

Environmental Accounting in Japan

Trends and Current Practices of Environmental Accounting Disclosure and Environmental Management Accounting

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Abstract

The objective of this paper is to give an overview of the environmental accounting scheme and practices in Japan. The following items are mentioned: trends in environmental reporting; trends in environmental accounting disclosure; the background to environmental accounting and governmental initiatives; a summary of the Environmental Accounting Guidelines of the Ministry of Environment (MOE); a summary of the Environmental Management Accounting Project of the Ministry of Economy, Trade and Industry (METI); a review of existing surveys that have examined the corporate disclosure practices of environmental costs and benefits, the influences of the MOE guidelines and the METI project on corporate practices, and the corporate attitude to introducing environmental accounting.

1. Environmental Reporting in Japan

(1) Trends of Corporate Environmental Reports

Since the latter half of the 1990s, more and more Japanese companies have published environmental reports. According to the MOE publication "A Survey of Environmentally Corporate Behavior" (2001), the number of listed and unlisted companies that published environmental reports was 597, which is 20% of the total 2,898 (**Figure 1**). Moreover, the number of companies planning to publish initial environmental reports in 2002 is 347, so we will soon see the publication of 1,000 environmental reports.

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Environmental Accounting in Japan

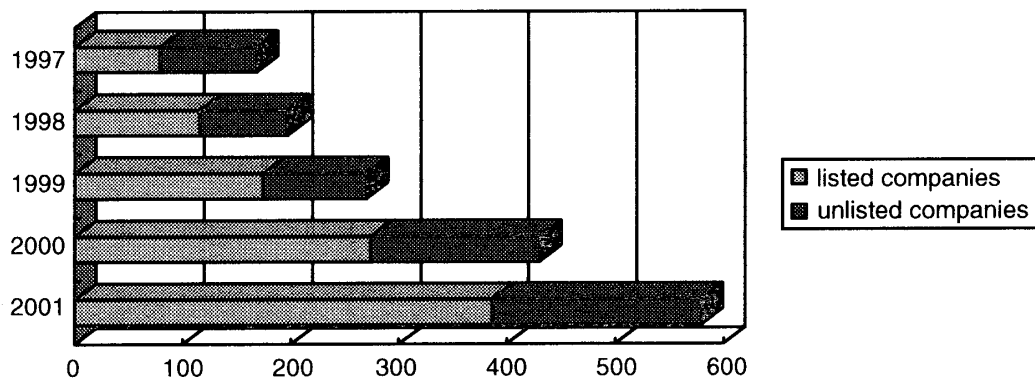


Figure 1: Number of Companies Issuing Environmental Reports

(Source: Ministry of the Environment "A Survey of Environmentally Corporate Behavior")

(2) The Objectives/Distribution of Environmental Reporting

In response to a question concerning the objectives of disclosing environmental information, companies which disclosed that kind of information answered "to discharge their accountabilities," "to communicate with stakeholders," "public relations aspects of their environmental activities," and "to educate employees."

Figure 2 gives information on the organizations to which the corporations distribute their environmental reports. It shows that companies distribute to customers, government institutions, investors, employees, and several other bodies.

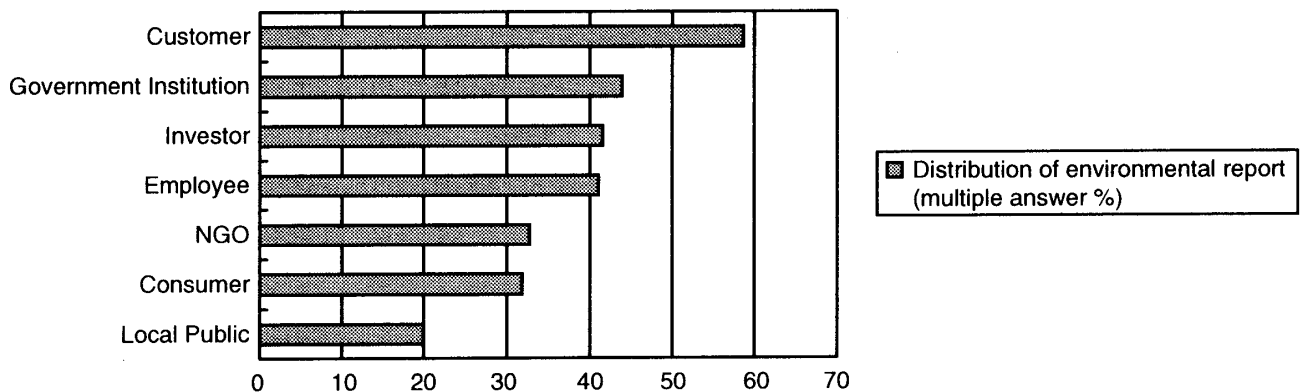


Figure 2: Distribution of Environmental Reports

(Source: Ministry of the Environment "A Survey of Environmentally Corporate Behavior")

(3) Governmental Initiatives for Environmental Reporting

The reason why so many companies publish environmental reports is that governmental initiatives have an important influence. One initiative is the MOE publication *Environmental Reporting Guidelines (Fiscal Year 2000 Version) - Guidance for Publishing Environmental*

Reporting - (<http://www.env.go.jp/en/rep/eco/erg2000.pdf>). These guidelines clarify the principles of reporting, the structure, and the contents of environmental reports.

Another initiative is the METI publication *Environmental Reporting Guidelines 2001—With Focus on Stakeholders*, which shows items to be disclosed to stakeholders (<http://www.meti.go.jp/english/report/downloadfiles/g02EnGuie.pdf>).

In September 2002, MOE released an Environmental Report Database. The purposes of the environmental report database are as follows:

- [1] To compare the contents of the environment reports of companies.
- [2] To provide an incentive for improving the reports through disclosure of the names and report contents of companies that publish environmental reports.
- [3] To ensure social fairness between the companies that carry out proper environmental activities and those that do not.
- [4] To promote mutual communication with various stakeholders.

In this database, it is possible to know whether companies disclose the necessary components that are recommended to be disclosed by the MOE Environmental Reporting Guidelines. **Figure 3** shows the database sheet sample. If a company discloses the item, the entry is marked ○; if not, the entry is marked ×. In this way, we can compare the components of the environmental reports of Japanese companies. At first, the database had data on 180 companies. However, from October 2002, the database includes more data including environmental performance indicators. In the future, MOE plans to include all environmental reports in the database.

環境報告書データベース Microsoft Internet Explorer

ファイル(F) 編集(E) 表示(V) お気に入り(I) ツール(T) ヘルプ(H)

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2001年度

組織名で選ぶ [業種別: 電気機器] → 五十音順 → 業種別

【記述説明】
 ○は、当データベースにおける判断基準と比較して、記載が十分であることを意味する。
 △は、当データベースにおける判断基準と比較して、記載が無いことを意味する。
 ×は、当データベースにおける判断基準と比較して、記載があるが十分ではないことを意味する。
 -は、当データベースにおける判断基準と比較して、対象外であることを意味する。
 定性的記述は、原則として当該環境報告書からの引用とする。

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基本情報
 (←各項目の判断基準はこちら)

組織名	秋田日本電気株式会社	アルプス電気株式会社	キヤノン株式会社	パナソニック株式会社	本電気株式会社
業種	電気機器	電気機器	電気機器	電気機器	電気機器

1. 基本的事項
 (←各項目の判断基準はこちら)

1) 経営責任者の発言

環境問題への認識	○	○	○	○	○
顕著な環境側面	×	○	○	○	×
取組方針・目標	○	○	○	○	×
情報開示に対する姿勢	×	○	○	○	×
経営責任者等の署名等	○	○	○	○	○
取組成果、達成状況	○	○	○	○	○
今後の課題	○	○	○	○	○
業界水準等との比較	×	×	×	×	×

2) 報告に当たっての基本的要件

対象組織	○	○	○	○	○
対象期間	○	○	○	○	○
発行日(月のみ可)	○	○	×	○	○
次回発行予定	○	○	○	×	○
対象分野	環境管理	事業活動に関わる環境への取組	環境、経済、社会的側面	環境	環境、社会
作成部署	○	○	○	○	○
連絡先	○	○	○	○	○

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インターネット

Figure 3: Sample: Environmental Accounting Database (Ministry of Environment)

<http://www.env.go.jp/> (in Japanese)

(4) Third Party Review

The number of companies that attach third party reviews is increasing (**Figure 4**). In 2001, of 579 companies that published environmental reports, 113 companies already included third party reviews (19.5%). The number of companies that plan to publish such reviews is 201 (34.7%).

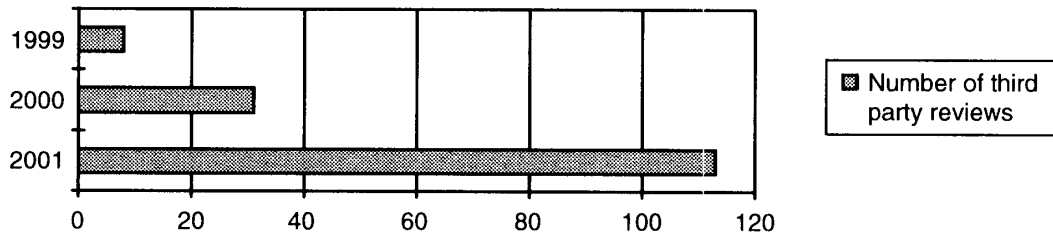


Figure 4: Number of Environmental Reports With Third Party Reviews

(Source: Ministry of the Environment “A Survey of Environmental Corporate Behavior”)

The bodies that review environmental reports are shown in **Figure 5**. In this figure, “Others” refers to citizens or consumers.

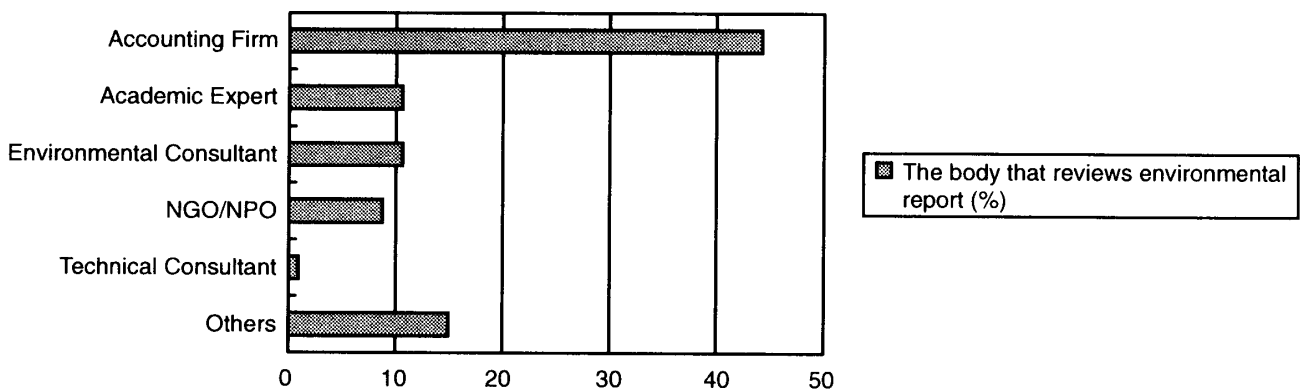


Figure 5: The Bodies that Review Environmental Reports

(Source: Ministry of the Environment “A Survey of Environmental Corporate Behavior”)

The subjects of third party reviews for companies are “evaluation of environmental activity,” “verification of accuracy of information,” “the comprehensiveness of reported contents,” “verification/evaluation of appropriateness of environmental measures,” and “verification of correctness of environmental accounting information.”

There are two types of review, one is a review of assurance; the other is an opinion about the activity of the company. There may be some confusion or difficulty arising from a lack of clarity about the review criteria.

On the subject of third party reviews, the Japanese Institute of Certified Public Accountants (JICPA) has released *Environmental Report Assurance Guidelines (Interim Report)*. These guidelines provide a definition of assurance level, guidance for implementation of evaluation of information accuracy/completeness, and evaluation of the environmental management information system.

(5) Various Incentives for Environmental Reporting

The reason why so many companies publish environmental reports is that there are many incentive systems, such as the eco fund, environmental reporting awards, and environmental rating. The eco fund is a kind of social responsibility investment (SRI). It is an investment trust that seeks revenue through investment in equities of environmentally conscious companies. In Japan, eleven funds at nine Securities/Banks manage a total of more than US\$1 billion as of March 2002. With regard to environmental reporting awards, there are two award systems: "Environmental Report Award" sponsored by Global Environmental Forum and "Green Reporting Award" sponsored by Green Reporting Forum and Toyo Keizai. Moreover, in Japan, there are several environmental rating institutions. It is worth noting that the Sustainable Management Forum of Japan established the environmental rating organization in 2001. These incentives support corporate environmental reporting. Also, these systems impose penalties on companies that do not disclose environmental information. Environmental information disclosed by companies is actually used for decision-making by analysts to invest for environmentally friendly corporations, by stakeholders to select products, etc. Companies now cannot ignore practicing environmental activities and their disclosure.

The survey by Mukoyama and Ishikawa (2002) shows that corporate environmental information disclosure contributes to an increase in the value of share prices of companies. This survey could be a trigger for the acceleration of corporate environmental disclosure.

(6) Toward Sustainability

Most environmental reports have expanded their contents, to give sufficient information about the activities of companies. Moreover, companies compete to improve the quality of their reports. One direction is to include information about social cooperation with local communities or relationships with employees. Some companies attach discussion reports with NGOs. These practices are influenced by the Global Reporting Initiative (GRI) *Sustainability Reporting Guidelines*. At present, 20 Japanese companies publish their reports based on GRI Guidelines.

(See: <http://www.globalreporting.org/GRIGuidelines/Reporters.htm>)

2. Trends in Environmental Accounting Disclosure

As more companies in Japan publish their environmental reports, more environmental accounting information is disclosed. In fiscal year 2001, the number of companies disclosing environmental accounting information in their environmental reports was about 360 among the 579 companies that publish environmental reports (**Figure 6**).

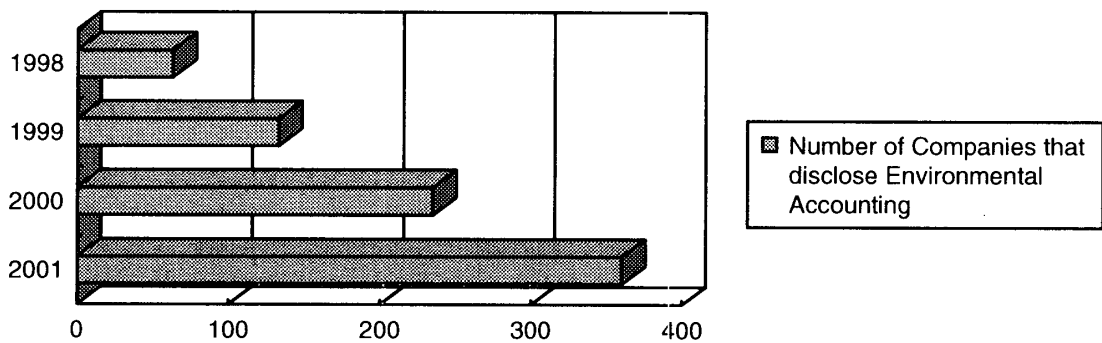


Figure 6: Number of Companies that Disclose Environmental Accounting

(Source: Ministry of the Environment “A Survey of Environmentally Corporate Behavior”)

If we include the companies that have in fact introduced environmental accounting even if not disclosed in their reports, the number is about 490. Among the companies that disclose environmental accounting, 77% belong to manufacturing industries (**Figure 7**).

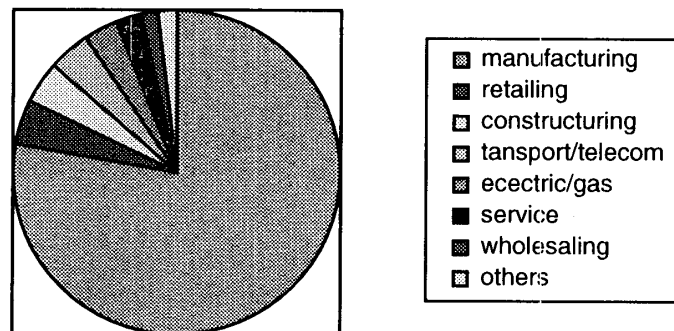


Figure 7: Number of Companies Disclosing Environmental Accounting by Industrial Classification

(Source: Ministry of the Environment “A Survey of Environmentally Corporate Behavior”)

Not only the quantity, but also the quality of environmental accounting has improved noticeably. Some companies have tried to use environment accounting as a management decision tool and have disclosed the information in their reports.

There are several factors to support such a rapid expansion of environmental accounting. The main factor is two governmental initiatives. In the area of environmental accounting disclosure, the MOE has published Environmental Accounting Guidelines, which are revised periodically. The other initiative is the METI project that has developed environmental management accounting tools with various practice cases. These initiatives are outlined below.

3. MOE Environmental Accounting Guidelines

(1) Overview of MOE Guidelines

The Japanese Environment Agency, which was reformed by the Ministry of Environment in 2001, has been promoting discussions about environmental accounting. In May 2000, MOE released *Developing Environmental Accounting Systems— year 2000 report*, which was a revised version of the 1999 *Draft Guidelines—Disclosing Environmental Accounting Information*. Afterward, as a result of rapid progress in practice, MOE revised its guidelines and published *Environmental Accounting Guidelines—2002 version* and the *Environmental Accounting Guidebook* that includes Q&A and various case studies to facilitate understanding by companies. These guidelines are not mandatory, but many companies use this format.

Along with the Environmental Accounting Guidelines, MOE has published Environmental Reporting Guidelines—Fiscal Year 2000 version and Environmental Performance Indicators for Business—Fiscal Year 2000 version (Overview: <http://www.env.go.jp/en/eco/o-epi2000.pdf>; full text: <http://www.env.go.jp/en/eco/epi2000.pdf>). MOE uses these guidelines for environmental accounting, environmental reporting, environmental management systems, and environmental performance index (See **Figure 8**).

In the concept as developed by MOE, environmental accounting consists of accounting procedures that companies can use to evaluate the costs and effectiveness of environmental conservation activities. MOE intends to standardize for contents and form of disclosure of environmental accounting, to maximize the usefulness of that information. In addition, environmental accounting ought to be able to serve as a system to provide environmental information for society.

MOE's Environmental Accounting Guidelines are mainly focused on disclosure of environmental accounting information and provide the disclosure format. MOE's environmental accounting consists of three components: environmental costs (monetary unit), environmental conservation benefits (physical unit), and economic benefits (monetary unit) (**Figure 9**).

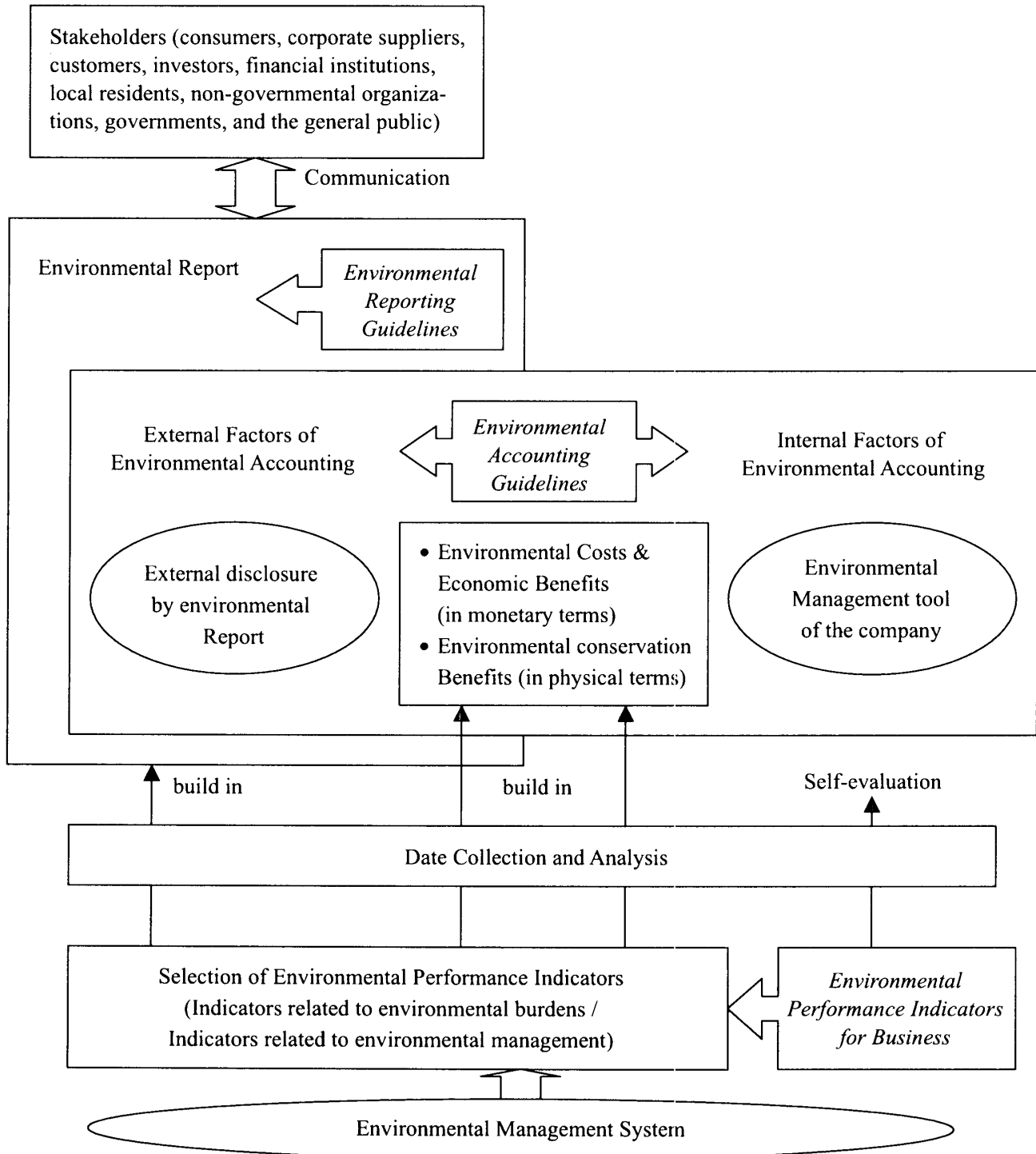


Figure 8: Cross Relationship between Environmental Accounting, Environmental Reporting and Environmental Performance Indicators (by MOE)

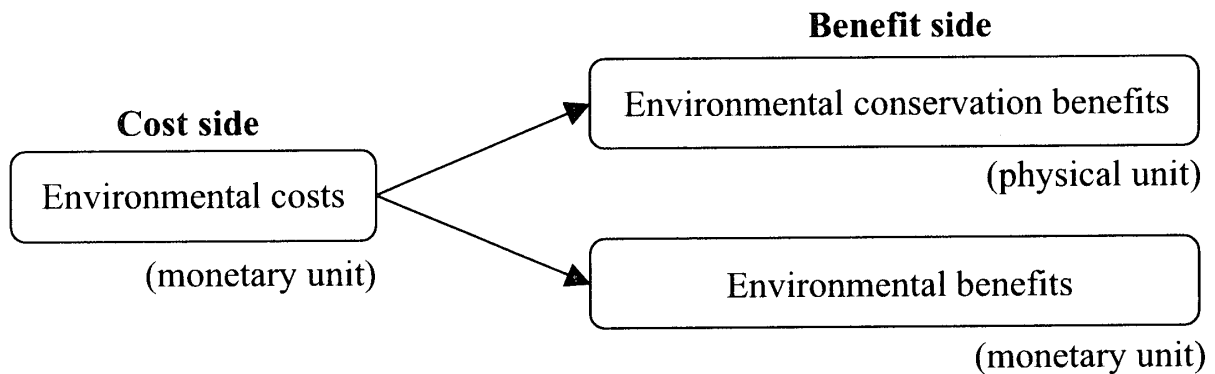


Figure 9: Correspondence of Environmental Costs and Benefits (from MOE)

(2) Contents of Environmental Accounting

In the MOE guidelines, “environmental costs” are the costs for environmental conservation measures. They consist of the following six items:

- (i) Environmental costs for controlling environmental impacts that are caused within a business area (business area costs);
- (ii) Environmental costs for controlling environmental impacts that are caused upstream or downstream as a result of production and service activities (upper/lower stream costs);
- (iii) Costs incurred by management activities (management activity costs);
- (iv) Costs incurred by research and development (research and development costs);
- (v) Costs incurred for activities in society (social activity costs); and
- (vi) Costs to respond to or remedy environmental damage (environmental damage costs).

For measurement of environmental costs incurred in combination with non-environmental activity, a “differential calculation method” is recommended. This method involves separating environmental costs from composite costs. When this method is difficult, environmental costs are measured by rule of thumb using ratios such as 25%, 50%, 75%, where the company applies the most appropriate ratio for each cost and aggregates the costs.

The results of environmental expenditures for environmental activities could be captured in both “environmental conservation benefits” (physical units) and “economic benefits” (monetary unit). Environmental conservation benefits are suitable for measuring the amount of environmental impacts and the quantitative change, and consist of the following three items:

- (i) Environmental effects occurring within business areas (business area effects);
- (ii) Environmental effects occurring in upper/lower streams (upper/lower stream effects); and
- (iii) Other environmental effects.

“Economic benefits” are revenues and cost savings arising from environmental activity. Measuring economic benefits is sometimes difficult, so the MOE guidelines encourage the

reporting of results that can actually be measured, rather than hypothetical results based on assumptions.

The MOE Guidelines provide a disclosure format for environmental costs and benefits. The most popular and comprehensive types (Format C) are shown in **Exhibit 1**. MOE plans to improve the guidelines continuously.

(3) MOE Environmental Accounting Support System

In addition to supplying guidelines, MOE provides “Environmental Accounting Support System” software that was designed to assist companies to implement environmental accounting. This software can be downloaded free of charge from <http://env-ac1.eic.or.jp/> (in Japanese) (**Figure 10**).

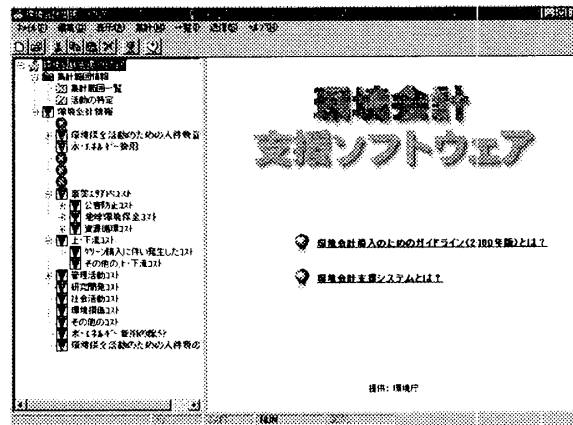


Figure 10: Image of MOE Environmental Accounting Support System

4. METI Environmental Management Accounting Project

With the spread of environmental accounting disclosures as the next stage of environmental accounting, there is a growing interest in making good use of environmental accounting information by management to achieve both a reduction in environmental burdens and increased profits. This type of environmental accounting as a business management tool is called environmental management accounting (EMA). EMA is used by managers, various departments in an organization, and all company personnel.

In Japan, from 1999, the Ministry of Economy, Trade and Industry (METI) launched a project to develop EMA tools suitable for Japanese companies and began pilot testing. This project was completed in 2001 and METI published the “*Environmental Management Accounting Tools Workbook*” (http://www.meti.go.jp/policy/eco_business/) in 2002. In this project, there were five working groups: environmental capital investment appraisal,

Exhibit 1 Environmental Accounting Disclosure Format C

Target Period : from to

Unit : () yen

Environmental conservation costs				
Category		Detail of main implementation	Investment	Expense
(1) Business area costs				
break-down	(1)-1 Pollution prevention cost			
	(1)-2 Global environmental costs			
	(1)-3 Resource circulation costs			
(2) Upper/lower stream costs				
(3) Management activity costs				
(4) Research and development costs				
(5) Social activity costs				
(6) Environmental damage costs				

○ When there are environmental costs that are not applicable to any of the categories from (1) to (6) and the costs are described as (7) other environmental costs (other costs), disclose the contents and the reason in order to clarify their scope.

Item	Contents	Amount
Total amount of investments		
Total amount of R&D costs		

Environmental conservation effects				
Contents of effects* ¹		Indicators of environmental conservation effects		
		Category of indicators	Amount of indicators* ²	
(1) Environmental effects occurring within business area (Business area effects)	① Effects concerning resource input to business	Input of energy		
		Input of water		
		Input of materials		
	② Effects concerning environmental burdens/disposal from business	Emission to air		
		Emission to water/soil		
		Amount of disposal		
	Others			
	(2) Environmental effects occurring in the upper/lower stream (Upper/lower stream effects)	③ Effects concerning products/services produced through business* ³		
Others				
(3) Other environmental effects	④ Effects concerning transportation etc			
	Others			

*1 When there is practical difficulty in counting environmental conservation effects corresponding to each environmental conservation cost category, (1), it is acceptable not to divide environmental effects into (1)~(3).

*2 Concerning physical unit indicators, the difference of the total amount of environmental burdens between the benchmark period and the current period should be disclosed. In addition, it is possible to describe the difference by comparing the basic units.

*3 The estimation of environmental conservation effects arising from using and disposing of products/services contains many assumptions, so these effects should be separated from other effects.

Economic benefits associated with environmental measures based on credible bases		
Contents of benefits		Amount
revenues	Revenue obtained by recycling of disposal/used products arising from main business activity	
cost savings	Reduction of costs achieved through energy conservation	
	Reduction of waste processing costs achieved by recycling	

environmental cost management, material flow cost accounting, life cycle costing and environmental corporate performance evaluation. Classification of each of the tools based on applicable objects is shown in **Figure 11**.

By-product	Environmental cost planning Life cycle costing	Environmental cost matrix	Environmental corporate performance evaluation
Capital investment	Environmental capital investment appraisal		
Production/ distribution process	Material flow cost accounting		

Figure 11: Classification EMA tools based on applicable object (by METI)

Environmental capital investment appraisal is used to assess the value of environmental capital investment. Because this kind of investment was evaluated by focusing on cost burden, the conventional investment appraisal sometimes leads to unfavorable outcomes. However, this tool presents the idea of considering both aspects of potential profit from cost reduction and environmental impact.

Environmental cost management makes use of budgeting by analyzing the effectiveness of environmental expenditures and by providing environmental information to support environmental decision-making in product development and design. Environmental cost management consists of environmental quality cost accounting and environmental cost planning.

Material flow cost accounting is a tool to capture the material flow and monetary flow in productive processes, and to make clear the inefficiency in productive processes by using physical and monetary information. In material flow cost accounting, the environmental costs to be managed include raw material costs and overheads to be charged to waste. Therefore, the scope of the environmental costs is very wide.

Life cycle costing adds an economic viewpoint to life cycle assessment. In a recycling-oriented society, it is important to manufacture products considering not only internal costs but also the costs of exploiting natural resources.

Environmental corporate performance evaluation is used to integrate environmental performance information with performance evaluation systems. To put environmental factors into performance evaluation systems that form the basis of business is thought of as the most effective method of promoting environmental management.

These tools are of help for environmental cost management, cost-benefit analysis of environmental measure, effective environmental investment and environmental business decision-making. Companies should use these tools according to their purpose. The METI project and MOE project are complementary to each other.

5. Review of Existing Surveys on Corporate Environmental Accounting Practices

Several surveys investigate corporate environmental accounting practices. In this section, I will summarize two representative surveys: Kokubu and Nashioka (2001) and Saio, Kokubu, Nashioka and Imai (2002). These examined corporate disclosure practices associated with environmental costs and benefits, how and to what extent MOE guidelines influence environmental accounting practice, the influences of the METI project, corporate attitudes to introducing environmental accounting, the usefulness to companies, and so on.

(1) Environmental Accounting Information Disclosure

Kokubu and Nashioka (2001) surveyed (a) the characteristics of corporations that disclose environmental accounting information, and (b) the influence of the MOE guidelines. This survey was based on environmental reports published during 2000 from companies that are listed in the First Section of the Tokyo Stock Exchange.

(a) Characteristics of corporations that disclose environmental accounting information

At first, this survey examined whether there is a difference in the size of the business or profitability of companies that disclose environmental accounting and those that do not. To examine the impact of business size, the amount of sales and total assets were used. The use of t-tests shows that no significant results were obtained for any variable. This shows that disclosing environmental accounting is not related to a company's size. However, concerning the quality of environmental accounting, there are various differences from comprehensive disclosure of environmental costs and benefits to simple explanation of environmental costs. By using the same tests, comparing companies that disclose environmental accounting based on any guideline and those that do not, the results were significant at the one per cent level for sales and total sales. This shows that quality of environmental accounting is related to the company's size. These results imply that there is a difference between the factor of disclosure behavior and the factor of information quality of environmental accounting.

Concerning industry difference, by using a Chi-squared for independence test, the results show that there is a difference among industries in environmental accounting information disclosures. Another survey by Yagi (2002) points out that some industries disclose inventive and industry-specific environmental accounting information (for example, the gas, distribution and the construction industries).

(b) The influence of the MOE guidelines

The MOE environmental accounting guidelines actually influence environmental accounting disclosure practice. **Figure 12** shows the number of companies that use the MOE guidelines or the company's original guidelines for 184 companies that disclose some kind of environmental accounting information. The percentage of companies that are compliant with the MOE guideline is 57.6%.

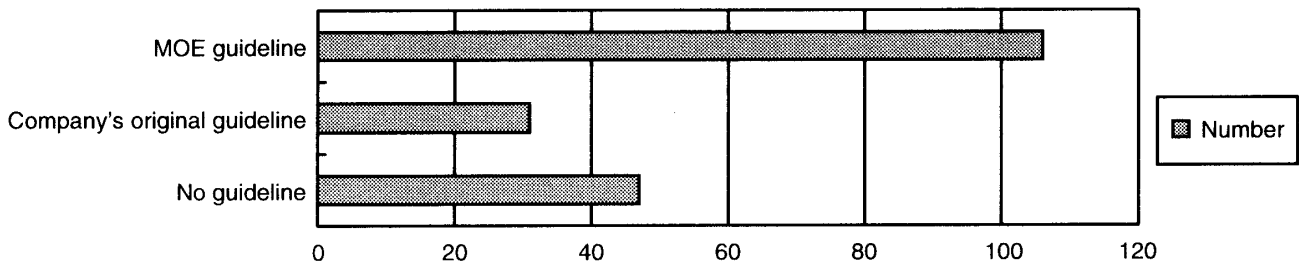


Figure 12: The number of companies that use the MOE guidelines
(Data source: Kokubu and Nashioka (2001))

The MOE guidelines also have a significant influence on the detail of the environmental accounting contents. The number of companies that disclose environmental costs and investment separately is 109 (59.3%), companies that disclose environmental conservation effects is 80 (43.5%) and companies that disclose economical effects is 99 (53.8%). These ways of disclosure are required in the MOE guidelines. This survey concludes that the MOE guidelines have a big influence on corporate environmental accounting disclosure practices and that environmental accounting in Japan is tending to converge.

(2) Environmental Accounting Practices

Saio, Kokubu, Nashioka and Imai (2002) is a highly comprehensive survey that examined corporate disclosure practices of environmental costs and benefits, how and to what extent the MOE's guidelines influence environmental accounting practice, the effects of the influences of the METI project, corporate attitudes to introducing environmental accounting, the usefulness for companies, how companies account for investment costs, depreciation, employment cost, R&D costs and environmental conservation effects and cost reduction, third party review, and so on. This survey was conducted by a questionnaire using 159 companies (valid answers) that are listed in the First Section of the Tokyo Stock Exchange, and disclose environmental accounting information for October 2001.

I observed some interesting results about corporate attitudes to environmental accounting. Firstly, concerning the kind of benefit companies could achieve by the introduction of environmental accounting system, the results are shown in **Figure 13**.

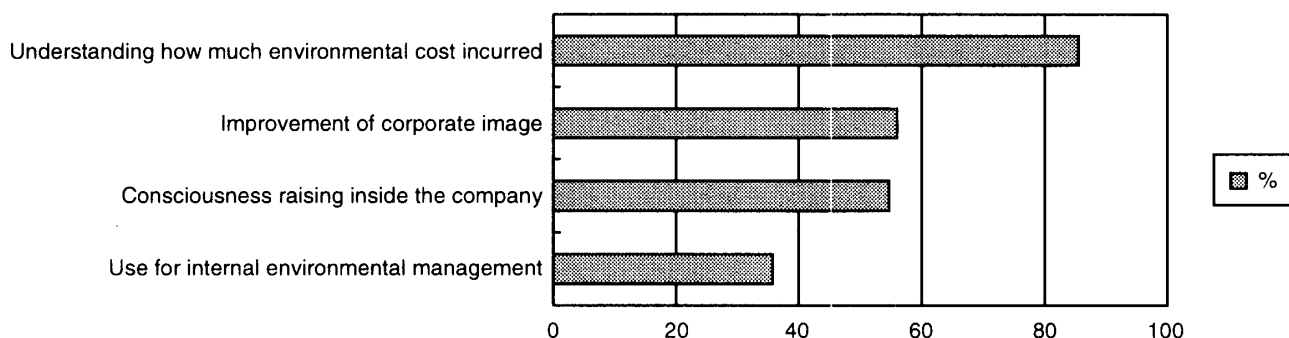


Figure 13: Benefits by introduction of an environmental accounting system (multiple answers) (Source: Saio, Kokubu, Nashioka and Imai (2002))

A total of 85.5% of responding companies recognize that they could capture the amount of environmental costs incurred in the company. Fifty-six percent of the companies answered that their corporate image was improved by disclosing environmental accounting. It should be noted that 35.8% of the companies put environmental accounting to practical use for internal environmental management. The kinds of benefits these companies obtain from practical use of environmental accounting for internal management are shown in **Figure 14**.

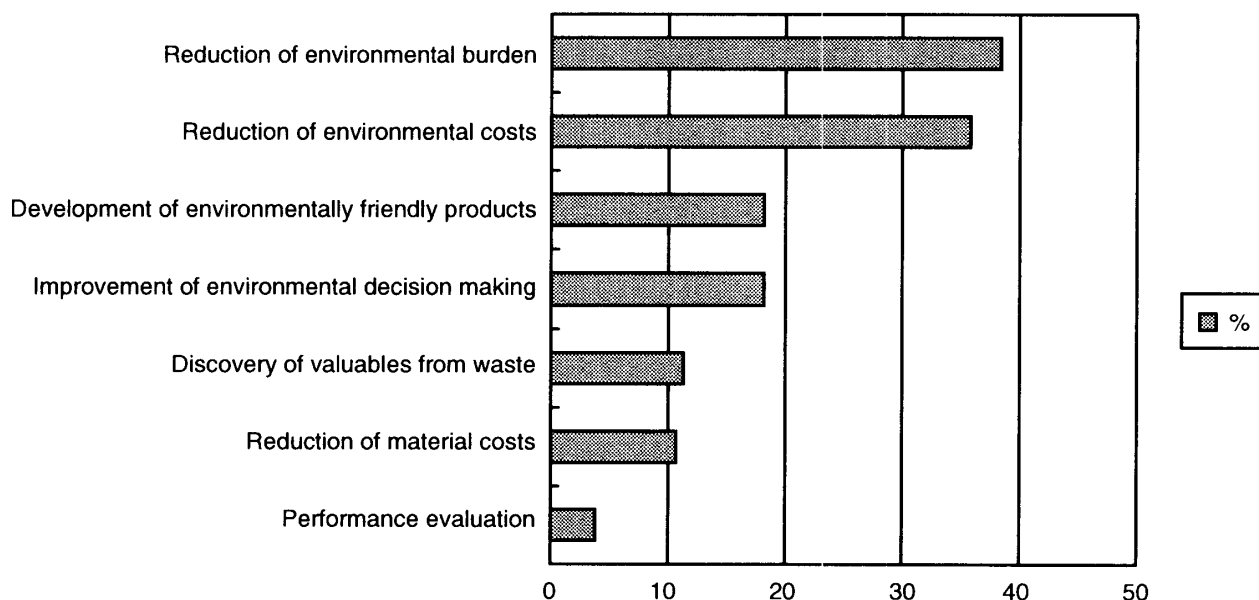


Figure 14: Benefits from environmental accounting for internal management (multiple answers) (Source: Saio, Kokubu, Nashioka and Imai (2002))

A total of 38.4% of companies answered that they could reduce environmental burden and 35.8% answered that they could reduce environmental costs. Companies that answered

“Development of environmentally friendly products” and “Improvement of environmental decision-making” both amounted to 18.2%. Other answers are “Discovery of valuables from waste”, “Reduction of material costs” and “Performance evaluation”.

Figure 15 shows the benefits that companies expected to obtain from introducing environmental accounting.

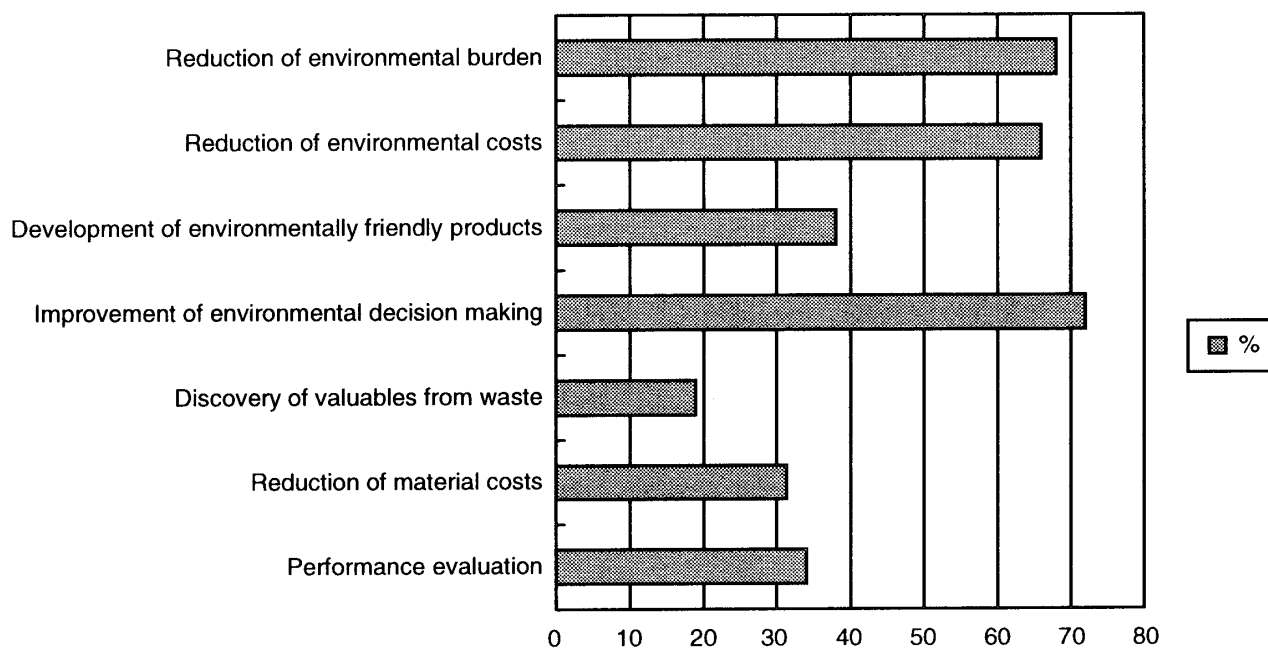


Figure 15: Potential benefits from environmental accounting that companies expected (multiple answers) (Source: Saio, Kokubu, Nashioka and Imai (2002))

A total of 71.7% of companies expect environmental accounting to be useful to improve environmental decision-making, 67.9% companies expect to reduce environmental burden and 66% of companies expect to reduce environmental costs. Other answers are, according to priority, “Development of environmentally friendly products”, “Performance evaluation”, “Reduction of material costs” and “Discovery of valuable costs”. A notable difference between Figure 14 and Figure 15 is the percentage of “Improvement of environmental decision making”. This means that there is a high need for environmental management accounting for decision making, even though most companies cannot actually use it. For this purpose, environmental management tools included in the METI workbook are useful. METI published its work this year. Therefore, practical application of METI environmental accounting tools will be necessary from now on.

6. The Future Perspective

(1) Challenges for the future

Usually, in traditional financial accounting, the more a company invests in environmental activities, the more the profits of the company decreases, so that the benefits of environmental activities cannot be clearly seen. It is also hard to paint a picture of the effectiveness of the activities. In that sense, to make the environmental costs and benefits clear, the MOE Guidelines have produced results that make plain the corporate environmental costs. MOE Environmental Accounting is still developing, with the original style adopting the way of thinking of financial accounting. One of the features of environmental accounting information in Japan is that a high proportion of companies have introduced MOE-style environmental accounting. It is useful for stakeholders to compare and analyze the information between companies.

However, this formal semblance cannot always be connected directly with qualitative comparability. In financial statements, almost all companies use restrictive formats. Therefore, when analyzing components of the statements, we can compare profitability or growth rates among companies. In this case, it should be noted that all expenditures and outflows are reflected in expenses and revenues of the financial statements. However, in environmental accounting, items that include environmental costs and benefits or the measurement methodology are very different among companies, and the differences are not eliminated for the future. In addition, many companies measure environmental costs and benefits by the trial-and-error method, so the figures increase or decrease more than actual change.. Therefore, caution should be exercised in comparing and analyzing the data from disclosed environmental accounting at the present time.

In addition to that, originally, accounting data consisted of flow and stock information, which have linkages with each other. However, so far, environmental accounting information has mainly focused on the flow aspect. Though “environmental investment” is disclosed in Format C, this is just a part of current expenditures, not the amount capitalized. Though environmental accounting data are increasingly exhaustive and enrich the contents, there is some complication of the concept of flow and stock information as a whole. Furthermore, although in the area of financial accounting the information emphasis has shifted from the flow aspect to the stock aspect. In the area of environmental accounting, stock information is not provided. This can lead to some harmful effects because this type of information cannot make clear environmental liabilities or accumulated environmental burdens. Flow-based environmental accounting has a possibility of having unintended consequences such as an increase of potential social environmental liabilities.

(2) International cooperation

Traditional financial accounting is now confronted with significant difficulties for accounting convergence because financial accounting has been developed domestically in each country. However, it should be noted that environmental accounting has developed, from its early stages, with international cooperation. Concerning environmental accounting, there are already some international networks: Environmental Management Accounting Network–Europe (EMAN–Europe) (<http://www.eman-eu.net/>) and Environmental Management Accounting Network–Asia Pacific (EMAN-AP) (<http://www.eman-ap.net>). These networks are not limited to the Europe or Asia Pacific regions, but are global networks to discuss and exchange information on environmental accounting. Thus, environmental accounting is developing internationally.

Governmental initiatives and corporate practices of environmental accounting in Japan, as described above, are progressive efforts. Some countries in Asia are attempting to introduce the Japanese style. For the accounting world in Japan, environmental accounting is a valuable area for us to be able to extend our pioneering experience internationally.

The efforts of researchers, consultants, business people, and policy advisors who engage in environmental accounting are well deserving of praise. Moreover, environmental accounting in Japan has moved beyond promotion to a new stage. It is necessary to make more contributions towards further development and promotion of environmental accounting at a global level.

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