry companies, individual responses (39) were received predominantly from district managers, planners and environmental co-ordinators.

Altogether, these individuals represent 18 companies. In the following discussion, the results are examined by individual response as well as by organisational response (because some audits were applied to more than one forestry district).

How many environmental audits of forests has your organisation been involved in?

A breakdown of the organisations having carried out environmental audits is shown in Figure 3.

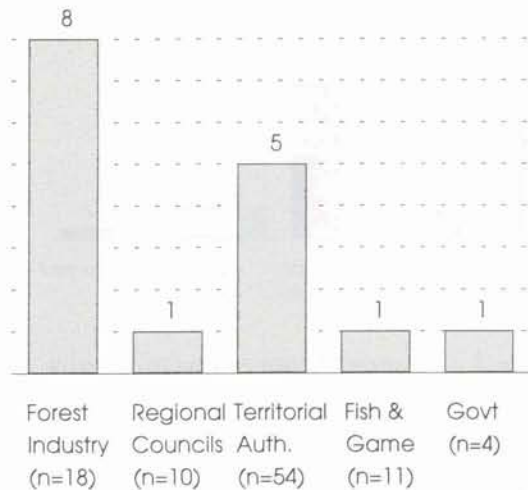


Figure 3 - Number of organisations that have carried out forest environmental audits

Eight out of 18 forestry companies (44%) have conducted audits. By contrast, only about 10% of the non-forest industry have conducted environmental audits.

Salient points about the environmental audits conducted are:

- local authorities who have carried out audits are also forest owners
- of the eight forestry companies responding, one had conducted *one* audit, five had carried out *more than one*, and six carried out audits *routinely* (Figure 4)

- regional differences in frequency of audits occur in some forestry companies
- a Regional Fish and Game Council claims to audit routinely in remote areas, private farms and woodlots.
- the Department of Conservation routinely subjects its activities to a general environmental audit or review via a number of statutory processes as well as monitoring by non-government organisations (such as the Maruia Society and the Royal Forest and Bird Society).

When did your organisation start environmental auditing?

One Regional Fish and Game Council's environmental auditing or monitoring activities were initiated prior to 1970. The Department of Conservation have subjected themselves to audits since 1989. Environmental checks were also carried out by the New Zealand Forest Service in the 1970s. The first environmental audit by forestry companies was carried out in 1989 and 1990. With the passing of the Resource Management Act in 1991, a further nine audits had been conducted including development of routine audit programmes

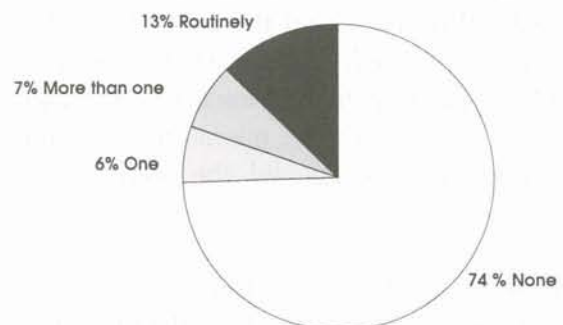


Figure 4 - Frequency of Audits (n=118, all respondents)

in the largest forestry companies. Local authority environmental audits of forested areas commenced in 1991.

Who requested the environmental audit?

For this question, and others below, 22 individual responses from eight forestry companies who *had* conducted environmental audits are included in the results. This inclusion recognises varying forestry company district experiences in environmental auditing.

Forestry company district offices show the highest demand for environmental audits followed by requests from company head office (Figure 5). The forest industry also indicated that local authorities have requested environmental audits.

Who conducted the environmental audit of the forestry business?

Forest company district staff and Regional Council staff were mainly involved in environmental auditing (Figure 6). In particular, three forestry companies indicated local authorities as participants in their audits.

Forest company head office staff have not been involved in conducting environmental audits according to survey responses. This may be because they did not have sufficient personnel at the corporate level, and so have depended on company district staff and consultants to carry out the audits. This is in contrast to some overseas organisations where head office staff specialised in environmental auditing of their forest operations.

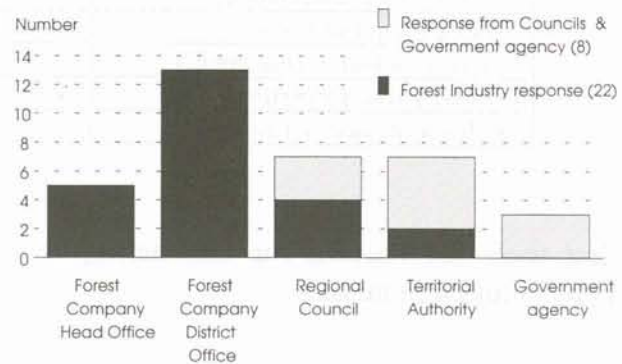


Figure 5 - Requests for environmental audits (n=30)

Using environmental consultants is not uncommon because they possess different specialist skills and knowledge (for example, road engineering, soil erosion, stream ecology). Other reasons for employing consultants is that the audit process must be professionally executed, should be impartial and provide an objective assessment (Carter and Campbell, 1993).

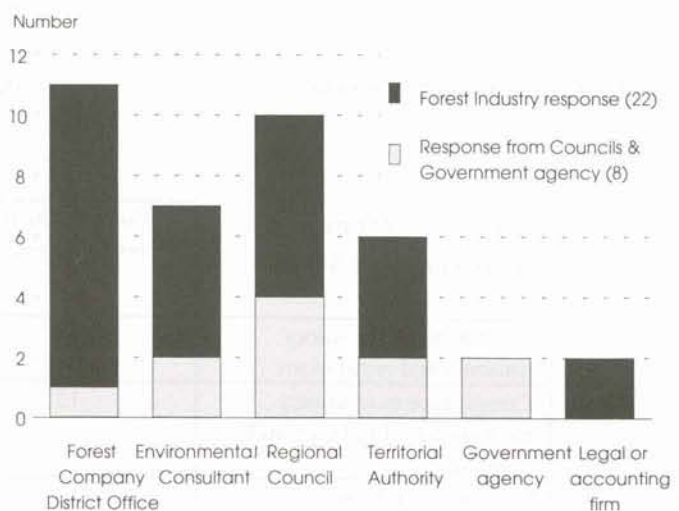


Figure 6 - Participants in audits of forests (n = 30)

Table 1 - Reasons for auditing

	Forest Industry response n=22	Councils & Gov't agency response n=8
Avoid environmental impacts	16	5
Identify compliance issues	16	4
Avoid or minimise legal liability	5	
Improve public perception	4	1
Quality assurance systems	4	

What were the reasons for conducting an environmental audit?

The results in Table 1 show that respondents have placed emphasis on evaluating performance to avoid adverse environmental effects and how well the industry complies to environmental policies, standards, rules and guidelines. Minimisation of legal liability is also closely related to compliance issues.

Other reasons stated for conducting an environmental audit were:

- finding company status within the forest industry
- the need to improve staff awareness of compliance requirements and operational performance
- the achievement of environmental goals
- to get a resource consent

- for establishing environmental baselines

What type of environmental audit did your organisation conduct?

Table 2 illustrates the results of the type of environmental audit that was conducted. The forest industry, not surprisingly, have mostly conducted audits to assess issues related to the Resource Management Act 1991.

The survey shows a lower priority to assess the internal environmental controls put in place by the forest industry and even less to examine the performance of the company's management system. Other types of environmental audits stated by the respondents were for assessing the implementation of best management practices, and for evaluating ecological baselines.

Table 2 - Types of environmental audit

	Forest Industry response n=22	Councils & Gov't agency response n=8
Compliance to statutory consents and regulations	16	5
Compliance to company environmental policies and standards	13	2
Forestry operations performance	12	1
Dealing with environmental issues of concern	6	5
Assess environmental risk	4	4

What operational activities in your organisation have been the subject of an environmental audit?

From a list of common forest operations identified in the New Zealand Forest Code of Practice (LIRO, 1993) respondents who had carried out environmental audits were asked which activities were the subject of their audit(s). The results of the response are shown in Figure 7. Forest operations are ranked from the most to the least audited activity; the ranking being derived from the total response of 30 individuals.

The forest industry response dominates the focus of the six most audited forest operations; the greatest focus being on operations that result in soil disturbance, activities across streams and felling of trees. The Council/Government group appear to have a strong auditing focus on planning and log extraction operations.

What environmental issues of concern did your environmental audit address?

Respondents were also asked to identify environmental issues that were addressed in their audit. Results are shown in Figure 8. These results represents a nationwide response and so it may not reflect matters that are most important for a given region or locality.

Sedimentation, erosion, streamside management and site disturbance were the prominent issues that are the focus of environmental audits in New Zealand. These issues are closely related to the forestry operations that have the greatest potential to adversely impact the environment.

How important are operations and issues for developing guidelines of environmental auditing protocols?

For forest environmental auditing guidelines to be developed in New Zealand, it is necessary to identify what issues and activities are important and the priority that these have. The current focus of environmental auditing has been revealed above, but this may not reflect the future focus of audits. All 118 questionnaire respondents were asked to identify from a list how important various forestry operations and environmental issues were for their organisation. The degree of importance was determined using a scale of: very important, important, unsure, not very important, and not at all important.

Forest operations

The forestry operations categories considered very important to important are ranked in Figure 9.

Roading and tracking, log extraction, stream crossings, and felling operations were highly ranked, and considered very important to important. However, there is a shift in the focus of audits towards planning and broadcast spraying operations, which were more highly rated than landing formation and log processing activities, compared to the current focus of audits.

Overall, there were nearly twice the number of activities considered by more than 50% of the respondents as very important to important for environmental auditing, than activities that have been audited. This result was probably a combination of perceptions and experiences of environmental impact, and the requirement to consider all things in

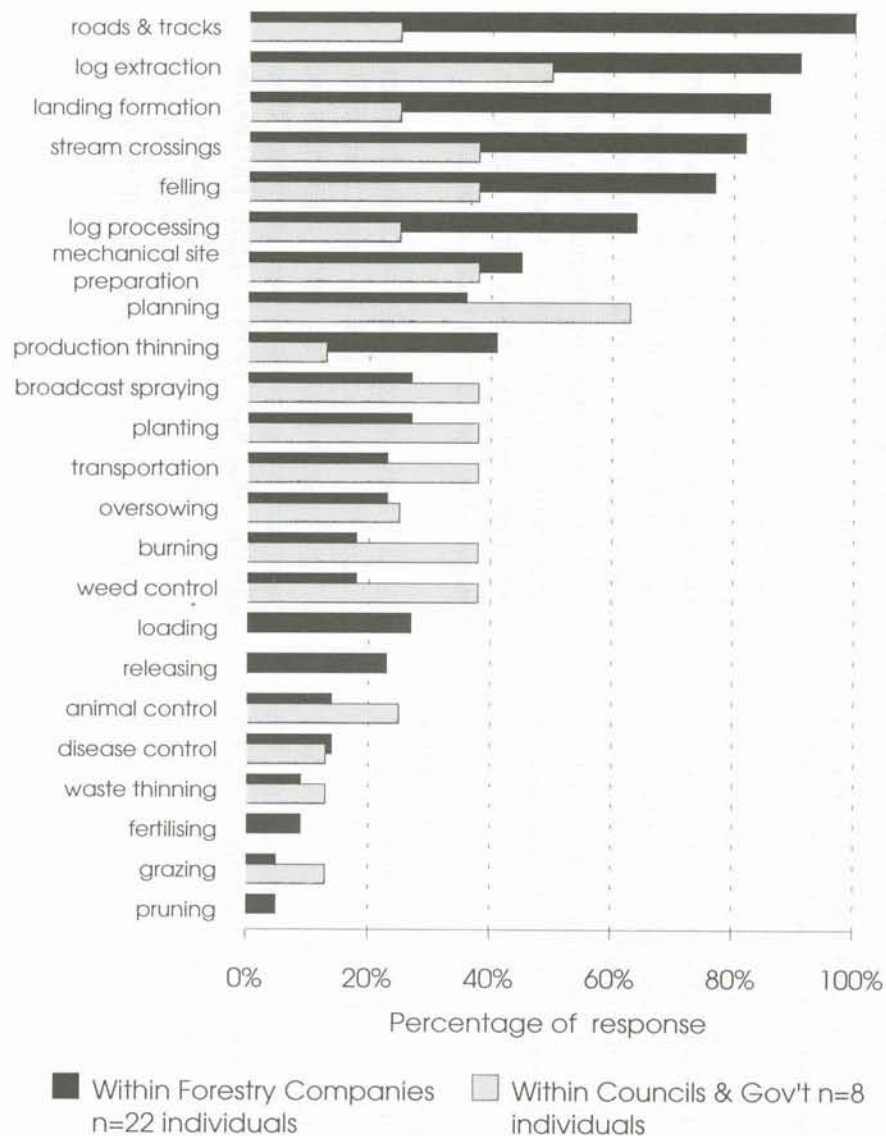


Figure 7 - Forestry operations subjected to audits

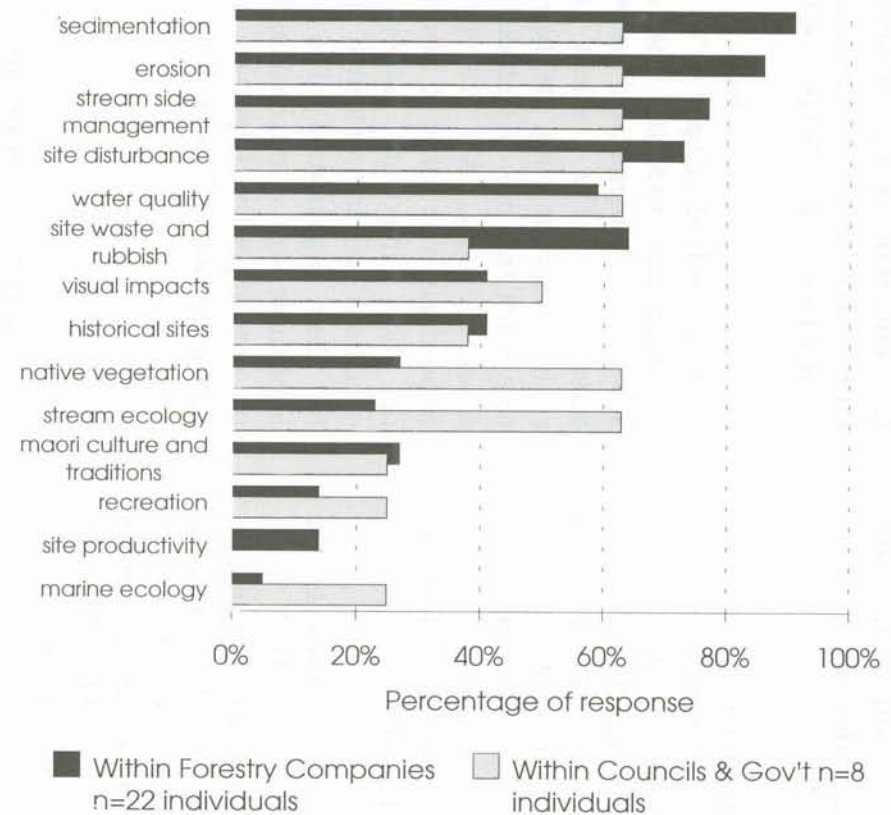


Figure 8 - Environmental issues subjected to audits

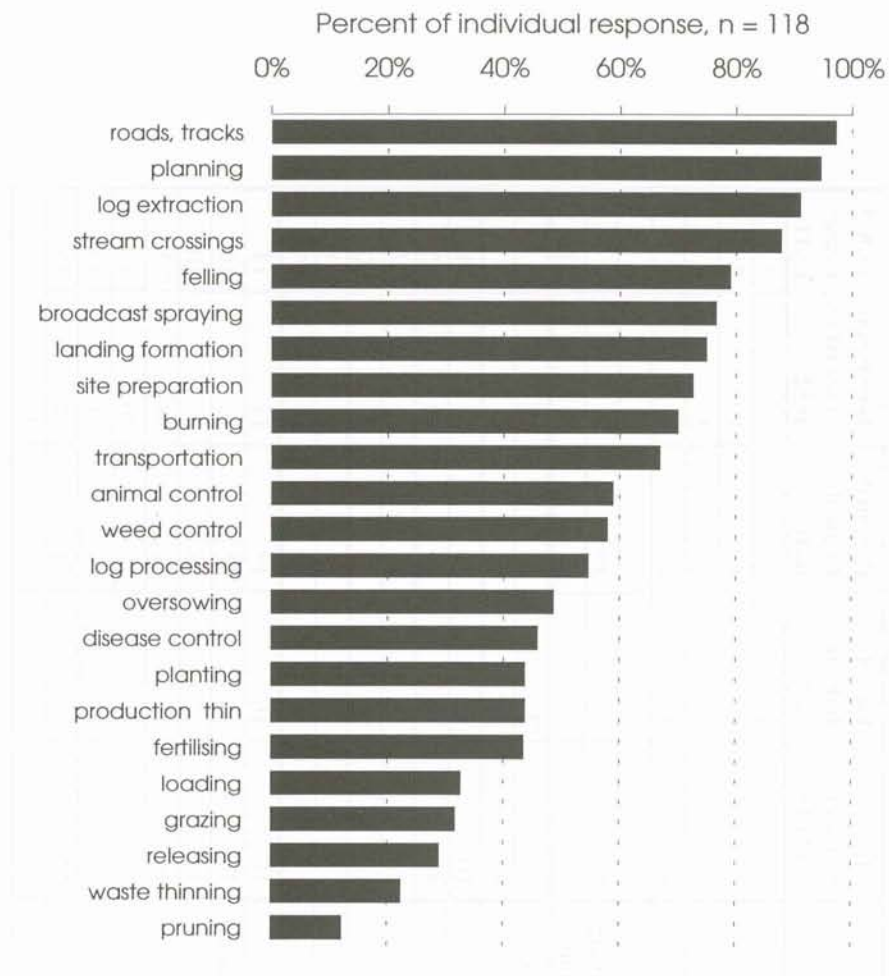


Figure 9 - Forestry Operations considered very important to important for environmental auditing guidelines

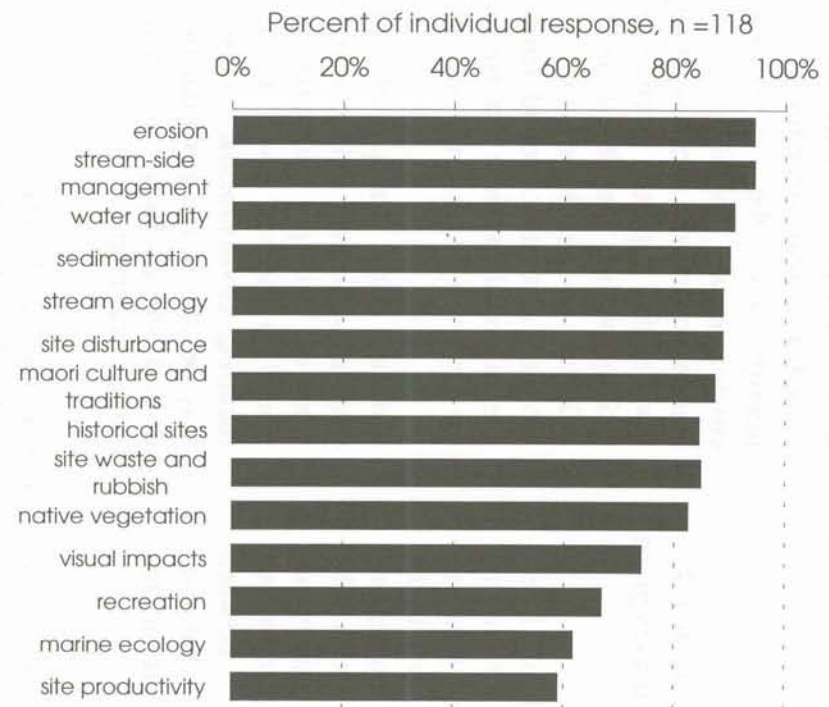


Figure 10 - Environmental Issues considered very important to important for environmental auditing guidelines

sustainable resource management. There are also contrasts in the ratings of importance among the different organisations surveyed, and this is discussed next.

A summary of the responses by the four key groups to various forest operations is given in Table 3.

The contrast in ratings by the forest industry, Regional Councils, territorial authorities and Fish and Game Councils reflect the importance of operations in the areas in which they manage resources and administration of legislative duties. The forest industry's top seven ratings are closely aligned to the collective response, the only variation being between broadcast spraying and site preparation. Regional Councils include site preparation

and burning in the top seven, whereas planning and broadcast spraying are rated lower. Territorial authorities notably placed transport operations as a high priority for the development of environmental auditing guidelines. Burning operations are also highly rated, despite the apparent decline of this activity within the forest industry (as reflected in the lower rating by this group). Activities around landings and stream crossings were not considered in the top seven by the territorial authorities.

Fish and Game Councils also place less emphasis on tree felling activities and work on landings. However, grazing is placed in the top seven as an activity requiring environmental auditing. This may be due to the potential of stock to disturb stream banks and habitat, and pollute waterways.

Table 3 - Group ratings of forestry operations considered important to very important for environmental auditing guidelines

Operation	All respondents n=118*	Forest Industry n=39	Regional Councils n=10	Territorial Authorities n=54	Fish & Game n=11
roads, tracks	1	2	4	2	3
planning	2	3	9	1	2
log extraction	3	1	2	4	4
stream crossing	4	5	1	8	1
felling	5	6	6	5	8
broadcast spraying	6	8	10	7	9
landing formation	7	4	3	13	12
site preparation	8	7	5	12	5
burning	9	13	7	6	6
transportation	10	12	16	3	21
animal control	11	14	8	10	15
weed control	12	10	15	11	17
log processing	13	9	12	9	20
oversowing	14	19	11	16	11
disease control	15	17	20	15	13
planting	16	16	19	14	14
production thinning	17	11	14	19	16
fertilising	18	18	18	17	10
loading	19	15	22	18	23
grazing	20	22	13	20	7
releasing	21	20	17	21	18
waste thinning	22	21	21	22	19
pruning	23	23	23	23	22

* Government agencies included

Environmental Issues

Environmental issues considered very important to important for auditing guidelines are depicted in Figure 10. Fifty-nine percent of the respondents thought that all of the issues should be considered for environmental auditing. This result also demonstrates the increase in awareness by the forest industry and local authorities of all environmental issues since the adoption of the concept of sustainable management in the Resource Management Act 1991.

Erosion and streamside management issues were considered highly for developing auditing guidelines. Stream ecology and water quality also had a higher rating for the development of auditing guidelines, than its rating in the current focus of environmental auditing (Figure 8). Addressing Maori issues was also rated very highly relative to previous environmental audits.

Other issues noted separately by

respondents as being very important to important were:

- water quantity
- health and social impacts, for example noise and chemicals
- timber treatment runoff and sawdust heaps
- natural hazards, for example, flooding
- sustainability of resources
- economic issues
- roading infrastructure

Many of these issues relate directly to the types of operations conducted in the forest. For instance, disease control, fertilising, chemical sprays, waste residues all relate to health and safety issues. Roding, tracking, landing formation and stream crossings, were closely related to erosion, sedimentation, and streamside management (and other) issues.

A breakdown of how the four largest groups rated environmental issues is shown in Table 4.

Table 4 - Group ratings of environmental issues considered important to very important for environmental auditing guidelines

Issues	All respondents n=118 [#]	Forest Industry n=39	Regional Councils n=10	Territorial Authorities n=54	Fish & Game n=11
erosion	1	1	6	5	1*
stream side management	2	3	5	4	1*
water quality	3	4	1	9	1*
sedimentation	4	2	2	11	1*
stream ecology	5	7	3	12	1*
site disturbance	6	6	8	8	7
Maori culture and traditions	7	11	4	1	10
historical sites	8	8	9	2	12
site waste and rubbish	9	9	7	10	8
native vegetation	10	12	11	3	9
visual impacts	11	10	13	6	11
recreation	12	14	12	7	6
marine ecology	13	13	10	13	13
site productivity	14	5	14	14	14

[#] Government responses included

* all given equal weighting

With regard to the forest industry, most of the issues were on a par with the collective responses. However, a notable difference is in the lower rating of Maori culture and traditions and the higher rating for site productivity by the forest industry. The councils place a greater emphasis on Maori issues and less on site productivity. Another distinctive result was the lower regard by territorial authorities for developing auditing guidelines on water quality, sedimentation, and stream ecology and a higher regard for native vegetation, visual impacts, and recreation. This trend reflects traditional and new responsibilities of the territorial authorities under the Resource Management Act 1991. Fish and Game Councils' response mirrors the concerns they have for managing the wildlife sporting pursuits and recreation. Equal priority was placed on all the issues related to the riparian zone. This group did not consider site productivity an issue at all.

Do you think there would be any benefits for your organisation from an environmental auditing programme?

Eighty-two percent of the respondents thought that there would be benefits in environmental auditing. Those that did not, comprised mainly territorial authorities (13%), and Government and forest industry (5%).

Some of the benefits of environmental auditing as detailed by the respondents, were:

- audits would show that operations were complying with regulatory and company environmental policies, standards, and guidelines

- an auditing programme adds support to the claim that the forest industry can be self-regulatory
- detailed auditing protocols would provide consistency in evaluating contractor and company performance
- the provision of baseline information and historical records of impact
- auditing would lead to objectivity in decision making, and agreement in resource management procedures and criteria
- an auditing programme may lead to smoother processing of resource consents
- independent and formalised evaluations by a third party may provide an unbiased view of operations and give credibility to the audit
- auditing will lead to improved lines of communication from the forest industry to the public, and increase environmental awareness and understanding of forestry operations.

Will your organisation conduct forestry environmental audits in the future?

All of the large to medium-sized forestry companies, representing 72% of the industry total, said that they will conduct environmental audits in the future (Figure 11). Most of the Regional Councils are in favour of carrying out audits in the future, while a large proportion (70%) of territorial authorities appear undecided.

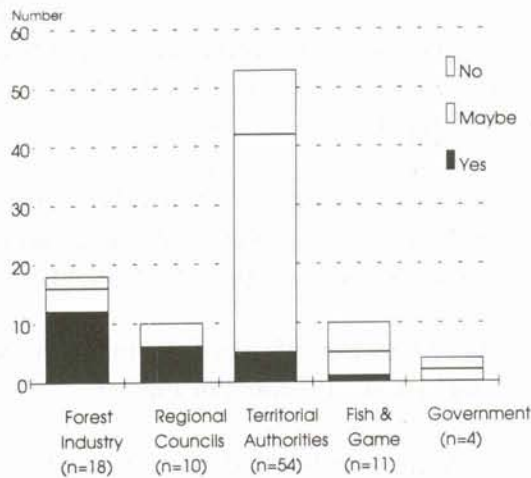


Figure 11 - Potential for environmental audits in the future

CONCLUSIONS

This report surveyed opinions on environmental auditing within the forest industry, local authorities, government agencies and Fish and Game Councils. The high response rate (72%) to the survey questionnaire reflects the strong interest in environmental auditing in New Zealand forestry. The response rate also suggests support for a future LIRO objective to develop environmental auditing guidelines for the plantation forest industry.

Forestry environmental auditing is only just beginning with less than half of the forest industry having conducted an audit at least once. There has been a marked increase in environmental audits since 1992 following the introduction of the Resource Management Act 1991. The results show a growing demand in environmental auditing as forest owners and managers recognise various benefits from conducting audits, such as improved resource consent processing, evidence of compliance and non-compliance, and better environmental management of forestry operations.

Most environmental audits carried out by forestry companies appear to be instigated on a voluntary basis, and have involved company district staff, local authorities and consultants.

Auditing in the forest industry has focused primarily on identifying: compliance to statutory regulations, company environmental policies and standards, forestry operations performance, and negative environmental impacts.

Forestry operations audited were mainly access development, log extraction, activities near water courses, felling techniques, and log processing in the forest. These activities reflect important environmental issues namely, sedimentation and erosion, streamside management, water quality, and site disturbance. Indications are that forest planning procedures will receive more attention in future environmental audits. Additionally, a greater number of operations and environmental issues are identified as being very important for auditing programmes.

The essence of a successful environmental audit is that there is a set of criteria against which to audit. The criteria may include statutory rules and regulations. However, there is considerable diversity of rules across the regions and territories, and in some areas there is concern over the level of constraint applied by the environmental rules. The New Zealand Forest Code of Practice (LIRO, 1993) also inherently contains audit criteria. Supported by the Forest Industry and local authorities, the Forest Code of Practice would provide a basis to develop environmental auditing guidelines.

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