

**Two Governmental Initiatives on Environmental Management
Accounting and Corporate Practices in Japan**

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ABSTRACT

There are two main governmental initiatives on environmental accounting in Japan, which are taken by the Ministry of the Environment (MOE) and the Ministry of Economy, Trade and Industry (METI). MOE published the environmental accounting guidelines in 2000 and has been continuing these initiatives since then. METI launched a three-year research based project on environmental management accounting from 1999. This will be completed in March 2002. In this paper the influence of these two governmental initiatives on Japanese corporate environmental accounting practices will be examined by an analysis of environmental accounting disclosure and a questionnaire survey. The examination indicated that the MOE guidelines very strongly influenced Japanese companies. This shows that Japanese corporate environmental accounting is oriented to external reporting because the MOE guidelines stress more strongly the external disclosure function of environmental accounting than the internal management function.

1. INTRODUCTION

Environmental accounting practices are becoming quite popular in Japan. The number of companies disclosing environmental accounting information in their environmental reports is increasing (see, Kokubu and Nashioka, 2001). Japanese government has recently made considerable efforts to develop environmental accounting. There are completed governmental initiatives on this issue and many are also in progress. The Ministry of the Environment (MOE), the Ministry of Economy, Trade and Industry (METI), the Ministry of Agriculture Forestry and Fisheries, the Ministry of Land, Infrastructure and Transportation are taking or have taken various types of environmental accounting initiatives. Not only the central government but also some local governments, such as Iwate Prefecture and Yokosuka City, have taken such initiatives. Yokosuka City published an environmental accounting statement in 2001, which was the first environmental accounting statement by a local authority in Japan.

Among these initiatives MOE and METI¹ are considered to play a more important role for Japanese companies. Other governmental initiatives have their own particular missions, which are supposed to be confined to their business area². The purpose of this paper is to examine the influence of both MOE and METI environmental accounting initiatives on Japanese corporate practices at large. Li (2001) categorised the policy instruments that used by government into: (1) regulatory; (2) voluntary; (3) incentive based; (4) informational; and (5) cooperative instruments. According to this categorization, both MOE and METI initiatives are voluntary and information-based instruments.

In the following two sections these two governmental initiatives will be explained briefly. Then the Japanese corporate environmental accounting practices will be

¹ Both MOE and METI were reformed in January 2001. The former organizations were named the Environmental Agency and the Ministry of International Trade and Industry respectively. All initiatives before 2001 were taken by the former organizations. However, the names MOE and METI have been used even for these initiatives in order to avoid any confusion.

² For example, the Ministry of Agriculture, Forestry and Fisheries completed a project to develop environmental accounting for the food industry, and the Ministry of Land, Infrastructure and Transport has a committee of environmental accounting for sewage drain business.

examined. The analysis will be based on an investigation of environmental accounting disclosures and a questionnaire survey.

2. MOE INITIATIVES ON ENVIRONMENTAL ACCOUNTING

MOE started its first environmental accounting project in 1997. It formed an environmental accounting committee and in 1999 published a report entitled “Grasping Environmental Cost: Draft Guidelines for Evaluating Environmental Cost and Publicly Disclosing Environmental Accounting Information (Interim Report)” (MOE, 1999). Before taking this initiative, MOE annually surveyed environmental awareness of Japanese corporations and recognised that there was considerable need for some instructions on how to calculate environmental costs.

MOE revised the interim report and released the environmental accounting guidelines in 2000. The guidelines are included in a report entitled “Developing an Environmental Accounting System (2000 Report)” (MOE, 2000a). While these guidelines are not mandatory, their main purpose is to establish a standard definition of environmental accounting and present a format, by which to disclose environmental accounting information in an environmental report. While the guidelines refer to the managerial function of environmental accounting as well as the external reporting function, they place much more importance on external disclosure³.

MOE also organises a study group on corporate environmental accounting practices. More than 60 Japanese companies are participating in this study group. Any company is able to be a member if it has introduced, or intends to introduce, an environmental accounting system. MOE has published two books on corporate environmental accounting practices based on the activities of this group (MOE, 2000b; 2001a). In addition to the environmental accounting guidelines, MOE published the environmental

³ How to define this type of environmental accounting is a controversial issue. Is it environmental financial accounting or environmental management accounting? Because the MOE guidelines are completely separated from financial accounting, it should not be called environmental financial accounting. In addition, they encourage companies to use environmental accounting for internal management as well as for external reporting. Therefore, the guidelines should be recognised as a sort of environmental management accounting. In this sense the scope of environmental management accounting should be enlarged to include an external reporting function outside of financial accounting. Concerning a related discussion, see Burritt *et al.* (2002).

reporting guidelines in 2001 (MOE, 2001b), which are not compulsory, either. The environmental reporting guidelines provided the items that should be disclosed in an environmental report and included environmental accounting information as one of the items to be disclosed.

The core contents of the environmental accounting guidelines consist of environmental costs and benefits (environmental conservation benefits and economical benefits)⁴. The environmental costs listed in the guidelines are classified into the following six items:

- (1) Environmental conservation cost for controlling the environmental impacts that are caused within a business area by production and service activities (Abbreviated as business area cost)
- (2) Environmental cost for controlling environmental impacts that are caused in the upstream or downstream as a result of production and service activities (Abbreviated as Upstream/Downstream cost)
- (3) Environmental cost in management activities (Abbreviated as management activity cost)
- (4) Environmental cost in research and development activities (Abbreviated as research and development cost)
- (5) Environmental cost in social activities (Abbreviated as social activity cost)
- (6) Environmental costs corresponding to environmental damages (Abbreviated as environmental damage costs)

The environmental costs of the guidelines are limited to environmental conservation costs and do not include either material costs or social costs.

Regarding environmental conservation benefits, the guidelines classify these into three categories: (1) environmental conservation benefits occurring within the business area, (2) environmental conservation benefits occurring in the up/down stream, and (3) other benefits. These environmental conservation benefits are, in principle, to be disclosed as a contrast to environmental costs. However, the guidelines do not provide the measurement methods in detail⁵. The economical benefits specified by the guidelines

⁴ The English version of the guidelines use the word “effect” instead of “benefit”. For more details of the environmental accounting guidelines, see, Kokubu and Kurasaka, 2001.

⁵ MOE published the guidelines on environmental performance in 2001 (MOE, 2001c). It will be a new task for MOE to integrate the environmental accounting guidelines with them.

are classified into “economical benefits calculated on credible basis” and “economical benefits based on hypothetical calculation”. Only the former is requested to be disclosed externally and the latter is not.

The guidelines provide three types of format for the disclosure of an environmental accounting statement.

Format A: environmental cost only

Format B: environmental cost and environmental conservation benefits

Format C: environmental cost, environmental conservation benefits and economical benefits (Table 1)

Format C is the most comprehensive one. When a company discloses environmental accounting information in their environmental reports, Format C is highly recommended if they can fulfill it.

Table 1

The basic frame of the guidelines suggests a new framework of environmental accounting that integrates environmental accounting in monetary units and environmental accounting in physical units. The environmental accounting statement such as in Format C is expected to play a similar role of financial statements in a financial report.

In October 2001 MOE organised a new committee in order to revise the guidelines. The committee shall complete the revised version by the end of March 2002. The author, a member of the committee, does not expect this will be a major revision.

3. METI INITIATIVES ON ENVIRONMENTAL ACCOUNTING

METI formed an environmental accounting committee in 1999, the secretariat of which is the Japan Environmental Management Association for Industry (JEMAI). This is a three-year research project. It will be completed in March 2002. Each year the committee has published an interim report (JEMAI, 2000; 2001).

The purpose of the METI initiatives is to develop environmental management accounting tools fitted to Japanese companies. This is an information-based policy instrument. The initiatives of MOE place more importance on the external use of

environmental accounting, but the METI project exclusively focuses on the internal function of environmental accounting within companies. These initiatives are research oriented at this moment. However, METI may take part in a new project for disseminating the results to Japanese companies after the project is completed.

The METI committee is studying various areas of environmental management accounting. The committee established the following four working groups in the second year (2000):

1. environmental capital investment appraisal
2. environmental cost management
3. material flow cost accounting
4. environmental corporate performance evaluation

The report in the second year (JEMAI, 2000) discussed in depth these topics, which are still in progress. In the third year the fourth working group: environmental corporate performance evaluation was replaced by a life cycle costing working group. The working group of environmental corporate performance evaluation has completed its case studies project, which included companies such as Sony, Ricoh, Canon and Osaka Gas. Each working group is expected to develop some concrete environmental management accounting tools fitted to Japanese companies by the end of March 2002.

4. ENVIRONMENTAL ACCOUNTING PRACTICES OF JAPANESE COMPANIES

The number of companies disclosing environmental accounting information in their environmental reports is increasing. According to the MOE survey (MOE, 2001d) the proportion of the companies disclosing environmental accounting information among the listed companies that replied the questionnaire showed a steeply-rising trend from 10.4 % (1998) to 20.9 % (1999) and to 27.0 % (2000). Concerning the question on the introduction of environmental accounting, 17.3 % replied that they had already introduced it, while 34.2 % replied that they were considering its introduction.

Although it can be considered that these trends might be influenced by governmental initiatives as mentioned above, this should be deliberately examined. This is the purpose of the paper. The analysis is divided into two parts. In the first part environmental accounting information disclosures in corporate environmental reports is

analysed. Since the MOE guidelines on environmental accounting place much importance on the external disclosure of environmental accounting, it is very important to investigate environmental accounting information in the environmental reports. The second part is based on a questionnaire survey. We sent a questionnaire to those companies which disclosed environmental accounting information in order to analyse how they used environmental accounting within their company.

We asked all companies (1,430) listed on the first section of Tokyo Stock Exchange Market to send a copy of an environmental report and collected 257 reports published in 2000. Environmental accounting information was disclosed by 184 of these companies. Firstly this information will be examined and then the questionnaire survey results on the same companies will be analysed.

4-1 Environmental accounting information disclosure practices⁶

The number of the companies publishing environmental reports among the listed companies in the first section of Tokyo Stock Exchange Market was 257 (18%). The number as an absolute amount was quite large but the percentage was not so high. However, among these 257 companies, 184 companies (71%) disclosed environmental accounting information⁷. This result shows that the publication of environmental reports is not wide spread in Japan yet, but among those publishing companies environmental accounting information disclosure is quite high.

Firstly the environmental cost classifications of these 184 companies were analysed. The results are shown in Table 2. Environmental cost classifications of 87 companies were based on the environmental accounting guidelines 2000 and 19 companies based theirs on the interim report of 1999. In fact 106 companies (58%) conformed to the MOE guidelines including the 1999 version. The number of companies employing their own standards was only 31 (17%). Concerning the remaining 47 companies it is difficult to recognise whether or not they employed any particular standards or

⁶ This section is based on Kokubu and Nashioka (2001). For more detailed results, please see this article.

⁷ The industries of those 184 companies are as follows: construction 6; food 6; textiles, paper/pulp 12; chemicals 9; glass, cement, iron and steel 38; non-ferrous metals and machinery 15; transportation equipment and precision instruments 17; electric equipment 20; miscellaneous manufacturing 31; commerce 15; transportation 5; electricity and gas 10.

guidelines. This is because most of them disclosed only the total amount of environmental costs or investments. They did not classify environmental costs. Those companies are considered to have been in the very early stages of environmental accounting.

Table 2. The Environmental Cost Classification of Japanese Companies

Based on the MOE guidelines in 2000	87 (47%)
Based on the MOE interim report in 1999	19(10%)
Original corporate guideline	31(17%)
No guidelines	47(26%)
Total	184(100%)

The definition of environmental cost is also very important to examine. The MOE guidelines provide that the amount of “cost” and the amount of “investment” should be disclosed separately and not added together. This method is accorded to accrual based accounting. As shown in Table 3, 109 companies (59%) employed this method. The other method is to measure environmental costs on a cash flow basis, in which cost (excluding non cash outflow cost) and investment are added together as environmental expenditures. Only 10 companies (5%) employed this method⁸. These results showed that the influence of the MOE guidelines was quite strong not only in the environmental cost classification but in the cost definition as well.

Table 3. The Definition of Environmental Cost of Japanese Companies

Cost and investment disclosed separately	109(59%)
Environmental expenditures as cash flow disclosed	10(5%)
Only cost disclosed	26(14%)
Only investment disclosed	38 (21%)
Others	1(1%)
Total	184(100%)

The MOE guidelines require that environmental conservation benefits be disclosed in terms of physical units. Among 184 companies, 80 companies (44%) disclosed physical quantity figures as environmental conservation benefits and 99 companies (54%) disclosed economical benefits. Before the MOE guidelines were released these items

⁸ While the number of companies who disclosed only the amount of investment is the second largest group, most of these companies did not classify the investment but disclosed the total amount only. This means these companies did not employ any environmental accounting guidelines.

were not considered to be a part of environmental accounting, however, the guidelines require companies to disclose both benefits. This is a remarkable feature of the MOE guidelines. The number of companies disclosing these benefits was not insignificant. The influence of the MOE guidelines from these findings can also be observed.

4-2 Environmental accounting practices in companies

A questionnaire was sent to the above 184 companies who disclosed environmental accounting information in their environmental reports⁹ and 143 companies (78%) sent valid answers. The purpose of the survey was to analyse corporate environmental accounting practices within a company.

1) Decision making level for environmental accounting

In order to analyse whether environmental accounting is a corporate-activity or a particular sectional activity, it is necessary to identify who makes the final decision on this matter. Question 1 is “Who proposed to introduce environmental accounting into your company?” The results are shown in Table 4. In the majority of the responding companies, either the CEO (11%) or director (45%) in charge of environmental protection was the proposer. This suggests that environmental accounting was more often introduced from top-down, not bottom-up.

⁹ This survey is a part of the research project of IGES Kansai Research Center. While the questionnaire was sent to more than the 184 companies, the results of those companies are examined in this paper in order to make a consistency with the analysis of environmental accounting information disclosure.

Table 4. Who proposed to introduce an environmental accounting system into your company? (Question 1)

A. CEO	16	11%
B. Director in charge of the environment	64	45%
C. Senior management	45	31%
D. Middle management	8	6%
E. Other	8	6%
No answer	2	1%
Total	143	100%

The next question (Question 2) is concerned with decision making on external disclosures of environmental accounting information: “Who gave the final permission for environmental accounting information disclosure?” The results are shown in Table 5. In the majority of the responding companies, either the CEO (39%) or the board of directors (17%) gave the final permission. This suggests that environmental accounting information disclosure is recognised as very important issues in Japanese companies.

Table 5. Who gave the final permission for external environmental accounting information disclosures? (Question 2)

A. The board of directors	24	17%
B. CEO	56	39%
C. Director in charge of the environment	47	33%
D. Senior management	3	2%
E. Other	11	8%
No answer	2	1%
Total	143	100%

The above results indicate that Japanese companies place much importance on environmental accounting, however governmental initiatives might also influence them. In other words, governmental policies might provide some stimulus for top management to introduce an environmental accounting system into their corporations. This is the next question.

2) The Influences of Governmental Initiatives

The influence of the MOE and METI initiatives on corporate environmental accounting was analysed. Table 6 shows the results of the answers to Question 3: “When you introduced an environmental accounting system, how much did you consult the MOE guidelines?” More than 70 % of the responding companies said they tried to adhere to

the MOE guidelines. On the other hand, only 3 companies (2%) did not consult the guidelines.

Table 6. When you introduce an environmental accounting system, how much did you consult the MOE guidelines? (Question 3)

A. Very much	101	71%
B. Fairly	26	18%
C. To some extent	12	8%
D. Not very much	2	1%
E. Almost none	1	1%
No answer	1	1%
Total	143	100%

In order to make this point clearer we asked a further question (Question 4): “If you have any corporate environmental accounting standards, to what extent is it in accordance with the MOE guidelines?” Table 7 shows the results. More than 70% of the responding companies either employed the MOE guidelines as the corporate standard (23%) or prepared a standard based on the MOE guidelines (48%). Only 3 % of the companies employed their own standards. These results emphasize that the MOE guidelines very strongly influenced corporate practices. The number of companies who based their standards on the MOE guidelines was higher than the results of our analysis on environmental accounting disclosure had shown, as mentioned in the prior section. This means that there were some companies that prepared environmental accounting standards based on the MOE guidelines neither disclosed full information to the public nor measured all information provided by the guidelines.

Table 7. If you have any corporate environmental accounting standards, to what extent is it in accordance with the MOE guidelines? (Question 4)

A. Employing the MOE guidelines themselves	33	23%
B. Being Based on the MOE guidelines	68	48%
C. Referring to the MOE guidelines	29	20%
D. Employing an original standard	4	3%
E. Employing no standards	7	5%
No answer	2	1%
Total	143	100%

Then the influence of the METI initiatives on corporate practices was also examined by asking the question (Question 5): “When you introduced an environmental accounting system, how much did you consult the METI reports on environmental accounting?”

Table 8 shows the results. The rate of dependence on the METI reports was quite low. Only 7 % of the responding companies consulted the METI report, but 70% of companies did not. It is possible that this is mainly because the project has not been completed yet. In this sense, it might be a little bit too early to give a final conclusion on the influence of the METI project although two interim reports have been already published. If METI makes much more efforts to disseminating the research results after the project is completed, the influence may be changed.

Table 8. When you prepared environmental accounting, how much did you consult the METI reports on environmental accounting published by JEMAI?

(Question 5)

A. Very much	3	2%
B. Fairly	7	5%
C. To some extent	30	21%
D. Not very much	41	29%
E. Almost none	58	41%
No answer	4	2%
Total	143	100%

These results suggest that the MOE guidelines influenced Japanese corporate environmental accounting practices more than the METI initiatives. If this is so, it might be expected that Japanese corporate environmental accounting should be much more oriented to external reporting rather than for internal management. This topic will be examined by investigating the purpose of environmental accounting in the following section.

3) The purpose of environmental accounting

What is the purpose of environmental accounting (Question 6)? In general there are two main purposes: for external reporting and for internal management. The results of Question 6 are shown in Table 9. More than 80 % of companies answered that they pursued both purposes.

Table 9. What is the purpose of environmental accounting? (Question 6)

A. External reporting	16	11%
B. Internal management	6	4%
C. Both	118	83%
D. Other	2	1%
No answer	1	1%
Total	143	100%

The results of Table 9 were further investigated by asking the companies to weight the relative importance of both of these purposes (Question 7). Table 10 shows the results. While 38% of the companies responded “same”, 39% considered external reporting purposes more important, on the other hand only 18 % put more importance to internal management purposes. These results suggest that external reporting purposes take precedence over internal management purposes in Japanese corporate environmental accounting practices. This is a further evidence to support the influence of the MOE guidelines.

Table 10. Relative weight of importance between these two purposes (Question 7)

5. External reporting much more important	12	8%
4. External reporting more important	44	31%
3. Same	54	38%
2. Internal management more important	20	14%
1. Internal management much more important	6	4%
No answer	7	5%
Total	143	100%

While Japanese companies tend to put more stress on external reporting purposes than internal management, it should be noted that they recognised the importance of the latter in environmental accounting practices as well. If they used environmental accounting for internal decision making, what kind of accounting methods were employed (Question 8)? The results are shown in Table 11¹⁰.

¹⁰ The companies which did not employ environmental accounting for internal management gave no answers to Question 8 and Question 10.

Table 11. What sort of environmental accounting did you employ for internal management? (multiple answers) (Question 8)

A. Same as environmental accounting for external disclosure	60	42%
B. Modified environmental accounting for external disclosure	42	29%
C. Some different sort of environmental accounting from external disclosure	10	7%
D. Others	10	7%
No answer	30	21%

More than 70 % of the responding companies used same (42%) or modified (29%) external environmental accounting, which means environmental accounting for public disclosure, for internal management as well. Only 7 % of the companies employed some different environmental accounting methods for internal use than those they used for external environmental accounting. Considering that most external environmental accounting of Japanese companies is based on the MOE guidelines, it is difficult to apply them to any particular internal decision making such as environmental investment or environmentally friendly product development. This is because the guidelines target the whole corporate activity rather than any specified activity. In addition, the definition of environmental costs of the guidelines is limited to environmental conservation costs. Such a definition may be too narrow for many internal management purposes. Therefore, it can be said that environmental management accounting in Japanese companies was not so sophisticated. This will be supported by the results from the questions on the benefits of environmental accounting in the following section.

4) Benefits from the introduction of an environmental accounting system

What benefits can result from the introduction of an environmental accounting system? Question 9 asked this and the results are shown in Table 12. It is not surprising to observe that 84 % of responding companies recognised understanding the amount of environmental cost as a benefit. This is because the MOE guidelines, which most companies adhered to, are oriented to measure the environmental conservation cost comprehensively. The second largest response (55%) indicated that these companies believed that by disclosing environmental accounting information they were enhancing their corporate image. This is one of the most remarkable features of Japanese environmental accounting practices which is oriented for external reporting. Only 39% of the responding companies answered that environmental accounting was useful for

internal management as shown in Table 12¹¹. The number was quite small, considering many companies pursue an internal management purpose as well as an external purpose. This might be caused because most companies employed external environmental accounting for internal management purposes as mentioned before.

Table 12. What benefits resulted from the introduction of an environmental accounting system? (multiple answers) (Question 9)

A. Useful for internal environmental management	56	39%
B. Understanding how much environmental cost incurred	120	84%
C. Awareness of environmental matters within your company	75	52%
D. Getting some advance for budgeting	13	9%
E. Improvement of corporate image from disclosure	78	55%
F. The status of environmental department rising within your company	11	8%
G. Unknown	12	8%
H. Others	3	2%
No answer	1	1%

The next question asked if there were any concrete benefits from the internal use of environmental accounting. Table 13 shows the results. For 36% of the responding companies, environmental accounting was considered to be useful for the reduction of both environmental burdens and environmental costs. However, the number of companies that recognised that environmental accounting was useful for the reduction of material costs or development of environmentally friendly products were quite small, 12% and 17% respectively. The number of companies got some benefits from environmental accounting for improvement of environmental decision making was not so large (21%), either. These results suggest that environmental accounting within companies has not used for these particular management purposes very much.

¹¹ The item B of Question 9 could be a part of internal management as cost is to be managed. However, nevertheless the multiple answer, the difference of the number of responding companies between A and B in Table 9 was quite large. This indicates that “understanding how much environmental cost incurred” is not always considered to be a part of internal management but a part of external reporting activities in Japanese companies.

Table 13. What were the benefits of environmental accounting for internal management? (multiple answer) (Question 10)

A. Reduction of environmental burden	52	36%
B. Reduction of environmental cost	52	36%
C. Reduction of material cost	17	12%
D. Discovery of valuables from waste	19	13%
E. Improvement of environmental decision making, ex. environmental investment	30	21%
F. Development of environmentally friendly products	25	17%
G. Performance evaluation	5	3%
H. Others	23	16%
No answer	40	28%

Finally Question 11 asked if there were any potential benefits which the company wanted in the future. Table 14 shows the results. It should be noted that 71 % of the responding companies wanted to improve environmental decision making such as environmental investment appraisal. This result suggests that potential needs for environmental management accounting is growing among Japanese companies.

Table 14. What are the potential benefits which you want to receive from environmental accounting practices in the future? (multiple answer) (Question 11)

A. Reduction of environmental burden	95	66%
B. Reduction of environmental cost	96	67%
C. Reduction of material cost	42	29%
D. Discovery of valuables from waste	26	18%
E. Improvement of environmental decision making, ex. environmental investment	101	71%
F. Development of environmentally friendly products	54	38%
G. Performance evaluation	46	32%
H. Others	6	4%
No answer	4	3%

On the other hand, the number of companies wanted potential benefits for reduction of material costs, development of environmentally friendly products and performance evaluation were quite small. This is not because Japanese companies made light of these activities, but because they did not recognise environmental accounting could support these management activities

5. CONCLUDING REMARKS

There are two main governmental initiatives on environmental accounting in Japan, which are taken by MOE and METI. MOE released draft guidelines in 1999 and published the environmental accounting guidelines in 2000. It has been continuing these initiatives since then. METI launched a three-year research based project on environmental management accounting from 1999. This will be completed in March 2002.

In this paper the influence of these two governmental initiatives on Japanese corporate environmental accounting practices was examined by an analysis of environmental accounting disclosure and a questionnaire survey. The investigation of environmental accounting information disclosed by an environmental report indicated strong influence of the MOE guidelines on the classification and definition of environmental costs, which are the main elements of environmental accounting.

The questionnaire was sent to those companies which disclosed environmental accounting information. Decision making level for environmental accounting, the influence of governmental initiatives, the purpose and the benefits of environmental accounting were examined. The results suggest that top managements were heavily involved with the introduction of environmental accounting system, and that the MOE guidelines very strongly influenced Japanese companies. This shows that Japanese corporate environmental accounting is oriented to external reporting because the MOE guidelines stress more strongly the external disclosure function of environmental accounting than the internal management function. These evidences were supported by the results of the analysis of the purpose and the benefits of environmental accounting. The analysis showed that Japanese companies did not receive many benefits on particular management activities such as environmentally friendly product development or environmental investment appraisal from the introduction of an environmental accounting system.

Our analysis showed that the MOE guidelines very strongly influence Japanese companies and orient them to external environmental accounting. On the contrary, the METI initiatives, which exclusively focus on internal function of environmental accounting, did not influence Japanese companies very much. However, as mentioned before, it should be noted that the time of the survey might be a little bit too early to

give a final conclusion on this issue because the METI project is still in progress. However, it can be said that for internal usage of environmental accounting within companies, the MOE guidelines must be complemented with some other sorts of environmental management accounting, for example environmental investment appraisal methods, material flow cost accounting and so on. Potential needs for environmental management accounting in Japan are rising. The MOE guidelines have had great success in the area of external reporting. The next task is to develop internal environmental accounting.

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APPENDIX

The Questions of the Survey

Question 1: Who proposed to introduce an environmental accounting system into your company?

- A. CEO
- B. Director in charge of the environment
- C. Senior management
- D. Middle management
- E. Other

Question 2: Who gave the final permission for external environmental accounting information disclosures?

- A. The board of directors
- B. CEO
- C. Director in charge of the environment
- D. Senior management
- E. Other

Question 3: When you introduce an environmental accounting system, how much did you consult the MOE guidelines?

- A. Very much
- B. Fairly
- C. To some extent
- D. Not very much
- E. Almost none

Question 4: If you have any corporate environmental accounting standard, to what extent is it in accordance with the MOE guidelines?

- A. Employing the MOE guidelines themselves
- B. Being based on the MOE guidelines
- C. Referring to the MOE guidelines
- D. Employing an original standard
- E. Employing no standards

Question 5: When you prepared environmental accounting, how much did you consult the METI reports on environmental accounting published by JEMAI?

- A. Very much
- B. Fairly
- C. To some extent
- D. Not very much
- E. Almost none

Question 6: What is the purpose of environmental accounting?

- A. External reporting
- B. Internal management
- C. Both
- D. Other

Question 7: Please indicate relative weight of importance between these two purposes.

External reporting	more		more	Internal management
much more important	important	same	important	much more important
5	4	3	2	1

Question 8: What sort of environmental accounting did you employ for internal management? (multiple answers)

- A. Same as environmental accounting for external disclosure
- B. Modified environmental accounting for external disclosure
- C. Some different sort of environmental accounting from external disclosure
- D. Others

Question 9: What benefits resulted from the introduction of an environmental accounting system? (multiple answers)

- A. Useful for internal environmental management
- B. Understanding how much environmental cost incurred
- C. Awareness of environmental matters within your company
- D. Getting some advance for budgeting
- E. Improvement of corporate image from disclosure
- F. The status of environmental department rising within your company
- G. Unknown
- H. Others

Question 10: What were the benefits of environmental accounting for internal management? (multiple answer)

- A. Reduction of environmental burden
- B. Reduction of environmental cost
- C. Reduction of material cost
- D. Discovery of valuables from waste
- E. Improvement of environmental decision making, ex. environmental investment
- F. Development of environmentally friendly products
- G. Performance evaluation
- H. Others

Question 11: What are the potential benefits which you want to receive from environmental accounting practices in the future? (multiple answer)

- A. Reduction of environmental burden
- B. Reduction of environmental cost
- C. Reduction of material cost
- D. Discovery of valuables from waste
- E. Improvement of environmental decision making, ex. environmental investment
- F. Development of environmentally friendly products
- G. Performance evaluation
- H. Others