Chapter Eight

The Attitudes of the Company Group towards a Conceptual Framework for Corporate Environmental Reporting

"I believe your questionnaire is over the top. Industry is just coming to grips with environmental issues and can do without this sort of probing".
Company group respondent

8.1 Introduction

After surveying the perceptions of the normative and interested party samples, this chapter turns to discussing the attitudes of the company group towards corporate environmental reporting as well as their practices in corporate environmental reporting. The chapter follows a similar structure to that of the previous two, in order to facilitate comparison between the respondent groups. However, the emphasis differs slightly in that the first two sections consider corporate disclosure practice, rather than attitudes[1]. Section 8.2 considers the disclosure practices of the company group, in relation to financial, quantitative and qualitative disclosure. Then, company practice in relation to environmental reporting is discussed, and the attitudes of the company group towards the present framework for corporate environmental disclosure is examined. The chapter concludes in section 8.3. The survey of annual reports and corporate environmental reports representing "best practice", was presented in section 3.3.1 and is used in analysing the findings.

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[1] The terms "practice" and "attitudes" are interchangeable in this part of the analysis. Practice can be taken to represent attitude (see section 5.7.1 for a discussion of the limitations of combining normative and positive approaches within the questionnaire).

8.2 The Empirical Findings

8.2.1 Corporate Environmental Information, in Relation to Financial, Quantitative and Qualitative Disclosure: Practice

In addition to the questions asked of the other two sample groups, in the corresponding sections, the companies were also asked if any of the environmental information was only disclosed for internal purposes. Also, the questions differed in that, for example in the following section, the company respondents were asked how often their companies disclose specific environmental information, rather than how often they wanted the information disclosed, as for the normative and interested party groups.

(i) The Usefulness of Corporate Environmental Information

The company respondents were asked to indicate the frequency with which their company discloses a selection of items of corporate environmental information (see section 3.3(ii)). On a financial basis, the descriptive statistics (see table 8.1, part A) indicated that the disclosure of environmental information receiving the highest mean average score concerned company environmental initiatives (proposition (1); mean = 1.70). The results also indicate that disclosure of environmental information receiving the lowest mean average score was independent verification of environmental disclosure (proposition (15); mean = 1.30). Wilcoxon tests (appendix F, table 1, part A) did not indicate strong differences in disclosure frequencies for the propositions, except to show that company environmental initiatives are disclosed more frequently, and independent verification disclosed less frequently than several of the other propositions.

Table 8.1: Descriptive Statistics
The Usefulness of Corporate Environmental Information

	N	Mean	S.D.	P: 1	P: 3
Part A: Financial Disclosure					
1. Company environmental initiatives.	67	1.70	0.70	43.3	13.4
2. Management responsibilities for the environment.	64	1.67	0.82	54.7	21.9
3. Legal environmental compliance.	69	1.65	0.74	50.7	15.9
4. Environmental policy statement.	65	1.57	0.85	66.2	23.1
5. Product packaging.	65	1.49	0.69	61.5	10.8
6. Environmental audit.	68	1.49	0.72	64.7	13.2
7. Environmental reporting policy.	66	1.46	0.66	63.6	9.1
8. Product impacts.	65	1.42	0.68	69.2	10.8
9. Environmental management system.	66	1.42	0.73	71.2	13.6
10. Context of company environmental disclosure.	64	1.38	0.58	67.2	4.7
11. Environmental strategy statement.	66	1.38	0.72	75.8	13.6
12. Research & Development and the environment.	67	1.36	0.60	70.1	6.0
13. Environmental statement by company chairman.	71	1.35	0.64	73.2	8.5
14. Product life cycle design.	65	1.31	0.61	76.9	7.7
15. Independently verified environmental disclosure.	67	1.30	0.63	79.1	9.0
Part B: Quantitative Disclosure					
1. Company environmental initiatives.	74	1.91	0.71	29.7	20.3
2. Legal environmental compliance.	76	1.88	0.86	43.4	31.6
3. Product packaging.	68	1.79	0.76	41.2	20.6
4. Environmental reporting policy.	71	1.78	0.74	40.8	18.3
5. Management responsibilities for the environment.	68	1.78	0.77	42.6	20.6
6. Environmental policy statement.	70	1.73	0.90	55.7	30.0
7. Product impacts.	73	1.69	0.74	47.9	16.4
8. Environmental management system.	70	1.61	0.77	55.7	17.1
9. Environmental audit.	75	1.60	0.79	58.7	18.7
10. Context of company environmental disclosure.	67	1.54	0.64	53.7	7.5
11. Environmental statement by company chairman.	70	1.54	0.72	58.6	12.9
12. Environmental strategy statement.	70	1.49	0.74	65.7	14.3
13. Product life cycle design.	68	1.47	0.66	61.8	8.8
14. Research & Development and the environment.	71	1.45	0.60	60.6	5.6
15. Independently verified environmental disclosure.	71	1.42	0.77	74.6	16.9

Table 8.1 continued

	N	Mean	S.D.	P: 1	P: 3
Part C: Qualitative Disclosure					
1. Environmental policy statement.	79	2.38	0.84	12.8	60.8
2. Management responsibilities for the environment.	76	2.21	0.82	25.0	46.1
3. Company environmental initiatives.	80	2.09	0.73	22.5	31.3
4. Environmental management system.	74	2.01	0.85	35.1	36.5
5. Product packaging.	68	1.96	0.76	30.9	26.5
6. Legal environmental compliance.	76	1.93	0.87	40.8	34.2
7. Environmental reporting policy.	72	1.92	0.80	36.1	27.8
8. Environmental statement by company chairman.	76	1.90	0.78	65.5	25.0
9. Environmental strategy statement.	73	1.88	0.92	47.9	35.6
10. Environmental audit.	74	1.80	0.79	43.2	23.0
11. Product impacts.	70	1.79	0.76	41.4	20.0
12. Research & Development and the environment.	75	1.65	0.58	40.0	5.3
13. Context of company environmental disclosure.	70	1.64	0.66	45.7	10.0
14. Product life cycle design.	67	1.57	0.68	53.7	10.4
15. Independently verified environmental disclosure.	73	1.51	0.80	68.5	19.2

16. None of the above = 8 Non-response = 2
17. Are any of the above only disclosed internally = 52

18. Others:
    (i) Some are published, others are available on request
    (ii) Annual environmental performance review
    (iii) Only when requested for reasonable groups of users

The summary statistics relate to the scores obtained where respondents were asked to record a score on a 3-point scale where 1 = Never, 2 = Sometimes, and 3 = Always. P: 1 represents the percentage rating for the frequency of response for 1 (Never). P: 3 represents the percentage rating for the frequency of response for 3 (Always).

On a quantitative basis (see table 8.1, part B) company environmental initiatives received the highest mean average score (proposition (1); mean = 1.91). The results also indicated that legal environmental compliance (proposition (2); mean = 1.88) was shown to be frequently disclosed by the companies, the implication being that it is regarded as useful. The environmental information receiving the lowest mean average score was independent verification of environmental disclosure (proposition (15); mean = 1.42). The comparative statistics (appendix F, table 1, part B) indicated that company environmental initiatives and legal environmental compliance are disclosed significantly more frequently than about half of the other propositions, whereas independent verification of environmental disclosure is disclosed less often.

For information disclosed on a qualitative basis (see table 8.1, part C) the information with the highest mean average score was environmental policy statement (proposition (1); mean = 2.38). The percentage rating for 1 was 12.8% for this item of environmental information, whereas the rating for 3, was 60.8%, this would suggest that it is essential to environmental disclosure, as all the company environmental reports surveyed either displayed their environmental policy on a qualitative basis, or provided details of where to obtain it (see section 3.3.1). Other information also frequently disclosed, and thus possibly useful, included management responsibilities for the environment (proposition (2); mean = 2.21), and company environmental initiatives (proposition (3); mean = 2.09). Reported less frequently are product life cycle design (proposition (14); mean = 1.57) and independently verified environmental disclosure (proposition (15); mean = 1.51). Nearly 70% of the respondents never disclosed independently verified environmental disclosure on a qualitative basis. The Wilcoxon results (appendix F, table 1, part C) showed that environmental policy statement is disclosed significantly more frequently

than almost all the other propositions, whereas independent verification of environmental disclosure is disclosed significantly less frequently than most other choices.

The company respondents were asked if any of the items of environmental information are disclosed solely internally. Of the respondents, 62% stated that this was the case, indicating that companies are producing the suggested environmental information for their own use. This suggests that they may be using this information for any one or more of the following reasons: for business purposes; to prepare themselves for possible future legislation; potential public disclosure (see Gray *et al.*, 1993).

Inter-disclosure comparisons (appendix F, table 1, part D) showed that qualitative disclosure is used significantly more frequently than financial disclosure for the majority of propositions (almost 50% rejection of the null hypothesis). There was also some evidence for more frequent quantitative disclosure than financial. These findings confirm a typical picture in corporate environmental reporting (see section 3.3.1).

In summary, the findings indicated that company environmental initiatives are disclosed more frequently than most of the other types of information on both a financial and quantitative basis, which suggests that the sample companies are taking a proactive approach to environmental issues and wish to publicise their actions (see Mastrandonas and Strife, 1992 and Peattie, 1995). However, independent verification of environmental disclosure is reported less often than most of the other choices for all disclosure types, indicating that either the companies are unwilling to have their actions or disclosure independently verified, or alternately, they may not consider it is necessary (see UNEP,1996a). All these findings indicate that the normative and interested party groups'

expectations and preferences for useful environmental information are not matched by company practice (compare with results in sections 6.2.1(i) and 7.2.1(i)). The inter-disclosure comparisons indicated that qualitative disclosure is most frequently used. This illustrates consistency with the expectations of the interested party and normative respondents. Of particular interest, is that although there is little disclosure, the respondent companies do compile environmental information for internal use (see Gray *et al.*, 1993).

(ii) Corporate Environmental Resource Information

The company respondents were asked to indicate how often their companies disclose information concerning environmental resources for interested parties (see section 3.4(ii)). On a financial basis (see table 8.2, part A) the resource information with the highest mean average score was energy consumption (proposition (1); mean = 1.64). The environmental resource information with the lowest mean average score was raw materials used (proposition (3); mean = 1.40). All the proposed environmental resource information had relatively high percentage ratings for 1 whereas they received low percentage ratings for 3. This implies a general infrequency of disclosure for resource information on a financial basis. Wilcoxon tests (appendix F, table 2, part A) indicated that raw materials used are disclosed significantly less frequently than the other resource information.

Table 8.2, part B presents the results on a quantitative basis. The resource information receiving the highest mean average score was energy consumption (proposition (1); mean = 1.86), whereas the information with the lowest mean average score was water

Table: 8.2: Descriptive Statistics
Corporate Environmental Resource Information

	N	Mean	S.D.	P: 1	P: 3
Part A: Financial Disclosure					
1. Energy consumption.	73	1.64	0.71	49.3	13.7
2. Water consumption.	71	1.54	0.71	59.2	12.7
3. Raw materials used.	73	1.40	0.62	67.1	6.8
Part B: Quantitative Disclosure					
1. Energy consumption.	72	1.86	0.81	40.3	26.4
2. Raw materials used.	74	1.77	0.82	47.3	24.3
3. Water consumption.	72	1.75	0.80	47.2	22.2
Part C: Qualitative Disclosure					
1. Energy consumption.	79	1.91	0.70	29.1	20.3
2. Water consumption.	78	1.82	0.72	35.9	17.9
3. Raw materials used.	75	1.72	0.71	42.7	14.7
4. None of the above = 16		Non-response = 2			
5. Are any of the above only disclosed internally = 41					
6. Others:					
(i) We are happy to disclose the information if we have it					
(ii) Outputs - generation					
(iii) Full consumption associated with distribution costs					

The summary statistics relate to the scores obtained where respondents were asked to record a score on a 3-point scale where 1 = Never, 2 = Sometimes, and 3 = Always. P: 1 represents the percentage rating for the frequency of response for 1 (Never). P: 3 represents the percentage rating for the frequency of response for 3 (Always).

consumption (proposition (3); mean = 1.75). The null hypothesis for the Wilcoxon tests was not rejected in any of the pairwise cases, implying that the respondents were incapable of discriminating between disclosure frequency of the propositions on a quantitative basis.

On a qualitative basis (see table 8.2, part C) energy consumption (proposition (1); mean = 1.91) received the highest mean average score. However, raw materials used (proposition (3); mean = 1.72) received the lowest mean average score. As for quantitative disclosure, the null hypothesis for the Wilcoxon tests could not be rejected in any of the pairwise tests.

The respondents were asked whether or not any of the resource information is disclosed only for internal purposes. The results indicated that 49% of the respondents had such information available to them.

The inter-disclosure comparisons (appendix F, table 2, part B) revealed that quantitative resource information is disclosed more frequently than financial information by the respondent companies for all proposed environmental resource disclosure.

In summary, the findings indicate that corporate resource information overall is not frequently disclosed, except for energy. This is consistent with the findings on current corporate environmental reporting practice (see section 3.3.1). The inter-disclosure comparison also showed a preference for quantitative disclosure. This finding is consistent with the normative and interested party responses, which indicated preference for quantitative disclosure (see Gray *et al.*, 1993). The results are on the whole disappointing, as without disclosure of resource consumption, it is impossible to gauge any realistic input to sustainable development (see UNEP, 1994 and 1996a and EAAR, June 1996).

(iii) Corporate Environmental Risk Information

The companies were asked how often they disclose environmental risk information (see section 3.4(ii)) and on a financial basis (see table 8.3, part A), they indicated that financial information that could impose actual liability on a company's lender (proposition (1); mean = 1.47) received the highest mean average score. The risk information with the lowest mean average score was environmental information that may cause financial failure (proposition (7); mean = 1.32). The percentage rating for all the propositions on a financial basis for 1 was over 69%, whereas 16% or less recorded a score of 3. The Wilcoxon statistics accepted the null hypothesis in all cases, indicating that the respondents could not discriminate between the frequency of disclosure for risk information.

On a quantitative basis (table 8.3, part B) the results indicate that financial information that could impose actual liability on a company's lender (proposition (1); mean = 1.48) received the highest mean average score. The risk information which received the lowest mean average score was environmental information that may cause financial failure (proposition (7); mean = 1.33). Of the respondents, for disclosure of risk information on a quantitative basis, over 58% recorded a score of 1 for each of the propositions, whereas less than 16% reported a score of 3. This indicates the general lack of disclosure in environmental risk information on a quantitative basis. Comparative statistics (appendix F, table 3, part A) did not reveal strong differences in disclosure frequency except that financial information that could impose actual liability on a company's lender is disclosed significantly more often than environmental information that may cause financial failure.

Table 8.3: Descriptive Statistics
Corporate Environmental Risk Information

	N	Mean	S.D.	P: 1	P: 3
Part A: Financial Disclosure					
1. Financial information that could impose actual liability on a company's lender.	75	1.47	0.76	69.3	16.0
2. Environmental information that may reduce financial performance.	77	1.38	0.63	70.1	7.8
3. Environmental factors that could reduce the value of a company's assets.	78	1.37	0.67	73.1	10.3
4. The risk of non-compliance with legislation.	75	1.35	0.60	72.0	6.7
5. The risk of site contamination.	74	1.35	0.67	75.7	10.8
6. The risk of environmental influences on companies' markets.	76	1.33	0.60	73.7	6.6
7. Environmental information that may cause financial failure.	73	1.32	0.66	79.5	11.0
Part B: Quantitative Disclosure					
1. Financial information that could impose actual liability on a company's lender.	77	1.48	0.75	67.5	15.6
2. The risk of non-compliance with legislation.	80	1.46	0.59	58.8	5.0
3. The risk of site contamination.	79	1.46	0.71	67.1	12.7
4. The risk of environmental influences on companies' markets.	78	1.44	0.62	62.8	6.4
5. Environmental information that may reduce financial performance.	79	1.44	0.66	64.6	8.9
6. Environmental factors that could reduce the value of a company's assets.	79	1.39	0.67	70.9	10.1
7. Environmental information that may cause financial failure.	75	1.33	0.64	76.0	9.3

Table 8.3 continued

	N	Mean	S.D.	P: 1	P: 3
Part C: Qualitative Disclosure					
1. Financial information that could impose actual liability on a company's lender.	73	1.47	0.75	68.5	15.1
2. The risk of environmental influences on companies' markets.	78	1.45	0.64	62.8	7.7
3. The risk of non-compliance with legislation.	79	1.44	0.59	60.8	5.1
4. The risk of site contamination.	78	1.40	0.63	67.9	7.7
5. Environmental information that may reduce financial performance.	75	1.41	0.64	66.7	8.0
6. Environmental factors that could reduce the value of a company's assets.	75	1.41	0.68	69.3	10.7
7. Environmental information that may cause financial failure.	73	1.32	0.64	78.1	9.6

8. None of the above = 37 Non-response = 1
9. Are any of the above only disclosed internally = 49

10. Others:

    (i) This information is not relevant to us - we are a private company not a service company

    (ii) The above would only be disclosed internally

    (iii) We are a private company so we do not disclose many of these publicly

    (iv) Depends on who is the interested party

    (v) We have a policy of full and open disclosure but many of the above questions are speculative

The summary statistics relate to the scores obtained where respondents were asked to record a score on a 3-point scale where 1 = Never, 2 = Sometimes, and 3 = Always. P: 1 represents the percentage rating for the frequency of response for 1 (Never). P: 3 represents the percentage rating for the frequency of response for 3 (Always).

On a qualitative basis (see table 8.3, part C) the corporate environmental risk information receiving the highest mean average score was financial information that could impose actual liability on a company's lender (proposition (1); mean = 1.47). On the other hand, the risk information with the lowest average score was environmental

information that may cause financial failure (proposition (7); mean = 1.32). Again, the null hypothesis for the Wilcoxon tests were accepted in all of the pairwise cases.

With respect to the disclosure of risk information generally, 58% of the respondents indicated that such information was compiled for internal use which is within expectations given the contentious nature of such disclosure. Of particular interest is that 44% of the respondents indicated that their company did not disclose any environmental risk information publicly. This is not surprising given fears of how such disclosure might be perceived by the capital market.

Inter-disclosure comparisons (see Wilcoxon statistics, appendix F, table 3, part B) demonstrated a greater frequency of qualitative than financial disclosure for risk of environmental influences on a company's market. This is consistent with *a priori* expectations as any such assertions can only be made sensibly on a qualitative basis.

In summary, the descriptive results indicate that the most frequent disclosure for all the types of disclosure is financial information that could impose actual liability on a company's lender. This may be indicative of the "big stick" which banks can hold over companies. As would be expected, there is little disclosure on the possibility of environmental information causing financial failure. The perceptions of the normative and interested party respondents are not reflected in these findings, as they considered environmental information which could impose financial failure to be of most use - again this demonstrates an imbalance between what is perceived as useful by the users and advisors on environmental disclosure and the disclosure reality. The lack of strong differences in disclosure frequency (see the Wilcoxon results) may be due to

environmental risk information being compiled by the majority of companies in the surveys, but not disclosed publicly. The reason for this may be due to the subjective nature of any risk assessment. The lack of disclosure on a financial basis would seem to suggest that company management has the perception that they have little need to provide provisions in their accounts (see ASB, 1995a). Disclosure on a financial basis is likely to preempt quantitative and qualitative disclosure in this area. However, these findings are contrary to the expectations of Ceres (1992) and the United Nations (UNEP, 1994), as there is an expectation of voluntary disclosure of environmental liabilities.

(iv) Quantifiable Corporate Environmental Information

In relation to the frequently of disclosure of quantifiable environmental information (see section 3.4(ii)), the descriptive statistics indicated that, on a financial basis, (table 8.4, part A) generation and disposal of waste (proposition (1); mean = 1.57) received the highest mean average score. With the introduction of the landfill tax, there is an expectation that this type of disclosure will increase (see section 3.3.1). The results also indicated that water effluents (proposition (2); mean = 1.56) were frequently disclosed by the companies. However, vehicle miles in relation to product (proposition (10); mean = 1.30) received the lowest mean average score. Also, less often disclosed was soil contamination and remediation (proposition (9); mean = 1.38). Of the respondents, over 52% reported a score of 1 for all the disclosure of the proposed quantitative environmental information on a financial basis, whereas less than 11% indicated a score of 3. Wilcoxon tests (appendix F, table 4, part A) revealed that generation and disposal of waste, and environmental incidents are disclosed significantly more often than vehicle miles in relation to product.

Table 8.4: Descriptive Statistics
Quantifiable Corporate Environmental Information

	N	Mean	S.D.	P: 1	P: 3
Part A: Financial Disclosure					
1. Generation and disposal of waste.	69	1.57	0.68	53.6	10.1
2. Water effluents.	72	1.56	0.70	54.2	9.7
3. Environmental incidents.	68	1.54	0.63	52.9	7.4
4. Energy consumption.	73	1.53	0.67	56.2	9.6
5. Air emissions.	69	1.45	0.65	63.8	8.7
6. Raw material use.	71	1.44	0.63	63.4	7.0
7. Local environmental impact.	68	1.40	0.58	64.7	4.4
8. Noise and odour.	70	1.40	0.62	67.1	7.1
9. Soil contamination and remediation.	68	1.38	0.70	72.1	10.3
10. Vehicle miles in relation to product.	70	1.30	0.57	75.7	5.7
Part B: Quantitative Disclosure					
1. Air emissions.	78	1.96	0.84	37.2	33.3
2. Water effluents.	80	1.95	0.79	33.8	28.8
3. Generation and disposal of waste.	78	1.91	0.79	35.9	26.9
4. Environmental incidents.	77	1.88	0.83	40.3	28.6
5. Energy consumption.	83	1.80	0.71	37.3	16.9
6. Noise and odour.	75	1.69	0.72	45.3	14.7
7. Local environmental impact.	73	1.58	0.71	54.8	12.3
8. Raw material use.	76	1.55	0.64	52.6	7.9
9. Soil contamination and remediation.	74	1.53	0.76	63.5	16.2
10. Vehicle miles in relation to product.	76	1.42	0.72	71.1	13.2

Table 8.4 continued

	N	Mean	S.D.	P: 1	P: 3
Part C: Qualitative Disclosure					
1. Environmental incidents.	73	1.92	0.78	34.2	26.0
2. Generation and disposal of waste.	72	1.86	0.74	34.7	20.8
3. Water effluents.	74	1.85	0.79	39.2	24.3
4. Air emissions.	72	1.71	0.78	48.6	19.4
5. Local environmental impact.	73	1.70	1.66	41.4	11.0
6. Noise and odour.	75	1.65	0.65	44.0	9.3
7. Energy consumption.	72	1.65	0.72	48.6	13.9
8. Soil contamination and remediation.	71	1.63	0.80	56.3	19.7
9. Raw material use.	74	1.55	0.69	55.4	10.8
10. Vehicle miles in relation to product.	72	1.31	0.57	75.0	5.6
11. None of the above = 20 Non-response = 1					
12. Are any of the above only disclosed internally = 51					
13. Others:					
(i) We hope we are setting the industry standard					
(ii) Integrated Pollution Control requirements					
(iii) Except legal obligations					

The summary statistics relate to the scores obtained where respondents were asked to record a score on a 3-point scale where 1 = Never, 2 = Sometimes, and 3 = Always. P: 1 represents the percentage rating for the frequency of response for 1 (Never). P: 3 represents the percentage rating for the frequency of response for 3 (Always).

On a quantitative basis, the respondents indicated that (see table 8.4, part B) air emissions (proposition (1); mean = 1.96) are frequently disclosed by the company group. Also, water effluents (proposition (2); mean = 1.95) are disclosed frequently. The results also indicated that soil contamination and remediation (proposition (9); mean = 1.53) and vehicle miles in relation to product (proposition (10); mean = 1.42) are not often disclosed by the companies. Comparative statistics (see appendix F, table 4, part B)

showed that air emissions, water effluents, generation and disposal of waste, and environmental incidents are disclosed significantly more often than several other choices.

For disclosure on a qualitative basis (table 8.4, part C) environmental incidents (proposition (1); mean = 1.92) received the highest mean average score. Other environmental information frequently disclosed includes generation and disposal of waste (proposition (2); mean = 1.86) and water effluents (proposition (3); mean = 1.85). However, the company group does not seem to disclose raw material use (proposition (9); mean = 1.55) and vehicle miles in relation to product (proposition (10); mean = 1.31) at frequent intervals. Wilcoxon tests (appendix F, table 4, part C) indicated that environmental incidents, and generation and disposal of wastes are disclosed significantly more often than several other propositions, whereas vehicle miles in relation to product is reported less frequently than the majority of choices.

The respondents were asked to indicate whether or not any of the quantifiable corporate environmental information proposed in this part of the enquiry was only disclosed internally. Of the respondents, 60% indicated that some quantifiable environmental information was only disclosed for internal purposes. Also, 24% of the respondents indicated that their company never publicly disclosed this type of information.

The inter-disclosure comparisons (see the Wilcoxon results in appendix F, table 4, part D) revealed strong differences in disclosure frequency (over 55% rejection of the null hypothesis) indicating that quantitative and qualitative disclosure are used more often, for reporting, than financial disclosure, for the majority of propositions. There was also

some evidence that qualitative disclosure is used more often than quantitative (air emissions).

In summary, the findings indicate that generation and disposal of waste and water effluents are frequently disclosed by the companies for all three types of disclosure. This conforms with the perceptions of the normative and interested party groups, and Macve and Carey (1992), the United Nations (UNEP, 1994), and the World Industry Council for the Environment (WICE, 1994) and Gray *et al.* (1996a). The companies disclose this type of environmental information on a quantitative rather than financial basis, which is again consistent with the expectations of the other two respondent groups. The companies also disclose more often on a qualitative rather than financial basis. This was not suggested by the other two sets of responses. The empirical results therefore suggest that current disclosure is mainly in the area of qualitative and quantitative rather than financial, therefore limiting the use of traditional accounting techniques in this area. Also, there is a trend developing whereby companies compile such classes of information for internal purposes, yet do not disclose it publicly.

(v) Benchmarking Corporate Environmental Performance Information

In relation to how often the companies disclose benchmarks for corporate environmental performance evaluation (see section 3.4(ii)), on a financial basis, the descriptive statistics (table 8.5, part A) showed that industry average (proposition (1); mean = 1.83) is disclosed by companies frequently as an indicator of corporate environmental performance information. The results also indicated that sustainable development (proposition (3); mean = 1.14) received the lowest mean average score from the

Table 8.5: Descriptive Statistics
Benchmarking Corporate Environmental Performance Information

	N	Mean	S.D.	P: 1	P: 3
Part A: Financial Disclosure					
1. Industry average.	71	1.83	0.46	84.5	2.8
2. Legal compliance.	72	1.40	0.71	17.2	12.5
3. Sustainable development.	71	1.14	0.42	88.7	2.8
Part B: Quantitative Disclosure					
1. Legal compliance.	78	1.62	0.83	60.3	21.8
2. Industry average.	75	1.31	0.57	74.7	5.3
3. Sustainable development.	73	1.19	0.46	83.6	2.7
Part C: Qualitative Disclosure					
1. Legal compliance.	76	1.65	0.80	55.3	19.7
2. Industry average.	74	1.38	0.57	66.2	4.1
3. Sustainable development.	74	1.30	0.57	75.7	5.4
4. None of the above = 39	Non-response = 4				
5. Are any of the above only disclosed internally = 36					

The summary statistics relate to the scores obtained where respondents were asked to record a score on a 3-point scale where 1 = Never, 2 = Sometimes, and 3 = Always. P: 1 represents the percentage rating for the frequency of response for 1 (Never). P: 3 represents the percentage rating for the frequency of response for 3 (Always).

respondents, indicating the relative lack of disclosure of this as a benchmark. Wilcoxon tests (appendix F, table 5, part A) showed that industry average is considered significantly more important than the other two propositions.

On a quantitative basis, the results to the descriptive statistics (see table 8.5, part B) revealed that legal compliance (proposition (1); mean = 1.62) received the highest mean

average score from the respondents. At the other end of the scale, sustainable development (proposition (3); mean = 1.19) is much less frequently disclosed as a benchmark. Comparative statistics (appendix F, table 5, part B) showed that legal compliance is disclosed significantly more often than both industry average and sustainable development.

For benchmarks on a qualitative basis, the results (table 8.5, part C) indicated that legal compliance (proposition (1); mean = 1.65) again received the highest mean average score from the company group. The results also indicated that sustainable development (proposition (3); mean = 1.30) is disclosed much less frequently as a benchmark for evaluating corporate environmental performance. Wilcoxon tests (appendix F, table 5, part C) indicated that legal compliance is disclosed significantly more often than the other propositions.

The companies were asked to what extent these corporate environmental benchmark indicators are only disclosed internally. The results revealed that 44% of the respondents' companies only disclosed some of the benchmarks on an internal basis. Of the respondents, 48% indicated that they never disclosed the proposed benchmarks publicly. This is an indication that the respondent companies have little interest in benchmarking for public disclosure purposes, yet they are used for internal disclosure.

Inter-disclosure comparisons for benchmark reporting (see appendix F, table 5, part D) showed that qualitative disclosure is used more frequently than financial disclosure for industry average, and that qualitative and quantitative disclosure are used more often than financial for legal compliance.

In summary, the findings indicate that industry average and legal compliance are the most frequently disclosed benchmarks. This is interesting, as industry average is perceived to be of least use to the normative and interested party samples (see sections 6.2.1(v) and 7.2.1(v)). There is a preference for the disclosure to be qualitative rather than financial. This again contradicts evidence from the other two respondent groups, as they consider quantitative to be of more use than financial disclosure. However, less than half the sample reported that their company never disclosed this type of benchmarking information publicly, but that their company did use such data for internal purposes. These results indicate how important benchmarking is as a corporate performance tool. It may also be speculated that benchmarking may not show companies in a favourable light and hence this may be why it is not frequently disclosed publicly, or in common with other forms of benchmarking it is perceived as a management tool and not something of interest for disclosure. The poor disclosure of sustainable development benchmarks is possibly due to the difficulty of even the simplest definition of the term. The United Nations (UNEP, 1994) would like to see more benchmarks, from business, on sustainable development. However, this company sample has not obliged.

(vi) Corporate Environmental Financial Information

The company respondents were asked how often they disclose financial environmental information (see section 3.4(ii)). On a financial basis, the descriptive statistics (table 8.6 part A) revealed that environmental liabilities (proposition (1); mean = 1.49) received the highest mean average score from the company group of respondents. As indicated in section 3.3.1, the survey of current corporate environmental reporting practice

Table 8.6: Descriptive Statistics
Corporate Environmental Financial Information

	N	Mean	S.D.	P: 1	P: 3
Part A: Financial Disclosure					
1. Environmental liabilities.	74	1.49	0.75	66.2	14.9
2. Environmental benefits and opportunities.	73	1.45	0.63	61.6	6.8
3. Environmental spending.	77	1.43	0.64	64.9	7.8
4. Donations to environmental charities.	77	1.40	0.59	64.9	5.2
5. Environmental fines and negotiated settlements.	76	1.40	0.63	68.4	7.9
6. Government environmental taxes and charges.	75	1.20	0.44	81.3	1.3
Part B: Quantitative Disclosure					
1. Environmental benefits and opportunities.	73	1.47	0.58	57.5	4.1
2. Environmental spending.	76	1.43	0.66	65.8	9.2
3. Donations to environmental charities.	73	1.40	0.60	65.8	5.5
4. Environmental liabilities.	75	1.39	0.61	66.8	6.7
5. Environmental fines and negotiated settlements.	74	1.37	0.59	68.9	5.4
6. Government environmental taxes and charges.	72	1.25	0.44	75.0	0.0
Part C: Qualitative Disclosure					
1. Environmental benefits and opportunities.	73	1.51	0.56	52.1	2.7
2. Environmental spending.	70	1.40	0.62	67.1	7.1
3. Environmental liabilities.	72	1.38	0.59	68.1	5.6
4. Donations to environmental charities.	71	1.37	0.59	69.0	5.6
5. Environmental fines and negotiated settlements.	70	1.33	0.56	71.4	4.3
6. Government environmental taxes and charges.	70	1.23	0.42	77.1	0.0

7. None of the above = 36 Non-response = 1
8. Are any of the above only disclosed internally = 46

9. Others:
   (i) All of these would only be disclosed internally

The summary statistics relate to the scores obtained where respondents were asked to record a score on a 3-point scale where 1 = Never, 2 = Sometimes, and 3 = Always. P: 1 represents the percentage rating for the frequency of response for 1 (Never). P: 3 represents the percentage rating for the frequency of response for 3 (Always).

revealed that several companies disclosed environmental financial information in their annual reports. The importance is not so much in the amount of the liability, but rather in that a formal accounting policy has been adopted by these companies (see section 3.3.1). The results also indicated that environmental benefits and opportunities (proposition (2); mean = 1.45) received a relatively high average score. The lowest mean average score was allotted to government environmental taxes and charges (proposition (6); mean = 1.20). The Wilcoxon tests (appendix F, table 6, part A) showed that government environmental taxes and charges are less frequently disclosed than all other proposed corporate environmental financial information.

On a quantitative basis, the results (see table 8.6, part B) showed that environmental benefits and opportunities (proposition (1); mean = 1.47) are frequently disclosed items of corporate environmental financial information. The results also indicated that government environmental taxes and charges (proposition (6); mean = 1.25) received the lowest mean average score from the company group. In no case was the null hypothesis rejected for the Wilcoxon tests.

The descriptive statistics for corporate environmental financial information on a qualitative basis (see table 8.6, part C) indicated that environmental benefits and opportunities (proposition (1); mean = 1.51) received the highest mean average score. government environmental taxes and charges (proposition (6); mean = 1.23) received the lowest mean average score, with a percentage rating of none for 3 and 77.1% reported for 1. Comparative tests (appendix F, table 6, part B) indicated that environmental benefits and opportunities are reported significantly more often than government environmental taxes and charges.

Of the respondents, 42% stated that their company discloses some of the suggested financial information on a internal basis only. Some 54% of the company respondents reported that their company did not disclose any of the information publicly.

The inter-disclosure comparisons revealed no statistically significant differences in disclosure frequency.

To summarise, the findings are mixed but positive. The disclosure of environmental liabilities on a financial basis (with the results from the survey of current environmental reporting practice of the development of environmental accounting policies, in some of the annual reports) revealed an increased acceptance of the influence of environmental issues by company management. The results also indicate that this type of information is available but only for the use of company employees. As the rejection of the null hypothesis in the Wilcoxon tests was not possible, this indicates that the companies have no preference for financial, quantitative or qualitative disclosure for information traditionally disclosed on a financial basis. These findings cast doubt on the notion of having discrete categories of environmental disclosure, such as financial, quantitative and qualitative, as suggested by Macve and Carey (1992), the European Federation of Financial Analysts (EFFAS, 1994), the World Industry Council for the Environment (WICE, 1994), and the Chemical Industries Association (CIA, 1995), whereas they would seem to support disclosure on more than one basis, supporting the Advisory Committee on Business and the Environment (ACBE, 1996a) and Gray *et al.* (1996a).

(vii) Corporate Environmental Management Information

In relation to how frequently companies disclose management type environmental information (see section 3.4(ii)) to interested parties, on a financial basis, the descriptive statistics (see table 8.7, part A) indicated that compliance with legislation (proposition (1); mean = 1.77) received the highest mean average score. The results also indicated that environmental integration of business (proposition (11); mean = 1.27) received the lowest mean average score. Wilcoxon tests (appendix F, table 7, part A) showed that compliance with legislation is more frequently disclosed than half of the other propositions, whereas environmental management systems, and environmental integration of business, are reported significantly less often than several other propositions.

The descriptive statistics for corporate environmental management information disclosed on a quantitative basis (see table 8.7, part B) showed that compliance with legislation (proposition (1); mean = 2.07) received the highest mean average score from the company group. The results also indicated that environmental integration of business (proposition (11); mean = 1.50) received the lowest mean average score from the respondents. Comparative statistics (appendix F, table 7, part B) indicated that compliance with legislation is disclosed more often than the majority of proposed choices.

On a qualitative basis, the results (table 8.7, part C) revealed that compliance with legislation (proposition (1); mean = 2.13) again received the highest mean average score. The results also indicate that environmental integration of business (proposition (11); mean = 1.61) again was given the lowest mean average score. Wilcoxon tests (appendix

Table 8.7: Descriptive Statistics
Corporate Environmental Management Information

	N	Mean	S.D.	P: 1	P: 3
Part A: Financial Disclosure					
1. Compliance with legislation.	69	1.77	0.73	40.6	17.4
2. Health and safety.	68	1.68	0.66	42.6	10.3
3. Compliance with industry standards.	68	1.65	0.69	47.1	11.8
4. Environmental impact assessment.	65	1.57	0.66	52.3	9.2
5. Setting measurable environmental targets and objectives.	67	1.52	0.64	55.2	7.5
6. Risk assessment.	67	1.51	0.50	49.3	0.0
7. Hazard assessment.	66	1.50	0.50	50.0	0.0
8. Accident and emergency response.	67	1.45	0.56	58.2	3.0
9. Land contamination and remediation.	64	1.45	0.59	59.4	4.7
10. Environmental management system.	66	1.32	0.47	68.2	0.0
11. Environmental integration of business.	62	1.27	0.52	75.8	3.2
Part B: Quantitative Disclosure					
1. Compliance with legislation.	77	2.07	0.77	26.032.5	
2. Health and safety.	78	2.00	0.66	21.821.8	
3. Compliance with industry standards.	74	1.91	0.76	33.824.3	
4. Setting measurable environmental targets and objectives.	76	1.84	0.73	35.519.7	
5.[a] Accident and emergency response.	75	1.79	0.64	33.312.0	
5.[b] Risk assessment.	75	1.79	0.64	33.312.0	
7. Environmental management system.	72	1.75	0.71	40.315.3	
8. Environmental impact assessment.	71	1.73	0.61	35.2 8.5	
9. Hazard assessment.	74	1.72	0.65	39.210.8	
10. Land contamination and remediation.	71	1.62	0.70	50.712.7	
11. Environmental integration of business.	66	1.50	0.69	60.610.6	

Table 8.7: continued

	N	Mean	S.D.	P: 1	P: 3
Part C: Qualitative Disclosure					
1. Compliance with legislation.	76	2.13	0.77	23.7	36.8
2. Health and safety.	77	2.10	0.64	15.6	26.0
3. Compliance with industry standards.	72	2.04	0.74	25.0	29.2
4. Accident and emergency response.	74	1.89	0.69	29.7	18.9
5. Setting measurable environmental targets and objectives.	72	1.86	0.72	33.3	19.4
6. Hazard assessment.	72	1.83	0.67	31.9	15.3
7. Environmental management system.	70	1.79	0.64	32.9	11.4
8. Risk assessment.	75	1.77	0.65	34.7	12.0
9. Environmental impact assessment.	67	1.76	0.63	34.3	10.4
10. Land contamination and remediation.	68	1.66	0.70	47.1	13.2
11. Environmental integration of business.	67	1.61	0.67	49.3	10.4
12. None of the above = 8	Non-response = 1				
13. Others:					
(i) All reported internally					
(ii) All reports were to clients only					
(iii) Integrated Pollution Control requirements					

The summary statistics relate to the scores obtained where respondents were asked to record a score on a 3-point scale where 1 = Never, 2 = Sometimes, and 3 = Always. P: 1 represents the percentage rating for the frequency of response for 1 (Never). P: 3 represents the percentage rating for the frequency of response for 3 (Always). Note that the superscripts a and b indicate that the mean average statistics, the standard deviations and the percentage ratings have tied for the two propositions to which they refer.

F, table 7, part C) revealed that compliance with legislation, and health and safety, are disclosed significantly more often than about half of the other propositions. The inter-disclosure comparisons (appendix F, table 7, part D) provide strong evidence (over 50% rejection of the null hypothesis) that financial disclosure of management information is hardly ever used in relation to quantitative and qualitative disclosure.

In summary, the findings indicate that companies do disclose environmental management information publicly, as suggested in Gray *et al.* (1993). Compliance with legislation, and health and safety, are the most commonly disclosed. Compliance with legislation was also perceived as being useful by the interested party respondents. The inter-disclosure comparisons showed that the companies do not disclose this type of information frequently on a financial basis. The survey of current corporate environmental reporting practice (see section 3.3.2) also indicated that disclosure of environmental management information was common. This is not surprising, given that such information started as management information.

8.2.2 Attitudes Towards Corporate Environmental Reporting: Practice

This part of the enquiry asks the companies for their attitudes and practices concerning environmental reporting, and includes four extra questions (compared to chapters six and seven). These additional questions relate specifically to companies. The section is divided into the following parts: reflections and projections; assessing and reporting incidents; accounting information; consultation, and; time period and communication.

(i) Reflections on the Progress of Corporate Environmental Reporting

In this part of the enquiry, the company respondents were asked to reflect on the progress their company has made (if any) in public environmental disclosure over the "last" five years. The purpose was to find out more about the sample and environmental reporting over the period. The company respondents were asked an open question about

their companies' reporting over a five year period divided into "last" year (i.e. 1994), last two years, and last five years.

The response rate for each part is between 28 and 34%. This is in line with the results from section 8.2.1 where many of the companies, although using environmental information for internal purposes, did not publicly disclose it. The comments made by the respondents (see table 8.8, parts A, B, and C) indicate that there are four broad disclosure groupings: firstly, companies that have disclosed for several years and are continuing to become more open; secondly, companies which have recently begun to report, and are testing the waters; thirdly, companies which are moving from in-house disclosure to public disclosure, and; finally, companies which do not want to disclose environmental information publicly. There has been a steady development in environmental reporting by some of these companies over the period, with the importance of regulatory authorities evident. The starting place for disclosure seems to be the development and introduction of an environmental policy statement followed by disclosure in the annual report.

In summary, the comments indicate that companies which are used to reporting to regulators and which have taken a voluntary approach to reporting have increased their disclosure over the last five years. However, a small group have not wanted to report and have little inclination to do so. The results are obviously biased as essentially only those company respondents which have positive comments are likely to respond to this type of open question. However, a small group have responded that they have had no inclination to participate in voluntary environmental reporting. These findings are very much in line with the views of Harte and Owen (1992), and Gray *et al.* (1996a).

Table 8.8: Reflections on the Progress of Corporate Environmental Reporting

Reflections
Part A: Last Year
(i) Slowly developing over last year mainly due to 2 company takeovers and an increased awareness.
(ii) Not at all.
(iii) No environmental reporting, but improved statement in annual report. Information in general available on request.
(iv) We have just published our first environmental report (1994).
(v) through the requirement of BS7750.
(vi) Revised policy due for roll out to the businesses and outside parties during 1995.
(vii) Increasing in-house disclosure.
(viii) Move to group key indicators.
(ix) Policy under development.
(x) Becoming more open.
(xi) Very little.
(xii) Second environmental protection report produced.
(xiii) First environmental report (1994).
(xiv) Improved and increased volume of information supplied to regulatory authorities each year.
(xv) Information circulation improved to all employees plus to local bodies externally.
(xvi) Similar format to 1994 annual group report.
(xv) Summary in annual reports.
(xvi) Environmental report contains more quantitative and qualitative data.
(xvii) Compilation of an environmental impact policy statement.
(xviii) Not.
(xix) More detail and commentary.
(xx) In the submission of tenders for contracts.
(xxi) Ongoing evolving process.
(xxii) Not measurable/quantifiable. We do not have an environmental policy relating to disclosure specifically.
(xxiii) Stable.
(xxiv) Some quantification but mainly qualitative.
(xxv) The extent of information disclosed as our data systems improve.
(xxvi) Increased dialogue with local authority.
(xxvii) No change. Reactive disclosure only following direct questions.

Table 8.8 continued

Reflections
Part B: Last Two Years
(i) Production of policy for customers.
(ii) Set up environmental action plan and published it. Sent it out to customers.
(iii) Increased due to EPA authorisation and general improved awareness.
(iv) Increasing in-house disclosure - some increasing public disclosure.
(v) More focus on performance as shown in data.
(vi) Section in the annual report.
(vii) Production of environmental report.
(viii) First environmental protection report produced.
(ix) Quantitative environmental emissions projects etc. reported in annual report.
(x) Intentions of environmental management systems.
(xi) Improved and increased volume of information supplied to regulatory authorities each year.
(xii) Information gathered and analysed circulated to restricted circulation internally.
(xiii) Have reported since 1993 in the annual environmental report format.
(xiv) Summary in annual report.
(xv) Drafting a policy statement.
(xvi) Maintained.
(xvii) Included within annual report.
(xviii) Not available.
(xix) More information is gathered.
(xx) Shifting progress.
(xxi) Qualitative.
(xxii) We published our first environmental report in January 1993. We now publish annually.
(xxiii) None.
(xxiv) No change. Reactive disclosure only following direct questions.

Table 8.8 continued

Reflections
Part C: Last Five Years
(i) Policy statement issued.
(ii) None.
(iii) A policy was introduced and mention made in group annual reports and accounts.
(iv) Increasing in-house disclosure..
(v) Began public reporting, using 1990 as base for most data.
(vi) Since privatisation we have set internal energy targets and expanded our energy efficiency work
(vii) Was not seen as an issue.
(viii) Publication of policy.
(ix) Set goals and published 1990.
(x) Policy adopted and EMS installed.
(xi) Required by the inspectorate of pollution.
(xii) Improved and increased volume of information supplied to regulatory authorities each year.
(xiii) Five years ago, such information was considered private and confidential. We have moved on in the last five years.
(xiv) Ad hoc.
(xv) First environmental report published during July 1994.
(xvi) Information has been supplied on request to customers, suppliers, HMIP and local environmental health officers. This will continue.
(xvii) Setting objective standards for a sensible policy to be formulated.
(xviii) Environmental policy developed and implemented.
(xix) Not available.
(xx) A formal environmental policy was published in 1992 and an annual report has been published since.
(xxi) Pronounced progress.
(xxii) Nothing.
(xxiii) Preparation of public information leaflets on the environment.
(xxiv) Prior to 1993 we published information in various company reports.
(xxv) No change. Reactive disclosure only following direct questions.
(xxvi) None.

The following part of the enquiry considers what the company respondents' views are for future voluntary environmental disclosure.

(ii) Projections on the Progress of Corporate Environmental Reporting

The discussion in this part, centres on the companies' attitudes towards future environmental disclosure. The respondents were asked an open question regarding their perceptions of the next five years for corporate environmental reporting (restricting answers to next year, next two years and next five years).

The response for this part of the enquiry ranged from 26 to 40% for parts A, B and C in table 8.9. The most striking observation is that even those respondents companies which are the most reluctant to disclose project that they may well be doing so by the end of the century (see table 8.9, part C, (xxii)). Those companies with established environmental disclosure systems project comprehensive disclosure and even integration with financial reporting (see table 8.9, part C (iii)) and further legislation (see table 8.9, part C (xvi)).

As can be seen, there has been a steady growth in environmental reporting for some companies over the last five years, with a projection that by the end of the century most of the respondents project disclosure of at least some environmental information. The suggestion is that the groupings discussed in reflections previously will converge with some aspects of company financial reporting. These views are consistent with those expressed by Adams (1992), Harte and Owen (1992), and Gray *et al.* (1996a).

Table 8.9: Projections on the Progress of Corporate Environmental Reporting

Projections
Part A: Next Year
(i) Developing at a stronger pace.
(ii) No change.
(iii) Not at all.
(iv) More open about performance.
(v) Continued updating on how we are meeting environmental targets.
(vi) On an as required basis.
(vii) Disclosure on raw materials, energy and water consumption.
(viii) Implementation of revised policy and management system should result in better information for disclosure on progress in environmental matters.
(ix) Increasing in-house disclosure.
(x) More group indicators, more performance focus.
(xi) Progressive development both internally and externally.
(xii) A basis for reporting may be developed.
(xiii) Moving up the agenda.
(xiv) Very little.
(xv) Environmental assessment.
(xvi) New goals and continued reports.
(xvii) More standardisation of information and collection systems internally.
(xviii) Maintain and improve report and implement environmental management system - started June 1995.
(ix) Improved and increased volume of information supplied to regulatory authorities each year.
(xx) Improved monitoring and analysing procedures, first to measure the overall situation.
(xxi) Devolving down into business units?
(xxii) Summary in annual reports.
(xxiii) May introduce information on environmental liabilities into environmental report.
(xxiv) Publication of policy document.
(xxv) Not greatly.
(xxvi) More detail.
(xxvii) Increasingly being asked for.
(xxviii) Target setting will come more to the fore.
(xxix) Will not advance environmental disclosure as not a key element of business strategy as a stand alone topic.
(xxx) Stable.
(xxxi) Some more quantification.
(xxxii) The extent of the information we disclose will increase. We will include health and safety data.
(xxxiii) Better communications following establishment of significant environmental management systems.
(xxxiv) No change. Reactive disclosure only following direct questions.

Table 8.9 continued

Projections

Part B: Next Two Years

(i) No change.

(ii) Hopefully public reporting.

(iii) Increasing in-house disclosure.

(iv) Shift of emphasis to site reporting.

(v) Probably inclusion in annual report of brief summary and action programme.

(vi) Being considered.

(vii) More; including financial aspects.

(viii) Increased disclosure.

(ix) Environmental audit.

(x) More financial information to be collected (for internal use mainly).

(xi) Fully develop environmental management system.

(xii) Improved and increased volume of information supplied to regulatory authorities each year With possibility of public disclosure.

(xiii) Implement measures to improve and say what improvement targets are.

(xiv) Each individual business unit reporting on all activities and systems.

(xv) Possible introduction of BS7750 / EMAS.

(xvi) Summary in annual reports.

(xvii) Refining policy.

(xviii) Not greatly.

(xix) Submitted as a matter of course.

(xx) May be audited against a recognised EMAS.

(xxi) Progressing.

(xxii) Some more quantification.

(xxiii) Our health and safety reporting will increase in extent.

(xxiv) Possible slight change but still strongly reactive.

Table 8.9 continued

Projections
Part C: Next Five Years
(i) No change.
(ii) Increasing in-house disclosure.
(iii) Integration of health and safety executive and financial reporting.
(iv) Increasingly progressive in extent and detailed content.
(v) Probably have an EMS to 7750 standards.
(vi) Registration to international accreditation schemes.
(vii) Gradual increase in detail and financial content.
(viii) Little change.
(ix) Maintain reporting at highest level in industry.
(x) Achieve improvement targets, communicate results, say "we make and sell a green product".
(xi) Separate report.
(xii) Information has been supplied on request to customers, suppliers, HMIP and local environmental health officers. This will continue for the next ten years.
(xiii) Improvement and setting new targets .
(xiv) Not greatly.
(xv) Maybe separate document.
(xvi) Submitted as a legal requirement.
(xvii) Definitely audited against a recognised EMAS.
(xviii) Progressing.
(xix) Comprehensive qualitative and quantitative.
(xx) Development of environmental management system within framework of ISO 9000 quality management/accreditation.
(xxi) Our reporting will become more focused as we understand the environmental and health and safety issues which are most important to our business.
(xxii) Probably more open and proactive.

(iii) Assessing and Reporting Environmental Incidents

Regarding how often various agents are involved in the assessment and/or reporting of the impact of environmental incidents (see section 3.4(iii)), involving their respective company, the descriptive statistics for the assessment of environmental incidents (see table 8.10, part A) revealed that company employees (proposition (1); mean = 2.72) are frequently involved in this activity. Of the respondents, 75.3% reported a score of 3 whereas only 3.7% recorded a score of 1. The results indicate that the Department of Agriculture and the Department of Trade and Industry (propositions (8a) and (8b); mean = 1.16) do not frequently assess the impact of environmental incidents for this sample group. This is highlighted by the percentage ratings which indicated that for both agents 83.6% of the companies reported a score of 1 with none recording a score of 3. Wilcoxon tests (appendix F, table 8, part A) indicated that company employees assess the impact of environmental incidents more frequently than all the other proposed agents.

With respect to the reporting of the impact of environmental incidents, the descriptive statistics (table 8.10, part B) revealed that again company employees (proposition (1); mean = 2.50) perform the function very frequently. This is again verified by the fact that 59% of the respondents recorded a score of 3 whereas only 9% reported a score of 1. The Department of Trade and Industry (proposition (8); mean = 1.23) and the Department of Agriculture (proposition (9); mean = 1.21) are again shown to be very infrequent reporters of the impact of environmental incidents. This is again highlighted by the percentage ratings. Comparative statistics (appendix F, table 8, part B) indicated strongly that company employees report the impact of environmental incidents more

Table 8.10: Descriptive Statistics
Assessing and Reporting Environmental Incidents

	N	Mean	S.D.	P: 1	P: 3
Part A: Assess Impact					
1. Company employees.	81	2.72	0.53	3.7	75.3
2. Quango eg. National Rivers Authority.	72	1.85	0.55	23.6	8.3
3. Independent consultants	74	1.76	0.46	25.7	1.4
4. Local Authority.	72	1.68	0.53	34.7	2.8
5. Local Authority and Independent consultants.	68	1.44	0.50	55.9	0.0
6. The Department of the Environment.	69	1.36	0.59	69.6	5.8
7. Central Government.	67	1.25	0.44	74.6	0.0
8.[a] The Department of Agriculture.	67	1.16	0.37	83.6	0.0
8.[b] The Department of Trade and Industry.	67	1.16	0.37	83.6	0.0
Part B: Report Impact					
1. Company employees.	78	2.50	0.66	9.0	59.0
2. Quango eg. National Rivers Authority.	70	1.76	0.52	28.6	4.3
3. Local Authority.	69	1.62	0.55	40.6	2.9
4. Independent consultants	72	1.58	0.58	45.8	4.2
5. Local Authority and Independent consultants.	66	1.35	0.48	65.2	0.0
6. The Department of the Environment.	68	1.35	0.51	66.2	1.5
7. Central Government.	67	1.33	0.50	68.7	1.5
8. The Department of Trade and Industry.	66	1.23	0.42	77.3	0.0
9. The Department of Agriculture.	66	1.21	0.41	78.8	0.0

10. None of the above = 2 Non-response = 3

11. Are any of the above only disclosed internally = 47

12. Others:
    (i) As a dealer, we couldn't create an incident
    (ii) This depends entirely on the nature of the incident and its relationship to legislation (similar comment made by three other respondents)
    (iii) Primarily company employees but may need to inform local authority and National Rivers Authority
    (iv) Internally first dependent on problem then contact the relevant organisation
    (v) Statutory committees

The summary statistics relate to the scores obtained where respondents were asked to record a score on a 3-point scale where 1 = Never, 2 = Sometimes, and 3 = Always. P: 1 represents the percentage rating for the frequency of response for 1 (Never). P: 3 represents the percentage rating for the frequency of response for 3 (Always). Note that the superscripts a and b indicate that the mean average statistics, the standard deviations and the percentage ratings have tied for the two propositions to which they refer.

often than all the other proposed agents. Wilcoxon tests were also used to determine whether or not certain agents are more often assessors than reporters of environmental impact. Only one significant result (appendix F, table 8, part C) indicated that independent consultants assess environmental impact more frequently than they report it.

Overall, the findings indicate that company employees are the most frequently used agents for assessing and reporting environmental incidents. The survey of current corporate environmental reporting practice (section 3.3.1) revealed very similar results. This finding is consistent with the preferences of the normative and interested party groups, as well as with the Ceres Principles (CERES, 1992), and the United Nations (UNEP, 1994, and 1996a).

(iv) Accounting Information and Corporate Environmental Reporting

With respect to how often companies disclose accounting information in the context of corporate environmental reporting (see section 3.4(ii)), the descriptive statistics (table 8.11) indicated that a frequently disclosed item of accounting information is cost savings from energy conservation (proposition (1); mean = 1.66) and cost savings from recycling (proposition (2); mean = 1.63). The results also indicated that the least disclosed accounting information was reduced environmental insurance premium (proposition (12); mean = 1.11) and increased environmental insurance premium (proposition (13); mean = 1.08). Wilcoxon tests (appendix F, table 9) indicated that cost savings from energy conservation, and cost savings from recycling, are reported significantly more frequently than the majority of other choices. Further evidence of this is provided by the survey of

Table 8.11: Descriptive Statistics
Accounting Information and Corporate Environmental Reporting

	N	Mean	S.D.	P: 1	P: 3
1. Cost savings from energy conservation.	83	1.66	0.75	50.6	16.9
2. Cost savings from recycling.	82	1.63	0.71	50.0	13.4
3. Cost of implementation of pollution control measures.	80	1.50	0.71	62.5	12.5
4. Cost of environmental compliance.	82	1.50	0.72	63.4	13.4
5. Cost of non-compliance with environmental legislation.	78	1.36	0.70	76.9	12.8
6. Environmental contingent liabilities.	78	1.35	0.62	73.1	7.7
7. Cost of introducing environmental management system.	78	1.31	0.52	71.8	2.6
8. Cost of conducting environmental audits.	79	1.29	0.54	74.7	3.8
9. Cost of keeping ahead of the regulator.	77	1.25	0.57	81.8	6.5
10. Compliance costs of BS7750 and / or E.M.A.S.	76	1.21	0.47	81.6	2.6
11. Compliance cost of industry association directives.	75	1.17	0.45	85.3	2.7
12. Reduced "environmental" insurance premium.	76	1.11	0.31	89.5	0.0
13. Increased "environmental" insurance premium.	76	1.08	0.32	93.4	1.3
14. None of the above = 35	Non-response = 3				
15. Are any of the above only disclosed internally = 46					
16. Others:					
(i) Normally only disclosed internally					
(ii) We do not disclose financial information					

The summary statistics relate to the scores obtained where respondents were asked to record a score on a 3-point scale where 1 = Never, 2 = Sometimes, and 3 = Always. P: 1 represents the percentage rating for the frequency of response for 1 (Never). P: 3 represents the percentage rating for the frequency of response for 3 (Always).

current corporate environmental reporting practice (see section 3.3.1). Also, increased "environmental" insurance premium is reported significantly less frequently for most pairwise comparisons.

Of the respondent companies, 55% only disclosed some of the accounting information on an internal basis. Also, just over 42% of the respondents indicated that their company never discloses accounting information in the context of environmental reporting. This is confirmed by the low percentage ratings for 3 and the high percentage ratings for 1. In summary, the findings indicate that financial disclosure is used in environmental reporting. Of particular importance, as revealed by the Wilcoxon tests, cost savings from both energy consumption and recycling are frequently disclosed, as suggested in Gray *et al.* (1993). The disclosure of both types of cost savings was also evident from the survey of current corporate environmental reporting practice (section 3.3.1). These results indicate the process advocated by the Advisory Committee on Business and the Environment (see ACBE, 1996a, and 1996b) of consistent environmental disclosure spanning the annual financial statements, the operating and financial review and possibly a separate environmental report.

(v) Consultation and Corporate Environmental Reporting

The companies were asked to indicate how frequently they consult with various groups on environmental reporting (see section 3.4(v)), and the descriptive statistics (see table 8.12) indicated that internal company resources (proposition (1); mean = 2.24) are very frequently used as a source of consultation for corporate environmental reporting, with 45% of the respondents indicating that they always use internal company resources. The results also indicated that a series of groups received very low mean average scores. These were management consulting firms (proposition (8); mean = 1.37), an affiliated environmental charter group (proposition (9); mean = 1.34), and environmental pressure groups (proposition (10); mean = 1.33). These groups also received percentage ratings

Table 8.12: Descriptive Statistics
Consultation and Corporate Environmental Reporting

	N	Mean	S.D.	P: 1	P: 3
1. Internal company resources.	82	2.24	0.78	20.7	45.1
2. Industry associations.	76	1.83	0.64	30.3	13.2
3. Local Authority.	74	1.68	0.69	44.6	12.2
4. An environmental consulting firm.	76	1.67	0.55	36.8	3.9
5. Competitors' disclosure.	75	1.45	0.50	54.7	0.0
6. British Standards Institute regulations that is, BS7750.	73	1.43	0.56	61.6	4.1
7. The Company financial accounting auditing firm.	73	1.41	0.60	64.4	5.5
8. A management consultant firm.	73	1.37	0.49	63.0	0.0
9. An affiliated environmental charter group.	70	1.34	0.48	65.7	0.0
10. Environmental pressure groups.	76	1.33	0.50	68.4	1.3
11. Others:					
(i) Environment Council and CBI					
(ii) Her Majesty's Inspectorate of Pollution					
(iii) Inform yes, consult no.					
(iv) Central Government					

The summary statistics relate to the scores obtained where respondents were asked to record a score on a 3-point scale where 1 = Never, 2 = Sometimes, and 3 = Always. P: 1 represents the percentage rating for the frequency of response for 1 (Never). P: 3 represents the percentage rating for the frequency of response for 3 (Always).

for 3 of less than 1.5%, and percentage ratings for 1 in the region of 60%. Comparative tests (see appendix F, table 10) showed that internal company resources are consulted significantly more frequently than any of the other groups proposed, whereas environmental pressure groups are consulted less frequently than several other groups.

In summary, the findings indicate that companies mainly use internal resources to decide on what to report. This provides support for the big stick argument which suggests that companies only voluntarily disclose environmental information which is beneficial to the

company or non-controversial as stakeholder consultation may lead to conflict (see IBM, 1995 and EAAR, December 1996/January 1997). Interestingly, some companies have begun to consult with external stakeholders which implies either accountability or that these mainly large industrial leaders are attempting to develop an industry environmental reporting standard, which is compatible with their own agenda. Therefore, a company must have at least one individual who looks after environmental issues, and has considered the company's environmental responsibilities, or its reporting to external pressures.

(vi) Time Period and Communication of Corporate Environmental Reporting

In relation to how often their company reports environmental information (see section 3.4(iv)), the descriptive statistics (see table 8.13) revealed that environmental information within the published company annual report (proposition (1); mean = 2.05) received the highest mean average score. However, 35% of the respondents indicated that their companies never disclose information in this way. Disclosure by an annual stand alone published company environmental report plus an interim environmental statement every 6 months (proposition (9); mean = 1.01) is produce less frequently. Of the respondents, 98.6% indicated a score of 1, whereas none of the respondents recorded a score of 3. Wilcoxon tests (appendix F, table 11) confirmed statistically that the most frequently used combination of time period and communication of corporate environmental reporting, is environmental information within the published company annual report. The annual stand alone published company environmental report plus an interim environmental statement every six months was shown to be disclosed significantly less frequently than several other proposed combinations.

Table 8.13: Descriptive Statistics
Time Period and Communication of Corporate Environmental Reporting

	N	Mean	S.D.	P: 1	P: 3
1. Environmental information within the published Company annual report.	82	2.05	0.87	35.4	40.2
2. Press release at company`s discretion.	81	1.68	0.61	39.5	7.4
3. Stand alone published environmental company report annually.	74	1.57	0.83	64.9	21.6
4. Specially published Company environmental report at company`s discretion.	78	1.37	0.61	69.2	6.4
5. Environmental information within the published Company annual report plus the half yearly Interim statement.	78	1.28	0.53	75.6	3.8
6. Stand alone published environmental company report every 3 months	62	1.13	0.50	93.5	6.5
7. Stand alone published environmental company report every 6 months	62	1.10	0.43	95.2	4.8
8. Annual stand alone published Company environmental report plus an Interim environmental statement every 3 months	73	1.04	0.26	97.3	1.4
9. Annual stand alone published Company environmental report plus an Interim environmental statement every 6 months	71	1.01	0.12	98.6	0.0

10. None of the above = 17 Non-response = 0

11. Are any of the above only disclosed internally = 47

12. Others:

    (i) We circulate environmental information to employees and external interested parties in quarterly news sheets

The summary statistics relate to the scores obtained where respondents were asked to record a score on a 3-point scale where 1 = Never, 2 = Sometimes, and 3 = Always. P: 1 represents the percentage rating for the frequency of response for 1 (Never). P: 3 represents the percentage rating for the frequency of response for 3 (Always).

The respondents were asked if they only disclosed any of the above combinations internally. This was the case for over 54% of the companies. Nearly 20% of the respondents indicated that their company never publicly disclosed environmental information in any of the proposed combination of time periods and instruments.

A factor analysis (see table 8.14) revealed that the respondents' disclosure practices fell into three factors. These seemed to represent the following :

(i) reporting which is too frequent (propositions (3), (5), (6), (7), (8) and (9));

(ii) reporting at companies' discretion (propositions (2) and (4)), and;

(iii) the current practice for time period, and communication of corporate environmental reporting (proposition (1)).

The factor analysis results are of particular interest as they reveal that the annual report (factor (iii)) is the preferred place and frequency for environmental disclosure. The companies also require flexibility and this can be seen in factor (ii). Lastly, the companies do not frequently report environmental information in time periods of less than a year (factor (i)).

Overall, the findings indicate that the combination of time period and communication of environmental information most frequently adopted by the company group is the annual report. This is confirmed by the views of the other two respondent groups, who consider this to be the most useful form of disclosure. The factor analysis also revealed that the annual report is statistically separate from the other factors isolated. Generally, companies which do disclose environmental information begin by doing so in the annual report and may proceed to a separate environmental report but still continue with some comment in the annual report. This supports Gray *et al.* (1993), the Advisory Committee on Business and the Environment (ACBE, 1996a and 1996b) and KPMG (1996).

Table 8.14: Factor Matrix: Varimax Orthogonal Rotation Time Period and Communication of Corporate Environmental Reporting

	Factor		
	1	2	3
1. Environmental information within the published Company annual report.			0.8886
2. Press release at company`s discretion.		0.8636	
3. Stand alone published environmental company report annually.	0.4843		
4. Specially published Company environmental report at company`s discretion.		0.9070	
5. Environmental information within the published Company annual report plus the half yearly Interim statement.	0.6277		
6. Stand alone published environmental company report every 3 months.	0.7865		
7. Stand alone published environmental company report every 6 months.	0.9083		
8. Annual stand alone published Company environmental report plus an Interim environmental statement every 3 months.	0.9031		
9. Annual stand alone published Company environmental report plus an Interim environmental statement every 6 months.	0.9031		
Cumulative Percentage of Variance Explained	43.4	62.2	75.0

Only the largest factor loadings are shown for each variable.

8.2.3 Attitudes Towards the Current Framework of Corporate Environmental Disclosure

In this section, the company respondents are asked for their attitudes towards certain issues regarding the current framework of corporate environmental disclosure.

(i) Users of Corporate Environmental Disclosure

In relation to whom environmental reporting is for (see section 3.4(v)), the descriptive statistics (table 8.15) revealed that employees (proposition (1); mean = 4.11) received the highest mean average score from the respondents. Also, of importance, were customers (proposition (2); mean = 3.90), legislators and regulators (proposition (3); mean = 3.77) and shareholders (proposition (4); mean = 3.55). The importance of these user groups is confirmed by the fact that over 50% of the respondents reported a score of 4 or 5. Of lesser importance were banks (proposition (16); mean = 2.86) and the stock market (proposition (17); mean = 2.75), which is perhaps why companies believe there is no direct demand for environmental reporting, as it would suggest that such disclosure would only be economic decision useful, with little regard for disclosure that is accountability decision useful. Wilcoxon tests (appendix F, table 12) showed that employees are significantly more important as users than the majority of choices, whereas the stock market is considered significantly less important.

A factor analysis (see table 8.16) was employed to test whether or not the respondents' views could be represented by a small number of factors. The results showed that four factors fell from the rotation which seem to represent the following :

(i) primary non-financial accountability audience (propositions (3), (5), (6), (8), (10) and (12));

(ii) primary financial accountability audience (propositions (4), (11), and (16));

(iii) secondary financial and non-financial accountability audience (propositions (7), (9), (14) and (17)), and;

(iv) commercial audience (propositions (1), (2), (13) and (15)).

Table 8.15: Descriptive Statistics
Users of Corporate Environmental Disclosure

	N	Mean	S.D.	P: 1, 2	P: 4, 5
1. Employees.	80	4.11	1.06	7.5	72.6
2. Customers.	80	3.90	1.06	10.0	70.1
3. Legislators and regulators.	79	3.77	1.29	15.2	60.8
4. Shareholders.	76	3.55	1.19	15.8	56.6
5. Local communities.	78	3.51	1.18	12.8	47.4
6. Local government.	79	3.41	1.39	26.6	48.1
7. Potential investors.	73	3.29	1.25	19.2	45.2
8. Quangos eg. National Rivers Authority.	78	3.23	1.33	26.9	44.9
9. Ethical investors.	74	3.22	1.32	23.0	43.2
10. Media.	79	3.09	1.20	29.1	38.0
11. Insurance companies.	77	3.09	1.21	32.5	33.8
12. Central government.	78	3.09	1.25	30.8	39.7
13. Suppliers.	78	3.08	1.23	35.9	39.7
14. Environmental groups.	78	3.03	1.14	33.3	29.5
15. Industry associations.	78	2.94	1.07	30.8	29.5
16. Banks.	77	2.86	1.24	42.9	33.8
17. Stock market.	73	2.75	1.27	41.1	24.6

The summary statistics relate to the scores obtained where respondents were asked to record a score on a 5-point scale where 1 = Not Important, 3 = Important, and 5 = Very Important. P: 1, 2 represents the percentage rating for the combined frequency of response for 1 (Not Important) and 2. P: 4, 5 represents the percentage rating for the combined frequency of response for 4 and 5 (Very Important).

The factor analysis provides a very useful classification of users. Firstly, there is distinction between primary and secondary audiences. Secondly, there is also a distinction between financial and non-financial. Lastly, and most importantly, there is a commercial audience. Such a classification allows interested parties to ascertain towards whom the thrust of disclosure is directed.

Table 8.16: Factor Matrix: Varimax Orthogonal Rotation
Users of Corporate Environmental Disclosure

	Factor			
	1	2	3	4
1. Employees.				0.5623
2. Customers.				0.8394
3. Legislators and regulators.	0.8160			
4. Shareholders.			0.6321	
5. Local communities.	0.6436			
6. Local government.	0.8923			
7. Potential investors.		0.7830		
8. Quangos eg. National Rivers Authority.	0.8199			
9. Ethical investors.		0.8691		
10. Media.	0.6372			
11. Insurance companies.			0.7583	
12. Central government.	0.6742			
13. Suppliers.				0.8751
14. Environmental groups.		0.5391		
15. Industry associations.				0.5069
16. Banks.			0.7985	
17. Stock market.		0.6398		
Cumulative Percentage of Variance Explained	47.8	59.2	67.9	74.9

Only the largest factor loadings are shown for each variable.

In summary, the findings indicate that employees are regarded by the respondents as the most important users of environmental disclosure. For this part of the enquiry, all three respondent groups provide different views. The normative group perceive legislators and regulators, and local communities, to be the most important users of environmental disclosure, whereas the interested party sample perceives ethical investors as being of most importance. The factor analysis produced four factor groups. The employees fell under the factor classification of "commercial audience", suggesting that this is a very

important grouping for the companies. The survey for current corporate environmental reporting practice (see section 3.3.1) confirmed the results as employees were often cited as the main body for whom environmental information is disclosed. This suggests that the annual report is also meant to be read by employees. The findings overall indicate that the first fourteen suggested users were considered to be important, and that this is consistent with the Corporate Report (ASSC, 1975), Welford and Gouldson (1993), Cannon (1994), the Royal Society of Arts (RSA, 1995), and Gray *et al.* (1996a). Interestingly, these findings also indicate that the financial community is not as important, as suggested by the European Federation of Financial Analysts (EFFAS, 1994) and the United Nations (UNEP, 1996a).

(ii) Bearing the Cost of Corporate Environmental Disclosure

Regarding the companies level of agreement with four suggestions for cost allocation (section 3.4(vi)), the descriptive statistics (see table 8.17) indicated that the company should absorb the full cost of disclosure (proposition (1); mean = 3.44). Of the respondents, 19.2% reported a score of 1 or 2, whereas 51.3% recorded a score of 4 or 5. The results also indicated that the Government via a system of tax credits (proposition (4); mean = 2.43) received the lowest mean average score from the company group. Wilcoxon tests (see appendix F, table 13) strongly indicated that the respondents agreed more with the suggestion that the company should absorb the full cost than with the other choices.

To summarise, the findings support the current practice of companies absorbing the full cost of environmental disclosure, see Perks (1993), for some of the consequences of this,

Table 8.17: Descriptive Statistics
Bearing the Cost of Corporate Environmental Disclosure

	N	Mean	S.D.	P: 1, 2	P: 4, 5
1. The company should absorb the full cost.	78	3.44	1.25	19.2	51.3
2. The interested party should pay.	75	2.76	1.26	37.3	25.4
3. There should be an allocation of cost between the company and interested party.	77	2.70	1.23	35.1	17.8
4. The Government via a system of company tax credits.	76	2.43	1.81	40.8	14.4

The summary statistics relate to the scores obtained where respondents were asked to record a score on a 5-point scale where 1 = Strongly Disagree, 3 = Neutral, and 5 = Strongly Agree. P: 1, 2 represents the percentage rating for the combined frequency of response for 1 (Strongly Disagree) and 2. P: 4, 5 represents the percentage rating for the combined frequency of response for 4 and 5 (Strongly Agree).

and The Economist (September, 1993). This finding is consistent with the views of the normative and interested party groups, and was also confirmed by the survey of current corporate environmental reporting practice (see section 3.3.1). This approach suggests a comparability with financial reporting in that both are available to interested parties free at source. This is also consistent with the view of the Advisory Committee on Business and the Environment (ACBE, 1996b).

(iii) Possible Qualitative Characteristics of Corporate Environmental Disclosure

In relation to possible qualitative characteristics (section 3.4(vii)), the descriptive statistics (table 8.18) showed that understandability (proposition (1); mean = 4.48) received the highest mean average score. The results also indicated that a true and fair view (proposition (2); mean = 4.33), reliability (proposition (3); mean = 4.32), and relevance (proposition (4); mean = 4.27) were all important. Of the respondents, less than 1.5% recorded a score of 1 or 2, for each of these characteristics, whereas over

Table 8.18: Descriptive Statistics
Possible Qualitative Characteristics of Corporate Environmental Disclosure

	N	Mean	S.D.	P: 1, 2	P: 4, 5
1. Understandability.	79	4.48	0.78	0.0	82.3
2. A true and fair view.	78	4.33	0.75	0.0	83.3
3. Reliability.	78	4.32	0.81	1.3	80.8
4. Relevance.	79	4.27	0.76	1.3	83.5
5. Faithful Representation.	78	4.23	0.87	5.1	78.2
6. Valid description.	79	4.05	0.86	2.5	74.7
7. Freedom from error.	79	4.03	0.92	3.8	67.0
8. Consistency.	77	3.79	0.86	5.2	65.0
9. Substance Over Form	74	3.73	0.87	6.8	59.5
10. Corresponding information for the previous period.	78	3.63	0.97	10.3	48.2
11. Completeness.	78	3.60	0.92	12.8	56.4
12. Materiality.	70	3.51	0.70	5.7	51.4
13. Confirmation of information.	77	3.47	1.008	11.7	44.2
14. Comparability.	78	3.28	0.85	16.7	39.7
15. Prudence.	77	3.26	0.87	11.7	37.7
16. Timeliness.	77	3.25	1.03	27.3	40.3
17. Neutrality.	78	3.21	0.89	12.8	27.0
18 Predictive value.	76	3.20	0.86	21.1	32.9

The summary statistics relate to the scores obtained where respondents were asked to record a score on a 5-point scale where 1 = Not Important, 3 = Important, and 5 = Very Important. P: 1, 2 represents the percentage rating for the combined frequency of response for 1 (Not Important) and 2. P: 4, 5 represents the percentage rating for the combined frequency of response for 4 and 5 (Very Important).

80% reported a score of 4 or 5. Comparative statistics (see appendix F, table 14) showed that understandability, a true and fair view, reliability, relevance, faithful representation, and valid description, are considered significantly more important than most of the other qualitative characteristics. A group of qualitative characteristics are perceived as being less important than most, including comparability, prudence, timeliness, neutrality, and predictive value.

A factor analysis (see table 8.19) was used to discover whether or not the attitudes of the company group can be represented by a small number of general factors. The results show that six factors are derived from the analysis. These seem to represent the following :

(i) primary qualitative characteristics for reliability (propositions (3), (5), (6), (7), (8), and (18));

(ii) main qualitative characteristics for understandability (propositions (1), (4) and (16));

(iii) main qualitative characteristics for a true and fair view (propositions (2), (9) and (15));

(iv) main qualitative characteristics for presentation (propositions (10) and (13));

(v) primary qualitative characteristics for relevance (propositions (11) and (12)), and;

(vi) secondary qualitative characteristics for reliability (propositions (14) and (17)).

The factor analysis suggests that the qualitative characteristics can be classified into broad areas. Notably, all the primary areas are classified as well as presentation. The survey of current corporate environmental reporting practice (see section 3.3.1) indicated that the companies have spent time and money on the presentation of their environmental reports in the sense of completeness and comparability in their own terms. That is, most of the companies state that they have a long way to go and disclose information which is compatible with previous company targets but not with other companies. It is early days for environmental reporting.

Table 8.19: Factor Matrix: Varimax Orthogonal Rotation
Possible Qualitative Characteristics of Corporate Environmental Disclosure

	Factor					
	1	2	3	4	5	6
1. Understandability.		0.7203				
2. A true and fair view.			0.5010			
3. Reliability.	0.6973					
4. Relevance.		0.8042				
5. Valid description.	0.7014					
6. Freedom from error.	0.7765					
7. Consistency.	0.5528					
8. Substance Over Form	0.6499					
9. Corresponding information for the previous period.			0.4904			
10. Completeness.				0.5337		
11. Materiality.					0.8029	
12. Confirmation of information.					0.7376	
13. Comparability.				0.6908		
14. Prudence.						0.8828
15. Timeliness.			0.8036			
16. Predictive value.		0.2668				
17. Neutrality.						0.5589
18. Faithful Representation.	0.7622					
Cumulative Percentage of Variance Explained	31.8	41.8	50.3	57.9	64.9	71.5

Only the largest factor loadings are shown for each variable.

Overall, the findings suggest that the proposed qualitative characteristics for financial reporting may also be applicable to environmental reporting. The characteristics of particular importance are understandability, a true and fair view, reliability and relevance. These are the primary classifications and the respondents have distinguished between the importance of these and the other characteristics. Understandability and

reliability were also perceived as being of most importance by the normative and interested part groups. The factor analysis also derived a term "presentation", which is of some importance for the companies in environmental reporting. Gray *et al.* (1996b) have indicated that the qualitative characteristics of financial reporting may also be applicable to environmental reporting. The findings here indicate that this is the case. On a more fundamental basis, the findings also agree with Macve and Carey, (1992), the European Federation of Financial Analysts (EFFAS, 1994) and the Advisory Committee on Business and the Environment (ACBE, 1996b).

(iv) Proposed Elements of a Conceptual Framework for Corporate Environmental Reporting

With respect to the possibility of developing elements for environmental reporting (section 3.4(viii)), the descriptive statistics (table 8.20) indicated that water (proposition (1); mean = 4.48) received strong agreement from the company respondents as an element of a conceptual framework for corporate environmental reporting. The respondents showed relatively less agreement for sound (proposition (4); mean = 3.91) as an element. Of the respondents, 7.5% or less reported a score of 1 or 2, whereas over 62% reported a score of 4 or 5, for sound as an element. Wilcoxon tests (see appendix F, table 15) indicated that water is considered significantly more important than land, or sound, and that sound is less important than all other elements.

In summary, the findings indicate that company respondents strongly agree with the propositions of air, land, water and sound as elements for a conceptual framework in environmental reporting. Water was given more emphasis land and sound. These positive

Table 8.20: Descriptive Statistics
Proposed Elements of a Conceptual Framework for Corporate Environmental Reporting

	N	Mean	S.D.	P: 1, 2	P: 4, 5
1. Water.	80	4.48	0.83	2.5	91.3
2. Land.	80	4.38	0.86	2.5	87.5
3. Air.	80	4.38	1.02	6.3	87.6
4. Sound.	80	3.91	1.02	7.5	62.5
5. Others:					
(i) Nuisance (comment made by two respondents)					
(ii) Energy, raw materials, environmental management systems					
(iii) Product impact, energy, strategy such as targets and goals					
(iv) Preservation of amenity					
(v) Integrated Pollution Control requirements					
(vi) Energy consumption, recycling, substitution of materials					
(vii) Packaging and energy use					

The summary statistics relate to the scores obtained where respondents were asked to record a score on a 5-point scale where 1 = Strongly Disagree, 3 = Neutral, and 5 = Strongly Agree. P: 1, 2 represents the percentage rating for the combined frequency of response for 1 (Strongly Disagree) and 2. P: 4, 5 represents the percentage rating for the combined frequency of response for 4 and 5 (Strongly Agree).

results indicate that one way forward for a conceptual framework is the use of these elements as a basis for measuring and reporting on the environment by companies. The strong support for these four elements by both the interested party and normative respondents also confirms this approach. These findings support the Ceres Principles (CERES, 1992), the World Industry Council for the Environment (WICE, 1994), the Eco-Management and Auditing Scheme (see EAAR, October, 1995, and May, 1996a), and the Environmental Protection Act, 1990 (see Ball and Bell, 1995).

(v) Verification of Corporate Environmental Disclosure

In relation to verification (section 3.4(ix)), the descriptive statistics (see table 8.21) indicated that an internal management team (proposition (1); mean = 3.82) received the highest mean average score. Of the respondents, 13.6% reported a score of 1 or 2, whereas 64.2% recorded a score of 4 or 5. The results also indicated that 40% of the respondents showed strong disagreement with the notion that verification is not necessary (proposition (5); mean = 2.65). This suggests that the majority of respondents are in favour of at least some verification. Accountants within their existing framework (proposition (7); mean = 2.10) received the lowest mean average score from the company group (see Power, 1991). Comparative statistics (appendix F, table 16) showed that the company group strongly favours an internal management team for the verification of corporate environmental disclosure over any other group. This supports the earlier finding that company respondents do not consider that external/internal verification is important. Accountants within their existing framework are regarded as significantly less important than several other propositions.

For many users, independent verification is a very important feature of environmental disclosure. The findings revealed that company respondents are in agreement on an internal management team undertaking this task. This is consistent with the Ceres Principles (CERES, 1992). This finding is not consistent with that for the other two respondent groups. Notably, the suggestion that verification is not necessary has not been firmly rejected, whereas it received strong disagreement from both the normative and interested party respondents. These findings are contrary to the suggestions of Adams (1992), Macve and Carey (1992), the European Chemical Industry Association

Table 8.21: Descriptive Statistics
Verification of Corporate Environmental Disclosure

	N	Mean	S.D.	P: 1, 2	P: 4, 5
1. Internal management team.	81	3.82	1.20	13.6	64.2
2. A registered auditor of The Environmental Auditors' Registration Association.	78	3.04	1.25	29.5	33.3
3. Scientists within their existing framework.	78	2.80	1.12	34.6	28.2
4. Environmental consultants within their existing framework.	78	2.78	1.16	35.9	28.2
5. Verification is not necessary.	80	2.65	1.26	40.0	21.3
6. A new professional body that includes accountants, scientists and environmental consultants.	79	2.42	1.13	50.6	17.7
7. Accountants within their existing framework.	78	2.10	1.17	57.7	11.6
8. Others:					
(i) Engineers, for example, process specialists					

The summary statistics relate to the scores obtained where respondents were asked to record a score on a 5-point scale where 1 = Strongly Disagree, 3 = Neutral, and 5 = Strongly Agree. P: 1, 2 represents the percentage rating for the combined frequency of response for 1 (Strongly Disagree) and 2. P: 4, 5 represents the percentage rating for the combined frequency of response for 4 and 5 (Strongly Agree).

(CICA, 1994), the Confederation of British Industry (CBI, 1994), Gray *et al.* (1995), and the United Nations (UNEP, 1996a).

(vi) Suggested Motives For Corporate Environmental Disclosure

With respect to motives (section 3.4(i)), the descriptive statistics (table 8.22) indicated that the respondents agreed with the suggestion that to acknowledge social responsibility (proposition (1); mean = 4.02) is a major motive. The respondents also consider that improving the company's corporate image (proposition (2); mean = 3.90) is a chief motive for corporate environmental disclosure. It should be noted that for the first five suggested motives 13% or less of the respondents recorded a score of 1 or 2 whereas

Table 8.22: Descriptive Statistics
Suggested Motives For Corporate Environmental Disclosure

	N	Mean	S.D.	P: 1, 2	P: 4, 5
1. To acknowledge social responsibility.	79	4.02	0.76	2.5	77.2
2. To improve the company's corporate image.	77	3.90	0.75	3.9	74.0
3. To comply with regulations.	80	3.88	1.24	12.5	65.0
4. As a result of company ethics.	80	3.81	0.96	10.0	71.3
5. As an acceptance of a change in society's ethics.	78	3.59	0.92	9.0	62.9
6. To market the company.	77	3.34	1.11	18.2	48.1
7. To meet the demand for environmental information.	77	3.31	1.17	27.3	48.1
8. To market company products.	77	3.29	1.16	20.8	53.3
9. Pressure from customers / consumers.	79	3.24	1.12	27.8	41.8
10. To attract investment.	76	2.86	1.15	35.2	27.6
11. As a form of political lobbying.	77	2.83	1.12	35.1	28.6
12. Peer pressure from companies in the same industry.	78	2.65	1.00	39.7	18.0
13. Others:					
(i) To meet the internal demand for environmental information. To comply with regulatory requirements.					

The summary statistics relate to the scores obtained where respondents were asked to record a score on a 5-point scale where 1 = Strongly Disagree, 3 = Neutral, and 5 = Strongly Agree. P: 1, 2 represents the percentage rating for the combined frequency of response for 1 (Strongly Disagree) and 2. P: 4, 5 represents the percentage rating for the combined frequency of response for 4 and 5 (Strongly Agree).

more than 60% indicated a score of 4 or 5. The suggest motive receiving the lowest mean average score was peer pressure from companies in the same industry (proposition (12); mean = 2.65). Wilcoxon tests (see appendix F, table 17) indicated that the respondents agreed more with the motive of acknowledging social responsibility, than with the majority of other motives. Also, the companies agreed more with the motive of improving the company's corporate image, than with several other motives. However, the companies consider peer pressure from companies in the same industry to be a significantly less plausible motive than almost all the other propositions.

The results of a factor analysis (see table 8.23) showed that the responses fell into four factors, as follows :

(i) marketing motive (propositions (1), (2), (6), (8) and (10));

(ii) pressure for disclosure motive (propositions (7) and (9));

(iii) ethical motive (propositions (4) and (5), and;

(iv) control of regulation motive (propositions (3) and (11)).

The factors represent a synthesis of why companies disclose. Essentially, it is in the company's commercial interests to do so. The companies are under pressure to disclose, they believe they have ethical obligations to disclose, and voluntary disclosure may act as a means of delaying or reducing legislation.

Overall, the statistical results indicate that social responsibility, corporate image, compliance with regulations and company ethics are the major motives for corporate environmental disclosure. This is supported by Deloitte Touche Tomatsu International, (DTTI, 1993), the World Industry Council for the Environment (WICE, 1994), the United Nations (UNEP, 1994), and the Royal Society of Arts (RSA, 1995). Improving the company's image gained strong support from the other two respondent groups, however, the other motives did not. The factor analysis resulted in four classifications for disclosure, with probably pressure for disclosure being the least important. The perception is that voluntary disclosure has commercial applications for companies and is therefore profitable.

Table 8.23: Factor Matrix: Varimax Orthogonal Rotation
Suggested Motives For Corporate Environmental Disclosure

	Factor			
	1	2	3	4
1. To acknowledge social responsibility.	0.6024			
2. To improve the company's corporate image.	0.7526			
3. To comply with regulations.				0.7745
4. As a result of company ethics.			0.8097	
5. As an acceptance of a change in society's ethics.			0.8940	
6. To market the company.	0.8986			
7. To meet the demand for environmental information.		0.5566		
8. To market company products.	0.6869			
9. Pressure from customers / consumers.		0.8667		
10. To attract investment.	0.6013			
11. As a form of political lobbying.				0.6670
12. Peer pressure from companies in the same industry.		0.8205		
Cumulative Percentage of Variance Explained	27.0	43.5	58.2	67.5

Only the largest factor loadings are shown for each variable.

(vii) Possible Reasons For the Inadequacy of Corporate Environmental Disclosure

Regarding the inadequacy of corporate environmental disclosure (see section 3.4(xi)), the descriptive statistics (table 8.24) revealed that the reluctance to report sensitive information (proposition (1); mean = 4.03) and the fact that there is no legal obligation for companies to report environmentally (proposition (2); mean = 4.03) were both strong reasons for non-disclosure of environmental information (see for example, the comments made by companies A and B below). At the other end of the scale, the possible reason that companies generally believe they do not have an impact on the environment (proposition (12); mean = 2.54) received a much lower mean average score from the

Table 8.24: Descriptive Statistics
Possible Reasons For the Inadequacy of Corporate Environmental Disclosure

	N	Mean	S.D.	P: 1, 2	P: 4, 5
1. Reluctance to report sensitive information.	78	4.03	0.79	5.1	80.7
2. There is no legal obligation for companies to report environmentally.	80	4.03	0.93	3.8	66.3
3. To avoid providing information to competitors.	79	3.75	0.95	12.7	68.4
4. Possible damage to companies' reputation.	79	3.57	0.96	13.9	51.9
5. Cost of disclosure.	81	3.57	1.05	17.3	60.5
6. Inability to gather the information.	80	3.56	1.21	46.3	62.5
7. Insufficient response / feedback from stakeholders.	81	3.47	0.82	9.9	35.7
8. To avoid providing incriminating information to regulators.	79	3.44	1.05	17.7	45.6
9. General lack of awareness of environmental issues	79	3.42	1.78	15.2	45.6
10. Users may not understand the information.	79	3.32	0.91	13.9	32.9
11. Lack of awareness of competitive advantage.	79	3.18	1.02	20.3	40.5
12. Companies generally believe they do not have an impact on the environment.	79	2.54	1.17	54.4	22.8
13. Others:					
(i) Misuse					
(ii) No real pressure to do so					
(iii) Apathy of general public requiring this type of information					

The summary statistics relate to the scores obtained where respondents were asked to record a score on a 5-point scale where 1 = Strongly Disagree, 3 = Neutral, and 5 = Strongly Agree. P: 1, 2 represents the percentage rating for the combined frequency of response for 1 (Strongly Disagree) and 2. P: 4, 5 represents the percentage rating for the combined frequency of response for 4 and 5 (Strongly Agree).

company group. Wilcoxon tests (see appendix F, table 18) indicated that a major reason for the lack of disclosure is reluctance to report sensitive information, which was significantly more important than the majority of other reasons. Also, the reason that there is no legal obligation for companies to report environmentally, was perceived as being more important than most of the suggested reasons. The reason that companies generally believe they do not have an impact on the environment, was seen as

significantly less important than all the other suggested reasons.

A factor analysis (see table 8.25) revealed that the responses fell under four factors. These seemed to represent the following :

(i) fear of interested parties misunderstanding disclosure (propositions (1), (3), (4), (8) and (10));

(ii) environmental inertia (propositions (2), (5), (6), and (11));

(iii) environmental disclosure is not decision-useful (propositions (7) and (12)), and;

(iv) lack of awareness of environmental issues (proposition (9)).

These four classifications which have resulted from the factor analysis which represent peer responses to the question suggest that in order to encourage disclosure interested parties should, with regard to factor (i), make it transparent that they can properly interpret environmental disclosure.[2] With respect to factor (ii), interested parties should educate companies in the possible benefits to themselves and society of reporting environmentally. With respect to factor (iii), interested parties should lobby companies regarding their environmental inadequacies without speculation. Lastly, concerning factor (iv) interested parties should lobby and educate companies about the environmental in general and the role that the specific company plays in environmental degradation.

A further source of reasons for non-disclosure were found in the responses which some company management sent declining to participate in the questionnaire survey. For

[2] The Greenpeace incident involving Brent Spar is a good example of this - see the Economist, June, 1995.

Table 8.25 Factor Matrix: Varimax Orthogonal Rotation
Possible Reasons for the Inadequacy of Corporate Environmental Disclosure

	Factor			
	1	2	3	4
1. Reluctance to report sensitive information.	0.5417			
2. There is no legal obligation for companies to report environmentally.		0.5360		
3. To avoid providing information to competitors.	0.7216			
4. Possible damage to companies' reputation.	0.7825			
5. Cost of disclosure.		0.7129		
6. Inability to gather the information.		0.7466		
7. Insufficient response / feedback from stakeholders.			0.7052	
8. To avoid providing incriminating information to regulators.	0.8027			
9. General lack of awareness of environmental issues				0.8828
10. Users may not understand the information.	0.5472			
11. Lack of awareness of competitive advantage.		0.5951		
12. Companies generally believe they do not have an impact on the environment.			0.7024	
Cumulative Percentage of Variance Explained	28.1	46.6	57.2	65.9

Only the largest factor loadings are shown for each variable.

example, company A respondent[3] said :

> "...the questionnaire requires information which we do not make public..."

Company B respondent remarked :

> "[Company B]...is a private company and, as such, it is not our policy to issue information to the general public".

The respondent from Company C, a subsidiary of a US company, made the following point :

> "[Company C] Limited as the UK subsidiary discloses environmental information only to employees".

[3] It is appropriate to keep these respondents anonymous.

Company D respondent (let us remember that all the sample companies are among the Top 1000 companies in the UK) stated that :

> "As a relatively small company I am afraid we do not have the resources available to deal with your detailed questionnaire about environmental reporting".

As can be seen, secrecy, a company being private, irresponsible stakeholders, and lack of resources, have been cited for non-participation in the survey. These reasons are consistent with the findings from the sample as a whole.

In summary, the findings indicate that the companies are secretive and fear misrepresentation of environmental disclosure (see Deloitte Touche Tomatsu International, (DTTI, 1993), the World Industry Council for the Environment, (WICE, 1994), Ball and Bell, (1995)). Publicity, such as that achieved by Greenpeace in relation to Brent Spar is a case in hand. These findings do not seem to relate to the perceptions of the normative and interested party groups. The factor analysis revealed four broad areas for the lack of disclosure. The factor, environmental inertia, would suggest that a legal obligation for companies to disclose would change attitudes for reporting practices not only in a compliance sense, but also would reveal that there are advantages to both companies commercially and to society (see Perks, 1993).

(viii) Interested Party Access to Corporate Environmental Disclosure

In relation to the most appropriate place for company environmental disclosure to be made available (section 3.4(x)), the descriptive statistics (see table 8.26) indicated that company head office (proposition (1); mean = 4.00) is considered a suitable place for interested party access to corporate environmental disclosure. All the environmental

Table 8.26: Descriptive Statistics
Interested Party Access to Corporate Environmental Disclosure

	N	Mean	S.D.	P: 1, 2	P: 4, 5
1. From company head office.	84	4.00	0.94	3.6	70.2
2. From company head office and at site / branch level.	82	3.73	1.078	12.2	64.6
3. From a central reference place where all company environmental disclosure can be examined	78	2.83	1.21	32.1	26.9
4. Only at site / branch level.	81	2.31	1.22	56.8	16.1

The summary statistics relate to the scores obtained where respondents were asked to record a score on a 5-point scale where 1 = Strongly Disagree, 3 = Neutral, and 5 = Strongly Agree. P: 1, 2 represents the percentage rating for the combined frequency of response for 1 (Strongly Disagree) and 2. P: 4, 5 represents the percentage rating for the combined frequency of response for 4 and 5 (Strongly Agree).

reports for the survey of corporate environmental reporting practice (section 3.3.1) were obtained by writing to the respective company's head office. The option of access only at site/branch level (proposition (4); mean = 2.31) was regarded as less suitable. Comparative statistics (see appendix F, table 19) showed that interested party access to corporate environmental disclosure, from company head office, is significantly more important, and access to information only at site/branch level considered significantly less important, than two other propositions.

In summary, the findings indicated that company head office is the most appropriate place to obtain environmental disclosure. This is consistent with the results of the survey of current corporate environmental reporting practice (see section 3.3.1), and financial reporting practice (see Mayson *et al.*, 1995). However, the findings for the normative and interested party groups differ, as they seem to consider they need many more places to access environmental information.

(ix) Accountability, Decision-Making and Corporate Environmental Disclosure

For this part of the enquiry, the descriptive statistics (table 8.27) indicated that environmental disclosure that had been analysed (proposition (1); mean = 3.95) was allotted a high mean average score by the respondents. Of the respondents, 7.4% reported a score of 1 or 2, whereas 74.1% recorded a score of 4 or 5. However, the statement that company environmental disclosure should be regulated in the same way as accounting disclosure (proposition (4); mean = 2.76) received the lowest mean average score from the respondents.

Wilcoxon tests (appendix F, table 20) indicated that environmental disclosure that has been analysed is considered significantly more relevant than several other proposed statements. Interestingly, the statement comparing the regulation of accounting and environmental disclosure received significantly less agreement than several other statements.

It is very interesting that the companies' most favoured statement is that environmental disclosure that has been analysed would be more useful for accountability and decision-making purposes than raw data. The same finding arose from the interested party and normative group responses. This follows the previous analysis (section 8.2.3 (vii)) on why companies are reluctant to report. Such an approach towards a conceptual framework is also likely to encourage reporting, as it is likely to overcome misrepresentation of disclosure.

Table 8.27: Descriptive Statistics
Accountability, Decision-Making and Corporate Environmental Disclosure

	N	Mean	S.D.	P: 1, 2	P: 4, 5
1. Environmental disclosure that has been analysed would be more useful for accountability and decision-making purposes than raw data.	81	3.95	1.00	7.4	74.1
2. It would be useful for accountability and decision-making purposes if companies disclosed environmental target-setting information with respect to a set classification.	82	3.35	0.92	15.9	47.5
3. Interested parties require company environmental disclosure for accountability and decision-making purposes.	82	3.02	0.99	20.7	25.6
4. Company environmental disclosure should be regulated in the same way as accounting disclosure.	83	2.76	1.07	36.1	20.5

The summary statistics relate to the scores obtained where respondents were asked to record a score on a 5-point scale where 1 = Strongly Disagree, 3 = Neutral, and 5 = Strongly Agree. P: 1, 2 represents the percentage rating for the combined frequency of response for 1 (Strongly Disagree) and 2. P: 4, 5 represents the percentage rating for the combined frequency of response for 4 and 5 (Strongly Agree).

8.2.4 Further Points

The further comments provided by the company respondents are presented in table 8.28. Comments (ii) and (x) suggest that for some companies the environment is not yet an issue. Comments (v) and (xiii) made reference to the cost of corporate environmental disclosure which companies have to bear. Comments (vi), (viii) and (ix) are examples of the different approaches taken by company management towards the disclosure of corporate environmental information. Comment (ix) is interesting as it suggests that corporate environmental disclosure is not a "public good" and that there are legitimate interested parties. Comments (i), (iii), (iv) and (xi) suggest the respondents had some problems with the questionnaire. Again, all of these comment have been dealt with in the thesis.

Table 8.28: Further Points

	Comments
(i)	I think you should have tested this questionnaire first because it was difficult to follow and fill in. I found many of the questions irrelevant to this company. You can have a company that does well against its targets and management systems which is still fundamentally unstable. I believe care should be taken when compiling/collecting information to ensure it is relevant, and actually can be used for some purpose.
(ii)	In view of the nature of our business (i.e. not manufacturing or involved in disposal of toxic waste) I feel a large part of this questionnaire is not applicable to our organisation. However, I have responded as best I feel able.
(iii)	I believe your questionnaire is over the top. Industry is just coming to grips with environmental issues and can do without this sort of probing.
(iv)	I have found some of these questions difficult to (a) understand and (b) give a sensible answer to. The problem is that you really need several different peoples' input. I know about environmental issues but not much about financial ones. As you will appreciate, it would be too time-consuming to get too many people involved.
(v)	The most significant feature in developing a complete environmental programme in construction is the cost. The cost of measuring and compilation would have a significant bearing on our financial competitiveness. We have a policy which is geared towards a gradual build up in environmental management instruments.
(vi)	In order to look at true costs and environmental impact, it is essential to look at company impact as a whole, i.e. product life-cycle etc, not just at manufacturing and direct impact.
(vii)	I have found the format very confusing and may have answered some questions in ways you did not intend. There are also some questions unanswered that I just did not understand.
(viii)	As you will have gathered, my company does not disclose very much information. However, where legislators are concerned, all information is always reported as requested and required. Internal reports are not released to interested parties.
(ix)	None of our products are harmful, although most can be recycled. As a company we have set targets for ourselves and certainly there is a growing awareness of the environment generally. I feel it will become much more effective when there are punitive costs for avoidance.
(x)	I do not see the relevance of this to our type of company.
(xi)	Questions are misleading. I feel that I understand the general drift, but the questions missed distinctions between responding to occasional queries and members of the public's interests, and formal pre-planned disclosures and to disclosures to regulators etc. The analysis will therefore produce muddled and misleading impressions.
(xii)	The definition of interested parties is crucial to the question of disclosure. Responsible agencies with the need to know are acceptable, e.g. local authorities. Mischievous, eccentric lobby groups are not acceptable.
(xiii)	External reporting can be a time consuming and costly PR exercise. Internal reporting in order to improve performance is more important and a better use of our resources.

8.3 Conclusion

The responses from the company group have provided some empirical evidence necessary to develop a conceptual framework for corporate environmental reporting. The company respondents disclose environmental information on compliance with standards, suggesting that there would be some consensus between the three respondent groups on this issue. There was a substantial rejection of financial disclosure by the company group, mainly in favour of qualitative disclosure. The responses also confirmed commonality between corporate environmental, and financial reporting. A notable finding is that there seems to be a striking lack of consensus between the company respondent group and the other two respondent groups. However, it is necessary to test whether or not the apparent difference in attitudes between the company group and the two other groups are statistically significant. An analysis, using two and three sample Kruskal-Wallis tests, compare the three groups' responses, in the following chapter.

Chapter Nine

A Comparison of Attitudes between the Respondent Groups

9.1 Introduction

In this final piece of empirical work, a comparison is made of the responses, between the three groups. The purpose is to facilitate an overview of the responses, and thereby identify any consensus between the groups. There is strong evidence from the empirical findings presented throughout this chapter of a substantial gap between the companies' responses and those of the normative and interested party groups. The companies consistently give lower responses than the other two groups. This is interpreted throughout the chapter in three different ways, according to the sections, as: a disclosure gap, a reporting gap, and an attitude gap.

The findings presented in this chapter also lead to potential policy recommendations arising from the establishment of a possible conceptual framework in environmental reporting. Such policy recommendations frequently result from developing a conceptual framework, in any discipline (see chapter two). One possible policy recommendation, arising from the analysis, is that of regulated, or mandatory environmental disclosure.[1] It may be that only regulation of corporate environmental disclosure can narrow this gap. This policy recommendation is referred to, for the purposes of the thesis, as the

[1] For the purposes of this thesis, the terms "regulated" and "mandatory" are used interchangeably, as they may be considered to result in achieving the same goal. The accounting profession is regulated but is policed by the legislature. Therefore, if companies do not follow accounting standards, or Generally Accepted Accounting Principles, they will be subject to penalties.

"regulation strategy".[2] A second, alternative, policy is that empirical evidence emphasising the strong disclosure requirements of normative and interested party groups, such as that arising from this research, may be disseminated to company management, in the hope that they will respond positively, by narrowing the gap, without the need for regulation thereby remaining within a voluntary framework. This policy recommendation is referred to, for the purposes of the thesis, as the "dissemination strategy". A further policy recommendation which is compatible with either of the previous two is that of educating company management, opinion formers, and professional trade and industry associations, in environmental issues. This is a complementary policy which, either in a mandatory or voluntary framework, would assist the companies in responding in substance rather than purely in form. This last policy recommendation is referred to, for the purposes of this thesis, as the "education strategy". This strategy conforms with Gray *et al.'s* (1996a) suggestions that regulation should be accompanied by education. Rather than leaving policy recommendations to the end of the thesis, it seems appropriate to incorporate them into this chapter, as they form an integral part of any discussion and analysis of the findings.

Throughout the analysis in this chapter, there is an underlying assumption that for questions relating to environmental disclosure practice in the company questionnaire, the company responses concerning their disclosure practice are synonymous with their

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[2] The argument for regulation rests on certain underlying assumptions. Firstly, it is necessary to assume that companies are accountable to society for their use of the environment. Secondly, the regulation argument assumes that more disclosure is preferable to less. Further, the findings of this research provide indications of what types of disclosure are required from companies, and in what form, implying that "more" disclosure should also be "relevant" and "useful" disclosure, implying quality not just quantity. Also, increased disclosure should be transparent. Lastly, the disclosure of information by companies on their use of the environment, is necessary, in order to reduce the impact that companies have on the environment. As stated in chapter one, in order to divert the current trend of environmental exploitation, it is essential that information concerning the effects of commerce on our environment is made readily and widely available.

attitudes towards corporate environmental disclosure. However, as discussed in section 5.7.1, there are potential limitations to interpreting the responses and comparing them to those from the normative and interested party groups. These arise as it may be argued that the companies' disclosure practice does not necessarily reflect their attitudes, or what they would like to disclose. This possible contradiction arises from the problems of combining "normative" responses (by the normative and interested party groups) with "positive" responses (by the company groups). For clarification purposes, limitations arising from combining positive and normative approaches may occur in the analysis in section 9.3.1 and 9.3.2. There should be no contradiction in section 9.3.3, as the questions to all three groups are normative in nature.

The outline of this chapter follows that of the previous three chapters of empirical work, for the purpose of consistency, and so as to enable comparison between the three survey groups. The discussion begins in the following section by taking a brief look at the methodology used for comparison.

9.2 Methodology

The methodology for this chapter consists of several approaches. Firstly, a series of two and three sample Kruskal-Wallis tests are employed, to detect correspondences between the respondent groups' attitudes. Secondly, summaries of these results are represented both in tabular form, and using Venn diagrams from Set Theory. Lastly, the analysis of the results involves examining the two and three sample results, and establishing an overall pattern to the responses, for each part of the enquiry.

The comparison between the groups used two, and three sample, Kruskal-Wallis one-way analysis of variance tests. The two sample Kruskal-Wallis tests were used to compare the responses, for each pair of groups (for example, a comparison of the responses by the normative group with those of the interested party group). Three two sample, Kruskal-Wallis tests were therefore employed, for each paired combination of the respondent group. Furthermore, three sample Kruskal-Wallis tests were used, to compare the responses among all three groups, for each question. The aim of the Kruskal-Wallis test (either two or three sample) is to test the null hypothesis, that the two (or three) samples, could be drawn from the same statistical population (see section 5.3.2). In other words, acceptance of the null hypothesis would imply that the respondents, from both (or all three) groups, were providing similar responses overall. Consequently, rejection of the null hypothesis, implies that the respondents in the two (or three) groups are providing systematically different responses to the questions. The importance of these Kruskal-Wallis tests, is that they allow a pattern to emerge, concerning the general attitudes of the respondent groups, towards the propositions in each question. For example, if the three groups appear to provide similar responses to all parts of a question, this signifies a unified opinion between the interested party, the normative and the company groups. Further, a general agreement on an issue, by all three groups, could signify the potential for development of some measurement, or direction, within the overall conceptual framework for environmental reporting. On the other hand, where there appears to be disagreement among the groups (rejection of the null hypothesis) then it is unlikely, in the short-run, that significant progress can be made in these areas. A more long-term approach would be required.

A second stage of the methodology consisted of representing the results, to the two and

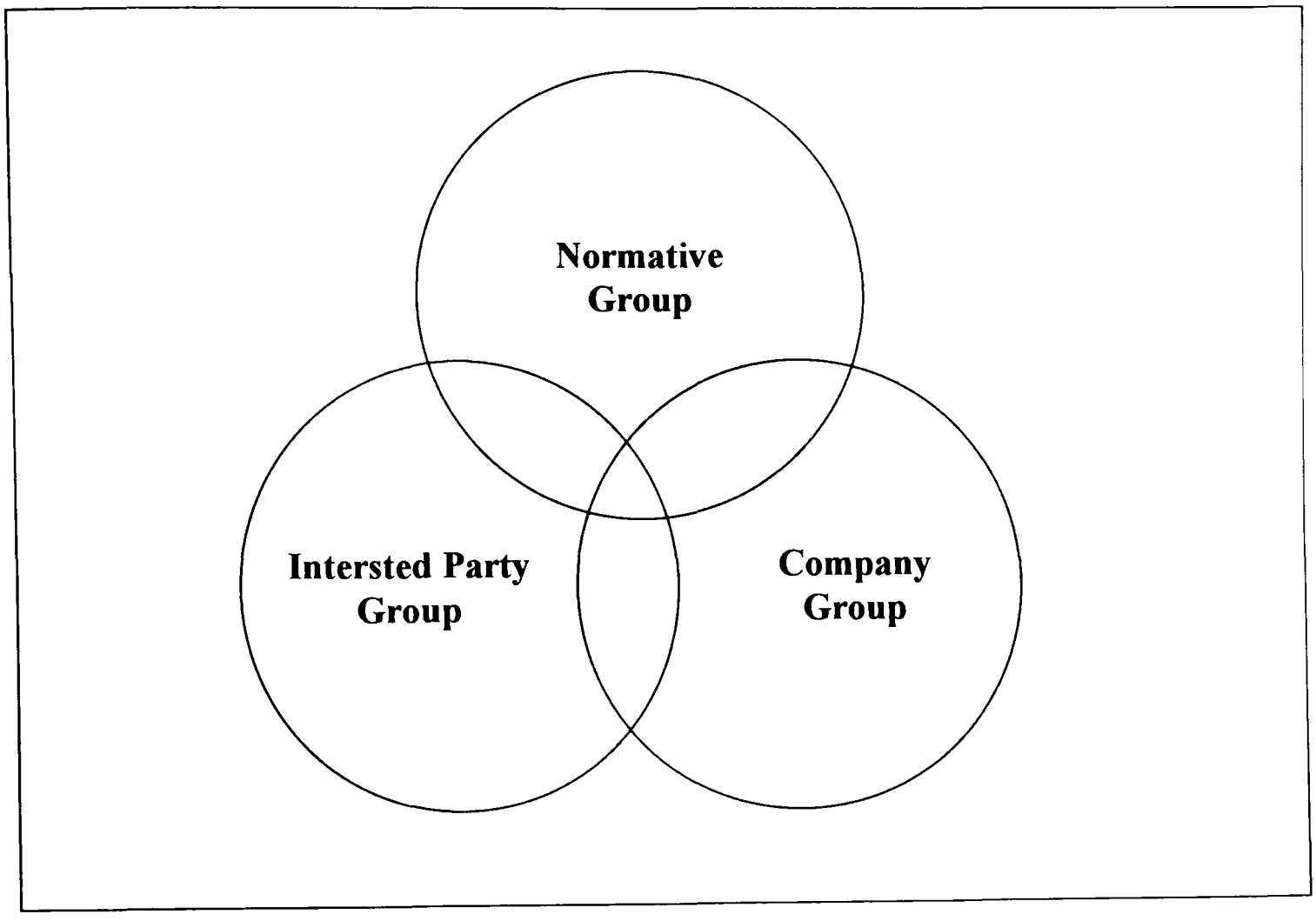
three sample Kruskal-Wallis tests, using Venn diagrams (see, for example, Mendenhall, Scheaffer and Wackerly, 1986, for a brief overview). Venn diagrams are used in Set Theory, to illustrate the relationships between factors, or groups, within a "Universe". In this case, the circles (see diagrams 9.1 - 9.4, parts A and B) represent the respondent groups, and intersection, or non-intersection, of their attitudes.

For each of the four Kruskal-Wallis tests performed for each proposition, there were two possibilities. Where the null hypothesis was accepted, then *yes*, in the result tables, signifies that the two (or three) respondent groups appear to be giving similar responses. This is illustrated by a Venn diagram, with intersecting circles, indicating the agreement between the groups (this is represented by parts A, in diagrams 9.1 - 9.4). In contrast, where there was a rejection of the null hypothesis, then this was represented by *no* in the result tables. Furthermore, the situation showing disagreement between the two (or three) respondent groups, is illustrated by Venn diagrams, where the circles do not intersect, but are mutually exclusive (this is represented by parts B in diagrams 9.1 - 9.4). The test of most relevance to testing the conceptual framework model is the three sample Kruskal-Wallis, as intersection (see diagram 9.1, part A) represents consensus between the three groups providing a starting point for developing a conceptual framework for corporate environmental reporting.

Lastly, the Kruskal-Wallis results are discussed, with reference to any patterns created by the overall responses, for each part of the enquiry. For example, one strong pattern, emerging from the responses, is a general agreement between the interested party and normative groups, accompanying a general disagreement between the company group, and the other two groups. This pattern, where it occurs, translates itself into an apparent

Diagram 9.1: Three Sample Test-Normative, Interested Party and Company Groups

Part A: Intersection



Part B: No Intersection

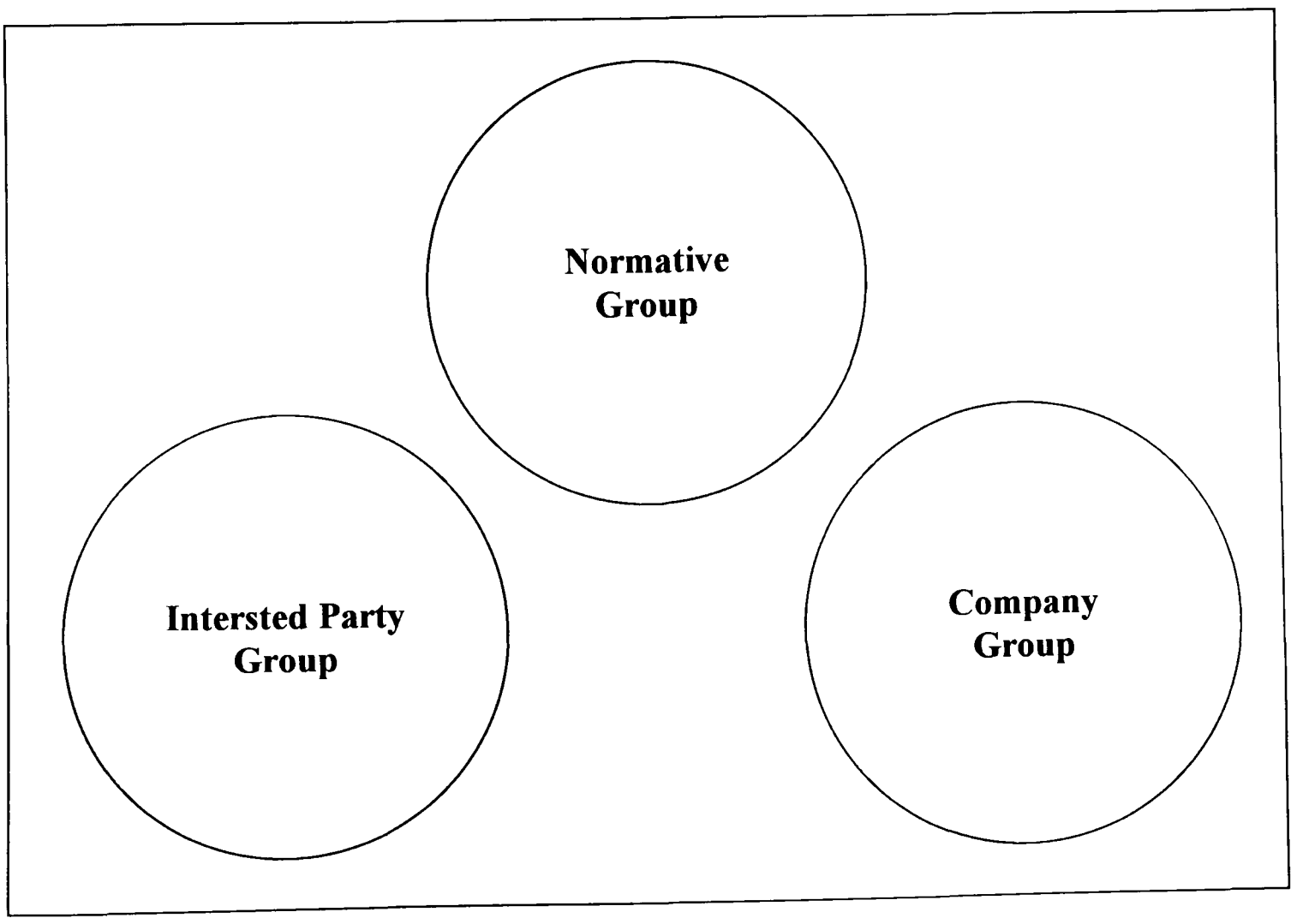
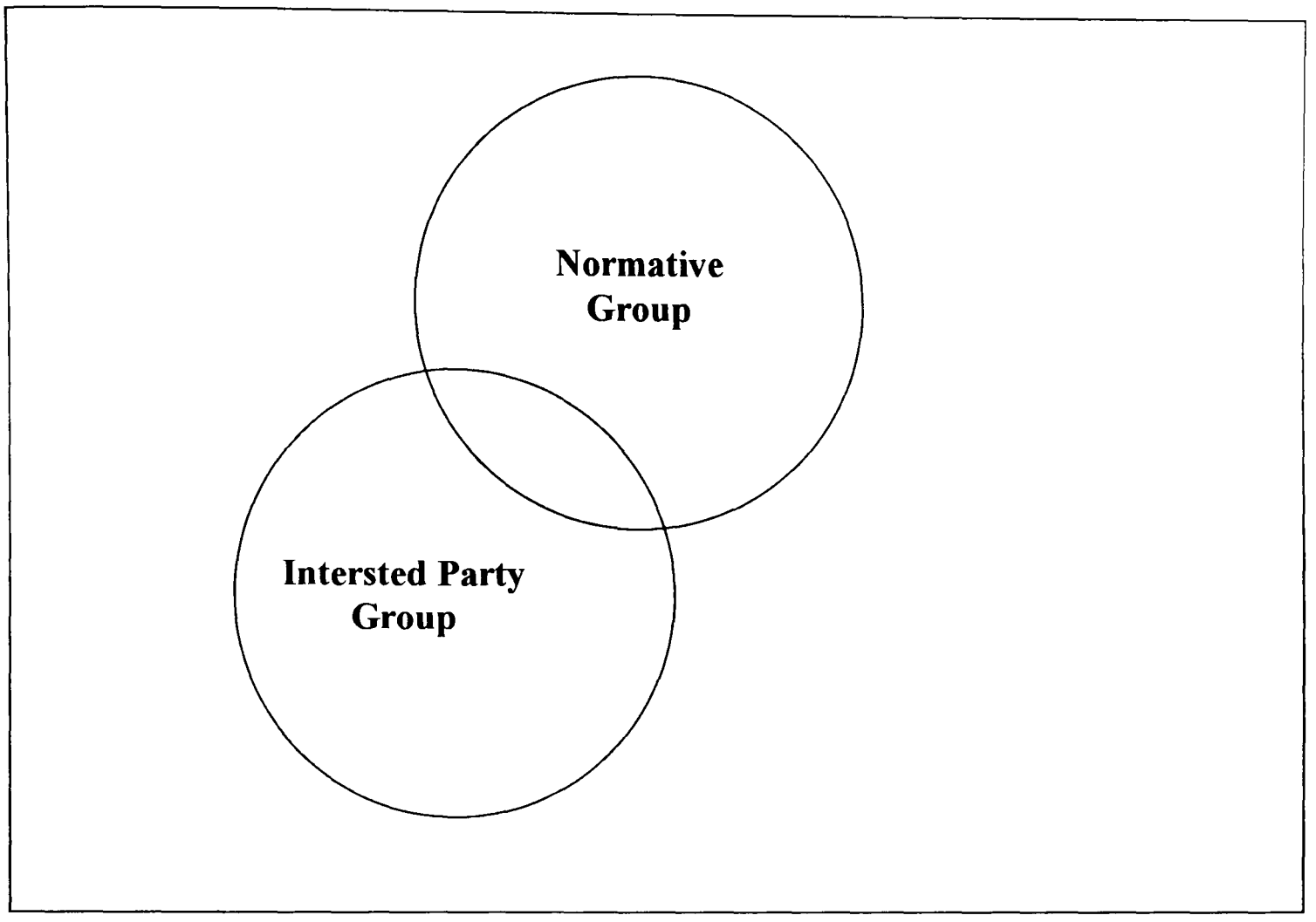


Diagram 9.2: Two Sample Test-Normative and Interested Party Groups

Part A: Intersection



Part B: No Intersection

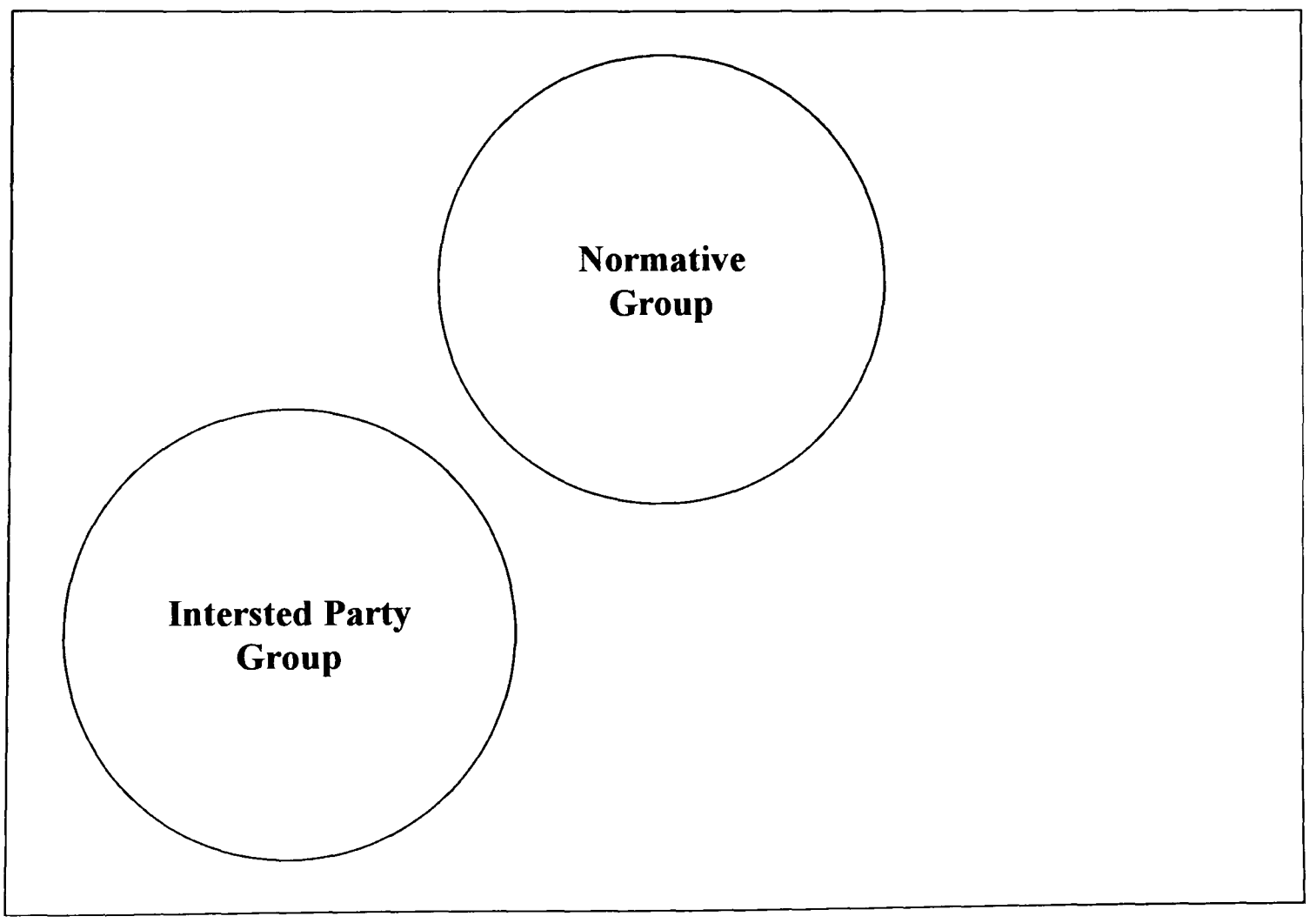
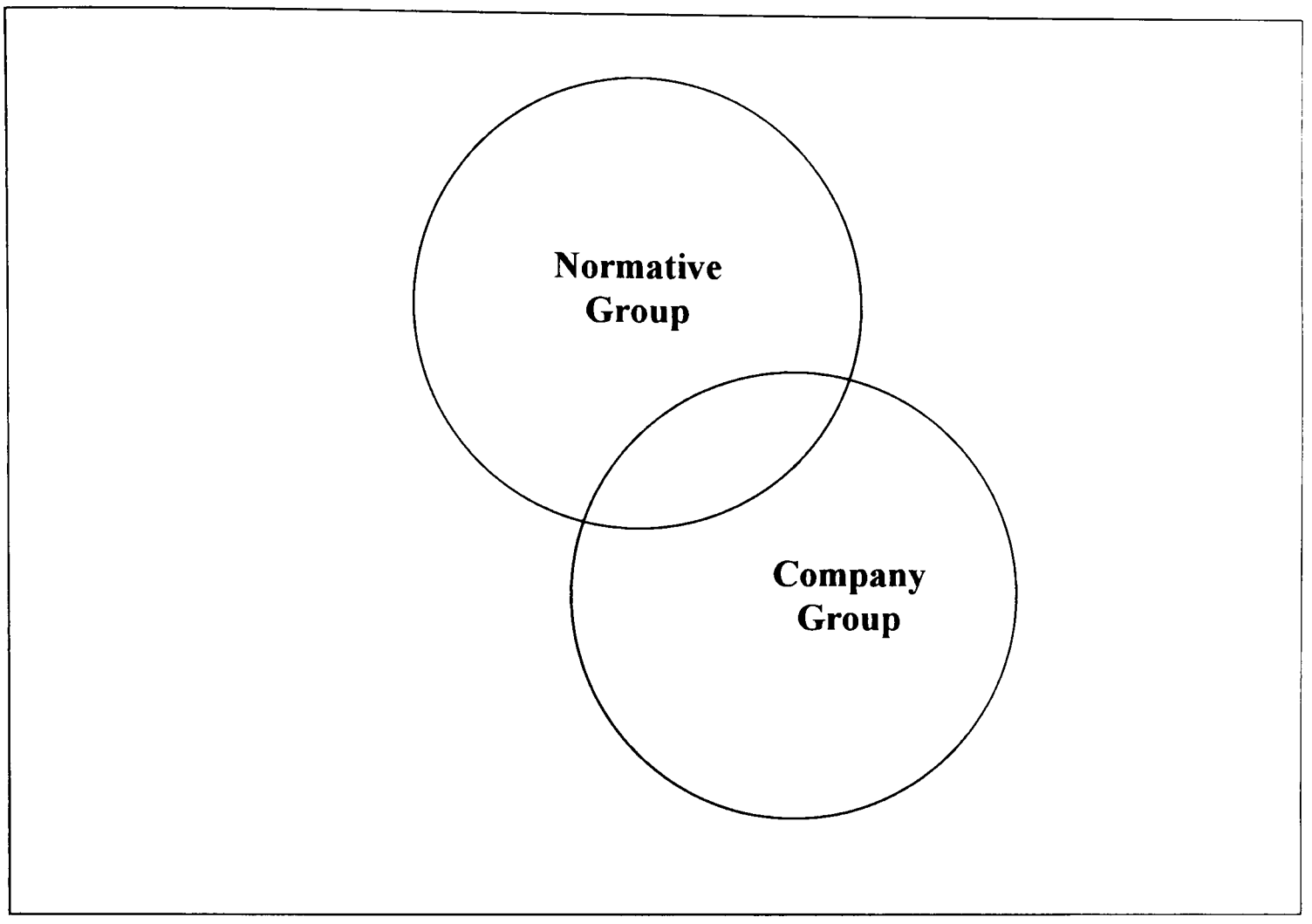


Diagram 9.3: Two Sample Test-Normative and Company Groups

Part A: Intersection



Part B: No Intersection

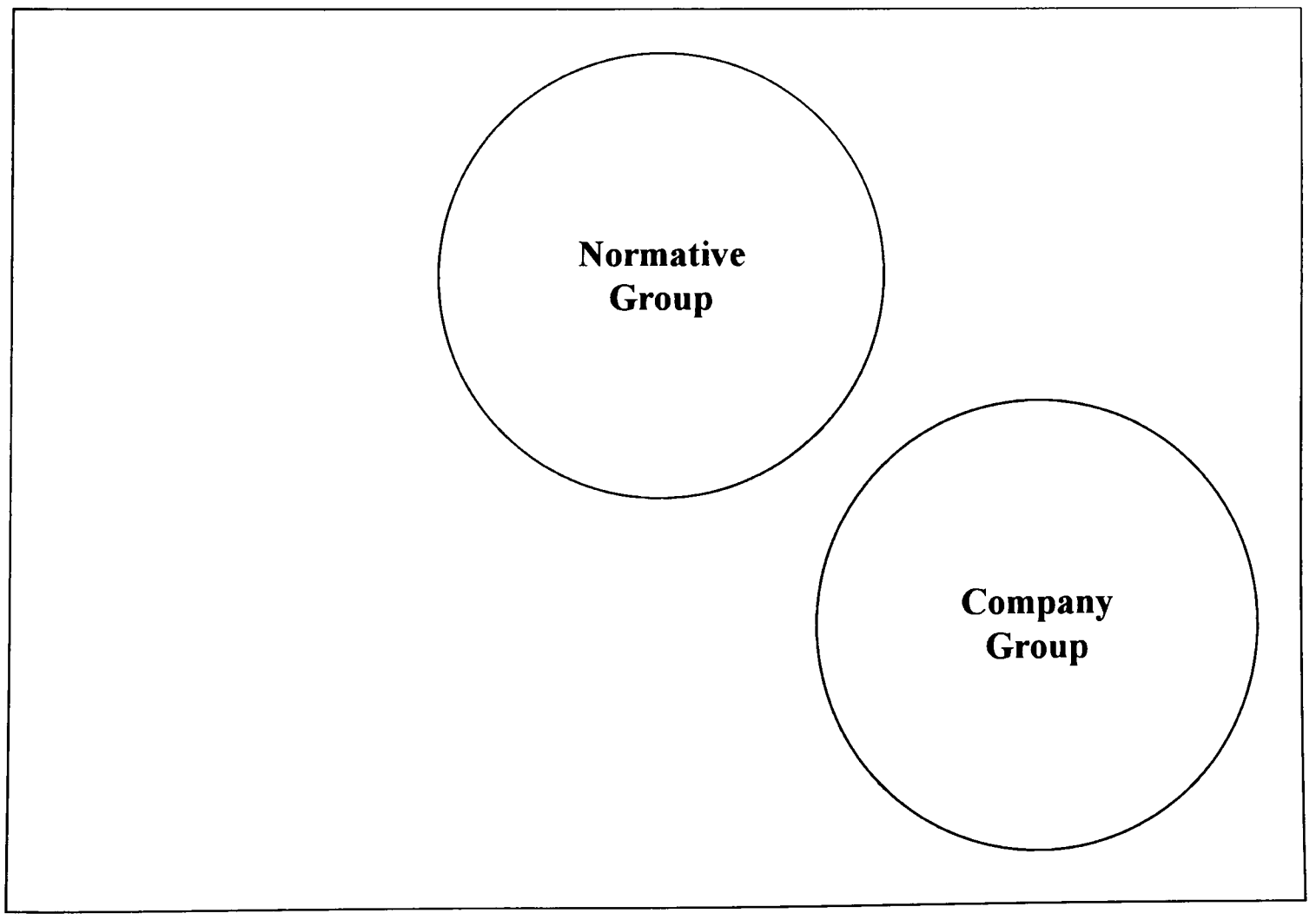
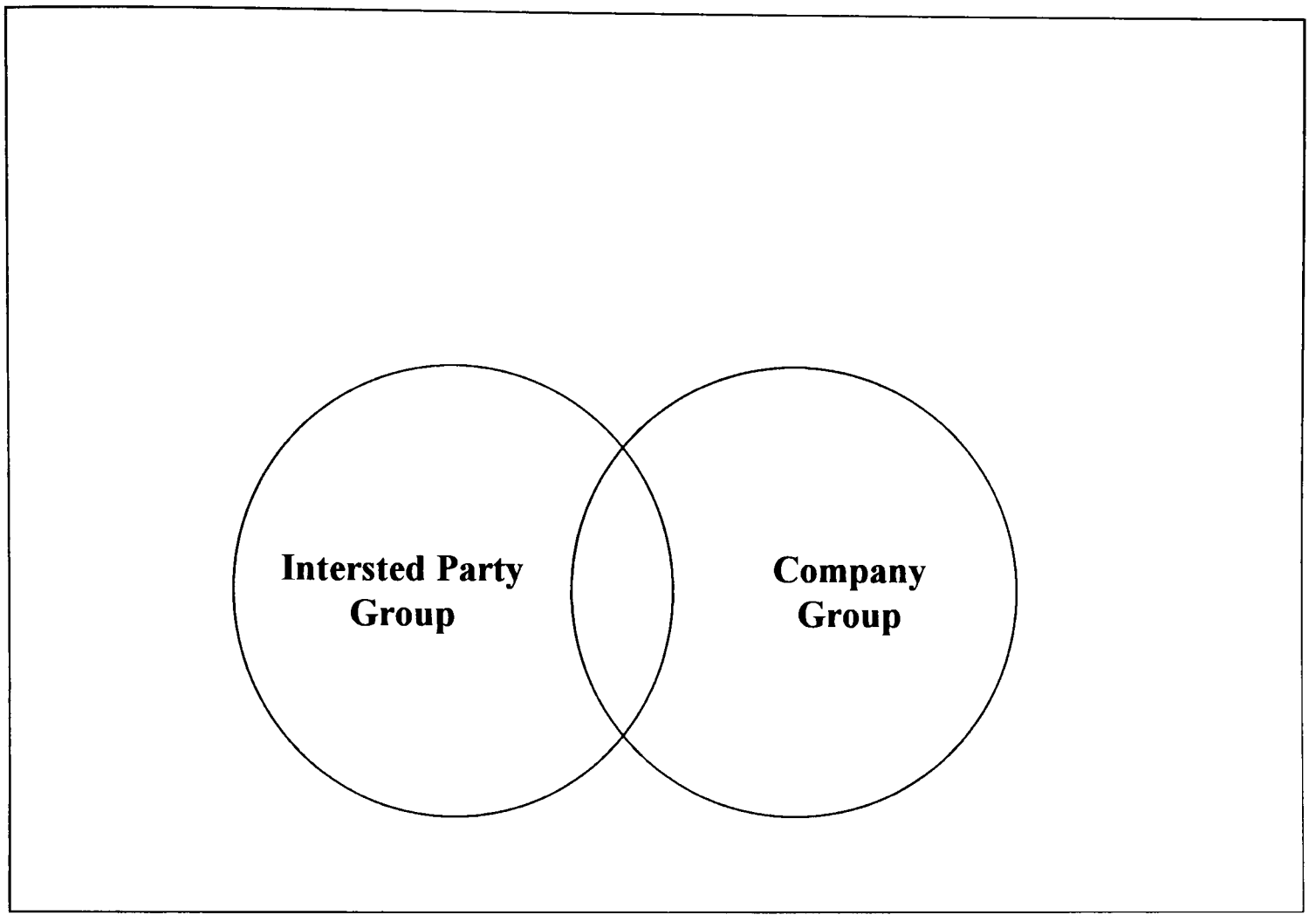
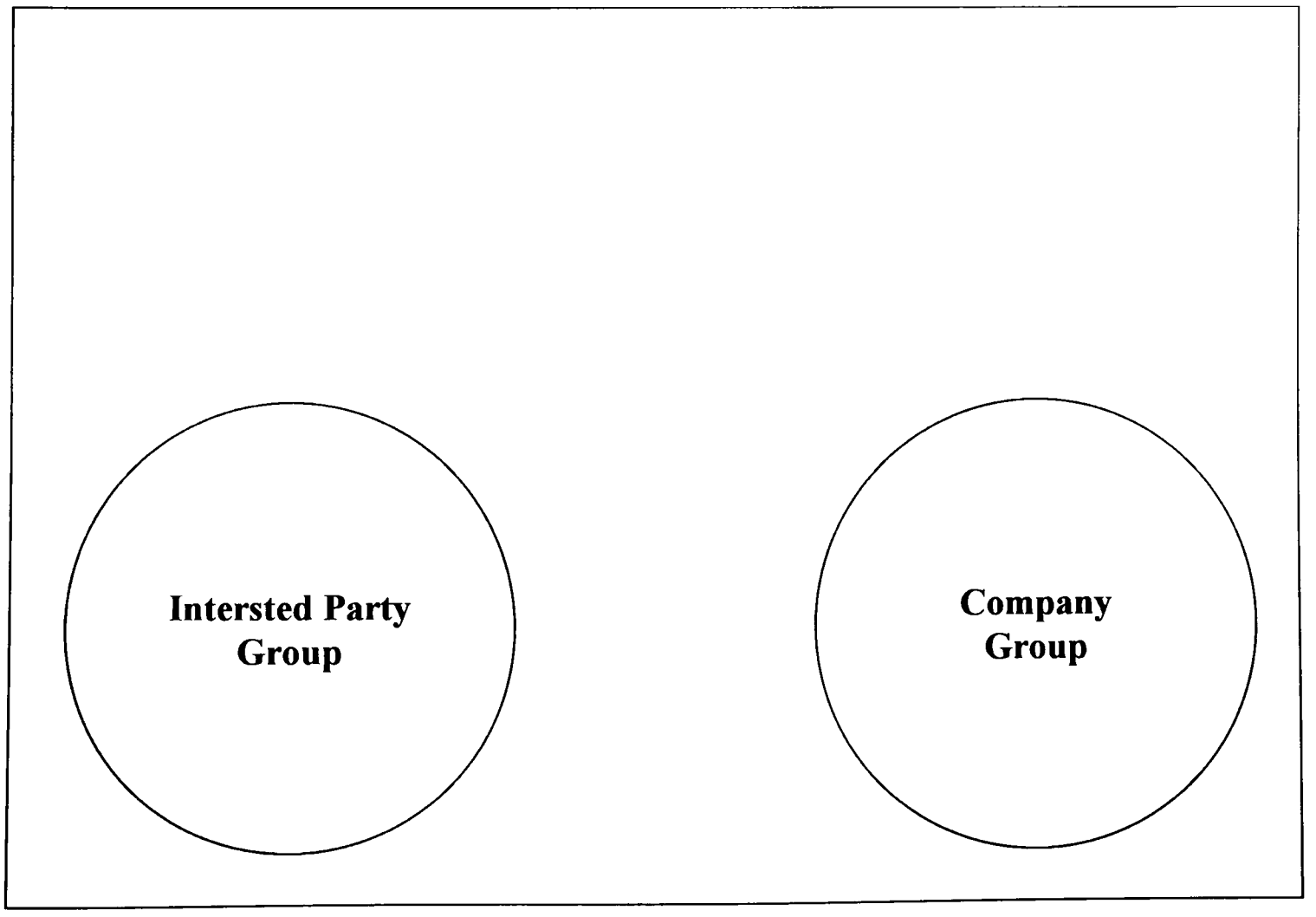


Diagram 9.4: Two Sample Test-Interested Party and Company Groups

Part A: Intersection



Part B: No Intersection



disagreement between the three groups, in the three sample test. In other words, where there appears to be disagreement between all three respondent groups, there is actually only disagreement where the company group is involved. The other two groups seem to agree on the majority of issues. The important implication of this, is that the companies, the disclosers of environmental information, systematically differ in attitude (or at least their practice, which is assumed to represent their attitudes) from the other two respondent groups.

The methodology therefore, rests on the two and three sample Kruskal-Wallis tests, and the interpretation of these, in terms of patterns, and Venn diagrams. Agreement in the three sample tests results in a consensus approach to the development of a conceptual framework for corporate environmental reporting.

9.3 Two and Three Sample Tests of Attitude Intersection between the Normative, Interested Party and Company Groups

This section analyses the empirical results from the Kruskal-Wallis tests. There are three main parts to this section: the attitudes of the respondent groups to environmental information and the three types of disclosure; the attitude of the three groups towards corporate environmental reporting, and; their attitudes towards the current implicit framework of corporate environmental disclosure.

9.3.1 Attitudes Towards Corporate Environmental Information, in Relation to Financial, Quantitative and Qualitative Disclosure

In this section, the two and three sample Kruskal-Wallis tests are used, to compare the attitudes of the respondent groups[3] towards corporate environmental information in relation to financial, quantitative and qualitative disclosure.[4] The tests explore the existence of a consensus, towards the frequency, with which all the respondent groups require/disclose environmental information. These represent the basic content, and type of disclosure presently required in environmental reporting and provided by companies. This section is divided into seven broad categories of corporate environmental information.

(i) The Usefulness of Corporate Environmental Information

The two, and three sample Kruskal-Wallis tests, reveal a strong pattern (see table 9.1, parts A, B and C). There is disagreement between all the groups in the three sample test, as indicated by the rejection of the null hypothesis, that the three samples could have been drawn from the same population. As explained in section 9.2, these results are represented in table 9.1 by a *no* in the column "N ⋂ I ⋂ C", suggesting that there is no intersection of attitudes for these three groups (see also diagram 9.1, part B). The

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[3] Again, it must be emphasised that for this section the normative and interested party groups were asked how often they would like the environmental information disclosed, whereas the company group was asked how often environmental information is disclosed in practice. This,as discussed above, can be seen to cause problems when the responses from these essentially normative and positive approaches are combined.

[4] Overall, 660 Kruskal-Wallis tests were carried out in this section with an overall acceptance of the null hypothesis of 28%. There were 165 three sample tests of which only 4% were in agreement, accepting the null hypothesis.

Table 9.1: Kruskal-Wallis One-Way Analysis of Variance by Ranks
The Usefulness of Corporate Environmental Information

	N∩I∩C	N∩I	N∩C	C∩I
Part A: Financial Disclosure				
1. Environmental statement by company chairman.	*no*	*yes*	*no*	*no*
2. Environmental policy statement.	*no*	*yes*	*no*	*no*
3. Environmental strategy statement.	*no*	*yes*	*no*	*no*
4. Environmental management system.	*no*	*yes*	*no*	*no*
5. Management responsibilities for the environment.	*no*	*yes*	*no*	*no*
6. Environmental audit.	*no*	*yes*	*no*	*no*
7. Independently verified environmental disclosure.	*no*	*yes*	*no*	*no*
8. Legal environmental compliance.	*no*	*yes*	*no*	*no*
9. Research & Development and the environment.	*no*	*yes*	*no*	*no*
10. Company environmental initiatives.	*no*	*yes*	*no*	*no*
11. Context of company environmental disclosure.	*no*	*yes*	*no*	*no*
12. Environmental reporting policy.	*no*	*yes*	*no*	*no*
13. Product life cycle design.	*no*	*yes*	*no*	*no*
14. Product packaging.	*no*	*yes*	*no*	*no*
15. Product impacts.	*no*	*yes*	*no*	*no*
Part B: Quantitative Disclosure				
1. Environmental statement by company chairman.	*no*	*yes*	*no*	*no*
2. Environmental policy statement.	*no*	*yes*	*no*	*no*
3. Environmental strategy statement.	*no*	*yes*	*no*	*no*
4. Environmental management system.	*no*	*yes*	*no*	*no*
5. Management responsibilities for the environment.	*no*	*yes*	*no*	*no*
6. Environmental audit.	*no*	*yes*	*no*	*no*
7. Independently verified environmental disclosure.	*no*	*yes*	*no*	*no*
8. Legal environmental compliance.	*no*	*yes*	*no*	*no*
9. Research & Development and the environment.	*no*	*yes*	*no*	*no*
10. Company environmental initiatives.	*no*	*yes*	*no*	*no*
11. Context of company environmental disclosure.	*no*	*yes*	*no*	*no*
12. Environmental reporting policy.	*no*	*yes*	*no*	*no*
13. Product life cycle design.	*no*	*yes*	*no*	*no*
14. Product packaging.	*no*	*yes*	*yes*	*no*
15. Product impacts.	*no*	*yes*	*no*	*no*

Table 9.1 continued

	N∩I∩C	N∩I	N∩C	C∩I
Part C: Qualitative Disclosure				
1. Environmental statement by company chairman.	*no*	*yes*	*no*	*no*
2. Environmental policy statement.	*yes*	*yes*	*yes*	*yes*
3. Environmental strategy statement.	*no*	*yes*	*no*	*no*
4. Environmental management system.	*yes*	*yes*	*yes*	*yes*
5. Management responsibilities for the environment.	*yes*	*yes*	*yes*	*yes*
6. Environmental audit.	*no*	*yes*	*no*	*no*
7. Independently verified environmental disclosure.	*no*	*yes*	*no*	*no*
8. Legal environmental compliance.	*no*	*yes*	*no*	*no*
9. Research & Development and the environment.	*no*	*yes*	*no*	*no*
10. Company environmental initiatives.	*yes*	*yes*	*yes*	*yes*
11. Context of company environmental disclosure.	*no*	*yes*	*no*	*no*
12. Environmental reporting policy.	*no*	*yes*	*no*	*no*
13. Product life cycle design.	*no*	*yes*	*no*	*no*
14. Product packaging.	*yes*	*yes*	*no*	*yes*
15. Product impacts.	*no*	*yes*	*no*	*no*

C = Company Group; N = Normative Group; I = Interested Party Group. The function ∩ (borrowed from Set notation) means that there is an intersection of opinion between the groups involved. "Yes" implies that there is an intersection of attitudes, whereas "no" implies that there is not.

indication is that the three groups are systematically disagreeing about the frequency of disclosure, of each of the proposed environmental disclosure items. However, analysing the two sample tests refines this conclusion. Instead of the disagreement being between all three groups, the disagreement manifests itself in the responses of the company group and the other two groups (see diagram 9.2, part A). The company group is systematically recording responses which fall into a different population from the responses by the other two groups. In other words, the null hypothesis is rejected for both the normative and company two sample test, and for the interested party and company two sample tests (see parts B, diagrams 9.3 and 9.4). A closer examination of

the Kruskal-Wallis results, reveals that the companies are systematically reporting lower scores, for all the proposed environmental information, for almost all the types of disclosure (financial, quantitative and qualitative). There appears to be a substantial gap between what is required and what is being disclosed, which is termed the "disclosure gap" from now on. The existence of a disclosure gap is consistent with the views expressed in the literature, as it seems that the company group is not meeting the disclosure requirements of the normative and interested party groups, for example (UNEP, 1996b, page 41) :

> "CERs (corporate environmental reports) are not currently meeting stakeholders' information needs...".

However, to what extent it may be concluded that company management would be unwilling to meet the requirements, if made more aware of them, is uncertain.

There are odd exceptions to this general pattern for the three sample test. These occur for qualitative disclosure (see table 9.1, part C, and diagram 9.1, part A). For propositions (2), (4), (5), (10) and (14) the null hypothesis is accepted for the three sample test. This is a positive result, in terms of establishing a conceptual framework, as agreement across all respondent groups indicates a potential for consensus. The level of agreement, for the three groups, is that this environmental information should be disclosed "some of the time". Further, these consensus findings correspond with the suggested disclosure, in the World Industry Council for the Environment's guidelines (reproduced in appendix B, table 4), indicating that these commercially-oriented guidelines conform closely with a current reality for business.

The three sample test results are particularly interesting here, as the consensus has only appeared for four of the propositions disclosed, on a qualitative basis. The interpretation

of this may be that those companies which disclose this information also disclose at the frequency required by the normative and interested party groups, on what may be regarded as the most flexible type of disclosure. Further, the environmental information on which there is agreement, reflects the approach presently used to establish a process for corporate environmental reporting, with environmental policy statement (proposition (2)) and the essential environmental management system (proposition (4)) to enforce the policy. Also, the agreement on management responsibilities for the environment (proposition (5)) and company environmental initiatives (proposition (10)) suggests an accountability approach towards environmental reporting. This interpretation of the findings implies that presently, corporate environmental reporting is at its most basic and primitive level. Therefore, it can be seen that these results may be interpreted in terms of the guidelines reproduced in appendix B, as environmental policy statement and environmental management systems are fundamental to many of them. See, for example the United Nations Environment Programme (appendix B, tables 1 and 2), the Ceres Principles (appendix B, table 9), and the Advisory Committee on Business and the Environment's guidelines (appendix B, table 10). Overall, the suggestion is that there is consensus for a very basic set of guidelines, as produced by organisations such as the World Industry Council for the Environment (see appendix B, table 4). However, for more ambitious disclosure[5] (such as that suggested by the Advisory Committee on Business and the Environment), the respondent groups do not demonstrate consensus. The two sample tests indicate that this lack of consensus derives from the company group.

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[5] These items of disclosure are sometimes considered to be specialist in nature. However, the findings do indicate that both the normative and interested party respondent groups require such information, not only small select, sub-groups, such as the financial community. Therefore, from this point, the term "ambitious" disclosure is used, rather than "specialist".

In order to bring the company group's practices closer to those of the requirements of the other two groups, i.e. to narrow the disclosure gap, several policy recommendations may be made. Consequently, an ongoing theme throughout this chapter concerns the potential policy recommendations that arise from the empirical findings. As discussed throughout chapter two, such policy recommendations follow naturally from the application of the conceptual framework methodology. The prescription of mandatory environmental disclosure, the "regulation strategy" may be proffered as one course of action aimed at narrowing the disclosure gap. A second possible course of action would be to disseminate the empirical evidence for this disclosure gap to company management and opinion formers in the hope that they will act to reduce the gap, i.e. the "dissemination strategy". In other words, if the disclosure gap is not due to company management's unwillingness to increase disclosure, then improving information flows, through dissemination, would be all that was necessary. Lastly, the "education strategy" is a valuable addition to either of these policy recommendations, as company management is likely to respond more genuinely if they understand the underlying reasons, namely that every company's business activities, whatever they may be, affects the environment in some way. This third policy recommendation is a means of nurturing the environmental ethos, discussed in chapter three.

(ii) Corporate Environmental Resource Information

The results from the two and three sample Kruskal-Wallis tests for corporate environmental resource information can be seen in table 9.2, parts A, B, and C. The pattern, which emerged in the previous part, recurs in the results to this part of the enquiry. The principal difference is that the level of agreement between the normative

Table: 9.2: Kruskal-Wallis One-Way Analysis of Variance by Ranks
Corporate Environmental Resource Information

	N∩I∩C	N∩I	N∩C	C∩I
Part A: Financial Disclosure				
1. Raw materials used.	*no*	*yes*	*no*	*no*
2. Energy consumption.	*no*	*yes*	*no*	*no*
3. Water consumption.	*no*	*yes*	*no*	*no*
Part B: Quantitative Disclosure				
1. Raw materials used.	*no*	*yes*	*no*	*no*
2. Energy consumption.	*no*	*yes*	*no*	*no*
3. Water consumption.	*no*	*yes*	*no*	*yes*
Part C: Qualitative Disclosure				
1. Raw materials used.	*no*	*yes*	*no*	*no*
2. Energy consumption.	*no*	*yes*	*no*	*no*
3. Water consumption.	*no*	*yes*	*no*	*no*

C = Company Group; N = Normative Group; I = Interested Party Group. The function ∩ (borrowed from Set notation) means that there is an intersection of opinion between the groups involved. "Yes" implies that there is an intersection of attitudes, whereas "no" implies that there is not.

group, and the interested party group, implies that they would like disclosure of these environmental resource information items, in the higher frequency range of "sometimes/always".

The implication from these findings, is that companies are unwilling to report resource information, as frequently as required, by the normative and interested party groups. This conflicts with, for example, the guidelines of the United Nations (see appendix B, tables 1 and 2). At this early stage in environmental reporting, it would seem expedient in the short-term not to pressure companies for this type of information. A long-run approach

could involve convincing company management of the importance of disclosing this type of information, for the purpose of developing a sustainable development agenda, perhaps implementing the sort of "dissemination strategy" discussed above. Many of the guidelines, reproduced in appendix B, require disclosure for the sustainable development agenda.[6] However, other guidelines do not advocate a sustainable development agenda.[7] The findings, therefore support the conclusion above that only basic corporate environmental disclosure received consensus voting, with more ambitious disclosure required by the normative and interested party groups. Again, a regulation or dissemination strategy accompanied by an education strategy may provide some means of redressing this imbalance.

(iii) Corporate Environmental Risk Information

The results to the Kruskal-Wallis two and three sample tests are displayed in table 9.3, parts A, B and C. Again, the pattern reappears as the disagreement between the three groups derives from disagreement between the company group and the other two groups. In all cases, the companies recorded lower scores, indicating their preference for lower disclosure frequency of environmental risk information, with the companies recording scores in the region of "never", and the other two groups, "sometimes/always".

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[6] See, for example, the guidelines by the International Institute for Sustainable Development, (appendix B, table 3), the International Chamber of Commerce (appendix B, table 5), Gray *et al.* (appendix B, table 18).

[7] For example, the World Industry Council for the Environment (appendix B, table 4), the PERI guidelines (appendix B, table 6), the Advisory Committee on Business and the Environment (appendix B, table 10), the Institute of Chartered Accountants in England and Wales (appendix B, table 11), and the European Federation of Financial Analysts (appendix B, table 13).

Table 9.3: Kruskal-Wallis One-Way Analysis of Variance by Ranks
Corporate Environmental Risk Information

	N∩I∩C	N∩I	N∩C	C∩I
Part A: Financial Disclosure				
1. The risk of non-compliance with legislation.	*no*	*yes*	*no*	*no*
2. The risk of site contamination.	*no*	*yes*	*no*	*no*
3. The risk of environmental influences on companies' markets.	*no*	*yes*	*no*	*no*
4. Environmental factors that could reduce the value of a company's assets.	*no*	*yes*	*no*	*no*
5. Environmental information that may reduce financial performance.	*no*	*yes*	*no*	*no*
6. Financial information that could impose actual liability on a company's lender.	*no*	*yes*	*no*	*no*
7. Environmental information that may cause financial failure.	*no*	*yes*	*no*	*no*
Part B: Quantitative Disclosure				
1. The risk of non-compliance with legislation.	*no*	*yes*	*no*	*no*
2. The risk of site contamination.	*no*	*yes*	*no*	*no*
3. The risk of environmental influences on companies' markets.	*no*	*yes*	*no*	*no*
4. Environmental factors that could reduce the value of a company's assets.	*no*	*yes*	*no*	*no*
5. Environmental information that may reduce financial performance.	*no*	*yes*	*no*	*no*
6. Financial information that could impose actual liability on a company's lender.	*no*	*yes*	*no*	*no*
7. Environmental information that may cause financial failure.	*no*	*yes*	*no*	*no*

Table 9.3 continued

	N∩I∩C	N∩I	N∩C	C∩I
Part C: Qualitative Disclosure				
1. The risk of non-compliance with legislation.	*no*	*yes*	*no*	*no*
2. The risk of site contamination.	*no*	*yes*	*no*	*no*
3. The risk of environmental influences on companies' markets.	*no*	*yes*	*no*	*no*
4. Environmental factors that could reduce the value of a company's assets.	*no*	*yes*	*no*	*no*
5. Environmental information that may reduce financial performance.	*no*	*yes*	*no*	*no*
6. Financial information that could impose actual liability on a company's lender.	*no*	*yes*	*no*	*no*
7. Environmental information that may cause financial failure.	*no*	*yes*	*no*	*no*

C = Company Group; N = Normative Group; I = Interested Party Group. The function ∩ (borrowed from Set notation) means that there is an intersection of opinion between the groups involved. "Yes" implies that there is an intersection of attitudes, whereas "no" implies that there is not.

These results have important implications, as they reveal that the normative and interested party groups require corporate environmental risk information, which may be considered as a more ambitious form of corporate environmental disclosure. The findings have been anticipated by professional accounting bodies (see EAAR, November, 1996b). Also the Accounting Standards Board (see ASB, 1995a) is in the process of establishing procedures, for the disclosure of environmental liabilities. These findings confirm a need, for accountants, to provide the means by which companies can disclose this type of information. Ambitious disclosure, of this type, is also prescribed by, for example, the Advisory Committee on Business and the Environment (see appendix B, table 10), and the European Federation of Financial Analysts (appendix B, table 13). Again, the disclosure gap, particularly in relation to more ambitious disclosure, where the

companies are only providing primitive disclosure, could perhaps be narrowed through either the regulation or dissemination, and education strategies.

(iv) Quantifiable Corporate Environmental Information

Table 9.4, parts A, B and C display the results for the Kruskal-Wallis tests for quantifiable corporate environmental information. Again, a similar pattern emerges for the Kruskal-Wallis analysis of this part of the enquiry as for previous parts. However, there was one interesting exception. On a quantitative basis, noise and odour (proposition (9)) received statistically different responses from all three groups, and each pair of groups (see for example, part B in diagrams 9.1 - 9.4). This suggests that the three groups have systematically different opinions about the quantitative disclosure of noise and odour. One explanation may be that this form of pollution is likely to be more disturbing to the interested party group and, as it is "transient" in nature, is of low environmental impact for the normative group, with companies showing little concern. This interpretation is supported by the direction of the scores for each group (see UNEP, 1994, and CEFIC, 1993). The education strategy would be particularly useful here.

Overall, the findings from the survey indicate that company management is not reporting quantifiable environmental information as frequently as the other two groups require. This finding may suggest a reluctance to report more, on the part of company management. However, as discussed above, there are limitations to the interpretation of the results due to the use of normative and positive responses.

Table 9.4: Kruskal-Wallis One-Way Analysis of Variance by Ranks
Quantifiable Corporate Environmental Information

	N ∩ I ∩ C	N ∩ I	N ∩ C	C ∩ I
Part A: Financial Disclosure				
1. Raw material use.	*no*	*yes*	*no*	*no*
2. Energy consumption.	*no*	*yes*	*no*	*no*
3. Air emissions.	*no*	*yes*	*no*	*no*
4. Water effluents.	*no*	*yes*	*no*	*no*
5. Soil contamination and remediation.	*no*	*yes*	*no*	*no*
6. Generation and disposal of waste.	*no*	*yes*	*no*	*no*
7. Environmental incidents.	*no*	*yes*	*no*	*no*
8. Vehicle miles in relation to product.	*no*	*yes*	*no*	*no*
9. Noise and odour.	*no*	*yes*	*no*	*no*
10. Local environmental impact.	*no*	*yes*	*no*	*no*
Part B: Quantitative Disclosure				
1. Raw material use.	*no*	*yes*	*no*	*no*
2. Energy consumption.	*no*	*yes*	*no*	*no*
3. Air emissions.	*no*	*yes*	*no*	*no*
4. Water effluents.	*no*	*yes*	*no*	*no*
5. Soil contamination and remediation.	*no*	*yes*	*no*	*no*
6. Generation and disposal of waste.	*no*	*yes*	*no*	*no*
7. Environmental incidents.	*no*	*yes*	*no*	*no*
8. Vehicle miles in relation to product.	*no*	*yes*	*no*	*no*
9. Noise and odour.	*no*	*no*	*no*	*no*
10. Local environmental impact.	*no*	*yes*	*no*	*no*

Table 9.4 continued

	N∩I∩C	N∩I	N∩C	C∩I
Part C: Qualitative Disclosure				
1. Raw material use.	*no*	*yes*	*no*	*no*
2. Energy consumption.	*no*	*yes*	*no*	*no*
3. Air emissions.	*no*	*yes*	*no*	*no*
4. Water effluents.	*no*	*yes*	*no*	*no*
5. Soil contamination and remediation.	*no*	*yes*	*no*	*no*
6. Generation and disposal of waste.	*no*	*yes*	*no*	*no*
7. Environmental incidents.	*no*	*yes*	*no*	*no*
8. Vehicle miles in relation to product.	*no*	*yes*	*no*	*no*
9. Noise and odour.	*no*	*yes*	*no*	*no*
10. Local environmental impact.	*no*	*yes*	*no*	*no*

C = Company Group; N = Normative Group; I = Interested Party Group. The function ∩ (borrowed from Set notation) means that there is an intersection of opinion between the groups involved. "Yes" implies that there is an intersection of attitudes, whereas "no" implies that there is not.

This empirical evidence for a disclosure gap is consistent with the by now established empirical pattern in the current research, where companies systematically report lower scores than the other two respondent groups. These findings are particularly disappointing as both the United Nations guidelines (appendix B, tables 1 and 2), and the Ceres Principles (appendix B, table 9) prescribe quantitative disclosure. The findings may be considered to imply that the company group is unwilling to provide this type of information, whereas the normative and interested party groups clearly require it. In the predictions of future trends in corporate environmental reporting, based on their empirical findings, the United Nations (UNEP, 1996b, page 50) state :

> "Thus, in addition to more widespread reporting, standardisation and more quantitative data, stakeholders too, expect "maturer" reporting with life cycle analysis and accounting developing and improved indicators and benchmarks".

In addition to the support for quantitative data, arising from the normative and interested

party groups' responses, there is also a call for financial and qualitative data from these two groups for the same disclosure items. As can be gauged from the quote above the normative and interested party groups favour more mature, or ambitious, reporting, whereas the company favours more basic, "immature" reporting. The policy recommendations of either the regulation and education strategies, or the dissemination and education strategies could be used to encourage company management to produce more mature, ambitious disclosure in the short-run and the long-run.

(v) Benchmarking Corporate Environmental Performance Information

The results for the two and three sample Kruskal-Wallis tests are presented in table 9.5, parts A, B and C. The pattern of results is consistent with that for previous parts. However, with respect to sustainable development (proposition (3)), on a financial and qualitative basis, the respondent groups do not display agreement in any combination. The scores of the interested party group were systematically higher than those from the normative group. The company group systematically responded with lower scores, than either of the other two groups, showing their relative low frequency of disclosure of sustainable development, as a benchmark.

The results for sustainable development are not surprising, given that it is a relatively new, and undefined, concept. However, the results for legal compliance, and industry average, present cause for concern. The infrequent disclosure of these items, in relation to the frequency required by the other two groups, suggests that companies are underperforming against these benchmarks and that disclosure would be detrimental to them. An accountability approach to a conceptual framework would necessitate the

Table 9.5: Kruskal-Wallis One-Way Analysis of Variance by Ranks Benchmarking Corporate Environmental Performance Information

	N∩I∩C	N∩I	N∩C	C∩I
Part A: Financial Disclosure				
1. Legal compliance.	*no*	*yes*	*no*	*no*
2. Industry average.	*no*	*yes*	*no*	*no*
3. Sustainable development.	*no*	*no*	*no*	*no*
Part B: Quantitative Disclosure				
1. Legal compliance.	*no*	*yes*	*no*	*no*
2. Industry average.	*no*	*yes*	*no*	*no*
3. Sustainable development.	*no*	*yes*	*no*	*no*
Part C: Qualitative Disclosure				
1. Legal compliance.	*no*	*yes*	*no*	*no*
2. Industry average.	*no*	*yes*	*no*	*no*
3. Sustainable development.	*no*	*no*	*no*	*no*

C = Company Group; N = Normative Group; I = Interested Party Group. The function ∩ (borrowed from Set notation) means that there is an intersection of opinion between the groups involved. "Yes" implies that there is an intersection of attitudes, whereas "no" implies that there is not.

frequent disclosure of, at least, legal compliance. The majority of guidelines, reproduced in appendix B, prescribe some benchmarking, which is particularly important for Gray *et al.* (1996a) and the United Nations (UNEP, 1996b). This is yet another example of the company group apparently failing to disclose information as frequently as required by the other two groups. Again these findings may, given the accepted limitations, indicate how reluctant company management is even to disclose a compliance with standards report (see Gray *et al.*, 1987a, and 1996a).

(vi) Corporate Environmental Financial Information

The results for the two and three sample Kruskal-Wallis tests, for this part of the enquiry, are presented in table 9.6, parts A, B, and C. The same pattern of results emerged, as for previous parts. There is however one notable exception. For donations to environmental charities[8] (proposition (6)) on a quantitative basis, the respondent groups do not display agreement as to the frequency of disclosure, either for the two or three sample tests. The company group reported the lowest scores with the normative group recording the highest.

These results indicate a frequent need by the normative and interested party groups for corporate environmental financial information - a need that companies are not currently satisfying and may, accepting limitations be unwilling to satisfy in a voluntary environment or without substantial encouragement. Again, this provides evidence, for the accounting profession that within the normative and interested party respondent groups there is a requirement for this disclosure. These findings coincide with *a priori* expectations, given the work of Adams (1992), Macve and Carey (1992), Owen (1992), the European Federation of Financial Analysts (EFFAS, 1994), the Advisory Committee on Business and the Environment (ACBE, 1996a and 1996b), and Bennett *et al.* (1996). The findings also suggest that the disclosure of items of information, traditionally undertaken on a financial basis, may possibly be useful on a qualitative, and/or quantitative basis, as well. This is in line with the United Nations approach (UNEP, 1994, and 1996a), of using a range of disclosure types.

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[8] This is a mandatory requirement

Table 9.6: Kruskal-Wallis One-Way Analysis of Variance by Ranks
Corporate Environmental Financial Information

	N ∩ I ∩ C	N ∩ I	N ∩ C	C ∩ I
Part A: Financial Disclosure				
1. Environmental spending.	*no*	*yes*	*no*	*no*
2. Environmental liabilities.	*no*	*yes*	*no*	*no*
3. Environmental benefits and opportunities.	*no*	*yes*	*no*	*no*
4. Government environmental taxes and charges.	*no*	*yes*	*no*	*no*
5. Environmental fines and negotiated settlements.	*no*	*yes*	*no*	*no*
6. Donations to environmental charities.	*no*	*yes*	*no*	*no*
Part B: Quantitative Disclosure				
1. Environmental spending.	*no*	*yes*	*no*	*no*
2. Environmental liabilities.	*no*	*yes*	*no*	*no*
3. Environmental benefits and opportunities.	*no*	*yes*	*no*	*no*
4. Government environmental taxes and charges.	*no*	*yes*	*no*	*no*
5. Environmental fines and negotiated settlements.	*no*	*yes*	*no*	*no*
6. Donations to environmental charities.	*no*	*no*	*no*	*no*
Part C: Qualitative Disclosure				
1. Environmental spending.	*no*	*yes*	*no*	*no*
2. Environmental liabilities.	*no*	*yes*	*no*	*no*
3. Environmental benefits and opportunities.	*no*	*yes*	*no*	*no*
4. Government environmental taxes and charges.	*no*	*yes*	*no*	*no*
5. Environmental fines and negotiated settlements.	*no*	*yes*	*no*	*no*
6. Donations to environmental charities.	*no*	*yes*	*no*	*no*

C = Company Group; N = Normative Group; I = Interested Party Group. The function ∩ (borrowed from Set notation) means that there is an intersection of opinion between the groups involved. "Yes" implies that there is an intersection of attitudes, whereas "no" implies that there is not.

(vii) Corporate Environmental Management Information

This part of the enquiry tests for consensus between the three groups on corporate environmental management information. Table 9.7, parts A, B and C present the results to the two and three sample Kruskal-Wallis tests. The same pattern emerged as for previous parts of the enquiry. There are three notable exceptions. Firstly, on a quantitative basis, accident and emergency response (proposition (5)) only received similar responses from the company and the interested party group. Secondly, on a qualitative basis, there was agreement between all three groups in both the two and three sample tests, for both health and safety (proposition (1)) and compliance with industry standards (proposition (11)). Thirdly, there was agreement between the company group and the interested party group, on accident and emergency response (proposition (5)) and compliance with legislation (proposition (10)). The frequency of disclosure where there was agreement was in the region of "sometimes".

The pattern of results for corporate environmental management information has been repeated. Firstly, there are the systematically lower scores reported by the company group, and unanimous agreement between the normative and interested party groups. Secondly, there is agreement in the three sample Kruskal-Wallis test, on a qualitative basis, for two primary disclosure items - health and safety, and compliance with standards. These findings represent consensus on the lowest level of disclosure, which is likely to lead to a compliance with standards report (see Gray *et al.*, 1996a). This finding is consistent with that in section 9.3.1(v), where legal compliance, as a benchmark, was rejected. The result to this part of the survey indicates a move towards disclosure of this type.

Table 9.7: Kruskal-Wallis One-Way Analysis of Variance by Ranks
Corporate Environmental Management Information

	N∩I∩C	N∩I	N∩C	C∩I
Part A: Financial Disclosure				
1. Health and safety.	*no*	*yes*	*no*	*no*
2. Environmental impact assessment.	*no*	*yes*	*no*	*no*
3. Risk assessment.	*no*	*yes*	*no*	*no*
4. Hazard assessment.	*no*	*yes*	*no*	*no*
5. Accident and emergency response.	*no*	*yes*	*no*	*no*
6. Land contamination and remediation.	*no*	*yes*	*no*	*no*
7. Environmental integration of business.	*no*	*yes*	*no*	*no*
8. Environmental management system.	*no*	*yes*	*no*	*no*
9. Setting measurable environmental targets and objectives.	*no*	*yes*	*no*	*no*
10. Compliance with legislation.	*no*	*yes*	*no*	*no*
11. Compliance with industry standards.	*no*	*yes*	*no*	*no*
Part B: Quantitative Disclosure				
1. Health and safety.	*no*	*yes*	*no*	*no*
2. Environmental impact assessment.	*no*	*yes*	*no*	*no*
3. Risk assessment.	*no*	*yes*	*no*	*no*
4. Hazard assessment.	*no*	*yes*	*no*	*no*
5. Accident and emergency response.	*no*	*no*	*no*	*yes*
6. Land contamination and remediation.	*no*	*yes*	*no*	*no*
7. Environmental integration of business.	*no*	*yes*	*no*	*no*
8. Environmental management system.	*no*	*yes*	*no*	*no*
9. Setting measurable environmental targets and objectives.	*no*	*yes*	*no*	*no*
10. Compliance with legislation.	*no*	*yes*	*no*	*no*
11. Compliance with industry standards.	*no*	*yes*	*no*	*no*

Table 9.7 continued

	N∩I∩C	N∩I	N∩C	C∩I
Part C: Qualitative Disclosure				
1. Health and safety.	yes	*yes*	yes	*yes*
2. Environmental impact assessment.	*no*	*yes*	*no*	*no*
3. Risk assessment.	*no*	*yes*	*no*	*no*
4. Hazard assessment.	*no*	*yes*	*no*	*no*
5. Accident and emergency response.	*no*	*yes*	*no*	*yes*
6. Land contamination and remediation.	*no*	*yes*	*no*	*no*
7. Environmental integration of business.	*no*	*yes*	*no*	*no*
8. Environmental management system.	*no*	*yes*	*no*	*no*
9. Setting measurable environmental targets and objectives.	*no*	*yes*	*no*	*no*
10. Compliance with legislation.	*no*	*yes*	*no*	*yes*
11. Compliance with industry standards.	*yes*	*yes*	*yes*	*yes*

C = Company Group; N = Normative Group; I = Interested Party Group. The function ∩ (borrowed from Set notation) means that there is an intersection of opinion between the groups involved. "Yes" implies that there is an intersection of attitudes, whereas "no" implies that there is not.

(viii) Summary

The pattern of results reveals that companies disclose the suggested information significantly less frequently than that required by both the normative and interested party groups. There is almost complete agreement between the normative and interested party groups on the frequency of disclosure of environmental information. The suggestion is that the companies are not disclosing environmental information frequently enough, in terms of the disclosure gap. Where the Kruskal-Wallis three sample test results show that there is agreement between the respondent groups, the level of disclosure is on a qualitative basis, and the environmental information is as would be expected in the earliest stages of environmental reporting. Overall, the findings suggest that the

normative and interested party groups, would like frequent disclosure which is ambitious in character, or "mature" as referred to by the United Nations (UNEP, 1996b). This is reflected in the more ambitious guidelines reproduced in appendix B. Company management's less ambitious approach to environmental reporting is reflected in agreement with some of the early, commercial-based, guidelines, such as the Confederation of British Industry (CBI, 1994) and the World Industry Council for the Environment (WICE, 1994). The findings indicate a need for making potential policy recommendations. As discussed in the introduction, these would be either a regulation or a dissemination strategy, accompanies by an education strategy.

9.3.2 Attitudes Towards Corporate Environmental Reporting

In this section, the two and three sample Kruskal-Wallis tests are used to discover whether or not there is consensus between the normative, interested party, and company respondent groups,[9] in relation to assessing and reporting environmental incidents, and time period and communication of environmental reporting. In this section of the analysis, the established pattern of companies recording systematically lower scores than the other two groups suggests a "reporting" gap rather than a "disclosure" gap as the questions relate to the processes of reporting corporate environmental information.

[9] In this section, 108 Kruskal-Wallis tests were performed which resulted in a 29% level of agreement. There were 27 three sample tests with only a 4% level of agreement.

(i) Assessing and Reporting Environmental Incidents

This part of the enquiry considers the consensus of the respondents towards the assessment of the impact of environmental incidents. Table 9.8, part A, presents the results to the two and three sample Kruskal-Wallis tests. Generally, the established pattern is repeated, in that the lack of consensus between all three respondent groups has its source in disagreement between the company group and the other two groups, in the two sample tests. However, there are several exceptions to this pattern. Firstly, whereas in previous cases the company group has systematically recorded lower scores than the other two groups, the response for company employees (proposition (1)) is atypical. In the case of company employees, the companies' responses are significantly higher than those of the other two groups, implying that they attach more importance to the frequency of assessment of incidents by employees than do the other two respondent groups. This conforms with expectations as company management would be likely to keep the assessment of environmental incidents "in-house". Secondly, for central government (proposition (5)) and for the Department of the Environment (proposition (6)) the results show a divergence from the pattern, as there is no agreement between the respondent groups, in either the two, or three sample Kruskal-Wallis tests. The companies in accordance with *a priori* expectations, report the lower scores and the interested party group report the higher, as this is consistent with the assessment of environmental incidents by employees as the other parties are used less frequently.

The two and three sample Kruskal-Wallis tests for the reporting of impact of environmental incidents are presented in table 9.8, part B. Again, the established pattern of results is repeated. However, there is the exception that all the respondent groups

Table 9.8: Kruskal-Wallis One-Way Analysis of Variance by Ranks Assessing and Reporting Environmental Incidents

	N∩I∩C	N∩I	N∩C	C∩I
Part A: Assess Impact				
1. Company employees.	*no*	*yes*	*no*	*no*
2. Independent consultants.	*no*	*yes*	*no*	*yes*
3. Local Authority.	*no*	*yes*	*no*	*no*
4. Local Authority and Independent consultants.	*no*	*yes*	*no*	*no*
5. Central Government.	*no*	*no*	*no*	*no*
6. The Department of the Environment.	*no*	*no*	*no*	*no*
7. The Department of Trade and Industry.	*no*	*yes*	*no*	*no*
8. The Department of Agriculture.	*no*	*yes*	*no*	*no*
9. Quango eg. National Rivers Authority.	*no*	*yes*	*yes*	*no*
Part B: Report Impact				
1. Company employees.	*yes*	*yes*	*yes*	*yes*
2. Independent consultants.	*no*	*yes*	*yes*	*no*
3. Local Authority.	*no*	*yes*	*no*	*no*
4. Local Authority and Independent consultants.	*no*	*yes*	*no*	*no*
5. Central Government.	*no*	*yes*	*no*	*no*
6. The Department of the Environment.	*no*	*yes*	*no*	*no*
7. The Department of Trade and Industry.	*no*	*yes*	*no*	*no*
8. The Department of Agriculture.	*no*	*yes*	*no*	*no*
9. Quango eg. National Rivers Authority.	*no*	*yes*	*no*	*no*

C = Company Group; N = Normative Group; I = Interested Party Group. The function ∩ (borrowed from Set notation) means that there is an intersection of opinion between the groups involved. "Yes" implies that there is an intersection of attitudes, whereas "no" implies that there is not.

agree (in all four tests) that company employees (proposition (1)) are appropriate agents for the reporting of environmental incident impact, on a frequency of "sometimes/always". This finding would be expected, considering the Ceres Principles (CERES, 1992).

(ii) Time Period and Communication of Corporate Environmental Reporting

The results to the two and three sample Kruskal-Wallis tests for time period and communication of corporate environmental reporting are presented in table 9.9. The established pattern is seen again in these results. In this case, there are no exceptions at all, as there is disagreement in the two sample tests where the company groups are involved and in the three sample test. There is uniform acceptance of the null hypothesis that the responses are from the same distribution in the two sample test, involving the normative and interested party groups. It is notable that, although the annual report received the highest mean average score (see chapters six, seven and eight) from each respondent group there was no overall consensus. In other words, the high scores were not significantly similar enough to be considered to come from the same population.

The level of agreement in the two sample Kruskal-Wallis test for the normative and interested party group varied between the time period and communication instruments presented. Environmental information within the published company annual report (proposition (1)) and an annual stand alone published environmental company report (proposition (5)) were required in the frequency of "sometimes/always". This finding would be predictable as it is consistent with current practice[10] (see KPMG, 1996), and that required by the guidelines reproduced in appendix B, particularly those of the European Federation of Financial Analysts (EFFAS, 1994), and the Advisory Committee

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[10] The current best practice (see Gray *et al.*, 1996a) is to produce a separate annual environmental report, which is what is required by the normative and interested party groups. However, the company sample group discloses environmental information in the annual report. The reason for this is probably because the sample has incorporated a selection of companies, rather than companies which disclose environmentally. The result is that the majority of companies which do disclose, disclose in their annual reports. Also, from chapter eight it can be seen that many of the companies which have reported, have reported for the first time, and are using the annual report as their first vehicle for communicating environmental information.

Table 9.9: Kruskal-Wallis One-Way Analysis of Variance by Ranks Time Period and Communication of Corporate Environmental Reporting

	N ∩ I ∩ C	N ∩ I	N ∩ C	C ∩ I
1. Environmental information within the published Company annual report.	*no*	*yes*	*no*	*no*
2. Environmental information within the published Company annual report plus the half yearly Interim statement.	*no*	*yes*	*no*	*no*
3. Stand alone published environmental company report every 3 months.	*no*	*yes*	*no*	*no*
4. Stand alone published environmental company report every 6 months.	*no*	*yes*	*no*	*no*
5. Stand alone published environmental company report annually.	*no*	*yes*	*no*	*no*
6. Annual stand alone published Company environmental report plus an Interim environmental statement every 3 months.	*no*	*yes*	*no*	*no*
7. Annual stand alone published Company environmental report plus an Interim environmental statement every 6 months.	*no*	*yes*	*no*	*no*
8. Specially published Company environmental report at company`s discretion.	*no*	*yes*	*no*	*no*
9. Press release at company`s discretion.	*no*	*yes*	*no*	*no*

C = Company Group; N = Normative Group; I = Interested Party Group. The function ∩ (borrowed from Set notation) means that there is an intersection of opinion between the groups involved. "Yes" implies that there is an intersection of attitudes, whereas "no" implies that there is not.

on Business and the Environment (ACBE, 1996b). The other suggestions were required less frequently. The three sample tests indicated that the company group reported scores which were significantly lower in all cases, as would be expected from the pattern emerging from the previous findings.

(iii) Summary

Overall, there is little agreement between all three groups, with agreement only on employees reporting environmental incidents. The two sample tests showed strong

agreement between the normative and interested party groups. The lack of consensus was again due to the company group reporting lower scores. This is consistent with findings in the previous section. Again, the reporting gap evident in these findings could possibly be narrowed by means of implementing either the regulation strategy or the dissemination strategy, accompanied by the education strategy.

9.3.3 Attitudes Towards the Current Framework of Corporate Environmental Disclosure

This section of the enquiry attempts to ascertain whether or not the respondent groups share a "reality" (see section 2.2) towards the current framework of corporate environmental disclosure. The two and three sample Kruskal-Wallis tests were used as a means of comparison. This section is divided into nine parts each investigating the implicit framework that presently exists for corporate environmental disclosure. All these parts constitute essential aspects of an investigation into a possible conceptual framework for corporate environmental reporting. Firstly, consensus on any items included in these parts would indicate that potential building blocks for a conceptual framework could be agreed upon by a diverse group of participants. Also, this would indicate the direction of a conceptual framework, for example, should it follow the conceptual framework in financial reporting. Secondly, and related to this issue, is that the questions investigate to some extent a level of comparability between corporate financial and corporate environmental reporting.

Also, where the established pattern of consensus/non-consensus between the three groups is repeated and a gap appears, then it is more meaningful to interpret it as an "attitude

gap" rather than a disclosure or reporting gap, as it deals more with attitudes to corporate environmental reporting in general than with specific items of disclosure or issues of reporting.

Lastly, it also worth re-emphasising at this point that there should be no limitations to the analysis in this section arising from the combining of normative and positive approaches, as all three groups were asked for their attitudes, rather than practice.

(i) Users of Corporate Environmental Disclosure

This part of the enquiry considers the possible consensus between the three groups, concerning the users of corporate environmental disclosure. Table 9.10 reports the results of the two and three sample Kruskal-Wallis tests. For this part of the enquiry, the results do not fall into the previously established pattern. Of the three sample Kruskal-Wallis tests, 59% showed acceptance of the null hypothesis. In other words, the three groups provided similar responses and the tests also showed that the level of agreement indicated that the respective user groups were "important" users of environmental information. Where there was agreement between the three groups this was also reflected in acceptance of the null hypothesis, in both two sample tests which involve the companies. Where there are rejections of the null hypothesis, and therefore disagreement between the respondent groups in the three sample test, the statistics revealed that the companies consistently, and systematically, reported lower scores than the other two groups. There was disagreement of this type on local communities (proposition (3)), the media (proposition (11)), quangos (proposition (13)) and insurance companies (proposition (15)) which suggests that these users, although important to all the

Table 9.10: Kruskal-Wallis One-Way Analysis of Variance by Ranks Users of Corporate Environmental Disclosure

	N ∩ I ∩ C	N ∩ I	N ∩ C	C ∩ I
1. Employees.	*yes*	*yes*	*yes*	*yes*
2. Legislators and regulators.	*yes*	*yes*	*yes*	*yes*
3. Local communities.	*no*	*yes*	*no*	*no*
4. Shareholders.	*yes*	*yes*	*no*	*yes*
5. Potential investors.	*yes*	*yes*	*yes*	*no*
6. Ethical investors.	*no*	*no*	*no*	*no*
7. Customers.	*yes*	*yes*	*yes*	*yes*
8. Suppliers.	*yes*	*yes*	*yes*	*yes*
9. Industry associations.	*yes*	*yes*	*yes*	*yes*
10. Environmental groups.	*no*	*no*	*no*	*no*
11. Media.	*no*	*yes*	*yes*	*no*
12. Central government.	*yes*	*yes*	*yes*	*yes*
13. Quangos eg. National Rivers Authority.	*no*	*yes*	*no*	*no*
14. Local government.	*yes*	*yes*	*yes*	*yes*
15. Insurance companies.	*no*	*yes*	*no*	*no*
16. Banks.	*yes*	*yes*	*yes*	*yes*
17. Stock market.	*yes*	*yes*	*yes*	*yes*

C = Company Group; N = Normative Group; I = Interested Party Group. The function ∩ (borrowed from Set notation) means that there is an intersection of opinion between the groups involved. "Yes" implies that there is an intersection of attitudes, whereas "no" implies that there is not.

respondent groups, are relatively less important to the company group, indicating the existence of an attitude gap between the companies and the other two groups. This is a good example of how useful the implementation of the education strategy proposed in this chapter, could be in reducing the attitude gap between the company group and the other two groups.

The two sample test between the normative and interested party groups reveals results in line with the established pattern, indicating agreement between these two groups.

There are two exceptions. The null hypothesis that the two groups recorded similar responses, was rejected for ethical investors (proposition (6)) and environmental groups (proposition (10)). Indeed, the null hypothesis was rejected for all the two and three sample Kruskal-Wallis tests. The interested party group reported the highest scores for both of these user groups whereas the company group, reported the lower scores.

Overall, there is a high level of agreement between the three groups, as to the possible users of corporate environmental disclosure. This represents the first stage in attempting to discover commonalities between financial, and environmental, reporting. A common user base for corporate disclosure makes it possible to consider a comprehensive conceptual framework, for environmental and financial reporting, as discussed in chapter four. Previous work has suggested the existence of a common user base and the findings clearly support this expectation (see IISD, 1992; ASB, 1995a, and; Gray *et al.*, 1996a).

(ii) Bearing the Cost of Corporate Environmental Disclosure

In this part of the enquiry the possible consensus between the three groups is considered in relation to who should pay for corporate environmental disclosure. Table 9.11 presents the results to the two and three sample Kruskal-Wallis tests. The test statistics do not follow the established pattern. All three respondent groups "strongly disagree" that the cost of disclosure should be undertaken by the government *via* a system of company tax credits (proposition (4)). This is shown by the acceptance of the Kruskal-Wallis three sample test, and by the fact that the similar responses are all in the area of "strong disagreement". For the other three sample tests, the null hypothesis is rejected, indicating disagreement between the respondent groups.

Table 9.11: Kruskal-Wallis One-Way Analysis of Variance by Ranks Bearing the Cost of Corporate Environmental Disclosure

	N ∩ I ∩ C	N ∩ I	N ∩ C	C ∩ I
1. The company should absorb the full cost.	*no*	*yes*	*no*	*no*
2. The interested party should pay.	*no*	*no*	*yes*	*no*
3. There should be an allocation of cost between the company and interested party.	*no*	*no*	*yes*	*no*
4. The Government via a system of company tax credits.	*yes*	*yes*	*yes*	*yes*

C = Company Group; N = Normative Group; I = Interested Party Group. The function ∩ (borrowed from Set notation) means that there is an intersection of opinion between the groups involved. "Yes" implies that there is an intersection of attitudes, whereas "no" implies that there is not.

The suggestion that the interested party should pay (proposition (2)) and there should be an allocation of cost between the company and interested party (proposition (3)) received systematically lower scores from the interested party group, than from the other two respondent groups. This is ironic as both these propositions imply that the interested party group should bear at least some of the cost of environmental disclosure. A notable point from the results, for the two sample Kruskal-Wallis tests, is that there is acceptance of the null hypothesis, indicating agreement that the interested parties should bear some of the cost of environmental disclosure, between the interested party, normative and company groups. However, although the proposition that "the company should absorb the full cost" received the highest mean average scores (see chapters six, seven and eight) from all three groups, there was no general consensus.

Overall, there is agreement that the government should not be involved in subsidising corporate environmental disclosure. Interestingly, however, there is disagreement between the groups in the three sample tests with all the groups "agreeing" that the companies should pay with the normative party groups "strongly agreeing" on this issue.

Following the now established pattern, the company group reported the lower scores, indicating an attitude gap. The loose consensus does suggest that environmental reporting should be treated in much the same way as financial reporting: it should be produced free of charge for the user. This provides another area of commonality between financial and environmental reporting (supporting, for example, the ethos of the Ceres Principles, CERES, 1992).

(iii) Possible Qualitative Characteristics of Corporate Environmental Disclosure

The results to the two and three sample Kruskal-Wallis tests are presented in table 9.12. The results for this part of the enquiry do not correspond with the previously established pattern. There is a 50% acceptance of the null hypothesis (that the groups record similar scores) in the three sample test. This is a salient finding as it implies a consensus on qualitative characteristics which both form the building blocks of a conceptual framework for corporate environmental reporting and demonstrate commonality between corporate environmental reporting and financial reporting. This high level of agreement indicates that all groups consider the respective characteristics to be at least important for environmental disclosure. Again, where there is rejection of the null hypothesis in the three sample test, it is the company group which systematically records lower scores.

There is uniform acceptance of the null hypothesis for the two sample test, pairing the normative and interested party respondent groups. For the other two sample tests there is over 60% acceptance of the null hypothesis, indicating that the paired groups agree that these characteristics are important.

Table 9.12: Kruskal-Wallis One-Way Analysis of Variance by Ranks
Possible Qualitative Characteristics of Corporate Environmental Disclosure

	N ∩ I ∩ C	N ∩ I	N ∩ C	C ∩ I
1. Understandability.	*yes*	*yes*	*yes*	*yes*
2. Relevance.	*yes*	*yes*	*yes*	*yes*
3. Predictive value.	*no*	*yes*	*no*	*yes*
4. Confirmation of information.	*yes*	*yes*	*yes*	*yes*
5. Materiality.	*yes*	*yes*	*yes*	*yes*
6. Reliability.	*yes*	*yes*	*yes*	*yes*
7. Faithful Representation.	*no*	*yes*	*yes*	*no*
8. Valid description.	*yes*	*yes*	*yes*	*yes*
9. Freedom from error.	*yes*	*yes*	*yes*	*yes*
10. Substance Over Form.	*no*	*yes*	*no*	*yes*
11. Neutrality.	*no*	*yes*	*yes*	*no*
12. Prudence.	*yes*	*yes*	*yes*	*yes*
13. Completeness.	*no*	*yes*	*no*	*no*
14. Comparability.	*no*	*yes*	*no*	*no*
15. Consistency.	*no*	*yes*	*no*	*no*
16. Corresponding information for previous period.	*no*	*yes*	*yes*	*no*
17. Timeliness.	*no*	*yes*	*no*	*yes*
18. A true and fair view.	*yes*	*yes*	*yes*	*yes*

C = Company Group; N = Normative Group; I = Interested Party Group. The function ∩ (borrowed from Set notation) means that there is an intersection of opinion between the groups involved. "Yes" implies that there is an intersection of attitudes, whereas "no" implies that there is not.

The areas where there is overall consensus between all three groups and where they agree that the qualitative characteristics are "important" are: understandability (proposition (1)); relevance (proposition (2)); reliability (proposition (6)); valid description (proposition (8)); freedom from error (proposition (9)), and; a true and fair view (proposition (18)). These results are particularly encouraging with four of these qualitative characteristics underpinning the financial reporting conceptual framework, thereby also confirming an area of commonality between financial and environmental

reporting, between the three groups (see Gray *et al.*, 1987a, 1996a, and 1996b, for the application of the quantitative characteristics of financial reporting to environmental reporting).

(iv) Proposed Elements of a Conceptual Framework for Corporate Environmental Reporting

In this part of the enquiry, the possible consensus views of the three respondent groups are considered in relation to suggested elements for a conceptual framework in corporate environmental reporting. Table 9.13 displays the results to the two and three sample Kruskal-Wallis tests. The established pattern does not appear in the results. All two and three sample tests accept the null hypothesis. This means that the three respondent groups and the pairs of groups agree on all the proposed elements of a conceptual framework for corporate environmental reporting. Therefore, there is no evident attitude gap. All the respondent groups "strongly agree" that air, land and water represent elements for corporate environmental reporting. They also agree on sound as an element.

These results are encouraging, as they provide a consensus from which the building blocks of a conceptual framework for corporate environmental reporting can be developed. Fundamental to the development of the framework is what to recognise and measure as these have implications throughout the whole reporting process. The framework of the Environment Protection Act (1990) rests on air, land and water, as the media for disclosure. These findings support the approach adopted by the legislature (see Ball and Bell, 1995).

Table 9.13: Kruskal-Wallis One-Way Analysis of Variance by Ranks Proposed Elements of a Conceptual Framework for Corporate Environmental Reporting

	N∩I∩C	N∩I	N∩C	C∩I
1. Air.	*yes*	*yes*	*yes*	*yes*
2. Land.	*yes*	*yes*	*yes*	*yes*
3. Water.	*yes*	*yes*	*yes*	*yes*
4. Sound.	*yes*	*yes*	*yes*	*yes*

C = Company Group; N = Normative Group; I = Interested Party Group. The function ∩ (borrowed from Set notation) means that there is an intersection of opinion between the groups involved. "Yes" implies that there is an intersection of attitudes, whereas "no" implies that there is not.

(v) Verification of Corporate Environmental Disclosure

This part of the enquiry considers the possible consensus between the three respondent groups towards verification of corporate environmental disclosure. Table 9.14 presents results to the two and three sample Kruskal-Wallis tests. Again, the pattern seen in the previous two sections is not apparent. The three sample test revealed that all the respondent groups agreed that accountants, within their existing framework (proposition (1)) were inappropriate as verifiers of environmental disclosure. For scientists within their existing framework (proposition (2)), the null hypothesis is accepted. However, the level of agreement between the groups was in the region of "neutral".

For a new professional body (proposition (4)) and registered environmental auditors (proposition (5)) there was agreement between the normative and company groups in the two sample tests (acceptance of the null hypothesis). The results indicate that both groups support the use of environmental consultants, in certain circumstances, in the verification of corporate environmental disclosure. However, there was disagreement

Table 9.14: Kruskal-Wallis One-Way Analysis of Variance by Ranks Verification of Corporate Environmental Disclosure

	N ∩ I ∩ C	N ∩ I	N ∩ C	C ∩ I
1. Accountants within their existing framework.	*yes*	*yes*	*yes*	*yes*
2. Scientists within their existing framework.	*yes*	*yes*	*yes*	*yes*
3. Environmental consultants within their existing framework.	*no*	*yes*	*no*	*no*
4. A new professional body that includes accountants, scientists and environmental consultants.	*no*	*no*	*yes*	*no*
5. A registered auditor of The Environmental Auditors' Registration Association.	*no*	*no*	*yes*	*no*
6. Internal management team.	*no*	*yes*	*no*	*no*
7. Verification is not necessary.	*no*	*yes*	*no*	*no*

C = Company Group; N = Normative Group; I = Interested Party Group. The function ∩ (borrowed from Set notation) means that there is an intersection of opinion between the groups involved. "Yes" implies that there is an intersection of attitudes, whereas "no" implies that there is not.

between these two respondent groups for the use of environmental consultants on their own (proposition (3)). One possible suggestion is that an environmental consultant who is "registered" is perceived as being more legitimate as a verifier than one who is not.

There was significant support from the company group (from recording higher scores) of an internal management team (proposition (6)) and for verification not being necessary (proposition (7)). This was revealed by the rejection of the two and three sample Kruskal-Wallis tests (where the company group was involved). However, for these two propositions there was acceptance of the null hypothesis between the normative and interested party groups, for the two sample test. These findings are in line with expectations, as the company group has rejected outside verification whereas the normative and interested party groups are in favour of it (see UNEP, 1996a, and 1996b).

Such findings are interesting as the three sample tests indicate that the respondent groups do not agree on a verifier group, and where there is agreement between the respondents, it is only agreement to reject a verifier group. The two sample tests reveal a mixture of possible verifiers. This is obviously an area where accountants need to concentrate their efforts if they wish to make their participation and contribution to environmental reporting more visible (see Gray *et al.*, 1987a, and 1996a).

(vi) Suggested Motives For Corporate Environmental Disclosure

The results of the two and three sample Kruskal-Wallis tests for the suggested motives for corporate environmental disclosure are reported in table 9.15. The pattern established earlier in this chapter re-establishes itself from these results for propositions (1), (2), (5), (7), (8), (9) and (10), with a rejection of the null hypothesis for the three sample tests. Where there is general consensus[11] for the three propositions, all three respondent groups reported scores indicating that these were important/neutral motives for corporate environmental reporting. As in the established pattern, the company group's reported scores were lower than those of the other two groups, where the null of the Kruskal-Wallis test was rejected. Unsurprisingly however, for propositions (5) and (8) the company group systematically reported higher scores than the other groups.

For peer pressure from companies in the same industry (proposition (10)), the null hypothesis was rejected in all four Kruskal-Wallis tests, with, as expected, the companies reporting the lowest score and the normative group, the highest score.

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[11] Proposition (3), supports Gray *et al.* (1996a), proposition (6), supports the environmental ethos (introduced in chapter one) and proposition (12) supports the Royal Society of Arts (RSA, 1995).

Table 9.15: Kruskal-Wallis One-Way Analysis of Variance by Ranks Suggested Motives For Corporate Environmental Disclosure

	N ∩ I ∩ C	N ∩ I	N ∩ C	C ∩ I
1. To market the company.	*no*	*yes*	*no*	*no*
2. To market company products.	*no*	*yes*	*no*	*no*
3. To comply with regulations.	*yes*	*yes*	*yes*	*yes*
4. As a form of political lobbying.	*no*	*yes*	*no*	*yes*
5. As a result of company ethics.	*no*	*yes*	*no*	*no*
6. As an acceptance of a change in society's ethics.	*yes*	*yes*	*yes*	*yes*
7. To improve the company's corporate image.	*no*	*yes*	*no*	*no*
8. To acknowledge social responsibility.	*no*	*yes*	*no*	*no*
9. To attract investment.	*no*	*yes*	*no*	*no*
10. Peer pressure from companies in the same industry.	*no*	*no*	*no*	*no*
11. Pressure from customers / consumers.	*no*	*yes*	*no*	*no*
12. To meet the demand for environmental information.	*yes*	*yes*	*yes*	*yes*

C = Company Group; N = Normative Group; I = Interested Party Group. The function ∩ (borrowed from Set notation) means that there is an intersection of opinion between the groups involved. "Yes" implies that there is an intersection of attitudes, whereas "no" implies that there is not.

The three suggested motives where there was agreement between the three groups, namely, to comply with regulations, as an acceptance of a change in society's ethics, and to meet the demand for environmental information, suggest that accountability may be the all encompassing motive for corporate environmental disclosure (see Gray *et al.*, 1996a). A particularly good example, supporting this finding, can be seen in the Royal Society of Arts report "Tomorrow's Company" (RSA, 1995). As discussed in chapter three this report proposes the following forces affecting a company's licence to operate: legal/regulation; industry and market standards; industry reputation; media; political opinion; public opinion/confidence; pressure groups, and; individual attitudes of customers, suppliers, consumers, employees, investors and community (CERES, 1992; DTTI, 1993; CBI, 1994, and; WICE, 1994, also support these motives).

(vii) Possible Reasons For the Inadequacy of Corporate Environmental Disclosure

Areas of consensus concerning the possible reasons for the inadequacy of corporate environmental disclosure are considered in this part of the enquiry. Table 9.16 presents the results to the two and three sample Kruskal-Wallis tests. Overall, there was substantial agreement between all three groups, on the reasons for the inadequacy of corporate environmental disclosure, in that the null hypothesis was accepted in 88% of the two and three sample cases.

For suggestions (1), (2), (3), (6), (7), (8), (9) the statistics showed that as well as acceptance of the null hypothesis for all the tests, the groups all considered these reasons to be "important". However, for suggestion (10), "companies generally believe they do not have an impact on the environment", the groups all recorded scores of "neutral".

In line with the pattern suggested previously, the reported scores for proposition (4), "possible damage to companies' reputation", and proposition (5), "general lack of awareness of environmental issues" were lower for the companies, where the null hypothesis was rejected in the three sample test. However, for proposition (12), "users may not understand the information", the companies systematically reported higher scores than the other two groups, according to the three sample test. For the two sample tests, there was agreement between the normative and interested party group, and between the normative and company group, providing some evidence that users may not understand the disclosed information.

Table 9.16: Kruskal-Wallis One-Way Analysis of Variance by Ranks
Possible Reasons For the Inadequacy of Corporate Environmental Disclosure

	N ∩ I ∩ C	N ∩ I	N ∩ C	C ∩ I
1. Reluctance to report sensitive information.	*yes*	*yes*	*yes*	*yes*
2. To avoid providing information to competitors.	*yes*	*yes*	*yes*	*yes*
3. To avoid providing incriminating information to regulators.	*yes*	*yes*	*yes*	*yes*
4. Possible damage to companies' reputation.	*no*	*yes*	*yes*	*no*
5. General lack of awareness of environmental issues	*no*	*yes*	*no*	*yes*
6. Inability to gather the information.	*yes*	*yes*	*yes*	*yes*
7. Cost of disclosure.	*yes*	*yes*	*yes*	*yes*
8. Lack of awareness of competitive advantage.	*yes*	*yes*	*yes*	*yes*
9. There is no legal obligation for companies to report environmentally.	*yes*	*yes*	*yes*	*yes*
10. Companies generally believe they do not have an impact on the environment.	*yes*	*yes*	*yes*	*yes*
11. Insufficient response / feedback from stakeholders.	*yes*	*yes*	*yes*	*yes*
12. Users may not understand the information.	*no*	*yes*	*yes*	*no*

C = Company Group; N = Normative Group; I = Interested Party Group. The function ∩ (borrowed from Set notation) means that there is an intersection of opinion between the groups involved. "Yes" implies that there is an intersection of attitudes, whereas "no" implies that there is not.

Overall, the findings display a strong consensus of agreement as to why more companies do not disclose environmental information. Of particular interest are the cases where there was no agreement on the three sample test. For proposition (4), "possible damage to companies' reputation", and proposition (5), "general lack of awareness of environmental issues", the suggestion, from the test results, is that company management believe they have a greater awareness of environmental issues, and are more forthcoming with possible detrimental disclosure, than the other two groups merit them with. Ball and Bell (1995) support secrecy as a reason for non-disclosure (namely propositions (1), (2), and (3)). Welford and Gouldson (1993), Peattie (1995) and Gray *et al.* (1996a) suggest that the lack of mandatory disclosure requirements, constitute a principal cause of non-

disclosure (proposition (9)). The proposed education strategy seems particularly relevant to the inadequacies of corporate environmental disclosure, as it should be able to alleviate company management's fears in this area.

(viii) Interested Party Access to Corporate Environmental Disclosure

Interested party access to corporate environmental disclosure is considered in this part of the enquiry, in relation to any consensus from the three respondent groups. Table 9.17 presents the results of the two and three sample Kruskal-Wallis tests. The null hypothesis was accepted for 81% of the two and three sample tests indicating a strong consensus among the respondent groups. All the groups were in consensus that interested party access to corporate environmental information should be from either company head office (proposition (1)), or from company head office and at site/branch level (proposition (2)). All three groups unanimously agreed that access to environmental information, only at site/branch level (proposition (3)), was inappropriate. The suggestion of a central reference place for environmental disclosure (proposition (4)) was rejected by all three respondent groups. There was agreement, however, with the two sample test for the normative and interested party group. The rejection of the null hypothesis in the three sample test was a result of the company reporting a significantly lower score systematically.

The findings are as expected as they reflect current practice which explains the company group's rejection of a central reference place. This is disappointing, but not surprising. One interpretation of this finding is that company management does not see itself accountable to stakeholders in this respect.

Table 9.17: Kruskal-Wallis One-Way Analysis of Variance by Ranks Interested Party Access to Corporate Environmental Disclosure

	N ∩ I ∩ C	N ∩ I	N ∩ C	C ∩ I
1. From company head office.	*yes*	*yes*	*yes*	*yes*
2. From company head office and at site / branch level.	*yes*	*yes*	*yes*	*yes*
3. Only at site / branch level.	*yes*	*yes*	*yes*	*yes*
4. From a central reference place where all company environmental disclosure can be examined	*no*	*yes*	*no*	*no*

C = Company Group; N = Normative Group; I = Interested Party Group. The function ∩ (borrowed from Set notation) means that there is an intersection of opinion between the groups involved. "Yes" implies that there is an intersection of attitudes, whereas "no" implies that there is not.

(ix) Accountability, Decision-Making and Corporate Environmental Disclosure

This last part of the enquiry considers the possible consensus between the three groups, towards accountability, decision-making, and corporate environmental disclosure. Table 9.18 display the results to the two and three sample Kruskal-Wallis tests. The null hypothesis was accepted for all two and three sample tests for the statement that environmental disclosure should be analysed (proposition (1)). This major area of consensus is a building block for a conceptual framework. There was rejection of the null hypothesis for the three sample test for propositions (2) and (3), with the company group systematically reporting lower scores than the other two groups.

There was rejection of the null hypothesis in all the two and three sample tests for the statement that company environmental disclosure should be regulated in the same way as accounting disclosure (proposition (4)), with the company group reporting the lower scores and the interested party group reporting the higher scores. The two sample test for the normative and interested party group revealed acceptance of the null hypothesis

Table 9.18: Kruskal-Wallis One-Way Analysis of Variance by Ranks Accountability, Decision-Making and Corporate Environmental Disclosure

	N ∩ I ∩ C	N ∩ I	N ∩ C	C ∩ I
1. Environmental disclosure that has been analysed would be more useful for accountability and decision-making purposes than raw data.	*yes*	*yes*	*yes*	*yes*
2. Interested parties require company environmental disclosure for accountability and decision-making purposes.	*no*	*yes*	*yes*	*no*
3. It would be useful for accountability and decision-making purposes if companies disclosed environmental target-setting information with respect to a set classification.	*no*	*yes*	*yes*	*no*
4. Company environmental disclosure should be regulated in the same way as accounting disclosure.	*no*	*no*	*no*	*no*

C = Company Group; N = Normative Group; I = Interested Party Group. The function ∩ (borrowed from Set notation) means that there is an intersection of opinion between the groups involved. "Yes" implies that there is an intersection of attitudes, whereas "no" implies that there is not.

for propositions (1), (2) and (3), as did the two sample test for the normative and company groups. However, the two sample test for the company and interested party group, showed rejection of the null hypothesis for propositions (2) and (3).

The agreement by all three groups that environmental disclosure which has been analysed would be more useful suggests that perhaps environmental disclosure is not understood in the same way by all parties. Some independent clarification of disclosure seems to be central. This is encouraging, as such an approach could also be useful in financial reporting and the finding is in total disagreement with Gray *et al.* (1987a), who suggest that disclosure should be in the form of raw data.

(x) Summary

The two and three sample Kruskal-Wallis tests indicated that all three respondent groups share a common sense of reality, with respect to the current implicit framework for corporate environmental reporting. This is suggested from the strong consensus between the three respondent groups where for the three sample tests (82 in all) there was an agreement rate of 52%. The normative and interested party two sample tests showed agreement in 90% of the cases. These results are therefore particularly encouraging as not only do all the respondent groups agree overall more than half the time, but also, any disagreement is between the company and other two respondent groups. Therefore a firm basis of a combined reality appears to exist from which to develop a conceptual framework for corporate environmental reporting. However, there has to be some consideration of the possible limitations of combining the realities of three different respondent groups (discussed in section 5.7.2) in interpreting the findings. Further, the respondent groups displayed consensus on a commonality between financial and environmental reporting, as well as for the proposed elements for a conceptual framework for corporate environmental reporting.

9.4 Discussion and Conclusion

This chapter has tested for consensus between the three respondent groups, and has discussed the meaning and implication of any consensus, or lack of consensus found. As a result of the evident empirical "gap" between the companies' responses and those of the normative and interested party groups, it is useful to propose tentative policy recommendations which may redress this situation. Throughout the analysis, three policy

recommendations are suggested. Firstly, a regulation strategy is suggested, which would transform the current voluntary nature of corporate environmental reporting and force company management to undertake more ambitious disclosure, or some disclosure in the cases where they currently disclose none at all. A second, alternative policy recommendation is a dissemination strategy which would involve disseminating information pertaining to the disclosure requirements of normative and interested party representatives to company management, as well as to professional trade and industry bodies. This information arises from empirical evidence such as that produced by the current research. This strategy would hopefully encourage company managers to notice the requirements of user groups and to respond by increasing environmental disclosure. If successful, this strategy would negate the need for regulation and would perpetuate the current voluntary framework. Thirdly, an education strategy is suggested, which could clearly accompany either the regulation or dissemination strategy. This aims to educate and inform company managers as well as professional trade and industry bodies in environmental issues. The education strategy should help to nurture the environmental ethos within these sectors, hopefully leading to useful environmental which is disclosed in both substance and form.

It is worth discussing at this point the mechanism by which the proposed policy recommendations may be implemented. One possibility is the development of a forum. Such a forum might be composed of academics, interested parties, and company management. Its aim would be to educate all parties through discussion between themselves, and possibly presentations and debate. The forum would also serve other purposes, as well as education, including the implementation of a conceptual framework-type approach to environmental reporting, acting as a central reference place where

issues may be raised, discussed and clarified. There are several examples arising from the current research, where such a forum may be useful. In relation to the empirical evidence on qualitative characteristics, there is a concern with the three groups not reaching an overall consensus on the importance of comparability, but with agreement on a true and fair view. This could be explored *via* a forum, which may comprise part of the proposed education strategy. The attitude gap appearing with respect to verification provides another example where the use of corporate environmental forum may help in finding the most appropriate party to verify disclosure, if all parties can agree on it being necessary. Another example of where a corporate environmental reporting forum may be useful is in exploring the lack of/inadequacy of corporate environmental disclosure.

The forum may be considered to constitute part of the proposed education strategy, which, as suggested, should be implemented either within the mandatory framework of the regulation strategy, or within the voluntary framework of the dissemination strategy.

Overall, there are two salient findings arising from the analysis in this chapter. Firstly, there is a large disparity between the normative/interested party groups' responses, and those of the company group. This disparity has been translated as a disclosure gap, a reporting gap and an attitude gap, for different sections of the questionnaire. Secondly, the findings provide strong evidence of commonality between financial and environmental reporting, most notably in the areas of users, quantitative characteristics, communication vehicle for disclosure, and in relation to who bears the cost of disclosure. These evident areas of commonality provide the basis for a comprehensive accountability, decision useful, conceptual framework for corporate environmental

reporting.

Connected to the suggested policy recommendations is the problem that they rest on a normative decision, i.e. that the disclosure, reporting and attitude gaps should be narrowed by means of altering the companies' reality. However, an alternative paradigm is to attempt to alter the normative and interested party group's reality, persuading them that they should actually require less corporate environmental disclosure. However, the thesis follows the *status quo* as depicted in appendix B which suggests that more disclosure is required, and that the needs of interested parties should be satisfied.

A further issue, discussed throughout the analysis concerns the limitations of combing normative and positive approaches, as a result of the difference between certain questions in the company questionnaire and the other two questionnaires. As a consequence, it is not necessarily correct to assume that the companies' responses on disclosure practice are synonymous with their attitudes to corporate environmental disclosure. The main implication of this limitation is in terms of the policy recommendations. If the company respondents' attitudes towards disclosure coincide with their disclosure practice then this implies that company management is reluctant to increase disclosure and therefore the regulation strategy proposed would perhaps be the most effective means of narrowing the disclosure gap. There is, however a possibility that company management would not be unwilling to increase disclosure and are simply unaware of the disclosure demand from interested parties. In this case, implementation of the dissemination strategy would encourage them to increase environmental disclosure, in which case regulation would become unnecessary. In either of these cases, the implementation of the education strategy would be fundamental as it would ensure

that the information disclosed is useful.

Despite the problems of interpreting the positive and normative perspectives proffered by the company group and the others respectively, there are two main reasons to believe that the company group is reporting what it wants. In other words, there is perhaps no positive/normative contradiction, as practice reflects attitude. One reason is that there are already a large number of guidelines available to company management indicating what environmental disclosure they should make. There seems to be no reason, within a voluntary framework for them not following these guidelines, if they are willing to, as some companies do. Secondly, the company group may be considered to hold the "bigger stick" (see section 3.2), imposing its reality on the rest of society. In this case it is also unlikely that they would disclose less environmental information than they wanted to.

Chapter Ten

Conclusion

> *"... there can be no return to a state where, from a multiplicity of alternative accounting methods, the manager of each business enterprise can be left entirely free to choose whichever ones suit them".*
>
> Solomons (1983, page 107).

10.1 Introduction

The thesis has followed the general pattern of a conceptual framework corresponding to the "empirical cluster" (see chapter two) incorporating: a literature review (chapter three), theoretical model development (chapter four), a discussion of the methodology adopted (chapter five) and empirical testing of the model (chapters six, seven, eight and nine). The final stage of this conceptual framework, presented in this chapter, is to incorporate the empirical findings into the theoretical model.

This concluding chapter is structured as follows. Section 10.2 proceeds with the final stage of investigating a conceptual framework for corporate environmental reporting. The theoretical model developed in earlier chapters is revisited in the light of the empirical findings from chapter nine. There is a discussion of how the two-party consensus (between the normative and interested party groups) and three-party consensus (between all three groups) reported in the previous chapter are used to produce an empirically-based model. This model represents an explicit conceptual framework for corporate environmental reporting which incorporates empirical findings. In concluding the thesis, section 10.3 reconsiders research issues raised throughout the work and discusses limitations of the research. Section 10.4 examines the extent to which research questions have been answered in the thesis, including a summary of policy

recommendations arising from the work. There is also an appraisal of the achievement of the thesis objective which was established in chapter one. Section 10.5 considers future research, preceding the concluding remarks in section 10.6.

10.2 The Final Stage of the Conceptual Framework Methodology

This section revisits the *a priori* theoretical model developed in chapter four with the empirical findings of the thesis so as to produce an empirically tested model.

10.2.1 Application of the Two and Three-Party Consensus to the Theoretical Model

> *"Consensus (Latin, consensus): the judgement arrived at by most of those concerned".*
>
> Longman's Dictionary (1991).

> *"Most conceptual frameworks seem to be decision based. They are unidirectional - oriented solely towards users. A conceptual framework that is accountability-based must weigh the interests of the two sides; it is bidirectional".*
>
> Ijiri (1983, page 75).

The underlying assumption in this analysis is that a conceptual framework should be based on the consensus expressed by all three respondent groups. Ijiri (1983) emphasises the importance of developing a conceptual framework from an agreement or consensus between two relevant parties. Also, Huegy (1963) emphasised the importance of incorporating consensus between relevant parties into a conceptual framework for marketing (see chapter two). In the thesis the level of consensus between the three respondent groups is sought. The results of statistical tests for consensus were presented

in chapter nine and these are reinterpreted in relation to the conceptual framework model developed in the thesis.

Despite the striking gaps (disclosure, reporting and attitude gaps) between the responses of the company group and the other two groups, revealed in chapter nine, there were a number of cases where all three groups agreed (for example on the elements of corporate environmental reporting). Technically, these were cases where the three sample Kruskal-Wallis test showed agreement between all three groups, i.e. there was no significant difference between the responses from each group. For the purposes of this chapter, this general agreement is referred to as a **three-party consensus**. The theoretical model developed in chapter four is therefore revisited with all cases of three-party consensus incorporated into the model.

However, as a result of the significant gaps between the companies responses and those of the other two groups, the theoretical model is also revisited with a **two-party consensus**. For the purposes of this chapter, the term two-party consensus is used to refer to cases where the normative group and the interested party group agree but the company group does not. Technically, these are cases where the two-sample Kruskal-Wallis test for the normative and interested party groups showed agreement (no significant difference between the responses).

In order to establish a conceptual framework for corporate environmental reporting three-party consensus on any issue represents a building block for the development of a framework which takes all relevant parties into account. Such consensus should create the foundations of the proposed explicit conceptual framework.

It is interesting to discuss briefly the possible application of the "big stick" argument, discussed throughout the thesis, in terms of the two party consensus. Two-party consensus between the user-oriented groups clearly emphasises that they require a different level of environment disclosure from that being produced. This is evidence that corporate environmental reporting is dominated by the company's practice in a voluntary framework.

It seems important to revisit the theoretical model with both a three-party and two-party consensus as this allows a comparison to be made between a model incorporating solely the requirements of the normative and interested party groups and a model incorporating an overall consensus arising from all three groups. This allows a comparison to be made between a conceptual framework for an overall consensus from all three groups, and a conceptual framework which takes only the normative and interested party groups' attitudes into consideration.

Comparing an empirically-tested conceptual framework based on a three-party consensus, with one based on a two-party consensus clarifies and highlights the commonalities and differences between a producer-oriented perspective (as the company view is assumed to dominate the three-party consensus, due to the "big stick" argument) and a user-oriented perspective (represented by the two-party consensus). Implementing policy recommendations such as those made throughout chapter nine would hopefully encourage the production of more "ambitious" and "mature" environmental disclosure by companies. Further, a comparison between a three-party consensus and two-party consensus conceptual framework emphasises the difference between the "immature", less "ambitious" reporting, currently produced by the companies, and the more "mature",

"ambitious", and "specialised" disclosure required by the interested party and normative groups.

For the purposes of clarification, in this section a three or two-party consensus implies that the groups provided similar responses to individual propositions (see results in chapter nine). Before revisiting the model, an interpretation of a consensus on any issue, at three levels, is established:

- a **positive consensus** indicates that all three groups provided consensus views and that they all indicated scores greater than 2 (where the possible responses were 1 to 3) or greater than 3 (where the possible responses were 1 to 5).
- a **neutral consensus** indicates that all three groups provided consensus views and that they all indicated scores of approximately 2 (where the possible responses were 1 to 3) or approximately 3 (where the possible responses were 1 to 5).
- a **negative consensus** indicates that all three groups provided consensus views and that they all indicated scores less than 2 (where the possible responses were 1 to 3) or less than 3 (where the possible responses were 1 to 5).

Diagrams, similar to those developed in chapter four, are employed to indicate the respondents' consensus in the relevant areas. It is notable that the empirical findings generally indicate positive consensus and the diagrams include only cases of positive two or three-party consensus. This is an extremely encouraging finding as it implies that there are some areas of strong consensus which can be used to formulate a conceptual framework. In only a few cases did the three groups display negative, or neutral

consensus, on an issue. These cases are also useful as they allow areas of the proposed conceptual framework which are not of interest to any group to be rejected.

In summary, in the following analysis, "three-party consensus" is used consistently to refer to consensus between all three groups and "two-party" consensus is used consistently to refer to consensus between the normative and interested party groups.

10.2.2 The Model Revisited

In this section, the model developed in chapter four is operationalised in relation to the empirical findings and the diagrams introduced in chapter four are reinterpreted.

(i) Disclosure Component: An Accountability Decision Useful Approach

A theory of reality was introduced in section 3.2 and was related later in chapter three to possible motives underlying corporate environmental disclosure, which seem to culminate in an "environmental ethos" based on voluntary disclosure. Chapter four introduced a disclosure component incorporating these possible motives as rationales for corporate environmental disclosure. This section establishes evidence for the forces at work in corporate environmental disclosure and considers explanations for the inadequacy of corporate environmental disclosure.

Evidence for the Forces Driving Corporate Environmental Disclosure

The disclosure component presented in diagram 10.1 incorporates the three-party consensus, and the two-party consensus incorporated in diagram 10.2, allowing a comparison to be made between the "immature" disclosure represented by the three-party consensus and the more "ambitious" disclosure, required by the two-party consensus between the normative and interested party groups. The findings indicate the following.

Three-Party Consensus

There is a positive three-party consensus on three motives for corporate environmental reporting: to meet the demand for environmental information; as an acceptance of a change in society's ethics, and; to comply with regulations. This may represent an everyday reality for the three groups. A conceptual framework based on accountability requires empirical evidence that there is corporate environmental accountability to society. The positive consensus on the ethical rationale shown in diagram 10.1 supports an accountability approach. This finding also conforms with the notion of the environmental ethos, established in chapter three. There is also evidence to support the legal rationale for corporate environmental disclosure. Both of the ethical and legal rationales require audited disclosure, yet there is no three-party consensus concerning verification. Further, there is three-party consensus that accountants within their existing framework are not appropriate to verify environmental disclosure (i.e. a negative consensus is revealed).

Diagram 10.1:
Disclosure Component: Incorporating Three-Party Consensus

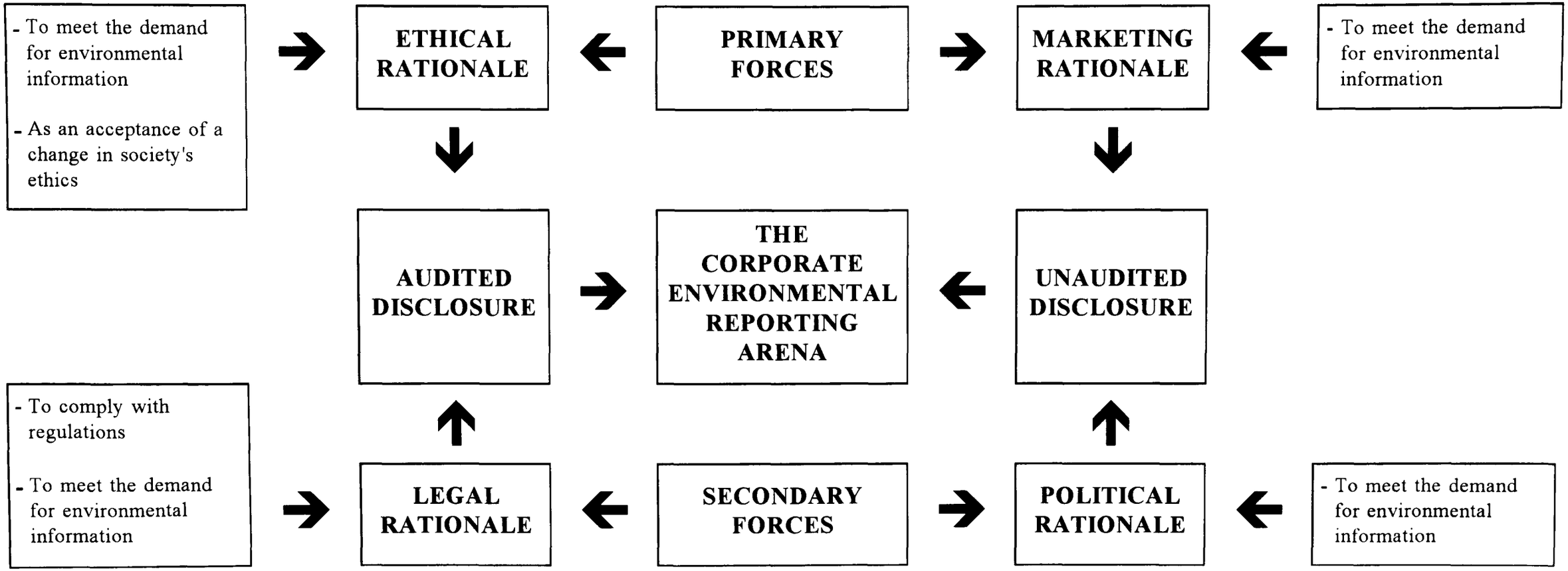
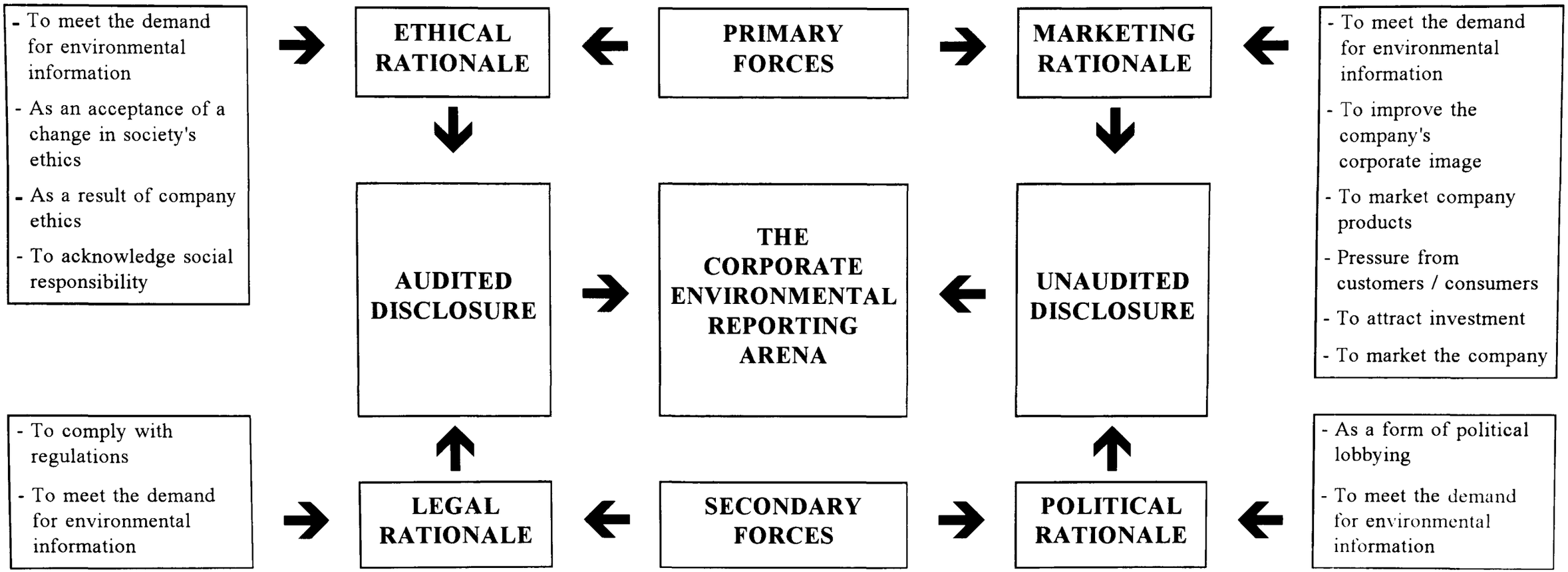


Diagram 10.2:
Disclosure Component: Incorporating Two-Party Consensus From The Normative and Interested Party Groups Only



It is interesting that there was three-party consensus on the suggested motive that companies disclose environmental information to meet demand. This may indicate that if the dissemination strategy (see chapter nine) were implemented then the companies may be willing to respond to demand by increasing disclosure, without the need for a regulation strategy. However, even using best current practice as an indicator of their response to demand does not provide a great deal of support for pursuing a dissemination strategy. The regulation strategy therefore seems more appropriate. Indeed, this consensus on meeting demand may imply that the regulation strategy would have the same or greater effect than the dissemination strategy, as the companies may well comply in spirit rather than just in form.

The ease of access to information is also an important aspect of accountability. There was three-party consensus indicating that company head office is the most appropriate place for access, as for financial reporting. Another area important for accountability concerns who should bear the cost of the disclosure. There was no three-party consensus, but all three groups individually placed the company as the most important bearer of the cost. This is similar to the situation for financial reporting and therefore stresses commonality between corporate financial and environmental reporting. Such commonality has been a theme throughout the thesis and is reconsidered in section 10.4.1. This finding suggests that company management feel they are under an obligation to report on their environmental, as well as on their financial performance. Indeed, it is interesting that in the latter the disclosure results from mandatory requirements, whereas in the former the disclosure is within a voluntary framework. This further suggests that companies are disclosing this information in order to maintain their "license to operate" (see section 3.4).

The reasons for the lack of/inadequacy of corporate environmental disclosure help to provide further guidance to the implementation of either the regulation or dissemination and the education strategies recommended in the previous chapter. There is positive three-party consensus on all but three of the suggested reasons.[1] These findings support Ball and Bell (1995) who suggest that these are major reasons for non-disclosure. Furthermore, the Brent Spar incident (see the Economist, June, 1995) is a typical example of misunderstanding of disclosure, from the company perspective, which may also act as a deterrent to future corporate environmental reporting. It therefore appears that the benefits of corporate environmental disclosure are not clear to the commercial world, or at least are not accepted, suggesting again that the regulation with education strategies are appropriate.

Two-Party Consensus

The two-party consensus is incorporated into the disclosure component in diagram 10.2. As can be seen immediately the normative and interested party groups display consensus on an extensive range of reasons for corporate disclosure. This is an important finding when compared to the three-party disclosure component in diagram 10.1, where there is agreement on far less motives. It again emphasises the difference between the user-oriented and producer-oriented groups, as the companies see less reasons for disclosing environmentally than the other two groups.

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[1] To recall, these are: reluctance to report sensitive information; to avoid providing information to competitors; to avoid providing incriminating information to regulators; inability to gather the information; cost of disclosure; lack of awareness of competitive advantage; there is no legal obligation for companies to report environmentally; companies generally believe they do not have an impact on the environment, and; insufficient response/feedback from stakeholders.

Further, there is two-party consensus on the whole range of reasons suggested for the lack of corporate environmental disclosure.[2] This again highlights the evident gap between the three-party and two-party consensus as there was three-party consensus on less of the suggested reasons. There is also two-party consensus that verification of corporate environmental disclosure is required, showing that the user-oriented groups are interested in verification whereas the company group probably perceives it to be a nuisance, again emphasising their different perceptions of corporate environmental reporting.

In terms of operationalising a conceptual framework for corporate environmental reporting, if (as suggested from consensus on motives for corporate environmental reporting) society desires an increase in corporate environmental disclosure, then it needs to overcome these problems. The most expedient way of doing this may be the implementation of the regulation strategy, accompanied by the education strategy. However, the road to regulation is long, as politicians have to be convinced that disclosure is necessary and the task is made even more difficult as corporations persuade politicians that self-regulation is the way to proceed. As discussed throughout chapter nine, regulation may be one means of bridging the disclosure and attitude gaps which arise from the empirical results. However, it is also worth noting that legislation would not necessarily increase useful corporate environmental disclosure, but could simply increase the quantity of disclosure *per se*. Therefore, a policy of increased legislation would have to be accompanied by education of management (see Gray *et al.*, 1996a),

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[2] To recall, these are: reluctance to report sensitive information; to avoid providing information to competitors; to avoid providing incriminating information to regulators; possible damage to companies' reputation; general lack of awareness of environmental issues; inability to gather the information; cost of disclosure; lack of awareness of competitive advantage; there is no legal obligation for companies to report environmentally; companies generally believe they do not have an impact on the environment; insufficient response/feedback from stakeholders, and; users may not understand the information.

as suggested by the policy recommendation for a regulation with education strategy. Again an alternative would be to continue the voluntary framework by implementing the dissemination with education strategies. However, given the lack of success of the current voluntary framework, the regulation with education strategies seem preferable, as they would provide strong impetus for companies to report environmentally sooner rather than later.

To summarise, in this section the theoretical reasons for corporate environmental disclosure have been reconciled with the empirical findings, and with the disclosure component developed in chapter four. The two and three-party consensus provide evidence for adopting an accountability approach towards a conceptual framework for corporate environmental reporting. With the evidence for accountability, the discussion can now consider the reporting component, in terms of accountability decision usefulness.

(ii) Reporting Component: An Accountability Decision Useful Approach

The reporting component of the model developed in chapter four (see diagram 4.5) is now revisited using the consensus findings. As for the disclosure component, a comparison is made between a reporting component which incorporates the three-party consensus (see diagram 10.3) and one which only incorporates the two-party consensus (see diagram 10.4). As for the revisited disclosure component, comparison between the revisited two and three-party consensus reporting component re-emphasises the dominance of the company group's responses. This comparison also highlights the gap between reporting required by the normative and interested party groups, and reporting

Diagram 10.3:
Reporting Component: Incorporating Three-Party Consensus

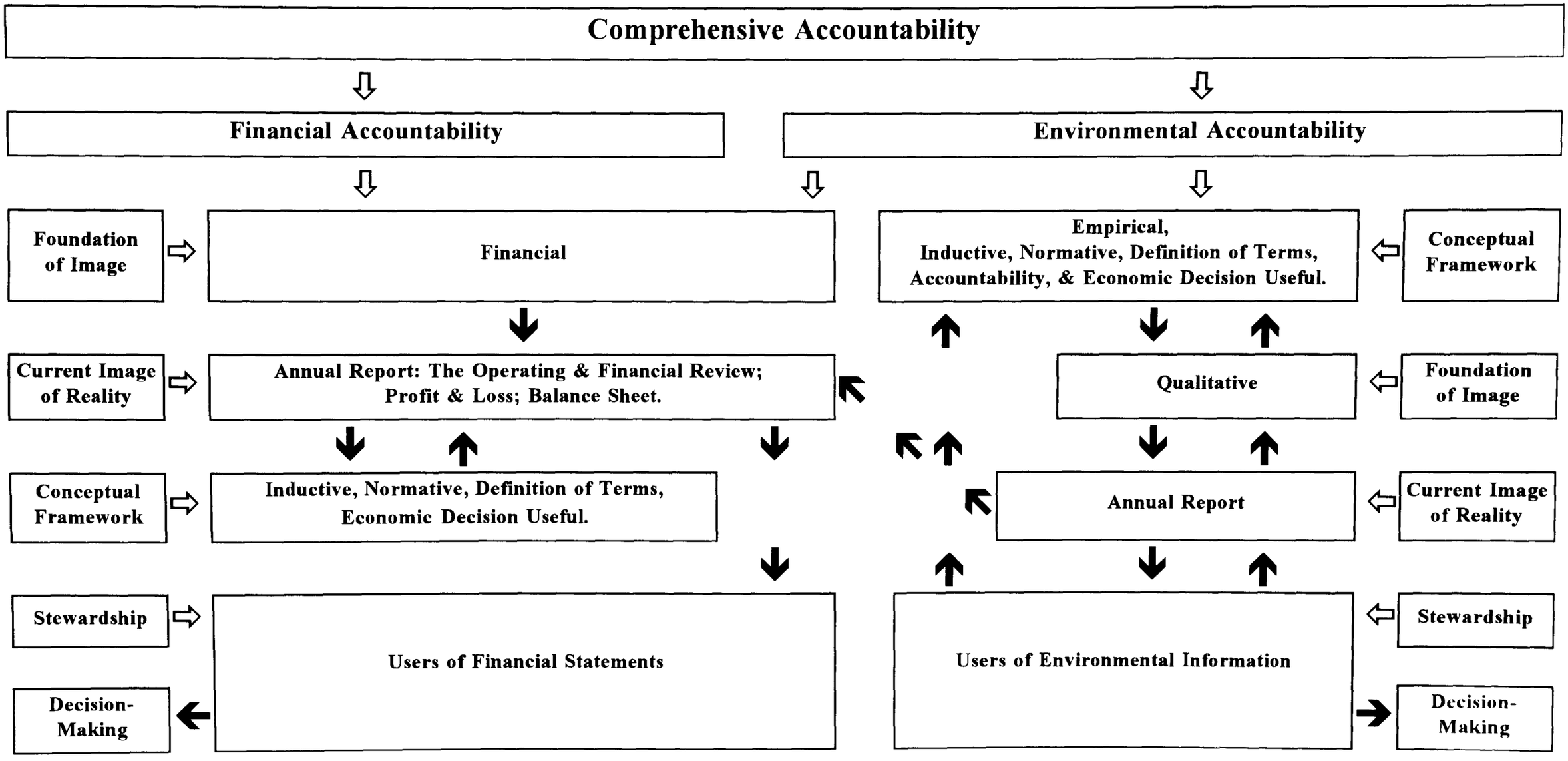
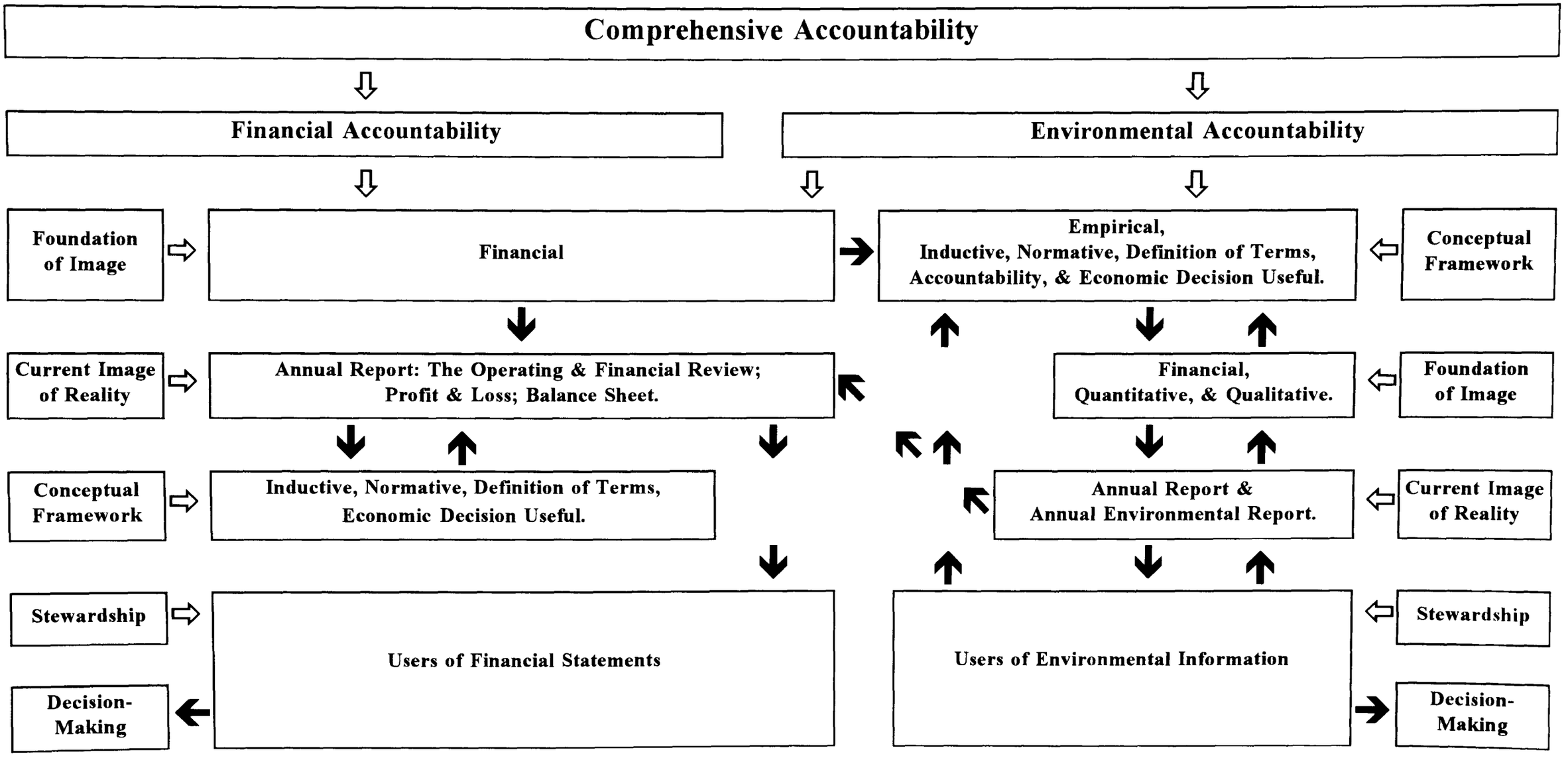


Diagram 10.4:
Reporting Component: Incorporating Two-Party Consensus From The Normative and Interested Party Groups Only



produced by the company group. This may be interpreted as supporting the "big stick" argument (in relation to the current voluntary framework) and seems to support the policy recommendation of the regulation rather than dissemination with education strategies.

Three-Party Consensus

The reporting component was developed with the notion of comprehensive accountability, comprising both financial and environmental accountability, and presented five accountability areas assumed to be common to both environmental and financial reporting. Both the *a priori* reporting component and the revisited reporting component, incorporating the three-party consensus, visualise interrelationships between financial and environmental accountability. These interrelationships are depicted in diagram 10.3 with the black arrows emanating from the current image of reality for environmental accountability (the annual report) to the current image of reality for financial accountability.

The Foundation of the Image of Reality for Environmental Accountability: From the tests in chapter nine, there was a positive three-party consensus for management information on a qualitative basis for only two propositions (health and safety, and; compliance with industry standards) and for five propositions of useful information on a qualitative basis (environmental policy statement; environmental management system; management responsibilities for the environment; company environmental initiatives, and; product packaging). Therefore, the foundation of the image of reality has reached its consensus

only on a qualitative basis, which indicates that the agreement represents the lowest common denominator when the companies' views are considered.

The Current Image of Reality for Environmental Accountability: There was no three-party consensus concerning the time period and communication of corporate environmental disclosure. The revisited reporting component for three-party consensus uses the result that all three groups gave the highest score to "environmental information within the published company annual report", as a proxy for a consensus. Of particular interest is the factor analysis for each of the respondent groups. Each group had a factor which seemed to represent current, or preferred, time period and communication of corporate environmental reporting. It is interesting that the company group in its factor, only had environmental information within the published company annual report.[3] The interested party group added stand alone published environmental corporate report annually, and the normative group added environmental information within the published company annual report, plus the half year interim report. Also note the suggestion in diagram 10.3 that environmental disclosure makes its way into the annual report as depicted by the black arrows linking the current image of reality for both financial and environmental accountability.

In a voluntary framework particularly, who should assess or report environmental incidents is an important issue. There was no three-party consensus as to who should assess environmental incidents but there was consensus for employees to report on incidents.

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[3] KPMG (1996) report that the companies they surveyed produced a separate annual environmental report. Their sample represents the FT 100, where possible. This therefore provides marked contrast with a random sample of the Times 1000, used in this survey. Gray *et al.* (1996a) suggests that the first step for corporate environmental reporting is the annual report.

Three-Party Consensus and Aspects of the Proposed Conceptual Framework for Corporate Environmental Reporting

Four aspects of a conceptual framework for corporate environmental reporting were tested empirically in the questionnaire survey.

Accountability: There was positive three-party consensus concerning the statement "environmental disclosure that has been analysed would be more useful for accountability and decision-making purposes than raw data". This would seem to indicate that firstly, company management would be more inclined to disclose information, if their view of reality was clarified, and interested parties and the normative group would find disclosure more useful, if some type of analysis, i.e. the creation of a reality had taken place. This is consistent with the consensus on motives in the disclosure component. Interestingly, this finding is also consistent with the role played by financial analysts in interpreting the financial statements presented in annual reports.

Users of Corporate Environmental Reports: There was positive three-party consensus on 11 user groups (employees; legislators and regulators; shareholders; potential investors; customers; suppliers; industry associations; central government; local government; banks, and; the stock market). The relevance of this to the conceptual framework and to comprehensive accountability is that many of these groups are the

same as those for financial reporting. This, therefore, indicates another area of commonality between financial and environmental reporting.[4]

The *a priori* reporting component in chapter four used the term "stakeholders". This is a general term and therefore to be more precise the term "users of environmental information". This provides further consistency between environmental and financial accountability, particularly as in both types of reporting a decision needs to be made by the user, as to the stewardship of economic or environmental assets. Again, this is consistent with financial and environmental reporting.

Qualitative Characteristics for Corporate Environmental Reporting: Qualitative characteristics comprise a further aspect to investigating a conceptual framework for environmental reporting, and again represent a potential area for commonalities between financial and environmental reporting. There was positive three-party consensus on nine qualitative characteristics (understandability; relevance; reliability; confirmation of information; materiality; valid description; freedom from error; prudence, and; a true and fair view).[5] This is a major empirical finding as the three respondent groups believe unanimously that both environmental and financial reporting share the basic concept of a true and fair view. The three-party consensus on the most important qualitative characteristics of understandability, relevance and reliability, again provides further evidence of commonality between financial and environmental reporting.

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[4] In relation to the discussion in chapter three, on reality, it is notable at this point that such commonality may be a product of each group's view of reality, which is, arguably, socially constructed.

[5] Note that for this aspect, there is two-party consensus on all the proposed qualitative characteristics.

Elements for Corporate Environmental Reporting: There was positive three-party consensus on the four elements proposed (air, land, water and sound). This follows the approach adopted in the Environment Act (1990) and is encouraging, as a conceptual framework for corporate environmental reporting is unlikely to share elements with financial reporting except in the financial area.

The analysis now revisits the reporting component with the two-party consensus findings.

Two-Party Consensus

In relation to the notion of comprehensive accountability, diagram 10.4 reinterprets the reporting component with the two-party consensus. This user-oriented reporting component contrasts markedly with the corresponding three-party consensus component in diagram 10.3. The current image of reality for environmental accountability is seen in terms of the annual report and an annual environmental report with arrows emanating again to the current image of reality for financial accountability. Also, there is a suggested connection between the foundation of the image of reality for financial accountability (financial) and the conceptual framework for environmental accountability, suggesting that financial information is very important for an environmental reporting conceptual framework.

The Foundation of the Image of Reality for Environmental Accountability: The foundation of the image of reality arising from the two-party consensus is based on financial, quantitative and qualitative disclosure of corporate environmental information,

in the areas of: general usefulness of information; resource information; risk information; the disclosure of traditional quantifiable and financial information on alternative bases; benchmarking, and; management information. There is, as discussed previously, a striking difference between this two-party consensus and the corresponding three-party consensus. This difference highlights again the more mature and ambitious information required by the normative and interested party groups, in comparison with the three-party consensus, which agrees on less ambitious, primitive disclosure, such as only qualitative disclosure on far less propositions.

The Current Image of Reality for Environmental Accountability: The main difference between the three and two-party consensus for the current image of reality is a two-party consensus for disclosure in the annual report and a separate annual environmental report. Again, note how the two-party consensus requires financial input into their conceptual framework as depicted by the black arrow flowing from the foundations of the image of reality for financial accountability to the conceptual framework for corporate environmental accountability.

Two-Party Consensus and Aspects of the Proposed Conceptual Framework for Corporate Environmental Reporting

Two-party consensus for the four aspects of the proposed conceptual framework for corporate environmental reporting are now discussed.

Accountability: There was two-party consensus on three statements relating to accountability: environmental disclosure that has been analysed would be more useful

for accountability and decision-making purposes than raw data; interested parties require company environmental disclosure for accountability and decision-making purposes, and; it would be useful for accountability and decision-making purposes if companies disclose environmental target-setting information with respect to a set classification. There was negative consensus on the statement that company environmental disclosure should be regulated in the same way as accounting disclosure. These consensus findings therefore suggest that the two user-oriented groups possess a broader and more mature understanding of accountability than the company group.

Users of Corporate Environmental Reports: There is two-party consensus on 15 of the 17 proposed user groups (employees, legislators and regulators, local communities, shareholders, potential investors, customers, suppliers, industrial associations, media, central government, quangos, local government, insurance companies, banks, and the stock market). Clearly, the level of consensus from two parties is greater for users than from three-parties, implying that the company group is not currently addressing its audience adequately.

Qualitative Characteristics for Corporate Environmental Reporting: There was two-party consensus on all the proposed qualitative characteristics (understandability, relevance, predictive value, confirmation of information, materiality, reliability, faithful representation, valid description, freedom from error, substance over form, neutrality, prudence, completeness, comparability, consistency, corresponding information for previous period, timeliness, and a true and fair view). This evidence suggests that the user-oriented groups place far greater emphasis on the qualitative characteristics than the company group, perhaps again because they have a more mature and advanced notion

of corporate environmental reporting. Also, this provides very strong evidence to support qualitative characteristics *per se*.

Elements for Corporate Environmental Reporting: As there was 100% three-party consensus on elements, there is no need to discuss the two-party consensus, other than to state re-emphasise that all three groups agree on the proposed elements, providing a concrete foundation for recognition and measurement within the proposed conceptual framework.

Having revisited the theoretical model with consensus findings, the discussion now moves on to summarise the empirical findings and provide tentative answers to the research questions.

10.2.3 Summary and Tentative Answers to the Corporate Environmental Reporting Research Questions

This section has revisited the *a priori* disclosure and reporting components of the model with empirical findings. It can be concluded from the analysis that three-party consensus on certain issues provides a basis which could be used to develop a conceptual framework for corporate environmental reporting. Consideration of the two-party consensus emphasises the need for a more ambitious, user-oriented framework, arising from the disclosure and reporting requirements of the normative and interested party groups, who clearly require more detailed, mature, ambitious environmental information.

The analysis in this section represents the empirical testing stage of the conceptual framework methodology and allows the original environmental reporting research questions (see diagram 4.8) to be revisited, as follows :

How?

The three-party consensus supports qualitative disclosure of environmental information to interested parties.

What?

The three-party consensus supports disclosure of information based on the elements air, land, water, and sound.

When?

The three-party consensus supports disclosure on an annual basis and confirms the *status quo* for the timing of environmental reporting.

Where?

Although the two-party consensus indicates a preference for a separate environmental report, the three-party consensus represents the lowest common denominator, namely the environmental disclosure in the corporate annual report.

Who?

The three-party consensus indicated 11 user groups for corporate environmental reporting. Many of these are common to financial reporting.

Why?

The three-party consensus supports ethical and legal motives for corporate environmental disclosure, as well as a general overriding motive: the demand for environmental reporting.

10.3 A Reconsideration of Research Issues Raised Throughout the Thesis and Limitations of the Research

Having shown how the empirical work has provided answers to the initial research questions, two issues discussed throughout the thesis are now reconsidered in the light of the empirical findings and the revisited model: first, the potential for an explicit conceptual framework for corporate environmental reporting, and; second, problems with establishing an explicit conceptual framework for corporate environmental reporting. This section also considers the limitations of the revisited model, and ends by summarising the limitations of the research.

10.3.1 Potential for an Explicit Conceptual Framework for Corporate Environmental Reporting: Revisited

Section 3.5.2 discussed the potential for developing an explicit conceptual framework in corporate environmental reporting. In this section, the points raised are briefly revisited in the light of the empirical findings. The responses to the questionnaire and the response rates from the three groups suggest that making the implicit corporate environmental reporting framework explicit and linking the explicit framework to the current financial reporting conceptual framework is not a major paradigm shift. The three respondent groups all answered the questionnaires and overall, they had very few problems with the conceptual framework as presented in the questionnaire. Further, the overall responses rates of 46.9%, 44.4%, and 37.7% (for the normative, interested party and company groups respectively) indicates a high degree of interest in the survey and in corporate environmental reporting. The respondents seemed favourable to the debate

in terms of answering both the closed and open questions in the questionnaire. Therefore, the participation of the respondents would seem to suggest that the first stages of developing a conceptual framework are in the making.

Company management responded to the questionnaire suggesting that they wish to participate in the conceptual framework. As suggested in section 3.5.2, such participation may well be to avoid mandatory disclosure. It further suggests that as company management participated in the survey, then such behaviour maintains their license to operate (see section 3.5.2).

All the respondent groups suggested implicitly that there was a potential for a conceptual framework for corporate environmental reporting, as they responded overall in a positive manner. Many of the company respondents also included with their responses literature from their organisations and requested a summary of the results, suggesting that they were interested in the type of guidance which a conceptual framework can provide for environmental reporting.

10.3.2 Problems with Establishing an Explicit Conceptual Framework for Corporate Environmental Reporting: Revisited

Section 3.5.3 considered the problems with establishing an explicit conceptual framework for corporate environmental reporting. This section reconsiders the points raised. Several of the respondents to the final, open question of the questionnaire suggested that the diversity of interested party needs may result in the conceptual framework not being operationalised. Although this is a problem, it does seem to be a

minority view. It is, however, an inevitable limitation of attempting to impose any frame of reference upon a diverse population.

The respondents to the questionnaire seemed to have had little problem with understanding the various propositions. This would seem to suggest that the survey has at least established what needs to be defined, rather than provided definitions, which was beyond the scope of the research.

A further problem put forward in section 3.5.3 was that, if operationalised, a conceptual framework is likely to be based on political and economic interests rather than on any principles. The company group, as seen from chapter nine, was consistently less in favour of disclosing items than the normative and interested party groups required. As a result, economic interests of the companies will take precedence in a voluntary framework. Therefore, a conceptual framework may only represent reality from a company perspective, thereby supporting the "big stick" argument. Further, the reluctance by company management to support the qualitative characteristic of comparability further supports this argument.

10.3.3 Limitations of the Revisited Model

Although the results seem to support the validity of developing a conceptual framework for corporate environmental reporting, based on the *status quo* of the financial reporting conceptual framework, it is nevertheless important that the limitations to the model are addressed. At one level, there are limitations relating to the methodology applied in testing the model. Such limitations to developing, distributing and statistically analysing

the current questionnaire were discussed in detail in chapter five. However, there are other issues which represent potential limitations both to the interpretation of the empirical findings in relation to the model, and to the conclusions and any policy recommendations which may arise from the model revisited.

At another level, the model specification is dependent on the researcher's own normative perspective, as the theoretical development of the conceptual framework model (in chapter four) represents a normative methodological approach. The researcher is creating a reality and then finding evidence to corroborate it. Yet, however hard a researcher attempts to be objective in the "positive" empirical stages of his/her methodology, it is in fact very difficult to truly detach himself/herself from the work. This can be overcome by taking the conceptual framework back to the representative populations, after the empirical findings have been incorporated into the model, in order to discover whether or not the empirically tested model coincides with their reality. Consequently, an important aspect of the current work may be to disseminate the findings, through presentation and publication. This would be worthwhile even if a regulation strategy were implemented. The intention to pursue this route is discussed in section 10.4.3. This will add to the essential dynamic aspects of a successful conceptual framework methodology, which were discussed in chapter two.

A further limitation to the current research is that the development and investigation of the model must be seen to represent "a" conceptual framework and not "the" conceptual framework for corporate environmental reporting. This acknowledges that the foundations are constantly shifting and that alternative frameworks will no doubt appear in the future, superseding the current proposed framework. For this reason, policy

makers are reluctant to make a decision favouring one particular framework in preference to another, as it is unclear which, if any, represents "the" reality.

On a lesser level, throughout the progress of the current thesis, many assumptions have been made and subsequently decisions taken[6] which have led to the development of the empirically tested model, all of which have become part of the ingredients constituting the findings. Any errors are therefore incorporated unintentionally.

Another limitation to the current work which must be noted, relates to the very essence of verifying theory through empirical testing. The major test of a theoretical model's validity in natural science is that the results (in the form of an experiment) can be repeated, either by using the same methodology or a complementary methodology. However, in the social sciences it is agreed that exact repetition of experiments is much more difficult (Darnell and Evans, 1990, page 4) :

> "..social scientists rarely, if ever, are in a position to repeat any experiment; we typically take the data as given and, in many applications, are not in a position to isolate the phenomenon under consideration from the general economic environment".

However, this difference between the natural and social sciences is not necessarily a real one. Darnell and Evans (1990) discuss why this is the case, concluding that (page 5) :

> "...the "distinction" between the natural and the social scientist regarding their respective abilities to repeat experiments is one of degree, and not one of substance".

Therefore, although there are limitations to verifying a theory through empirical investigation, even when repeated, these are limitations which are universally applicable to all research whether in natural or social science. The emphasis is that the current

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[6] For example, it was decided normatively to adopt a decision-useful approach. The assumption was also made that corporate environmental reporting is a desirable practice and that an environmental ethos is developing in society.

work cannot represent a finished, complete investigation, but is rather a living, evolving piece of research.

A theme running through the interpretation of the empirical findings in chapter nine concerns the validity of establishing a consensus from the combination of both positive-oriented and normative-oriented responses. To address this limitation, it has been assumed that the company group's practice actually reflects their attitudes to corporate environmental disclosure and reporting, for a number of reasons discussed in chapter nine.

Lastly, it is notable that the *a priori* model presented in chapter four bears a close resemblance to the empirically tested revisited model presented in this chapter. There are several possible reasons for this. First, the original model specification may indeed be an accurate representation of the combined reality of the three respondent groups. Second, the original model may be an accurate explicit representation of the implicit corporate environmental reporting framework. Third, the researcher could have, unintentionally of course, imposed his own reality on the original model and therefore found supporting evidence. This is a limitation to all empirical research, which indicates that perhaps even empirical research is actually normative in nature (see Tinker *et al.*, 1982, for similar thinking). Lastly, the *a priori* model could have been specified at too low a level and therefore have been too easy to verify.

10.3.4 A Summary of the Limitations of the Research

Throughout the thesis, the limitations of the research have been discussed in detail, and attempts have been made to evaluate their potential effects on the current work and its conclusions. Here, these limitations are briefly summarised.

The first important discussion of limitations in section 3.5.3 relates to the problems of establishing a conceptual framework for corporate environmental reporting, and covers issues such as: the difficulties of defining terms; the problems arising from a diversity of user types and needs, and; the potential for a conceptual framework being based on political and economic interest rather than on principles. These limitations are revisited in section 10.5 in the light of the empirical findings, with the general indication that they have been overcome to a certain extent in the current work.

Second, there was an extensive discussion of the limitations of the empirical research methodology in section 5.7. This considered: the problems of combining normative and positive approaches; the problems of combining different realities and attempting to obtain a consensus from these, and; the limitations to sample selection and data analysis. Overall, the discussion concluded that combining normative and positive approaches should not pose a problem for the current work: empirically testing theory is an accepted way to proceed, and; the problems of combining the responses to normative-oriented and positive-oriented questions (for the company *versus* the other two groups) has been allowed for throughout the analysis. Also, combining different realities appears to be a strength rather than a weakness of the thesis. Lastly, the extensive testing of the sub-

samples within the three major groups indicated that each major group was homogeneous, with only small and relatively insignificant differences in attitude.

It may be perceived that a limitation to this work is that the conceptual framework for financial reporting is used as a basis for comparison. This may be seen as too narrow a base to start from. However, Van de Sande (1995) describes the financial reporting conceptual frameworks as "valid" (i.e. that it is part of the *status quo*), and this seems as good a point from which to start an investigation as any other.

Lastly, section 10.2.3 discussed a wide range of potential limitations to the theoretical model and to the empirical testing of the theoretical model. Overall, these limitations seem to apply to any piece of theoretical or empirical research in any discipline.

All the limitations discussed throughout the work represent inevitable and unavoidable limitations to research which have to be accepted and accommodated, when the findings and their implications are discussed. Despite all these inevitable limitations, the thesis still has theoretical and practical significance, as considered in section 10.4.3.

10.4 Summarising the Research Findings

For the sake of completeness, this section: draws together the main findings of the research; discusses commonalities and differences between conceptual frameworks in corporate financial reporting and the explicit corporate environmental reporting conceptual framework developed in the thesis; discusses the theoretical and practical

significance of the thesis, including policy recommendations arising from the research, and; appraises the achievement of the thesis objective.

10.4.1 A Summary of the Most Salient Findings of the Research

There are some significant areas of three-party consensus, without which an explicit conceptual framework for corporate environmental reporting cannot be developed empirically, if consensus between all relevant groups is used as a criterion. Any evidence of consensus will form the building blocks, or starting points, for a conceptual framework in corporate environmental reporting. For example, there is **three-party consensus** on :

- several items of environmental information, disclosed on a qualitative basis, implying that the companies are disclosing some qualitative information in the frequency required, by the other two groups;
- the main users of corporate environmental disclosure;
- the possible qualitative characteristics of financial reporting which may be applicable to environmental reporting;
- the possible elements of a conceptual framework for corporate environmental reporting;
- accountants on their own being an inappropriate, professional body for the verification of corporate environmental disclosure[7];
- the motives for corporate environmental disclosure;

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[7] The problem of professional capture (Power, 1991) has been addressed in the survey and the respondents do not appear to be in favour of accountants being involved in the verification process for corporate environmental reporting, indicating that this may not be as much of a problem in the area as perceived by some.

- the suggested reasons for the inadequacy of corporate environmental disclosure.
- company head office as the most appropriate place to obtain environmental disclosure;
- employees as the most appropriate body for reporting on environmental incidents;
- the suggestion that "environmental disclosure that has been analysed would be more useful for accountability and decision making purposes than raw data".

There is also some evidence, although not from consensus, rather from observing similar average responses, to support :

- the annual report as the appropriate combination of time period and communication of environmental information;
- companies absorbing the full cost of environmental disclosure.

There is also strong evidence of **two-party consensus**, which generates the following comments :

- In many cases there is two-party consensus and no three-party consensus. These have been interpreted as gaps between what the normative and interested party groups require and what the companies are providing (or want to provide).
- It seems that the normative and interested party groups not only require a greater quantity of environmental disclosure, but they also require more "ambitious" and "mature" reporting in the environmental arena, rather than the seemingly "immature" and "unambitious" reporting currently provided by companies. This finding validates research by the United Nations (UNEP, 1996b) and further clarifies the notion that

"more environmental reporting is not necessarily more useful environmental reporting", as quality, not quantity, is what is actually required.

- Therefore, any evidence of three-party consensus may be considered to represent the lowest common denominator for corporate environmental reporting.
- There is two-party positive consensus on the usefulness of corporate environmental disclosure.
- There is two-party positive consensus that disclosure should be in a financial, quantitative, and qualitative form, providing strong evidence in favour of other forms of disclosure than purely financial, for environmental information.

Lastly, in relation to the company respondents, the findings indicate that :

- they consider that their companies will have to disclose more environmental information in the future. This view is also held by company respondents who have so far been reluctant to report any environmental information on a voluntary basis.

10.4.2 Commonalities and Differences between Financial Reporting Conceptual Frameworks and an Explicit Corporate Environmental Reporting Conceptual Framework Developed in the Thesis

Throughout the empirical work of the thesis, evidence of commonalities and differences between the extant financial reporting conceptual frameworks and that proposed and investigated for corporate environmental reporting is highlighted. The evidence for these commonalities and differences need not be repeated here but are summarised and discussed further, as follows :

Commonalities

- Both financial and environmental reporting seem to share a number of users.
- Some of the qualitative characteristics of financial information also seem to be applicable to environmental information.
- The concepts of recognition and measurements seems as valid in corporate environmental reporting as in financial reporting.
- Accounting information is provided free to users in the annual report and the evidence suggests that this should be the same for environmental reporting.
- All three groups seemed to favour the annual report as a vehicle for environmental disclosure.
- The evidence suggests that environmental information should be available at company head office, as for financial information.

Differences

- There are five suggested user groups in the survey on which there is no consensus on any level of importance. It may therefore be hypothesised that there are two major groups of users of corporate environmental information: the primary group, where all three respondent groups agree on their importance as users, and a secondary group of users for which there is no agreement between the three groups. All the users in the primary group are those found in financial reporting conceptual frameworks. The secondary grouping would seem to represent specialist environmental users.
- The major qualitative characteristic not agreed on is comparability, even though all the groups suggest it is important but the company respondents less so. This may

be explained in one of two ways. Firstly, it may suggest that the "big stick" is being used in this area, as it is to the company's advantage in a non-ethical sense to try and avoid this. Therefore, this suggests that the recommended regulation with education strategies should be pursued. Secondly, it may instead suggest that comparability is difficult to achieve between industries, therefore implying that the true and fair view override is being invoked. There is empirical evidence to support this. This suggests that the dissemination with education strategies might be useful.[8] However, this does not facilitate comparability within the same industry, implying that the regulation with education strategies still seem the most appropriate.

- In relation to recognition and measurement, the elements for corporate financial reporting are of course different from those for corporate environmental reporting.
- Verification of financial information takes place through accounting auditors. However, this group was not seen as appropriate for verification of corporate environmental information, thus representing a difference between the two frameworks. However, verification was deemed necessary by the interested party and normative groups.
- There is also a strong rejection that environmental disclosure should be regulated in the same way as financial disclosure.
- A fundamental difference between financial and environmental reporting is that the evidence suggests that environmental disclosure would be more useful if it has been analysed and made available in the annual report or annual environmental report.

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[8] The evidence from the open questions seems to suggest that the respondents from all three groups consider that what is required is a basic conceptual framework for corporate environmental reporting with separate strands for more mature disclosure for more environmentally-sensitive industries such as chemicals and mining.

As seen from this discussion and from the empirical findings, there is strong support for the notion that a conceptual framework can be developed for corporate environmental reporting, which complements the financial reporting conceptual framework. This adds evidence to the concept of comprehensive accountability, as depicted in diagrams 10.3 and 10.4. The empirical findings provide evidence to suggest that corporate environmental disclosure is useful to the financial community. Similarly, the findings imply that those parties interested in environmental information, also have use for financial information. These user groups have also expressed a need for quantitative and qualitative disclosure, which implies that there is a need not only for environmental information that is economic decision useful but also for information which is accountability decision useful. This is similar to the approach adopted by the Advisory Committee on Business and the Environment (ACBE, 1996a and 1996b) and the European Federation of Financial Analysts (EFFAS, 1994).

10.4.3 A Discussion of the Theoretical and Practical Significance of the Thesis

In relation to the theoretical and practical significance of the thesis, several points may be raised. First, the thesis contributes to the current state of corporate environmental reporting at a theoretical, academic level, as it provides an empirically tested conceptual framework, which has not to date been achieved in either financial or environmental reporting. The thesis moves from a normative development of a theoretical model, which explores the implicit/explicit corporate environmental reporting relationship, to an extensive piece of empirical research which tests this theoretical model.

A further contribution made by the thesis, at a theoretical level, is the original use of three carefully developed groups which are surveyed in order to investigate empirically the theoretical model. The development and canvassing of a normative group is a further innovative aspect of the current research. Prior empirical research in corporate reporting has tended to focus on the views of two groups: the producers and users of corporate information. The inclusion of a normative group as a separate group of individuals and organisations gives a third dimension to the research, hitherto unresearched. In attempting, and apparently succeeding to combine these three different realities, and obtain a level of consensus from this combination, the thesis has contributed in a novel way to the existing literature in the area.

The thesis *per se* also represents an example of the conceptual framework methodology in practice. As discussed in chapter two, such an application of the conceptual framework methodology can act as a guide to future researchers in any discipline. Clearly, the current research provides a pivot for further academic research in the area.

In addition to the theoretical significance of the work, the thesis has substantial practical significance and practical implications. First, the questionnaire allowed ranking of many important items, such as qualitative characteristics, motives for corporate disclosure, and users, providing a benchmark from which an assessment can be made regarding these items for future research or future policy.

Second, the investigation of "a" conceptual framework for corporate financial reporting may, as proposed in the objective of the thesis, lead a way forward for the future of corporate environmental reporting. As discussed earlier the empirical evidence from the

research seems to indicate that there is a demand for a structured framework for reporting environmentally from the normative, interested party and company groups. It seems reasonable to suggest tentatively that company management may welcome an explicit framework, such as the one investigated and developed in the thesis, as this would aid them in satisfying the demand for more corporate environmental information. This demand currently appears to be greater than the supply of corporate environmental information, given the strong statistical evidence of a gap between what users require and what is being produced. This leads on to a discussion of how this gap may be bridged.

Policy Recommendations: To summarise the discussion throughout chapter nine, three policy recommendations have been proffered which aim to narrow the disclosure, reporting and attitude gaps. The first, a regulation strategy is proposed which would involve the mandatory disclosure of environmental information. This would require legislation. Alternatively, a dissemination strategy is proposed which would involve disseminating research findings such as those from this thesis in the hope that company management would be encouraged to disclose the required information voluntarily. Lastly, an education strategy is proposed as an accompaniment to either of the other two strategies. This would involve educating company management, opinion formers, professional, trade and industry bodies in environmental issues. The suggestion of a forum for debate is also made.

The need to pursue an education strategy, whether dissemination within a voluntary framework or regulation are chosen, is evident from the suggestion that companies should be disclosing more ambitious, mature information. The possibility that company

management would in fact welcome such explicit guidance may be one reason for supporting a dissemination with education rather than a regulation with education strategy. However, the evidence also suggests that companies hold the "bigger stick" in the current voluntary framework and that therefore the regulation with education strategy is the most effective way to improve environmental reporting.

Overall, the researcher takes the view, based on the evidence, that the voluntary system for corporate environmental disclosure has failed and that the regulation with education strategies are the best way forward. In summary, the thesis seems to have a significance both at a theoretical and practical level.

10.4.4 An Appraisal of the Achievement of the Objective of the Thesis

To conclude the thesis it is necessary to consider the extent to which the thesis objective has been achieved. The objective of this thesis, stated in chapter one, was to develop a way forward for voluntary corporate environmental reporting in Britain, given the absence of any new legislation requiring mandatory corporate environmental disclosure, with the principal aims of beginning the process of making the implicit reporting framework explicit, investigating user needs, and identifying the level of consensus between all parties. The thesis seems to have achieved its objective in the following ways.

A conceptual framework for corporate environmental reporting has been investigated, and developed as a theoretical model, and then, revisited using the consensus of the three respondent groups. This has produced one means of transforming the implicit

conceptual framework for environmental reporting, which exists in "reality", into an explicit conceptual framework for environmental reporting, both developed theoretically and tested empirically throughout the thesis. It is important to emphasise that the Advisory Committee on Business and the Environment (ACBE, 1996a) make suggestions as to the nature of the current implicit environmental reporting framework. They consider that environmental reporting should be conducted in parallel to financial reporting. Therefore, the findings of this thesis coincide with their suggestions and, in fact, validate the notion of an explicit conceptual framework for environmental reporting, which mirrors the conceptual framework for financial reporting (see section 10.4.2 above). The findings also support the views of the United Nations (UNEP, 1994 and 1996a), on environmental disclosure *per se*. In addition, the research appears to have succeeded in establishing empirically the commonalities between financial and environmental reporting, using the objective of accountability and economic decision usefulness. This, in turn, has provided some evidence for the notion of a comprehensive accountability, introduced in chapter four. Overall, it can be concluded that the thesis has attained the established objective.

10.5 A Discussion of Future Research

The current thesis seems to have made a considerable contribution to existing literature and empirical work in the area of environmental reporting, both on a practical and theoretical level. However, much work remains.

On a theoretical level, it is unclear whether a conceptual framework in accounting represents a theory, or whether a theory should be used in developing a conceptual

framework. Fawcett (1997) is of the opinion that a conceptual framework does not represent a theory and that a theory should be developed before a conceptual framework methodology is used. Davies *et al.* (1994) are of the opinion that a conceptual framework is a theory *per se*. The distinction is not that essential for this thesis but is a very interesting focus for debate and further theoretical research. It would be useful to survey the attitudes of a number of accounting academics and professionals to ascertain their views, using a questionnaire or interview methodology.

Another area for further research could be to develop measurement techniques, using the new elements for the proposed conceptual framework for environmental reporting established in this thesis. The starting point could be to investigate the measurement techniques presently used by different companies, comparing them to find similarities and differences. These could then be forwarded to interested parties for their views. A case study approach with interviews, followed by a questionnaire, would be appropriate here.

As discussed in the previous chapter, an important piece of further research which stems naturally from the current work involves disseminating the findings of the thesis to the populations surveyed. The aim of this would be to test whether the artificial reality created by the empirically tested conceptual framework in the thesis coincides with the actual reality as perceived by the three groups.

This process of in effect re-testing the conceptual framework is also an essential aspect of making a static conceptual framework dynamic, which therefore requires further

research. One possible route would be to test the consensus against representatives of the three sample groups used in the current research.

As a final suggestion, the possibility of developing the accountability and economic decision usefulness approach to facilitate the concept of accountability as envisaged by Gray *et al.* (1996a), presents an interesting challenge. On a theoretical basis, it would be interesting to investigate whether or not a decision usefulness approach, as adopted in the thesis, is a major part of accountability. Can a company or its management be made accountable without decision useful information? This could be investigated on both a theoretical and empirical level.

10.6 Concluding Remarks

In this chapter, a model, developed in chapter four, has been revisited using areas of consensus arising from the empirical work in the thesis. The disclosure model presented an accountability decision useful approach with the support of the empirical results. The reporting component, built on the disclosure component, adopted an accountability decision useful approach to developing a conceptual framework in corporate environmental reporting. The empirical conceptual framework methodology applied in this thesis has allowed commonalities and differences between financial and environmental reporting to be discovered. The revisited model demonstrates areas of commonality between environmental and financial reporting, supporting the notion of comprehensive accountability. However, there are limitations to any piece of empirical work and this is no exception. Such potential limitations are discussed fully throughout the thesis. However, despite all the limitations under consideration, the researcher feels

that the empirical findings and the empirically tested model do have meaningful implications both on a theoretical and practical level, as discussed above. The empirical work has addressed several of the problems with establishing a conceptual framework and has found mixed results. This work represents the first tentative steps in investigating a conceptual framework for corporate environmental reporting.

Another important implication from the empirical findings is the striking difference between the disclosure and reporting practices of the company group, and the views of the normative and interested party groups. It is clear from the analysis that there is a large gap between what information the interested parties and the normative group require, and the information which is actually disclosed by the company group. This supports findings by the United Nations (UNEP, 1996b) for example, indicating that stakeholders require more "mature" and ambitious reporting, whereas companies are only offering "immature", less ambitious reporting. This may imply that company management is unwilling to offer more ambitious reporting. One strong implication from this finding is that the implementation of regulation with education strategies for environmental disclosure may be necessary. This seems to be the surest way of narrowing the gap between what environmental information is required and what is produced in practice. The alternative policy recommendations proposed in the thesis, namely the dissemination with education strategies, assume that company management is willing to provide more ambitious disclosure. However, company management has had ample opportunity in recent years to report environmentally and generally this has not happened, suggesting that they may be unwilling to provide the required information without regulation. To conclude, the current research advocates a regulation strategy

accompanied by a strategy of education, as the voluntary corporate environmental reporting framework has so far failed its users, in the opinion of the researcher.

Overall, the thesis has made a contribution both at a theoretical and practical level to the area of corporate environmental reporting. The work has achieved its objective, has made policy recommendations, and has raised issues for future research in the area.

> *"Environmentalism is no longer the preserve of a small minority, regarded as far-sighted or cranky; it has become a major political issue, firmly established on the political agenda at national and international level".*
>
> Owens and Owens (1991, page 5).

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Appendix: A

Definitions of Qualitative Characteristics and Elements For Financial Reporting

Definitions of Qualitative Characteristics

Understandability has been described as follows (ASSC, 1975, page 28):

> "Understandability does not necessarily mean simplicity, or that information must be presented in elementary terms, for that may not be consistent with proper description of complex economic activities. It does mean that judgement needs to be applied in holding the balance between the need to ensure that all material matters are disclosed and the need to avoid confusing users by the provision of too much detail. Understandability calls for the provision, in the clearest possible form, of all the information which the reasonably instructed reader can make use of and the parallel presentation of the main features for the use of the less sophisticated".

Relevance has be given the following description (ASSC, 1975, page 28) :

> "Relevance is the characteristic which embodies the fundamental notion that corporate reports should seek to satisfy, as far as possible, users' information needs. Whilst this notion is the essence of the objective of corporate reports, it has to be recognised that the users themselves are free to define their own objectives and the information with which they wish to be supplied. Such information needs are unlikely to be static but will evolve".

Predictive value and confirmation of information may be described as follows (ASB, 1991, paragraph 24) :

> "The predictive and confirmatory roles of information are inter-related. For example, information about the current level and structure of asset holdings has value to users when they endeavour to predict the ability of the enterprise to take advantage of opportunities and its ability to react to adverse situations. The same information plays a confirmatory role in respect of past predictions about, for example, the way in which the enterprise would be structured or the outcome of planned operations".

Materiality may be described as follows (ASB, 1996, paragraphs 2.6 and 2.7):

> "Materiality is a threshold quality. It provides a cut-off point rather than being a primary qualitative characteristic that information must have if it is to be useful, and it needs to be considered before the other qualities of that information. If any information is not material, it does not need to be considered further.
>
> Information is material if it could influence users' decisions taken on the basis of the financial statements. If that information is misstated or if certain information is omitted the materiality of the misstatement of omission depends on the size and nature of the item in question judged in the particular circumstances of the case".

Reliability has been described in the following way (ASSC, 1975, page 29) :

> "The information presented should be reliable in that users should be able to assess what degree of confidence may be reposed in it. The credibility of the information contained in corporate reports is enhanced if it is independently verified, although in certain circumstances, it may be useful for an entity to supply information which is not verifiable in this way".

Faithful Representation has been defined as follows (IASC, 1989, page 4) :

> "To be reliable, information must represent faithfully the transactions and other events it either purports to represent or could reasonably be expected to represent. Thus, for example, a balance sheet should represent faithfully the transactions and other events that result in assets, liabilities and equity of the enterprise at the reporting date which meet the recognition criteria".

Valid description and freedom from error have been described in the following way (ASB, 1991, paragraph 28) :

> "Faithful representation encompasses two distinct components of information: on the hand, valid description with freedom from error and, on the other, the selection of which aspects of an item to represent. Valid description with freedom from error is an essential part of the reliability of information and this is the most important part of faithful representation. The choice of aspect affects the relevance of the information".

Substance Over Form is described in the following way (IASC, 1989, page 4) :

> "If information is to represent faithfully the transactions and other events that it purports to represent, it is necessary that they are accounted for and presented in accordance with their substance and economic reality and not merely their legal form. The substance of transactions or other events is not always consistent with that which is apparent from their legal or contrived form. For example, an enterprise may dispose of an asset to another party in such a way that the documentation purports to pass legal ownership to that party; nevertheless, agreements may exist that ensure that the enterprise continues to enjoy the future economic benefits embodied in the asset. In such circumstances, the reporting of a sale would not represent faithfully the transaction entered into (if indeed there was a transaction)".

Neutrality has been attributed the following definition (IASC, 1989, page 4) :

> "To be reliable, the information contained in financial statements must be neutral, that is, free from bias. Financial statements if, by the selection or presentation of information, they influence the making of a decision or judgement in order to achieve a predetermined result of outcome".

Prudence is defined as follows (IASC, 1989, page 4) :

> "Prudence is the inclusion of a degree of caution in the exercise of the judgements needed in making the estimates required under conditions of uncertainty, such that assets or income are not overstated and liabilities or expenses are not understated. However, the exercise of prudence does not allow, for example, the creation of hidden reserves or excess provisions, the deliberate underestimate of assets or income, or the deliberate overstatement of liabilities or expenses, because the financial statements would not be neutral and, therefore, not have the quality of reliability".

Completeness has been attributed the following description (ASSC, 1975, page 29):

> "The information presented should be complete in that it provides users, as far as possible, with a rounded picture of the economic activities of the reporting entity. Since this is likely to be complex, it follows that corporate reports as we define them are likely to be complex rather than simple documents".

Comparability is described as follows (ASSC, 1975, page 29) :

> "The information should be expressed in terms which enable the user to compare the entities' results over time and with other similar entities. Consistency in the application of accounting concepts and policies is one means of achieving comparability, particularly for the comparison of the entity against itself. But consistency is a desirable characteristic only to the extent that it contributes to comparability and understandability. It is recognised that an unthinkingly mechanical application of generally accepted standards does not inevitably produce a fair presentation".

Consistency is described as follows (ASB, 1991, paragraph 34) :

> "Users must be able to compare the financial statements of different enterprises to evaluate their relative financial position, performance and financial adaptability. Hence, the measurement and display of the financial effects of like transactions and other events must be carried out in a consistent way throughout an enterprise and over time for that enterprise and in a consistent way for different enterprises".

Corresponding information for previous period is described as follows (ASB, 1991, paragraph 37) :

> "Because users wish to compare the financial position, performance and changes in financial position of an enterprise over time, it is important that the financial statements show corresponding information for the preceding periods".

Timeliness has been described in the following way (ASSC, 1975, page 29) :

> "The information presented should be timely in the sense that the date of its publication should be reasonably soon after the end of the period to which it relates so that it contributes meaningful new information about the entity and in the sense that corporate reports are more useful if they contain up to date measures of value".

A further all-encompassing concept, although not regarded as a qualitative characteristic by the conceptual framework projects considered, is a true and fair view. It is an important concept, as useful information must represent a true and fair view. This concept was introduced into British company law in 1948 (CA, 1948, s.149(1)) and has been subsequently adopted by the European Union's Fourth Directive (art. 2(2)) which requires that :

> "The annual accounts should give a true and fair view of the company's assets, liabilities, financial position and profit or loss".

In order for a company's accounts to present a true and fair view, they must comply with accounting standards (see forward to accounting standards, 1993, paragraph 16). For a fuller discussion of a true and fair view, see Mayson *et al.* (1995).

Definitions of Elements For Financial Reporting

Assets have been defined as (ASB, 1996, paragraph 3.5):

> "Assets are rights or other access to future economic benefits controlled by an entity as a result of past transactions or events".

Liabilities have been defined as (ASB, 1996, paragraph 3.21) :

> "Liabilities are obligations of an entity to transfer economic benefit as a result of past transactions or events".

Ownership interest has been attributed the following definition (ASB, 1996, paragraph 3.39) :

> "Ownership interest is the residual amount found by deducting all of the entity's liabilities from all of the entity's assets".

Gains and losses have been attributed the following definition (ASB, 1996, paragraph 3.47):

> "Financial statements draw a distinction between changes in ownership interest resulting from transactions with owners and other changes in ownership interest. The latter changes are referred to as gains or losses which are defined as follows:
>
> Gains are increases in ownership interest, other than those relating to contributions from owners.
>
> Losses are decreases in ownership interest, other than those relating to distributions to owners".

Contributions from owners and distribution to owners have been defined as follows (ASB, 1996, paragraph 3.49) :

> "Contributions from owners are increases in ownership interest resulting from investments made by owners in their capacity as owners.
>
> Distributions to owners are decreases in ownership interest resulting from transfers made to owners in their capacity as owners".

Appendix: B

Suggested Useful Information
For Corporate Environmental Disclosure

Table 1: Useful Corporate Environmental Information
Company Environmental Reporting (1994): United Nations Environment Programme

Reporting Ingredients	Core Reporting Elements	Incorporated Components
1. Management Policies and Systems		
1.1 Top management statement		✓
1.2 Environmental policy	✓	✓
1.3 Environmental management system	✓	✓
1.4 Management responsibilities	✓	✓
1.5 Environmental auditing		✓
1.6 Goals and targets		✓
1.7 Legal compliance	✓	✓
1.8 Research and Development		✓
1.9 Programme initiatives		
1.10 Awards		
1.11 Verification		✓
1.12 Reporting policy		✓
1.13 Corporate context		✓
2. Input/Output Inventory		
Inputs		
2.1 Material use	✓	✓
2.2 Energy consumption	✓	✓
2.3 Water consumption	✓	✓
Process Management		
2.4 Health and safety	✓	✓
2.5 Environmental impact assessments and risk management		✓
2.6 Accident and emergency response	✓	✓
2.7 Land contamination and remediation		✓
2.8 Habitats		✓
Outputs		
2.9 Wastes	✓	✓
2.10 Air emissions	✓	✓
2.11 Water effluents	✓	✓
2.12 Noise and odour		✓
2.13 Transportation		✓

Table 1 continued

Reporting Ingredients	Core Reporting Elements	Incorporated Components
Products		
2.14 Life-cycle design		✓
2.15 Packaging		✓
2.16 Product impacts	✓	✓
2.17 Product stewardship		
3. Finance		
3.1 Environmental Spending	✓	✓
3.2 Environmental liabilities	✓	✓
3.3 Economic instruments		
3.4 Environmental cost accounting		
3.5 Benefits and opportunities		✓
3.6 Charitable contributions		✓
4. Stakeholder Relations		
4.1 Employees	✓	
4.2 Legislators and regulators	✓	
4.3 Local communities	✓	
4.4 Investors	✓	
4.5 Suppliers		
4.6 Customers and consumers		
4.7 Industry associations	✓	
4.8 Environment groups		
4.9 Science and education		
4.10 Media		✓
5. Sustainable Development		
5.1 Global environmental issues		
5.2 Global development issues		
5.3 Technology co-operation		
5.4 Global operating standards		

Table 2: Useful Corporate Environmental Information
Engaging Stakeholders 1. The Benchmark Survey. The second international progress report on company environmental reporting (1996): United Nations Environment Programme

Revised Reporting Ingredients	Incorporated Components
1. Management Policies and Systems	
1.1 Top management statement	✓
1.2 Environmental policy	✓
1.3 Environmental management system	✓
1.4 Responsibilities and Accountability	✓
1.5 Environmental auditing	✓
1.6 Goals and targets	✓
1.7 Legal compliance	✓
1.8 Research and Development	✓
1.9 Awards	
1.10 Verification	
1.11 Reporting policy	✓
1.12 Corporate context	✓
2. Input/Output Inventory	✓
Inputs	
2.1 Material use	
2.2 Energy consumption	✓
2.3 Water consumption	✓
Process Management	✓
2.4 Eco-Efficiency / Clean Technology	
2.5 Health and safety	✓
2.6 Accident and emergency response	✓
2.7 Risk management and environmental impact assessments	✓
2.8 Land contamination and remediation	✓
2.9 Stewardship of Habitats and eco-systems	✓
Outputs	
2.10 Waste minimisation and management	✓
2.11 Air emissions	✓
2.12 Water effluents	✓
2.13 Noise and odour	✓
2.14 Transportation	✓

Table 2 continued

Revised Reporting Ingredients	Incorporated Components
Products	
2.15 Life-cycle design and assessment	✓
2.16 Environmental impacts	✓
2.17 Product stewardship	✓
2.18 Packaging	✓
3. Finance	
3.1 Environmental Spending	✓
3.2 Environmental liabilities	✓
3.3 Market solutions, instruments and opportunities	
3.4 Environmental cost accounting	
3.5 Charitable contributions	✓
4. Stakeholder Relations	✓
4.1 Employees	
4.2 Legislators and regulators	
4.3 Local communities	
4.4 Investors	
4.5 Suppliers and contractors	
4.6 Customers and consumers	
4.7 Industry associations	
4.8 Environment groups	
4.9 Science and education	
4.10 Media	
5. Sustainable Development	✓
5.1 Technology co-operation	
5.2 Global environment	
5.3 Global development issues	
5.4 Global operating standards	
5.5 Visions, scenarios, future trends	

Table 3: Useful Corporate Environmental Information Framework for Corporate Reporting on Sustainable Development (1991): International Institute for Sustainable Development

A Sustainable Development Report: Suggested Content	Incorporated Components
1. A description of the business entities/ activities and period covered by the report.	✓
2. The enterprise's sustainable development policy.	
3. The sustainable development objectives established to guide the implementation of the policy.	
4. A comparison of actual performance against each of the sustainable development objectives using financial, operational, scientific and other relevant statistics and data.	
5. A description of the sources and processes used by management in generating the information on performance used for monitoring progress and preparing this report (including purpose of and results from environmental audits).	✓
6. A statement as to whether the enterprise has, in all material respects, complied with relevant laws and regulations.	✓
7. An overall assessment of the achievement of the sustainable development policy, including a description of management's planned course of action in areas where the sustainable development objectives were not achieved.	
8. Identification of who takes responsibility for this report (e.g. the Board of Directors, the CEO, the VP Environment etc.).	✓

Table 4: Useful Corporate Environmental Information
Environmental Reports: A Manager's Guide (1994): The World Industry Council for the Environment

Possible Contents	Incorporated Components
1. Qualitative	
1.1 Forward by a senior responsible person	✓
1.2 Profile of enterprise	✓
1.3 Environmental policy	✓
1.4 Environmental targets and objectives	✓
1.5 Views on environmental issues	
1.6 Community relations	
2. Management	
2.1 Environmental management systems	✓
2.2 Management of environmental risks	✓
2.3 Office and site practices	✓
3. Quantitative	
3.1 Environmental indicators and targets	✓
3.2 Use of energy and natural resources	✓
3.3 Compliance with regulations and permits	✓
3.4 Financial indicators	✓
4. Products	
4.1 Products, processes and services	✓
4.2 Giving more information	

Table 5: Useful Corporate Environmental Information
The ICC Business Charter for Sustainable Development: Principles for Environmental Management (1991): International Chamber of Commerce

ICC Principles	Incorporated Components
1. Corporate priority	
2. Integrated management	✓
3. Process of improvement	
4. Employee education	
5. Prior assessment	
6. Products and services	✓
7. Customer advice	
8. Facilities and operations	
9. Research	✓
10. Precautionary approach	
11. Contractors and suppliers	✓
12. Emergency preparedness	✓
13. Transfer of technology	
14. Contributing to the common effort	
15. Openness to concern	
16. Compliance and reporting	✓

Table 6: Useful Corporate Environmental Information
PERI Guidelines (1994): The Public Environmental Reporting Initiative

Reporting Components	Incorporated Components
1. Organisational profile	✓
2. Environmental policy	✓
3. Environmental management	✓
4. Environmental releases	✓
5. Resource conservation	✓
6. Environmental risk management	✓
7. Environmental compliance	✓
8. Product stewardship	✓
9. Employee recognition	
10. Stakeholder involvement	

Table 7: Useful Corporate Environmental Information
CEFIC Guidelines on Environmental Reporting for the European Chemical Industry (1993): European Chemical Industry Council

Proposed Common Structure for Corporate Environmental Reporting	Incorporated Components
1. Forward	
1.1 Chairman's address	✓
1.2 Brief description of the company	✓
1.3 Company environment policy	✓
1.4 Environmental R & D	✓
1.5 Methodology for reporting (e.g. absolute data or aggregated index etc.)	✓
2. Production Facilities	
2.1 Recent technical achievements, new units, developments, etc.	✓
2.2 New technologies developed or used; impact on the environment and on resource conservation	✓
3. Products	
3.1 New products developed (with lower environmental impact)	✓
3.2 Product stewardship concept	✓
3.3 Products (and techniques) developed and marketed for environmental protection	✓
4. Plans, Objectives, Goals	
4.1 Major plans and programmes	✓
4.2 Qualitative objectives (medium/long-term)	✓
4.3 Quantitative objectives (medium/long-term)	
5. Environmental Management Systems	
5.1 Company organisation for environmental management	✓
5.2 Human resources, training and education	✓
5.3 Environmental protection techniques (highlights only)	✓
5.4 Monitoring systems, data measured/calculated/estimated	✓
5.5 Environmental impact assessment/risk assessment	✓
5.6 Audits	✓
5.7 Emergency preparedness	
6. Data (with comparisons with data on previous years)	
6.1 Emissions data	✓
6.2 Selected details, e.g. soil/ground water protection, noise reduction etc.	✓
6.3 Energy generation and consumption	✓
6.4 Health and safety data	✓
6.5 Complaints, prosecutions (optional)	✓
6.6 Spending on environmental protection	

Table 7 continued

Proposed Common Structure for Corporate Environmental Reporting	Incorporated Components
7. Communications	
7.1 Community relations	
7.2 Dialogue with external audiences	✓
7.3 Open days	
7.4 Public advisory panels	
8. General Comments	
9. Contact People	

Table 8: Useful Corporate Environmental Information Reporting to your Local Community (1995): Chemical Industries Association

Contents of a Site Report	Incorporated Components
1. Qualitative Information	
1.1 Forward by a senior responsible person	✓
1.2 Site/company profile	✓
1.3 Environmental policy	✓
1.4 Environmental targets and objectives	✓
1.5 Environmental management	✓
1.6 Views on environmental issues	
1.7 Communications/community relations	✓
2. Quantitative Data	
2.1 Environmental indicators and targets	✓
2.2 Cost savings	✓
2.3 Use of energy and natural resources	✓
2.4 Compliance with regulations and permits	✓
3. Products	
3.1 Products, processes and services	✓
4. Further Information	
4.1 Providing further information/ obtaining feedback	

Table 9: Useful Corporate Environmental Information
Ceres Principles (1992): Coalition for Environmentally Responsible Economies

Part A:

Ceres Principles	Incorporated Components
1. Protection of the biosphere	✓
2. Sustainable use of natural resources	
3. Reduction and disposal of wastes	✓
4. Energy conservation	✓
5. Risk reduction	✓
6. Safe products and services	✓
7. Environmental restoration	✓
8. Informing the public	✓
9. Management commitment	
10. Audits and reports	✓

Part B:

Sections of a Ceres Report†	Incorporated Components
1. Company profile	✓
2. Environmental policies,organisation and management	✓
3. Materials policy	✓
4. Releases to the environment	✓
5. Hazardous waste management	
6. Use of energy	✓
7. Workplace hazards	
8. Emergency response and public disclosure	✓
9. Product stewardship	✓
10. Supplier relations	
11. Environmental audits	✓
12. Compliance	✓

† The Ceres Report comprises the answering of a total 91 questions from the 12 sections.

Table 10: Useful Corporate Environmental Information
Environmental Reporting and the Financial Sector: Draft Guidelines on Good Practice (1996): Advisory Committee on Business and the Environment

Proposed Guidelines for Good Practice in Environmental Reporting by Businesses	Incorporated Components
1. Annual Accounts	
1.1 Use of existing accounting standards and practices	✓
1.2 Further issues need investigating such as:	
1.2.1 an agreed definition of those cost items which are "environmental";	
1.2.2 the need to distinguish between capital and revenue costs;	
1.2.3 the need for environmental accounting policies to be made clear in the report and accounts;	
1.2.4 the need for environmental provisions arising from earlier years to be disclosed separately from current business performance and not shown as prior year adjustments;	
1.2.5 the need for impairment of assets to be recognised by reducing the asset value, not introducing a liability (provided that the information is available);	
1.2.6 the need for all material environmental risks to be properly provisioned or disclosed, and distinguished from other risks;	
1.2.7 the recognition and agreement that the setting off of assets (as regards e.g. insurance recoveries) and liabilities should not be permitted except where a legal right exists;	
1.2.8 the obligation to disclose the nature of identifiable environmental risks even if valuation is difficult or impossible.	
2. The Operating and Financial Review	
Inclusions	
2.1 Environmental risks facing the business	✓
2.2 Environmental costs incurred	✓
2.3 Initiatives taken	✓
2.4 Statement on existence (or not) of formal environmental management system	✓
2.5 Extent to which management action has led to changes in company's environmental performance	
2.6 Compliance with/infringements of environmental requirements	✓
2.7 Policy for managing environmental risks	✓

Table 10 continued

Proposed Guidelines for Good Practice in Environmental Reporting by Businesses	Incorporated Components
3. The Environmental Report	
3.1 Characteristics	
3.1.1 Should be available to a wider audience than simply the business and financial sectors	✓
3.1.2 Should be a separate report or special section of the annual report providing more detail than the Operating and Financial Review	
3.1.2 There should be a symbiotic relationship between the Environmental Report and the Operating and Financial Review and the Annual Accounts. This may be in the form of cross references linking the three. The report should express the extent to which the company's environmental management system is an integral part of its overall corporate plan and business operations	
3.2 Inclusions	
3.2.1 Physical and technical data	✓
3.2.2 Social information such as health and safety	✓
3.2.3 Statement of environmental policies and objectives	✓
3.2.4 Consistency of preparation to allow comparability across time and businesses	✓
3.3 Details of the system and controls used to monitor compliance with the company's own policy and with regulatory requirements	
3.4 Quantification of financial information such as: fines and prosecutions, and; comparisons with peer group businesses using trade association performance measures	✓
3.4 Directors' responsibility statement	
4. Independent Review	✓
A Coordinated Approach	
4.1 Independent verification should be encouraged but not made mandatory. The pace of its development should be determined by user demand and availability of suitably-qualified verifiers	
4.2 A standard format for verification statements might be established	
4.3 The Auditing Practices Board in consultation with the new UK Accreditation Service could be charged with developing standard formats	
4.4 That there should be established formal liaison between professional bodies in the financial sector such as the Stock Exchange and the UK's Environment Agencies	

The intention of the Advisory Committee on Business and the Environment is that the three main mechanisms for disclosure discussed above should be adequately cross referenced. The suggestion seems to be that a detailed hierarchy of information exists beginning with the Annual Accounts and financial disclosure to the Operating and Financial Review with financial, quantitative and qualitative disclosure and finally ending with the Environmental Report which is to be the most detailed document which will again include disclosure on all three types, but in greater detail.

Table 11: Useful Corporate Environmental Information
Macve and Carey (1992): Business, Accountancy And The Environment: A Policy And Research Agenda (The Institute of Chartered Accountants in England and Wales)

Possibilities for Disclosure	Incorporated Components
1. Statement of Environmental Policy	✓
2. Reporting Environmental Performance	✓
2.1 Non-Quantitative Information	
2.1.1 specific narrative	✓
2.1.2 compliance with standards	✓
2.1.3 environmental audit	✓
2.2 Quantitative Technical Performance Data	✓
2.3 Financial Information	
2.3.1 environmental expenditure	✓
2.3.2 provisions for future expenditure and contingent liabilities	✓
2.3.3 integrated environmental accounts	✓

Table 12: Useful Corporate Environmental Information
UK Environmental Reporting Survey 1996: KPMG UK Environmental Unit

Survey Headings	Incorporated Components
1. Reporting in annual reports	✓
2. Environmental reports	✓
3. Environmental policy statements	✓
4. Future plans/targets	✓
5. Quantitative and site-specific data	✓
6. Reporting good and bad performance	✓
7. External/internal verification	✓
8. Disclosure of environmental costs/liabilities	✓

Table 13: Useful Corporate Environmental Information
Environmental Reporting and Disclosures: The Financial Analysts View (1994): The European Federation of Financial Analysts' Societies

Catalogue of Requirements	Incorporated Components
1. Accounting Requirements	
1.1 Profit and Loss Account	
1.1.1 Energy costs	✓
1.1.2 Waste costs (disposal/treatment)	✓
1.1.3 Costs for environmental prevention, protection and safety	✓
1.1.4 Costs for: remediation; abatement; clean-up	✓
1.1.5 Depreciation	✓
1.2 Balance Sheet	
1.2.1 Provision for environmental liabilities	✓
1.2.2 Provision for fully complying with laws and regulations	✓
1.2.3 Contingent liabilities (off- balance sheet)	
1.3 Cash Flow Statement	
1.3.1 Environmental expenditure (indicate for what purpose)	✓
1.4 Comments on the scope and method of consolidation	
1.5 Clear statements on how the different items are treated (expensed or capitalised) and on a consistent application	
2. Written Statements	
2.1 Does the company have an environmental policy and targets?	✓
2.2 Content of the environmental policy	✓
2.3 Does the company publish an annual environmental report?	✓
2.4 Does the company have a system to collect environmental data on a local and group level?	✓
2.5 Does the company discuss the main environmental problems? What does the company regard as its main environmental challenges?	✓
2.6 Does the company comply world-wide with existing laws and regulations and if not, what are the costs and expenditures to reach full compliance?	✓
2.7 Has the company signed the ICC charter for sustainable development?	✓
2.8 Does the company have special insurances for environmental risks?	
2.9 Are legal actions pending?	✓
2.10 Do environmental audits exist?	✓

Table 13 continued

Catalogue of Requirements	Incorporated Components
3. Classification of Environmental Problems	
3.1 Energy linked global warming contributions	✓
3.1.1 3.1.1 Fossil fuels (gas, oil, coal)	
3.1.2 3.1.2 Waste	
3.1.3 3.1.3 District heat	
3.1.4 3.1.4 Electricity	
3.2 Ozone depleting contribution	✓
3.2.1 CFCs used	
3.2.2 Halons used	
3.3 Waste	
3.3.1 Total hazardous (toxic) waste	✓
3.3.2 Total hazardous (non-toxic) waste	✓
3.3.3 Total waste to incinerators	✓
3.3.4 Total waste to dump	✓
3.4 Possible additions to framework	
3.4.1 Acidification	
3.4.2 Neutrification	
3.4.3 Photochemical ozone creation	

Table 14: Useful Corporate Environmental Information Reporting on Environmental Performance (1994): The Canadian Institute of Chartered Accountants

An Environmental Reporting Framework	Compulsory Components	Incorporated Components
1. Organisation's profile	✓	✓
2. Environmental policy, objectives and targets	✓	✓
3. Environmental management analysis	✓	✓
4. Environmental performance analysis	✓	✓
5. Glossary		
6. Third party opinions		✓

Table 15: Useful Corporate Environmental Information
Corporate Social Reporting (1987): Gray, Owen and Maunders

Required Characteristics of a Corporate Social Report	Incorporated Components
1. The report must be accompanied by a full statement of the intended general objectives of the report. The statement should also allow the reader to assess: (a) what selectivity of data has been made and why; (b) why that particular presentation has been chosen.	✓
2. The objective of a social report should be to inform society about the extent to which actions for which an organisation is held responsible have been fulfilled.	✓
3. The report, in its choice of data, emphasis, method of presentation, and availability, should provide information directly relevant to its objectives and in particular to the objectives it holds for the interest groups to whom it is directed.	✓
4. The report should present direct raw (unmanipulated) data that can be understood by a non-expert undertaking a careful and intelligent reading of the report. The report should be audited.	✓

Table 16: Useful Corporate Environmental Information
Accounting and Accountability (1996): Gray, Owen and Adams

Content of a Corporate Social and Environmental Report	Incorporated Components
1. Narrative	
1.1 Assertion	✓
1.2 Factual	✓
1.3 Intentions	✓
2. Quantitative	
2.1 Actual	✓
2.2 Targets	✓
2.3 Comparative	✓
3. Financial	
3.1 Expenditure	✓
3.2 Commitment	✓
3.3 Requirement	✓
3.4 Evaluation	✓
3.5 Impact	✓
3.6 Liability	✓

Table 17: Useful Corporate Environmental Information
Accounting For The Environment (1993): Gray, Bebbington and Walters

Suggested practical approach to financial environmental accounting and reporting	Incorporated Components
1. The United Nations Recommendations	
1.1 Disclosure of accounting policies	✓
1.2 Cost of current environmental expenditure	✓
1.3 Environmental expenditure chaptalised in the period	✓
1.4 Liabilities, provisions and reserves	✓
1.5 Contingent liabilities	✓
1.6 Tax effects	
1.7 Grants received	
2. Develop Disclosure with the Auditor in Mind	
2.1 Reconsider provisions for remediation and abandonment	✓
2.2 Provisions for inventory, accelerated depreciation, new investments, etc.	✓
2.3 Actual and provided-for legal costs	✓
3. Make the Environment more Visible	
3.1 Disclose energy (including transport) costs	✓
3.2 Disclose waste handling and disposal costs	✓
3.3 Disclose legal compliance costs	✓
3.4 Consider packaging costs	✓
3.5 Consider the disclosure of environmental fines	✓

Table 18: Useful Corporate Environmental Information
Accounting For The Environment (1993): Gray, Bebbington and Walters

Steps in environmental accounting and reporting	Incorporated Components
1. Policy	
1.1 Statement of environmental policy	✓
1.2 Steps taken to monitor compliance with policy statement	✓
1.3 Statement of compliance with policy statement	✓
2. Plans and Structure	
2.1 Structural and responsibility changes undertaken in the organisation to develop environmental sensitivity	
2.2 Plans for environmental activities - introduction of environmental impact assessment; environmental audit; projects; investment appraisal criteria; etc.	
2.3 Talks with local green groups; plans to work with community etc.	
3. Financial	
3.1 Amounts spent on environmental protection - capital/revenue; reaction to/anticipation of legislation; voluntary/mandated; damage limitation/proactive initiatives	✓
3.2 Anticipated pattern of future environmental spend - to meet legislation, as voluntary; capital/revenue	✓
3.3 Assessment of actual and contingent liabilities; impact on financial audit; impact on financial results	✓
4. Activity	
4.1 Compliance with standards, audits, procedures for, results of and issues of compliance with standards report	✓
4.2 Environmental audit and issue of summary/results	✓
4.3 Physical units analysis on materials, waste and energy	✓
4.4 Analysis of dealings with regulatory bodies/,fines/complaints	
4.5 Awards/commendations received	
4.6 Analysis of investment/operating activity influenced by environmental considerations	
4.7 Analysis/description of voluntary projects undertaken	
5. Sustainable Management	
5.1 Identification of critical, natural, sustainable/substitutional, and man-made capital under the influence of (not necessarily owned by) the organisation	
5.2 Statement of transfers between categories	
5.3 Estimates of sustainable activities	
5.4 Estimates of sustainable cost which would have to be incurred to return the organisation (and thus future generations) to same position as they were in before the activity	
5.5 Assessment and statement of input/output resource-flows and changes therein	✓

An alternative or complementary reporting form might recognise the different dimensions of environmental impact - such as resources used; emissions; waste; energy; products; transport; packaging; health and safety; toxic hazards; biosphere; built environment; visual environment; community interaction.

Table 19: Useful Corporate Environmental Information
Consulting the Stakeholder: A Profile of IBM UK's Environmental Performance (1995)

IBM's Environmental Performance Indicators	Incorporated Components
1. Environmental Management	
1.1 Strategy	✓
1.2 Company commitment	
1.3 Integration with other management structures	
1.4 Preliminary review	
1.5 Policy	✓
1.6 Organisation and resources	
1.7 Priorisation of objectives and targets	
1.8 Management programmes and manuals	
1.9 Control, records and control	
1.10 Audits/reviews of the EMS	✓
1.11 Incorporation of environmental data	✓
2. IT in Pursuit of Sustainable Development	
2.1 IBM's approach to sustainable development	
2.2 General IT products and consumer testing	
2.3 Specific IT applications	
2.4 Communication	✓
3. IBM's Product Stewardship	
3.1 Policies, assessments and impacts	
3.2 Methodologies development	
3.3 Product design and development	
3.4 Packaging	✓
3.5 Product marketing	
4. Environmental Aspects of IBM's Customer Relations	
4.1 Strategy	✓
4.2 Product	✓
4.3 Use of IT	
5. IBM and Suppliers' Environmental Performance	
5.1 General	
5.2 Policy	
5.3 Policy implementation	
5.4 IBM/supplier partnerships	
5.5 Review	
5.6 Communication	
6. Energy	
6.1 General and energy management	✓
6.2 Targets and policy	✓
6.3 Buildings	
6.4 Manufacturing	
6.5 Training, education and culture	✓
6.6 Inputs and suppliers	✓
6.7 Transport	

Table 19 continued

IBM's Environmental Performance Indicators	Incorporated Components
7. IBM's Global Environmental Responsibilities	
7.1 Ozone depletion	
7.2 Global warming	
7.3 Development and education	
7.4 Sustainable development	
7.5 Ethical issues	
8. Transport	
8.1 Product transport	✓
8.2 Product design and packaging impacts on transport	
8.3 Commercial and manufacturing siting and environmental impact	
8.4 Suppliers	
8.5 Employee transport	
9. IBM's Commercial Activities	
9.1 General and compliance	
9.2 Inputs	✓
9.3 Waste and recycling	✓
9.4 Emissions	✓
9.5 IBM's commercial computer centres	
9.6 Buildings, local landscape and habitats	
9.7 Transport	✓
10. IBM's Manufacturing Activities	
10.1 General and compliance	✓
10.2 Inputs	✓
10.3 Waste and recycling	✓
10.4 Emissions	✓
10.5 Buildings	
10.6 Transport	✓
11. IBM's Influence on Environmental Attitudes	✓
11.1 Policy	
11.2 Organisation	
11.3 IT sector initiatives	
11.4 Sustainable development	
11.5 General business initiatives	
11.6 Environmental education	

Appendix: C

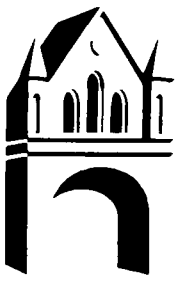
Covering Letters
and
Questionnaires

The Original Covering Letter and the Covering Letter for the First Reminder for both the Pilot and Final Questionnaires

Centre for Interdisciplinary Research in Accounting & Finance

Department of Accounting & Finance

Roscoe Building, The University of Manchester, Oxford Road, Manchester, M13 9PL.
Telephone 061 275 4010/11 Fax 061 275 4023



THE UNIVERSITY
of MANCHESTER

2 January 1995

John Smith esq.,
Sample Organisation
1 Road,
Area
AB12 3CD

Dear Mr. Smith,

I am currently researching the thesis for a Ph.D.in the Department of Accounting and Finance at the University of Manchester. The subject of the research is "A Conceptual Framework for Company Environmental Reporting". A substantial proportion of the thesis involves creating, distributing and analysing a questionnaire. The aim of the questionnaire is to establish the environmental information that interested parties require and that which companies provide for them. This will enable the development of consistency in reporting practice as well as provide an insight into the nature and scope of environmental reporting.

The sample for this questionnaire will be sent to three hundred organisations, divided equally into three categories. They will include environmental consultants, users of company environmental information, and the companies in the FT100 share index. However, as a preparatory exercise it is important to send a pilot questionnaire to only ten members of each category. This will allow me to refine the questions before the final draft is circulated to the full sample. As you can imagine, this avoids the inclusion of irrelevant material and gives me an idea of your feelings towards the issue.

Consequently, it would be of great value both to my research and to research within our University if you would complete the pilot questionnaire enclosed. I have chosen to send the pilot questionnaire as well as the final draft to your organisation and hope that this will not be too much of an imposition on your time. As time is very limited, I would be most obliged if you could complete the pilot and return it to me by 18 January 1995, at the latest. I have made every effort to address the questionnaires to the relevant representatives in each organisation. If by any chance there has been some mistake, I would be grateful if you would pass this letter and the enclosed questionnaire to the right person. Thanking you in advance for your attention.

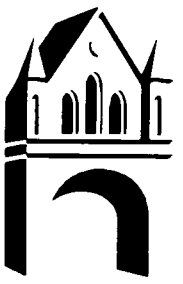
Yours faithfully,

Aris Solomon B.A., B.A. (Hons.), M.A.

Centre for Interdisciplinary Research in Accounting & Finance

Department of Accounting & Finance

Roscoe Building, The University of Manchester, Oxford Road, Manchester, M13 9PL.
Telephone 061 275 4010/11 Fax 061 275 4023



THE UNIVERSITY
of MANCHESTER

23 June 1995

John Smith esq.,
Sample Organisation
1 Road,
Area
AB12 3CD

Dear Mr. Smith,

I am currently researching for a Ph.D. in the Department of Accounting and Finance at the University of Manchester. The subject of the research is **"A Conceptual Framework for Corporate Environmental Reporting"**. A substantial proportion of the thesis involves creating, distributing and analysing a questionnaire. The aim of the questionnaire is to establish the environmental information that companies provide for interested parties. It also seeks to establish exactly what environmental information is required by interested parties. This will enable the development of consistency in reporting practice and will provide an insight into the nature and scope of environmental reporting.

The sample for this questionnaire will be sent to seven hundred and fifty organisations, divided into three broad categories. These include environmental advisors, users of company environmental information, and companies selected at random from the Times 1000.

It would be of great value both to my research and to the research in our University if you would complete the enclosed questionnaire. As time is very limited, I would be most obliged if you could complete and return it to me by 6 July 1995, at the latest. I have made every effort to address the questionnaires to the relevant representatives in each organisation. If by any chance there has been some mistake, I would be grateful if you would pass this letter and the enclosed questionnaire to the right person.

Thank you for your attention.

Yours faithfully,

Aris Solomon B.A., B.A. (Hons.), M.A.

An Example of the Pilot Questionnaire for the Company Group

Company Questionnaire
A Conceptual Framework for Environmental Reporting

University of Manchester
Centre for Interdisciplinary Research in Accounting and Finance
Department of Accounting and Finance

This questionnaire should take between fifteen and twenty minutes to complete. Please would you give us an indication of the exact time that it took you to complete it. This will help us to improve the content if necessary for future use.

Started questionnaire at:	
Completed questionnaire at:	

This questionnaire is anonymous.

However, if you would like to receive an analysis of the results, please complete sections one and two below. If you do not wish to give your identity, but would still like to receive the results, then please contact me at the University of Manchester.

It would greatly assist our administration, by saving on postage and paper for reminders, if you would complete section one below.

Section one:

Name of respondent:	
Name of organisation:	
Address of organisation: If different from my letter	

Section two:	**Please tick**
I would like you to send me an analysis of the results.	

1. What company environmental information do you produce for interested parties? Please indicate how each is disclosed.

Please tick as many categories as you consider relevant:

	Financial	Quantitative	Qualitative
1. Environmental statement by company chairman.			
2. Environmental policy statement.			
3. Environmental strategy statement.			
4. Environmental management system.			
5. Management responsibilities for the environment.			
6. Environmental audit.			
7. Independently verified environmental disclosure.			
8. Legal environmental compliance.			
9. Research & Development and the environment.			
10. Company environmental initiatives.			
11. Context of company environmental disclosure.			
12. Environmental reporting policy.			

13. None of the above. [ ]

14. Others?
    Please supply further details:

2. What information on environmental outputs do you provide for interested parties? Please indicate how it is disclosed in each case.

Please tick as many categories as you consider relevant:

	Financial	Quantitative	Qualitative
1. Generation and disposal of wastes.			
2. Air emissions.			
3. Water effluents.			
4. Noise and odour.			
5. Soil contamination and remediation.			
6. Local environmental impact.			
7. Environmental incidents.			
8. Transportation.			

9. None of the above. [ ]

10.Others?
Please supply further details:

_____

_____

_____

3. Who do you consider should pay for company environmental disclosure?

Please tick as many categories as you consider relevant:

1. The company should absorb the full cost. [ ]

2. The interested party should pay. [ ]

3. There should be an allocation of cost between the company and interested party. [ ]

4. The Government via a system of company tax credits. [ ]

5. None of the above. [ ]

6. Others?
Please supply further details:

_____

_____

_____

_____

_____

4. What financial environmental information do you provide for interested parties? Please indicate how it is disclosed in each case.

Please tick as many categories as you consider relevant:

	Financial	Quantitative	Qualitative
1. Environmental spending.			
2. Environmental liabilities.			
3. Environmental cost accounting.			
4. Environmental benefits and opportunities.			
5. Government environmental taxes and charges.			
6. Donations to environmental charities.			

7. None of the above. [ ]

8. Others?
Please supply further details:

_____

_____

_____

_____

_____

5. What information on company environmental inputs do you disclose to interested parties? Please indicate how it is disclosed in each case.

Please tick as many categories as you consider relevant:

	Financial	Quantitative	Qualitative
1. Raw materials used.			
2. Energy consumption.			
3. Water consumption.			

4. None of the above. [ ]

5. Others?
Please supply further details:

_____

_____

_____

_____

_____

6. What environmental management information do you disclose to interested parties? Please indicate how it is disclosed in each case.

Please tick as many categories as you consider relevant:

	Financial	Quantitative	Qualitative
1. Health and safety.			
2. Environmental impact assessment.			
3. Risk assessment.			
4. Hazard assessment.			
5. Habitat management.			
6. Accident and emergency response.			
7. Land contamination and remediation.			
8. Environmental integration of business.			
9. Environmental management system.			
10. Setting measurable environmental targets and objectives.			
11. Compliance with legislation.			
12. Compliance with industry standards.			

13. None of the above. [ ]

14. Others?
    Please supply further details:

7. For whom is company environmental information disclosed?

Please tick as many categories as you consider relevant:

1. Employees. [ ]
2. Legislators and regulators. [ ]
3. Local communities. [ ]
4. Shareholders. [ ]
5. Potential investors. [ ]
6. Ethical investors. [ ]
7. Customers. [ ]
8. Suppliers. [ ]
9. Industry associations. [ ]
10. Environmental groups. [ ]
11. Media. [ ]
12. Central government. [ ]
13. Quangos [ ]
13. Local government. [ ]
14. Insurance companies. [ ]
15. Banks. [ ]
16. Stock market. [ ]
17. None of the above. [ ]
18. Others?
    Please supply further details:

_____

_____

_____

_____

_____

8. What information concerning environmental indicators do you provide for interested parties? Please indicate how it should be disclosed in each case.

Please tick as many categories as you consider relevant:

	Financial	Quantitative	Qualitative
1. Raw material used.			
2. Oil equivalent used (oil, gas, coal, nuclear).			
3. Carbon dioxide emitted as a result of energy use.			
4. Waste produced.			
5. Vegetation damage.			
6. Environmental incidents.			
7. Recycled waste.			
8. Recycled material used in packaging.			
9. Oxygen demanded by production process.			
10. Vehicle miles in relation to product.			
11. Specific pollutant concentrates:			
- Nitrogen dioxide.			
- Sulphur dioxide.			
- Carbon monoxide.			
- Titanium dioxide.			
- Hydrocarbons.			
- Mercury.			
- Copper.			
- Lead.			
- Chromium.			
- Arsenic.			
- CFCs.			
12. Investment in environmental products.			
13. Evaluation of total resources used.			
14. Environmental performance within industry sector.			

15. None of the above. [ ]

16. Others?
Please supply further details:

9. How has your company environmental disclosure developed over the last:

1. Year?

2. Two years?

3. Five years?

4. Ten years?

10. How do you see your company environmental disclosure developing in the next:

1. Year?

2. Two years?

3. Five years?

4. Ten years?

11. What company environmental information on a segmental basis do you provide for interested parties? Please indicate how it is disclosed in each case.

Please tick as many categories as you consider relevant:

	Financial	Quantitative	Qualitative
1. Business sector: extraction, manufacturing, service.			
2. Industry sector: oil, paper & pulp, retail, etc.			
3. Country: Britain, France, Japan, etc.			
4. Geographic Region: Europe, North America, etc.			
5. Sales in relation to environmental "costs".			
6. Profit in relation to environmental "costs".			

7. None of the above. [ ]

8.Others?
Please supply further details:

_____

_____

_____

12. Where do you consider detailed company environmental information should be made available for interested parties?

Please tick as many categories as you consider relevant:

1. From company head office. [ ]

2. From company head office and at site / branch level. [ ]

3. Only at site/branch level. [ ]

4. From a central reference place where all company environmental disclosure can be examined. [ ]

5. None of the above. [ ]

6. Others?
Please supply further details:

_____

_____

_____

_____

13. What environmental information do you provide for interested parties at the time of an environmental incident? Please indicate how it is disclosed in each case.

Please tick as many categories as you consider relevant:

	Financial	Quantitative	Qualitative
1. Health & safety of population.			
2. Habitats.			
3. Wildlife.			
4. Land contamination.			
5. Water contamination.			
6. Air contamination.			
7. Noise & odour.			
8. Specific pollutants.			
9. "Cost" to company.			
10. "Cost" to local community.			
11. Swift environmental impact assessment.			
12. Company response.			

13. None of the above. [ ]

14. Others?
Please supply further details:

14. Below are the qualitative characteristics of financial reporting information. Which of these do you consider to be of use for environmental reporting?

Please tick as many of the categories as you consider relevant:

1. Understandability. [ ]
2. Relevance. [ ]
3. Predictive value. [ ]
4. Confirmation of information. [ ]
5. Materiality. [ ]
6. Reliability. [ ]
7. Faithful Representation. [ ]
8. Valid description. [ ]
9. Freedom from error. [ ]
10. Substance Over Form. [ ]
11. Neutrality. [ ]
12. Prudence. [ ]
13. Completeness. [ ]
14. Comparability. [ ]
15. Consistency. [ ]
16. Corresponding information for the previous period. [ ]
17. Timeliness. [ ]
18. Benefit > cost. [ ]
19. Going concern. [ ]
20. A true and fair view. [ ]
21. None of the above. [ ]
22. Others?
    Please supply further details:

_____

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15. Which of the following indicators, based on a measurable quantity do you disclose? Please indicate how they are disclosed in each case.

Please tick as many categories as you consider relevant:

	Financial	Quantitative	Qualitative
1. Raw material use.			
2. Energy consumption.			
3. Air emissions.			
4. Water effluents.			
5. Soil contamination.			
6. Generation and disposal of waste.			
7. Environmental incidents.			

8. None of the above. [ ]

9. Others?
Please supply further details:

16. Why, in your opinion, do so few companies report environmentally?

Please tick as many categories as you consider relevant:

1. Reluctance to report sensitive information. [ ]
2. Provide information to competitors. [ ]
3. Provide incriminating information to regulators. [ ]
4. Possibly damage companies' reputation. [ ]
5. Lack of awareness of environmental issues. [ ]
6. Inability to gather the information. [ ]
7. Cost of disclosure. [ ]
8. Users may not understand the information. [ ]
9. None of the above. [ ]
10. Others?
    Please supply further details:

_____

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17. What product information do you provide for interested parties? Please indicate how it is disclosed in each case.

Please tick as many categories as you consider relevant:

	Financial	Quantitative	Qualitative
1. Life cycle design.			
2. Packaging.			
3. Product impacts.			
4. Product stewardship.			

5. None of the above. [ ]

6. Others?
   Please supply further details:

_____

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_____

_____

18. What company environmental risk information do you disclose to interested parties? Please indicate how it is disclosed in each case.

Please tick as many categories as you consider relevant:

	Financial	Quantitative	Qualitative
1. The risk of non-compliance with legislation.			
2. The risk of site contamination.			
3. The risk of environmental influences on companies' markets.			
4. Environmental factors that could reduce the value of a company's assets.			
5. Environmental information that may reduce financial performance.			
6. Financial information that could impose actual liability on a company's lender.			
7. Environmental information that may cause financial failure.			

8. None of the above. [ ]

9. Others?
Please supply further details:

19. As an indication of company environmental performance," benchmarking " may be used. Which of the following do you disclose? Please indicate how each of them is disclosed.

Please tick as many categories as you consider relevant:

	Financial	Quantitative	Qualitative
1. Legal compliance.			
2. Industry average.			
3. Industry best practice.			
4. Sustainable development.			

5. None of the above. [ ]

6. Others?
Please supply further details:

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20. Which of the following are the elements of company environmental reporting, in your opinion? Please indicate how each should be disclosed.

Please tick as many categories as you consider relevant:

	Financial	Quantitative	Qualitative
1. Air.			
2. Land.			
3. Water.			
4. Sound.			

5. None of the above. [ ]

6. Others?
Please supply further details:

_____

_____

_____

_____

_____

21. Why does your organisation disclose environmental information to interested parties?

Please tick as many categories as you consider relevant:

1. To market the company. [ ]
2. To market company products. [ ]
3. To comply with regulations. [ ]
4. As a form of political lobbying. [ ]
5. As a result of company ethics. [ ]
6. As an acceptance of a change in society's ethics. [ ]
7. To improve the company's corporate image. [ ]
8. To acknowledge social responsibility. [ ]
9. To attract investment. [ ]
10. To meet the demand for environmental information. [ ]
11. None of the above. [ ]
12. Others?

Please supply further details:

22. In the event of an environmental incident, the fastest disclosure is via the media.
Who should immediately assess and/or report the impact?

Please tick as many categories as you consider relevant:

	Assess Impact	Report Impact
1. Company employees.		
2. Independent consultants - paid by Company.		
3. Local Authority.		
4. Local Authority and Independent consultants - paid by Company.		
5. Central Government.		
6. The Department of the Environment.		
7. The Department of Trade and Industry.		
8. The Department of Agriculture.		
9. Quango.		

10. None of the above. [ ]

11. Others?

Please supply further details:

23. What accounting information does your company use in its environmental disclosure?

Please tick as many categories as you consider relevant:

1. Environmental contingent liabilities. [ ]
2. Cost of environmental compliance. [ ]
3. Cost of keeping ahead of the regulator. [ ]
4. Cost of non-compliance with environmental legislation. [ ]
5. Cost of implementation of pollution control measures. [ ]
6. Cost savings from energy conservation. [ ]
7. Cost savings from recycling. [ ]
8. Reduced "environmental" insurance premium. [ ]
9. Increased "environmental" insurance premium. [ ]
10. Compliance cost of industry association directives. [ ]
11. Compliance costs of BS7750 and/or E.M.A.S. [ ]
12. Cost of introducing environmental management system. [ ]
13. Cost of conducting environmental audits. [ ]
14. None of the above. [ ]
15. Others?
    Please supply further details:

_____

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_____

_____

24. How do you choose which environmental information is disclosed to interested parties?

Please tick as many categories as you consider relevant:

1. By seeking the help of an environmental consulting firm. [ ]
2. By seeking the help of a management consultant firm. [ ]
3. By seeking the help of your financial accounting auditing firm. [ ]
4. By examining competitors' disclosure. [ ]
5. By the use of internal company resources. [ ]
6. By consulting industry associations. [ ]
7. From discussion with environmental pressure groups. [ ]
8. As a result of your affiliation to an environmental charter group. [ ]
9. By consulting British Standards Institute regulations that is, BS7750. [ ]
10. By consultation with your Local Authority. [ ]
11. None of the above. [ ]
12. Others?

Please supply further details:

25. Who should verify the environmental information disclosed to interested parties?

Please tick as many categories as you consider relevant:

1. Accountants within their existing framework. [ ]
2. Scientists within their existing framework. [ ]
3. Environmental consultants within their existing framework. [ ]
4. Accountants, scientists and environmental consultants within a new joint framework. [ ]
5. A new professional body should be established. [ ]
6. A new professional body with a scientific bias (that includes accountants). [ ]
7. A new professional body with an accounting bias (that includes scientists). [ ]
8. A new professional body that includes a broad mixture of disciplines. [ ]
9. Internal management team. [ ]
10. Verification is not necessary. [ ]
11. None of the above. [ ]
12. Others?

Please supply further details:

26. Which of the following environmental disclosure presentations has your company adopted? Please also indicate your preferred frequency of disclosure.

Please tick as many categories as you consider relevant:

1. Environmental information within the published Company annual report. [ ]

2. Environmental information within the published Company annual report plus the half yearly Interim statement. [ ]

3. Stand alone published environmental company report:
   - every 3 months [ ]
   - every 6 months [ ]
   - annually. [ ]

4. Annual stand alone published Company environmental report plus either:
   - an Interim environmental statement every 3 months [ ]
   - an Interim environmental statement every 6 months. [ ]

5. Specially published Company environmental report:
   - annually [ ]
   - every two years. [ ]

6. Press release at company`s discretion: [ ]

7. None of the above. [ ]

8. Others?
   Please supply further details:

_____

_____

_____

_____

_____

27. If any issues relating to company environmental information disclosure have been omitted from this questionnaire, please use the space below to indicate what they are.

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE

An Example of the Final Questionnaire for the Normative Sub-group (Advisors), the Interested Party Sub-group (Financial Users) and the Company Group

A Conceptual Framework for Environmental Reporting

Centre for Interdisciplinary Research in Accounting & Finance
Department of Accounting & Finance

THE UNIVERSITY of MANCHESTER

Advisor Questionnaire

This questionnaire should take about thirty minutes to complete. Please would you give us an indication of the exact time that it took you to complete it. This will help us to improve the content for future use.

Started questionnaire at: _____ **Completed questionnaire at:** _____

This questionnaire is anonymous

However, if you would like to receive an analysis of the results, please complete section one below. If you do not wish to give your identity but would still like to receive the results, then please contact me at the University of Manchester.

It would greatly assist our analysis of this questionnaire and the administration (saving on postage and paper for reminders) if you would complete section one below. This section will be detached on arrival thereby ensuring anonymity.

---------✂----------✂----------✂---------

Section one: Respondent Details

Name of respondent: _____

Name of organisation: _____

Address of organisation: _____

(If different from my letter) _____

_____

_____

	Please tick
I would like you to send me an analysis of the results.	[ ]

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2. **Time Period**: This conceptual framework for environmental reporting concentrates on what is practically attainable in the near future.

3. **Interested party**: Any person or organisation who is interested in, or uses, company environmental information.

4. **Company Environmental Disclosure**: Environmental information that is publicly disclosed for interested parties by the parent and / or any subsidiary. This does not include environmental information which is only for internal company use.

5 **Financial Environmental Disclosure**: Financial environmental disclosure refers to any company disclosure which is quantifiable in financial terms, involving a completed market transaction related to the environment. This may include an estimation of financial flows or any benefits associated with such transactions.

6. **Quantitative Environmental Disclosure**: Quantitative environmental disclosure refers to any company disclosure which involves either a physical measurement of an environmental nature or an estimate of such measurements.

7. **Qualitative Environmental Disclosure**: Qualitative environmental disclosure refers to any company disclosure which cannot presently be quantified and measured and is therefore stated in narrative or descriptive terms only.

Section three: Biographic Information

1. **Position in organisation** _____

		Please tick
2. Length of employment with present organisation	Less than 1 year	[ ]
	Between 1 to 3 years	[ ]
	Between 3 to 5 years	[ ]
	Over 5 years	[ ]

Section four: Company Environmental Information

3. What company environmental information do you consider to be of use to interested parties? Please indicate, by circling, the required frequency of the following forms of disclosure, using this scale:-

Never **Sometimes** **Always**
1 2 3

	Financial	Quantitative	Qualitative
1. Environmental statement by company chairman.	1 2 3	1 2 3	1 2 3
2. Environmental policy statement.	1 2 3	1 2 3	1 2 3
3. Environmental strategy statement.	1 2 3	1 2 3	1 2 3
4. Environmental management system.	1 2 3	1 2 3	1 2 3
5. Management responsibilities for the environment.	1 2 3	1 2 3	1 2 3
6. Environmental audit.	1 2 3	1 2 3	1 2 3
7. Independently verified environmental disclosure.	1 2 3	1 2 3	1 2 3
8. Legal environmental compliance.	1 2 3	1 2 3	1 2 3
9. Research & Development and the environment.	1 2 3	1 2 3	1 2 3
10. Company environmental initiatives.	1 2 3	1 2 3	1 2 3
11. Context of company environmental disclosure.	1 2 3	1 2 3	1 2 3
12. Environmental reporting policy.	1 2 3	1 2 3	1 2 3
13. Product life cycle design.	1 2 3	1 2 3	1 2 3
14. Product packaging.	1 2 3	1 2 3	1 2 3
15. Product impacts.	1 2 3	1 2 3	1 2 3

Please tick if relevant:

16. None of the above. [ ]
17. **Others?** _____

4. What information on company environmental inputs do you consider to be of use to interested parties? Please indicate, by circling, the required frequency of the following forms of disclosure, using this scale:-

Never	Sometimes	Always
1	2	3

	Financial	Quantitative	Qualitative
1. Raw materials used.	1 2 3	1 2 3	1 2 3
2. Energy consumption.	1 2 3	1 2 3	1 2 3
3. Water consumption.	1 2 3	1 2 3	1 2 3

Please tick if relevant:

4. None of the above. [ ]
5. **Others?** _____

5. What company environmental risk information do you consider to be of use to interested parties? Please indicate, by circling, the required frequency of the following forms of disclosure, using this scale:-

Never	Sometimes	Always
1	2	3

	Financial	Quantitative	Qualitative
1. The risk of non-compliance with legislation.	1 2 3	1 2 3	1 2 3
2. The risk of site contamination.	1 2 3	1 2 3	1 2 3
3. The risk of environmental influences on companies' markets.	1 2 3	1 2 3	1 2 3
4. Environmental factors that could reduce the value of a company's assets.	1 2 3	1 2 3	1 2 3
5. Environmental information that may reduce financial performance.	1 2 3	1 2 3	1 2 3
6. Financial information that could impose actual liability on a company's lender.	1 2 3	1 2 3	1 2 3
7. Environmental information that may cause financial failure.	1 2 3	1 2 3	1 2 3

Please tick if relevant:

8. None of the above. [ ]
9. **Others?** _____

6. Which of the following indicators, based on a measurable quantity do you consider to be of use to interested parties? Please indicate, by circling, the required frequency of the following forms of disclosure, using this scale:-

Never	Sometimes	Always
1	2	3

	Financial	Quantitative	Qualitative
1. Raw material use.	1 2 3	1 2 3	1 2 3
2. Energy consumption.	1 2 3	1 2 3	1 2 3
3. Air emissions.	1 2 3	1 2 3	1 2 3
4. Water effluents.	1 2 3	1 2 3	1 2 3
5. Soil contamination and remediation.	1 2 3	1 2 3	1 2 3
6. Generation and disposal of waste.	1 2 3	1 2 3	1 2 3
7. Environmental incidents.	1 2 3	1 2 3	1 2 3
8. Vehicle miles in relation to product.	1 2 3	1 2 3	1 2 3
9. Noise and odour.	1 2 3	1 2 3	1 2 3
10. Local environmental impact.	1 2 3	1 2 3	1 2 3

Please tick if relevant:

11. None of the above. [ ]
12. **Others?** _____

7. As an indication of company environmental performance, "benchmarking" may be used. Please indicate, by circling, the required frequency of benchmarking you consider to be of use to interested parties, for the following forms of disclosure, using this scale:-

Never	Sometimes	Always
1	2	3

	Financial	Quantitative	Qualitative
1. Legal compliance.	1 2 3	1 2 3	1 2 3
2. Industry average.	1 2 3	1 2 3	1 2 3
3. Sustainable development.	1 2 3	1 2 3	1 2 3

Please tick if relevant:

5. None of the above. [ ]
6. **Others?** _____

8. What company financial environmental information do you consider to be of use to interested parties? Please indicate, by circling, the required frequency of the following forms of disclosure, using this scale:-

Never	Sometimes	Always
1	2	3

	Financial	Quantitative	Qualitative
1. Environmental spending.	1 2 3	1 2 3	1 2 3
2. Environmental liabilities.	1 2 3	1 2 3	1 2 3
3. Environmental benefits and opportunities.	1 2 3	1 2 3	1 2 3
4. Government environmental taxes and charges.	1 2 3	1 2 3	1 2 3
5. Environmental fines and negotiated settlements.	1 2 3	1 2 3	1 2 3
6. Donations to environmental charities.	1 2 3	1 2 3	1 2 3

Please tick if relevant:

7. None of the above. [ ]

9. **Others?** _____

9. What environmental management information do you consider to be of use to interested parties? Please indicate, by circling, the required frequency of the following forms of disclosure, using this scale:-

Never	Sometimes	Always
1	2	3

	Financial	Quantitative	Qualitative
1. Health and safety.	1 2 3	1 2 3	1 2 3
2. Environmental impact assessment.	1 2 3	1 2 3	1 2 3
3. Risk assessment.	1 2 3	1 2 3	1 2 3
4. Hazard assessment.	1 2 3	1 2 3	1 2 3
5. Accident and emergency response.	1 2 3	1 2 3	1 2 3
6. Land contamination and remediation.	1 2 3	1 2 3	1 2 3
7. Environmental integration of business.	1 2 3	1 2 3	1 2 3
8. Environmental management system.	1 2 3	1 2 3	1 2 3
9. Setting measurable environmental targets and objectives.	1 2 3	1 2 3	1 2 3
10. Compliance with legislation.	1 2 3	1 2 3	1 2 3
11. Compliance with industry standards.	1 2 3	1 2 3	1 2 3

Please tick if relevant:

12. None of the above. [ ]

13. **Others?** _____

Section five: Environmental Reports and Reporting

10. In the event of an environmental incident, involving a company, who should immediately assess and / or report the impact? Please indicate, by circling, your preference from the following:-

	Assess Impact			Report Impact		
	Never	Sometimes	Always	Never	Sometimes	Always
1. Company employees.	1	2	3	1	2	3
2. Independent consultants - paid by Company.	1	2	3	1	2	3
3. Local Authority.	1	2	3	1	2	3
4. Local Authority and Independent consultants - paid by Company.	1	2	3	1	2	3
5. Central Government.	1	2	3	1	2	3
6. The Department of the Environment.	1	2	3	1	2	3
7. The Department of Trade and Industry.	1	2	3	1	2	3
8. The Department of Agriculture.	1	2	3	1	2	3
9. Quango eg. National Rivers Authority.	1	2	3	1	2	3

Please tick if relevant:

10. None of the above. [ ]
11. **Others?** _____

11. Which of the following company environmental disclosure presentations would be useful to interested parties? Please indicate, by circling, your preference from the following:-

	Never	Sometimes	Always
1. Environmental information within the published Company annual report.	1	2	3
2. Environmental information within the published Company annual report plus the half yearly Interim statement.	1	2	3
3. Stand alone published environmental company report:	1	2	3
- every 3 months	1	2	3
- every 6 months	1	2	3
- annually.	1	2	3
4. Annual stand alone published Company environmental report plus either:			
- an Interim environmental statement every 3 months	1	2	3
- an Interim environmental statement every 6 months	1	2	3
5. Specially published Company environmental report at company`s discretion.	1	2	3
6. Press release at company`s discretion.	1	2	3

Please tick if relevant:

7. None of the above. [ ]
8. **Others?** _____

Section six: Attitude Towards Company Environmental Disclosure

12. For whom is company environmental information disclosed? Please indicate, by circling, the importance of the following:-

	Not Important				Very Important
1. Employees.	1	2	3	4	5
2. Legislators and regulators.	1	2	3	4	5
3. Local communities.	1	2	3	4	5
4. Shareholders.	1	2	3	4	5
5. Potential investors.	1	2	3	4	5
6. Ethical investors.	1	2	3	4	5
7. Customers.	1	2	3	4	5
8. Suppliers.	1	2	3	4	5
9. Industry associations.	1	2	3	4	5
10. Environmental groups.	1	2	3	4	5
11. Media.	1	2	3	4	5
12. Central government.	1	2	3	4	5
13. Quangos eg. National Rivers Authority.	1	2	3	4	5
14. Local government.	1	2	3	4	5
15. Insurance companies.	1	2	3	4	5
16. Banks.	1	2	3	4	5
17. Stock market.	1	2	3	4	5

18. **Others?** _____

13. Who do you consider should pay for company environmental disclosure? Please indicate, by circling, to what extent you agree with the following:-

	Strongly Disagree		Neutral		Strongly Agree
1. The company should absorb the full cost.	1	2	3	4	5
2. The interested party should pay.	1	2	3	4	5
3. There should be an allocation of cost between the company and interested party.	1	2	3	4	5
4. The Government via a system of company tax credits.	1	2	3	4	5

5. **Others?** _____

14. The following are some of the possible qualitative characteristics of financial reporting information. Please indicate, by circling, how important you consider they are for environmental reporting:-

	Not Important		Important		Very Important
1. Understandability.	1	2	3	4	5
2. Relevance.	1	2	3	4	5
3. Predictive value.	1	2	3	4	5
4. Confirmation of information.	1	2	3	4	5
5. Materiality.	1	2	3	4	5
6. Reliability.	1	2	3	4	5
7. Faithful Representation.	1	2	3	4	5
8. Valid description.	1	2	3	4	5
9. Freedom from error.	1	2	3	4	5
10. Substance Over Form (Actual environmental effect not legal form).	1	2	3	4	5
11. Neutrality.	1	2	3	4	5
12. Prudence.	1	2	3	4	5
13. Completeness.	1	2	3	4	5
14. Comparability.	1	2	3	4	5
15. Consistency.	1	2	3	4	5
16. Corresponding information for previous period.	1	2	3	4	5
17. Timeliness.	1	2	3	4	5
18. A true and fair view.	1	2	3	4	5
19. **Others?** _____					

15. Which of the following do you consider to be the elements of company environmental reporting? Please indicate, by circling, to what extent you agree with the following:-

	Strongly Disagree		Neutral		Strongly Agree
1. Air.	1	2	3	4	5
2. Land.	1	2	3	4	5
3. Water.	1	2	3	4	5
4. Sound.	1	2	3	4	5
5. **Others?** _____					

16. Who should verify the environmental information disclosed to interested parties? Please indicate, by circling, to what extent you agree with the following:-

	Strongly Disagree		Neutral		Strongly Agree
1. Accountants within their existing framework.	1	2	3	4	5
2. Scientists within their existing framework.	1	2	3	4	5
3. Environmental consultants within their existing framework.	1	2	3	4	5
4. A new professional body that includes accountants, scientists and environmental consultants.	1	2	3	4	5
5. A registered auditor of The Environmental Auditors' Registration Association.	1	2	3	4	5
6. Internal management team.	1	2	3	4	5
7. Verification is not necessary.	1	2	3	4	5
8. **Others?** _____					

17. Why, in your opinion, do companies disclose environmental information to interested parties? Please indicate, by circling, to what extent you agree with the following:-

	Strongly Disagree		Neutral		Strongly Agree
1. To market the company.	1	2	3	4	5
2. To market company products.	1	2	3	4	5
3. To comply with regulations.	1	2	3	4	5
4. As a form of political lobbying.	1	2	3	4	5
5. As a result of company ethics.	1	2	3	4	5
6. As an acceptance of a change in society's ethics.	1	2	3	4	5
7. To improve the company's corporate image.	1	2	3	4	5
8. To acknowledge social responsibility.	1	2	3	4	5
9. To attract investment.	1	2	3	4	5
10. Peer pressure from companies in the same industry.	1	2	3	4	5
11. Pressure from customers / consumers.	1	2	3	4	5
12. To meet the demand for environmental information.	1	2	3	4	5
13. **Others?** _____					

18. Why, in your opinion, do so few companies disclose environmental information? Please indicate, by circling, to what extent you agree with the following:-

	Strongly Disagree		Neutral		Strongly Agree
1. Reluctance to report sensitive information.	1	2	3	4	5
2. To avoid providing information to competitors.	1	2	3	4	5
3. To avoid providing incriminating information to regulators.	1	2	3	4	5
4. Possible damage to companies' reputation.	1	2	3	4	5
5. General lack of awareness of environmental issues	1	2	3	4	5
6. Inability to gather the information.	1	2	3	4	5
7. Cost of disclosure.	1	2	3	4	5
8. Lack of awareness of competitive advantage.	1	2	3	4	5
9. There is no legal obligation for companies to report environmentally.	1	2	3	4	5
10. Companies generally believe they do not have an impact on the environment.	1	2	3	4	5
11. Insufficient response / feedback from stakeholders.	1	2	3	4	5
12. Users may not understand the information.	1	2	3	4	5

13. **Others?** _____

19. Where do you consider detailed company environmental information should be made available for interested parties? Please indicate, by circling, to what extent you agree with the following:-

	Strongly Disagree		Neutral		Strongly Agree
1. From company head office.	1	2	3	4	5
2. From company head office and at site / branch level.	1	2	3	4	5
3. Only at site / branch level.	1	2	3	4	5
4. From a central reference place where all company environmental disclosure can be examined	1	2	3	4	5

5. **Others?** _____

20. Please indicate, by circling, to what extent you agree with the following statements:-

	Strongly Disagree		Neutral		Strongly Agree
1. Environmental disclosure that has been analysed would be more useful for accountability and decision-making purposes than raw data.	1	2	3	4	5
2. Interested parties require company environmental disclosure for accountability and decision-making purposes.	1	2	3	4	5
3. It would be useful for accountability and decision-making purposes if companies disclosed environmental target-setting information with respect to a set classification.	1	2	3	4	5
4. Company environmental disclosure should be regulated in the same way as accounting disclosure.	1	2	3	4	5

21. If any issues relating to company environmental disclosure have been omitted from this questionnaire, please use the space below to indicate what they are.

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE

PAGE

NUMBERING

AS ORIGINAL

A Conceptual Framework for Environmental Reporting

Centre for Interdisciplinary Research in Accounting & Finance
Department of Accounting & Finance

Company Questionnaire

THE UNIVERSITY
of MANCHESTER

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This questionnaire is anonymous

However, if you would like to receive an analysis of the results, please complete section one below. If you do not wish to give your identity but would still like to receive the results, then please contact me at the University of Manchester.

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---------✂----------✂----------✂---------

Section one: Respondent Details

Name of respondent: _____

Name of organisation: _____

Address of organisation: _____

(If different from my letter) _____

_____

_____

	Please tick
I would like you to send me an analysis of the results.	[ ]

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3. **Interested party**: Any person or organisation who is interested in, or uses, company environmental information.

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6. **Quantitative Environmental Disclosure**: Quantitative environmental disclosure refers to any company disclosure which involves either a physical measurement of an environmental nature or an estimate of such measurements.

7. **Qualitative Environmental Disclosure**: Qualitative environmental disclosure refers to any company disclosure which cannot presently be quantified and measured and is therefore stated in narrative or descriptive terms only.

Section three: Biographic Information

1. **Position in organisation** _____

		Please tick
2. Length of employment with present organisation	Less than 1 year	[ ]
	Between 1 to 3 years	[ ]
	Between 3 to 5 years	[ ]
	Over 5 years	[ ]

Section four: Company Environmental Information

3. What environmental information is disclosed by your Company for interested parties? Please indicate, by circling, the frequency of the following forms of disclosure, using this scale:-

Never	Sometimes	Always
1	2	3

	Financial	Quantitative	Qualitative
1. Environmental statement by company chairman.	1 2 3	1 2 3	1 2 3
2. Environmental policy statement.	1 2 3	1 2 3	1 2 3
3. Environmental strategy statement.	1 2 3	1 2 3	1 2 3
4. Environmental management system.	1 2 3	1 2 3	1 2 3
5. Management responsibilities for the environment.	1 2 3	1 2 3	1 2 3
6. Environmental audit.	1 2 3	1 2 3	1 2 3
7. Independently verified environmental disclosure.	1 2 3	1 2 3	1 2 3
8. Legal environmental compliance.	1 2 3	1 2 3	1 2 3
9. Research & Development and the environment.	1 2 3	1 2 3	1 2 3
10. Company environmental initiatives.	1 2 3	1 2 3	1 2 3
11. Context of company environmental disclosure.	1 2 3	1 2 3	1 2 3
12. Environmental reporting policy.	1 2 3	1 2 3	1 2 3
13. Product life cycle design.	1 2 3	1 2 3	1 2 3
14. Product packaging.	1 2 3	1 2 3	1 2 3
15. Product impacts.	1 2 3	1 2 3	1 2 3

Please tick if relevant:

16. None of the above. [ ]

17. **Others?** _____

4. What information on environmental inputs is disclosed by your Company for interested parties? Please indicate, by circling, the frequency of the following forms of disclosure, using this scale:-

Never	Sometimes	Always
1	2	3

	Financial	Quantitative	Qualitative
1. Raw materials used.	1 2 3	1 2 3	1 2 3
2. Energy consumption.	1 2 3	1 2 3	1 2 3
3. Water consumption.	1 2 3	1 2 3	1 2 3

Please tick if relevant:

4. None of the above. [ ]
5. **Others?** _____

5. What company environmental risk information is disclosed by your Company to interested parties? Please indicate, by circling, the frequency of the following forms of disclosure, using this scale:-

Never	Sometimes	Always
1	2	3

	Financial	Quantitative	Qualitative
1. The risk of non-compliance with legislation.	1 2 3	1 2 3	1 2 3
2. The risk of site contamination.	1 2 3	1 2 3	1 2 3
3. The risk of environmental influences on companies' markets.	1 2 3	1 2 3	1 2 3
4. Environmental factors that could reduce the value of a company's assets.	1 2 3	1 2 3	1 2 3
5. Environmental information that may reduce financial performance.	1 2 3	1 2 3	1 2 3
6. Financial information that could impose actual liability on a company's lender.	1 2 3	1 2 3	1 2 3
7. Environmental information that may cause financial failure.	1 2 3	1 2 3	1 2 3

Please tick if relevant:

8. None of the above. [ ]
9. **Others?** _____

6. Which of the following indicators, based on a measurable quantity, is disclosed by your Company for interested parties? Please indicate, by circling, the frequency of the following forms of disclosure, using this scale:-

Never	Sometimes	Always
1	2	3

	Financial	Quantitative	Qualitative
1. Raw material use.	1 2 3	1 2 3	1 2 3
2. Energy consumption.	1 2 3	1 2 3	1 2 3
3. Air emissions.	1 2 3	1 2 3	1 2 3
4. Water effluents.	1 2 3	1 2 3	1 2 3
5. Soil contamination and remediation.	1 2 3	1 2 3	1 2 3
6. Generation and disposal of waste.	1 2 3	1 2 3	1 2 3
7. Environmental incidents.	1 2 3	1 2 3	1 2 3
8. Vehicle miles in relation to product.	1 2 3	1 2 3	1 2 3
9. Noise and odour.	1 2 3	1 2 3	1 2 3
10. Local environmental impact.	1 2 3	1 2 3	1 2 3

Please tick if relevant:

11. None of the above. [ ]
12. **Others?** _____

7. As an indication of company environmental performance," benchmarking " may be used. Please indicate, by circling, the frequency of benchmarking used by your Company for the following forms of disclosure, using this scale:-

Never	Sometimes	Always
1	2	3

	Financial	Quantitative	Qualitative
1. Legal compliance.	1 2 3	1 2 3	1 2 3
2. Industry average.	1 2 3	1 2 3	1 2 3
3. Sustainable development.	1 2 3	1 2 3	1 2 3

Please tick if relevant:

5. None of the above. [ ]
6. **Others?** _____

8. What financial environmental information is disclosed by your Company for interested parties? Please indicate, by circling, the frequency of the following forms of disclosure, using this scale:-

Never	Sometimes	Always
1	2	3

	Financial	Quantitative	Qualitative
1. Environmental spending.	1 2 3	1 2 3	1 2 3
2. Environmental liabilities.	1 2 3	1 2 3	1 2 3
3. Environmental benefits and opportunities.	1 2 3	1 2 3	1 2 3
4. Government environmental taxes and charges.	1 2 3	1 2 3	1 2 3
5. Environmental fines and negotiated settlements.	1 2 3	1 2 3	1 2 3
6. Donations to environmental charities.	1 2 3	1 2 3	1 2 3

Please tick if relevant:

7. None of the above. [ ]

9. **Others?** _____

9. Is any environmental management information disclosed by your Company for interested parties? Please indicate, by circling, the frequency of the following forms of disclosure, using this scale:-

Never	Sometimes	Always
1	2	3

	Financial	Quantitative	Qualitative
1. Health and safety.	1 2 3	1 2 3	1 2 3
2. Environmental impact assessment.	1 2 3	1 2 3	1 2 3
3. Risk assessment.	1 2 3	1 2 3	1 2 3
4. Hazard assessment.	1 2 3	1 2 3	1 2 3
5. Accident and emergency response.	1 2 3	1 2 3	1 2 3
6. Land contamination and remediation.	1 2 3	1 2 3	1 2 3
7. Environmental integration of business.	1 2 3	1 2 3	1 2 3
8. Environmental management system.	1 2 3	1 2 3	1 2 3
9. Setting measurable environmental targets and objectives.	1 2 3	1 2 3	1 2 3
10. Compliance with legislation.	1 2 3	1 2 3	1 2 3
11. Compliance with industry standards.	1 2 3	1 2 3	1 2 3

Please tick if relevant:

12. None of the above. [ ]

13. **Others?** _____

10. How has your company environmental disclosure developed over the:

1. **Last year?** _____

_____

2. **Last two years?** _____

_____

3. **Last five years?** _____

_____

11. How do you see your company environmental disclosure developing in the:

1. **Next year?** _____

_____

2. **Next two years?** _____

_____

3. **Next five years?** _____

_____

Section five: Company Information

12. All respondents

		Please tick yes	no
1. Are you:	the parent company?	[ ]	[ ]
	a subsidiary?	[ ]	[ ]
2. Do you have a Corporate environmental policy and / or a Corporate environmental strategy?		[ ]	[ ]
3. Does anyone in your organisation have responsibility for disclosing environmental information to the public?		[ ]	[ ]

4. What is your company's main business activity? _____

13. Subsidiaries only

	Please tick yes	no
1. Do you have a Company environmental policy and / or a Company environmental strategy?	[ ]	[ ]

2. What is your parent company's main business activity? _____

3. What is your company's turnover approximately? £ _____

Section six: Environmental Reports and Reporting

14. In the event of an environmental incident, involving your Company, who would immediately assess and / or report the impact? Please indicate, by circling, the following:-

	Assess Impact			Report Impact		
	Never	Sometimes	Always	Never	Sometimes	Always
1. Company employees.	1	2	3	1	2	3
2. Independent consultants - paid by Company.	1	2	3	1	2	3
3. Local Authority.	1	2	3	1	2	3
4. Local Authority and Independent consultants - paid by Company.	1	2	3	1	2	3
5. Central Government.	1	2	3	1	2	3
6. The Department of the Environment.	1	2	3	1	2	3
7. The Department of Trade and Industry.	1	2	3	1	2	3
8. The Department of Agriculture.	1	2	3	1	2	3
9. Quango eg. National Rivers Authority.	1	2	3	1	2	3

Please tick if relevant:

10. None of the above. [ ]

11. **Others?** _____

15. What accounting information does your Company use in its environmental disclosure? Please indicate, by circling, how often your company discloses the following:-

	Never	Sometimes	Always
1. Environmental contingent liabilities.	1	2	3
2. Cost of environmental compliance.	1	2	3
3. Cost of keeping ahead of the regulator.	1	2	3
4. Cost of non-compliance with environmental legislation.	1	2	3
5. Cost of implementation of pollution control measures.	1	2	3
6. Cost savings from energy conservation.	1	2	3
7. Cost savings from recycling.	1	2	3
8. Reduced "environmental" insurance premium.	1	2	3
9. Increased "environmental" insurance premium.	1	2	3
10. Compliance cost of industry association directives.	1	2	3
11. Compliance costs of BS7750 and / or E.M.A.S.	1	2	3
12. Cost of introducing environmental management system.	1	2	3
13. Cost of conducting environmental audits.	1	2	3

Please tick if relevant:

14. None of the above. [ ]
15. Are any of the above only disclosed internally? [ ]
16. **Others?** _____

16. Does your Company consult with any groups concerning the environmental information that you disclose? Please indicate, by circling, how often your Company uses any of the following:-

	Never	Sometimes	Always
1. An environmental consulting firm.	1	2	3
2. A management consultant firm.	1	2	3
3. The Company financial accounting auditing firm.	1	2	3
4. Competitors' disclosure.	1	2	3
5. Internal company resources.	1	2	3
6. Industry associations.	1	2	3
7. Environmental pressure groups.	1	2	3
8. An affiliated environmental charter group.	1	2	3
9. British Standards Institute regulations that is, BS7750.	1	2	3
10. Local Authority.	1	2	3

11. **Others?** _____

17. Which of the following environmental disclosure presentations has your Company adopted? Please indicate, by circling, how often your company discloses the following:-

	Never	Sometimes	Always
1. Environmental information within the published Company annual report.	1	2	3
2. Environmental information within the published Company annual report plus the half yearly Interim statement.	1	2	3
3. Stand alone published environmental company report:	1	2	3
- every 3 months	1	2	3
- every 6 months	1	2	3
- annually.	1	2	3
4. Annual stand alone published Company environmental report plus either:			
- an Interim environmental statement every 3 months	1	2	3
- an Interim environmental statement every 6 months	1	2	3
5. Specially published Company environmental report at company`s discretion.	1	2	3
6. Press release at company`s discretion.	1	2	3

Please tick if relevant:

7. None of the above. [ ]
8. **Others?** _____

Section seven: Attitude Towards Company Environmental Disclosure

18. For whom is company environmental information disclosed? Please indicate, by circling, the importance of the following-

	Not Important				Very Important
1. Employees.	1	2	3	4	5
2. Legislators and regulators.	1	2	3	4	5
3. Local communities.	1	2	3	4	5
4. Shareholders.	1	2	3	4	5
5. Potential investors.	1	2	3	4	5
6. Ethical investors.	1	2	3	4	5
7. Customers.	1	2	3	4	5
8. Suppliers.	1	2	3	4	5
9. Industry associations.	1	2	3	4	5
10. Environmental groups.	1	2	3	4	5
11. Media.	1	2	3	4	5
12. Central government.	1	2	3	4	5
13. Quangos eg. National Rivers Authority.	1	2	3	4	5
14. Local government.	1	2	3	4	5
15. Insurance companies.	1	2	3	4	5
16. Banks.	1	2	3	4	5
17. Stock market.	1	2	3	4	5
18. **Others?** _____					

19. Who do you consider should pay for company environmental disclosure? Please indicate, by circling, to what extent you agree with the following:-

	Strongly Disagree		Neutral		Strongly Agree
1. The company should absorb the full cost.	1	2	3	4	5
2. The interested party should pay.	1	2	3	4	5
3. There should be an allocation of cost between the company and interested party.	1	2	3	4	5
4. The Government via a system of company tax credits.	1	2	3	4	5
5. **Others?** _____					

20. The following are some of the possible qualitative characteristics of financial reporting information. Please indicate, by circling, how important you consider they are for environmental reporting:-

	Not Important		Important		Very Important
1. Understandability.	1	2	3	4	5
2. Relevance.	1	2	3	4	5
3. Predictive value.	1	2	3	4	5
4. Confirmation of information.	1	2	3	4	5
5. Materiality.	1	2	3	4	5
6. Reliability.	1	2	3	4	5
7. Faithful Representation.	1	2	3	4	5
8. Valid description.	1	2	3	4	5
9. Freedom from error.	1	2	3	4	5
10. Substance Over Form (Actual environmental effect not legal form).	1	2	3	4	5
11. Neutrality.	1	2	3	4	5
12. Prudence.	1	2	3	4	5
13. Completeness.	1	2	3	4	5
14. Comparability.	1	2	3	4	5
15. Consistency.	1	2	3	4	5
16. Corresponding information for previous period.	1	2	3	4	5
17. Timeliness.	1	2	3	4	5
18. A true and fair view.	1	2	3	4	5
19. **Others?** _____					

21. Which of the following do you consider to be the elements of company environmental reporting? Please indicate, by circling, to what extent you agree with the following:-

	Strongly Disagree		Neutral		Strongly Agree
1. Air.	1	2	3	4	5
2. Land.	1	2	3	4	5
3. Water.	1	2	3	4	5
4. Sound.	1	2	3	4	5
5. **Others?** _____					

22. Who should verify the environmental information disclosed to interested parties? Please indicate, by circling, to what extent you agree with the following:-

	Strongly Disagree		Neutral		Strongly Agree
1. Accountants within their existing framework.	1	2	3	4	5
2. Scientists within their existing framework.	1	2	3	4	5
3. Environmental consultants within their existing framework.	1	2	3	4	5
4. A new professional body that includes accountants, scientists and environmental consultants.	1	2	3	4	5
5. A registered auditor of The Environmental Auditors' Registration Association.	1	2	3	4	5
6. Internal management team.	1	2	3	4	5
7. Verification is not necessary.	1	2	3	4	5
8. **Others?** _____					

23. Why, in your opinion, do companies disclose environmental information to interested parties? Please indicate, by circling, to what extent you agree with the following:-

	Strongly Disagree		Neutral		Strongly Agree
1. To market the company.	1	2	3	4	5
2. To market company products.	1	2	3	4	5
3. To comply with regulations.	1	2	3	4	5
4. As a form of political lobbying.	1	2	3	4	5
5. As a result of company ethics.	1	2	3	4	5
6. As an acceptance of a change in society's ethics.	1	2	3	4	5
7. To improve the company's corporate image.	1	2	3	4	5
8. To acknowledge social responsibility.	1	2	3	4	5
9. To attract investment.	1	2	3	4	5
10. Peer pressure from companies in the same industry.	1	2	3	4	5
11. Pressure from customers / consumers.	1	2	3	4	5
12. To meet the demand for environmental information.	1	2	3	4	5
13. **Others?** _____					

24. Why, in your opinion, do so few companies disclose environmental information to interested parties? Please indicate, by circling, to what extent you agree with the following:-

	Strongly Disagree		Neutral		Strongly Agree
1. Reluctance to report sensitive information.	1	2	3	4	5
2. To avoid providing information to competitors.	1	2	3	4	5
3. To avoid providing incriminating information to regulators.	1	2	3	4	5
4. Possible damage to companies' reputation.	1	2	3	4	5
5. General lack of awareness of environmental issues	1	2	3	4	5
6. Inability to gather the information.	1	2	3	4	5
7. Cost of disclosure.	1	2	3	4	5
8. Lack of awareness of competitive advantage.	1	2	3	4	5
9. There is no legal obligation for companies to report environmentally.	1	2	3	4	5
10. Companies generally believe they do not have an impact on the environment.	1	2	3	4	5
11. Insufficient response / feedback from stakeholders.	1	2	3	4	5
12. Users may not understand the information.	1	2	3	4	5
13. **Others?** _____					

25. Where do you consider detailed company environmental information should be made available for interested parties? Please indicate, by circling, to what extent you agree with the following:-

	Strongly Disagree		Neutral		Strongly Agree
1. From company head office.	1	2	3	4	5
2. From company head office and at site / branch level.	1	2	3	4	5
3. Only at site / branch level.	1	2	3	4	5
4. From a central reference place where all company environmental disclosure can be examined	1	2	3	4	5
5. **Others?** _____					

26. Please indicate, by circling, to what extent you agree with the following statements:-

	Strongly Disagree		Neutral		Strongly Agree
1. Environmental disclosure that has been analysed would be more useful for accountability and decision-making purposes than raw data.	1	2	3	4	5
2. Interested parties require company environmental disclosure for accountability and decision-making purposes.	1	2	3	4	5
3. It would be useful for accountability and decision-making purposes if companies disclosed environmental target-setting information with respect to a set classification.	1	2	3	4	5
4. Company environmental disclosure should be regulated in the same way as accounting disclosure.	1	2	3	4	5

27. If any issues relating to company environmental disclosure have been omitted from this questionnaire, please use the space below to indicate what they are.

THANK YOU FOR TAKING THE TIME TO COMPLETE THIS QUESTIONNAIRE

Appendix: D

Wilcoxon Matched Pairs Signed Ranks Test Results

for the Normative Group

Table 1: The Wilcoxon Matched Pairs Signed Rank Test
The Usefulness of Corporate Environmental Information

Part A: Financial Disclosure

1. Product life cycle design.
2. Environmental audit.
3. Product impacts.
4. Environmental reporting policy.
5. Product packaging.
6. Research & Development and the environment.
7. Legal environmental compliance.
8. Environmental policy statement.
9. Company environmental initiatives.
10. Context of company environmental disclosure.
11. Management responsibilities for the environment.
12. Independently verified environmental disclosure. <-2.691
13. Environmental management system.
14. Environmental strategy statement.
15. Environmental statement by company chairman.

1	2	3	4	5	6	7	8	9	10	11	12	13	14

Table 1 continued

Part B: Quantitative Disclosure

1. Product impacts.														
2. Legal environmental compliance.														
3. Environmental audit.														
4. Environmental management system.														
5. Independently verified environmental disclosure.														
6. Management responsibilities for the environment.														
7. Product packaging.														
8. Environmental reporting policy.														
9. Product life cycle design.														
10. Company environmental initiatives.														
11. Environmental strategy statement.														
12. Environmental policy statement.														
13. Research & Development and the environment.	<-2.651													
14. Environmental statement by company chairman.	<-2.596		<-2.584											
15. Context of company environmental disclosure.	<-3.723	<-4.042	<-3.508	<-3.081	<-2.871	<-2.852	<-2.705	<-3.133						
	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Table 1 continued

Part C: Qualitative Disclosure

1. Environmental policy statement.													
2. Environmental strategy statement.													
3. Product impacts.													
4. Environmental statement by company chairman.													
5. Environmental audit.													
6. Legal environmental compliance.													
7. Environmental reporting policy.	<-2.653												
8. Management responsibilities for the environment.	<-2.550												
9. Environmental management system.	<-2.822												
10. Product packaging.	<-2.784												
11. Company environmental initiatives.	<-3.538												
12. Independently verified environmental disclosure.	<-3.710	<-3.074	<-2.646										
13. Research & Development and the environment.	<-3.914	<-3.155		<-2.716									
14. Product life cycle design.	<-3.871	<-3.436	<-3.750										
15. Context of company environmental disclosure.	<-3.764	<-3.310	<-2.665	<-2.719									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Table 1 continued

Part D: Inter-Disclosure Comparisons

	Financial with Quantitative	Financial with Qualitative	Quantitative with Qualitative
1. Environmental statement by company chairman.	<-2.800	<-4.169	<-2.852
2. Environmental policy statement.		<-3.445	<-2.847
3. Environmental strategy statement.		<-3.983	<-2.900
4. Environmental management system.	<-3.719	<-2.954	
5. Management responsibilities for the environment.	<-3.629	<-2.694	
6. Environmental audit.			
7. Independently verified environmental disclosure.	<-3.505		
8. Legal environmental compliance.	<-3.254		
9. Research & Development and the environment.			
10. Company environmental initiatives.			
11. Context of company environmental disclosure.			
12. Environmental reporting policy.			
13. Product life cycle design.			
14. Product packaging.			
15. Product impacts.	<-2.876		

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For tables involving financial, quantitative, or qualitative disclosure, note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table. For the table of inter-disclosure comparisons, the statistics read such that the former type of disclosure is compared to the latter for each pairwise comparison, for example, for "financial with quantitative", then > indicates that financial is greater than quantitative, and < indicates that financial is less than quantitative, for that proposition.

Table 2: The Wilcoxon Matched Pairs Signed Rank Test
Corporate Environmental Resource Information

Part A: Quantitative Disclosure

1. Energy consumption.
2. Raw materials used.
3. Water consumption. <-2.934

1 2

Part B: Inter-Disclosure Comparisons

	Financial with Quantitative	Financial with Qualitative	Quantitative with Qualitative
1. Raw materials used.	<-4.140		
2. Energy consumption.	<-3.848		>-2.920
3. Water consumption.	<-3.547		

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For the table involving quantitative disclosure, note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table. For the table of inter-disclosure comparisons, the statistics read such that the former type of disclosure is compared to the latter for each pairwise comparison, for example, for "financial with quantitative", then > indicates that financial is greater than quantitative, and < indicates that financial is less than quantitative, for that proposition.

Table 3: The Wilcoxon Matched Pairs Signed Rank Test
Corporate Environmental Risk Information

Part A: Financial Disclosure

1. Environmental information that may cause financial failure.						
2. Financial information that could impose actual liability on a company's lender.						
3. The risk of site contamination.						
4. Environmental information that may reduce financial performance.						
5. The risk of non-compliance with legislation.	<-3.029					
6. Environmental factors that could reduce the value of a company's assets.	<-3.198			<-2.953		
7. The risk of environmental influences on companies' markets.	<-3.836	<-3.108	<-3.155	<-3.568		
	1	2	3	4	5	6

Part B: Quantitative Disclosure

1. The risk of site contamination.						
2. The risk of non-compliance with legislation.						
3. Environmental information that may cause financial failure.						
4. Financial information that could impose actual liability on a company's lender.	<-2.753					
5. Environmental factors that could reduce the value of a company's assets.	<-3.285					
6. Environmental information that may reduce financial performance.	<-3.402					
7. The risk of environmental influences on companies' markets.	<-3.992	<-2.761				
	1	2	3	4	5	6

Table 3 continued

Part C: Qualitative Disclosure

1.	The risk of site contamination.					
2.	The risk of non-compliance with legislation.					
3.	Environmental information that may cause financial failure.	<-2.726				
4.	The risk of environmental influences on companies' markets.	<-3.505				
5.	Environmental factors that could reduce the value of a company's assets.	<-3.254				
6.	Environmental information that may reduce financial performance.	<-3.016				
7.	Financial information that could impose actual liability on a company's lender.	<-3.619	<-2.651			
		1	2	3	4	5	6

Part D: Inter-Disclosure Comparisons

		Financial with Quantitative	**Financial with Qualitative**	**Quantitative with Qualitative**
1.	The risk of non-compliance with legislation.			
2.	The risk of site contamination.			
3.	The risk of environmental influences on companies' markets.			
4.	Environmental factors that could reduce the value of a company's assets.			
5.	Environmental information that may reduce financial performance.	>-2.914	>-2.914	
6.	Financial information that could impose actual liability on a company's lender.	>-3.022	>-3.022	
7.	Environmental information that may cause financial failure.	>-3.027	>-3.000	

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For tables involving financial, quantitative, or qualitative disclosure, note that $y < x$ indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table. For the table of inter-disclosure comparisons, the statistics read such that the former type of disclosure is compared to the latter for each pairwise comparison, for example, for "financial with quantitative", then > indicates that financial is greater than quantitative, and < indicates that financial is less than quantitative, for that proposition.

Table 4: The Wilcoxon Matched Pairs Signed Rank Test
Quantifiable Corporate Environmental Information

Part A: Financial Disclosure

1.	Environmental incidents.								
2.	Energy consumption.								
3.	Local environmental impact.								
4.	Generation and disposal of waste.								
5.	Raw material use.								
6.	Soil contamination and remediation.					<-2.737			
7.	Air emissions.					<-3.261			
8.	Water effluents.	<-2.859	<-3.823						
9.	Noise and odour.	<-3.188	<-3.532	<-3.103					
10.	Vehicle miles in relation to product.	<-3.018	<-3.719			<-2.769			
		1	2	3	4	5	6	7	8	9

Table 4 continued

Part B: Quantitative Disclosure

1. Air emissions.									
2. Environmental incidents.									
3. Generation and disposal of waste.									
4. Water effluents.									
5. Local environmental impact.									
6. Raw material use.									
7. Energy consumption.									
8. Soil contamination and remediation.									
9. Noise and odour.			<-3.018		<-2.691				
10. Vehicle miles in relation to product.	<-4.286	<-2.889	<-3.436	<-3.092	<-2.857	<-3.498	<-3.363		
	1	2	3	4	5	6	7	8	9

Table 4 continued

Part C: Qualitative Disclosure

1. Air emissions.
2. Local environmental impact.
3. Environmental incidents.
4. Generation and disposal of waste.
5. Water effluents.
6. Energy consumption.
7. Soil contamination and remediation.
8. Noise and odour.
9. Raw material use.
10. Vehicle miles in relation to product.

<-4.015	<-3.124	<-2.907	<-3.323		<-3.408			<-3.077
1	2	3	4	5	6	7	8	9

Table 4 continued

Part D: Inter-Disclosure Comparisons

	Financial with Quantitative	Financial with Qualitative	Quantitative with Qualitative
1. Raw material use.	<-3.621		>-2.808
2. Energy consumption.			
3. Air emissions.	<-4.623	<-2.938	
4. Water effluents.	<-4.053		>-2.694
5. Soil contamination and remediation.	<-3.920		
6. Generation and disposal of waste.	<-3.436		
7. Environmental incidents.	<-2.737		
8. Vehicle miles in relation to product.	<-3.180		
9. Noise and odour.	<-4.107		
10. Local environmental impact.	<-3.547		

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For tables involving financial, quantitative, or qualitative disclosure, note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table. For the table of inter-disclosure comparisons, the statistics read such that the former type of disclosure is compared to the latter for each pairwise comparison, for example, for "financial with quantitative", then > indicates that financial is greater than quantitative, and < indicates that financial is less than quantitative, for that proposition.

Table 5: The Wilcoxon Matched Pairs Signed Rank Test
Benchmarking Corporate Environmental Performance Information

Part A: Financial Disclosure

1. Legal compliance.		
2. Industry average.		
3. Sustainable development.	<-2.580	
	1	2

Part B: Quantitative Disclosure

1. Legal compliance.		
2. Sustainable development.	<-3.120	
3. Industry average.	<-3.674	
	1	2

Table 5 continued

Part C: Qualitative Disclosure

1. Legal compliance.	
2. Sustainable development.	
3. Industry average.	<-2.618
	1 2

Part D: Inter-Disclosure Comparisons

	Financial with Quantitative	Financial with Qualitative	Quantitative with Qualitative
1. Legal compliance.	<-3.873		
2. Industry average.			
3. Sustainable development.	<-3.375		

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For tables involving financial, quantitative, or qualitative disclosure, note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table. For the table of inter-disclosure comparisons, the statistics read such that the former type of disclosure is compared to the latter for each pairwise comparison, for example, for "financial with quantitative", then > indicates that financial is greater than quantitative, and < indicates that financial is less than quantitative, for that proposition.

Table 6: The Wilcoxon Matched Pairs Signed Rank Test
Corporate Environmental Financial Information

Part A: Financial Disclosure

1. Environmental liabilities.					
2. Environmental fines and negotiated settlements.					
3. Environmental spending.					
4. Government environmental taxes and charges.	<-2.800				
5. Environmental benefits and opportunities.	<-3.985	<-2.842			
6. Donations to environmental charities.	<-4.672	<-4.608	<-4.195	<-3.325	
	1	2	3	4	5

Part B: Quantitative Disclosure

1. Environmental liabilities.					
2. Environmental benefits and opportunities.					
3. Environmental fines and negotiated settlements.					
4. Environmental spending.					
5. Government environmental taxes and charges.	<-3.527		<-2.616		
6. Donations to environmental charities.	<-3.289	<-2.939	<-2.920		
	1	2	3	4	5

Table 6 continued

Part C: Qualitative Disclosure

1. Environmental liabilities.					
2. Environmental fines and negotiated settlements.					
3. Environmental benefits and opportunities.					
4. Environmental spending.					
5. Government environmental taxes and charges.					
6. Donations to environmental charities.	<-4.247	<-3.831	<-3.589	<-3.666	
	1	2	3	4	5

Part D: Inter-Disclosure Comparisons

	Financial with Quantitative	**Financial with Qualitative**	**Quantitative with Qualitative**
1. Environmental spending.		>-4.240	>-3.734
2. Environmental liabilities.		>-3.650	>-2.873
3. Environmental benefits and opportunities.			>-3.230
4. Government environmental taxes and charges.		>-3.492	>-2.678
5. Environmental fines and negotiated settlements.		>-3.924	>-2.951
6. Donations to environmental charities.		>-3.940	>-3.831

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For tables involving financial, quantitative, or qualitative disclosure, note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table. For the table of inter-disclosure comparisons, the statistics read such that the former type of disclosure is compared to the latter for each pairwise comparison, for example, for "financial with quantitative", then > indicates that financial is greater than quantitative, and < indicates that financial is less than quantitative, for that proposition.

Table 7: The Wilcoxon Matched Pairs Signed Rank Test
Corporate Environmental Management Information

Part A: Financial Disclosure

1.	Compliance with legislation.	
2.	Setting measurable environmental targets and objectives.	
3.	Environmental impact assessment.	
4.	Land contamination and remediation.	
5.	Environmental management system.	
6.	Hazard assessment.	
7.	Compliance with industry standards.	<-3.353
8.	Risk assessment.	<-2.629
9.	Health and safety.	<-3.363
10.	Environmental integration of business.	<-2.934
11.	Accident and emergency response.	<-3.449

1 2 3 4 5 6 7 8 9 10

Table 7 continued

Part B: Quantitative Disclosure

1.	Compliance with legislation.									
2.	Environmental impact assessment.									
3.	Setting measurable environmental targets and objectives.									
4.	Health and safety.	<-2.870								
5.	Risk assessment.	<-2.714								
6.	Hazard assessment.	<-2.952								
7.	Environmental management system.	<-3.730		<-2.689						
8.	Accident and emergency response.	<-3.455								
9.	Land contamination and remediation.	<-3.763	<-3.211	<-2.786						
10.	Compliance with industry standards.	<-4.541		<-2.811						
11.	Environmental integration of business.	<-4.735	<-3.971	<-3.436	<-2.757	<-3.528	<-2.571			
		1	2	3	4	5	6	7	8	9	10

Table 7 continued

Part C: Qualitative Disclosure

1.	Compliance with legislation.									
2.	Environmental impact assessment.									
3.	Setting measurable environmental targets and objectives.	<-2.798								
4.	Hazard assessment.									
5.	Risk assessment.	<-2.714								
6.	Environmental management system.	<-2.993								
7.	Health and safety.	<-2.664								
8.	Accident and emergency response.	<-2.982								
9.	Compliance with industry standards.	<-3.270								
10.	Land contamination and remediation.	<-3.377	<-3.135							
11.	Environmental integration of business.	<-3.437	<-3.797							
		1	2	3	4	5	6	7	8	9	10

Table 7 continued

Part D: Inter-Disclosure Comparisons

	Financial with Quantitative	Financial with Qualitative	Quantitative with Qualitative
1. Health and safety.	<-2.983		
2. Environmental impact assessment.	<-2.857		
3. Risk assessment.	<-3.003		
4. Hazard assessment.	<-2.651		
5. Accident and emergency response.	<-2.797		
6. Land contamination and remediation.			
7. Environmental integration of business.			
8. Environmental management system.			
9. Setting measurable environmental targets and objectives.	<-2.844		
10. Compliance with legislation.	<-3.354		
11. Compliance with industry standards.			

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For tables involving financial, quantitative, or qualitative disclosure, note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table. For the table of inter-disclosure comparisons, the statistics read such that the former type of disclosure is compared to the latter for each pairwise comparison, for example, for "financial with quantitative", then > indicates that financial is greater than quantitative, and < indicates that financial is less than quantitative, for that proposition.

Table 8: The Wilcoxon Matched Pairs Signed Rank Test Assessing and Reporting Environmental Incidents

Part A: Assess Impact

1.	Company employees.							
2.	Local Authority.							
3.	Quango eg. National Rivers Authority.	<-3.150						
4.	Independent consultants.	<-3.692						
5.	Local Authority and Independent consultants.	<-4.164	<-2.914					
6.	The Department of the Environment.	<-4.219	<-3.538					
7.	The Department of Agriculture.	<-4.387	<-3.723					
8.	Central Government.	<-5.564	<-5.232	<-3.841	<-4.031	<-3.962	<-3.173	<-2.571
9.	The Department of Trade and Industry.	<-5.564	<-5.442	<-4.178	<-4.165	<-4.107	<-3.393	<-3.516
		1	2	3	4	5	6	7

Table 8 continued

Part B: Report Impact

1. Company employees.							
2. Local Authority.	<-2.688						
3. Quango eg. National Rivers Authority.	<-2.641						
4. The Department of the Environment.	<-3.477						
5. Local Authority and Independent consultants.	<-3.737	<-2.940					
6. The Department of Agriculture.	<-3.909	<-3.133	<-3.103				
7. Independent consultants.	<-4.494	<-3.868	<-3.094				
8. Central Government.	<-5.230	<-4.505	<-3.565	<-3.750	<-2.886		
9. The Department of Trade and Industry.	<-5.188	<-4.937	<-4.623	<-4.286	<-4.015	<-3.516	
	1	2	3	4	5	6	7	8

Table 8 continued

Part C: Assess and Report Impact

	Assess and Report Impact
1. Company employees.	
2. Independent consultants.	>-3.180
3. Local Authority.	
4. Local Authority and Independent consultants.	
5. Central Government.	
6. The Department of the Environment.	
7. The Department of Trade and Industry.	
8. The Department of Agriculture.	
9. Quango eg. National Rivers Authority.	

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For tables involving either only assessing or reporting impact, note that $y < x$ indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table. For the table comparing assessing and reporting impact for each proposition, the statistics read such that assessing is compared to reporting, for example, > indicates that assessing is greater than reporting, and < indicates that assessing is less than reporting, for that proposition.

Table 9: The Wilcoxon Matched Pairs Signed Rank Test
Time Period and Communication of Corporate Environmental Reporting

1. Environmental information within the published Company annual report.							
2. Stand alone published environmental company report annually.							
3. Environmental information within the published Company annual report plus the half yearly Interim statement.	<-4.968	<-3.130					
4. Specially published Company environmental report at company`s discretion.	<-5.195	<-3.200					
5. Press release at company`s discretion.	<-5.358	<-3.298					
6. Annual stand alone published Company environmental report plus an Interim environmental statement every 6 months.	<-5.980	<-4.960	<-3.352				
7. Stand alone published environmental company report every 6 months.	<-5.736	<-5.024	<-4.227	<-3.633	<-3.153		
8. Stand alone published environmental company report every 3 months.	<-5.579	<-5.107	<-4.227	<-3.833	<-3.342		
9. Annual stand alone published Company environmental report plus an Interim environmental statement every 3 months.	<-5.847	<-5.414	<-4.289	<-4.430	<-3.983	<-2.856	
	1	2	3	4	5	6	7	8

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For tables involving financial, quantitative, or qualitative disclosure, note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 10: The Wilcoxon Matched Pairs Signed Rank Test
Users of Corporate Environmental Disclosure

1.	Legislators and regulators.															
2.	Local communities.															
3.	Employees.															
4.	Shareholders.															
5.	Customers.															
6.	Insurance companies.															
7.	Ethical investors.															
8.	Environmental groups.	<-2.828														
9.	Quangos	<-3.598														
10.	Local government.	<-4.462	<-3.268	<-2.821												
11.	Potential investors.	<-3.267	<-3.453	<-2.959	<-2.975											
12.	Banks.	<-3.397	<-3.779	<-3.259	<-2.997		<-3.135									
13.	Media.	<-4.172	<-4.058	<-4.148	<-3.372	<-2.778	<-2.765		<-2.778							
14.	Suppliers.	<-4.917	<-5.375	<-5.412	<-5.259	<-4.899	<-3.890	<-3.430	<-3.204	<-2.753		<-2.949				
15.	Stock market.	<-5.019	<-5.196	<-4.803	<-5.016	<-4.092	<-5.164	<-3.259	<-3.310	<-3.039		<-3.186	<-3.795			
16.	Central government.	<-6.515	<-5.713	<-5.310	<-5.665	<-4.781	<-4.925	<-4.188	<-4.232	<-4.528	<-4.540	<-3.538	<-3.304	<-2.757		
17.	Industry associations.	<-5.982	<-5.768	<-6.260	<-5.989	<-5.352	<-5.347	<-4.891	<-5.399	<-3.775	<-3.471	<-4.251	<-3.954	<-3.952		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 11: The Wilcoxon Matched Pairs Signed Rank Test
Bearing the Cost of Corporate Environmental Disclosure

1. The company should absorb the full cost.			
2. There should be an allocation of cost between the company and interested party.	<-5.959		
3. The interested party should pay.	<-6.437	<-2.857	
4. The Government via a system of company tax credits.	<-6.429		
	1	2	3

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 12: The Wilcoxon Matched Pairs Signed Rank Test
Possible Qualitative Characteristics of Corporate Environmental Disclosure

1.	A true and fair view.															
2.	Understandability.															
3.	Relevance.															
4.	Faithful Representation.															
5.	Reliability.															
6.	Freedom from error.	<-2.587														
7.	Consistency.	<-3.674	<-3.440	<-3.357												
8.	Valid description.	<-3.323	<-3.882	<-3.725	<-3.030											
9.	Substance Over Form	<--3.035	<-3.071	<-2.751												
10.	Neutrality.	<-3.982	<-4.425	<-4.230	<-3.749	<-3.051	<-2.596									
11.	Completeness.	<-5.163	<-5.157	<-4.953	<-4.496	<-3.988	<-3.789	<-3.243								
12.	Corresponding information for previous period.	<-5.377	<-4.792	<-4.727	<-4.298	<-3.972	<-3.595	<-3.482								
13.	Confirmation of information.	<-4.704	<-5.228	<-5.100	<-4.577	<-3.719	<-3.186	<-2.659								
14.	Timeliness.	<-5.857	<-5.335	<-5.246	<-5.158	<-4.523	<-4.611	<-4.096	<-3.663	<-2.590						
15.	Comparability.	<-5.508	<-5.360	<-5.296	<-4.859	<-4.475	<-4.262	<-4.376	<-3.164	<-3.060						
16.	Materiality.	<-4.963	<-5.418	<-5.355	<-5.261	<-4.416	<-4.622	<-4.011	<-4.058	<-2.969						
17.	Predictive value.	<-5.980	<-6.136	<-6.199	<-5.808	<-5.159	<-5.150	<-4.984	<-4.135	<-3.495	<-2.931					
18.	Prudence.	<-5.784	<-5.537	<-5.318	<-5.040	<-4.680	<-4.806	<-4.145	<-4.134	<-3.900	<-3.071	<-2.689				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 13: The Wilcoxon Matched Pairs Signed Rank Test
Proposed Elements of a Conceptual Framework for Corporate Environmental Reporting

1. Air.			
2. Water.			
3. Land.			
4. Sound.	<-4.541	<-4.372	<-4.406
	1	2	3

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 14: The Wilcoxon Matched Pairs Signed Rank Test
Verification of Corporate Environmental Disclosure

1. Environmental consultants within their existing framework.						
2. A registered auditor of The Environmental Auditors' registration Association.						
3. Scientists within their existing framework.	<-3.815					
4. Internal management team.	<-2.689					
5. A new professional body that includes accountants, scientists and environmental consultants.	<-3.638					
6. Accountants within their existing framework.	<-4.938	<-3.057	<-2.765			
7. Verification is not necessary.	<-6.995	<-5.822	<-5.665	<-6.332	<-5.089	<-4.645
	1	2	3	4	5	6

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 15: The Wilcoxon Matched Pairs Signed Rank Test
Suggested Motives For Corporate Environmental Disclosure

1.	To improve the company's corporate image.										
2.	To market the company.	<-2.720									
3.	To market company products.	<-3.971									
4.	Peer pressure from companies in the same industry.	<-4.258									
5.	To comply with regulations.	<-3.281									
6.	Pressure from customers / consumers.	<-3.721									
7.	To attract investment.	<-5.048	<-3.538								
8.	As an acceptance of a change in society's ethics.	<-5.722	<-3.208								
9.	To acknowledge social responsibility.	<-5.582	<-3.465				<-2.587				
10.	As a result of company ethics.	<-5.811	<-4.178	<-2.691	<-2.913	<-2.617					
11.	As a form of political lobbying.	<-6.408	<-5.148	<-3.694	<-3.747	<-3.467					
12.	To meet the demand for environmental information.	<-5.725	<-4.739	<-3.581	<-3.951	<-3.457	<-2.602				
		1	2	3	4	5	6	7	8	9	10	11

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 16: The Wilcoxon Matched Pairs Signed Rank Test
Possible Reasons For the Inadequacy of Corporate Environmental Disclosure

1.	Reluctance to report sensitive information.										
2.	General lack of awareness of environmental issues										
3.	There is no legal obligation for companies to report environmentally.										
4.	Possible damage to companies' reputation.										
5.	To avoid providing information to competitors.	<-3.291									
6.	Cost of disclosure.	<-2.594									
7.	To avoid providing incriminating information to regulators.	<-3.505									
8.	Inability to gather the information.										
9.	Lack of awareness of competitive advantage.	<-4.320	<-3.863	<-3.362	<-3.099						
10.	Insufficient response / feedback from stakeholders.	<-4.817	<-4.687	<-4.449	<-4.121	<-3.026	<-3.335	<-3.169	<-2.809		
11.	Companies generally believe they do not have an impact on the environment.	<-6.257	<-5.854	<-5.417	<-5.832	<-4.755	<-4.387	<-4.931	<-4.563	<-4.493	<-3.479
12.	Users may not understand the information.	<-5.877	<-5.427	<-4.578	<-5.069	<-4.505	<-4.821	<-4.217	<-4.097	<-3.228	
		1	2	3	4	5	6	7	8	9	10	11

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 17: The Wilcoxon Matched Pairs Signed Rank Test
Interested Party Access to Corporate Environmental Disclosure

1. From company head office.			
2. From company head office and at site / branch level.			
3. From a central reference place where all company environmental disclosure can be examined.			
4. Only at site / branch level.	<-6.618	<-6.734	<-6.142
	1	2	3

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 18: The Wilcoxon Matched Pairs Signed Rank Test
Accountability, Decision-Making and Corporate Environmental Disclosure

1. Environmental disclosure that has been analysed would be more useful for accountability and decision-making purposes than raw data.			
2. Interested parties require company environmental disclosure for accountability and decision-making purposes.			
3. It would be useful for accountability and decision-making purposes if companies disclosed environmental target-setting information with respect to a set classification.	<-3.492		
4. Company environmental disclosure should be regulated in the same way as accounting disclosure.	<-3.029		
	1	2	3

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Appendix: E

Wilcoxon Matched Pairs Signed Ranks Test Results

for the Interested Party Group

Table 1: The Wilcoxon Matched Pairs Signed Rank Test
The Usefulness of Corporate Environmental Information

Part A: Financial Disclosure

1. Environmental policy statement.													
2. Environmental strategy statement.													
3. Environmental audit.													
4. Legal environmental compliance.													
5. Research & Development and the environment.													
6. Independently verified environmental disclosure.													
7. Company environmental initiatives.													
8. Environmental management system.	<-2.501	<-2.689											
9. Environmental statement by company chairman.	<-2.875												
10. Management responsibilities for the environment.	<-2.859	<-2.576											
11. Context of company environmental disclosure.	<-2.825	<-2.514											
12. Product impacts.	<-2.767												
13. Environmental reporting policy.	<-3.343	<-3.187		<-2.629									
14. Product packaging.	<-3.761	<-3.497	<-3.219	<-3.445							<-2.773	<-2.666	
15. Product life cycle design.	<-3.586	<-3.179	<-2.898	<-3.298									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Table 1 continued

Part B: Quantitative Disclosure

1. Environmental policy statement.
2. Environmental strategy statement.
3. Environmental audit.
4. Product impacts.
5. Company environmental initiatives.
6. Environmental reporting policy.
7. Independently verified environmental disclosure.
8. Legal environmental compliance.
9. Product life cycle design.
10. Research & Development and the environment.
11. Environmental management system.
12. Context of company environmental disclosure.
13. Environmental statement by company chairman. <-2548
14. Management responsibilities for the environment. <-3.143 <-3.239
15. Product packaging. <-3.092 <-3.251 <-3.008 <-3.650 <-2.630 <-2.550 <-2.734 <-2.767 <-3.290

1 2 3 4 5 6 7 8 9 10 11 12 13 14

Table 1 continued

Part C: Qualitative Disclosure

1. Environmental policy statement.														
2. Environmental audit.														
3. Legal environmental compliance.														
4. Independently verified environmental disclosure.														
5. Management responsibilities for the environment.														
6. Environmental strategy statement.														
7. Company environmental initiatives.														
8. Environmental reporting policy.														
9. Product impacts.														
10. Context of company environmental disclosure.														
11. Environmental management system.	<-2.694													
12. Product life cycle design.														
13. Research & Development and the environment.	<-2.653													
14. Environmental statement by company chairman.	<-3.606	<-2.708	<-2.587											
15. Product packaging.	<-3.713	<-3.221	<-3.377	<-3.762	<-3.038	<-2.761	<-2.725	<-2.952	<-3.584					
	1	2	3	4	5	9	7	8	9	10	11	12	13	14

Table 1 continued

Part D: Inter-Disclosure Comparisons

	Financial with Quantitative	Financial with Qualitative	Quantitative with Qualitative
1. Environmental statement by company chairman.			
2. Environmental policy statement.			
3. Environmental strategy statement.			
4. Environmental management system.			
5. Management responsibilities for the environment.	<-3.279		>-3.248
6. Environmental audit.			
7. Independently verified environmental disclosure.		<-3.285	
8. Legal environmental compliance.			
9. Research & Development and the environment.			
10. Company environmental initiatives.	<-3.010	<-2.912	
11. Context of company environmental disclosure.			
12. Environmental reporting policy.	<-3.360	<-3.619	
13. Product life cycle design.	<-4.014	<-3.354	
14. Product packaging.			
15. Product impacts.	<-3.501	<-3.823	

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For tables involving financial, quantitative, or qualitative disclosure, note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table. For the table of inter-disclosure comparisons, the statistics read such that the former type of disclosure is compared to the latter for each pairwise comparison, for example, for "financial with quantitative", then > indicates that financial is greater than quantitative, and < indicates that financial is less than quantitative, for that proposition.

Table 2: The Wilcoxon Matched Pairs Signed Rank Test
Corporate Environmental Resource Information

Inter-Disclosure Comparisons

	Financial with Quantitative	Financial with Qualitative	Quantitative with Qualitative
1. Raw materials used.	<-3.375		
2. Energy consumption.	<-3.027		
3. Water consumption.	<-3.243	<-3.243	

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. The table of inter-disclosure comparisons, the statistics read such that the former type of disclosure is compared to the latter for each pairwise comparison, for example, for "financial with quantitative", then > indicates that financial is greater than quantitative, and < indicates that financial is less than quantitative, for that proposition.

Table 3: The Wilcoxon Matched Pairs Signed Rank Test
Corporate Environmental Risk Information

Part A: Financial Disclosure

1. Environmental information that may cause financial failure.
2. The risk of site contamination.
3. Financial information that could impose actual liability on a company's lender.
4. Environmental information that may reduce financial performance.
5. Environmental factors that could reduce the value of a company's assets.
6. The risk of non-compliance with legislation.
7. The risk of environmental influences on companies' markets.

<-2.613

1 2 3 4 5 6

Part B: Qualitative Disclosure

1. The risk of site contamination.
2. Environmental information that may cause financial failure.
3. The risk of non-compliance with legislation.
4. Environmental factors that could reduce the value of a company's assets.
5. Environmental information that may reduce financial performance.
6. The risk of environmental influences on companies' markets.
7. Financial information that could impose actual liability on a company's lender.

<-3.070

1 2 3 4 5 6

684

Table 3 continued

Part C: Inter-Disclosure Comparisons

	Financial with Quantitative	Financial with Qualitative	Quantitative with Qualitative
1. The risk of non-compliance with legislation.			
2. The risk of site contamination.			
3. The risk of environmental influences on companies' markets.			
4. Environmental factors that could reduce the value of a company's assets.			
5. Environmental information that may reduce financial performance.			
6. Financial information that could impose actual liability on a company's lender.			
7. Environmental information that may cause financial failure.	>-2.803	>-2.934	

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For tables involving financial, or qualitative disclosure, note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table. For the table of inter-disclosure comparisons, the statistics read such that the former type of disclosure is compared to the latter for each pairwise comparison, for example, for "financial with quantitative", then > indicates that financial is greater than quantitative, and < indicates that financial is less than quantitative, for that proposition.

Table 4: The Wilcoxon Matched Pairs Signed Rank Test
Quantifiable Corporate Environmental Information

Part A: Financial Disclosure

1.	Environmental incidents.								
2.	Local environmental impact.								
3.	Generation and disposal of waste.								
4.	Soil contamination and remediation.								
5.	Air emissions.								
6.	Water effluents.	<-2.706							
7.	Energy consumption.	<-3.042	<-2.694						
8.	Noise and odour.	<-3.603	<-3.621	<-3.058					
9.	Vehicle miles in relation to product.	<-3.441	<-3.162	<-3.027					
10.	Raw material use.	<-3.771	<-3.823	<-3.397		<-2.741			
		1	2	3	4	5	6	7	8	9

Table 4 continued

Part B: Quantitative Disclosure

1.	Environmental incidents.								
2.	Generation and disposal of waste.								
3.	Air emissions.								
4.	Water effluents.								
5.	Local environmental impact.								
6.	Soil contamination and remediation.								
7.	Energy consumption.								
8.	Raw material use.	<-2.808		<-2.743					
9.	Noise and odour.	<-4.445	<-4.539	<-3.813	<-3.908	<-4.186	<-3.581	<-2.832	
10.	Vehicle miles in relation to product.	<-3.852	<-4.002	<-3.266	<-3.370	<-3.000	<-2.678	<-3.797	
		1	2	3	4	5	6	7	8	9

Table 4 continued

Part C: Qualitative Disclosure

1. Environmental incidents.								
2. Local environmental impact.								
3. Soil contamination and remediation.								
4. Generation and disposal of waste.								
5. Air emissions.								
6. Water effluents.								
7. Energy consumption.	<-3.111	<-3.213	<-2.794	<-2.743	<2.591			
8. Noise and odour.	<-3.619	<-3.629	<-3.230	<-3.173	<-2.607	<-2.598		
9. Raw material use.	<-4.043	<-4.165	<-3.924	<-3.589	<-3.724	<-3.621		
10. Vehicle miles in relation to product.	<-4.151	<-4.103	<-3.881	<-3.802	<-3.611	<-3.395	<-2.741	
	1	2	3	4	5	6	7	8	9

Table 4 continued

Part D: Inter-Disclosure Comparisons

	Financial with Quantitative	Financial with Qualitative	Quantitative with Qualitative
1. Raw material use.	<-3.180		
2. Energy consumption.	<-3.179		
3. Air emissions.	<-3.481		
4. Water effluents.	<-3.565		
5. Soil contamination and remediation.	<-2.983		
6. Generation and disposal of waste.	<-3.179		
7. Environmental incidents.	<-2.613		
8. Vehicle miles in relation to product.			
9. Noise and odour.	<-3.039		
10. Local environmental impact.			

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For tables involving financial, quantitative, or qualitative disclosure, note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table. For the table of inter-disclosure comparisons, the statistics read such that the former type of disclosure is compared to the latter for each pairwise comparison, for example, for "financial with quantitative", then > indicates that financial is greater than quantitative, and < indicates that financial is less than quantitative, for that proposition.

Table 5: The Wilcoxon Matched Pairs Signed Rank Test
Benchmarking Corporate Environmental Performance Information

Inter-Disclosure Comparisons

	Financial with Quantitative	Financial with Qualitative	Quantitative with Qualitative
1. Legal compliance.	<-3.501	<-2.604	
2. Industry average.	<-2.689		
3. Sustainable development.			

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. The table of inter-disclosure comparisons, the statistics read such that the former type of disclosure is compared to the latter for each pairwise comparison, for example, for "financial with quantitative", then > indicates that financial is greater than quantitative, and < indicates that financial is less than quantitative, for that proposition.

Table 6: The Wilcoxon Matched Pairs Signed Rank Test
Corporate Environmental Financial Information

Part A: Financial Disclosure

1. Environmental fines and negotiated settlements.					
2. Environmental liabilities.					
3. Environmental spending.					
4. Government environmental taxes and charges.					
5. Environmental benefits and opportunities.	<-3.233	<-3.063			
6. Donations to environmental charities.	<-4.563	<-4.616	<-4.226	<-3.360	<-3.538
	1	2	3	4	5

Part B: Quantitative Disclosure

1. Environmental fines and negotiated settlements.					
2. Environmental liabilities.					
3.[a] Environmental benefits and opportunities.					
3.[b] Environmental spending.					
5. Government environmental taxes and charges.					
6. Donations to environmental charities.	<-4.133	<-4.132	<-4.576	<-3.890	<-4.037
	1	2	3[a]	3[b]	5

Table 6 continued

Part C: Qualitative Disclosure

1. Environmental spending.					
2. Environmental benefits and opportunities.					
3. Environmental liabilities.					
4. Environmental fines and negotiated settlements.					
5. Government environmental taxes and charges.					
6. Donations to environmental charities.	<-3.688	<-3.873	<-3.075	<-2.958	<-2.914
	1	2	3	4	5

Part D: Inter-Disclosure Comparisons

	Financial with Quantitative	**Financial with Qualitative**	**Quantitative with Qualitative**
1. Environmental spending.			
2. Environmental liabilities.			
3. Environmental benefits and opportunities.			
4. Government environmental taxes and charges.		>-3.039	
5. Environmental fines and negotiated settlements.		>-3.290	
6. Donations to environmental charities.			

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For tables involving financial, quantitative, or qualitative disclosure, note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table. For the table of inter-disclosure comparisons, the statistics read such that the former type of disclosure is compared to the latter for each pairwise comparison, for example, for "financial with quantitative", then > indicates that financial is greater than quantitative, and < indicates that financial is less than quantitative, for that proposition. Note that the superscripts a and b indicate that the mean average statistics, the standard deviations and the percentage ratings have tied for the two propositions to which they refer.

Table 7: The Wilcoxon Matched Pairs Signed Rank Test
Corporate Environmental Management Information

Part A: Financial Disclosure

1.	Land contamination and remediation.									
2.	Compliance with legislation.									
3.	Risk assessment.									
4.	Environmental impact assessment.									
5.	Setting measurable environmental targets and objectives.									
6.	Environmental management system.									
7.	Hazard assessment.	<-2.803								
8.	Compliance with industry standards.	<-2.803	<-3.180							
9.	Environmental integration of business.	<-2.659	<-2.570							
10.	Health and safety.	<-3.024	<-3.285							
11.	Accident and emergency response.	<-4.541	<-4.289	<-3.873	<-4.107	<-3.523	<-3.361	<-3.782	<-3.114	<-2.698	<-2.797
		1	2	3	4	5	6	7	8	9	10

Table 7 continued

Part B: Quantitative Disclosure

1. Compliance with legislation.										
2. Land contamination and remediation.										
3. Environmental impact assessment.										
4. Setting measurable environmental targets and objectives.										
5. Environmental management system.										
6. Health and safety.										
7. Hazard assessment.		<-2.745	<-2.888							
8. Compliance with industry standards.		<-3.079								
9. Risk assessment.		<-2.745	<-3.103							
10. Environmental integration of business.		<-2.711								
11. Accident and emergency response.	<-4.283	<-4.897	<-4.350	<-4.271	<-3.912	<-3.604	<-3.543	<-3.444	<-3.543	
	1	2	3	4	5	6	7	8	9	10

Table 7 continued

Part C: Qualitative Disclosure

1. Environmental impact assessment.									
2. Setting measurable environmental targets and objectives.									
3. Compliance with legislation.									
4. Land contamination and remediation.									
5. Environmental management system.									
6. Health and safety.	<-2.637								
7. Hazard assessment.	<-3.058								
8. Compliance with industry standards.	<-3.547				<-2.715	<-3.059			
9. Risk assessment.	<-3.173								
10. Environmental integration of business.									
11. Accident and emergency response.	<-4.384	<-3.911	<-3.165	<-3.918	<-3.267	<-3.279	<-2.889		<-2.686	
	1	2	3	4	5	6	7	8	9	10

Table 7 continued

Part D: Inter-Disclosure Comparisons

	Financial with Quantitative	Financial with Qualitative	Quantitative with Qualitative
1. Health and safety.	<-2.731		
2. Environmental impact assessment.	<-2.726		
3. Risk assessment.			
4. Hazard assessment.			
5. Accident and emergency response.		<-2.830	
6. Land contamination and remediation.			
7. Environmental integration of business.			
8. Environmental management system.			
9. Setting measurable environmental targets and objectives.			
10. Compliance with legislation.			
11. Compliance with industry standards.			

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For tables involving financial, quantitative, or qualitative disclosure, note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table. For the table of inter-disclosure comparisons, the statistics read such that the former type of disclosure is compared to the latter for each pairwise comparison, for example, for "financial with quantitative", then > indicates that financial is greater than quantitative, and < indicates that financial is less than quantitative, for that proposition.

Table 8: The Wilcoxon Matched Pairs Signed Rank Test Assessing and Reporting Environmental Incidents

Part A: Assess Impact

1.	Company employees.							
2.	The Department of the Environment.							
3.	Quango eg. National Rivers Authority.							
4.	Local Authority and Independent consultants.							
5.	Local Authority.							
6.	Independent consultants	<-3.082						
7.	Central Government.	<-3.350	<-2.613					
8.	The Department of Agriculture.	<-3.422	<-3.296					
9.	The Department of Trade and Industry.	<-4.020	<-3.823	<-2.931	<-2.773	<-3.099		
		1	2	3	4	5	6	7	8

Table 8 continued

Part B: Report Impact

1. Company employees.				
2. Quango eg. National Rivers Authority.				
3. Local Authority.				
4. The Department of the Environment.	<-3.092			
5. Local Authority and Independent consultants.	<-2.752			
6. The Department of Agriculture.	<-4.315		<-3.070	<-3.180
7. Independent consultants	<-4.613	<-3.143	<-3.285	
8. The Department of Trade and Industry.	<-4.642	<-2.832	<-3.323	<-3.408
9. Central Government.	<-4.383	<-2.842	<-2.983	<-3.296
	1	2	3	4	5	6	7	8

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For the tables involving either assessing or reporting impact, note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 9: The Wilcoxon Matched Pairs Signed Rank Test
Time Period and Communication of Corporate Environmental Reporting

1.	Environmental information within the published Company annual report.						
2.	Stand alone published environmental company report annually.						
3.	Environmental information within the published Company annual report plus the half yearly Interim statement.	<-4.522	<-3.816				
4.	Annual stand alone published Company environmental report plus an Interim environmental statement every 6 months.	<-4.376	<-4.859				
5.	Specially published Company environmental report at company`s discretion.	<-5.403	<-4.570				
6.	Press release at company`s discretion.	<-5.491	<-5.034				
7.	Stand alone published environmental company report every 6 months.	<-4.976	<-4.624				
8.	Stand alone published environmental company report every 3 months.	<-5.520	<-5.235	<-4.208	<-3.484		<-3.516
9.	Annual stand alone published Company environmental report plus Interim environmental statement every 3 months.	<-6.038	<-5.826	<-4.965	<-4.197	<-2.608	<-2.857
		1	2	3	4	5	6	7	8

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 10: The Wilcoxon Matched Pairs Signed Rank Test
Users of Corporate Environmental Disclosure

1.	Ethical investors.															
2.	Environmental groups.	<-3.370														
3.	Local communities.	<-3.868														
4.	Legislators and regulators.	<-3.591														
5.	Media.	<-4.918	<-3.311													
6.	Quangos.	<-4.715	<-2.759													
7.	Employees.	<-4.707														
8.	Potential investors.	<-5.539	<-3.488	<-2.636												
9.	Customers.	<-5.345	<-3.322	<-3.038	<-2.773											
10.	Local government.	<-5.437	<-3.358	<-3.007	<-2.479											
11.	Shareholders.	<-5.690	<-3.780	<-3.320	<-3.241											
12.	Insurance companies.	<-5.528	<-3.536	<-2.911												
13.	Central government.	<-6.518	<-5.283	<-4.927	<-5.298	<-3.504	<-3.815	<-3.511	<-3.009	<-2.861	<-3.717	<-2.716	<-2.627			
14.	Banks.	<-6.511	<-5.121	<-4.759	<-5.420	<-3.974	<-3.949	<-3.164	<-3.355	<-2.696	<-3.337	<-3.200	<-3.730			
15.	Industry associations.	<-6.801	<-6.086	<-5.794	<-5.946	<-4.774	<-4.984	<-4.714	<-5.116	<-4.445	<-4.140	<-4.288	<-4.183			
16.	Suppliers.	<-6.350	<-5.700	<-5.756	<-5.787	<-4.582	<-4.552	<-4.809	<-4.252	<-4.757	<-3.961	<-3.925	<-3.680			
17.	Stock market.	<-6.709	<-5.697	<-5.671	<-5.886	<-4.856	<-4.875	<-4.436	<-5.025	<-3.659	<-3.896	<-4.445	<-4.288			
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that $y < x$ indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 11: The Wilcoxon Matched Pairs Signed Rank Test
Bearing the Cost of Corporate Environmental Disclosure

1.	The company should absorb the full cost.			
2.	The Government via a system of company tax credits.	<-6.824		
3.	There should be an allocation of cost between the company and interested party.	<-7.121		
4.	The interested party should pay.	<-6.698		
		1	2	3

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 12: The Wilcoxon Matched Pairs Signed Rank Test
Possible Qualitative Characteristics of Corporate Environmental Disclosure

1.	Understandability.															
2.	Reliability.															
3.	Faithful Representation.															
4.	Relevance.	<-2.753														
5.	A true and fair view.	<-2.824														
6.	Freedom from error.	<-3.227														
7.	Valid description.	<-3.445														
8.	Consistency.	<-4.359	<-2.934													
9.	Corresponding information for previous period.	<-4.658	<-3.607	<-3.328	<-3.161											
10.	Completeness.	<-5.108	<-3.803	<-3.838	<-2.933	<-2.945		<-2.919								
11.	Substance Over Form	<-4.841	<-3.795	<-3.857	<-3.573	<-2.588										
12.	Comparability.	<-5.382	<-4.315	<-3.890	<-3.366	<-2.912	<-3.001	<-3.063								
13.	Confirmation of information.	<-5.660	<-4.701	<-4.328	<-3.828	<-3.944	<-2.983	<-3.178	<-2.958							
14.	Neutrality.	<-5.228	<-4.277	<-4.336	<-4.021	<-3.382	<-3.344	<-3.568	<-2.812							
15.	Materiality.	<-5.380	<-4.839	<-4.545	<-4.308	<-3.417	<-3.402	<-4.114								
16.	Timeliness.	<-5.979	<-5.479	<-5.416	<-4.978	<-4.713	<-5.318	<-4.979	<-4.829	<-3.723	<-3.676	<-2.842	<-3.324			
17.	Predictive value.	<-6.298	<-6.275	<-5.838	<-5.521	<-4.907	<-4.493	<-5.209	<-5.133	<-3.750	<-3.429	<-3.775	<-2.750	<-2.695		
18.	Prudence.	<-6.372	<-5.914	<-5.640	<-5.790	<-4.936	<-5.874	<-5.309	<-5.458	<-4.761	<-4.497	<-3.629	<-4.422		<-3.514	<-3.328	
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16 17

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 13: The Wilcoxon Matched Pairs Signed Rank Test
Proposed Elements of a Conceptual Framework for Corporate Environmental Reporting

1. Water.			
2. Land.			
3. Air.			
4. Sound.	<-4.782	<-4.623	<-4.703
	1	2	3

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 14: The Wilcoxon Matched Pairs Signed Rank Test
Verification of Corporate Environmental Disclosure

1. A registered auditor of The Environmental Auditors' Registration Association.						
2. Environmental consultants within their existing framework.						
3. A new professional body that includes accountants, scientists and environmental consultants.						
4. Scientists within their existing framework.		<-3.767				
5. Internal management team.	<-4.287	<-4.377	<-4.126			
6. Accountants within their existing framework.	<-4.870	<-5.059	<-4.837	<-3.507		
7. Verification is not necessary.	<-6.758	<-7.152	<-6.844	<-6.556	<-6.015	<-5.160
	1	2	3	4	5	6

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 15: The Wilcoxon Matched Pairs Signed Rank Test
Suggested Motives For Corporate Environmental Disclosure

1.	To improve the company's corporate image.										
2.	To market the company.	<-2.582									
3.	To market company products.	<-3.154									
4.	Pressure from customers / consumers.	<-4.403									
5.	To comply with regulations.	<-4.245	<-2.863								
6.	To attract investment.	<-5.924	<-3.894	<-3.273							
7.	Peer pressure from companies in the same industry.	<-5.609	<-3.826	<-3.511	<-3.227						
8.	As an acceptance of a change in society's ethics.	<-5.790	<-4.550	<-3.717	<-3.810						
9.	As a form of political lobbying.	<-6.372	<-5.042	<-4.707	<-4.210	<-2.575					
10.	To meet the demand for environmental information.	<-5.690	<-4.654	<-4.026	<-4.164						
11.	To acknowledge social responsibility.	<-6.016	<-4.887	<-4.533	<-4.209						
12.	As a result of company ethics.	<-6.412	<-5.498	<-4.935	<-4.969	<-3.272	<-2.575				
		1	2	3	4	5	6	7	8	9	11	12

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 16: The Wilcoxon Matched Pairs Signed Rank Test
Possible Reasons For the Inadequacy of Corporate Environmental Disclosure

1.	Reluctance to report sensitive information.										
2.	There is no legal obligation for companies to report environmentally.										
3.	Possible damage to companies' reputation.										
4.	To avoid providing incriminating information to regulators.	<-2.997		<-2.887							
5.	General lack of awareness of environmental issues	<-2.713									
6.	To avoid providing information to competitors.	<-3.857									
7.	Cost of disclosure.	<-3.369	<-2.575								
8.	Inability to gather the information.	<-3.813	<-3.675	<-3.255		<-2.836					
9.	Insufficient response / feedback from stakeholders.	<-5.398	<-4.362	<-4.183	<-2.734	<-3.006	<-2.778				
10.	Lack of awareness of competitive advantage.	<-5.866	<-4.813	<-5.188	<-3.745	<-4.371	<-3.035	<-2.872			
11.	Companies generally believe they do not have an impact on the environment.	<-6.773	<-5.922	<-6.097	<-4.754	<-6.125	<-5.132	<-4.619	<-4.453	<-4.302	<-2.923
12.	Users may not understand the information.	<-6.646	<-6.123	<-6.313	<-4.919	<-5.791	<-5.452	<-5.580	<-4.615	<-4.472	<-2.646
		1	2	3	4	5	6	7	8	9	10	11

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that $y < x$ indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 17: The Wilcoxon Matched Pairs Signed Rank Test
Interested Party Access to Corporate Environmental Disclosure

1. From company head office.			
2. From a central reference place where all company environmental disclosure can be examined.			
3. From company head office and at site / branch level.			
4. Only at site / branch level.	<-6.695	<-6.761	<-6.334
	1	2	3

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Appendix: F

Wilcoxon Matched Pairs Signed Ranks Test Results

for the Company Group

Table 1: The Wilcoxon Matched Pairs Signed Rank Test
The Usefulness of Corporate Environmental Information

Part A: Financial Disclosure

1. Company environmental initiatives.													
2. Management responsibilities for the environment.													
3. Legal environmental compliance.													
4. Environmental policy statement.													
5. Product packaging.													
6. Environmental audit.													
7. Environmental reporting policy.	<-3.027												
8. Product impacts.													
9. Environmental management system.	<-2.597												
10. Context of company environmental disclosure.	<-3.619	<-2.829	<-2.727	<-2.591									
11. Environmental strategy statement.	<-2.915												
12. Research & Development and the environment.	<-3.422	<-2.798	<-3.076										
13. Environmental statement by company chairman.	<-3.436	<-3.111											
14. Product life cycle design.	<-3.537	<-2.657	<-3.621										
15. Independently verified environmental disclosure.	<-4.031	<-2.549	<-2.785	<-2.694									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14

Table 1 continued

Part B: Quantitative Disclosure

1.	Company environmental initiatives.													
2.	Legal environmental compliance.													
3.	Product packaging.													
4.	Environmental reporting policy.													
5.	Management responsibilities for the environment.													
6.	Environmental policy statement.													
7.	Product impacts.													
8.	Environmental management system.													
9.	Environmental audit.	<-3.213	<-2.573											
10.	Context of company environmental disclosure.	<-3.619	<-3.038		<-2.743									
11.	Environmental statement by company chairman.	<-3.171	<-2.604											
12.	Environmental strategy statement.	<-3.647	<-2.829	<-2.596			<-2.601							
13.	Product life cycle design.	<-3.415	<-2.992	<-3.323										
14.	Research & Development and the environment.	<-3.877	<-3.676	<-3.621	<-2.790	<-3.015								
15.	Independently verified environmental disclosure.	<-4.277	<-3.111	<-2.921	<-3.096									
		1	2	3	4	5	6	7	8	9	10	11	12	13	14

Table 1 continued

Part C: Qualitative Disclosure

1.	Environmental policy statement.													
2.	Management responsibilities for the environment.													
3.	Company environmental initiatives.	<-3.191												
4.	Environmental management system.	<-3.141												
5.	Product packaging.	<-2.574												
6.	Legal environmental compliance.	<-3.323	<-2.627											
7.	Environmental reporting policy.	<-3.414	<-2.675											
8.	Environmental statement by company chairman.	<-4.154	<-3.121											
9.	Environmental strategy statement.	<-3.994	<-2.710											
10.	Environmental audit.	<-3.959	<-3.060	<-2.693										
11.	Product impacts.	<-3.657	<-2.814											
12.	Research & Development and the environment.	<-5.322	<-4.549	<-4.036	<-3.240	<-3.111	<-2.580	<-2.768	<-2.807					
13.	Context of company environmental disclosure.	<-4.736	<-4.155	<-3.949	<-2.859	<-2.790		<-2.758	<-2.623					
14.	Product life cycle design.	<-4.561	<-3.810	<-3.595	<-3.034	<-3.162								
15.	Independently verified environmental disclosure.	<-4.596	<-3.851	<-4.445	<-3.379	<-3.240	<-2.557	<-2.809	<-2.540					
		1	2	3	4	5	6	7	8	9	10	11	12	13	14

Table 1 continued

Part D: Inter-Disclosure Comparisons

	Financial with Quantitative	Financial with Qualitative	Quantitative with Qualitative
1. Environmental statement by company chairman.	<-2.934	<-4.291	<-3.159
2. Environmental policy statement.		<-4.336	<-4.494
3. Environmental strategy statement.		<-3.667	<-3.724
4. Environmental management system.		<-3.998	<-3.893
5. Management responsibilities for the environment.		<-3.685	<-4.015
6. Environmental audit.		<-2.623	<-3.296
7. Independently verified environmental disclosure.		<-2.803	
8. Legal environmental compliance.		<-2.614	
9. Research & Development and the environment.		<-2.758	<-2.817
10. Company environmental initiatives.		<-3.214	
11. Context of company environmental disclosure.			
12. Environmental reporting policy.	<-3.027	<-3.652	
13. Product life cycle design.		<-2.844	
14. Product packaging.	<-2.912	<-4.107	
15. Product impacts.	<-3.018	<-3.525	

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Table 2: The Wilcoxon Matched Pairs Signed Rank Test
Corporate Environmental Resource Information

Part A: Financial Disclosure

1. Energy consumption.	
2. Water consumption.	
3. Raw materials used.	<-2.968

1 2

Part B: Inter-Disclosure Comparisons

	Financial with Quantitative	Financial with Qualitative	Quantitative with Qualitative
1. Raw materials used.	<-3.559	<-3.484	
2. Energy consumption.	<-3.133		
3. Water consumption.	<-3.823		

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For the table involving financial disclosure, note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table. For the table of inter-disclosure comparisons, the statistics read such that the former type of disclosure is compared to the latter for each pairwise comparison, for example, for "financial with quantitative", then > indicates that financial is greater than quantitative, and < indicates that financial is less than quantitative, for that proposition.

Table 3: The Wilcoxon Matched Pairs Signed Rank Test
Corporate Environmental Risk Information

Part A: Quantitative Disclosure

1.	Financial information that could impose actual liability on a company's lender.						
2.	The risk of non-compliance with legislation.						
3.	The risk of site contamination.						
4.	The risk of environmental influences on companies' markets.						
5.	Environmental information that may reduce financial performance.						
6.	Environmental factors that could reduce the value of a company's assets.						
7.	Environmental information that may cause financial failure.	<-2.666					
		1	2	3	4	5	6

Table 3 continued

Part B: Inter-Disclosure Comparisons

	Financial with Quantitative	Financial with Qualitative	Quantitative with Qualitative
1. The risk of non-compliance with legislation.			
2. The risk of site contamination.			
3. The risk of environmental influences on companies' markets.		<-2.666	
4. Environmental factors that could reduce the value of a company's assets.			
5. Environmental information that may reduce financial performance.			
6. Financial information that could impose actual liability on a company's lender.			
7. Environmental information that may cause financial failure.			

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For the table involving quantitative disclosure, note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table. For the table of inter-disclosure comparisons, the statistics read such that the former type of disclosure is compared to the latter for each pairwise comparison, for example, for "financial with quantitative", then > indicates that financial is greater than quantitative, and < indicates that financial is less than quantitative, for that proposition.

Table 4: The Wilcoxon Matched Pairs Signed Rank Test
Quantifiable Corporate Environmental Information

Part A: Financial Disclosure

1. Generation and disposal of waste.
2. Water effluents.
3. Environmental incidents.
4. Energy consumption.
5. Air emissions.
6. Raw material use.
7. Local environmental impact.
8. Noise and odour.
9. Vehicle miles in relation to product.
10. Soil contamination and remediation.

<-2.792	<-2.808							
1	2	3	4	5	6	7	8	9

Table 4 continued

Part B: Quantitative Disclosure

1. Air emissions.								
2. Water effluents.								
3. Generation and disposal of waste.								
4. Environmental incidents.								
5. Energy consumption.								
6. Noise and odour.	<-2.677							
7. Local environmental impact.	<-3.135	<-3.075	<-3.300	<-2.958				
8. Raw material use.	<-3.925	<-3.892	<-3.769	<-3.233	<-2.726			
9. Soil contamination and remediation.	<-3.325	<-3.224	<-3.548	<-3.376				
10. Vehicle miles in relation to product.	<-3.401	<-3.700	<-3.985	<-3.761	<-3.425	<-2.781		
	1	2	3	4	5	6	7	8	9

Table 4 continued

Part C: Qualitative Disclosure

1. Environmental incidents.									
2. Generation and disposal of waste.									
3. Water effluents.									
4. Air emissions.									
5. Local environmental impact.									
6. Noise and odour.	<-3.248								
7. Energy consumption.	<-2.727	<-3.059							
8. Soil contamination and remediation.	<-3.285	<-2.808							
9. Raw material use.	<-3.532	<-3.424	<-3.003						
10. Vehicle miles in relation to product.	<-4.579	<-4.565	<-3.802	<-3.175	<-3.887	<-3.289	<-2.981	<-3.238	
	1	2	3	4	5	6	7	8	9

Table 4 continued

Part D: Inter-Disclosure Comparisons

	Financial with Quantitative	Financial with Qualitative	Quantitative with Qualitative
1. Raw material use.			
2. Energy consumption.	<-2.983		
3. Air emissions.	<-3.915	<-2.983	>-2.666
4. Water effluents.	<-3.581	<-3.179	
5. Soil contamination and remediation.	<-2.666	<-3.059	
6. Generation and disposal of waste.	<-3.516	<-3.724	
7. Environmental incidents.	<-3.243	<-3.782	
8. Vehicle miles in relation to product.			
9. Noise and odour.	<-3.516	<-3.269	
10. Local environmental impact.	<-2.666	<-3.724	<-2.803

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For tables involving financial, quantitative, or qualitative disclosure, note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table. For the table of inter-disclosure comparisons, the statistics read such that the former type of disclosure is compared to the latter for each pairwise comparison, for example, for "financial with quantitative", then > indicates that financial is greater than quantitative, and < indicates that financial is less than quantitative, for that proposition.

Table 5: The Wilcoxon Matched Pairs Signed Rank Test
Benchmarking Corporate Environmental Performance Information

Part A: Financial Disclosure

1. Industry average.		
2. Legal compliance.	<-2.803	
3. Sustainable development.	<-2.934	
	1	2

Part B: Quantitative Disclosure

1. Legal compliance.		
2. Industry average.	<-3.232	
3. Sustainable development.	<-3.920	
	1	2

Table 5 continued

Part C: Qualitative Disclosure

1. Legal compliance.		
2. Industry average.	<-2.769	
3. Sustainable development.	<-3.640	
	1	2

Part D: Inter-Disclosure Comparisons

	Financial with Quantitative	**Financial with Qualitative**	**Quantitative with Qualitative**
1. Legal compliance.	<-2.934	<-3.516	
2. Industry average.		<-3.180	
3. Sustainable development.			

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For tables involving financial, quantitative, or qualitative disclosure, note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table. For the table of inter-disclosure comparisons, the statistics read such that the former type of disclosure is compared to the latter for each pairwise comparison, for example, for "financial with quantitative", then > indicates that financial is greater than quantitative, and < indicates that financial is less than quantitative, for that proposition.

Table 6: The Wilcoxon Matched Pairs Signed Rank Test
Corporate Environmental Financial Information

Part A: Financial Disclosure

1. Environmental liabilities.					
2. Environmental benefits and opportunities.					
3. Environmental spending.					
4. Donations to environmental charities.					
5. Environmental fines and negotiated settlements.					
6. Government environmental taxes and charges.	<-3.285	<-3.296	<-3.180	<-2.676	<-3.180
	1	2	3	4	5

Part B: Qualitative Disclosure

1. Environmental benefits and opportunities.					
2. Environmental spending.					
3. Environmental liabilities.					
4. Donations to environmental charities.					
5. Environmental fines and negotiated settlements.					
6. Government environmental taxes and charges.	<-3.084				
	1	2	3	4	5

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For tables involving financial or qualitative disclosure, note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 7: The Wilcoxon Matched Pairs Signed Rank Test
Corporate Environmental Management Information

Part A: Financial Disclosure

1.	Compliance with legislation.									
2.	Health and safety.									
3.	Compliance with industry standards.									
4.	Environmental impact assessment.									
5.	Setting measurable environmental targets and objectives.									
6.	Risk assessment.	<-2.677								
7.	Hazard assessment.	<-2.809								
8.	Accident and emergency response.	<-3.180	<-2.627							
9.	Land contamination and remediation.	<-2.614								
10.	Environmental management system.	<-3.695	<-3.386	<-2.919						
11.	Environmental integration of business.	<-3.590	<-2.842	<-3.038						
		1	2	3	4	5	6	7	8	9	10

Table 7 continued

Part B: Quantitative Disclosure

1. Compliance with legislation.										
2. Health and safety.										
3. Compliance with industry standards.										
4. Setting measurable environmental targets and objectives.	<-4.271									
5.[a] Accident and emergency response.	<-2.829	<-3.310								
5.[b] Risk assessment.	<-2.691									
7. Environmental management system.	<-2.595									
8. Environmental impact assessment.	<-2.960	<-3.243								
9. Hazard assessment.	<-3.525	<-3.528								
10. Land contamination and remediation.	<-4.090	<-3.291								
11. Environmental integration of business.	<-4.271	<-3.223	<-3.188	<-2.705			<-2.934			
	1	2	3	4	5[a]	5[b]	7	8	9	10

Table 7 continued

Part C: Qualitative Disclosure

1. Compliance with legislation.										
2. Health and safety.										
3. Compliance with industry standards.										
4. Accident and emergency response.										
5. Setting measurable environmental targets and objectives.										
6. Hazard assessment.	<-2.857	<-3.353								
7. Environmental management system.	<-3.162	<-2.910								
8. Risk assessment.	<-3.422	<-3.782								
9. Environmental impact assessment.	<-2.794	<-3.667								
10. Land contamination and remediation.	<-3.322	<-3.733		<-2.741						
11. Environmental integration of business.	<-3.836	<-3.618	<-3.135							
	1	2	3	4	5	6	7	8	9	10

Table 7 continued

Part D: Inter-Disclosure Comparisons

	Financial with Quantitative	Financial with Qualitative	Quantitative with Qualitative
1. Health and safety.	<-3.441	<-4.286	
2. Environmental impact assessment.			
3. Risk assessment.	<-3.296	<-2.783	
4. Hazard assessment.	<-2.934	<-3.501	
5. Accident and emergency response.	<-3.621	<-4.286	<-2.666
6. Land contamination and remediation.			
7. Environmental integration of business.		<-3.621	
8. Environmental management system.	<-3.823	<-4.153	
9. Setting measurable environmental targets and objectives.	<-3.077	<-3.425	
10. Compliance with legislation.	<-3.290	<-3.233	
11. Compliance with industry standards.		<-3.295	

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For tables involving financial, quantitative, or qualitative disclosure, note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table. For the table of inter-disclosure comparisons, the statistics read such that the former type of disclosure is compared to the latter for each pairwise comparison, for example, for "financial with quantitative", then > indicates that financial is greater than quantitative, and < indicates that financial is less than quantitative, for that proposition. Note that the superscripts a and b indicate that the mean average statistics, the standard deviations and the percentage ratings have tied for the two propositions to which they refer.

Table 8: The Wilcoxon Matched Pairs Signed Rank Test Assessing and Reporting Environmental Incidents

Part A: Assess Impact

1.	Company employees.						
2.	Quango eg. National Rivers Authority.	<-6.031					
3.	Independent consultants	<-6.230					
4.	Local Authority.	<-6.334					
5.	Local Authority and Independent consultants.	<-6.334	<-3.535	<-3.467	<-2.624		
6.	The Department of the Environment.	<-6.624	<-3.810	<-3.335	<-3.507		
7.	Central Government.	<-6.624	<-5.159	<-4.708	<-4.237		
8.[a]	The Department of Agriculture.	<-6.624	<-5.326	<-5.034	<-4.726	<-3.214	
8.[b]	The Department of Trade and Industry.	<-6.723	<-5.216	<-5.034	<-4.603	<-3.086	
		1	2	3	4	5	6	7	8[a]

Table 8 continued

Part B: Report Impact

1.	Company employees.							
2.	Quango eg. National Rivers Authority.	<-9.579						
3.	Local Authority.	<-5.579						
4.	Independent consultants	<-5.654						
5.	Local Authority and Independent consultants.	<-5.868	<-3.795	<-2.584				
6.	The Department of the Environment.	<-6.156	<-3.870	<-3.323				
7.	Central Government.	<-6.275	<-4.320	<-3.406				
8.	The Department of Trade and Industry.	<-6.289	<-4.603	<-3.684	<-2.919			
9.	The Department of Agriculture.	<-6.275	<-4.804	<-4.140	<-3.137			
		1	2	3	4	5	6	7	8

Table 8 continued

Part C: Assess and Report Impact

	Assess and Report Impact
1. Company employees.	
2. Independent consultants.	>-2.896
3. Local Authority.	
4. Local Authority and Independent consultants.	
5. Central Government.	
6. The Department of the Environment.	
7. The Department of Trade and Industry.	
8. The Department of Agriculture.	
9. Quango eg. National Rivers Authority.	

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. For tables involving either only assessing or reporting impact, note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table. For the table comparing assessing and reporting impact for each proposition, the statistics read such that assessing is compared to reporting, for example, > indicates that assessing is greater than reporting, and < indicates that assessing is less than reporting, for that proposition. Note that the superscripts a and b indicate that the mean average statistics, the standard deviations and the percentage ratings have tied for the two propositions to which they refer.

Table 9: The Wilcoxon Matched Pairs Signed Rank Test
Accounting Information and Corporate Environmental Reporting

1.	Cost savings from energy conservation.											
2.	Cost savings from recycling.											
3.	Cost of implementation of pollution control measures.											
4.	Cost of environmental compliance.											
5.	Cost of non-compliance with environmental legislation.	<-2.871	<-2.624									
6.	Environmental contingent liabilities.	<-3.141	<-2.952									
7.	Cost of introducing environmental management system.	<-3.126	<-3.219									
8.	Cost of conducting environmental audits.	<-3.460	<-3.619	<-2.737								
9.	Cost of keeping ahead of the regulator.	<-3.892	<-3.803	<-3.516	<-2.983							
10.	Compliance costs of BS7750 and / or E.M.A.S.	<-3.508	<-3.692	<-2.651								
11.	Compliance cost of industry association directives.	<-4.276	<-4.276	<-3.408	<-3.051			<-2.803				
12.	Reduced "environmental" insurance premium.	<-4.547	<-4.469	<-3.780	<-3.743	<-2.840	<-3.053	<-3.180				
13.	Increased "environmental" insurance premium.	<-4.712	<-4.635	<-4.197	<-4.107	<-3.296	<-3.516	<-3.516	<-2919	<-2.669		
		1	2	3	4	5	6	7	8	9	10	11	12

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 10: The Wilcoxon Matched Pairs Signed Rank Test
Consultation and Corporate Environmental Reporting

1.	Internal company resources.								
2.	Industry associations.	<-4.021							
3.	Local Authority.	<-4.463							
4.	An environmental consulting firm.	<-4.898							
5.	Competitors' disclosure.	<-5.645	<-3.508						
6.	British Standards Institute regulations that is, BS7750.	<-5.602	<-3.860	<-2.838					
7.	The Company financial accounting auditing firm.	<-5.310	<-3.132						
8.	A management consultant firm.	<-5.683	<-4.026	<-2.939	<-3.054				
9.	An affiliated environmental charter group.	<-5.599	<-4.060	<-2.821	<-3.189				
10.	Environmental pressure groups.	<-5.714	<-4.478	<-3.489	<-3.233				
		1	2	3	4	5	6	7	8	9

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that $y < x$ indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 11: The Wilcoxon Matched Pairs Signed Rank Test
Time Period and Communication of Corporate Environmental Reporting

1.	Environmental information within the published Company annual report.							
2.	Press release at company`s discretion.	<-3.023						
3.	Stand alone published environmental company report annually.	<-2.870						
4.	Specially published Company environmental report at company`s discretion.	<-4.406	<-3.772					
5.	Environmental information within the published Company annual report plus the half yearly Interim statement.	<-5.197	<-3.501					
6.	Stand alone published environmental company report every 3 months	<-4.815	<-3.681					
7.	Stand alone published environmental company report every 6 months	<-4.847	<-3.940	<-2.934		<-2.691		
8.	Annual stand alone published Company environmental report plus an Interim environmental statement every 3 months	<-5.757	<-5.169	<-3.621	<-3.290	<-3.621		
9.	Annual stand alone published Company environmental report plus an Interim environmental statement every 6 months	<-5.712	<-5.442	<-3.823	<-3.621	<-3.724		
		1	2	3	4	5	6	7	8

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that $y < x$ indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 12: The Wilcoxon Matched Pairs Signed Rank Test
Users of Corporate Environmental Disclosure

1.	Employees.															
2.	Customers.															
3.	Legislators and regulators.															
4.	Shareholders.	<-3.385														
5.	Local communities.	<-3.998														
6.	Local government.	<-3.810		<-3.188												
7.	Potential investors.	<-4.103	<-3.587													
8.	Quangos.	<-4.541	<-3.401	<-4.006												
9.	Ethical investors.	<-4.244	<-3.556	<-2.648												
10.	Media.	<-5.235	<-4.758	<-4.130	<-2.626	<-2.673										
11.	Insurance companies.	<-4.839	<-4.088	<-3.540	<-2.897											
12.	Central government.	<-5.335	<-4.621	<-4.073	<-2.657		<-2.581									
13.	Suppliers.	<-5.159	<-5.435	<-3.492	<-2.602	<-2.880										
14.	Environmental groups.	<-5.590	<-4.956	<-3.884	<-2.935	<-3.449										
15.	Industry associations.	<-5.747	<-5.258	<-4.326	<-3.405	<-3.627	<-3.206									
16.	Banks.	<-5.858	<-5.274	<-4.758	<-4.275	<-3.721	<-2.913	<-2.883								
17.	Stock market.	<-5.691	<-5.377	<-4.231	<-4.518	<-3.810	<-2.912	<-3.394	<-2.651	<-2.663						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 13: The Wilcoxon Matched Pairs Signed Rank Test
Bearing the Cost of Corporate Environmental Disclosure

1.	The company should absorb the full cost.			
2.	The interested party should pay.	<-2.581		
3.	There should be an allocation of cost between the company and interested party.	<-2.718		
4.	The Government via a system of company tax credits.	<-4.175		
		1	2	3

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 14: The Wilcoxon Matched Pairs Signed Rank Test
Possible Qualitative Characteristics of Corporate Environmental Disclosure

1.	Understandability.															
2.	A true and fair view.															
3.	Reliability.															
4.	Relevance.															
5.	Faithful Representation.	<-3.134														
6.	Valid description.	<-3.564	<-2.647	<-2.833												
7.	Freedom from error.	<-3.532	<-2.647	<-2.640												
8.	Consistency.	<-4.596	<-4.262	<-4.155	<-3.258	<-2.749										
9.	Substance Over Form	<-4.653	<-3.966	<-4.134	<-3.721	<-2.976	<-2.635									
10.	Corresponding information for previous period.	<-5.691	<-4.961	<-4.882	<-4.367	<-3.887	<-3.332	<-2.823								
11.	Completeness.	<-5.257	<-4.574	<-5.016	<-4.137	<-3.774	<-3.309	<-3.159								
12.	Materiality.	<-5.915	<-5.124	<-5.548	<-4.907	<-4.436	<-4.064	<-3.115								
13.	Confirmation of information.	<-5.585	<-5.168	<-4.980	<-4.594	<-4.625	<-3.764	<-3.840								
14.	Comparability.	<-6.169	<-6.152	<-5.725	<-5.702	<-5.081	<-4.807	<-4.378	<-3.723	<-3.116		<-2.760				
15.	Prudence.	<-6.098	<-5.820	<-5.920	<-5.811	<-5.039	<-5.236	<-4.677	<-3.236	<-3.004						
16.	Timeliness.	<-6.154	<-6.215	<-5.961	<-5.728	<-5.306	<-5.076	<-4.643	<-3.829	<-2.954	<-2.945	<-2.645				
17.	Neutrality.	<-6.537	<-6.452	<-6.190	<-6.121	<-5.820	<-5.332	<-5.078	<-4.143	<-3.685	<-2.759	<-3.159				
18.	Predictive value.	<-6.567	<-6.138	<-5.600	<-5.938	<-5.307	<-4.686	<-4.977	<-4.143	<-3.471	<-3.042	<-2.709				
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that $y < x$ indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 15: The Wilcoxon Matched Pairs Signed Rank Test
Proposed Elements of a Conceptual Framework for Corporate Environmental Reporting

1. Water.			
2. Land.	<-2.521		
3. Air.			
4. Sound.	<-3.988	<-3.229	<-2.939
	1	2	3

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 16: The Wilcoxon Matched Pairs Signed Rank Test
Verification of Corporate Environmental Disclosure

1. Internal management team.						
2. A registered auditor of The Environmental Auditors' Registration Association.	<-3.507					
3. Scientists within their existing framework.	<-4.401					
4. Environmental consultants within their existing framework.	<-4.164					
5. Verification is not necessary.	<-5.431					
6. A new professional body that includes accountants, scientists and environmental consultants.	<-4.999	<-3.559				
7. Accountants within their existing framework.	<-6.246	<-4.012	<-4.103	<-3.875		
	1	2	3	4	5	6

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 17: The Wilcoxon Matched Pairs Signed Rank Test
Suggested Motives For Corporate Environmental Disclosure

1.	To acknowledge social responsibility.										
2.	To improve the company's corporate image.										
3.	To comply with regulations.										
4.	As a result of company ethics.										
5.	As an acceptance of a change in society's ethics.	<-3.212									
6.	To market the company.	<-4.422	<-4.361	<-2.748							
7.	To meet the demand for environmental information.	<-4.089	<-3.270								
8.	To market company products.	<-4.214	<-3.895	<-2.979	<-2.598						
9.	Pressure from customers / consumers.	<-4.369	<-3.789	<-3.360	<-2.726						
10.	To attract investment.	<-6.167	<-5.763	<-4.296	<-4.906	<-4.160	<-3.452		<-2.979		
11.	As a form of political lobbying.	<-5.955	<-5.756	<-4.887	<-4.858	<-3.801	<-3.345	<-2.741	<-2.778		
12.	Peer pressure from companies in the same industry.	<-6.502	<-5.985	<-5.541	<-5.455	<-5.015	<-3.740	<-3.997	<-2.415	<-4.354	
		1	2	3	4	5	6	7	8	9	10	11

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 18: The Wilcoxon Matched Pairs Signed Rank Test
Possible Reasons For the Inadequacy of Corporate Environmental Disclosure

1.	Reluctance to report sensitive information.										
2.	There is no legal obligation for companies to report environmentally.										
3.	To avoid providing information to competitors.										
4.	Possible damage to companies' reputation.	<-3.273	<-3.197								
5.	Cost of disclosure.	<-2.597	<-3.101								
6.	Inability to gather the information.		<-2.824								
7.	Insufficient response / feedback from stakeholders.	<-3.657	<-4.257								
8.	To avoid providing incriminating information to regulators.	<-4.010	<-3.333								
9.	General lack of awareness of environmental issues	<-3.229	<-3.301								
10.	Users may not understand the information.	<-4.682	<-4.279	<-3.601							
11.	Lack of awareness of competitive advantage.	<-4.338	<-4.985	<-3.034							
12.	Companies generally believe they do not have an impact on the environment.	<-5.912	<-6.412	<-5.326	<-5.095	<-5.101	<-4.597	<-5.307	<-4.083	<-4.690	<-3.625	<-3.879
		1	2	3	4	5	6	7	8	9	10	11

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 19: The Wilcoxon Matched Pairs Signed Rank Test
Interested Party Access to Corporate Environmental Disclosure

1. From company head office.			
2. From company head office and at site / branch level.			
3. From a central reference place where all company environmental disclosure can be examined.	<-5.623	<-4.147	
4. Only at site / branch level.	<-5.693	<-5.845	
	1	2	3

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

Table 20: The Wilcoxon Matched Pairs Signed Rank Test
Accountability, Decision-Making and Corporate Environmental Disclosure

1. Environmental disclosure that has been analysed would be more useful for accountability and decision-making purposes than raw data.			
2. It would be useful for accountability and decision-making purposes if companies disclosed environmental target-setting information with respect to a set classification.	<-3.993		
3. Interested parties require company environmental disclosure for accountability and decision-making purposes.	<-5.775		
4. Company environmental disclosure should be regulated in the same way as accounting disclosure.	<-6.027	<-4.431	
	1	2	3

Values for the test statistic which are included in the table are those for which the null hypothesis is rejected at a 1% or higher significance level. Note that y < x indicates that y is less than x, where y represents the propositions along the side of the table and x represents those across the table.

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