

THE ROLE OF ACCOUNTING AND THE ACCOUNTANT IN THE ENVIRONMENTAL MANAGEMENT SYSTEM



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This paper explores the role of accounting and the accountant in the Environmental Management System (EMS). This study was founded on a postal survey of chief executive officers (CEOs) and chief financial officers (CFOs) from the top 500 listed Australian companies. From responses to the surveys, this paper firstly documents the adoption of environmental accounting processes by respondent companies and secondly management attitudes as to the role of environmental accounting in these companies. The senior executives responding to the survey suggest that they believe the environment is an important issue, and recognize the need for a business response. However, there appeared to be limited participation of the accountant in the EMS, which suggests there is a gap between the aggregate observations of this sample and literature support with respect to the role of environmental accounting. It is suggested that this might reflect a lack of understanding of the potential role accounting and the

accountant could (and arguably should) play as a member of the EMS team. It is the intention of this paper to provide some input to enhance an understanding of the potential and important role accounting and the accountant could play in the EMS. Copyright © 2001 John Wiley & Sons, Ltd. and ERP Environment.

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INTRODUCTION

The interaction of business with the environment is of increasing interest within the community. The importance of this issue can be discussed in terms of the growing body of government regulations and legislation (Barbera, 1994; Bates, 1995), in the increased community interest (Coopers and Lybrand, 1993; Deegan and Gordon, 1996), or the continuing focus by the media upon corporate environmental performance. Supportive of this, Schaltegger (1996, p 3) commented 'in society, awareness of environmental issues has been rising dramatically during the last 20 years and environmental pressure group membership has been growing in most countries if seen over an extended period'.

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Management, particularly those in firms that attract attention to their environmental management practices, can no longer ignore the implications of their impact upon the environment (both physical and financial). For example, supporting this viewpoint, in a study focusing on the environmental impact of oil spills, Burritt and Gibson (1993, p 17) argue that there are 'at least two reasons why a management accountant should care about reducing oil pollution on the high seas apart from his or her normal reasons as a concerned citizen of the world. These are expressed in terms of the trade-off between 'restoration accounting' and 'precautionary investment'¹.

In the corporate decision process accountants provide the financial information required to plan for and evaluate the performance of the organization. Often, it is the financial consequences of an action that determine the project's acceptability. It would be irresponsible of management not to consider all the costs (and revenues) likely to be associated with business activities. Decisions that are likely to have an environmental impact are also likely to have a financial impact, hence are no different from other decisions. As a result it would be expected that the corporate accountant would be encouraged to take an interest in evaluating these decisions and hence be involved in the EMS.

The purpose of this paper is to examine the role that the accountant can undertake in environmental management. Firstly this involves a brief review of the literature that has explored environmental accounting. Secondly, this paper reports on the results of two surveys undertaken to explore the involvement of the accountant in the EMS in Australian companies. The objectives of the surveys were to assess the attitude of respondents toward environmental accounting and the level of involvement of the accountant in the company's EMS.

¹ Restoration can be described as the costs associated with correcting the adverse environmental impact the activities of the firm have had, whereas precautionary investment would aim to minimize the risk of an adverse environmental impact.

THE ACCOUNTANT IN THE ENVIRONMENT MANAGEMENT SYSTEM

The EMS has been broadly described as that part of the total management system 'which includes organizational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy' (ISO 14001, p 4). Environmental accounting as a part of the EMS has been defined as '... covering all areas of accounting that may be affected by the business response to environmental issues' (Gray *et al.*, 1993, p 6). This interpretation has been adopted in this study, and identifies an important role for the accountant, with respect to planning, implementing and evaluating the response of the business to concerns relating to the environment.

In this study it is suggested that accounting and the accountant could play a significant role in the successful implementation of the EMS by bringing the traditional functions of accounting to the environmental management process. These skills include those of measuring, recording, monitoring and verifying financial data. The EMS could incorporate accounting mechanisms that deal with the valuation of environmental impact, environmental performance evaluation, flow of financial information and the monitoring of the success of implementation of environmentally related actions. Linked to other management systems this could be expected to enhance the quality of decision making.

The role for the accountant does not imply that they need to be 'environmental experts' any more than an accountant is an 'expert' in building, engineering or retailing, or that their role should be limited to financial data. Accountants are trained in skills required for the development and operation of appropriate EMSs that result in the recording, reporting, disclosure and verification of a firm's performance including its environmental performance. The accountant can assist in identifying environmental information which is relevant to decision making, in making about the reliability of measures and in organizing an



EMS that enhances the communication of results in an understandable form.

It should be noted that there is little environmental impact that could not, despite inherent difficulties, be allocated costs, or recognition given to cost savings, or even revenue resulting from positive environmental actions. Such costs may include monitoring, waste management, audits, pollution control, public relations, training, remediation, research and development, site decommissioning, insurance, recycling and habitat protection². Companies already record many of these costs, although they may not be shown as separate environmental costs. Other costs such as damage to the environment from waste disposal (for example, in the waterways or in the atmosphere) cannot always be accurately identified or valued. These are the external costs to the company for which they have generally not been held responsible. However within the current regulatory environment, more stringent requirements are gradually being placed upon companies, for example, to either limit the quantity of pollution or further process waste so as to minimize its impact, thereby progressively internalizing many of these costs.

The growth in community concern, legislation and regulation suggests serious consideration should be given to the evaluation of environmental performance. There is a need for mechanisms that are able to incorporate financial information as well as qualitative data relating to the environment. Such mechanisms may include tools such as life cycle analysis, activity based costing and cost-benefit analysis. These tools could be utilized to incorporate environmental impact into business decision making and the evaluation of performance.

The accountant can also play a role in monitoring environmental performance through the environmental audit. The environmental audit could take one of many forms (see CMA, 1995) with the primary aim of identifying key issues, assessing compliance, identifying and evaluating possible risks, providing feedback for improvement to environmental policies and

programmes and assessing the ability (in terms of viability and costs) of reducing the impact upon the environment. Whilst the accountant may not have all of the skills necessary to conduct the full environmental audit, he or she is well positioned to play a pivotal role as part of the audit team. The accountant is able, as part of the team, to provide input with regard to the verification of financial data, cost-benefit analysis, compliance status and the design and implementation of an EMS to capture the required environmental information.

The role for the accountant can be seen as two dimensional: involvement in the internal operations of the company, focusing upon performance and compliance concerns, and in the external dimension relating to the disclosure of economic information to external report users. These users are broadly defined as resource providers, recipients of goods and services and parties performing a review or oversight function. If there are, and there is certainly evidence to suggest this, users³ requiring information relating to environmental performance, the company should provide this information to meet their accountability obligations. It is a function of accounting to ensure users are provided with relevant and reliable information about the performance of the firm. The accounting information system can provide a framework for the preparation of environmental information to enable management to meet this accountability function.

ENVIRONMENT-RELATED ACCOUNTING

Bennett and James (1997) identified six areas of environment-related management accounting. They further suggest that in practice environment-related management accounting has primarily been concerned with financial management and the generation of financial data. The objective of environment-related management accounting is to ensure management have sufficient information to enhance the management decision process. Bennett and

² This is a limited list of environment-related costs that could be incurred by any company. For a more complete list of costs see CMA (1996, p 6).

³ See, for example, Elkington *et al.* (1991), Commonwealth Environment Protection Agency (1994), Elkington (1994).



James (1997) argued that environment-related management accounting can be effective in improving management efficiency by

- identifying cost reductions and improvements,
- prioritizing environmental actions,
- guiding product pricing, mix and development decisions,
- enhancing customer value,
- future-proofing investment and other decisions with long-term consequences and
- assessing the eco-efficiency and/or sustainability of a company's activities.

At the core of environment-related management accounting is the development of appropriate mechanisms for identifying and allocating costs associated with environmental issues, in other words, the development of environmental performance indicators that provides management with both financial and non-financial information relevant for decision-making purposes⁴. However, it is suggested that the traditional cost accounting system has failed to assign environmental costs to the specific products and processes that generate them. This could mean environmental costs are aggregated into cost pools and allocated to products on the basis of measures of production volume such as machine or labour hours, or, alternatively, they may be subtracted in a lump sum from operating income (Russell *et al.*, 1994). Traditional accounting systems can underestimate the cost of producing an item that generates a significant amount of waste, or overestimate the cost of an item that generates little waste. Also, potential financial liabilities and legal costs for violations of environmental regulations often are not accounted for (CMA, 1996). Therefore, the development and adoption of identified environment-related accounting procedures may suggest the significance of the specific issues to the individual organization.

A second important function of accounting is the reporting of information. Schaltegger (1996, p 232) noted that financial environmen-

tal reporting involves 'the reporting of environmentally induced financial impacts and environmental impact added'. A number of issues need to be considered in this context including

1. why should environmental information be reported to stakeholders?
2. to which stakeholders should this environmental information be reported?
3. what environmental issues should be reported to these stakeholders?
4. is the information system able to capture the environmental information required?
5. at what time, and through what media, should these reports be made? and
6. at what frequency should these reports be made?

The objective should be to report financial environmental information that is of use to stakeholders in the making of informed decisions regarding the distribution of resources.

STUDY DESIGN

Whilst there has been much discussion about the potential role of the accountant in the EMS there has been limited evidence identifying the actual role accountants are playing and the level of involvement of accounting in such a system. To provide a clearer understanding of this role, in the Australian context, this study undertook to gather data to build a profile of the accountant and accounting within the corporate EMS. This involved a survey of chief financial officers (CFOs) and chief executive officers (CEOs) of the top 500 companies listed on the Australian Stock Exchange (ASX). Companies not listed for the years 1994/95, or headquartered offshore, were omitted from the survey. Of the 398 delivered surveys, 121 useable CFO responses were received (30% response rate), and 95 useable CEO responses were received (24% response rate).

Two surveys were undertaken as it was believed that no individual would have a complete understanding of the interaction between the corporate EMS and the potential

⁴ Much of this information could then be utilized in financial reporting where a decision is made about the environmental information to disclose to stakeholders.



role played by accounting within this system. In addition it was felt that the CEO and CFO would perceive issues from different viewpoints given the demands of, and pressure inherent in their respective positions. The survey directed toward the CEOs focused upon general environmental management issues. Respondents were questioned as to what they perceived to be the role of accounting in environmental management, specifically relating to issues such as valuation of environmental impact and the reporting of environmental information⁵.

The survey directed toward the CFOs focused upon environmental accounting issues, and the involvement of the accountant in environmental management. The survey content was based upon prior surveys by Coopers and Lybrand (1993), KPMG (1993) and Bebbington *et al.* (1994), and a review of the literature on environmental accounting practices, for example, Barbera (1994) and CMA (1995).⁶

Since the total population identified did not respond there is, as with all survey questionnaires, an issue relating to the representativeness of the sample. The issue is related to the extent of bias reflected in the respondent sample rather than the actual response rate (Babbie, 1989). A test for non-response bias was undertaken, by applying the early-late hypothesis technique, which suggests that late returns are often similar to non-responses. A Mann-Whitney *U* test was used to assess whether bias might exist for the Likert scale questions. All factors were tested in this way. In all cases, the null hypothesis that the sample came from the same population distribution could not be rejected at the 0.05% level of significance.⁷

⁵ A copy of the survey may be obtained from the authors. The content of the survey to CEOs forms the basis of Table 5.

⁶ A copy of the survey may be obtained from the authors. The content of the survey to CFOs forms the basis of Tables 1–4 and 6.

⁷ Although statistically there appears not to be a non-response bias, arguably where there may be no active environmental management programmes within a company, the survey recipients may not have responded. Hence, responses may be biased towards those companies who are active in environmental management.

The primary purpose of the survey was to gather descriptive data on environmental management and accounting practices by Australian companies. Hence the survey did not gather data on the companies' profiles. There is an opportunity for future research to provide an analysis of company characteristics that are associated with the adoption of an EMS.

A limitation of the survey process was the need to allow respondents to remain anonymous (hence only a small number of respondents identified the name of the company for which they worked). Hence, analysis was not undertaken as to the respondents' representativeness of the sample initially surveyed. As the CEOs received a different set of questions to the CFOs in order to gain alternative perspectives on the issue of environmental accounting, no direct comparison of responses could be undertaken. Further, due to the anonymity of respondents, cross-referencing of respondents from the same company was restricted. However, an analysis of the responses from the same company might have provided additional insight into the development of environmental accounting, and is noted as an area for potential future research.

RESULTS

Environmental issues in the management accounting and control systems

A first step was to ask CFOs to identify whether environmental information was included within the existing management accounting information and control systems. The results are summarized in Table 1.

The most common inclusions related to risk assessment, capital budgeting and investment appraisal decisions, and within the internal reporting system. Such involvement would indicate the recognition by many respondents of the probable environmental costs and risks that may be incurred with capital expansion. This indicates an emphasis on the need to understand the increased potential impact environmental issues may have upon the company from such expansion. The results may



Table 1. Environmental issues recognized in the management accounting and control systems

Management accounting and control systems	% of respondents
Risk assessment	60
Capital budgeting	59
Internal reporting	53
Investment appraisal	53
The budgeting system	48
Plant maintenance or overhaul	40
The costing system	35
Performance measurement and appraisal	35

suggest that companies are focusing on reducing the possibility of engaging in activities that may increase environmental risk, while appearing to be less inclined to fully incorporate current environmental issues into the accounting information system.⁸

The adoption of environmental accounting practices

CFOs were asked to identify the areas in which specific environmental accounting practices had been developed. The results are reported in Table 2. The major areas identified by respondents were energy usage, rehabilitation and the need to address the possible cost of legal regulation. System implementation was also undertaken for waste and environmental costs as part of product costing. This suggests, at an internal level, that a number of specific environmental issues are already being incorporated within many companies' accounting system. However, motivation for adoption is likely either to be directly related to regulatory requirements or areas of potential cost savings.

The application of cost-benefit analysis in environmental management

Cost-benefit analysis is an accounting tool which managers find valuable in the evaluation of the projected environmental impact of alternative actions. Table 3 reports that many

⁸ The results might also reflect a greater involvement by respondents with capital planning than a detailed knowledge of day to day operations.

Table 2. Environmental accounting practices

Environmental accounting for specific issues	% of respondents
Energy usage	45
Rehabilitation	43
Address the cost of legal regulations	42
Part of product costing	41
Waste	37
Environmental contingent liabilities	36
Environmental research and development	33
Returnable packaging	32
Cost adverse environmental impact	30
Recycling	30

Table 3. Cost-benefit analysis in environmental management processes

Cost-benefit analysis by process	% of respondents
Energy efficiency	40
Waste management	33
Site cleanup	31
Pollution minimization	31
Site contamination	29
Recyclable containers	21
By product use	16

respondent companies implemented cost-benefit analysis incorporating environmental concerns. Cost-benefit analysis was most commonly undertaken to assist in decisions relating to the efficient use of energy, waste management and minimization of pollution, and in decisions relating to site cleanup and contamination. In many of these areas cost savings are possible as a result of careful monitoring. However, cost-benefit analysis was less prevalent in areas such as recycling and by product use.

Chief Finance Officer attitudes toward environmental accounting

If environmental accounting techniques are to be adopted, management must believe that such involvement is warranted, and that accounting and the accountant are able to provide a worthy contribution to environmental management within the organization. CFOs were asked to respond to a number of questions in an attempt to assess their



attitudes towards environmental issues and environmental accounting. The results are summarized in Table 4. Many respondents held a neutral attitude toward the accountant's role in the environmental management process and toward environmental accounting issues, suggesting limited involvement of accounting and the accountant in the EMS.

Although there was a strong belief by respondent CFOs that the environment was not a passing fad, 39% indicated that environmental issues were outside the realm of the accountant, and there was only marginal support (23%) for the quantification and reporting of environmental impact. The majority of respondents expressed a neutral attitude toward the accountant's involvement in the EMS, although a significant proportion (36%) suggested that the accountant should contribute to environmental management. Although there is a general belief that environmental issues are important, many of the respondents did not recognize a role that accounting and the accountant could play within environmental management.

Many respondents expressed the opinion that environmental reporting was important to annual report users, and many supported the view that such information should be prepared and quantified; however there was significant opposition to it being a mandatory component of the annual report. Once again

the respondents did not appear to be carrying through a concern for the environment into the reporting agenda, even after many suggested that such information would be useful to external parties. This attitude is reflected by studies that have shown a gradually increasing, however still limited levels of external disclosure of environmental information (Gibson and Guthrie, 1995).

Chief Executive Officers and environmental accounting

CEOs were surveyed to obtain an insight into their views about the inclusion of accounting and the accountant in the organization's response to environmental concerns. As with CFOs, many CEOs were inclined to take a neutral stance, perhaps suggesting a less than clear understanding of how accounting can be incorporated into the EMS, or that the issue had not been given a great deal of consideration by the company. The respondents' opinions are reported in Table 5.

Many of the respondents (49%) did not believe that environmental costs without a market value (at present) should be included in the profit or loss statement. There was little support for the valuation of environmental impacts being included within the annual financial statements, with 51% of respondents opposing such valuation.

Table 4. Chief financial officer's attitudes toward environmental issues

	1	2	3	4	5	Average
Concern about the environment is a passing fad	39	47	9	2	3	1.842
Environmental issues lie outside the accountants realm	9	30	33	23	5	2.860
The environmental impact of an organization (both positive and negative) should be quantified and included in the financial statements	22	29	26	17	6	2.560
The accountant should contribute to the company's environmental management	7	11	46	35	1	3.140
The accountant has a professional responsibility to advocate the environmental agenda within the financial aspects of the company's management	9	14	63	14	0	2.821
Environmental information is important to users of annual reports	6	11	40	37	6	3.260
Environmental disclosure should be a mandatory component of the annual report	19	27	25	24	5	2.690
Environmental disclosures, where possible, should be in quantitative terms	12	21	39	40	5	3.170
Reporting entities should prepare environmental information for public disclosure	13	13	33	39	2	3.040

1, strongly disagree; 3, neutral; 5, strongly agree; results as percentages of responses.



Table 5. Opinions of chief executive officers of the top 500 Australian companies on environmental accounting

	1	2	3	4	5	Av.
Environmental costs which do not currently have a market value should be included, in some way, within the profit and loss statement	20	29	30	21	0	2.52
The valuation of environmental impact (both negative and positive) should appear in the financial statements in annual reports	18	33	26	23	0	2.54
Environmental disclosure should be a mandatory component of the annual report	8	40	28	22	2	2.70
Environmental information should be disclosed outside the annual report	2	12	43	37	6	3.33
Environmental disclosures in annual reports should be, where possible, in quantitative terms	10	16	38	34	2	3.02
Disclosure of environmental information is important to users of annual reports	9	17	37	35	2	3.04

1, strongly disagree; 3, neutral; 5, strongly agree; results as percentages of responses.

The disclosure of environmental information in annual reports was regarded as important to users of accounting information by 37% of respondents. A further 37% did not express an opinion. There was some support for the provision of environmental information in a quantitative form within the annual report with 36% of respondents agreeing; however, 26% of respondents disagreed with this format for disclosure. Respondents generally disagreed with the disclosure of environmental information becoming a mandatory component of annual reports (48% of respondents). Only a small minority (14%) of CEOs disagreed with the disclosure of environmental information outside the annual report. The results suggest that although much 'lip-service' is given to environmental management and environmental accounting, there appears only marginal support for the involvement of the accountant and accounting in servicing the EMS, and specifically in the external reporting process.

Level of involvement identified by Chief Finance Officers

CFOs were finally asked to identify the level of involvement that they and their staff had in selected environmental management activities. Of the respondents to the question who identified that environmental management was undertaken by the firm, accountants in general appear to play a limited role. Given the lack of significant support for environmental accounting by many respondents, this result may not be unexpected. Further, given that many CFOs suggested that environmental issues lay outside the realm of the accountant, and with only limited support by many CEOs toward environmental accounting issues, it is understandable that accounting and accountants have not been further included within the environmental management process. Table 6, however, does identify some high involvement by a limited number of respondents in all activities except in the development of the environmental policy.

Table 6. Involvement of accounting staff of top 500 Australian companies in selected environmental activities

	No involvement	Low	Medium	High
Development of the environmental policy	32	46	13	9
Disclosure of environmental information	43	12	12	33
Environmental budget or emission targets	55	5	9	31
Environmental impact assessment	50	4	7	39
Response to government environmental legislation	46	4	14	36
Environmental audit or reviews	45	7	13	35

By % of respondents.



Is there a role for the accountant?

From the responses received, a number of roles for the accountant were identified: these are tabulated in Table 7 based on responses of CFOs, and Table 8 based on responses of CEOs. The results from the CFO survey suggest that there are already inclusions of environmental information within the accounting system of many companies. In particular in the areas of risk assessment, capital budgeting and investment appraisal, and within the internal reporting mechanism. CFOs identified a wide range of specific environmental accounting practices that already are adopted by top 500 Australian companies. Areas identified included accounting for energy usage, rehabilitation/restoration, as part of production cost, to account for cost of legal requirements, contingent liabilities and waste. However it appears less common for this information to be reported externally in distinct categories; rather it is lost within total cost information.

Accountants may also play a role in environmental cost-benefit analysis. The major areas where CFOs indicated cost-benefit analysis was undertaken were in relation to energy efficiency, waste management pollution minimization, site cleanup and contamination. These are environmental issues that are either required by statute or in which cost savings are evident. However decisions on voluntary practices that may lead to further capital expenditures, or increased costs, appeared in many cases to be made without the involvement of the accountant.

Many CFO respondents suggested that environmental information is useful to users of the annual reports. The accountant would seem to have a pivotal role in assessing and identifying the type of information required and how it should be presented if it is to be useful to those dependent users analysing annual report data.

The accountant has a role to play in assessing whether environmental goals have been achieved, and how this compares with the past performance of the firm. It is also the basis for planning future goals of the organi-

zation. The accountant should be able to identify appropriate means to measure and present this information. There would seem to be a significant role for the accountant in planning an environmental policy. The content identified by respondents involves environmental issues that need to be measured. The majority of these measures imply a reduction of information to financial terms so that it may be expressed in a meaningful way. Effective reporting of environmental information would seem to imply a form of performance reporting.

CONCLUSIONS

The responses by the CFOs and CEOs of Australian top 500 companies suggest there would appear to be a significant role being undertaken by the accountant in a minority of companies' environmental management systems. Both the responses of the CFOs and the CEOs identified roles that the accountant does or could undertake as part of an environmental management team within the organization. It would appear for a number of companies that the basic structure for recording environmental information already exists. Based on these responses there would also appear for other companies to be a need to take a broader view of the accountant's role, and of the type of EMS that would need to be implemented, adopted or modified. There also needs to be recognition that this will take time and skill to develop. Perhaps the major issues are the approach to the measurement of environmental impact, and guidelines for the disclosure of appropriate information. However, although a role can be prescribed, and actual environmental accounting techniques identified, there appears, as yet, no overwhelmingly active involvement by accountants in many companies' environmental management. This may be explained by the limited motivation from accountants to become involved in environmental management, believing it to be external to their role.

To counter this limited involvement there is a need for greater acceptance by senior personnel of the role accounting and accountants



Table 7. Chief finance officer responses – areas of accountants expertise: 1, recording; 2, classification; 3, measurement; 4, reporting; 5, disclosure; 6, verification

Management control and accounting environmental management system	Environmental accounting practices	Cost-benefit analysis	Attitudes
<p>Respondents indicated that many parts of the accounting information system already include environmental information.</p> <p>It may be that this information would need to be isolated. For example, 64% of respondents indicated that environmental issues were already included in the internal reporting mechanisms.</p> <p>The accountant would already seem to be performing a role in environmental accounting.</p>	<p>Identified that specific environmental accounting practices were already being adopted. For example, 50 companies include environmental cost as part of production cost.</p> <p>The role of the accountant would seem to be to isolate the specific environmental issue.</p>	<p>In identifying the cost and benefits of different types of environmental activities.</p> <p>The environment is no less important than any other aspect of the investment decision.</p>	<p>A review of the attitudes of the CFOs would suggest the accountant is hesitant about involvement.</p> <p>The majority of respondents did not believe that concern for the environment was a passing fad.</p>



Table 8. Chief executive officers responses – a role for the accountant in the environmental management system: 1, recording; 2, classification; 3, measurement; 4, reporting; 5, disclosure; 6, verification

Defining information users and their needs	Development of an environmental management system	Monitoring organizational goal
<p>Identification of the type of environmental information relevant to users' needs.</p> <p>Identification of the means of appropriate measurement to enhance an understanding of the environmental information.</p> <p>Able to set up procedures to assess the reliability of the information.</p>	<p>A role in the detailing of a framework to assess the extent of the issue, and the financial repercussions of an action taken.</p> <p>The <i>environmental policy</i> may require measurements, often in financial terms (for example, cost of compliance with legal obligations). Procedures and monitoring of progress toward the achievement of policy goals must be assessed in an objective way. Undertaking cost-benefit analysis. Cost savings would be an important part of any such programme.</p> <p><i>Influences that lead to the development of an environmental policy</i> relate to measurable issues, which lie within the province of the accountant: for example, legal obligations, community concerns, 'good reporting' issues.</p> <p>Measurement of the <i>effectiveness of the achievement of goals and objectives</i>.</p>	<p>Assist in setting up procedures to answer questions a firm must ask: (1) have the firm's organizational goals and objectives been achieved? and (2) are goals and objectives reviewed on a consistent basis in a way to allow comparisons? For example, economic goals are assessed using dollar values.</p> <p>Assist in the identification of appropriate ways to measure and present this information.</p>



can and should play in the environmental management process. Although there is an awareness of the importance and concern of environmental issues, this concern does not appear to have been taken a step further and given significant recognition within the accounting process. This paper has provided an initial understanding of the role of accounting in the EMS. The next step is to extend the analysis to provide additional understanding of why there is a divergence amongst companies of the inclusion of accounting in environmental management. From such an understanding we may be better positioned to foster a greater recognition of how environmental accounting could benefit environmental management. Recognition of environmental accounting issues may be fostered in two ways: first, through a greater recognition within the accounting education system, and second, from a more proactive response by accounting regulators. Such an approach would help to identify for accountants the role that they can play in environmental management both in assisting in the internal decision-making process, and in meeting external accountability obligations. Additionally this would assist in overcoming the apparent hesitancy of some senior management and accountants to become involved in environmental management. For a company to be proactive in their environmental management there must be leadership given by senior management, recognition of the importance of environmental concerns and encouragement for the adoption of environmental accounting within the corporate EMS.

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