Copyright is owned by the Author of the thesis. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.

Corporate Environmental Reporting: A New Zealand perspective.

A thesis presented in fulfilment
of the requirements for the degree
of Master of Philosophy
Massey University

Nicholas G. Robinson

1998

Abstract

Corporate Environmental Reporting is an environmental management practice that is gaining momentum internationally, and in New Zealand. In this study, four leading New Zealand Corporate Environmental Reports were compared on content, and disclosure, and it was found that the level of reporting was low, with the scope of reporting content very narrow. In comparison with international reporting surveys, the New Zealand reports compared very unfavourably; in most instances, the level of reporting in the international reports was double compared to the New Zealand reports. However, the New Zealand reports were following international trends in reporting, in terms of a high qualitative content, and limited reporting in financial and sustainable development issues.

A sample of stakeholders was also surveyed on the content areas of environmental reports, and the importance that they would give to each reporting area. From the analysis, it was found that there was a large gap between the performance of the reports sampled and the expectations of the stakeholders, with some stakeholder groups indicating higher information needs than others.

Through face-to-face interviews, the process that the reporting companies followed to publish their environmental report was established. This process was then compared to the narrow range of content, and to the stakeholder expectation gap found in the preceding analysis. Overall, it was concluded that the strong and pervasive environmental management legislation in New Zealand was having a considerable influence on the content of the New Zealand reports. Because of this, the practice and content of environmental reporting in New Zealand have lacked definition.

Overall, it was concluded that the level of reporting from the sample of New Zealand reports was poor, and that because of the low level of reporting there was a gap between report performance and stakeholder expectations. From these conclusions it is recommended that the Government should instigate a programme defining the role and content of Corporate Environmental Reporting in New Zealand. It was also recommended that environmental reporting becomes mandatory in New Zealand.

Acknowledgements

There are many people that I wish to thank.

I am indebted to Delyse Springett and Attahir Yusuf, my supervisors. Firstly, thank you Delyse. Your time, persistence, compassion, and uncanny ability to understand my ranting have made this year both a pleasure and a challenge. Thank you Attahir for always asking me 'how does this relate to your research topic'?

I would also like to thank the four organisations that lent me their ear, and their staff, during the course of this year. Thank you Ken Tremaine and Justin Ensor of KPMG, your resources, comments and insights were most helpful. Thank you Stephen Hall, your assistance was invaluable. A big thank you also goes to Alistair Shanks and Peter Thomas of Watercare Services Limited; thanks guys. Also, thank you to all the staff at The New Zealand Refining Company, The Electricity Corporation of New Zealand, and Tasman Pulp and Paper Company Limited.

Thanks also goes to the Graduate Research Fund, and the Department of Management Systems for their help, guidance, and resources.

Thank you Kevin and Jenny, your unfailing love and support over the last 23 years, and the numerous long distance telephone-counselling sessions will leave me indebted forever. Catherine, thank you for being a wonderful and interested sister.

Thanks also goes to my numerous friends and colleagues who have provided laughter, humility and reality, especially, D.A., S.C., K.C., J.I., V.B., S.O'D., M.N., S.S., D.H., M.O'R. , B.P.S., J.T., B.G. and P.E. Thank you Nick Park and Glenys Patterson for all your help.

Lastly, I would like to thank all the musicians that have been in my life this year, without your music and inspiration, my life and thesis would not be the same. Thanks Massive Attack, its true; inertia creeps, moving up slowly.

Contents

List of tables

List of figures

CHAPTER ONE: INTRODUCTION AND RESEARCH ISSUES

1.1 Introduction

Environmental issues, whether they be pollution or extinction of species, dominate the global media. These problems are by no means new; in fact, environmental catastrophes can be traced back to - and before - the extinction of the dinosaurs through to the sudden disappearance of the Incas in South America. However, there is a defining difference between the environmental disasters of the past, and today's ecological crisis: knowledge. For many years, the environmental impacts of society's actions have been documented and predicted by individuals and organisations alike.

Rachel Carson's book, 'Silent Spring' (1962), sent shock waves throughout the world, outlining some of the horrific truths about a legacy of herbicide and pesticide use. Business tried to refute the data and accuracy of Carson's accusations, in order to protect their legitimacy in society. From Carson's book, and other equally shocking exposés came a public call for business to become more accountable for its actions and its impacts. Some companies heeded this call and started to publish social responsibility reports, outlining their actions and impacts. However, many did not, and buoyed by a growing economy and a reprieve from the 1970s oil crisis, businesses continued to produce and pollute with little regard for the environment.

The environmental issues appeared again in the public scene with the Bhopal disaster, in 1984: 6000 people killed and 50,000 injured. A few years later many stretches of the Alaskan coast were awash with oil; scenes of oiled-covered birds and mammals littering the newspapers and televisions sets of every nation, due to the Exxon Valdez oil spill of 1989. Public outrage ensued and environmental organisations' memberships soared: a decade of environmental disasters had alerted the public into questioning why such disasters had occurred.

To emerge from these problems was a concerted push towards sustainable development, a powerful, and all encompassing concept, that challenges the global economy today, and is forcing governments and business to rethink their strategies for the future.

In the quest for sustainable development, business has begun to address its past mistakes and to try and make sense of what it means to be sustainable. An emerging tool to do this is the Corporate Environmental Report, a means for business to communicate to the public what it has done and what it is doing for sustainable development.

In New Zealand, in June 1996, the newly formed Coalition Government between National and New Zealand First signed the Coalition Agreement, a document comprising policy initiatives and commitments. One of these commitments was to develop a system of mandatory environmental reporting through an amendment to the Companies Act. Environmental reporting had been occurring in New Zealand for a number of years prior to this statement, and indeed, corporate environmental reporting had been developing extensively in Europe and North America.

1.2 Research questions and objectives.

In 1996, KPMG International published an international survey of corporate environmental reporting. In this survey, it was noted that New Zealand was one of the poorest countries in terms of publishing environmental data or policies in annual reports, and publishing separate environmental reports.

In other international surveys of reporting, such as the United Nation Environment Programme's surveys of environmental reporting (UNEP, 1994, UNEP-SustainAbility, 1996, & 1997), which examine reports against a set of 50 environmental reporting content areas, trends have been emerging. Overall, the frequency of reporting has greatly increased, and it has been observed that reporting has developed from a green glossy style of reporting, to sustainable development reporting, in which the company addresses its role in sustainable development and the triple bottom line. No New Zealand report has yet to be included in this rigorous survey.

However, KPMG New Zealand has been awarding companies in New Zealand for their good reporting performance for the past four years (Gilkison, 1997). These awards are based on broad reporting issues, and the reports are not examined in any detailed manner, unlike the UNEP-SustainAbility report surveys. To date, the KPMG awards have noted that although the levels of reporting, and the frequency of reporting, has increased in New Zealand, overall, these levels are still very low (Gilkison & O'Dea, 1997).

Due to these issues, an in-depth analysis needs to be completed of reporting within New Zealand, using rigorous international standards to judge the corporate environmental reports of New Zealand in terms of content and disclosure. From this need, a number of research questions have been developed.

Major research question 1

> What are the levels of similarity and disparity between the four award-winning New Zealand corporate environmental reports as judged by KPMG New Zealand in 1997?

To increase the level and reliability of comparison between the New Zealand reports, a common format needs to be used. As stated above, the current criteria for the KPMG New Zealand surveys are very broad, and do not offer sufficient detail for the in-depth comparison of the reports' content. One format which does allow such comparisons, is the UNEP-SustainAbility 50 environmental reporting ingredients (UNEP, 1994; UNEP-SustainAbility, 1996). These ingredients allow the reports to be scored on their levels of comprehensiveness and disclosure. To comprehensively answer the first research question, the following objectives need to be satisfied.

Objectives

> Identify the similarities of content between the four award-winning corporate environmental reports in New Zealand, based on the UNEP/SustainAbility 50 Corporate Environmental Reporting ingredients.

> Identify the differences in content between the four award-winning corporate environmental reports in New Zealand, based on the UNEP/SustainAbility 50 Corporate environmental reporting ingredients.

As outlined, the 1996 KPMG survey has been the only international survey to include New Zealand reports, and to date, there has been no in-depth comparison of the content areas of reporting between New Zealand and international corporate environmental reports. Although it has been stated by KPMG International (1996), and KPMG New Zealand (Gilkison, 1997), that the level of reporting in New Zealand is poor, these surveys have not identified specific content areas were New Zealand reports are lacking in reporting, compared to their international counterparts. Therefore, it is important to investigate the differences and similarities between New Zealand reporting and international reports.

Major research question 2

> How do the four New Zealand award-winning corporate environmental reports compare on content to the four leading international corporate environmental reports as assessed by UNEP/SustainAbility in 1996 and 1997?

Again, the UNEP-SustainAbility 50 environmental ingredients serve as excellent criteria for comparison between New Zealand and international reports, and this leads on to the following research objective:

Objective

> Assess how the content of the New Zealand corporate environmental reports compares with that of the UNEP/SustainAbility leading companies, in terms of the UNEP/SustainAbility 50 Corporate Environmental Reporting ingredients.

In order to illustrate the development of reporting, UNEP-SustainAbility developed a set of reporting quintiles which can be used to track a report's development, from a 'green glossy'

level of reporting, to a high level of sustainable development reporting. UNEP-SustainAbility, in their own international reporting surveys, place the international reports in their sample on these quintiles, to illustrate the level of reporting in the sample. This, too, needs to be applied to reporting in New Zealand, so as to further develop the understanding of the current level and direction of reporting in New Zealand. The following question will be used to expand on this area.

Minor research question 3

> How do the four award-winning New Zealand corporate environmental reports measure up against the UNEP/SustainAbility corporate environmental reporting quintiles?

In the case of this research, measure up will be ascertained by assigning the four New Zealand reports to the UNEP-SustainAbility quintiles. Using these quintiles, the New Zealand reports can be further compared and contrasted to the leading international reports, using the following research objective.

Objective

> Estimate the levels to which the top New Zealand corporate environmental reports can be assigned on the UNEP/SustainAbility corporate environmental reporting quintiles.

As noted by many researchers in the field of corporate environmental reporting, the purpose of environmental reports is to inform the stakeholders of the environmental performance of an organisation (Schaltegger, 1997). By communicating information on the company's environmental performance, stakeholders are able to make informed decisions on the operations and legitimacy of the organisation, an important role in sustainable development. However, as noted by other researchers (Azzone, Brophy, Noci, Welford, & Young, 1996), to properly satisfy stakeholder information requirements, corporate environmental reports need to satisfy the four pillars of corporate enviornmental reporting: comprehensibility, relevance, reliability, and comparability. To satisfy these four pillars, the information needs of an

organisation's stakeholders need to be met. Due to the apparent poor performance of reporting within New Zealand, it is important to assess the levels to which stakeholder needs are being met by New Zealand reports. This may indicate specific areas which need to be addressed by New Zealand reports, and such an analysis will help map the development of corporate environmental reporting in New Zealand. The following research question has been developed to met this information need.

Minor research question 4

> To what level are the needs and expectations of the stakeholders being met by a selected report from the four award-winning Corporate Environmental Reports as judged by KPMG New Zealand in 1997?

To ensure that the report performance and stakeholder needs are accurately compared, the same areas of comparison need to be used from the report content analysis. Therefore, the UNEP 50 environmental reporting ingredients provide an excellent set of criteria against which report performance and stakeholder expectations can be compared, and the research question can be further defined by the following research objective.

Objective

> Estimate the gap between report performance and stakeholder expectations, in terms of the UNEP-SustainAbility 50 environmental reporting ingredients.

Using these research questions and objectives, the lack of information in New Zealand environmental reporting can be explained and identified. By using a set of detailed and international accepted criteria, comparisons can be made with international reporting and New Zealand's position in corporate environmental reporting development.

CHAPTER TWO: RESEARCH METHODOLOGY

The research was based on an explorative and descriptive analysis, involving quantitative and qualitative approaches, including document content analysis, stakeholder analysis, and face-to-face interviews.

2.3 Methodology

It was identified at the commencement of the research that previously there had been no in-depth study of Corporate Environmental Reporting in New Zealand. Because of this gap in knowledge, the research methodology was based on explorative and descriptive techniques.

Exploratory research is a methodological framework used when there is little known about the phenomena in question (Hussey & Hussey, 1997), and in the case of environmental reporting in New Zealand, base information was needed. An explorative approach also gives the researcher the opportunity to use various methods, and various sources of data (Easterby-Smith, Thorpe, & Lowe, 1996), which was an advantage to the researcher because the area of Corporate Environmental Reporting entails the involvement of many different sources of data and participation.

To complete this research, firstly, the research needed to describe qualitatively the research phenomena for analysis. To do this, a comprehensive literature review was completed, mainly based on international material because of the dearth of New Zealand environmental reporting information.

Secondly, the explorative framework for this research provided the ability to generate descriptive data on the current situation of environmental reporting within New Zealand. This involved the integration of qualitative and quantitative methodologies, including the quantitative analysis of the report content, and a quantitative assessment of stakeholder perceptions and expectations.

Using the quantitative data, a descriptive analysis of the phenomena was performed. The goal of descriptive analysis is to describe relevant aspects of the phenomena in interest, and

importantly it allows for data to be more easily understood (Sekran, 1992; Zikmund, 1997) However, the main advantage that descriptive analysis gave to this research was the ability to cross-tabulate various sources of data, a necessity for data triangulation.

The research was divided into three sections, relating to the various aspects of corporate environmental reporting within New Zealand: corporate environmental reports, stakeholders, and the writers of the reports. Each of these sections will be described separately.

2.4 Corporate Environmental Report Content Analysis

The aim of this section of research was to analyse the content of the New Zealand Corporate Environmental Reports based on a quantitative analysis of the report content. To do this, descriptive statistics were derived from an in-depth content analysis of each Corporate Environmental Report in the sample. Content analysis deals with the study of the message, and this case, allows the researcher to obtain detailed data from the item of communication by analysing the content in regards to a set of criteria (Zikmund, 1997). Content analysis suited this section of research because the 'message' of each of the Corporate Environmental Reports was able to be analysed and described.

A judgement sample, where the sample is selected by the researcher based upon an appropriate characteristic of the sample members (Zikmund, 1997), was taken of the four award-winning environmental reports judged by KPMG New Zealand. This sample was considered representative of the leading environmental reports published in New Zealand, based on the judging criteria: policies, organisation environmental profile, environmental plans and priorities, environmental management procedures, environmental performance, proof of performances, and future proposals (Gilkison & O'Dea, 1997).

From these criteria, the following reports were noted for their notable performance:

Watercare Services Limited 1996 Annual Environmental Report
Electricity Corporation of New Zealand 1996 Environmental Report
Tasman Pulp and Paper Company Limited 1996 Environmental Report

The New Zealand Refining Company Limited 1996 Annual Report to Shareholders

The Taranaki Regional Council 'State of the Environment Report', 1996

It was noted that the Taranaki Regional Council's report did not fit the definition of a Corporate Environment Report that this research used, so it was removed from the research sample.

As described, content analysis allows the analysis of the reports by a set of criteria. In this case, to describe the content of the report sample, the criteria used were the 50 environmental reporting ingredients (for a list of the 50 ingredients, and definitions, see Appendix 1) developed by the United Nations Environmental Programme and SustainAbility (UNEP, 1994; UNEP-SustainAbility, 1996). These ingredients allowed the researcher to identify the areas of strength and weakness in a report and rank these areas against other reports (UNEP & SustainAbility, 1996).

To increase the level of comparison and benchmarking between reports, UNEP and SustainAbility designed a 'scoring system' based on the 50 reporting ingredients (SustainAbility, 1996). For each of the reporting ingredients, UNEP has a strict list of parameters to score the ingredient on its level of comprehensiveness from a 0, the ingredient not being present, to 4, where the ingredient is very comprehensively documented. This 5 point scoring system is used on 48 of the ingredients, with two of the ingredients - Awards and Charitable Donations - being given a score of 0 or 1. Below is an example of the scoring system for the Top Management Statement of a report (Ingredient 1, Section 1). Overall, a report can score a total of 194.

Score

0 No coverage.

1 Minimum coverage, little detail.

2 Detailed and honest, including company shortcomings and commitments.

3 Commitment to and progress towards sustainable development in core business.

4 Commitment to and progress towards 'triple bottom line' of sustainable development in core business, plus benchmarking against competition and/or best practice in other sectors.

From UNEP-SustainAbility, 1996, p27

Using this scoring system, each of the New Zealand reports from the sample were scored according to the 50 environmental reporting ingredients. To increase the accuracy of this content analysis, the following procedure was developed to score each of the reports:

1. The report was read initially in order to obtain a general overview of the reports content.
2. The second examination of the report identified the presence of any of the 50 reporting ingredients.
3. On the third examination, the areas that were missing were identified.
4. The fourth reading noted any other areas that were of interest, or that were particular to a certain report.
5. Using the UNEP-SustainAbility criteria, each of the 50 ingredients were given a score.
6. For each of the ingredients, the score given was recorded, as well as page references for key aspects that determined the particular score.

At the completion of this process, all the ingredient scores were collated to give a total score out of 194 for the report, and determining reasons for these scores were developed into a full scoring rationale. (These rationales can be found in Appendix 2)

2.4.1 Data Analysis

The data was arranged into simple descriptive statistics, in particular cross-tabulation, allowing for the comparison of ingredients scores between reports, total report scores, and the average score for each of the ingredients over the four reports.

Firstly, the reports were compared to the 20 essential environmental reporting ingredients, in terms of the extent to which the reports reported against these 20 ingredients. SustainAbility-UNEP (1996) identified these ingredients as the bare minimum of the 50 ingredients that a report should include.

For increased comparison, the 50 reporting ingredients for each report were grouped under 5 report content categories:

Management policies and systems;

Top management statement, environmental policy, environmental management system, management responsibility and accountability, environmental auditing, legal compliance, research and development, environmental awards, verification, reporting policy, and corporate context.

Input/Output inventory

Material use, energy consumption, water consumption, eco-efficiency and clean technology, health and safety, accidents and emergency response, risk management and environmental impact assessments, land contamination and remediation, stewardship of local habitats and eco-systems, waste minimisation and management, air emissions, water effluents, noise and odours, transportation, life-cycle design, environmental impacts, product stewardship, and packaging.

Finance

Environmental spending, environmental liabilities, market solutions, instruments and opportunities, environmental cost accounting, charitable contributions.

Stakeholder relations and partnerships

Employees, politicians, legislators and regulators, local communities, investors, suppliers and contractors, customers and consumers, environmental groups, science and education, and other stakeholder relations.

Sustainable development

Technology co-operation, global environment, global development issues, global operating standards, report design, visions, scenarios, and future trends.

The using these five categories sub-totals, average and average percentage score were then tabulated and compared between reports in the New Zealand report sample.

Each of the reports were then placed on the SustainAbility-UNEP 5-stage report benchmarking tool (1996, p.19), in accordance with their total score.

2.4.2 International Report Comparison

The next section of analysis involved the comparison of content between the New Zealand report sample, and a sample of international reports.

The international report sample was derived from the two of the three Corporate Environmental Reporting surveys conducted by UNEP and SustainAbility (1994, 1996, and 1997). The 1996 and 1997 survey results were used because they were based on the report scoring system used in this research.

The sample included the four top scoring reports in 1996 and 1997, which were:

1996	The Body Shop
	Phillips Petroleum
	Monsanto
	Bristol-Myers Squibb

From: UNEP-SustainAbility, 1996, p.35

1997	The Body Shop
	Baxter
	Neste
	Novo Nordisk

From: SustainAbility & UNEP, 1997, p.8

Published with these surveys are the exact scores for each of the reports surveyed. Although this is not taken down to the individual ingredients level, they do include the scores for each of the 5 categories of reporting ingredients, and the international average in the survey, which provided an adequate baseline of analysis for the purposes of this research.

Comparison between the international and New Zealand reports was completed using the same analytical framework for the New Zealand report comparison, however, in this case the comparison was made between the New Zealand and both the 1996 and 1997 international report samples.

2.5 Stakeholder Analysis

The aim of this section of the research was to identify report content areas that a series of stakeholders saw as important. To do this, stakeholder analysis was used. Stakeholder analysis allows the researcher to collect data about stakeholder perceptions and thoughts in relation to a phenomenon (Burgoyne, 1995), which fitted well with the qualitative and quantitative approach of the research.

To complete the stakeholder analysis, a survey was conducted using a questionnaire. The questionnaire was designed to collect quantitative data on stakeholder perceptions (Easterby-Smith, Thorpe, & Lowe, 1996), and most importantly, it allowed for the direct triangulation of results from the Corporate Environmental Report content analysis, with the stakeholders' levels of importance given to each ingredient, and the interview results from the report writer interviews.

A sample of stakeholders was taken from the environmental report mailing list of one of the companies in the New Zealand report sample. To protect confidentiality the company will be referred to as Company A. This company was chosen because it had previously shown interest in having research completed into its stakeholders.

Because of a constraint with the number of reports that the researcher could send with the questionnaire, and some difficulties liaising with the company involved, a non-random stratified sample was used. This was rationalised because a small random sample had the chance of not corresponding to a true representation of the various groups in the mailing list. Therefore, the non-random stratified sample was used to give a more accurate representation of the list.

Firstly, all recipients with international addresses were removed from the list because the research was focused on New Zealand stakeholders. Following this, the Chief Executive Officers of all the local authorities were removed because it was believed that they would not have the time to respond, and may pass the questionnaire onto another colleague. From this new list, the recipients were divided into groups and one or two members of each group were chosen. If it was a small group, below five, 1 recipient was chosen, and 2 if the group numbered above five. At the conclusion of this sampling, 20 employees of Company A were sent a questionnaire because it was noted that employees were not represented at any level in the mailing list. This sample was administered randomly by Company A.

As stated, the stakeholder analysis was conducted using a questionnaire survey method. Because the researcher was unaware of any previous questionnaires that enabled direct comparison of report performance and stakeholder expectations, a questionnaire had to be designed. The question was divided into four sections, and these will be briefly described. (For the complete questionnaire, see Appendix 3.)

1. Introduction.

This section focused on stakeholder identification. Because the researcher wanted to protect the anonymity of respondents, the participants were not required to give any personal details.

Instead, participants were asked to identify whether they read the company's report out of personal interest, as a member of an organisation, or both.

The participants were also asked to identify which stakeholder group or groups they belonged to, from the list provided. The list of stakeholders was developed from Azzone et al.'s paper on environmental stakeholders of organisations (1996). For the New Zealand analysis, Tangata Whenua was an important group that had to be added to the internationally acknowledged stakeholder list.

2. Corporate Environmental Reporting.

This section was designed to discover stakeholder attitudes to environmental reporting. The questions were based around more general aspects of Corporate Environmental Reporting, such as, who should report?

3. Levels of satisfaction towards the specific environmental report.

A series of questions, using 7-point Likert scales, were used to gauge the level of satisfaction with and comprehension of the report. 7-point scales were used because research has indicated that they give a more accurate description of participant response (ref).

4. 50 Corporate Environmental Reporting Ingredients.

This was the most crucial section of the survey, and therefore, requires detailed description.

So that stakeholder expectations and their perceptions of performance could be compared to the environmental report in question (and the other reports in the New Zealand and international sample), the UNEP-SustainAbility 50 environmental reporting ingredients were used as a template. Here, the stakeholders were asked to indicate the level of importance that they attributed to each of the 50 environmental ingredients.

To indicate this level of importance, a 5-point Likert scale was used. A 5-point scale was used so that the stakeholder levels of importance could be directly compared to the 5-stage

scoring system of the report content. (The two ingredients - Awards, and Charitable Donations - were also allowed to be scored on a scale from 0 to 4 despite the fact that in the UNEP-SustainAbility scoring system they can only score on a two point scale. This anomaly was allowed because the researcher wanted to observe the levels of importance of these ingredients in relation to other content areas, regardless of the UNEP scoring system.)

Definitions were given for each of the 50 reporting ingredients to make sure that the stakeholders had a common understanding of each of the reporting ingredients.

During the development of the questionnaire, it was piloted on numerous individuals, including three representatives from the reporting organisation, two environmental consultants, and another twelve environmental stakeholders.

The survey was then sent to the sample with a covering letter outlining the ethical responsibilities of the researcher and the context of the research. A copy of the report for the participants review was included with the questionnaire.

2.5.1 Data Analysis

Again, simple descriptive analysis was used to describe the majority of the data. For the levels of response from stakeholders, and the groups the respondents identified themselves with, frequency and percentage values were calculated. In terms of the level of satisfaction towards the report in questions, again, frequency and percentage values were calculated.

Of major importance in the data analysis section, was the analysis of the reporting ingredient data. Overall, the total average score, and the average level of importance for each of the 50 environmental ingredients were calculated, and these were compared between the different stakeholder groups using cross tabulation.

Comparison was made between report performance and stakeholder expectations by the comparison of the report content score for each of the 5 reporting ingredient categories. In this case, the average report score from the content analysis was used, as well as a comparison

of each of the four reports in the sample. Comparison was also made with the international reports and the stakeholder expectations.

2.6 Content analysis of Report Writer Interviews

The aim of this section was to describe the process the reporting organisations go through to publish their environmental reports. To do so, a qualitative content analysis was used because it gave the researcher the opportunity to describe the reporting process in a narrative form.

The sample consisted of the report writers from each of the sample New Zealand corporate environmental reports. Consent was sought from the participants for the interviews to be taped and used for analysis, on the condition that the individuals and their organisation would not be identified in the research.

The researcher wanted to develop a narrative of the reporting process, so therefore, the interview had to be developed around that process. To do this, the Total Quality Loop (Netherwood, 1996, cited in Welford, 1996) was used, as it has been extended to cover Total Quality Environmental Management. Below is the TQM loop described by Netherwood (ibid.), along with examples of the questions that corresponded with each section of the loop and environmental reporting.

Thinking about how to achieve organisational goals.

What was it that prompted the company to develop its Corporate Environmental Report?

Planning to achieve goals

What was involved in the preparation and planning of the report?

How did you decide on the audience of the report?

Doing ie. implementing the plan.

How did you collect the information for the report?

How long did it take to get the report to the publishing stage?

Measuring the effectiveness of implementation.

What type of feedback have you received, and from whom?

Thinking about how to improve effectiveness.

Looking back, what was the hardest part of the reporting process?
Has the journey been worth it, and what are your future plans?

Sourced from: Netherwood, 1996, p.37; cited in Welford, 1996.

A set of 11 structured questions was developed from this loop in relation to the process of corporate environmental reporting. A twelfth question was included which focused on mandatory reporting, a topical question in the field of environmental reporting at the time of the research. (See Appendix 4 for the full interview schedule.)

The interview schedule was piloted on one environmental consultant, and one academic in the area of Corporate Environmental Management.

Before each interview, each of the participants was sent a letter outlining the research (to give a context to the interview), and a copy of the interview schedule.

The interviews were held on a face-to-face basis, with each of the interviews being recorded onto audiotape. At the beginning of the interview, the participants were made aware that the interview schedule followed the TQM loop, and the aim of the interview was to describe a process. The interviews were then transcribed with the transcriptions sent onto the interviewees for editing (if any), and consent.

The finalised transcripts were then coded. Coding involves the grouping of responses into categories that bring together similar ideas, concepts and themes (Rubin & Rubin, 1995), in this instance, this was aided by the structured format of the interview schedule. The responses were then generalised for each step along the TQM loop in relation to Corporate Environmental Reporting.

2.7 Data and methods triangulation

Triangulation is the use of multiple source of data and methods, allowing for qualitative and quantitative comparisons (Easterby-Smith et al., 1996). Because of the exploratory and descriptive framework of the research, data and methods triangulation allowed a cross-

sectional analysis of the Corporate Environmental Reporting phenomena in New Zealand. Of particular note and importance, was the ability to directly compare report performance and stakeholder levels of importance.

CHAPTER THREE: LITERATURE REVIEW

3.1 Sustainable Development and Agenda 21

As discussed briefly in the introduction, the concept of sustainable development was developed from the worsening environmental problems facing the earth. However, sustainable development was not only developed because of these issues.

In 1972, at the United Nations Conference on the Human Environment, the concept of sustainable development assumed prominence, and was further heightened by the Brundtland Commission's 1987 Report, 'Our Common Future'. Here 22 members of the Commission came together, after extensive consultation with governmental and non-governmental organisations, to discuss the worsening environmental problems, and the growing poverty throughout the world. From these discusssions, the report futher defined the concept of sustainable development as:

> meeting the needs of the present without compromising the ability of future generations to meet their own needs (WCED, 1987, p.8).

The concept of sustainable development offers a way of reconciling economic and environmental objectives, and the definition is controversial in itself - for example, some feel the concept places too many limits for businesses and governments to work under (Shrivastava & Hart, 1995). How would such a strategy work in today's economy? This question has been partially answered by environmental economics, particularly Pearce, Markandya and Barbier's 'Blueprint for a Green Economy' (Pearce et al., 1989), where they describe how sustainable development can be achieved through market forces and regulations.

The sustainable development debate continued, and culminated in the 1992 Earth Summit at Rio de Janerio. At this conference, nearly 100 world leaders signed three agreements: The Rio Declaration, a set of 27 principles which outline the responsibilities and rights that all nations have in the areas of the environment and development; The Forest Principles, 17 principles referring to the sustainable management of forests globally; and, Agenda 21, a detailed programme which 'addresses the pressing problems of today and also aims at

preparing the world for the challenges of the next century' (United Nations, 1992, p.4). Conventions were also signed on Biodiversity and Global Climate Change.

Agenda 21 adresses topics ranging from 'Promoting sustainable development through trade' (United Nations, 1992, Pt I, Chp2, p.7) through to 'Strengthening the role of farmers' (United Nations, 1992, Pt III, Chp32, p.32). Overall, the programme comprises 32 chapters; however, most importantly, in terms of this research, Agenda 21 comprehensively addressed the role of business in society. Firstly, Agenda 21 stated that:

> Business and industry, including transnational corporations, play a crucial role in the social and economic development of a country (UN, 1992, Pt III, Chp 30, p.29).

Secondly, Agenda 21 goes on to state that:

> Business and industry, including transnational corporations, must recognize environmental management as among the highest corporate priorities and as a key determinant for the success of sustainable development (UN, 1992, Pt III, Chp 30, p.29).

These two statements are important. The first statement categorically states that business has a crucial role in social and economic development; no longer are business' actions divorced from the rest of society. The second statement further challenges business by directly linking environmental management to the success of sustainable development, therefore placing responsibility with business.

A central tenet of Agenda 21 is democracy, and business is part of this process. Importantly, Agenda 21 addressed the need for information 'at all levels' for good decision making, and directly applied this to business in the form of the community's right to know. It took this concept further by stating that governments and business should work towards bridging the data gap and improving information availability (Sitarz, 1994).

Overall, Agenda 21 addressed the fact that environmental management was vital to sustainable development, and for sustainable development to be achieved, the decisions will need to be made on accurate and timely information. This information needs to be communicated to the public by both government and business, and one method that business is currently using is the Corporate Environmental Report.

3.2 Business and the Environment - An irreconcilable relationship?

Prior to environmental disasters of the 1980s, business and the environment had been largely governed by environmental legislation (Walley & Whitehead, 1994), and indeed, this was an uncomfortable relationship, leading to business being very reluctant to internalise any environmental issues. However, since the Brundtland Report, the 1980s decade of environmental catastrophes, and the Earth Summit, the scene has changed, and business' interactions with the environment have become very important issues for many business people (Miller, 1998).

In a survey of 1000 US companies by Industry Week (Miller, 1998), it was found that environmental issues had surged in importance, with 90% of the companies surveyed (235 respondents) stating that environmental issues had become part of their formal business strategy. Questioned further, it was found that 97.4% ranked environmental performance as one of their top 10 priorities. Further still, 80.1% stated that they considered environmental impacts in their product-development process. It is obvious from these findings that there has been a shift in the thinking of business to now include environmental issues as central issues to their operation.

One reason may be the fact that many individuals and organisations, both industrial and environmental, have realised that business is a vital factor in the sustainable development equation. John Elkington, a leading environmental consultant, states:

> In contrast to the anti-industry, anti-profit, and anti-growth orientation of much early environmentalism, it has become increasingly clear that business

> must play a central role in achieving the goals of sustainable development strategies (Elkington, 1994, p.91).

What Elkington is saying is that business and the environment have come to a pragmatic agreement. Apart from a growing consciousness for environmental issues in business, sometimes being 'green' has been claimed to be a competitive advantage (Porter & van der Linde, 1996). This ideology is epitomised by the 3M example. Due to implementing numerous environmental initiatives, 3M, a consumables manufacturer, saved approximately US $500 million dollars (Walley & Whitehead, 1994). In summary, it is claimed that being 'green' improves the bottom line.

The example of 3M and of other 'green' organisations have been labelled Win-Win situations, where both the environment and the organisation wins from improved environmental performance (Maxell, 1996). However, there are also numerous other examples where environmental improvements can be very expensive. Walley and Whitehead (1994) point out that many companies are not 'winning' from their environmental initiatives. Texaco, for example, are spending $7 billion on environmental initiatives which is three times the whole company's book value. Walley and Whitehead give a further example where a US chemical manufacturer has an internal rate of return on environmental projects of negative 16%. This is clearly not a win-win situation, and situations such as these have led business commentators to voice that 'It's not easy being green' (Walley & Whitehead, 1994).

Clearly, the idea that business can save costs by being more environmentally responsible is not always the case, and will not influence companies to change to environmental management; however, many companies are continuing to forge ahead with their 'corporate environmentalism' (Schmidheiny, 1992).

3.3 Environmental Management and the Corporate Environmental Report

Before defining what a corporate environmental report is, it is important to define and explore the concept of environmental management.

Environmental management can be defined as:

> A management system that encompasses all efforts to minimise the negative environmental impact of the firm's products throughout their life-cycle (Klassen & McLaughlin, 1996, p1199).

Overall, environmental management is a way in which business can translate the 'conceptual theory of sustainable development into practice' (Welford & Gouldson, 1993), using management techniques such as Life-cycle analysis and the cradle-to-grave approach, and Total Quality Environmental Management (Netherwood, 1996, cited in Welford, 1996).

Presently, the majority of research into environmental management is focusing on the sustainable development issue, and many management systems are being designed around the limits and constraints of sustainable development: no eco-system degradation, a constant stock of non-renewable resource, and economic and social equity (Shrivastava, 1995).

It is important to explore the development of environmental management within New Zealand, as it has bearing on environmental reporting in New Zealand. In New Zealand as a whole, the majority of environmental management has been based upon environmental legislation. Prior to the late 1980s and early 1990s, New Zealand's environmental management approach was piecemeal and incremental (OECD, 1981; cited in Ministry for the Environment, 1997), with many pieces of legislation. However, in the late 1980s the New Zealand government reformed the majority of environmental legislation into one all encompassing Act, the Resource Management Act (1991).

The Resource Management Act (RMA) is based on an 'eco-system' approach that recognises that the elements of the environment do not stand alone, and that impacts of human activities on the environment are not discrete (Ministry for the Environment, 1997). Importantly, the RMA includes sustainable management as one of its main functions. Sustainable management is a concept derived from sustainable development, and involves the maintenance and protection of ecosystems, and the non-depletion of most natural resources (minerals are excluded). The RMA functions by using a set of regulatory and economic instruments, such as

consents. Here, organisations are given consents for a certain type of environmental activity, such as air emissions, and it is up to the organisation to monitor and record its emissions.

Because of the RMA, and pressure from society, many New Zealand companies have begun to implement environmental management systems, and with these have come Corporate Environmental Reports.

3.4 Corporate Environmental Reporting - What is it?

While there is no universally accepted definition of corporate environmental reporting, to define a Corporate Environmental Report (CER) in its simplest sense would be to use the definition provided by Bollough and Johnson in their discussion of corporate environmental reporting in practice (1995). Here they clearly define a CER as:

> ... a public document which acts as a non-technical summary, statement of report of that company's commitment to the environment (p.37).

However, this definition does not address the concept of sustainable development which was defined previously. Instead, this definition vaguely refers to the 'company's commitment to the environment' (ibid.).

A leading social and environmental accounting researcher and writer, Professor Rob Gray, states that:

> ... if corporations are to contribute fully to humanity's attempts to seek a sustainable existence then a strong case can be made for the development of accounting and reporting systems which will support this progress (Gray, 1996, p173).

From this statement, it could be taken that any definition of corporate environmental reporting must include the concept of sustainable development. Such a stance is also taken by the United Nations Environment Programme and SustainAbiltiy (a UK-based environmental consultancy firm) in their report on corporate environmental reporting (UNEP, 1994). Here

they state that the core reasons for a company to report is to communicate to the public the company's environmental performance information, and the way in which the company is approaching the issue of sustainable development (1994).

For a report to convey environmental performance information, it would seem contradictory to Bollough and Johnson's definition that a CER contains non-technical information, and indeed, a separate definition from Azzone, Manzini, and Noci (1996) states that a CER is:

> ... a technical document which supports external communication and gives evidence of how a company contributes to the degradation and/or conservation of the environment (p.219).

Here the authors have explicitly stated that the report is a technical document outlining the actions of the organisation on the environment, although they do not refer to sustainable development in this definition.

Another definition of a CER is given by Blaza (1992):

> ... a [environmental] report is made up of two parts: a commentary which contains mostly qualitative information, and a quantitative assessment of the effects on the environment.

Already, the concept of the CER has been developed into a report which outlines the environmental performance and sustainability of an organisation through the use of qualitative and quantitative technical data. However, there is one other aspect of a CER which must be included.

UNEP-SustainAbility (1996), have further developed their concept of a CER to include:

> ... the printed, annual, voluntary free-standing corporate environmental performance report, as the key vehicle for company communication of the environment (UNEP-SustainAbility, 1996, p.12).

As can be observed, UNEP-SustainAbility have included in their definition the aspect of the report being free-standing, and this aspect can again be seen in Lober, Bynum, Campbell and Jacques' (1997) definition of a CER, in their survey of 100 environmental reports:

> ... a publicly available, free-standing document, not part of the annual report, which is devoted solely to environment, and health and safety issues, at the corporate level.

Therefore, using the current literature, the following definition could be used to define a Corporate Environmental Report as:

> A public, stand-alone document, containing qualitative and quantitative information relating to the environmental performance of an organisation and its role in sustainable development.

Using this definition, the detailed and complex nature of environmental reporting is described, with the concept of sustainable development giving true commitment to the environmental reporting discipline (Gray, 1996).

3.5 Corporate Environmental Reports - What do they contain?

As observed, definitions of Corporate Environmental Reporting can be varied, and rely greatly on the perspective of the writer. Because of this variation, it can be assumed that there is also a lack of uniformity of content areas published in past and present CERs.

As discussed, after the 1980s decade of environmental disasters, business' impacts on the environment came under intense scrutiny. In answer to this, many environmental, governmental, and industry groups began to focus on the issues concerning the interactions between business and the environment. Later, in their development, these groups started to design and proliferate their concepts of what an environmental report should be, and also started to suggest the types of content that should be included in a report. Examples of these are:

- The Coalition for Environmentally Responsible Economies (CERES) produced the CERES Report (1989).
- The Canadian Chamber of Commerce's (ICC) 'A Guideline on Corporate Environmental Reporting' (1992).
- The Public Environmental Reporting Initiative's (PERI) framework for environmental reporting (1993).
- The European Chemical Industry Council's (CEFIC) The European Chemical Industry Council's (CEFIC) 'Guidelines on Environmental Reporting for the European Chemical Industry'(1993).
- The World Industry Council of the Environment's (WICE) taskforce on industry initiatives on environmental reporting .
- The Global Environmental Management Initiative's (GEMI) Environmental Self-Assessment Program .
- The United Nation Environment Programme's 50 environmental reporting ingredients (1994).

These reporting formats range in content, with some being specific for certain industries, such as the European Chemical Industry Council's (CEFIC) guidelines on environmental reporting. These guidelines have general areas of reporting along with more industry specific details, such as threshold levels for reporting emissions to air and water such as suspended solids. Other formats are more general, and designed for all types of organisations, for example. the Coalition for Environmentally Responsible Economies' principles.

In 1994, UNEP noted that there was a growing convergence between the different reporting formats, and that overall, general content areas were emerging (UNEP, 1994). In UNEP's report on corporate environmental reporting, Stephen Archer, the then manager of environmental communications at Monsanto, stated that he:

> ... sees a process of automatic standardization in reporting practice as companies learn from their own experience and emulate best practice in the market place (UNEP, 1994, p.28).

To date, this statement has been proved to be mostly true; however, there are still many different formats of environmental reporting used in industry, and this could be with good reason. Frances Cairncross, stated in Green Inc.(1995, p.209), that 'guidelines that readily fit a car manufacturer may not be appropriate for a hotel chain - unless they are too vague to be really useful'. For many organisations, there are specific details that they need to report on, and this would be especially so for environmentally sensitive companies, which is why the CEFIC guidelines seem extremely important.

However, in regards to these guidelines in general, we need to revisit this discussion's definition of corporate environmental reporting, and the role corporate environmental reports in society. Previously, corporate environmental reporting was described as a method of conveying to the public the environmental performance of an organisation, and its role in sustainable development. Therefore, to fulfil this role, there need to be common elements between each report, so that performance can be benchmarked.

Presently, two of the described corporate environmental reporting guidelines are considered the most detailed and practical. They are the CERES reporting guidelines, and the UNEP 50 environmental reporting ingredients (Cairncross, 1995; UNEP, 1994). Both these guidelines are considered important because they address environmental reporting in detail in two specific areas: environmental performance and sustainable development.

Since CERES' inception in 1989, one of the major drivers behind its programmes has been the 'CERES Report' (CERES, 1989). This was the first standardised corporate environmental reporting format designed. It was developed with collaboration with Fortune 500 companies, smaller companies, institutional investors and many of the USA's largest environmental organisations (CERES, 1998).

The CERES Report standardises the disclosure of various types of environmental performance data, and facilitates the establishment of benchmarks so that an organisation can track its own performance. This also allows for the public (and other CERES organisations) to track the performance of the organisation.

The CERES Report comes in two forms: the Standard Form and the Short Form. The Standard Form is specifically designed for the organisations based in the manufacturing industry, and the Short Form was developed for smaller, or non-manufacturing companies.

The CERES Report is divided into the following sections:

1. Company Profile
2. Environmental Policies, Organisation and Management
3. Workplace Health and Safety
4. Community Participation and Accountability
5. Product Stewardship
6. Supplier Relations
7. Use of Natural Resources
8. Emissions and Waste
9. Compliance
10. Priorities and Challenges

Although all aspects of the CERES Report are important, it is interesting to note that sustainability, or sustainable development, is not given a separate section of the report. It is here that the different perspectives of environmental reporting frameworks can be observed. In the example of CERES, sustainability is seen as a major issue, as illustrated by this extract taken from the CERES Report guidelines (1998):

> Nevertheless, the notions of sustainability and sustainable development define the environmental debate today. Indeed, given our current environmental predicament, they are overwhelmingly important global objectives (p.5).

CERES (1998) goes on to state that :

> To allow the most expansive and appropriate exploration of sustainability, CERES is asking companies to discuss what it means for them and their industries and how they are pursuing these objectives in practice (p.5).

However, in terms of guidelines, CERES does not give any real guidance for companies to report on their efforts in sustainability. CERES does state that companies should ask themselves questions such as what they recognise their role to be in sustainability, and what steps they are completing towards sustainability - which are important because they reflect a company's attitudes and practice; however, these are not actual areas that can be benchmarked between organisations. In comparison are the guidelines that the United Nations Environment Programme and SustainAbility give for their environmental reports.

UNEP/SustainAbility first developed their contents for environmental reports in 1994, and based these on the various reporting formats that were available at the time, CERES being one of the major formats that they used (UNEP, 1994). UNEP-SustainAbility developed their '50 environmental reporting ingredients' (UNEP, 1994) which covered 5 general areas. In 1996, UNEP/SustainAbility refined these 50 ingredients further (UNEP-SustainAbility, 1996), and this reporting procedure has now developed into one of the most respected and detailed environmental reporting formats (Cairncross, 1995; Lober, Bynum, Campbell & Jacques, 1997). The 50 reporting ingredients are categorised in the following five subject areas:

1. Management Policies and Systems
2. Input/Output Inventory
3. Finance
4. Stakeholder Relations and Partnerships
5. Sustainable Development

The UNEP-SustainAbility format covers many of the same areas as the CERES Report; however, UNEP-SustainAbility have a separate section for sustainable development, and they give five general areas for companies to report on to demonstrate their level of sustainability.

In the category of sustainable development, UNEP-SustainAbility suggest the five following areas that should be reported on:

Technology Co-operation

The sharing of environmental technology information.

Global Environment

Linking of company's activities to key environmental issues.

Global Development Issues

Respect for cultural diversity and development.

Global Operating Standards

International standards and procedures.

Visions, Scenarios, and Future Trends

Future corporate strategy and scenarios

As can be seen, these ingredients are areas which can be benchmarked and compared over time. Although they are not specific measures of sustainability that some researchers are working towards (Atkinson, Dubourg, Hamilton, Munasinghe, Pearce, & Young, 1997), they do provide organisations with the opportunity to demonstrate their development towards sustainability.

It is also important here to note the earlier definition of sustainability which included the triple bottom line: Society, Environment, and Economy. These aspects are all clearly covered in the 50 reporting ingredients, and not just only in the category of sustainable development. The triple bottom line is also covered in the CERES report, however, not so pronounced. Moving away from the issue of sustainability in CERs, is the issue of environmental performance.

Again, all the formats available have similar content areas (although some may have specific ingredients related to the industry), with common elements such as water and energy consumption, and discharges to air and water, and it is in this area that environmental performance indicators are being explored for environmental reports.

3.6 Mandatory reporting.

Environmental reporting frameworks, such as the CERES report and the UNEP-SustainAbility 50 environmental reporting ingredients, represent voluntary reporting guidelines. However, in a number of countries, mandatory reporting either exists, or legislation for mandatory reporting is being developed.

Currently, Denmark is the only country which has a law stipulating environmental reports (Holland has similar rules, but not as stringent). This new law, passed in 1996 (Rikhardsson, 1996), obliges companies to keep track of 'how much sewage, smoke, industrial garbage and other polluting material they leak out into nature' (Tranberg, 1998, p.1). Austria and Sweden are two other countries where mandatory reporting may soon become law, and these moves are fuelling a debate among governments, business, and academics. Brophy and Rikhardsson (1997, p.38), in describing this debate, state:

> A central issue, however, in the current debate on environmental reporting is that, given the importance of environmental problems, and industry's role in creating these, should the disclosure of environmental information to the public be made obligatory be law (p.38).

This question is answered if comparison is drawn between the mandatory reporting of financial accounts and environmental performance (Brophy, Netherwood, & Starkey, 1995), and, to date, companies have shown reluctance to report environmental information (UNEP, 1994; UNEP-SustainAbility, 1996, & 1997). If the public is to become fully aware of a company's actions, which is a requirement for sustainable development, then some form of mandatory environmental reporting is inevitable.

3.7 The stakeholder challenge.

As the links between business and environmental degradation have become ever more apparent, so too has the pressure increased on business to communicate to the public its environmental performance information (Elkington, 1994). In a report completed by Deloitte Touche Tohmatsu, 'Coming Clean' (1993), it was found that, increasingly, companies were not prepared to handle the numerous requests for environmental information from the various stakeholders of the organisation. In response, many organisations are using the Corporate Environmental Report as a means of communicating this information to their stakeholders. However, as research points out, whether the stakeholders are receiving the correct information is a major issue for an organisation (Azzone, Brophy, Noci, Welford, & Young, 1997).

It is important to define exactly what a stakeholder is. Two definitions can be put forward, both of which are very similar, yet they both highlight different aspects of what a stakeholder is and what they can do. Firstly, a stakeholder can be defined as:

> ... persons or groups, that have or claim, ownership, rights, or interests in a corporation and its activities, past, present, or future (Clarkson, 1995, p.92)

In this definition by Clarkson, the huge scope of what a 'stakeholder' is, is made very clear. Overall, it is anybody that has some connection to an organisation. Importantly, Clarkson's definition also includes the activities of the corporation in the future, so therefore, the concept of a stakeholder is not a static myopic concept, instead, it is a very dynamic concept.

To further the concept of what a stakeholder is, Wheeler and Sillanpaa (1997, p.167), put the following forward as a definition of a stakeholder:

> Stakeholders are individuals and entities who can be influenced by, or can impact, an organisation

Wheeler and Sillanpaa's definition emphasises the two-way communication that occurs between orgnisations and their stakeholders because it alludes to the fact that organisations can influence stakeholders, and conversely, stakeholders can impact on organisations. These two statements are important when considering the role of a Corporate Environmental Report. Firstly, the report can be used to inform and influence stakeholders, and secondly, the reaction of stakeholders to the content of the report can impact positively or negatively on the organisation (Grafe-Buckens & Hinton, 1998).

Using Clarkson's definition, and Wheeler and Sillanpaa's, it can be seen that with any organisation there is going to be a wide range of stakeholders, and in certain situations, some may be more powerful than others. In a paper on environmental stakeholders by Azzone, Brophy, Noci, Welford and Young (1997), a list of environmental stakeholders has been derived from a comprehensive list of general organisational stakeholders. This list includes:

> Academia, Employees, Environmental non-governmental organisations, Financial community, Local community, Regulators and policy makers, Shareholders, and Trade and industry' (Azzone et al., 1997, p.701).

Azzone et al. (1997) chose these stakeholders on the basis that:

1. An organisation can realistically identify these stakeholders and provide information for them, which allows an organisation to manage its communications more effectively.
2. All eight stakeholder groups can be demonstrated to have a continued interest in the environmental performance and impacts of the organisation.
3. At one time or another, each of the eight have expressed a need or interest in information pertaining to the environmental performance of companies.

However, as can be seen from the list, the range of stakeholders and the range of information that they require is quite vast, and this poses a problem for report writers.

With these groups in mind, it is important to return back to the second definition of a stakeholder. Wheeler and Sillanpaa (1997) state that a corporation can influence its stakeholders, and this suggests that stakeholder involvement should be a deliberate and planned process. Grafe-Buckens and Hinton (1998) suggest that stakeholder communication can be termed under the name of Environmental Stakeholder Initiatives, or (ESIs). An ESI can be defined as:

> all activities undertaken by a company to increase the communication with or involvement of a stakeholder in environmental issues relating to the company and its business practices (p.125).

The authors state that ESIs can assist in identifying, developing and resolving many of the key environmental management issues for an organisation, they are an effective method for an organisation to gather real information from their stakeholders, and they also allow for buy-in from the stakeholders. Therefore, in terms of business' role in the environment, ESIs would seem to be very useful in communicating with the stakeholders.

Grafe-Buckens and Hinton go on to state that ESIs can be divided into three main categories: informing, consulting, and, participative. Environmental reporting comes under the informing methods of ESI, and Grafe-Buckens and Hinton outline the main purpose and issues associated with this style of ESI.

Firstly, they state that the primary concern of informative ESIs is to increase the stakeholders' understanding and image of the company by providing them with information on their environmental corporate policy and the company's environmental performance (Grafe-Buckens & Hinton, 1998, p.127).

Secondly, Grafe-Buckens and Hinton list some of the reasons given by businesses for not engaging in ESIs, and these are important when considering the content and style of environmental reports. These are:

- [ESIs] advertise the company's weaknesses and environmental problems to the general public and their competitors;
- [ESIs] expose the company to legal liabilities;
- [ESIs] are expensive to undertake in terms of labour, time and other resources and often difficult to manage;
- [ESIs] are unpredictable in their outcomes and benefits (they can damage the company's public image and result in a loss of public confidence in the company);
- [ESIs] rely on company and stakeholder commitment, interest and involvement

From Grafe-Buckens & Hinton, 1998, p.130

Therefore, as can be seen from the discussion, communication with stakeholders is a very important, but extremely difficult organisational operation. In terms of environmental reports, if they are to be beneficial to both the organisation and the stakeholders, their content and delivery are vitally important.

3.8 Making reports relevant for stakeholders

In Bill Birchard's paper on the relevance of environmental reports (1996), he quotes the retiring Division Vice President of Health, Safety and Environmental Affairs at Polaroid Corporation, Harry Fatkin, as saying that of all the plaudits for their environmental reports, few have come from the financial community. Fatkin goes on to say that until Polaroid can 'dollarize' environmental performance, 'it's not real. It's not in their world' (Birchard, 1996, p.79). What Birchard and Fatkin have illustrated is a major problem for environmental reports: making them relevant and useful to the stakeholders and intended audience. (Polaroid is noted as publishing the first official Corporate Environmental Report in 1989 (Lober, Bynum, Campbell, & Jaques, 1997).)

Stefan Schaltegger, in an account on the relevance and usefulness of 'ecological reports' (Corporate Environmental Reports) further defines this issue by stating:

> Therefore, the benefit is determined by its decision usefulness and its ability to help to efficiently allocate resources, and also by better relationships to stakeholders, or by improvement in competitive advantage (Schaltegger, 1997, p.92).

Here, Schaltegger addresses a number of issues; firstly the democratic decisions made for resource allocation (sustainable development), stakeholder relationships (ESI), and competitive advantage (direct results from reporting). However, all three of these aspects revolve around the same issue, informing your stakeholders. Schaltegger addresses this fact, and as an answer, he puts forward the idea that environmental reporting and accounting needs to be comprehensible, relevant, reliable and comparable (Schaltegger, 1997, p.92).

These four aspects, which in this case will be addressed in terms of environmental reporting, were derived from the International Accounting Standards Committee's 'International Accounting Standards' document (1994, p.42) and adpated from Schaltegger (1997, p.92-94)

Comprehensibility.

To increase the benefits of an environmental report, the information contained should be readily comprehensible to the users. The information should also be interpreted, or at least presented, in relation to other industry members. This can be done by benchmarking.

Relevance.

The environmental information contained in the report must be relevant to the user (reader). This is affected by the information's nature and materiality (prospective impact). Information is regarded as material if its omission or mis-statement could influence the decision and response of users.

Reliability.

This implies that the environmental performance information is of a minimum quality; however, currently this is very hard to judge because of a lack of standards in environmental reporting and accounting. The information also needs to be neutral, because bias makes the report unreliable. Both qualitative and quantitative information needs to be given.

Comparability

Report users must be able to compare reports of an organisation over time in order to identify trends in performance (longitudinal comparison). Furthermore, readers should also be able to compare reports between different organisations (cross-firm comparisons). Therefore, the reports need to be consistent, which is a present issue because of the many different reporting guidelines and the lack of reporting and accounting standards.

These four reporting (and accounting) parameters provide a sound background for environmental reporting if reports are going to increase their usefulness to stakeholders and the reporting organisation (Schaltegger, 1997).

Interestingly, Azzone et al., in their paper on environmental stakeholders, refer to these same four parameters (without reference to the IASC); however, in this case they are labelled as the 'four pillars of environmental reporting' (Azzone et al., 1997, 700). Azzone et al. state that

absence of any one of these pillars will result in a flawed document. The usefulness of Azzone et al.'s work is that they have begun to discuss the information needs of each environmental stakeholder group, in terms of content and the format of the data. From this research they have shown that there is a large discrepancy between the needs and expectations of the different stakeholder groups.

For example, Azzone et al. (1997) state that from interviews with the academic and employee stakeholder groups, academics require information that enables them to compare the organisation's performance over time, and information that allows them to benchmark the performance within and between industries. This is compared to the employee stakeholder group which identified participation, education, responsibility and accountability, and transparency of decision making as the most important areas of environmental reporting. What Azzone et al. have identified are areas of 'information asymmetry': different stakeholder groups (including the reporting organisation) require different types of information (Schaltegger, 1997, p.89).

3.9 What are stakeholders wanting in Corporate Environmental Reports?

As discussed, to fully realise the benefits from a Corporate Environmental Report, the stakeholders' information needs and expectations must be met, otherwise there is a performance gap between the stakeholders and the business, which may affect the organisation. Although, Azzone et al.'s research has begun to investigate exactly what each of the stakeholder groups are wanting in terms of content in environmental reports, there has been little research into what stakeholders see as important in environmental reports.

In terms of the environmental reporting guidelines put forward by a number of organisations (discussed previously), there has been a degree of stakeholder consultation to decide on the report contents (CERES, 1998). In particular, the work by UNEP-SustainAbility on reporting ingredients has been focused on stakeholder needs and expectations, which has drawn largely on other reporting formats writers' consultations with stakeholders (UNEP, 1994).

One excellent example of research and consultation with an organisations stakeholders, in this case, it is the IBM UK's 'Consulting the Stakeholder' report (1995). IBM identified the fact

that environmental reports need to be focused on the information needs of the stakeholders if the reports are to be successful, and from this, they set out to research what their stakeholders were wanting in a report. The report contains this very powerful statement from Sir Anthony Cleaver relating to stakeholder involvement:

> ...to obtain and retain its licence to operate, every business requires the consent of a range of interested parties - the stakeholders (Cleaver; cited in IBM, 1995, p.4).

From consultation with its stakeholders, IBM (1995, p.5) identified the ten following environmental report content areas, and these are listed in order of importance:

1. Environmental management
2. Information Technology in pursuit of sustainable development
3. IBM's product stewardship
4. Environmental aspects of IBM's customer relations
5. IBM and suppliers' environmental performance
6. Energy
7. IBM's global environmental responsibilities
8. Transport
9. IBM's commercial activities
10. IBM's manufacturing activities
11. IBM's influence on environmental attitudes

From these results, IBM developed a set of environmental performance profiles around these ten content areas, and IBM lists the following advantages and benefits from using this approach:

1. Independent assessment of environmental performance;
2. Re-prioritisation of reported subjects;
3. Greater objectivity in the reporting approach;

4. A management tool for assessing costs and benefits in relation to the stakeholder priorities;
5. An effective reporting format;
6. And, future applications and development for the IBM's Environmental Performance Profiles.

Overall, IBM provides an environmental performance benchmark against which future reports and environmental performance can be compared. Thus ensuring that the stakeholders are receiving the information they require, the information is a mix of qualitative and quantitative information, and the information supplied will be comprehensible for the stakeholders since they themselves identified the content areas. Thus, the report fulfils the four reporting pillars of Azzone et al. (1997) and Schaltegger (1997).

3.10 How has reporting developed?

The discussion thus far has focused on defining the meaning and content of corporate environmental reports, and a large amount of variation between definitions and content can be observed. It is important to note that corporate environmental reporting is still in a developmental stage; nevertheless, environmental reporting has developed since its inception, and it is important to document this progress.

The first environmental reports were published in the 1970s under the social reporting title, and they included both social and environmental issues within them (Ernst & Ernst, 1978; Ng, 1984). However, due to other pressures, such as mandatory financial accounting, social reporting was abandoned, except by a few individual organisations (Azzone et al., 1996). However, in the late 1980s and early 1990s environmental reporting and accounting had a resurgence, due to the environmental and societal pressures already discussed.

In Azzone et al.'s paper on 'Evolutionary trends in environmental reporting' (1996) the reports from 14 firms were analysed between the period of 1991 and 1994. In particular, the study focused on the types of environmental measures, operating environmental costs, and the physical data included in the reports. From the analysis of these content areas, trends were observed in the development of the reports from 1991 to 1994.

Firstly, it was found that there was little difference between the classes of environmental measures, prevention costs and investment, physical data, and operating costs areas. Prevention costs and physical data were found to be extensively reported on throughout the set of reports. In comparison, operating costs were not included in 50% of the reports throughout the reports from 1991 to 1994. The survey also highlighted that reporting on contingent liabilities was virtually non-existent. However, from the analysis, it was found that compliance reporting greatly increased between 1991 and 1994. Azzone et al. (1996) briefly discuss the findings, stating that the areas reported on in more detail are the areas that are easy to report on, rather than areas such as contingency costs where accounting methods have not been developed.

The research went on to analyse the measures used within each of the classes, with particular attention to the operating environmental costs measures, because, overall, the reports had performed poorly in this section. The survey found that the majority of reports that included these measures had only commented on the costs of implementing the environmental management system, and there was very little comment on factors such as clean-up costs, environmental taxes, and costs for recycling and waste disposal.

In the research it was also noted that all of the reports were including information on physical data measures to some extent. In detail, the physical data section was divided up into four categories: emissions, noise, consumption, and wastes. Here it was found that all of the reports were extensively reporting on air and water emissions. This is compared to the areas of noise, water, soil, and dangerous substances where there was little reporting occurring. However, the research did identify that reporting in these content areas was developing in terms of the standards of measures being used. Overall, the research concluded that there was a general evolution towards more detailed data, probably due to the growing concern for environmental performance from the public (ibid.).

In general, the research concluded that there was a general lack of standardisation in all areas of reports, and the researchers gave three reasons for this; lack of requirements from governments and regulators, the multi-dimensionality of environmental variables, and the different information needs between stakeholders (Azzone, et al., 1994, p.228).

The '100 plus corporate environmental report study' conducted by Lober, Bynum, Campbell and Jacques (1997), focused on 108 corporate environmental reports published by US companies. From the research a number of interesting aspects were identified. Firstly, there was a large difference between the amount of qualitative detail included compared to quantitative data. In fact, the research noted that 16% of the reports were devoted to pictures, compared to the 10% given to quantitative data. This can be compared back to the poor quantitative performance noted in Azzone et al.'s study.

The research also noted that the reports surveyed were very poor in conveying the development and evolution of their environmental management systems, policies and performance over time, and instead, the reports constituted mere snapshots of the environmental aspects of the organisations.

In terms of formats followed, it was clear from the research that few of the reports followed any of the numerous reporting guidelines that existed at the time. It was noted that a small number (14) were following the CERES (1998) and PERI (1993) guidelines. The research also noted that many of the reports included aspects of the management policies and systems, input/output inventory, and stakeholder relationships sections of the UNEP-SustainAbility 50 reporting ingredients (1994 & 1996). The research also reflected the fact that the financial and sustainable development sections of the reports were non-existent or very minimal.

In terms of the topics and content of the reports included, many of the same issues of Azzone et al.'s research were reflected. Again, the areas of environmental performance summaries, corporate policy statements, waste reduction, monitoring, auditing, and continuous improvement were given a higher coverage than areas like product stewardship, life cycles, global issues and risk reduction.

Importantly, Lober et al.'s research focused on the intended audience of the reports. Employees were the most frequently cited group (82%) that the reports were aimed at, followed by the shareholders (74%). Environmental groups, local community, general public, media, and schools all featured in less than 50% of the intended audiences. From this, it was concluded that most reports were not aimed at any specific stakeholder groups, and instead,

followed the 'smorgasbord approach' (Lober et al., 1997, p.64). Also noted in the research was the lack of commitment and reference to sustainability in the reports and their policy statements, only 12% referred to this concept.

Overall, Lober et al (1997) concluded that because of the lack of consensus and standardisation in environmental reporting, the surveyed reports varied greatly in their content and usefulness. Lober et al (1997) concluded that over the last five years there has been an improvement in the organisation of the information, the quantification of environmental impacts, the reporting of the link between reporting and environmental management, and an increase of stakeholder dialogue with the corporation. However, these improvements are offset against the extremely poor linking of environmental issues into the overall business operations, and the lack of development toward reporting on sustainable development.

The patterns found in both the Azzone et al.'s research and the Lober et al investigation have been seen in other surveys of environmental reporting and environmental disclosures (Stanwick & Stanwick, 1998; Rikhardsson & Ulhoi, 1996; Niskala, 1995). Of particular interest is Deegan and Gordon's (1996) research into environmental disclosures of Australian Corporations. Here they found that where companies had more environmental lobby groups concerned about their actions, there was a higher degree of environmental disclosure, both positive and negative.

So far these surveys have focused on the reporting in single countries, and clear trends can be observed in terms of the increased focus on environmental management content areas, a disproportionate reporting of qualitative information compared to quantitative data, and an apparent lack of commitment towards sustainable development.

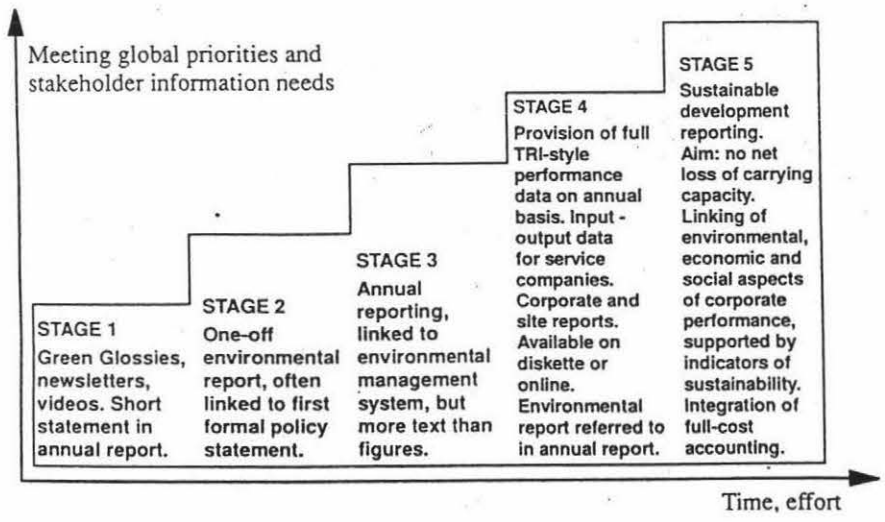
3.11 International Surveys of Corporate Environmental Reporting

On an international level there have been four surveys of environmental reporting that stand out. The first three were completed by the United Nations Environment Programme in conjunction with SustainAbility (1994, 1996, & 1997), and the fourth was completed by The International Institute for Industrial Environmental Economics at Lund University, Sweden, in conjunction with KPMG Bohlins Environmental Advisors (1996).

The first UNEP-SustainAbility survey was completed in 1994, and was titled 'Company Environmental Reporting: A measure of the progress of business and industry towards sustainable development (1994)'. UNEP-SustainAbility views Corporate Environmental Reporting as the primary channel for environmental communications, and from this, UNEP-SustainAbility see reporting playing a 'key role in driving the transition of companies, industries, and indeed economies towards the ultimate goal of sustainable development' (1994, p10). Therefore, UNEP-SustainAbility felt it was important to collect information of the state of reporting in 1994, so that reporting development and performance could be compared and benchmarked in succeeding surveys.

Firstly, UNEP-SustainAbility have defined the different stages of Corporate Environmental Reporting into 5 stages, or quintiles. These quintiles were first described in 'Coming Clean'(1993), and the quintiles are shown in Figure 1. They range from Green Glossies right through to sustainable development reporting. The quintiles are designed as a grading system to assess environmental reports against these quintiles, in relation to the content of the reports under review. To complete this content analysis, UNEP-SustainAbility use their 50 environmental reporting ingredients as the variable to measure the reports against.

Figure 1. Stages in corporate environmental reporting.



From UNEP, 1994, p.18

From this survey, UNEP-SustainAbility found that in 1994 the majority of reports were placed in the 2-3 range, with some reports moving into the fourth quintile (eg. The Body Shop); however, 25% of the reports were sitting in the first stage of reporting. Overall, UNEP-SustainAbility found that the reports were focusing on the environmental management systems content areas, and there was little commitment or discussion of financial data and sustainable development. The survey also compared reports on a regional basis and found some interesting results. Firstly, the reports from North America tended to have comprehensive details of environmental emissions and discharges, and UNEP-SustainAbility concluded that this was due to the Toxic Release Inventory legislation that had been introduced. UNEP-SustainAbility also noted that the high profile companies in the oil and chemical industries had all produced environmental reports, which mainly focused on a commitment from senior management and a large amount of statistical emission data.

Within Europe, UNEP-SustainAbility found that there was a large variety of levels and styles of reporting. It was concluded that this was due to the differing legislation between countries, and the level of stakeholder expectations.

Overall, UNEP-SustainAbility found that the companies who were the most visible in terms of their environmental impacts, such as the petrochemical and chemical industry, were the companies reporting. In many regions, the range of reporting companies did progress beyond these industries, and there was an apparent lack of service industries companies reporting, such as the banking and finance sectors.

In the 1996 survey of 100 environmental reports from around the world, UNEP-SustainAbility noted that environmental reporting had changed markedly, and there were more companies in the stages 3 to 4 of the reporting quintiles. In reaction to this improvement, UNEP-SustainAbility up-dated the quintiles, to only focus on the 3rd, 4th and 5th quintiles. Stage four was divided in Quantity, Quality and Comparability to help distinguish between the reports in stage 4. Stage 5, sustainable development reporting, was also opened up, this time to extend the implications of the triple bottom line (UNEP-SustainAbility, 1996, p.23) to include the Company's Triple Bottom Line of Responsibility; the Governments Triple Bottom Line of Accountability; and the Markets Triple Bottom Line of Sustainability. Essentially, the

three sections of the 5 quintile indicate what will be required of government and the market, as well as the company to meet sustainability (ibid.).

The triple bottom line consists of the social, economic and environmental aspects of sustainable development, and each of the 3 sections of stage five reflect these aspects from a company perspective. Firstly, the report must show responsibility by reporting on the environmental, financial and the social aspects of the company in a standardised and global manner. Secondly, the report must be accountable, in terms of social and environmental accounting methodologies and mandatory reporting frameworks. Lastly, the report must reflect true sustainability, with full information on consumptive decisions and a balance between the rights and needs of shareholders, consumers and citizens.

As well as the further refinement of the reporting quintiles, the survey also further developed its report content analysis techniques. Using a new set of 50 reporting ingredients, UNEP-SustainAbility developed a scoring system to compare each report against each of the ingredients in terms of the level of comprehensiveness the reports had reported to. Overall, a report could now score a total of 194 for the 50 reporting ingredients. Based on this scoring system, UNEP-SustainAbility ranked the 40 reporting companies that were placed in stage 3 to stage 5 of the quintiles. Using this system, the survey found some striking results.

Firstly, it was apparent that there was an improvement in the level of reporting throughout the whole sample. While some companies had stayed in the same quintiles, many organisations were now entering stage 4 of the reporting quintiles. The survey also identified another set of trends in terms of the coverage and comprehensiveness of reporting in the 5 categories of the 50 reporting ingredients (UNEP-SustainAbility, 1996).

Secondly, the surveyed reports were scoring the highest in the Management Policies and Systems section of the report, with an average score of 45%. Within this category, there was also a large variation between reports, where one report scored 39 out of the maximum, compared to 8 from another report.

In the second UNEP-SustainAbility category, Input/Output Inventory, the average report score was 43% of the maximum score, and there was less variation in the scores for this section.

Again, the majority of the companies that scored the highest in this section belonged to the set of industries that have high environmental impact.

The third category, Finance, reflected the results from the numerous other surveys, where reporting on the environmental financial aspects of the company was very poor. On average, the reports only scored 26%.

In regards to stakeholder relations, the performance was slightly better, with an average score of 40% in this category.

Finally, the category of sustainable development was the lowest scored section of all the reports. Overall, the range of scores was very narrow, with only two reports passing the 10 out of 20 mark.

Overall, UNEP-SustainAbility identified an overall agenda in reporting throughout the world, including the increasing importance of stakeholders, the ongoing development of appropriate accounting practices, the link between company performance and company value, an increasing exploration of sustainable development issues, moving away from the environmental management focus (UNEP-SustainAbility, 1996, p.41)

In general in the 1997 survey, UNEP-SustainAbility found that companies were beginning to develop on the financial and sustainable development aspects of reporting. However, overall, there was not a huge increase in the scores of the reports from the previous years. One trend that UNEP-SustainAbility did notice was the increase in the reports being externally verified. In the 1994 survey only four reports were verified, this is compared to the 28 in 1997. .

Another important finding was that in many cases, the report scores were not as high as the previous year's results. Although, the top scoring report was 2 points above the previous year's top score, and overall averages for scoring has decreased, except in one reporting area; sustainable development. This drop in scoring may have something to do with the level of effort needed to keep consistently reporting to a very high level, and the fact that some companies are beginning to develop other areas which they see as important and specific to their industries.

However, the most important finding of the survey was the comparison between reports which followed the CERES, International Chamber of Commerce, and the Global Climate Change reporting guidelines (Elkington, Kreander, & Stibbard, 1998). The survey found that the companies that followed the CERES reporting guidelines scored the highest, and the authors of the survey noted that CERES was the 'greenest' of the reporting frameworks (Elkington, Kreander, & Stibbard, 1998, p.106).

In all three of these surveys, there has never been a New Zealand Corporate Environmental Report, although New Zealand was included in the KPMG International survey of 1996.

The goal of the KPMG survey was to assess the extent and scope of environmental reporting among the world's leading companies. Overall, the KPMG survey mirrored the other environmental reporting surveys, by finding that the sample reports were reporting in greater detail on the environmental management systems, and emissions and discharges aspects of their companies. The survey also noted that the heavy industries had the higher incidence of reporting. However, the most important aspect of the survey, in terms of this research, was the comparison of reporting between countries.

The survey found that 71% of the surveyed annual reports included the environment in some form. Of note, 95% of Norwegian reports, 86% of North American reports, and 76% of UK reports included the environment. This is in comparison with 39% of the New Zealand annual reports mentioning the environment. When comparison is made between the number of separate environmental reports published countries, again New Zealand came last, scoring 0%, compared to 31% in Norway, 43% in the USA, 27% in the UK, and 6% in Australia.

3.12 The New Zealand Situation

There has never been a New Zealand report included in any of the UNEP-SustainAbility surveys, and, judging from the KPMG International survey results of 1996, it would seem that Corporate Environmental Reporting is not occurring in New Zealand. However, this is incorrect, and KPMG New Zealand has been sponsoring and judging an Environmental Annual Reporting Award since 1995.

The KPMG awards are judged on 7 criteria (Gilkison, 1997) -Policies; Profile; Plans and priorities; Procedures; Performance; Proof; Proposals- with the reports being scored out of 100. In the five years that KPMG has judged the awards, there has been an improvement in the reporting by the companies that have produced the reports, however, this number is still very small.

The judges of the awards have noted that New Zealand companies have been extremely slow to implement and improve on environmental reporting, especially when New Zealand reporting is compared to overseas development in the area. Overall, the awards have noted that the industries that have a big impact in New Zealand, such as the tourism, chemical, and energy industry, are failing to recognise and acknowledge the impacts that they are having.

From the awards, it has been noted that in the companies that are reporting, there is a variety of reporting methods being used (Gilkison, 1997). For instance, one report was using the 'eco-balance' approach, quantifying, in a limited way, its inputs and outputs in its operations (New Zealand Refining Company). Other reports have developed comprehensive environmental performance indicators (EPIs) that enable the company to benchmark its performance in the future, and also allow the reader to develop an appreciation of their environmental performance (Electricity Corporation of New Zealand, 1996).

When the reasons for relatively poor environmental reporting in New Zealand are considered, several issues need to be addressed. The Resource Management Act (1991) may be the main driver behind environmental management, and companies feel that they do not need to extend their environmental management systems beyond that. New Zealand companies may be not be performing to the 'clean and green' image that New Zealand portrays internationally, and therefore, to report this poor performance would be embarrassing and possibly damaging for a company. Or, it could be that New Zealand stakeholders do not put the level of pressure for information and accountability on companies that occurs in other nations. These are issues which all need to be answered.

If the New Zealand government was to introduce legislation for mandatory reporting, as stated in the introduction, what would it base its criteria of reporting on? Currently, New Zealand

reports have only once been included in an international survey (KPMG, 1996), therefore, there is a lack of information regarding how we compare to international reports. Comparisons between New Zealand's reports are also minimal, and based on extremely broad and general topics, leading to a lack of information pertaining to the actual content being published in current New Zealand reports.

CHAPTER 4: RESEARCH RESULTS

The UNEP-SustainAbility 50 environmental reporting ingredients were used extensively in this research, however, in displaying the results, only particular ingredients will be discussed. The results have been grouped in the 5 categories that the 50 environmental reporting ingredients fit under.

The UNEP-SustainAbility reporting ingredients can be grouped into 5 categories, with each being denoted here by a Roman numeral.

I Management Policies and Systems
II Input/Output Inventory
III Finance
IV Stakeholder Relations and Partnerships
V Sustainable Development

These categories were used as the main unit for comparing the New Zealand and international reports, and Table 1 below, outlines the method of tabulating comparisons of report content.

Table 1. Example of a table used in comparing the content of the sample reports.

Section	I	II	III	IV	V	Total
Total possible score	45	72	17	40	20	194
NZ sample Avg %						
International Avg %						

As noted above, each of the reporting content categories are indicated by a Roman numeral, and these are also used in each of the tables. Included under each category is the total possible score that a report can achieve in this category. These totals are uneven because of the uneven number of separate reporting ingredients covered by each category. The tables also include the percentage of the total that the reports scored on average; for example, if the reports scored on average 30 out of the possible 45 points for the first reporting category, the

percentage scored for that category would be 66%. This comparison is also extended to the international averages published by UNEP-SustainAbility.

4.1 Report content analysis.

This section of the research focused on identifying the similarities and differences between the four sample New Zealand Corporate Environmental Reports taken from the 1996 KPMG New Zealand reporting awards. Each report was compared to the UNEP-SustainAbility scoring system, which includes the 50 environmental reporting ingredients.

Throughout this results section the New Zealand reports will be abbreviated as:

Watercare Services Limited	Watercare
Tasman Pulp and Paper	TP&P
The Electricity Corporation of New Zealand	ECNZ
The New Zealand Refining Company	NZRC

Table 2. New Zealand report scores for each of the UNEP-SustainAbility reporting ingredient categories.

Section	I	II	III	IV	V	Total
Total Possible Score	45	72	17	40	20	194
NZ Sample Average %	36%	23%	9%	20%	14%	23%
Watercare	26	29	1	7	3	66
TP&P	19	12	3	12	3	44
ECNZ	12	12	1	12	4	41
NZRC	7	12	1	6	1	27

Note: I = Management Systems and Policies, II = Inputs/Outputs, III = Finance, IV = Stakeholder Relations, V = Sustainable Development.

Table 2 describes the score for each of the 5 reporting ingredient categories, and the overall score for each of the reports. For comparison, total possible score and average percentage score for each category have been included. Of note, is the similarity of scores in category III (Finance) and category V (Sustainable Development), and the overall low average percentage score for each of the categories. For the complete set of results for all 50 reporting ingredients, see Appendix 5.

Figure 2. Comparison of the sample New Zealand reports.

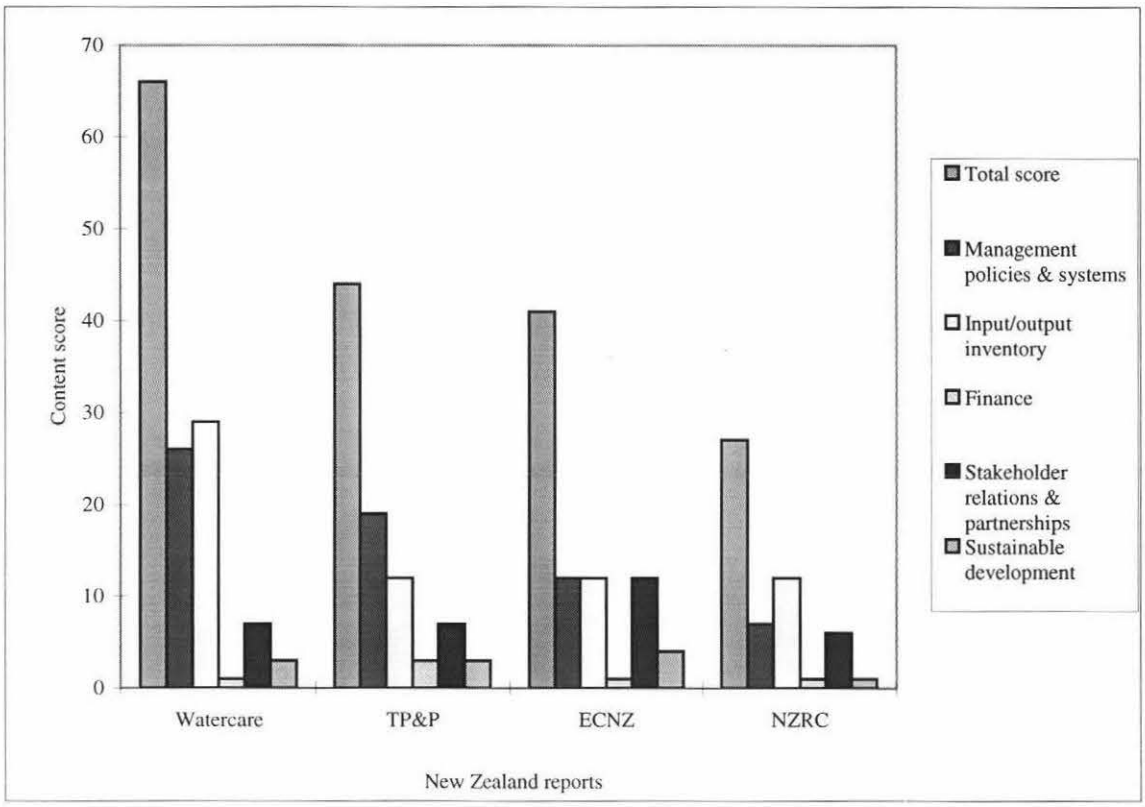


Figure 2 graphically represents the comparison of the four New Zealand reports for each of the five categories and the total scores for each report. As can be seen, there is a large difference in all reports between the first two categories of reporting ingredients and the last three.

As noted by UNEP-SustainAbility (1996), there are 20 essential reporting ingredients needed for a general environmental report. Table 3 below describes the extent to which each of the New Zealand reports performed in relation to these 20 ingredients. Overall, the scoring was low, with most scores (64%) in the 0 to 1 range.

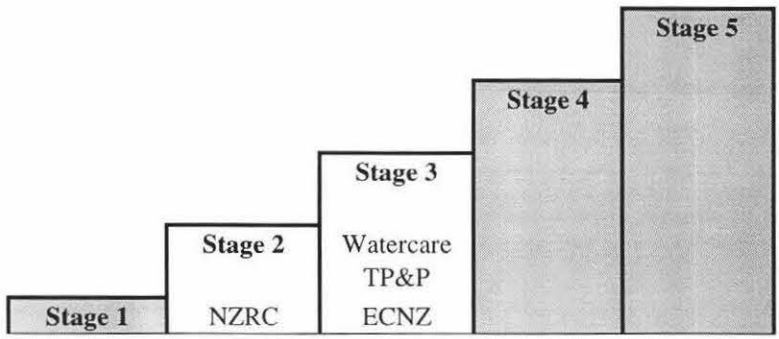
Table 3. New Zealand CER scores for each of the 20 essential report ingredients.

20 Essential ingredients	New Zealand sample report scores			
	Watercare	TP&P	ECNZ	NZRC
Environmental policy	3	2	1	1
EMS	3	2	1	0
Management responsibility	2	1	0	0
Legal compliance	4	2	4	1
Material use	0	1	2	1
Energy consumption	1	1	1	0
Water consumption	4	1	1	1
Health & safety	0	0	0	3
Accidents & emergency	2	0	0	1
Wastes	2	2	1	1
Air emissions	0	2	1	1
Water effluents	4	2	0	1
Product impacts	3	1	1	0
Environmental spending	0	2	0	0
Liabilities	0	0	0	0
Employees	0	1	1	1
Legislators & regulators	2	2	2	1
Local communities	1	1	2	1
Investors	0	0	1	0
Industry associations	0	0	0	0
Total	31	23	19	14
Average ingredient score	1.55	1.15	0.95	0.7

From Table 3, it can be seen that there is a large difference between the four reports in their average ingredient score (out of 4) over the 20 essential reporting ingredients. These average ingredient scores for the 20 essential ingredients can be compared to the overall average ingredient score for each of the four reports: Watercare, 1.35; Tasman Pulp and Paper, 0.87; Electricity Corporation of New Zealand, 0.81; and, The New Zealand Refining Company, 0.57. (These scores do not include the results from the two reporting ingredients, which can only score a maximum of 1).

Figure 3 shows each of the four New Zealand reports in relation to the 5 reporting quintiles described by UNEP-SustainAbility (1994, 1996). The Watercare report is in a transition stage, moving between a Stage 3 level report and a Stage 4 level report.

Figure 3. Location of the sample New Zealand CERs on the UNEP-SustainAbility Reporting Quintiles.



From UNEP-SustainAbility, 1994, p18

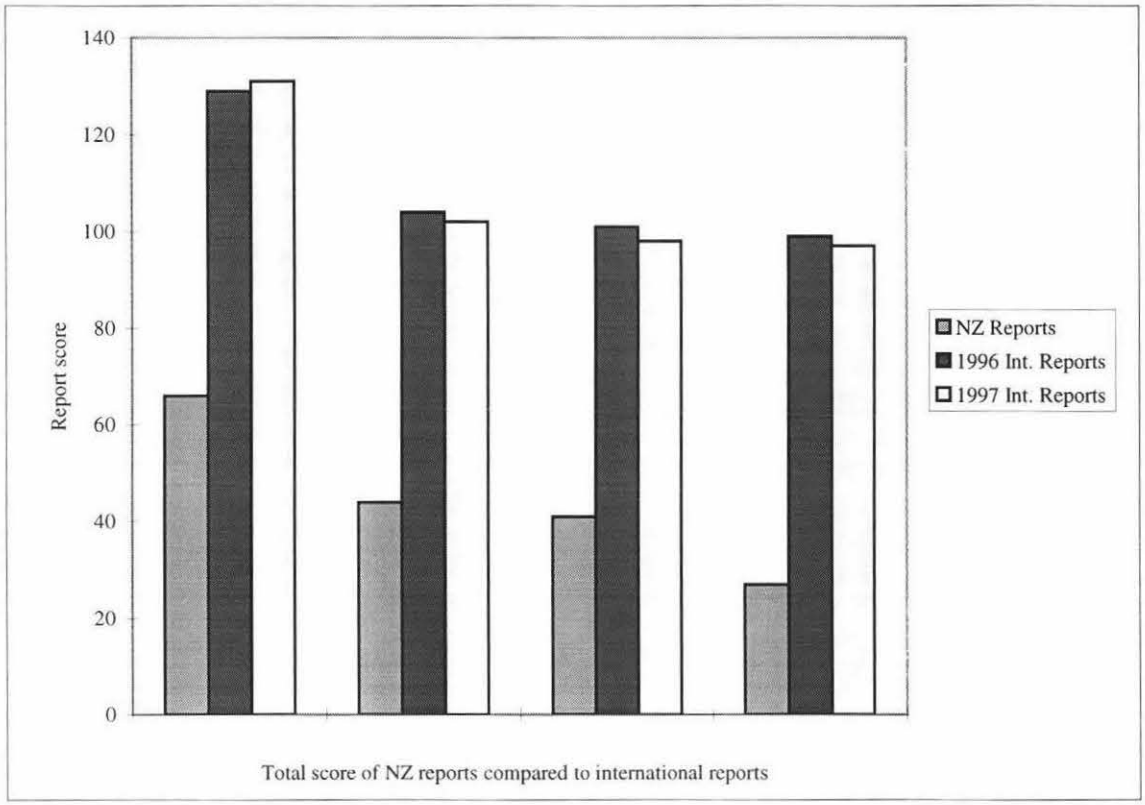
The position of each report on the quintiles was decided by comparing where reports from the UNEP-SustainAbility International Survey lay on the quintiles with regards to their overall report scores.

4.1.1 International Report Comparison

The objective of this section of the research was to investigate the similarities and differences between the sample New Zealand reports, and a sample of international reports. Again, the UNEP-SustainAbility scoring system and 50 environmental reporting ingredients were used.

The New Zealand reports were compared to both the four top Corporate Environmental Reports from each of the 1996 and 1997 UNEP-SustainAbility international report surveys. It is important to note that the UNEP-SustainAbility surveys included 100 reports in the sample. Figure 4 compares the total scores of each of the New Zealand sample reports, and the top four international reports from the 1996 and 1997 UNEP-SustainAbility surveys.

Figure 4. Comparison of total report scores between the New Zealand CERs, and the 4 reports from the UNEP-SustainAbility 1996 and 1997 international report surveys.



Note: 1996 international reports – The Body Shop, Phillips Petroleum, Monsanto, and Bristol-Myers Squibb. 1997 international reports – The Body Shop, Baxter, Neste, and Novo Nordisk.

Table 4 describes in detail, the scores of each of the four international reports in 1996, in relation to the New Zealand sample of environmental reports. Again, the 5 reporting ingredient categories have been used for comparison, including the International and New Zealand average percentage scores for each category, and the average percentage score of the top international reports, and the four top international reports. (Note: the surveys from which the data for the international reports were derived included 100 reports in the sample)

Table 4. Comparison between the sample New Zealand CERs and the top International CERs of 1996.

Section	I	II	III	IV	V	Total
Total Possible Score	45	72	17	40	20	194
International Avg %	45%	43%	26%	39%	19%	39%
International Top 4 Avg %	62%	62%	34%	56%	40%	56%
NZ Sample Avg %	36%	23%	9%	20%	14%	23%
The Body Shop	39	48	5	26	11	129
Watercare	26	29	1	7	3	66
Phillips Petroleum	25	47	5	24	3	104
TP&P	19	12	3	7	3	44
Monsanto	21	42	5	22	11	101
ECNZ	12	12	1	12	4	41
Bristol-Myers Squibb	26	41	8	17	7	99
NZRC	7	12	1	6	1	27

Note: I = Management Systems and Policies, II = Inputs/Outputs, III = Finance, IV = Stakeholder Relations, V = Sustainable Development.

Based on UNEP-SustainAbility, 1996, p.35

Of note is the fact that there are some areas of similarity between the New Zealand reports and the International reports, particularly in the areas of Management Systems and Policies where there is only a 10% difference, and Sustainable Development where there is only a 5% difference.

Table 5. Comparison between New Zealand CERs and the top International CERs

Section	I	II	III	IV	V	Total
Total possible score	45	72	17	40	20	194
International Average %	44%	38%	23%	36%	25%	37%
NZ Sample Average %	36%	23%	9%	20%	14%	23%
International Top Scores	33	47	14	30	12	131

*Note:*From UNEP-SustainAbility, 1997, p.8-9 I = Management Systems and Policies, II = Inputs/Outputs, III = Finance, IV = Stakeholder Relations, V = Sustainable Development.

Table 5 compares the sample New Zealand reports to the 1997 international average percentage, and the top score that was attained in each of the 5 categories. In 1997, UNEP-SustainAbility observed a decrease in the level of reporting, however, as can be noted in tables 4 and 5, there was an increase in the reporting of sustainable development issues between 1996 and 1997.

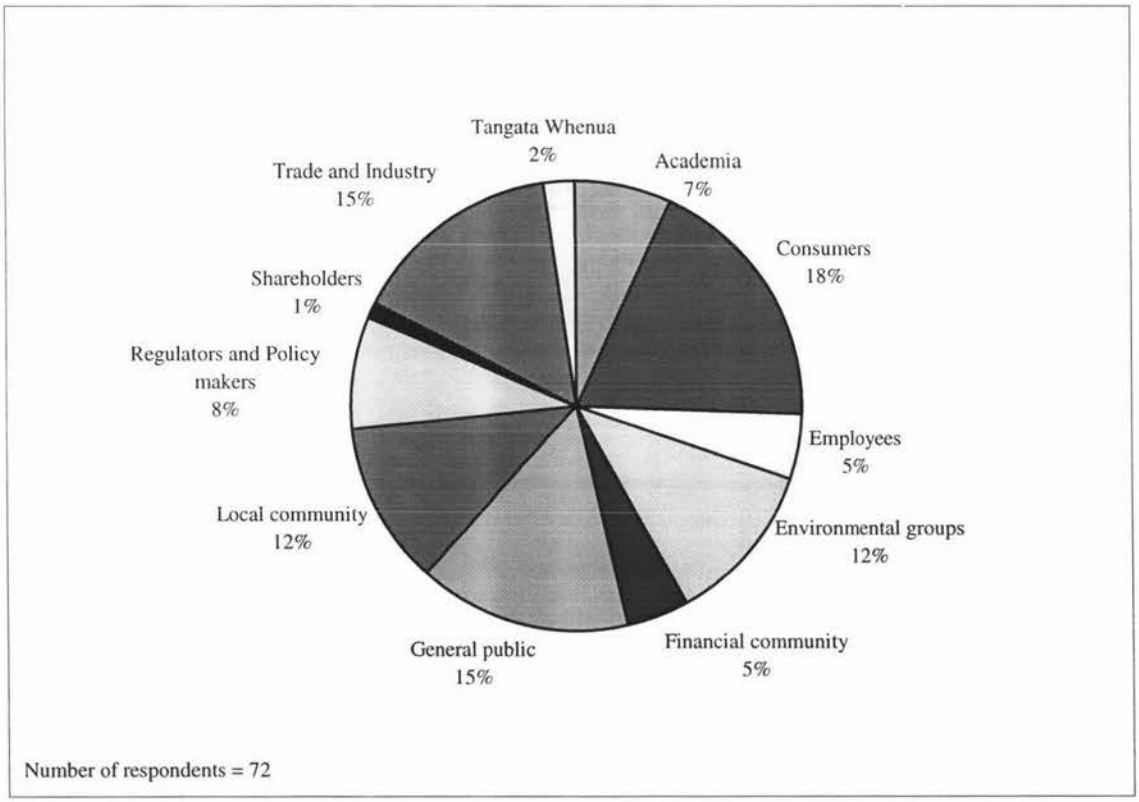
4.2 Stakeholder Analysis

This section of the methodology investigated the levels of satisfaction, and levels of expectation of a sample of stakeholders taken from one of the New Zealand reports. This analysis was conducted using a questionnaire (Appendix 3).

Out of the total sample of respondents (including the separate sample of 20 employees), of the 165 questionnaires administered, 72 were returned – 68 from the stakeholder list, and 4 from the employee sample; an overall response rate of 47.2%

Of the respondents, 17% responded on Personal Interest, 21% on behalf of an organisation, and 62% responded on behalf of Personal Interest and an organisation.

Figure 5. Percentage composition of stakeholder groups in respondent sample.



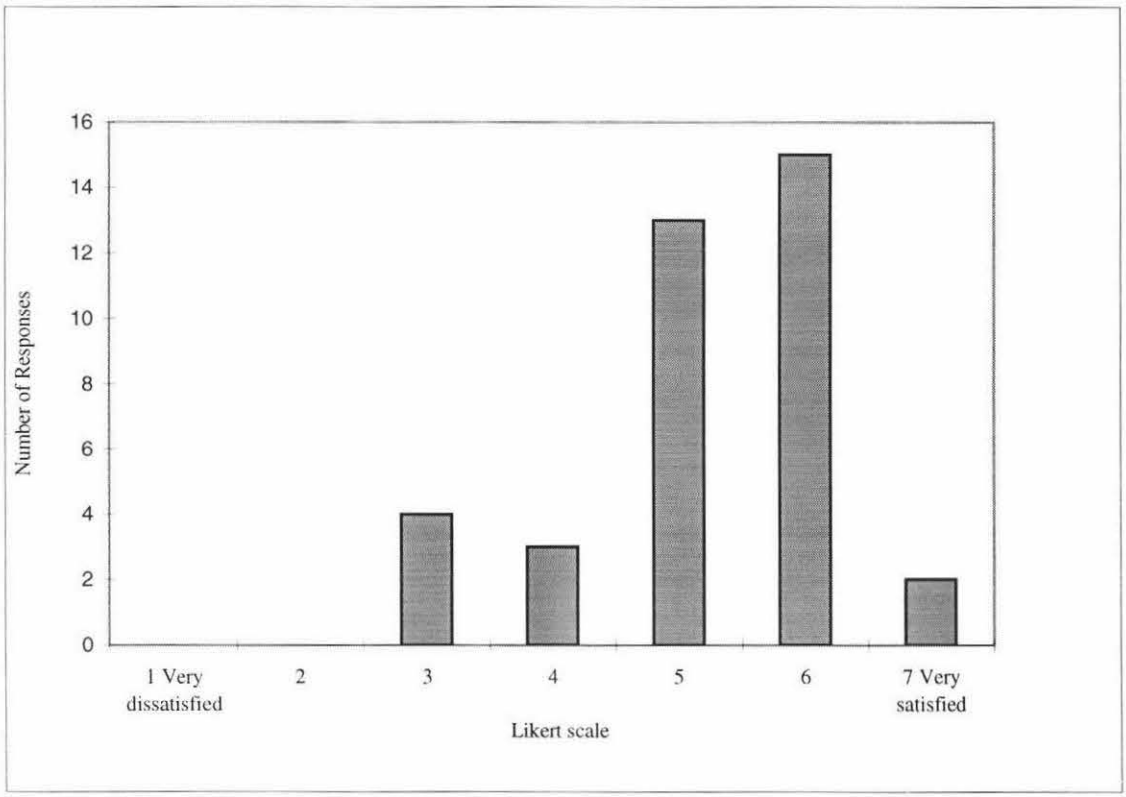
Question three of the questionnaire asked the respondents to indicate which stakeholder group of groups that they identified with. Figure 5 indicates the percentage of stakeholders indicated in the sample.

When asked if Corporate Environmental Reporting should become mandatory, 62% of the respondents indicated that they felt that environmental reporting should become mandatory, compared to the 38% who did not believe in mandatory reporting.

Section two of the questionnaire referred to the levels of satisfaction and comprehension towards Company A's 1996 annual environmental report. This section of the questionnaire was only to be answered if the respondents had read Company A's report. Of the 72 respondents, 39 (54%) stated that they had read the report.

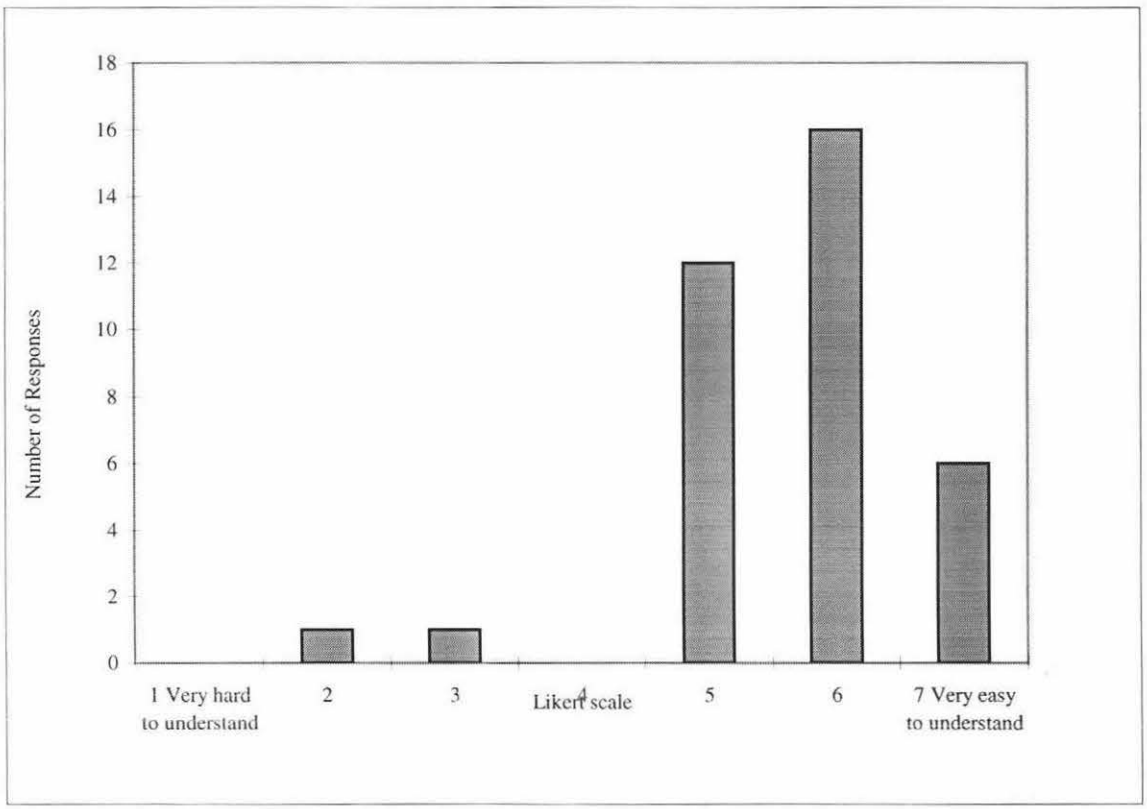
When the stakeholders were asked to indicate the level of satisfaction they felt towards the content of Company A's environmental report, the mean of 5.2 on a Likert scale of 7 was calculated. Figure 6 shows the exact distribution of response on the Likert scale.

Figure 6. Frequency distribution of responses to the content of Company A's report.



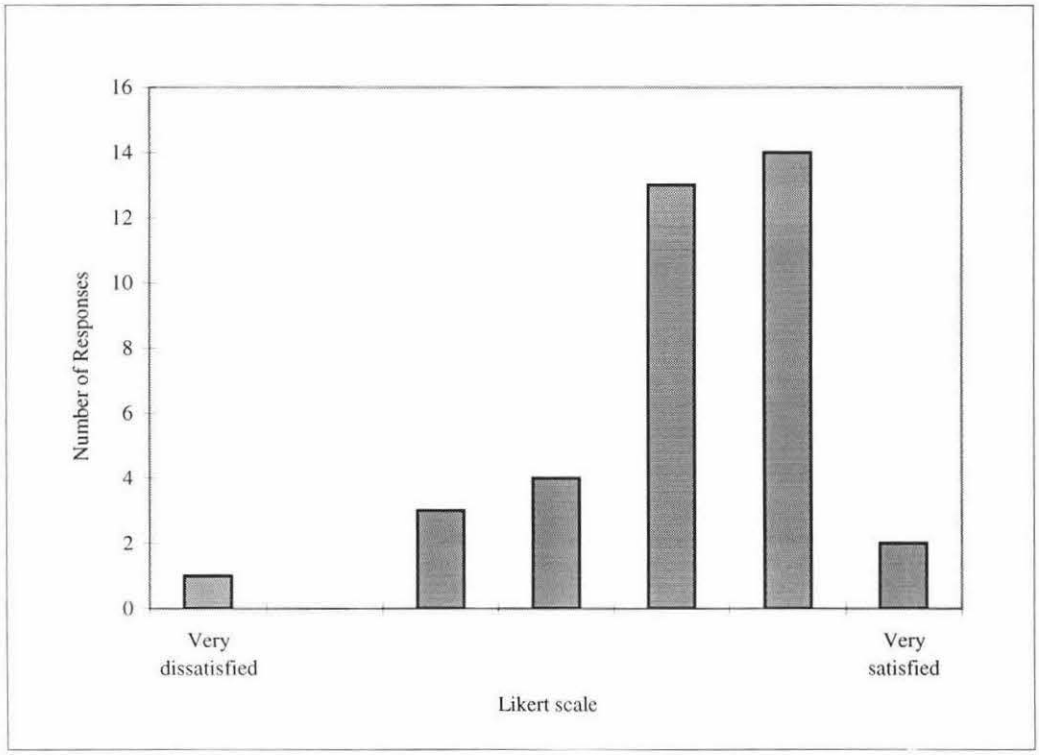
When asked how easy the environmental report was to understand the stakeholders responded with a mean response was 5.6 out of 7. Figure 7 details the exact frequency distribution of results.

Figure 7. Frequency distribution of responses to the comprehension of Company A's report.



In relation to the question regarding the levels of satisfaction with the overall environmental report a mean response of 5.2 out of 7 was gained. Figure 8 details the distribution of the response.

Figure 8. Frequency distribution of responses to the overall report.



4.2.1 50 Environmental Reporting Ingredients

Section three of the questionnaire asked the respondents to indicate on a 5-stage Likert scale the level of importance they would give to each of the 50 environmental reporting ingredients.

Using the UNEP-SustainAbility 50 environmental reporting ingredients, an average score of importance was calculated for each reporting ingredient for each stakeholder group, and all ten in general. The results for each of the 50 reporting ingredients can be found in Appendix 6. Table 6 describes the average levels of importance indicated by each stakeholder group for each of the 5 reporting ingredient categories, in the sample.

Table 6. Average level of stakeholder importance scores and average New Zealand report sample scores for each of the 5 UNEP-SustainAbility reporting ingredient categories.

Section	I	II	III	IV	V	Total
Total Possible Score	45	72	17	40	20	194
Sample NZ report Average	16	16.2	1.5	8	2.7	44.5
Stakeholders' Average	33.9	49.4	11.4	21.8	13.7	130.2
Academia	32	43.2	7.7	7.7	18	116.6
Consumers	35.4	51.2	13.6	13.6	23.8	140.7
Employees	37.5	57	12	12	26	148
Environmental Groups	36.2	54.7	14.7	14.7	26.4	149.4
Financial Community	36.8	46.3	12.9	12.9	22.4	134
General Public	35.8	56.8	12	12	24.1	145.3
Local Community	37.7	56.5	12.2	12.2	24.4	149.2
Regulators	32	40.8	11.3	11.3	20.9	117.9
Tangata Whenua	44	71	17	36	20	188
Trade & Industry	32.9	45.7	9.3	9.3	18.7	122.3

Note: I = Management Systems and Policies, II = Inputs/Outputs, III = Finance, IV = Stakeholder Relations, V = Sustainable Development.

Table 7 shows the comparison of report performance and average stakeholder levels of importance for the 20 essential environmental report ingredients. Out of the 80 comparisons between the sample New Zealand report performance and the levels of importance indicated by the sample stakeholders, the reports exceeded the stakeholder levels of importance 5 times (6.25%).

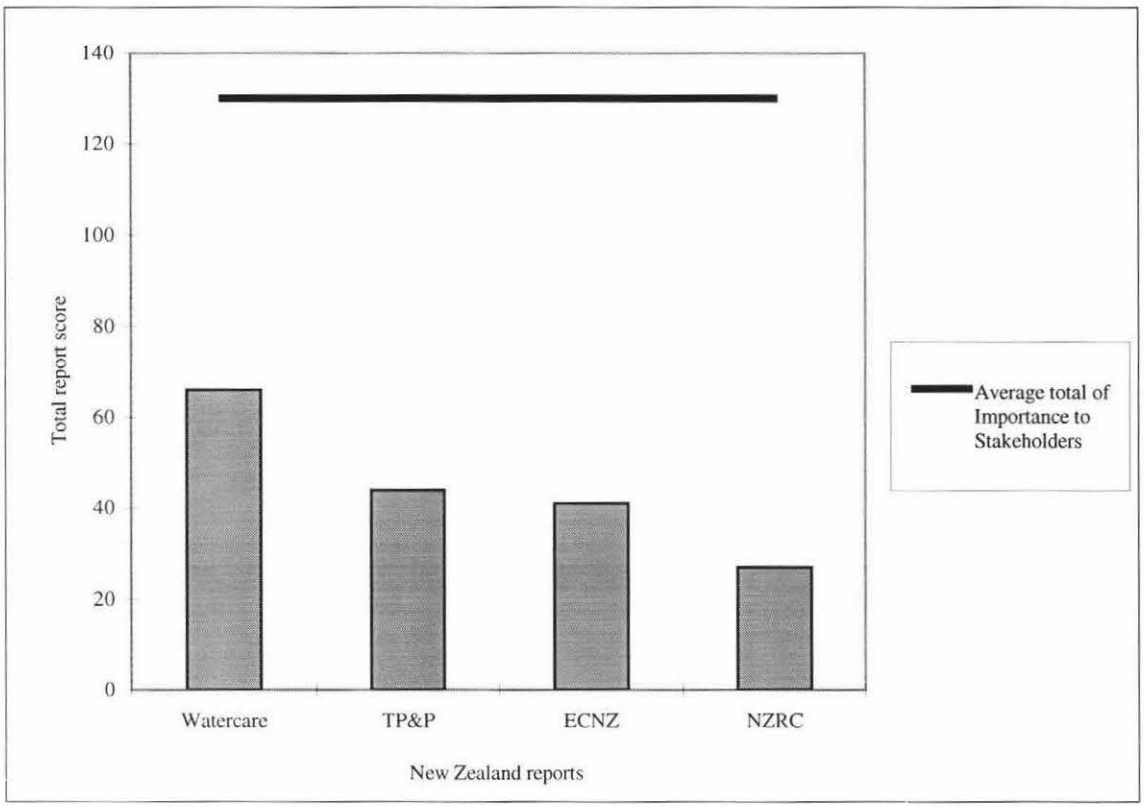
Table 7. Comparison between New Zealand report scores, and average levels of importance for each of the 20 essential reporting ingredients, indicated by the stakeholders.

	New Zealand report scores				Average Importance
Essential ingredients	Watercare	TP&P	ECNZ	NZRC	to Stakeholders
Environmental policy	3	2	1	1	3.5
EMS	3	2	1	0	3.1
Management responsibility	2	1	0	0	3.2
Legal compliance	4*	2	4*	1	3.3
Material use	0	1	2	1	2.6
Energy consumption	1	1	1	0	2.7
Water consumption	4*	1	1	1	2.8
Health & safety	0	0	0	3*	2.7
Accidents & emergency	2	0	0	1	2.5
Wastes	2	2	1	1	3
Air emissions	0	2	1	1	3.1
Water effluents	4*	2	0	1	3.2
Product impacts	3	1	1	0	2.7
Environmental spending	0	2	0	0	2.5
Liabilities	0	0	0	0	2.8
Employees	0	1	1	1	2.8
Legislators & regulators	2	2	2	1	2.4
Local communities	1	1	2	1	2.9
Investors	0	0	1	0	2
Industry associations	0	0	0	0	0
Total	**31**	**23**	**19**	**14**	**53.8**
Average Ingredient Score	1.55	1.15	0.95	0.7	2.69

Note. * Denotes ingredients where a report or reports have exceeded the stakeholder levels of importance.

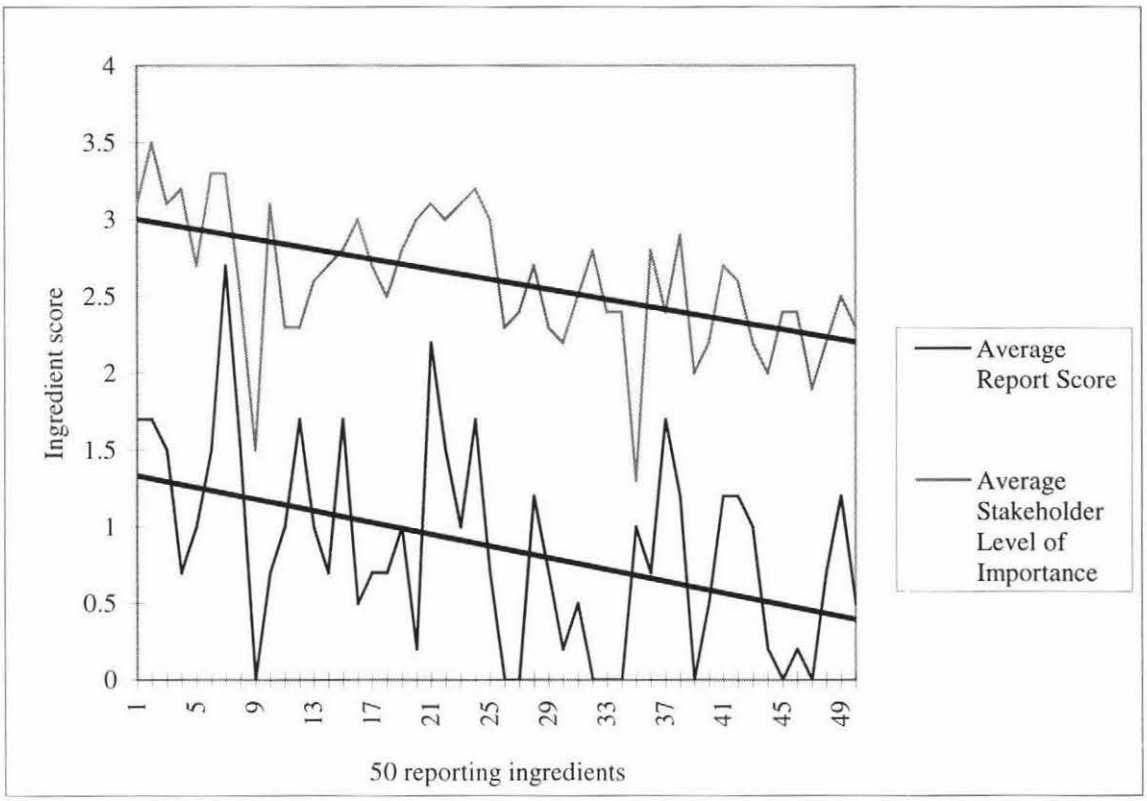
Figure 9 describes the individual report scores, in comparison with the average total score for a report indicated by the stakeholders' level of importance for each ingredient. As can be seen, there is a large discrepancy between the total stakeholder score, and the actual report performance. On average, the New Zealand reports score 89 points below the stakeholders' total.

Figure 9. Comparison of the New Zealand report scores and the average total score of stakeholder importance.



From the detailed data in Appendix 5 and 6, Figure 10 graphs the average stakeholder level of importance and average report score for each of the 50 environmental reporting ingredients in the sample. Lineal trend lines have been adapted to both the New Zealand Report Score data and the Levels of Stakeholder Importance. The area between the two trend lines can be considered the expectation gap between report performance and stakeholder expectations. Ingredients with the largest expectation gaps are: transportation; life-cycle design; environmental impacts; product stewardship; packaging, environmental liabilities; market solutions; environmental cost accounting; technology co-operation; and, the global environment.

Figure 10. Comparison of New Zealand report scores and sample stakeholder levels of importance for each of the 50 environmental reporting ingredients.



4.2.2 International Report Comparison

The level of importance indicated by the stakeholders and the results from the New Zealand report analysis, and the International survey results are compared in Table 8. To note, is the sections where the top scoring International report has exceeded the sample stakeholders' levels of importance.

Table 8. Comparison between the sample of New Zealand stakeholder scores of importance, and the sample New Zealand and International report content analysis results.

Section	I	II	III	IV	V	Total
Stakeholder Ave %	75%	69%	67%	55%	69%	67%
NZ Sample Ave %	30%	23%	09%	20%	14%	23%
1996 Int. Top 4 Ave %	62%	62%	39%	55%	40%	56%
1996 Int. Ave %	45%	43%	26%	39%	19%	39%
1997 Highest Score %	73%	65%	82%	75%	60%	68%
1997 Int. Ave %	44%	38%	23%	36%	25%	37%

Note: I = Management Systems and Policies, II = Inputs/Outputs, III = Finance, IV = Stakeholder Relations, V = Sustainable Development.

4.3 Report writer interview content analysis

This section of the research was based on face-to-face interviews with report writers and the processes they follow to produce a Corporate Environmental Report. For the complete interview schedule, see Appendix 4.

From the coding of the interviews, the following themes were identified under each of the TQM loop sections. Where necessary, specific comments of interest have been added; however, for confidentiality reasons the sources of these comments have been protected.

4.3.1 Thinking

Overall, all the interviewees said that their reporting process began from the initial consulting process with stakeholders for resource consents for the new Resource Management Act. Three of the interviewees also stated that environmental reporting was the natural step in their environmental management system that was developed for the organisation to comply with the new environmental legislation (i.e. The Resource Management Act (1991)).

One interviewee also stated that the reporting process originated from the fact that there was a lot of mis-information being given about the company. To remedy this, the company decided to report accurate information to its stakeholders, mainly its local community.

Another interviewee also echoed the fact that mis-information prompted them to seriously report environmental information to the public. Here, the organisation's operations were changed and local residents could see a physical change in the type and colour of discharge from the company which caused 'public outrage'.

To quote one of the interviewees 'It is a nice feeling to have the public on your side'. Overall, this quote sums up why the organisations began the reporting process.

4.3.2 Planning

Because all of the organisations began their reporting process from a RMA perspective, the preparation of the reports was designed around the information the organisations needed to collect for their resource consents. In keeping with this, all of the organisations incorporated their environmental policies and objectives into the design of the environmental report as the basic content areas.

Only one of the organisations looked at international reporting guidelines, or environmental reports, before they started to plan their report, in this case it was the Public Environmental Reporting Initiatives reporting guidelines.

One of the organisations had to report to a governing body of their industry each year, therefore, they based their report on a smaller version of the report they had to present to their governing body, focusing mainly on the issues that were identified in stakeholder discussion groups.

The interviewees stated that they had no stakeholder group in particular in mind when they were writing the report, and most said that they wanted the report to be useful to everyone. However, two interviewees said that their reports were probably more aimed at the local stakeholders, and the individuals and groups that were involved in the consultation process for resource consents.

Overall, the report writers identified that there were two main areas in reporting: RMA consent conditions; and environmental performance. Emphasis was given to the big issues, and this is exemplified by one writer's comments 'Recycling the toner cartridges of a photocopier seems to pale in significance when compared to putting a dam on a river'.

4.3.3 Doing

All the report writers stated that the gathering of information for the report was easy because it was all data that they were needing to collect for their resource consent monitoring. One

report writer said that the information can sometimes be hard to collect because it is needed from a range of organisational departments. However, the report writer did say that the process had become easier, and that with the increasing importance of the report being noted by the organisation, people had become a lot more willing to get the information to you on time.

Of note, all the report writers said that the design and layout of the report were the hardest steps of the process. All the organisations used a publishing section of their organisation, or a publishing company to produce the reports. However, one organisation stated that this could be problematic because sometimes the publishing company had a different idea of what a Corporate Environmental Report should be compared to what the company viewed the report as.

Three of the report writers were employed as environmental managers as such, and one report writer was a communications officer; however, in this case, the writer liaised with the environmental manager extensively. In one organisation Corporate Relations, Environmental Management, Strategic Development, and Finance were involved in the writing of the report.

On average, each report took two months of work to get it to publishing stage, and the costs of publishing the reports ranged from $17,000 to $64,000.

Each organisations mailing list for the report was made up from the individuals and organisations that they were in consultation with previously: government departments, local schools and libraries, and environmental groups. One report writer said that they sent 60 reports to Greenpeace members who had previously written and complained about their operations.

3.3.4 Measuring

All the organisations measured the success of the reporting process from the feedback that they received. On the whole, every organisation said that they have received very positive feedback, with individuals thanking the organisation for taking the time to give them the information.

One organisation had been exposed to a lot of media attention from the publishing of the report, including very negative public statements about the report. The report writer for this organisation also said that the report was treated with a degree of cynicism by many people; however, he cited an interesting situation where the honesty and integrity of the report was upheld. Here, the report writer was at a local environmental group meeting handing out the report for people to read. One individual asked the writer 'does it say in here that you have been fined'? The report writer was able to say yes, and also state the page number where the fine was reported in the report.

An interesting outcome was observed by one of the reporting organisations. Here, they noted that the whole culture of the organisation had started to change since the publishing of the environmental reports, although they had not tested this in any way. The writers felt that the reports had made employees extremely aware of the environmental management system, and the importance of good environmental management. Because of this, new environmental initiatives have become easier to implement.

Two of the report writers noted that the organisation had become more aware of environmental performance, and that the report had become the driver for many other environmental outcomes.

All of the organisation noted that since publishing the report, stakeholder consultation had become a lot easier; however, this did seem to be the only external outcome. One of the report writers felt that the report had helped illustrate the level of environmental risk involved in the company, and due to this, they may have received a lower interest rate from their financiers; however, this was only speculation on their behalf. Overall, this was the only external outcome noted by the writers.

4.3.5 Thinking

Looking back all of the writers felt that the publishing of their reports was definitely worth it, and the organisations will continue to develop their reporting process. Two of the organisations stated that they wanted their reporting systems to become more 'robust'.

Because of this, these two organisations have started to look at international reporting frameworks, and other organisations' Corporate Environmental Reports; including reports from their industry sector.

All of the writers said that the hardest part of the process was the actual writing of the report, and three of these organisations were investing a lot of time into improving the layout and format of their next environmental reports, including using a lot more visual information.

One of the writers stated that another problematic area of reporting was giving appropriate information to all their stakeholders. Because of this, they had employed an organisation to interview their stakeholder groups to identify the exact areas where stakeholders wanted more information. This organisation was also developing performance indicators specific to their environmental performance to increase the comparability and benchmarking capability of their reports.

4.3.6 General questions

Q. Do you believe that Corporate Environmental Reporting (disclosure) drives companies to improve their performance?

Two of the organisations believed that reporting does drive the organisation's environmental performance. One organisation noted that managers began to really improve on their sector's performance because of the fact that the previous report had shown that they had poor performance. This same organisation also stated that reporting gave an open-book approach to the way the company is run, which they felt could only be a good thing for the running of the company.

The other two organisations stated that it would depend on the type of organisation whether reporting drove performance. One writer stated that in their case their company had such close relations with their stakeholders and the importance of their RMA consents that they had to always improve on their performance.

Q. What role do you see Corporate Environmental Reporting playing in New Zealand's environmental management future?

All the writers believed that environmental reporting was going to become a common practice in the future. Of note, one writer said that reporting was a way of conveying the sustainable management practices of the organisation to the public, a very important aspect of the Resource Management Act.

Q. Do you think Corporate Environmental Reporting should become mandatory in New Zealand?

Only one of the report writers felt that environmental reporting should become mandatory. This writer saw reporting as an extension of the RMA, and was a way to push companies into sustainable management. This writer also noted that fact that publicly listed companies had to publish financial report, and they felt environmental performance should come under the same scrutiny as the financial performance of companies.

However, three writers all stated that the most important aspect behind reporting was the voluntary approach behind it. One writer stated that if environmental management is to move away from a legal issue to a sustainable approach then, it has to be done voluntarily.

Two of the writers stated that if reporting was to become mandatory then they felt it would make companies very 'anti' the environment. They also felt that the RMA allowed for local and national authorities to monitor the impacts and performance of companies through the resource consent process. One writer said that 'we report because we want to inform our local community and stakeholders, not because we have to'.

CHAPTER FIVE: DISCUSSION

As outlined in the literature review, there are a number of different environmental reporting formats, and, because of this, many of the reports published can be quite dissimilar in content. From the results of this research, these same trends can be observed.

4.1 Report content analysis

It is important to address the small sample used in the report content analysis. Only four New Zealand reports were sampled, and the fact that some conclusions are based on such a small sample, and therefore, for general, is acknowledged. Time constraints, and a lack of reporting in New Zealand, have dictated this small sample, and in an ideal situation, a larger sample, such as the 100 reports included in the UNEP-SustainAbility, would be used. However, regardless of these constraints, the four reports used are considered to indicate important aspects of environmental reporting in New Zealand.

Firstly, the overall differences between the four New Zealand reports must be examined. As can be seen there is a large difference in terms of their overall scores, with the Watercare report scoring a lot higher than the other reports, with the most notable difference being the gap between the Watercare report and the New Zealand Refining Company's report. It is also interesting to note that the Tasman Pulp and Paper report and the ECNZ report were very closely matched, even though one is a utility and the other is a private company. It could have been assumed that the two utilities, Watercare and ECNZ, would have reported to the same level considering that they are both accountable to the same authorities.

However, the overall score may be misleading in terms of the actual difference between reports. When the scores for each of the UNEP-SustainAbility reporting ingredient categories are compared, it is observed that there are a number of similarities between the reports. Firstly, all the reports scored higher in the first two categories, Management Systems and Policies, and Input/Output Inventory. This can be compared to the overall low scoring in the Finance and Sustainable Development sections of the reports. These findings compliment what other international surveys have observed, where the majority of environmental reports

perform well in the management systems and policy areas of reporting, but fail to report adequately in the stakeholder and sustainable development sections of reporting.

When comparing the reports between the five UNEP-SustainAbility categories of environmental reporting, individual ingredients must be examined. Using the list of individual scores for each of the 50 ingredients in Appendix 5, five ingredients can be identified as being reported on more comprehensively that the other ingredients:

Environmental Policy
Environmental Management System
Water Consumption
Water Effluents
Legal Compliance

Explanation for this performance may be linked to environmental management legislation in New Zealand. Firstly, most organisations, if they are using water or discharging to water in any way need to get an RMA consent. Therefore, collecting and reporting information on their water usage and discharge would be part of the everyday operations of a company, and therefore would be easier to report on. The ingredient that scored the highest overall score between the four reports was Legal Compliance, and in a sense, this answers the question of why these five ingredients were the most well reported. The law requires companies to establish and operate environmental policies, and environmental management systems to control their consents.

Three areas where Watercare did stand out from the rest of the reports were the risk management and environmental impact assessments, stewardship of local habitat and eco-systems and the environmental impacts reporting ingredients. Again, all these aspects are part of the RMA consent procedure, and it is unusual to see that Watercare was the only company to report on these in any great detail. However, the Watercare report is in its fourth cycle, and experience may have led Watercare to report on these ingredients.

The Watercare report was also scored considerably higher in the Inputs/Outputs section of the content analysis. Although Watercare report did not score extremely highly compared to the

total possible score, it reports to a level more that twice that of the other three reports. A large amount of the information covered in this section is related to organisational performance, and is information that you would assume that any organisation would in order to monitor resource conversion and efficiency. However, the reports in this analysis have not presented this data. It could be deduced that the reporting organisations in the sample do not consider the inputs and outputs of their processes to be relevant to environmental reporting, even though inputs and outputs measurement is vital to internal and cross-company benchmarking.

An interesting comparison here is the eco-balance approach that was taken by the New Zealand Refining Company's report, and noted by the report writer in the interview. Although the eco-balance approach is not directly referred to in the report, the report uses an oil drum graph to represent the inputs and outputs that it receives. This is a very clear way of illustrating the resources used by the company, and the efficiency of the company to refine these resources. However, this information is not very useful when it is not complemented by other essential information such as goals and targets which was the case of the New Zealand Refining Company's report.

Although the Watercare report scored higher in the stewardship of local habitats and ecosystems ingredients, the other three reports scored also scored well. Again, the answer for this would be the RMA, the reason being that part of the consent process entails the documentation of the mitigating measures the organisation will carry out on the land that they are using in order to preserve the ecosystems and habitats of that area. An excellent example of this can be found in the ECNZ report where the company outlines its procedures for the continuation of elver migration.

Moving on to the Finance section of the reporting formats, it can be seen that all of the reports scored very poorly, and this trend has been mirrored in international surveys, The only report to score over 1 was the Tasman Pulp and Paper report, and this was due to the extensive reporting on the costs of their environmental management systems and upgrades that they are implementing. The only ingredient that was consistently reported on in this section was Charitable Contributions, and this is a rather superficial area of reporting.

With the average of 20% out of the maximum score of 40 for the stakeholder relations section of reporting it could be assumed that the New Zealand reporters were not involving their stakeholders in their operations to a degree that is needed for sustainable development. However, stakeholder relations are covered proportionately more when compared to the limited coverage other areas have received. The areas to be most comprehensively reported in this section were the politicians, legislators and regulators, local communities, environmental groups and science and education ingredients. Again, these are aspects of the RMA consent process. The two reports to 'stand out' in this section were the Tasman Pulp and Paper and ECNZ reports. Both of these reports scored well (2 out of 4) in the ingredients outlined above, and it could be assumed that a reason for this is that they have had more dialogue with these stakeholders. Both organisations are extremely 'environmentally vulnerable' companies in terms of the impact their operations can have. Therefore, they have to have increased consultation with government and stakeholders to continue in their operation. Due to this, they would therefore have more information in this area to report.

Finally, there is the Sustainable Development section of reporting, and again, the New Zealand reports have not reported very comprehensively in this section. The areas that did receive scores were the global operating standards, report design, and visions, scenarios and future trends ingredients of this section. None of the New Zealand reports reported on Technology Cooperation, the Global Environment issues, or Global Development Issues. This illustrates an interesting situation in the reporting in New Zealand. New Zealand companies may not see themselves connected to these global issues, therefore, they do not report on them. Again, both the Tasman Pulp and Paper and ECNZ reports scored higher than the other two reports, and this was due to better reporting in the visions, scenarios and future trends sections of their reports. It can be observed that the New Zealand Refining Company did not report comprehensively on the company's visions, scenarios and future trends, even though oil holds a tenuous position in the global economy. Many oil organisations, such as Shell (Shell, 1995) have indicated that an oil less future may become a reality, and that these organisations are investing large amounts of money into alternative fuels research. Yet, the New Zealand Refining Company did not comment on any of these aspects.

To further develop the analysis, it is important to assess the level of reporting in the 20 essential ingredients.

Firstly, it is obvious that, from the total 20 ingredients, the Watercare report reported far more comprehensively on the 20 essential ingredients than the other three reports. Out of these 20, Watercare scored three 4s and three 3s, which shows that in some areas the ingredients were reported very comprehensively. However, the most interesting comparison to make between the reports is between the ECNZ report and the New Zealand Refining Company Report. Although there was a 14 point difference between the two reports in total, there was only a 4 point difference when the two were compared on the 20 essential ingredients. This shows either that the New Zealand Refining Company was reporting comparatively better on the 20 essential, than the other 30 ingredients, or the ECNZ reported relavely poorly in these areas.

When the scores from the 50 ingredients are ranked in order, from highest scoring ingredient to lowest, it can be seen that the essential 20 ingredients are placed highly in the ranking. This can be further highlighted by the comparison of the average ingredient score of the 20 essential and the average ingredient score of the 50 ingredients. Firstly, Watercare reported 0.2 of a point more in the essential 20 than the complete set of 50, and this was also reflected in the same comparison between all the reports included in the sample.

Again, it is important to discuss the data in terms of the Resource Management Act, in light of the previous findings and discussion. When the essential 20 are ranked in order of average reported scores (the average of all the four reports for each ingredient) the following ranking can be seen:

Legal Compliance	2.75
Environmental Policy	1.75
Water Consumption	1.75
Water Effluents	1.75
Legislators and Regulators	1.75
Environmental Management System	1.5
Wastes	1.5
Product Impacts	1.25
Local Communities	1.25
Material Use	1
Air Emissions	1
Management Responsibility	0.75

Energy Consumption	0.75
Health and Safety	0.75
Accident and Emergency	0.75
Employees	0.75
Environmental Spending	0.5
Investors	0.25
Liabilities	0
Industry Associations	0

From the ranked list, again, the ingredients that have a legislative bearing have been reported on most comprehensively. This is especially reflected by the top six ingredients, which relate directly to environmental management legislation in New Zealand. Of the ingredients that do not score so well, it can be seen that they follow the trend of poor reporting in the Finance and Stakeholder Relations are of reporting.

When the New Zealand reports are compared to the UNEP-SustainAbility reporting quintiles, it is expected that they would not rank very high, and this was found. Three of the reports are sitting in Stage 3 which relates to 'annual reports which are linked to an environmental management system, but are more text than words' (UNEP-SustainAbility, 1994, p.18), and this is indeed what the New Zealand reports represent. However, it must be noted that the Watercare report is in the transition stage between Stage 3 and Stage 4, which will require that future Watercare reports have extensive information on the Inputs and Outputs aspects of reports, if they are to move to the fourth stage.

It is interesting to compare the findings thus far to the international surveys of environmental reporting. Firstly, Azzone et al's (1994) survey of evolutionary trends in reporting noted that environmental financial information was very poorly reported in all the reports that it examined. Secondly, the study also highlighted the increased reporting in the areas of air and water emissions, which can be seen in the sample of New Zealand reports analysed in this study. The New Zealand reports also reflect the very poor noise, soil and dangerous substances reporting that was recorded in the 1991 and 1994 reports surveyed in Azzone et al's analysis (1994).

Lober et al (1997) also noted a poor performance in quantitative reporting compared to the amount of qualitative data included in the reports, which can also be said for the New Zealand reports. There is a lot of material which has been developed as case-studies and presented as narratives depicting the environmental responsibility of the company. In the words of one of the New Zealand report writers, they developed their environmental policy objectives into 'little stories' about each one.

An area which warrants further research, arises from Deegan and Gordon's (1996) research which illustrated that companies with high pressure from the stakeholders, typically companies with potentially large environmental impacts, disclosed more information. In the New Zealand example, it has been indicated that disclosure is low, however, this does not mean that Deegan and Gordon's research is not valid in the New Zealand sample. According to international surveys (KPMG, 1996), reporting in New Zealand is very minimal, therefore, any reporting by any company is a higher form of disclosure than by not reporting. If this is accepted, the companies in this sample do represent companies that have a high potential environmental impact, and high stakeholder involvement, therefore, Deegan and Gordon's research is valid in the New Zealand example.

From this content analysis, it is clear that there is not a great degree of difference between the New Zealand reports, all are reporting comparitively poorly. Similarity in content between reports may represent the control environmental legislation has in New Zealand, and this will have a bearing on the content discussed in the reports.

5.2 International Comparison

This section of the research sought to compare and contrast the levels of reporting internationally, to the levels of reporting represented in the sample of New Zealand reports.

In total, it is clear from the comparison in Figure 4 that the four leading international reports from 1996 and 1997 are reporting to a far greater level that the New Zealand reports, on a factor of two.

When the New Zealand reports are compared to the 1996 international report scores, it can be seen that there is a considerable difference between the New Zealand sample average and the international survey's average. In the first category of reporting, Management Systems and Policies, there is a 9% difference between the level of reporting. This difference is even greater when the average of the top four international reports are compared, in this case, a 30% difference! However, the New Zealand reports do follow the trend shown in the 1996 international results of higher levels of reporting in the first two categories, and low levels of reporting in the Finance, Stakeholder Relations, and Sustainable Development categories.

One of the biggest differences between the international results and the New Zealand results is the level of reporting in the Inputs/Outputs section of the reports. Here, on average, the international reports have reported far more extensively on their operations and resources used than the New Zealand reports. To think of this in a different way, the comparisons between the difference in reporting performance need to be looked at between first and second reporting categories. When the international results for the first and second categories are compared, there is a difference of 2% lower reporting in the Inputs/Outputs category, so the level of reporting is relatively the same in these two areas. However, when the difference is compared on the New Zealand sample, there is a 13% difference, as well as a 20% difference in performance between the international and New Zealand results. It is obvious, that the New Zealand reports are performing poorly in the Inputs/Outputs section when compared to international results.

One answer for this could be the legal requirements for companies in the survey to disclose information on hazardous emissions and substances in the USA. Here, the Toxic Release Inventory requires companies to measure and report on their use and discharge of a series of substances. Because of these requirements, the international companies, many of which have operations based in the US, have reported on these aspects in their reports, in much the same way as the New Zealand reports in this sample have reported to a higher degree the aspect of their operations that are reflected in the Resource Management Act.

Both the 1996 international survey and the New Zealand results show that reporting is not as extensive and comprehensive in the last three UNEP-SustainAbility reporting categories: Finance; Stakeholder Relations; and, Sustainable Development. In terms of the Finance

category, the international reports on average have reported more comprehensively than the New Zealand reports, and this could be due to experience, or greater interest in financial data from stakeholders. Interestingly, both the international and New Zealand results reflect very poor reporting in the area of Sustainable Development, which shows that reporting in this area needs development.

The comparison between the New Zealand reports and the 1996 international averages does show large differences in reporting, and these differences are exacerbated when the average of the top four international reports are compared to the top four New Zealand reports. The largest difference is between reporting of Inputs and Outputs (a 39% difference), and it is again obvious that the New Zealand reports are not showing strength in this area of reporting.

The four top international reports are also reporting a lot more extensively on the financial and sustainable development aspects of their organisations than the New Zealand reports, however, in relation to their levels of reporting in other areas, their performance here is relatively low.

Because the UNEP-SustainAbility 1997 survey only published limited information on the reports included in the survey, comparison can only be made between the international averages in 1997, and the top scores in each of the reporting categories. Firstly, the UNEP-SustainAbility 1997 survey noted that the overall level of reporting decreased from 1996 and 1997. This could be due to the level of effort that is needed to continue reporting at a high level of reporting, and the fact that reporters are becoming more experienced in reporting, and therefore, they are limiting the material covered in their reports. The survey also noted that many of the reports were only publishing reduced information, and releasing more detailed information on the Internet.

In terms of the difference between the 1997 international results and the New Zealand sample, the gap is smaller, which is due to a decrease in levels of reporting internationally. However, there was one area where the gap increased: Sustainable Development. The international level of reporting on the Sustainable Development category in 1996 increased by 6% in 1997, which makes the difference between the international and New Zealand samples 11%.

Overall, the comparisons between the two UNEP-SustainAbility international surveys (1996 & 1997), show that there is a large difference in reporting comprehensiveness. Of particular note is the difference in reporting levels of Inputs and Outputs, with the New Zealand reports performing particularly poorly. Although legislative differences could be used to explain this, it does illustrate a deficiency in New Zealand reporting.

Overall, in assessing the level of reporting in New Zealand, it would seem that that the results from the New Zealand sample reflect reporting that is closer to the 1996 international results when the top 4 reports of each sample are compared.

Comparison could be made to Azzone et al's survey of reporting in 1994, where the bulk of information was qualitative and based in the policy and discharges areas. If this was used for an international comparison, then it could be asserted that the New Zealand sample is at a 1994 international level.

One reason for the obvious difference in reporting is the fact that, internationally, environmental reporting has been occurring for many years. As noted by Lober et al (1997), Polaroid published one of the first Corporate Environmental Reports in 1989, whereas three of the New Zealand reports were only in their first cycle at the time of this research. Experience could be used to explain the Watercare reports higher score. In this instance, Watercare has been reporting for five years, and in that time they have developed considerable experience. An area for further research would be to follow the reporting progress of the companies in their successive reports.

5.3 Stakeholder Analysis

From the sample, it can be seen that there was a mix of stakeholders, with Trade and Industry, Local Community, General Public and Environmental Groups making up the largest stakeholder groups of the sample. This mix of stakeholders, combined with the percentage of individuals who read the report from a personal and organisational perspective, highlights the difficulty of producing reports that satisfy the 'four pillars' of reporting (Azzone et al, 1996; Schaltegger, 1997) for each stakeholder group.

It is important to discuss two limitations of the stakeholder analysis instrument before continuing with the discussion of the stakeholder analysis results. Firstly, the sample involved a very small number of stakeholders, with some groups having one or two respondents within them. This issue was further complicated by the fact that respondents could identify with one or more stakeholder groups. Therefore, when making assumptions and generalisations from the data, they are based on a comparatively small sample. Secondly, the instrument used a Likert scale to indicate levels of stakeholder importance, and acquiescence bias for indicating higher levels of importance by the stakeholders may have played a role in the expectation gap found between the report performance and stakeholder expectations.

The results of the second and third sections of the questionnaire will be discussed after the analysis of the fourth section: the 50 environmental reporting ingredients.

Firstly, from Table 5 it can be observed that the stakeholders in the sample indicated considerably higher levels of importance to the 5 categories than the actual performance of the New Zealand reports. In this case, the average of the New Zealand reports performance has been used to give an overall perspective. However, if comparisons are made between individual reports the same results can be found, except to varying degrees.

From the survey, consumers, environmental groups, Tangata Whenua, general public and the local community stakeholders attributed the highest levels of importance to the 50 environmental reporting ingredients. These groups indicated total scores of 140, or above, out of 194.

It is interesting to look at the stakeholder groups that indicated totals that were below the 140 mark. Here, academics, the financial community, regulators and trade and industry were the stakeholder groups involved. It could be assumed that these groups have lower expectations of what should be reported in environmental reports, and this could be due to a number of reasons. Firstly, these groups may understand the effort that would be need to be exerted to report to high levels for all of these ingredients, and therefore, have indicated importance to only ingredients that they see as essential. Using the tables in Appendix 6 it can be seen that these three groups have indicated lower levels of importance to a number of areas in the Inputs/Outputs category of environmental reporting; especially to ingredients such as life-

cycle design, product stewardship, and packaging, which could be reflected in the low level of reporting in these areas by the sample New Zealand reports. Conversely, the other stakeholder groups that have indicated higher levels of reporting may in fact have higher expectations of what they want to be communicated in an environmental report.

Because of these issues, it is more important to view the overall average levels of importance of all the stakeholders, instead of at an individual level. It is clear from Table 5 that the sample of stakeholders indicated a higher level of importance to the Management Systems and Policy, and Inputs/Outputs sections of reporting than the performance reflected in the sample of New Zealand reports. When the percentages are compared, the stakeholders' levels of importance are at least double that of the report performance. The gap between report performance and stakeholder levels of importance is even larger in the financial category of reporting, and it is clear in this respect that the reports are not supplying enough information on this area for stakeholders. Sustainable Development (category 5) is another area where there is a considerable difference between the stakeholders' level of importance and the report performance.

However, as observed, at this level of analysis, many of the differences and similarities between reports, and in this case reports and stakeholders, cannot be seen. Using Figure 9, it is clear that there is a large gap between the report performance and stakeholder importance over the 50 ingredients. The ingredients where the report performance and stakeholder importance nearly met are Research and Development, Environmental Awards, and Charitable Contributions. In the UNEP-SustainAbility scoring system, Environmental Awards and Charitable Contributions can only score either 0 or 1, and this low scoring system is endorsed by the low levels of importance indicated by the stakeholders.

The areas where there is the biggest gap between report performance and stakeholder expectation - transportation, life-cycle design, environmental impacts, product stewardship, packaging, environmental liabilities, market solutions, environmental cost accounting, technology co-operation, and the global environment - are all areas which have been seen to be reported to a lower extent in the international surveys.

If the levels of importance indicated by the sample of stakeholders were taken to be levels of expectation, then there is clearly a huge 'expectation gap' between the sample stakeholders and the sample New Zealand report performance. It is clear that the New Zealand reports are not meeting the needs of their stakeholders.

One trend to emerge out of this data is the lower levels of importance given to the stakeholder relations and sustainable development categories of reporting from both the stakeholders, and the New Zealand reports. In a sense, this does indicate that the New Zealand reports are 'in-line' with stakeholder expectations, however, there is still a large gap between expectations and importance. None the less, this link between expectations and performance needs to be investigated in more detail.

Using the results from Table 6 on the levels of importance given to each of the 20 essential ingredients, and the ranked 20 essential ingredients derived from the report performance analysis, a trend can be seen. Below is a comparison of the rankings of importance for each of the 20 ingredients, as indicated by stakeholders, along with the rankings taken from the reports themselves.

New Zealand Report Average		Average importance to stakeholders	
Legal Compliance*	2.75	Environmental Policy*	3.5
Environmental Policy*	1.75	Legal Compliance*	3.3
Water Consumption	1.75	Management Responsibility	3.2
Water Effluents*	1.75	Water Effluents*	3.2
Legislators and Regulators	1.75	Environmental Management Systems	3.1
Environmental Management System	1.5	Air Emissions	3.1
Wastes*	1.5	Wastes*	3
Product Impacts	1.25	Local Community*	2.9
Local Communities*	1.25	Water Consumption	2.8
Material Use	1	Liabilities	2.8
Air Emissions	1	Employees	2.8
Management Responsibility	0.75	Energy Consumption	2.7
Energy Consumption	0.75	Health and Safety	2.7
Health and Safety	0.75	Product Impacts	2.7
Accident and Emergency	0.75	Material Use	2.6
Employees	0.75	Accident and Emergency	2.5
Environmental Spending	0.5	Environmental Spending	2.5

Investors	0.25	Legislators and Regulators	2.4
Liabilities	0	Industry Associations*	2.2
Industry Associations*	0	Investors	2

As indicated by the asterisk, there are places in the rankings that match, or are one place in the ranking apart. From this analysis, it would indicate that the New Zealand reports have the right priority in the reporting contents in relation to stakeholders indicated levels of importance. However, again, from the results it can be observed that there is a considerable difference between the stakeholders' levels of importance and report performance. This is made even more obvious when the average ingredient score for the 20 essential ingredients indicated by stakeholders (2.66) is compared to the average attained by the reports (1.1).

From this analysis there is some matching between the orders of the 20 essential ingredients between the sample of stakeholders and the sample of New Zealand reports. Previously, it was discussed that the content reported by companies maybe connected to New Zealand environmental management legislation, and this too, may have influenced the stakeholders involved in this survey. This could begin to answer the lower levels of importance given to the Sustainable Development category of reporting: stakeholders may not be aware of the importance of these issues because the legislation driving the environmental management in New Zealand does take global sustainable development issues into account. This may indicate an area where stakeholder education is required.

Section three of the questionnaire related to Company A's environmental report, and asked the respondents to indicate their levels of satisfaction with the content, the report overall, and the level to which the report was able to be understood. These results show that, overall, the stakeholders involved were satisfied with Company A's report, even though this research has shown that there is a large gap between stakeholder expectations and report performance. On one level, it could be said that the stakeholders were satisfied with the report; however, on another level, it could be postulated that because of a lack of stakeholder education into environmental issues, and strong environmental management legislation, the stakeholders are not aware of the other aspects that can be included in an environmental report. Therefore, further research could be conducted into the levels of satisfaction of stakeholders after they have been made aware of other potential content areas.

The last section of the stakeholder analysis was the comparison between the stakeholder results, the New Zealand report results, and the international survey results (Table 7). From this analysis, it is clear that the international averages, even when they are a lot higher than the New Zealand report sample averages, would not meet the expectations of the stakeholder sample. When comparison is made between the top four 1996 environmental reports, and the top 1997 scores, in most aspects these reports would nearly meet the expectations of the stakeholders. In some categories, stakeholder expectations would be exceeded. However, regardless of these results, on average, both the New Zealand reports and the international reports are performing well below the stakeholder expectations discovered in this research.

5.4 Report writer interviews

As discussed in the methodology, the aim of this section of the research was to observe the process the reporting companies followed to produce their environmental report. From this a narrative process was developed in the results. Although this analysis is useful in itself in describing the practice of Corporate Environmental Reporting, it is also useful to use these results in helping to explain the results from the previous two sections.

From the interviews, all the report writers stated that their reporting process had begun from consultation with stakeholders, due to the resource consent process of the Resource Management Act. Already, this piece of environmental legislation has shaped the reporting process, by restricting the types of stakeholders that will be consulted with. The RMA does not require companies to consult with trade and industry and the financial community when a company is acquiring a water use consent, and therefore, when the companies have consulted stakeholders, they have only collected the perceptions and opinions of a narrow group of individuals. This could imply that the reports will not be relevant (Azzone et al, 1996; Schaltegger, 1997) to all stakeholders, and this can be illustrated by the expectation gap between the stakeholders and the reports in this research. This could also explain, for example why the academic stakeholders rated some areas lower in importance because of their knowledge of the RMA.

Other interviewees stated that mis-information, such as un-substantiated comments from environmental groups, was an issue, and that the Corporate Environmental Report was a way of remedying this problem. This could also reflect the narrow range of information included in the sample New Zealand reports, where the reporters were only addressing the areas of mis-information.

The RMA was also involved in the planning of the reporting process for all the reporters, firstly in terms of the reporting of their consents, and secondly, in terms of including the environmental policy statements and objectives of the company that had to be developed for the consent process. Therefore, because of this, the higher scores in the ingredients in the 20 essential ingredients can be explained in terms of their relevance to the RMA, and this has been confirmed by the comments by the report writers.

Only one of the reporters said that they looked at other environmental reports, or reporting guidelines, and this could be another reason for the narrow content areas included in the New Zealand reports.

Overall, the report writers stated that the RMA and environmental performance were the main issues that they focused on in the reports. However, because of this, and the narrow focus of the RMA, many important aspects of company operations and impacts have been omitted in the reports. For instance, the RMA does not expect a company to supply information on production efficiency, production outputs, and company turnover; however, when assessing an organisation's performance, these are vital pieces of information. In terms of Azzone et al's (1996) and Schaltegger's (1997) reporting pillars, the aspect of comparability has been greatly impaired.

Another aspect of the production of the environmental report is the intended audience. All the organisations indicated that they did not have any particular audience in mind when they were writing the report; however, two did state their reports were focused more on the local stakeholders and groups that were involved in the resource consent process. Again, it seems that in the planning of the environmental reports, the intended stakeholders, and the information to be included have not been thoroughly planned out. This could be another

reason for the expectation gap. This lack of planning, and lack of consensus, could also be another factor for the narrow range of information included in the New Zealand reports.

Interestingly, all the report writers said that the gathering of information for the reports was easy because it is information that they already have had to collect as an organisation for their resource consents. However, it could be said that because of the narrow range of areas covered by the reports, collecting the information would be relatively easy. This could also be linked back to the fact that, overall, environmental reporting guidelines were not used, therefore, the report writers were only aware of a narrow range of content areas that were mainly dictated by environmental legislation.

A very interesting finding from the interviews was the different people involved in the development and writing of the report. This included environmental management personnel, corporate relations, and, in three reports, financial personnel, which is not reflected in the report scores for that section of reporting. It can only be advantageous for the companies to involve the different sections of its organisation in the reporting process, as it gives ownership to the report, and the company's performance. This was reflected by one organisation who said that their company culture had changed to become very environmentally aware since they had begun to report and implement their environmental management system.

All the organisations had gained positive feedback on the reports, and all said that stakeholder consultation had become easier since they had begun reporting, and this is a positive result for reporting in New Zealand. Obviously, even though the reports surveyed are very narrow in content, the environmental reports are being appreciated by the stakeholders of this company, and there was a need for this information. These companies have started to educate stakeholders on environmental performance, and it may mean that more companies will have greater pressure put on them to publish environmental reports.

In rethinking and improving on the reporting process in their company, two of the four report writers have now begun to research international reporting frameworks, including one organisation who has started using the UNEP-SustainAbility 50 environmental ingredients that have been the base of this research. Some of the companies have also begun more in-depth discussions with their stakeholders to assess their information needs and expectations in

relation to their operations, and such research is obvioulsy required when the results from this research are considered.

Overall, from the interviews, it can be concluded that corporate environmental reporting is in a cycle of continuous improvement, and that report performance, in terms of the UNEP-SustainAbility 50 ingredients, and the expectation gap, will be improving in the future.

The last three questions of the writer interviews can be considered the most powerful in terms of the results of this research and the development and future of Corporate Environmental Reporting in New Zealand.

When asked whether Corporate Environmental Reporting drove companies to improve their environmental performance, it was found two writers believed in this, and two did not. This dichotomy in answers may in some way be used to explain the differences and similarities between the New Zealand reports, and the poor reporting performance for both stakeholders, and international comparison.

Two of the writers said that reporting or disclosure definitely made the company improve their performance. Both stated that the revelation of poor performance had made managers take note of environmental management issues and had motivated them to improve environmental performance for the next report. The other two writers stated that it would depend on the type of organisation whether reporting would drive their performance. In their case, they saw their relationships with their stakeholders as the key factor that drove their performance. A reason for these different answers may be due to the fact that these organisations, and indeed, New Zealand for that matter, have yet to decide on what Corporate Environmental Reports are, and what Corporate Environmental Reports have the potential of doing. Until this is settled upon, Corporate Environmental Reports are going to be dissimilar in content and usefulness.

When asked about the future of Corporate Environmental Reporting in New Zealand, all the writers said that it was going to increase in frequency. However, it has to be questioned what this increase in in corporate environmental reporting is for when there is no consensus between reporting organisations on what corporate environmental reports are designed to do. The New Zealand reports analysed in this research gave no attention to sustainable

development issues, nor did they devote effort into Inputs/Outputs reporting. If reporting is to increase in New Zealand then these aspects need to be addressed.

In the literature review for this research it was stated that the purpose of reporting was for impartial democratic decision making, and Schaltegger (1997) goes on to add that environmental reporting is necessary for stakeholders to make decisions on resource allocations and the legitimacy of the organisation. When asked whether environmental reporting should become mandatory in New Zealand, the sample of stakeholders clearly stated that they felt environmental reporting should become mandatory; however, this is contrary to what the reporting companies stated.

It would seem from the research findings that New Zealand stakeholders are clearly not receiving sufficient information to make impartial democratic decisions, and unless New Zealand companies suddenly start to report comprehensively, New Zealand stakeholders are not going to receive this information.

CONCLUSIONS

When compared to the UNEP-SustainAbility 50 environmental reporting ingredients, the performance on the New Zealand reports sampled was very poor. Overall, none of the reports sampled scored 40 percent, or more, of the total possible score in each of the environmental reporting categories.

There are similarities in reporting content in the areas which are related to environmental management legislation, and it was found that this legislation played a major role in the development and publishing of all four Corporate Environmental Reports. Differences between the New Zealand Corporate Environmental Reports were based on the levels of comprehensiveness of reporting, with no clear differences in content areas reported on.

The content of the New Zealand reports sampled was mainly qualitative information, with very little quantitative information being supplied. These characteristics were also reflected in international surveys four years ago.

Three of the New Zealand reports sampled were placed in Stage 3 of the UNEP-SustainAbility reporting quintiles, with one report being placed in Stage 2.

In comparison with the 1996 and 1997 UNEP-SustainAbility international environmental reporting surveys, overall, the New Zealand reports compared very poorly. International averages for report scores were consistently double the New Zealand sample average.

The New Zealand report sample is following trends in report content that have been observed internationally, in particular, the poor reporting of financial and sustainable development issues. In the example of the New Zealand reports, reporting in these categories was virtually non-existent.

There is a large gap between the report performance of the New Zealand reports sampled and the levels of importance indicated by stakeholders for each of the UNEP-SustainAbility 50 environmental reporting ingredients.

There was a degree of similarity between the level of reporting in the sample reports, and the levels of importance indicated by the stakeholders both in the 5 reporting categories, and the 20 essential reporting ingredients.

The process of Corporate Environmental Reporting is heavily influenced by strong environmental legislation in New Zealand, and this could be linked to the narrow content areas reported on by the sample of New Zealand Corporate Environmental Reports.

Corporate Environmental Reporting is in a process of continuous improvement.

A sample of stakeholders clearly indicated that Corporate Environmental Reporting should become mandatory in New Zealand.

There is a clear lack of consensus among reporting organisations on the definition and role of Corporate Environmental Reporting in New Zealand, and this can be reflected in the poor results found in the content analysis.

RECOMMENDATIONS

From the research results and the conclusions made, the following recommendations are made for further research and development of corporate environmental reporting in New Zealand:

- In-depth research should be conducted into the information needs of New Zealand Corporate Environmental Report stakeholders.

- The Ministry for the Environment should instigate a programme of defining the role of Corporate Environmental Reporting in New Zealand, and provide a guide for reporting in New Zealand.

- Corporate Environmental Reporting should become mandatory in New Zealand.

References

Atkinson, G., Dubourg, R., Hamilton, K., Munasinghe, M., Pearce, D., & Young, C. (1997). Measuring sustainable development: Macroeconomics and the environment. Cheltenham, UK: Edward Elgar.

Azzone, G., Brophy, M., Noci, G., Welford, R., & Young, W. (1997). A stakeholders' view of environmental reporting. Long Range Planning, 30(5), 699-709.

Azzone, G., Manzini, R., & Noci, G. (1996). Evolutionary trends in environmental reporting. Business Strategy and the Environment, 5(4), 219-230

Birchard, B. (1996). Make environmental reports relevant. Cfo: the magazine for Chief Financial Officers, 12(6), 79-80.

Bollough, M., & Johnson, D. (1995). Corporate environmental reporting in practice. Business Strategy and the Environment, 4(1), 36-39.

Brophy, M., & Rikhardsson, P.M. (1997). Should environmental reporting be made obligatory? Summary of a workshop held at the Eco-Management and Auditing conference, University of Leeds 2-3 July 1996. Eco-Management and Auditing, 4(1), 28-31.

Brophy, M., Netherwood, A., & Starkey, R. (1995). The voluntary approach: an effective means of achieving sustainable development. Eco-Management and Auditing, 2(3), 127-132.

Burgoyne, J.G. (1995). Stakeholder Analysis. In: Qualitative Methods in Organisational Research. A practical guide. Cassell, C., & Symon, G. (eds). London: Sage.

Cairncross, F. (1995). Green, Inc.: A guide to business and the environment. London: Earthscan.

Canadian Chamber of Commerce. (1992). Guidelines on corporate environmental reporting. Toronto: CCC

Carson, R. (1962). Silent spring. London: Hamish Hamilton.

CEFIC (1993). CEFIC guidelines on environmental reporting for the European chemical industry. Brussels: European Chemical Industry Council.

Clarkson, M.B.E. A skakeholder framework for analysing and evaluating corporate social performance. Academy of Management Review,20(1), 92-117.

Coalition for Environmentally Responsible Economies (CERES) (1991). CERES Report: 1991 Environmental Performance Report. Boston: CERES.

Coalition for Environmentally Responsible Economies. (CERES). (1998). Environmental Reporting. CERES. [On-line]. Available; http://www.ceres.org/publications/helpguide.htm.

Crane, T.Y. (1995). Issue management: Closing the expectation gap. Planning Review, 23(6), 19-20.

Deegan, C., & Gordon, B. (1996). A study of the environmental disclosure practices of Australian Corporations. Accounting and Business Research, 26(3), 187-199

Deloitte Touche Tohmatsu International, the International Institute for sustainable development, & SustainAbility Ltd. (1993). Coming clean: Corporate environmental reporting- opening up for sustainable development. London: SustainAbility.

Easterby-Smith, M., Thorpe, R., & Lowe, A. (1996). Management Research. An introduction. London: Sage.

Elkington, J. (1994). Towards the sustainable corporation: Win-win-win business strategies for sustainable development. California Management Review, 36(2), 90-100.

Elkington, J., Kreander, N., & Stibbard, H. (1998). The third international survey on company environmental reporting: The 1997 benchmark survey. Greener Management International, 21, 99-111.

Ernst and Ernst. (1978). Social responsibility disclosure, 1978 survey. Cleveland, OH: Ernst and Ernst.

Gilkison, B. (1997). Environmental Accountability. Award winners show the way - others need a push. Chartered Accountants Journal, 76(8), 57-61.

Gilkison, B., & O'Dea, G. (1997). Environmental Accountability. Chartered Accountants Journal, 76(8), 57-61

Grafe-Buckens, A., & Hinton, A-F. (1998). Engaging the stakeholders: Corporate views and current trends. Business Strategy and the Environment, 7(3), 124-133.

Gray, R. (1996). Corporate reporting for sustainable development: Accounting for sustainability in AD2000. In Business and the Environment. Welford, R., & Starkey, R. (eds.). London: Earthscan.

Hussey, J., & Hussey, R. (1997). Business Research. London: Macmillan Press Ltd.

IBM. (1995). Consulting the stakeholder. London: IBM.

International Accounting Standards Committee. (IASC). (1995). International Accounting Standards. London: IASC.

Klassen, R.D., & McLaughlin, C.P. (1996). The impact of environmental management on firm performance. Management Science. 42(8), p1199-1214.

KPMG Bohlins Environmental Advisors and The International Institute for Industrial Environmental Economics at Lund University. (1996). International Survey of Environmental Reporting 1996. Sweden: EnTrust and IPRA.

Kruijsen, J.H.J. (1998). Combining research and design: A methodological view of the path to sustainable development. Business Strategy and the Environment, 7(4), 250-255

Lober, D.J., Bynum, D., Campbell, E., & Jacques, M. (1997). The 100 plus corporate environmental report survey: A study of an evolving environmental management tool. Business Strategy and the Environment. 6(2), 57-73.

Maxwell, J.W. (1996). What to do when win-win won't work: Environmental strategies for costly regulation. Business Horizons, 39(5), 60-63.

Miller, W.H. (1998). Cracks in the green wall. Industry Week, 247(12), 58-68.

Ministry for the Environment. (1997). The state of New Zealand's environment. Wellington: Author.

Netherwood, A. (1996). Environmental Management Systems. In Corporate environmental: systems and strategies. Welford, R. (ed). London: Earthscan.

New Zealand Coalition Government. (June, 1996). Coalition Agreement. Wellington: Government Press.

Ng, L.W. (1984). Social responsibility disclosures of selected New Zealand companies for 1981, 1982 and 1983. Occasional Paper No. 54. Palmerston North: Faculty of Business, Massey University.

Niskala, M. (1995). Environmental reporting in Finland: a note on the use of annual reports. Accounting, Organizations and Society, 20(6), 457-466.

Organisation for Economic Co-operation and Development (OECD). (1981). Environmental performance reviews New Zealand. Paris: OECD.

Pearce, D., Markandya, A., & Barbier, E.B. (1989). Blueprint for a green economy. London: Earthscan.

Porter, M., & van der Linde, C. (1996). Green and competitive: Ending the stalemate. In Business and the environment. Welford, R. (ed). London: Earthscan.

Rikhardsson, P.M. (1996). Developments in Danish environmental reporting. Business Strategy and the Environment, 5(4), 269-272

Rikhardsson, P.M., & Ulhoi, J.P. (1996). Environmental reporting in Denmark: An empirical study. Eco-Management and Auditing, 3(2), 63-68.

Rubin, H.J., & Rubin, I.S. (1995). Qualitative interviewing: the art of hearing data. Thousand Oaks, CA: Sage.

Schaltegger, S. (1997). Information costs, quality of information and stakeholder involvement - the necessity of international standards of ecological accounting. Eco-management and Auditing, 4(3), 87-97.

Schmidheiny, S., & The Business Council for sustainable development. (1992). Changing course: A global business perspective on development and the environment. Cambridge, MA: The MIT Press.

Sekaran, U. (1992). Research methods for business: a skill-building approach. (2nd Ed.). New York: John Wiley & Sons, Inc.

Shrivastava, P., & Hart, S. (1995). Creating sustainable corporations. Business Strategy and the Environment, 4(3), 154-165

Sitarz, D. (ed.). (1994). Agenda 21. The earth summit strategy to save our planet. Boulder, Colorado: EarthPress.

Stanwick, S.D., & Stanwick, P.A. (1998). A descriptive analysis of environmental disclosures: A study of the US chemical industry. Eco-Management and Auditing, 5(1), 22-37.

SustainAbility & United Nation Environment Programme (1996). Engaging Stakeholders. Engaging Stakeholders 1: The Benchmark Survey. The second international progress report on company environmental reporting. Paris: United Nations Environment Programme.

SustainAbility & United Nation Environment Programme (1997). The third international survey on company environmental reporting. Paris: Paris: United Nations Environment Programme.

SustainAbility (1996). 50 Elements Benchmarking Tool. London: Author.

Tasman Pulp & Paper Company LTD. (1996). From source to sea. 1996 environmental report. Kawerau: Author.

The Electricity Corporation of New Zealand. (ECNZ). (1996). Environmental Report. Wellington: Author.

The New Zealand Refining Company LTD. (1996). Working with our environment. Whangarei: Author.

Tranberg, P. (1997, September). New Danish law asks businesses to report. Earth Times Service. [Online] Available: http://www.earthtimes.org/sept/businessnewdanishsept12_97.htm

United Nations Environment Programme (1994). Company Environmental Reporting: A Measure of the Progress of Business and Industry towards Sustainable Development. Technical Report 24. Paris: United Nations Programme.

United Nations. (1992) Agenda 21. Rio Declaration. Forest Principles. Drafts. Rio de Janerio: United Conference on Environment and Development.

Walley, N., & Whitehead, B. (1994). It's not easy being green. Harvard Business Review, 72(3), 46-52.

Watercare Services Limited. (1995/1996). Environmental Annual Report 1995/1996. Auckland: Author.

Welford, R., & Gouldson, A. (1993). Environmental management and business strategy. London: Pitman.

Wheeler, D., & Sillanpaa, M. (1997). The stakeholder corporation. London: Pitman.

World Commission on Environment and Development. (WCED). (1987). Our common future. Oxford, England: Oxford University Press.

Yancey, T.C. (1995). Issue management: Closing the expectation gap. Planning Review, 23(6), 19-20.

Zikmund, W.G. (1997). Business research methods (5th Ed.). Fort Worth: The Dryden Press.

Appendix One The UNEP-SustainAbility 50 environmental reporting ingredients and their definitions.

Based upon UNEP-SustainAbility, 1996, p.78-95

I Management Policies and Systems

Top Management Statement
Statement of commitment from senior management.
Environmental Policy
Framework and objectives for environmental action.
Environmental Management System
System used to manage a company's environmental responsibilities.
Management Responsibility and Accountability
Who is responsible for environmental matters.
Environmental Auditing
How environmental performance data is collected.
Goals and Targets
Environmental performance goals and targets.
Legal Compliance
Compliance with environmental legislation.
Research and Development
Integration of environmental factors into research and development.
Environmental Awards
Environmental awards that the company has won or administers.
Verification
External verification of the accuracy of reported information.
Reporting Policy
Why, to whom, and how the company reports.
Corporate Context
A brief profile of the company's operations.

II Input/Output Inventory

Material Use
An inventory of materials used and their potential impacts.
Energy Consumption
Energy consumption and progress in energy efficiency.
Water Consumption
Water consumption, and water efficiency.
Eco-efficiency and clean technology
Processes and technology that reduce the impact on ecosystems.
Health and Safety
Health and Safety procedures and employee education.
Accidents and Emergency Response
Recording of number and type of accidents and emergency response plans.
Risk Management and Environmental Impact Assessments
Prior assessment of the risks and hazards involved for specific projects.
Land Contamination and Remediation
Current and potential land contamination and clean-up costs.
Stewardship of local Habitats and Eco-systems
Protection and restoration of neighbouring habitats.

Waste Minimisation and Management
Waste generation, waste reduction and recycling initiatives.
Air Emissions
Identification, impacts and reductions measures for emissions to air.
Water Effluents
Identification, impacts and reductions measures for emissions to water.
Noise and Odours
Identification, number of complaints and reduction measures.
Transportation
Impacts, fuel choices and reduction measures for transport.
Life-Cycle Design
Design considerations that take a 'cradle-to-grave' approach.
Environmental Impacts
Impact accounting methods and emissions for substances used.
Product Stewardship
Ownership of the whole product life-cycle, from 'cradle to grave'.
Packaging
Raw materials, impacts and reduction of packaging materials.

III Finance

Environmental Spending
Capital and operating costs and savings of environmental projects.
Environmental Liabilities
Identification of known and potential environmental liabilities.
Market Solutions, Instruments and Opportunities
Environmental charges, benefits and return on investments.
Environmental Cost Accounting
Calculation and allocation of external costs to the environment.
Charitable Contributions
Amounts and recipients of donations.

IV Stakeholder Relations and Partnerships

Employees
Environmental awareness, training and incentive schemes.
Politicians, Legislators and Regulators
Relations with government, local authorities and regulators.
Local Communities
Dialogue and interaction with local communities.
Investors
Organisation's reputation in the investor community.
Suppliers and Contractors
Environmental targets, specifications and supply-chain initiatives.
Customers and Consumers
Information dissemination and interaction with consumers.
Environmental Groups
Involvement in non-governmental environmental initiatives.
Science and Education

Teacher and student training opportunities and dialogues.

Other Stakeholder Relations

Eg. Industry schemes and codes of conduct.

V Sustainable Development

Technology Co-operation

The sharing of environmental technology information.

Global Environment

Linking of company's activities and key environmental issues.

Global Development Issues

Respect for cultural diversity and development.

Global Operating Standards

International standards and procedures

Report Design

Easy to read, recycled paper and links to the Internet.

Visions, Scenarios, and Future Trends

Future corporate strategies and scenarios.

Appendix Two Report scoring rationales.

Tasman Pulp and Paper Company LTD

Top Management Statement

Score = 3

Commitment to and progress towards sustainable development in core business.

Pg 14 'We recognise that we are a part of a larger system which encompasses water, air, wildlife and communities. Our policies and practices and our commitment to continuous improvement reflect this understanding'.
'Environmental Stewardship is a way of life at Tasman'.
International standards of technology development - enzymes for pre-bleaching.
Policy of continuous development
$19 million environmental improvement programme for the next 12 months

Environmental policy

Score = 2

Policy sets measurable environmental objectives for some aspects of the business.

Pg 15 'Tasman is committed to achieving sustainable development in its pulp and paper business...'
Lists five key areas that need attention to achieve the goal of sustainable development in its business.
Policy states that it is important to have employees committed to meeting the environmental goals.
'We will effectively implement this Policy, in all aspects of Tasman's businesses'.

Environmental Management System

Score = 2

EMS is in place and structure set out clearly

Pg 16 Tasman has external independent evaluations and audits conducted on its EMS.
Audits are based on the whole business of Tasman.
The EMS is moving up to the ISO 14000 stage, with some areas also accredited with ISO 9001
'Environmental performance is regularly benchmarked against a range of mills elsewhere in the world...'

Overall EMS is very clear and implemented throughout the company, however, the verification was not published.

Management Responsibility and Accountability

Score = 1

Selected staff/management held responsible for legal compliance and environmental issues.

Pg 16 Nine people are dedicated to working on environmental monitoring and ongoing improvement activities, and closely monitoring international developments.

Pg 18 Employees also have to be trained.

Overall No names of environmental managers, however, it seems from reading the report that every one is responsible.

Environmental Auditing

Score = 2

Formal environmental audit system in place to evaluate compliance of all business units with laws and corporate policies and standards. Operations and facilities audited regularly. System also measures the effectiveness of audits in identifying poor performance, and in promoting improvements.

Pg 16 Tasman has external independent evaluation and auditing of its environmental management effects.
Reports lists who has conducted these audits.
Audits have focused on technology, operations, equipment, environmental performance, emission compliance and management systems.
Shows the frequency of the audits.

Overall Very close to a score of three, however, the verification of the audits was not published.

Goals and Targets

Score = 2

SMART (Specific, Measurable, Attainable, Relevant and Trackable) targets set for some areas of the company's activities, plus reporting on performance against previous targets.

Pg 17 SBLOX emissions. States measurable targets and graphs pervious performance details.

Pg 18 Water quality is at world standards, and it is always improving.

Pg 19 River colour, water use and organochlorides are all given specific targets and goals, and previous performance is graphed.

Overall Very clear targets which are SMART, however, they complete for the whole business.

Legal Compliance

Score = 2

Selected compliance data provided, with some discussion of strategy for closing compliance gap.

Pg 17 Legal compliance is related to the RMA (1991) for resource use.
Example of how much was spent on gaining air discharge permits ($1million).
States that Tasman had a good level of compliance.
Tasman was fined $60,000 for non-compliance in Total Reduced Sulphur emissions.
States strategy to fill this compliance gap.

Overall RMA was the only legal compliance area discussed, and only data for some areas was given.

Research and Development

Score = 2

Strong environmental policy framework for key areas of R & D.

Pg 15 Environmental policy states '... continuously improve our environmental performance by seeking better ways to manage productions processes and applying cost effective technologies to minimise any environmental impact of our operations'.

Pg 16 Costs of environmental expenditure are given, or which R&D would be part of.

Pg 20 'Research is continuing with a view to developing a more beneficial use for this material in the future'.

Pg 21 There has been a lot of research into chlorine free bleaching.

Overall There is a strong R&D commitment, however, it does not cover the full life-cycle of the products.

Awards
Score = 0
No mention of awards won or administered.

Verification
Score = 0
There is no external verification of the report.

Reporting Policy
Score = 1
Brief discussion of company's reasons for reporting and future intentions.
Pg 14 With the directors message the reporting policy is briefly discussed: 'This report reviews our efforts, accomplishments, challenges and commitments in managing Tasman's environmental responsibilities during the 1995/19 year'.
'This annual publication will outline our progress towards our goal of progressively closing process loops and minimising discharges and waste'.

Corporate Context
Score = 2
Reasonably full coverage of corporate context.
Pg 15 The report outlines the type of business Tasman is, who it is owned by, the revenue it generates and the number of employees. The report also gives a map showing where the company operates, and its surrounding hinterland.
Overall No link to the company's environmental issues are given in the context of the company.

Inputs
Score = 1
Brief discussion of natural resources and materials use.
Pg 15 Environmental Policy states: 'responsible use of natural resources'.
Pg 18 Notes the fact that water is a critical component of the production process.
Pg 19 Water usage reduction. Measurable goals are given.
Pg 21 Discussion is given into using residual wood form sustainable forests for energy production.
There is discussion of chlorine used in the production process, but this mainly leads on to outputs.
Overall There is no in depth discussion of the other products used for the production process, and there is no mention of an inventory of environmentally significant materials.

Energy Consumption
Score = 1
Company reports briefly on energy consumption.
Pg 21 'Energy efficiency is a key element of Tasman's competitiveness in world markets'.
Report discusses the percentage of different types of energy used.
Generation and co-generation of energy is discussed, and this is linked to the sources of energy, such as residual wood from sustainable forests.
Overall There was no discussion of energy use, and because of this individual processes/plants were not discussed in terms of energy consumption or efficiency.

Water Consumption
Score = 1
Company reports briefly on water consumption.
Pg 18 Report states that water is a critical component in pulp and paper production processes.
Pg 19 States that water usage has dropped 25% since 1994 to 155 million litres per day.
Discusses briefly the water reduction task group which has the long term goal of reducing water usage to less than 120 million litres per day.
Overall There was no identification of specific water intensive sites or production processes.

Eco-efficiency/clean technology
Score = 0
Continuous improvement is mentioned often, however, there is no mention of eco-efficiency in the discussion.

Health and Safety
Score = 0
There is no mention of health and safety.

Accidents and Emergency Response
Score = 0
There is no mention of accident and emergency response.

Risk management and EIAs
Score = 0
There is no mention of risk management and EIAs.

Land Contamination and Remediation
Score = 0
There is no mention of land contamination and remediation.

Stewardship of Local Habitats and Eco-systems
Score = 2
System in place to evaluate and reduce potential adverse impacts of product and services on local areas. Changes made to protect eco-systems.
Pg 1-14 These pages explain habitat stewardship and how important the environment is.
Pg 11 $150,000 was given to local conservation groups to help protect the kotuku.
Pg 14 'Our Eastern Bay of Plenty home is a place rich with natural history and resource, culture and physical beauty. We are dedicated to preserving it.

'We recognise that we are a part of a larger system which encompasses water, air, wildlife and communities.

Overall No discussion on product design and habitat stewardship.

Waste Minimisation and Management

Score = 2

Pg 14 Goal of progressively closing process loops and minimising discharges and waste.

Pg 15 Policy statement - 'recycle where practical.

Pg 16 Carbon Dioxide reduction.

Pg 17 Tasman is involved in a paper recycling scheme called Kerbside Paper Collection. To improve air quality Tasman is reducing its emissions to air.

Pg 19 River colour is improved by reducing the amount of lignin in the waste stream. Organochlorine discharges have been drastically reduced, and compare very well with international standards and background levels accepted.

Pg 20 Solid waste management is covered well, with discussion of mining scheme to use previously dumped wastes for other uses.

Overall Although wastes and waste management is covered for most aspects of the business, there is no discussion of product disposal and product design in terms of recyclability. Benchmarking was only in the form of passing comments.

Air Emissions

Score = 2

Formal system in place to set standards for minimising emissions beyond legal requirements and to identify and implement cost-effective minimisation practices.

Pg 17-18 Identifies air emissions: sulphur, particulates, CFCs and carbon dioxide.
Limited data is supplied for emissions for sulphur and particulates.
Discusses the installation of TRS and steam strippers to remove emissions.
Some mention of the international accepted guidelines.

Overall Product design is not discussed in relation to air emissions, and there is no discussion for internal or external feedback.

Water Effluents

Score = 2

Formal system in place to set standards for minimising effluents beyond legal requirements and to identify and implement cost-effective minimisation practices.

Pg 18 Safeguarding water quality - all effluents are discussed.

Pg 19 River oxygen and river colour are closely monitored, and reductions in effluents flowing into the river have been, and are being reduced.

Pg 20 Groundwater monitoring system is used as an effective early warning system if problems do arise.

Overall There was no link to product design, or the product life-cycle. No complete description of impacts on the receiving water.

Noise and Odours
Score = 0
Only one small mention: 'The air emissions focus is currently on pulp mill odour released as a by-product of the Kraft pulp cooking process... (pg 17)'.
No mention of odours.

Transportation
Score = 0
No mention of transport issues.

Life-cycle Design
Score = 0
No mention of life-cycle design of products.

Environmental Impacts
Score = 1
Some discussion of impacts. No formal system.
Pg 15 '... minimise any environmental impact of our operations.
Overall The report discusses outputs, however, the impacts of these outputs on the environment are not discussed. No mention of inventory of environmental effects.

Product Stewardship
Score = 0
There is only one mention of a Kerbside Paper collection programme that Tasman is involved in. There is no other discussion of product stewardship.

Packaging
Score = 0
No mention of packaging.

Environmental Spending
Score = 2
Some information about capital and operating costs.
Pg 16 Total amount of environmental spending are listed. Throughout the report other environmental costs are discussed.
Overall No savings, payback times or benchmarking with other sectors are mentioned.

Environmental Liabilities
Score = 0
No mention of environmental liabilities.

Market Solutions, Instruments and Opportunities
Score = 0
No mention of environmental liabilities.

Environmental Cost Accounting
Score = 0
No mention of environmental cost accounting.

Charitable Contributions
Score = 1
Company's charitable contributions are reported.
Pg 11 $150,000 was given to environmental groups to help protect the kotuku.

Employees
General information provided.
Score = 1
Pg 15 Environmental Policy: 'We will sustain a culture where all our employees are committed to meeting Tasman's environmental goals'.
Pg 18 Employees are mentioned in the safeguarding of water quality: '... improved training of employees and contractors'.

Politicians, Legislators and Regulators
Score = 2
Some detail on dialogue in some areas where the company operates.
Pg 16 'Tasman is committed to a process of consultation with community groups, environmental regulators and mill operating teams'.
Pg 16 Tasman took part in the Ministry of Commerce measurement design to reduce carbon dioxide emissions in NZ.
Pg 17 Tasman was worked with Environment Bay of Plenty on the Regional Policy Statement and the Regional Plan for the Tarawera River Catchment.
Comment is given on the RMA process with local authorities.
Pg 18 Tasman is a signatory to the voluntary agreement programme with Government to reduce carbon dioxide.
Overall No detail was given on feedback, challenges and benchmarking.

Local Communities
Score = 1
General information provided.
Pg 15 'We will consult and communicate openly with members of the community , elected bodies and other stakeholders on environmental issues, resource management, and our environmental performance'.
Overall There was no detail on dialogue with local communities.

Investors
Score = 0
No mention was given about investors.

Suppliers and Contractors
Score = 0
There is only one mention is relation to safeguarding water quality: '...improved training of ... contractors in environmental awareness'.

Customers and Consumers
Score = 1
General information provided.
Pg 16 'Information about Tasman's environmental policies, practices and performance is willingly provided to customers wishing to ensure compliance with their own environmental policies.

Environment Groups
Score = 1
General information provided.
Overall Mention is given to working with environmental stakeholders, and Tasman has been involved in the protection of the kotuku.

Science and Education
Score = 0
No mention is given on science and education.

Other
Score = 1
General information is provided.
Pg 21 Tasman is involved with industry research on the implementation of chlorine free bleaching.

Technology Cooperation
Score = 0
No mention is given on technology cooperation with other industry members.

Global Environment
Score = 1
Some discussion of the issues.
Pg 14 Managers forward includes statement about the concept of ecology and environmental stewardship.
Pg 17 Tasman has conformed with the Montreal Protocol to help protect the Ozone layer.

Global Development Issues
Score = 0
No mention of global development issues.

Global Operating Standards
Score = 1
Brief discussion of the agenda.
Pg 16 Performance is regularly benchmarked against a range of mills elsewhere in the world. An example is given of benchmarking in effluent quality.

Report Design
Score = 1
Good basic design.
Overall Other information sources are listed, and a clear and descriptive glossary of terms is included. The report is very cramped, and a lot of room has been devoted to pictures of the environment.

Visions, Scenarios, and Future Trends
Score = 0
No mention is given on sustainable development, although environmental stewardship is shown to be very important.

Electricity Corporation of New Zealand Limited (ECNZ)

Top Management Statement
Score = 1
Minimal coverage, little detail.
Pg 1 Statement from David Frow, Chief Executive.
ECNZ needs to access natural and physical resources to generate electricity, however it needs to demonstrate honesty and trustworthiness.
Comments on the consultative approach with the community to address issues.
Overall The statement does not comment or any shortcomings, and does not clearly define ECNZ's strategy.

Environmental policy
Score = 1
Policy sets general environmental objectives for the company.
Pg 25 Environmental principles/policy covers compliance, business operation and community in a general manner.
The principles range from energy generation through to energy efficiency of consumers.
Excellent coverage of the consultative approach.
Overall The policy does not give any clear measurable objectives or goals for the company, except very general ones. There was no mention of sustainability, or the triple bottom line.

Environmental Management System
Score = 1
EMS development is in progress.
Pg 17 '... ECNZ intends to continue development of a formalised environmental management system to co-ordinate all aspects of its environmental management'.
ECNZ is assess whether ISO 14000 will be appropriate for it operations and needs.
ECNZ is working towards establishing a set of performance indicators for measuring environmental performance and benchmarking.

Management Responsibility and Accountability
Score = 0
No specific mention of environmental management responsibility or accountability.
Throughout the report names are given of individuals in charge of certain environmental projects, however, these do not relate to the management of ECNZ

Environmental Auditing
Score = 0
No mention of auditing.

Goals and Targets
Score = 2
SMART (Specific, Measurable, Attainable, Relevant and Trackable) targets set for some areas of the company's activities, plus reporting on performance against previous targets.
Pg 5 Targets for renewal of resource consents is given in detail, with dates of previous performance, and future predictions.
Pg 21 Clear targets are given for carbon dioxide emission reduction, with previous years data.
Overall For the rest of the business general goals and targets are stated.

Legal Compliance
Score = 4
Full compliance plus presentation of company strategy for dealing with likely future compliance challenges.
Pg 5 ECNZ's legal issues are mainly based around the RMA and gaining resource consents. The renewal of consents is listed thoroughly.
Pg 12 The consent process is outlined for Hydro generation. Consultation is described with other parties.
Pg 14 ECNZ is developing computer software to create a database of consents and their conditions.
Pg 25 'To comply with all legal and statutory requirements and with all our agreements relating to environmental matters'.

Research and Development
Score = 2
Strong environmental policy framework for key areas of R&D.
Pg 25 'To support research and investigations in areas of current environmental interest'.
Pg 6 Research and development into generating electricity more efficiently.
Pg 9 Computer modelling has been developed for all the hydro generators.
Pg 23 Research into energy efficiency, eg. Motor Monitor and EnergyAssist.
Pg 24 Research into different energy technologies, such as fuel cells, biomass, and co-generation.

Awards
Score = 0
No mention of receiving or administering environmental awards.

Verification
Score = 0
There is no verification document published with the report.

Reporting Policy
Score = 0
There is no reporting policy mentioned.

Corporate Context

Score = 1

Sketchy discussion.

Pg 1 ECNZ generates about two thirds of electricity used by New Zealanders.

Pg 6 The report describes how ECNZ does business, in terms of hydro, thermal and geothermal electricity production.

Pg 25 ECNZ recognises that it uses natural resources extensively.

Overall There is no statement regarding the number of employees, net income, or overall environmental impacts of the organisation.

Material Use

Score = 2

System in place to consider efficient use of natural resources and raw material, plus discussion of the use of substitute or recycled products.

Pg 6 'ECNZ favours the use of renewable natural resources, wherever economic'.
The report lists the amount and type of fuel it has used for electricity generation.
Throughout the report it is stated that ECNZ is trying to reduce the amount of resources it uses, and to get as much energy as possible out of the resources it does use.

Pg 25 ECNZ is investing heavily in alternative resources such as biomass and co-generation facilities.

Energy Consumption

Score = 1

Company reports briefly on energy consumption.

Pg 6 The amount of energy sources used is listed.

Overall Throughout the report energy consumption is discussed in relation to the thermal generators, however, it is not detailed and the report is more focused on energy production rather than consumption.

Water Consumption

Score = 1

Company reports briefly on water consumption.

Pg 6 Total water used = 170,000 million cubic metres.

Pg 9 'For hydro power stations this means optimising the amount of electricity that can be generated from the water available'.

Pg 20 'Thermal power stations use water for cooling the heated system which drives the turbines'.
Discusses the impacts from raising the temperature of the water 8 degrees Celsius.

Overall The report discusses how much water it uses in some areas, however, efficiency and reducing the water used is not reported on.

Eco-efficiency/clean technology
Score = 1
Pg 25 'To use natural and physical resources efficiently'.
Pg 9 Multi-use of resources seen as a way to increase the benefit from the resources with the least environmental impact.
Pg 21 'The carbon dioxide emission reductions result from improvements in the generation and transmission of electricity'.
Pg 24 Refrigeration which heats water at the same time.
Pg 24 Research into biomass and co-generation technology.
Overall Only a general discussion, without any comment on the carrying capacity of the earth. No strategy or targets involved.

Health and Safety
Score = 0
No mention of Health and Safety issues.

Accidents and Emergency Response
Score = 0
No mention of accidents and emergency response.

Risk management and EIAs
Score = 0
No mention of risk management of EIAs.

Land Contamination and Remediation
Score = 0
No mention of land contamination and remediation.
The report does discuss the dredging of sedimentation from Lake Otamangakau because of the redirection of water flow. ECNZ is having to dredge 160,000 cubic meters of sedimentation.

Stewardship of Local Habitats and Eco-systems
Score = 3
Consideration of potential impacts on local natural habitats is incorporated into business units, products and service design and company planning process.
Pg 18 Project River Recovery. ECNZ has spent $3.2 million on restoring the braided river habitats for endangered birds.
Pg 19 ECNZ has funded the cleaning up and restoration of the Waikato River, and associated streams.
Pg 11 Because of the impacts on stream flow ECNZ has embarked on a scheme to aid the elvers in their migration up-stream.
Overall Working by consultation with community and environmental groups, ECNZ considered the impacts of its operations and tries to remedy them.

Waste Minimisation and Management
Score = 1
Brief discussion of waste reduction and management.
Pg 23 ECNZ has introduced a new programme called Waste Minimisation. This is a broad-based approach for businesses that recognise that waste is a financial as well as a legal issues, so reducing waste can improve the bottom-line.
ECNZ works with its customers on this scheme.

Air Emissions
Score = 1
Brief discussion of air emissions reductions.
Pg 20 Describes the carbon emission of the thermal generators and their reduction targets. Performance is benchmarked against other years and other industry sectors.
Overall The report only recognises carbon as an emission and does not described the process of setting targets and the implementation of cost-effective minimisation practices.

Water Effluents
Score = 0
There is no discussion of water effluents.

Noise and Odours
Score = 0
There is no discussion of noise and odours.

Transportation
Score = 0
There is no discussion of transportation issues.

Life-cycle Design
Score = 0
There is no discussion of life-cycle design of products.

Environmental Impacts
Score = 1
Some discussion of impacts. No formal system.
Pg 25 'To avoid, remedy or mitigate any adverse effects on the environment caused by our operations'.
Pg 5 ECNZ environmental impacts are governed in some way by the RMA, and therefore to gain consents. ECNZ must list all the impacts and mitigating actions.
Overall The report discusses briefly the fact that some of its operation have impacts, however, it does not in any way list the specific impacts.

Product Stewardship
Score = 1
Brief discussion of issues.
Pg 23 ECNZ has provided services for customers and consumers to become more efficient and therefore use less electricity.

Packaging
Score = 0
No mention of packaging.

Environmental Spending
Score = 0
No mention of the costs of ECNZ's overall environmental management.

Environmental Liabilities
Score = 0
No mention of ECNZ's environmental liabilities.

Market Solutions, Instruments and Opportunities
Score = 0
No mention of market solutions, instruments or opportunities.

Environmental Cost Accounting
Score = 0
No mention of environmental cost accounting.

Charitable Contributions
Score = 1
Company's charitable contributions are reported.
Pg 15 ECNZ is supporting the local community by, for example, providing one-third cost of a study of Ruapehu's crater rim.
Pg 16 ECNZ is giving $3.2 million to Project River Recovery.

Employees
Score = 1
General information provided.
Pg 14 'During 1995/96, a training team conducted seminars for staff to refresh them in the principles of the RMA and its impact on the company's activities'.
Pg 25 'ECNZ will follow procedures that ensure environmental awareness and competence in our staff, and adherence to these principles'.

Politicians, Legislators and Regulators
Score = 2
Some detail on dialogue in some areas where the company operates.
Pg 6 ECNZ contributes to the development of environmental policies by central and local government.
Pg 16 'In 1995/96 ECNZ made submissions to many councils about their regional policy statements and plans'.

ECNZ works with the Ministry for the Environment on the Environment's Flow Requirement Advisory Group and the Environmental indicators Focus Group on Air Quality.

Pg 21 ECNZ was part of the first group of nine companies to sign a carbon dioxide voluntary agreement with the Government.

Overall The report continually emphasises its consultative approach, and politicians, legislators and regulators are included in these consultation groups.

Local Communities

Score = 2

Some detail on dialogue in some areas where the company operates.

Pg 1 '... to use a consultative approach with the community to address issues that arise from our operations'.

Pg7 Working parties are established for discussion of environmental issues, and local community is represented in these parties.

Pg 12 The report describes the process that the working parties take to reach decisions.

Overall The report states that local communities are consulted continually on any changes in the operation of ECNZ that may impact of the environment.

Investors

Score = 0

There is no mention of investors.

Suppliers and Contractors

Score = 1

General information provided.

Pg 5 Report states that ECNZ's environmental policies govern all actions by staff or contractors which impact on the environment.

Pg 13 An example is given of the operations of a contractor who complies to ECNZ's environmental principles.

Customers and Consumers

Score = 2

Some detail on dialogue in some areas where the company operates.

Pg 23 ECNZ provides customers with information on energy efficiency, and provides technology to help the customers become more efficient.
ECNZ is also promoting a programme on Waste Minimisation which is trying to educate its customers on the financial, legal and environmental implications of waste.

Pg 24 An example is given of ECNZ's work with a customer to heat water from a new refrigeration unit.

Environment Groups

Score = 2

Some detail on dialogue in some areas where the company operates.

Pg 1 'I would like to thank our community and environmental partners around the country for the time, skill and imagination they have contributed to the process'.

Pg 7 In the consultative process, ECNZ includes representatives from the Royal Forest and Bird Protection Society and the Fish and Game Councils.

Pg 16 ECNZ is giving $3.2 million to environmental groups to develop the Project River Recovery to save and restore the habitat of many native birds.

Science and Education
Score = 2
Some detail on dialogue in some areas where the company operates.
Pg 14 ECNZ is working with scientists to assess the impacts of the Mount Ruapehu eruption.
Pg 19 From discussions with scientists, ECNZ has begun a programme to clean-up and restore the streams that run off the Waikato River.
Pg 24 ECNZ has over 50 major research projects under way with partners at universities, CRI and international energy agencies.

Other
Score = 0
No mention of other activities.

Technology Cooperation
Score = 0
No mention of technology cooperation with fellow industry members.

Global Environment
Score = 0
No direct mention of the company's activities being linked to global environmental problems.

Global Development Issues
Score = 1
Some discussion of the issues.
Pg 25 'To recognise cultural diversity in the community and respect the views of the tangata whenua'.
Overall The report states that local iwi are consulted at all times.

Global Operating Standards
Score = 1
Brief discussion of the agenda.
Pg 17 ECNZ is considering developing its environmental management system operations to the ISO 14000 global operating standard. This will have performance indicators which will be able to be benchmarked against other world best practices.

Report Design
Score = 2
The information is communicated in a clear and understandable format and is a pleasure to read.
Overall The reports photographs and graphs clearly describe those aspects of ECNZ's environmental performance. There are no addresses given for further information.

Visions, Scenarios, and Future Trends
Score = 0
There is no mention of visions. scenarios and future trends.

The New Zealand Refining Company LTD

Top Management Statement
Score = 1
Minimal coverage, little detail.
Pg 20 'Given the importance of this aspect of our business performance, we have included in the Annual Report this year a separate, public, report on our Occupational Health, Safety and Environment Impact Performance'.

Environmental Policy
Score = 1
Policy sets general environmental objectives for the company.
Pg 14 Objective of having as little impact on the environment as can rationally be expected. Requires consultation with community and constant monitoring of performance.

Environmental Management System
Score = 0
No mention of the company's EMS.

Management Responsibility and Accountability
Score = 0
No mention of environmental management responsibility and accountability.

Environmental Auditing
Score = 0
No mention of environmental auditing.

Goals and Targets
Score = 0
No mention of environmental performance goals or targets.

Legal Compliance
Score = 1
Compliance discussed. Sketchy information provided. No sense of strategy for closing compliance gap.
Pg 2 'Bettered all environmental consent limits'.
Pg 16 'The company operates under a series of stringent discharge consent licences for water discharge from the stormwater basin to sea'.
Pg 17 'Rigorous monitoring of air lead levels was conducted during this operation in line with Regional Council requirements'.

Research and Development
Score = 1
Some evidence of environmental focus in R&D activities. No formal system.
Pg 15 The report discusses the development of a more environmentally friendly sludge and oily waste discharge system, and also the continuing research with Massey University into alternative ways of disposing the waste.

Awards
Score = 0
No mention of awards won or administered.

Verification
Score = 1
Basic statement.
Pg 46 Auditor's report states that they company's accounting records have been kept properly.

Reporting Policy
Score = 1
Brief discussion of company's reasons for reporting and future intentions.
Pg 20 Company decided to report because HS&E is a very important aspect of the company's business performance.

Corporate Context
Score = 1
Sketchy discussion.
Pg 4-8 The report discusses the production levels and profits of the company. The report also lists employee remuneration, and a general statement on the 1996 performance and future outcomes.

Material Use
Score = 1
Brief discussion of natural resources and materials use.
Pg 14 Inputs for hydrocarbon processing are given, including total tonnage.
Pg 15 Inputs for the refining process are listed, but no specific amount are given.

Energy Consumption
Score = 0
No mention of energy consumption.

Water Consumption
Score = 1
Company reports briefly on water consumption.
Pg 16 The report lists the quantities of water that it uses and processes, including ship deballasting. However, the report does not go into how this water usage is being reduced.

Eco-efficiency/clean technology
Score = 0
No mention of eco-efficiency, or clean technology.

Health and Safety
Score = 3
Health and safety considerations are integrated within the planning and management systems. System measures progress towards corporate health and safety goals.

Pg 12 The report lists specific initiatives that the company embarked on to improve its performance in H&S
The report gives quantitative information on the percentage of body parts injured.
Pg 13 Detailed statistics are given on the H&S performance of the company.
Previous years data is given for benchmarking purposes.

Accidents and Emergency Response
Score = 1
Company prepares legally required plans for emergency response. No formal system.
Pg 14 The report discusses how many fires and other accidents the site has had.
Currently, there is a HSE case study being conducted to list all potential hazards and risks and design company action plans.
Overall The company and report is about to move to a score of two, once it has its new system in place.

Risk management and EIAs
Score = 0
No mention of risk management or EIAs, however, these would be covered by the RMA consent process.

Land Contamination and Remediation
Score = 0
No mention of land contamination and remediation.

Stewardship of Local Habitats and Eco-systems
Score = 1
Company responds to legal requirements or accepted standards for protection of local endangered species and specific eco-systems.
Pg 10 'We are very conscious of our location at the mouth of the Whangarei harbour, an area of unparalleled scenic beauty'.
Pg 17 The report states that every year the company does a major clean up of the area surrounding the site, and also the beaches in the site's vicinity.
NZRC continues to the sponsor the planting of Pohutukawa trees.

Waste Minimisation and Management
Score = 1
Brief discussion of waste reduction and management.
Pg 16-17 The report discusses the various wastes that come from the refining process,and lists the amount for some of the wastes. Some of the wastes are collected and shipped to 'environmentally approved' facilities where impurities are removed and recycled.
Pg 17 Packaging and other wastes are sorted and recycled.

Air Emissions
Score = 1
Brief discussion of air emissions reductions.
Pg 15 The outputs of hydrocarbon processing are discusses, with the major air emissions listed. Some detail is given on the amounts of emissions emitted, however, there are no targets given to measure future performance on.

Water Effluents
Score = 1
Brief discussion of water effluent reductions.
Pg 16 The report lists the types of effluents it monitors and tries to reduce. Some detail is given on amounts of effluent, and is benchmarked on previous years' performance.
Overall There is no mention of cost-efficient reductions, and there are no targets given for the future.

Noise and Odours
Score = 1
Brief discussion of noise and odour reductions.
Pg 17 The report lists the number of complaints that it has had for the site and for the oil tankers. The company has trained the various members of the local community on certain odours for a type of control system.

Transportation
Score = 0
No mention of transportation.

Life-cycle Design
No mention of life-cycle design.

Environmental Impacts
Score = 0
No discussion of environmental impacts.

Product Stewardship
Score = 0
No discussion of product stewardship.

Packaging
Score = 1
Brief discussion of packaging issues.
Pg 17 The disposal of packaging is monitored by environmental staff. Packaging is sold off for recycling.

Environmental Spending
Score = 0
No mention of environmental spending.

Environmental Liabilities
Score = 0
No mention of environmental liabilities.

Market Solutions, Instruments and Opportunities
Score = 0
No mention of market solutions, instruments or opportunities.

Environmental Cost Accounting
Score = 0
No mention of environmental cost accounting.

Charitable Contributions
Score = 1
Company's charitable contributions are reported.
Pg 27 All the organisations that NZRC has donated to are listed.

Employees
Score = 1
General information provided.
Pg 17 'Regular oil spill exercises also form part of the training of refinery staff in emergency response'.
Company employees have been involved in the planting of seedling Pohutukawa.

Politicians, Legislators and Regulators
Score = 1
General information provided.
Pg 15 NZRC signed a voluntary carbon dioxide agreement with the Ministry of Commerce which targets the year 2000.
Pg 17 The company has worked with the Northland Regional Council to devise an Oil Spill Response Tier-2 plan.

Local Communities
Score = 1
General information provided.
Pg 17 The company meetings with communities both sides of the Whangarei Heads, which are chaired by the Northland Regional Council.
Similar meetings are held with local iwi

Investors
Score = 0
No mention of investors.

Suppliers and Contractors
Score = 1
General information provided.
Overall The HSE section is one part of the overall annual report which does give investor information. However, this is not directly linked with environmental issues.

Customers and Consumers
Score = 0
No mention of customers and consumers.

Environment Groups
Score = 1
General information provided.
Pg 27 The environmental agencies that have been sponsored by NZRC have been listed.

Science and Education
Score = 1
General information provided.
Pg 15 'The Company is involved in research and development work with Massey University to establish alternative ways of disposing of this tank sludge'.

Other
Score = 0
No mention of other stakeholder dialogues or industry associations.

Technology Cooperation
Score = 0
No mention of technological cooperation.

Global Environment
Score = 0
No mention of the global environment problems.

Global Development Issues
Score = 0
No mention of global development issues.

Global Operating Standards
Score = 0
No mention of global operating standards.

Report Design
Score = 1
Good basic design.
Overall The sections on the environment are well written, and the graphs supplied are easily understood.

Visions, Scenarios, and Future Trends
Score = 0
No mention of visions, scenarios or future trends on sustainable development.

UNEP/SustainAbility Scoring System - Rationale

Watercare Services Limited 1996 Annual Environmental Report.

Top Management Statement
Score = 2
Detailed and honest, including company shortcomings and commitments
No mention of sustainable development and the triple bottom line
Pg 2 'This is our fourth Environmental Annual Report' - shows commitment
Pg 3 'I am proud of the progress we have made and commend this report to you" - endorsement

Environmental Policy
Score = 3
Policy sets measurable environmental objectives for all aspects of the business.
Environmental policies are incorporated into business plans.
Pg 14-32 Very clear coverage of the environmental policies for each section and area of the business
Pro-active approach, with the future plans outlining what is going to happen.
Pg 30 Discusses briefly international best practice.
No mention of the triple bottom line.

Environmental Management System
Score = 3
EMS is developed to a recognised standard (BS 7750, EMAS, ISO 14001) and/or verified, with verification statement published.
Pg 9 Diagram of how the EMS works, continual appraisal and improvement.
Pg 9 EMS is designed on the BS 7750
Pg 16 Ardmore, Huia and Waitakere plants either working towards or have gained ISO 9002
Pg 33 Verification '... and that environmental management was being undertaken in accordance with its environmental policy and objectives'.

Management Responsibility and Accountability
Score = 2
System is established to evaluate the performance of managers against external and corporate environmental standards.
Pg 7 Paula Pickard - services technician is identified
Pg 19 Watercare Laboratory - independent business unit to carry out compliance tests.
Pg 19,23 Performance standards are stated throughout report in relation to health standards

Environmental Auditing
Score = 2
Formal environmental audit system in place to evaluate compliance of all business units with laws and corporate policies and standards. Operations and facilities audited regularly. System also measures the effectiveness of audits in identifying poor performance, and in promoting improvements.
Pg 6 Reporting to CEO and Watercare Board every quarter and annually.
External reporting - 'Compliance Reporting'
Areas where action is required

Overall Because many of the plants are gaining a quality standard they must be audited.

Goals and Targets
Score = 2
SMART (Specific, Measurable, Attainable, Relevant and Trackable) targets set for some areas of the company's activities, plus reporting on performance against previous targets.
Pg 31-32 Miscellaneous pages briefly cover goals and target for energy consumption
Overall Legal compliance is discussed throughout the report for each section and site .
Targets are clearly set for each area for water quality.
Pg 28 Clearly proposed effluent standards.

Legal Compliance
Score = 4
Full compliance plus presentation of company strategy for dealing with likely future compliance challenges.
Overall Consents are mentioned throughout the report.
Clearly states future consents and legal issues
Pg 23 Manukau City Council lodged proceedings because of odour problems - reported 'bad news'.

Research and Development
Score = 1
Some evidence of environmental focus in R&D activities. No formal system.
Pg 12 Utilising resources efficiently - points 26 and 27
Pg 24 Waste water treatment research and development
Pg 25 'Watercare is pursuing with industry ways to reduce the discharge of chromium into the sewers'.

Awards
Score = 0
No mention of any environmental awards won.

Verification
Score = 2
Reasonably full statement.
Pg 33 Verified by Woodward-Clyde (NZ) Ltd, Engineering and Environmental Consultants.
'... achieved majority of its set environmental objectives'
Echo of the triple bottom line - '... through prioritising the use of capital and human resources...'

Reporting Policy
Score = 2
Full statement of company's reporting policy, plus identification of areas of coverage and frequency of reporting.
Pg 2 Forward from CEO 'This is our fourth environmental annual report...'
Pg 3 'This report places our ideals and achievement on record'
Pg 6 Environmental reporting. Quarterly internal reporting to the CEO and Watercare Board. Annual external reporting.
No mention of GEMI or UNEP reporting standards.

Corporate Context
Score = 3
Full relevant discussion of corporate context to major environmental policy and impact issues.
Pg 4-5 Map, size of population areas serviced.
Pg 7-11 Lists business and impacts, also states and mitigating actions.
Overall Throughout the report it also discusses what each section of the business does in relation to Watercare's business.

Inputs
Score = 0
No discussion of materials used and their impacts, however it could be bordering on a one.
Pg 6 Inventory of environmental effects
Pg 12 Statement 28 'To promote clean production, waste recycling and reuse'.

Energy Consumption
Score = 1
Company reports briefly on energy consumption.
Pg 31 Discusses the energy generated by the hydro-generators at the Waitakere Filter Station and the Mangatangi Dam.
Mentions the future plans very briefly.

Water Consumption
Score = 4
Reports on water consumption, efficiency, continuous improvement and how the company considers water usage associated with all phases of product and service life-cycle.
Pg 5 Examples of water supply - 288,000m^3 per day
Pg 8 Shows clearly where water was lost
Pg 9 3.6% unaccounted for water
Water distribution and collection
Overall Very clear on all stages of life-cycle.

Eco-efficiency/clean technology
Score = 1
Brief discussion. No formal system.
Pg 12 Statement 28 - 'To promote clean production, waste recycling and reuse'.
Statement 26 - 'To use technological advances to further environmental objectives where appropriate'
Pg 24 Sludge/biosolids treatment scheme.

Health and Safety
Score = 0
Not mentioned directly
Would be covered by legal compliance.

Accidents and Emergency Response
Score = 2

Emergency plans go beyond regulatory requirements to provide more detailed and specific information relevant to potential on and off-site incidents. System reviews and updates emergency plans on a regular basis.

Pg 8 Pipeline bursts - mitigating actions

Pg 9 Sewers bursts - mitigating actions

Pg 11 'Watercare reduces the likelihood of overflows by good maintenance of plant; remotely monitored alarms; one hour responses to alarms; stand-by pumps and emergency storage.

Risk Management and EIAs

Score = 4

System continuously evaluated to identify and implement improvement opportunities. System solicits, accepts and responds to input and feedback from appropriate internal and external experts and stakeholders.

Pg 14 Risk Management is covered

Pg 21 Risk management of trade wastes

Pg 22 Substances environmental fate.

Overall Very thorough EIAs throughout the business and report.

Land Contamination and Remediation

Score = 1

Company assesses immediate needs and current requirement and standards to clean up and upgrade facilities to meet all requirements mandated by financial markets or regulations.

Pg 30 Harbour Discharge Compliance

Pg 24-25 Wastewater treatment sludge/biosolids. The restoration of the old sludge lagoons.

Overall No costs were stated and there was no discussion of requirements

Stewardship of Local Habitats and Eco-systems

Score = 3

Consideration of potential impacts on local natural habitats is incorporated into business units, product and service design and company planning processes.

Pg 9 Hunua and Waitakere ranges maintained in native bush

Pg 12 Statement 14 'To preserve the heritage clues of Watercare's facilities'.
Statement 15 'To protect the environment through a reduction in the discharge of toxins'.
Statement 16 'To enhance the visual appearance of facilities'.

Pg 14 Mangatangi Dam fishing trials

Pg 14 Hays Creek Dam - Resource Consent renewal: '... seedlings are to be planted...'

Pg 28 Natural Resource Study on the Manukau Harbour Water Quality Studies.

Waste Minimisation and Management

Score = 2

System in place to identify major hazards and risks from waste and product disposal and barriers to reuse and recycling. Action programmes implemented in response to new information.

Pg 6 Inventory of environmental effects

Pg 24 Biosolids Management plan -resource consent assess other options for disposal.

Pg 7 '... by products - biosolids and methane gas are recycled'.

Air Emissions
Score = 0
No air emissions described, however, this could be linked to odours.

Water Effluents
Score = 4
Programmes for reductions continuously evaluated to identify effectiveness and potential improvements. System in place to obtain input and feedback from internal and external sources. Benchmarking against sector and international best practice.
Overall Addressed throughout the reports, with an integrated feedback system with stakeholders.
Potential improvement and continual improvements are listed for each section.

Noise and Odours
Score = 2
Formal system in place to set standards for minimising noise and odours beyond legal requirements and to identify and implement cost-effective minimisation practices.
Pg 11 Odour control facilities are installed at some pump stations where odours are excessive.
Pg 20 Facilities are named in which odour control filters have been constructed.
Odour testing programme - lists sites for programme.
Pg 23 Odour improvement works undertaken.
Discusses odour standards
Odour dispersion modelling to reduce the problems of odour control

Transportation
Score = 0
No mention of transport.

Life-cycle Design
Score = 0
No direct mention of life-cycle design.

Environmental Impacts
Score = 3
Thorough presentation of environmental impacts related to major development projects, operations and products.
Pg 6 Inventory of environmental effects.
Pg 7 Environmental impacts discussion.
Pg 8 Environmental Impact Table
Pg 9 Positive effects and mitigating actions.
Overall Each of the new projects and facilities have taken environmental impacts into consideration.
There was no mention of international benchmarking.

Product Stewardship
Score = 2
Formal system in place for product stewardship evaluation. Applied to some products and/or services.

Overall Watercare addresses water issues from collection to customer, then as waste to treatment.

Packaging
Score = 0
No mention of packaging.

Environmental Spending
Score = 0
No mention of environmental spending.

Environmental Liabilities
Score = 0
No mention of environmental liabilities.

Market Solution, Instruments and Opportunities
Score = 0
No mention of market solutions, instruments and opportunities.

Environmental Cost Accounting
Score = 0
No mention of environmental cost accounting.

Charitable Contributions
Score = 1
Company's charitable contributions are reported.
Pg 31 Support of environmental organisations. No amounts are given.

Employees
Score = 0
No mention is given about employees.

Politicians, Legislators and Regulators
Score = 2
Some detail on training and dialogue in some areas where the company operates.
Pg 14 Assessment of environmental effects lodged with the Auckland Regional Council.
Pg 16 Resource consent process is discussed.
Pg 17 Applications lodged with councils and public submissions.
Pg 23 Manukau City Council lodged proceedings against Watercare.
Pg 31 Brief discussion of co-operation with local authorities.

Local Communities
Score = 1
General Information provided.
Pg 12 'To consult with the affected public and tangata whenua'.
Pg 14 Discussion of the fishing trial at the Mangatangi Dam.
Pg 17 Public submissions on future water sources.

Investors
Score = 0
No mention of investors.

Suppliers and Contractors
Score = 0
No mention of contractors.

Customers and Consumers
Score = 2
Some detail on dialogue in some areas where the company operates.
Pg 21-22 Details on tradewastes and industry dialogues.
Pg 22 Provides technical advice to industry
Pg 22 Tours of waste water facilities with customers

Environment Groups
Score = 1
General information provided.
Pg 12 Statement 13 'To provide support for environmental groups'.
Pg 14 Fish and Game Council 1993 to present fishing trial.
Pg 31 Brief mention of support of environmental groups and 'regular consultation'.

Science and Education
Score = 1
General information provided.
Pg 15 Cosgrove School pupil planting seedlings as part of the Hays Creek revegetation programme.
Pg 32 Pupils from Kowhai Intermediate taking part in a water quality field trial at Western Springs lake in April 1996.
Pg 29 Watercare commissioned NIWA and the Department of Earth Sciences, Waikato University to model Manukau Harbour discharge.

Other
Score = 0
No mention of other participation with other groups.

Technology Cooperation
Score = 0
No mention of technology cooperation with other industry members.

Global Environment
Score = 0
No mention of the global environment.

Global Development Issues
Score = 0
No mention of global development issues.

Global Operating Standards
Score = 1
Brief discussion of the agenda.
Pg 6 EMS is designed on BS 7750
Pg 9 'The low level of unaccounted for water compares very favourably with international standards'.
Pg 13 '... meets internationally accepted standards'.

Report Design
Score = 2
The information is communicated in a clear and understandable format and is a pleasure to read.

Visions, Scenarios, and Future Trends
Score = 0
The future is discussed, and in detail, yet it is not linked to sustainable development.

<u>Appendix Three</u> Questionnaire covering letter and questionnaire.

Dear Stakeholder,

My name is Nicholas Robinson and I am currently completing a Masters degree at the College of Business, Massey University, Palmerston North.

The topic for my thesis research is Corporate Environmental Reporting in New Zealand, looking at what is being reported, how it is being reported, and to what extent New Zealand environmental reports are meeting the needs and expectations of their stakeholders.

In conjunction with ********** I am conducting a readership survey of the award-winning 1996 ********** Report which was sent to you at the end of 1997. The purpose of this survey is to ascertain how the report met the needs of its stakeholders, and also to collect data on what stakeholders want published in environmental reports so that future reports can become more useful and informative. I enclose a copy of the report with my survey.

The questionnaire does not identify you personally in anyway, and to be completely sure of confidentiality and anonymity, ********** has administered the posting of this questionnaire from their database without my seeing your name or address.

The research presents the opportunity for knowledge to be gained about what New Zealand stakeholders like yourself want published in Environmental Reports, and also for ******** to continue to improve on its already impressive reporting process.

I have included a stamped self-addressed envelope, and would ask you to please complete and send back the questionnaire by the 24th of August; reminders will be sent hereafter.

The questionnaire should take approximately twenty minutes to complete.

If you have any questions regarding any aspect of this survey, please do not hesitate to contact ******** or myself. My telephone number, email and postal address are given below.

Once again, thank you for your time, and I look forward to passing on your opinions and comments to ********.

Yours sincerely

Nicholas Robinson BSc.

[redacted] 1997 Annual Environmental Report Survey

Section One

Question One.
When reviewing the [redacted] Annual Environmental Report, do you primarily act on a personal interest basis or on behalf of an organisation?

A company	☐
Or, an individual	☐

Question Two.
In respect of your review of the 1997 [redacted] Annual Environmental Report, which of the following stakeholder groups do you identify with?

Academia	☐
Consumers	☐
Employees	☐
Environmental groups	☐
Financial community	☐
General public	☐
Local community	☐
Regulators and policy makers	☐
Shareholders	☐
The media	☐
Trade and industry	☐
Tangata Whenua	☐
Other (please specify):_____	

Section Two: Corporate Environmental Reporting.

Please tick the appropriate box for the following.

Question Three.
Which of the following organisations do you feel should publically report on their environmental performance?

Publically owned organisations	☐	Go to question 4
Large privately owned companies	☐	Go to question 4
Small to medium sized private companies	☐	Go to question 4
None of the above	☐	Go to question 5

Question Four.
How often do you feel an organisation should publish a Corporate Environmental Report?

Every six months	☐
Once a year	☐
Every two years	☐
Every three years	☐
Every four years or more	☐

Question Five.
Should Government make Corporate Environmental Reporting mandatory?

Yes ☐ No ☐

Question Six.
Did you read the 1997 [redacted] Annual Environmental Report?

Yes ☐ Carry on to Question Seven
No ☐ Go to Question Eleven

Section Three: [redacted] 1997 Annual Environmental Report.

Please tick the corresponding box that applies to you.

Question Seven.
How satisfied were you with the **content** of the 1997 [redacted] Annual Environmental Report?

Very dissatisfied			Neutral			Very satisfied
1☐	2☐	3☐	4☐	5☐	6☐	7☐

Question Eight.
How easy to **understand** was the 1997 [redacted] Annual Environmental Report

Very hard to understand			Neutral			Very easy to understand
1☐	2☐	3☐	4☐	5☐	6☐	7☐

Question Nine.
Overall, how satisfied were you with the 1997 [redacted] Annual Environmental Report?

Very dissatisfied			Neutral			Very satisfied
1☐	2☐	3☐	4☐	5☐	6☐	7☐

Question Ten.
In what ways could the [redacted] Annual Environmental Report be improved?

_____
_____
_____
_____
_____

Section Four: Reporting Ingredients

Question Eleven.
The following are possible content areas to be included in a Corporate Environmental Report . Please indicate you **level of concern** for each of them by ticking the appropriate box on the scale. A brief definition or example for each of the content areas has been included in *italics*.

Management Policies and Systems	Not at all concerned 0	1	2	3	Very concerned 4
Top Management Statement *Statement of commitment from the top of the company*	☐	☐	☐	☐	☐
Environmental Policy *Environmental framework and objectives*	☐	☐	☐	☐	☐
Environmental Management System *System used to manage a company's environmental responsibilities*	☐	☐	☐	☐	☐
Management Responsibility and Accountability *Who is responsible for environmental matters*	☐	☐	☐	☐	☐
Environmental Auditing *How environmental performance data is collected*	☐	☐	☐	☐	☐
Goals and Targets *Environmental performance goals and targets*	☐	☐	☐	☐	☐
Legal Compliance *Compliance with environmental legislation*	☐	☐	☐	☐	☐
Research and Development *Intergration of environmental factors into research and development*	☐	☐	☐	☐	☐
Environmental Awards *Environmental awards that the company has won or administers*	☐	☐	☐	☐	☐
Verification *External verification of the accuracy of reported information*	☐	☐	☐	☐	☐
Reporting Policy *Why, who and how the company reports*	☐	☐	☐	☐	☐
Corporate Context *A brief profile of the company's operations*	☐	☐	☐	☐	☐

Input/Output Inventory	Not at all concerned 0	1	2	3	Very concerned 4
Material Use *An inventory of materials used and potential impacts*	☐	☐	☐	☐	☐
Energy Consumption *Energy consumption and progress in energy efficiency*	☐	☐	☐	☐	☐
Water Consumption *Water consumption, and water efficiency*	☐	☐	☐	☐	☐
Eco-efficiency and clean technology *Processes and technology that reduce the impact on ecosystems*	☐	☐	☐	☐	☐
Health and Safety *Investment and employee education*	☐	☐	☐	☐	☐
Accidents and Emergency Response *Nnumber and type of accidents and emergency response plans*	☐	☐	☐	☐	☐
Risk management and Environmental Impact Assessments *Assessment of the risks and hazards involved for specific projects*	☐	☐	☐	☐	☐

	Not at all concerned 0	1	2	3	Very concerned 4
Land Contamination and Remediation *Current and potential land contamination and clean-up costs*	☐	☐	☐	☐	☐
Stewardship of Local Habitats and Eco-systems *Protection and restoration of neighbouring habitats*	☐	☐	☐	☐	☐
Waste Minimisation and Management *Waste generation, waste reduction and recycling initiatives*	☐	☐	☐	☐	☐
Air Emissions *Identification, impacts and reduction measures for emissions to air*	☐	☐	☐	☐	☐
Water Effluents *Identification, impacts and reductions measure for emission to water*	☐	☐	☐	☐	☐
Noise and Odours *Identification, number of complaints and reduction measures*	☐	☐	☐	☐	☐
Transportation *Impacts, fuel choices and reduction measures for transport*	☐	☐	☐	☐	☐
Life-cycle Design *Assessment of the complete life-cycle of a product or service*	☐	☐	☐	☐	☐
Environmental Impacts *Impact accounting methods and emissions for substances used*	☐	☐	☐	☐	☐
Product Stewardship *Ownership of the whole product life-cycle, from 'cradle to grave'*	☐	☐	☐	☐	☐
Packaging *Raw materials, impacts and reductions of packaging materials*	☐	☐	☐	☐	☐

Finance	Not at all concerned 0	1	2	3	Very concerned 4
Environmental Spending *Capital and operating costs and savings of environmental projects*	☐	☐	☐	☐	☐
Environmental Liabilities *Identification of known and potential environmental liabilities*	☐	☐	☐	☐	☐
Market Solutions, Instruments and Opportunities *Environmental charges, benefits and return on investments*	☐	☐	☐	☐	☐
Environmental Cost Accounting *Calculation and allocation of external costs to the environment*	☐	☐	☐	☐	☐
Charitable Contributions *Amounts and recipients of donations*	☐	☐	☐	☐	☐

Stakeholder Relations and Partnerships	Not at all concerned 0	1	2	3	Very concerned 4
Employees *Environmental awareness, training and incentive schemes*	☐	☐	☐	☐	☐
Politicians, Legislators and Regulators *Relations with government, local authorities, regulators*	☐	☐	☐	☐	☐
Local Communities *Dialogue and interaction with local communities*	☐	☐	☐	☐	☐
Investors *Organisation's reputation in the investor community*	☐	☐	☐	☐	☐
Suppliers and Contractors *Environmental targets, specifications and supply-chain initiatives*	☐	☐	☐	☐	☐
Customers and Consumers *Information dissemination and interaction with consumers*	☐	☐	☐	☐	☐

	Not at all concerned 0	1	2	3	Very concerned 4
Environment Groups *Involvement in non-governmental environmental initiatives*	☐	☐	☐	☐	☐
Science and Education *Teacher and student training opportunities and dialogues*	☐	☐	☐	☐	☐
Other extra Stakeholder Relations *E.g. Industry schemes and codes of conduct*	☐	☐	☐	☐	☐

Sustainable Development	Not at all concerned 0	1	2	3	Very concerned 4
Technology Cooperation *The sharing of environmental technology information*	☐	☐	☐	☐	☐
Global Environment *Linking of company's activities to key environmental issues*	☐	☐	☐	☐	☐
Global Development Issues *Respect for cultural diversity and development*	☐	☐	☐	☐	☐
Global Operating Standards *International standards and procedures*	☐	☐	☐	☐	☐
Report Design *Easy to read, recycled paper and links to the Internet*	☐	☐	☐	☐	☐
Visions, Scenarios, and Future Trends *Future corporate strategy and scenarios*	☐	☐	☐	☐	☐

Question Twelve.

Please list any other **content areas** that you would like to be included in future [redacted] Corporate Environmental Reports.

_____

_____

_____

Question Thirteen.

In what ways have you **used** the information contained in the 1996 [redacted] Annual Environmental Report as:

a)An **individual**

_____

_____

_____

or b), as an **organisation**

_____

_____

_____

Thank you for taking the time to complete this questionnaire.

Please return you questionnaire in the stamped, self-addressed envelope provided.

<u>Appendix Four</u> Report writer interview schedule.

Interview Schedule

1. What was it that prompted the company to develop its Corporate Environmental Report?

2. What was involved in the preparation and planning of the report?
3. How did you decide on the audience for the Corporate Environmental Report?
4. How did you decide on the content of the Corporate Environmental Report?
5. How did you collect the information for the report?

6. Who was involved in the writing of the report, and how was it decided?
7. How long did it take you to get the report to the publishing stage?
8. How much did it cost the company to develop and publish its environmental report?
9. How did you decide on who to send the reports to?

10. What did you learn from the process, and what would you do differently?
11. What role did the RMA play in the whole reporting process?
12. What type of feedback have you received, and from whom?
13. What other outcomes have come about from the publishing of your report?
14. Looking back, what was the hardest part of the reporting process?
15. Has the journey been worth it and what are your future plans?

16. Do you believe that Corporate Environmental Reporting (disclosure) drives companies to improve their performance?
17. What role do you see Corporate Environmental Reporting playing in New Zealand's environmental management future?

Do you think Corporate Environmental Reporting should become mandatory in New Zealand?

<u>Appendix Five</u> New Zealand sample report scores for each of the UNEP-SustainAbility 50 environmental ingredients.

50 Reporting Ingredients	Environmental Reports				Average Score
	Watercare	TP&P	ECNZ	NZFC	
Management Policies and Systems					
1	2	3	1	1	1.8
2	3	2	1	1	1.8
3	3	2	1	0	1.5
4	2	1	0	0	0.8
5	2	2	0	0	1.0
6	2	2	2	0	1.5
7	4	2	4	1	2.8
8	1	2	2	1	1.5
9	0	0	0	0	0.0
10	2	0	0	1	0.8
11	2	1	0	1	1.0
12	3	2	1	1	1.8
Subtotal	26	13	12	7	16.0
Input/Output Inventory					
13	0	1	2	1	1.0
14	1	1	1	0	0.8
15	4	1	1	1	1.8
16	1	0	1	0	0.5
17	0	0	0	3	0.8
18	2	0	0	1	0.8
19	4	0	0	0	1.0
20	1	0	0	0	0.3
21	3	2	3	1	2.3
22	2	2	1	1	1.5
23	0	2	1	1	1.0
24	4	2	0	1	1.8
25	2	0	0	1	0.8
26	0	0	0	0	0.0
27	0	0	0	0	0.0
28	3	1	1	0	1.3
29	2	0	1	0	0.8
30	0	0	0	1	0.3
Subtotal	29	12	12	12	16.3
Finance					
31	0	2	0	0	0.5
32	0	0	0	0	0.0
33	0	0	0	0	0.0
34	0	0	0	0	0.0
35	1	1	1	1	1.0
Subtotal	1	3	1	1	1.5
Stakeholder Relations and Partnerships					
36	0	1	1	1	0.8
37	2	2	2	1	1.8
38	1	2	2	1	1.3
39	0	0	0	0	0.0
40	0	1	1	1	0.5
41	2	2	2	0	1.3
42	1	2	2	1	1.3

43	1	2	2	1	1.0
44	0	0	0	0	0.3
Subtotal	7	12	12	6	8.0
Sustainable Development					
45	0	0	0	0	0.0
46	0	0	0	0	0.3
47	0	0	0	0	0.0
48	1	1	1	0	0.8
49	2	1	1	1	1.3
50	0	2	2	0	0.5
Subtotal	3	4	4	1	2.8
Total	66	44	41	27	44.5

Appendix Six New Zealand report sample stakeholder scores of importance for each of the UNEP-SustainAbility 50 environmental reporting ingredients.

		Stakeholder groups										Average
Sub-category	Ingredients	Aca-demia	Con-sumers	Emp-loyees	Env Groups	Finance Comm	Gen Public	Local Comm	Reg-lators	Tangata Whenua	Trade & Industry	Overall Average	*NZ CER Score*
I	1	1.7	2.8	4	2.8	3.8	3.4	3.8	2.3	2	2.3	3.1	1.75
	2	3.3	3.6	4	3.4	3.8	3.9	3.8	3.5	4	3.5	3.5	1.75
	3	2.3	3	3.5	2.9	3.5	2.9	3.3	2.7	4	3	3.1	1.5
	4	3	3.3	3.5	3.3	3.5	3.1	3.5	3	4	3.3	3.2	0.75
	5	3	2.7	2.5	2.8	2.8	2.7	3.3	2.3	4	2.5	2.7	1
	6	2.7	3.4	4	3.5	3	3.6	3.5	3.3	4	3	3.3	1.5
	7	3	3.6	4	3.8	3.5	3.6	3.3	2.8	4	3.5	3.3	2.75
	8	2.7	2.7	2	2.8	2.3	2.7	3.3	2.3	4	2.5	2.5	1.5
	9	1.3	1.7	0	1.8	2	1.7	2.3	1.5	2	1	1.5	0
	10	4	3.6	3.5	3.8	3.3	3.6	3.3	3.8	4	3.5	3.1	0.75
	11	2.7	2.6	4	2.8	2	2.3	2.3	2.3	4	2.3	2.3	1
	12	2.3	2.4	2.5	2.5	3.3	2.3	2	2.2	4	2.5	2.3	1.75
	Subtotal	**32**	**35.4**	**37.5**	**36.2**	**36.8**	**35.8**	**37.7**	**32**	**44**	**32.9**	**33.9**	**16**

		Stakeholder groups										Average
Sub-category	Ingredients	Aca-demia	Con-sumers	Emp-loyees	Env Groups	Finance Comm	Gen Public	Local Comm	Reg-lators	Tangata Whenua	Trade & Industry	Overall Average	*NZ CER Score*
II	13	2	3	3.5	3	2.5	2.9	3.5	2.2	4	2	2.6	1
	14	2	2.8	3.5	3.1	2.3	3.3	3	2	4	2.3	2.7	0.75
	15	2	2.7	2	3.1	2.8	3.1	3.3	2.2	4	2	2.8	1.75
	16	2.7	3	3.5	3.4	3	3.4	3.8	2.8	4	2.5	3	0.5
	17	1.7	3.2	3	2.6	3	3	3	1.7	4	2.3	2.7	0.75
	18	1.7	2.7	3	2.3	2.5	2.6	2.5	1.8	4	2.3	2.5	0.75
	19	2.3	2.9	3.5	3.3	3	3	2.5	2.7	4	2.5	2.8	1
	20	2.7	3.3	4	3.4	2.8	3.3	3.8	2.7	4	2.5	3	0.25
	21	2.7	3	4	3.1	2.8	3.1	3	3	3	2.8	3.1	2.25
	22	2.7	3.1	4	3.1	2.8	3.4	3.8	2	4	3.3	3	1.5
	23	3	3.1	4	3.3	3	3.7	3.3	2.2	4	3.3	3.1	1
	24	3.3	3	4	3.3	3	3.7	3.3	2.8	4	3	3.2	1.75
	25	3	2.8	2.5	3	3	3.4	3.3	2.2	4	3	3	0.75
	26	2.3	2.2	2	3	2	2.9	2.5	1.5	4	2.3	2.3	0
	27	1.7	2.6	2.5	2.9	2	2.7	2.8	2.5	4	2	2.4	0
	28	3.7	2.9	4	3.3	2	3.3	3.3	2.7	4	3.3	2.7	1.25
	29	2	2.4	2.5	2.6	1.5	3	3	2.3	4	2	2.3	0.75
	30	1.7	2.5	1.5	2.9	2.3	3	2.8	1.5	4	2.3	2.2	0.25
	Subtotal	**43.2**	**51.2**	**57**	**54.7**	**46.3**	**56.8**	**56.5**	**40.8**	**71**	**45.7**	**49.4**	**16.25**

		Stakeholder groups										Average
Sub-category	Ingredients	Aca-demia	Con-sumers	Emp-loyees	Env Groups	Finance Comm	Gen Public	Local Comm	Reg-lators	Tangata Whenua	Trade & Industry	Overall Average	*NZ CER Score*
III	31	1.7	2.8	2.5	3.1	3.5	2.4	2.3	2.5	4	2.3	2.5	0.5
	32	2.3	3.4	3.5	3.5	3.3	3	2.8	3	4	3	2.8	0
	33	2	3.1	3	2.9	2.5	2.6	2	2.3	3	2	2.4	0
	34	1.7	2.9	2.5	3.1	2.8	2.7	3.3	2.5	4	2	2.4	0
	35	0	1.4	0.5	2.1	0.8	1.3	1.8	1	4	0	1.3	1
	Subtotal	**7.7**	**13.6**	**12**	**14.7**	**12.9**	**12**	**12.2**	**11.3**	**19**	**9.3**	**11.4**	**1.5**

		Stakeholder groups										Average
Sub-category	Ingredients	Aca-demia	Con-sumers	Emp-loyees	Env Groups	Finance Comm	Gen Public	Local Comm	Reg-lators	Tangata Whenua	Trade & Industry	Overall Average	*NZ CER Score*
IV	36	1.7	3.2	3.5	2.8	3	3	3.3	2	4	2.5	2.8	0.75
	37	1.3	2.4	3	2.9	3	2.6	2.8	2.8	4	1	2.4	1.75
	38	3	2.9	3	3.4	2.8	3.1	3.3	3	4	2.3	2.9	1.25
	39	1.7	2.4	3	2.8	3	1.9	2.3	2.2	4	1.3	2	0
	40	1.3	2.4	3	2.6	2.3	2.4	2.5	1.5	4	2.3	2.2	0.5
	41	2.7	2.9	3.5	3.3	2.5	3	2.3	2.8	4	2.5	2.7	1.25
	42	2.7	2.8	2	3.6	2	3.4	3.3	2.7	4	2.5	2.6	1.25
	43	2.3	2.4	2.5	2.5	2	2.4	2.3	2.2	4	2	2.2	1
	44	1.3	2.4	2.5	2.5	1.8	2.3	2.3	1.7	4	2.3	2	0.25
	Subtotal	**18**	**23.8**	**26**	**26.4**	**22.4**	**24.1**	**24.4**	**20.9**	**36**	**18.7**	**21.8**	**8**

		Stakeholder groups										Average
Sub-category	Ingredients	Aca-demia	Con-sumers	Emp-loyees	Env Groups	Finance Comm	Gen Public	Local Comm	Reg-lators	Tangata Whenua	Trade & Industry	Overall Average	*NZ CER Score*
V	45	2.7	3.3	2	3.1	2.5	3.1	3.8	2.2	4	2.8	2.4	0
	46	2.7	3.1	2.5	3.1	2.8	3.1	3	2.3	4	3	2.4	0.25
	47	2.3	2.3	1	2.5	2.3	2.3	2.5	1.5	4	2.5	1.9	0
	48	3.3	2.8	3	3	2.5	2.7	2.8	2.7	4	2.8	2.2	0.75
	49	2.7	2.7	3	3.1	2.5	3	3	2.5	4	2.3	2.5	1.25
	50	2	2.5	4	2.6	3	2.4	3.3	1.7	4	2.3	2.3	0.5
	Subtotal	**15.7**	**16.7**	**15.5**	**17.4**	**15.6**	**16.6**	**18.4**	**12.9**	**24**	**15.7**	**13.7**	**2.75**
	Total	**117**	**140.7**	**148**	**149.4**	**134**	**145**	**149**	**117.9**	**194**	**122.3**	**130.2**	**44.5**