Two Aspects of Questions of Environmental Accounting: From the View of Financial Reports and Environmental Reports

Shiu Mei Lin*

The purpose of this study was: (1) to seek for the scope environmental accounting covers, and (2) reviewing environmental accounting both in the aspects of financial and environmental reports, by scrutinizing purposes, goals, approaches and recognition, measurement units, and institutions elaborating quality of environmental reports. The author presented a scheme that environmental accounting could be composed of two parts - internal and external - each corresponding to managerial and financial accounting, respectively. The nature of environmental accounting was analyzed next to yield that it would influence companies' profits greatly whether they adopted "revenues-expenses matching approach" or "assets-liabilities matching approach," and that it brings another aspect of accounting, "social and environmental," toward "integrative, multi-aspect environmental accounting." Then the functions of environmental reports were discussed, emphasizing disclosure of companies' efforts for environmental preservation, with issues of evaluation methods and measurement units (monetary vs. material and descriptions) appeared in published reports, toward standardization. Finally, various examples and effects of official commendation institutions were discussed.

Keywords: environmental accounting, environmental reports

* **Shiu Mei Lin**, Department of Accounting, Fu Jen Catholic University, Hsin Chuang (242), Taipei Hsien, Taiwan, R.O.C.

Definition of Environmental Accounting

From late 1960's until early 1970's, European and American countries had executed a series of activities which pursued companies' social responsibility (e.g., employees' safety, health, fair transactions, etc.) as policies to solve environmental problems (Kono 1995). In spite that these policies were adopted for operation, environmental problems has become more serious and grave and environmental auditing has adopted rapidly since 1990's, with a magnificent scale of research development on environmental accounting in those countries. As is commonly known, the areas of issues and questions that compose environmental accounting are quite complex and interdisciplinary in nature, and professionals in each discipline and area concerned with it, various definitions of environmental accounting have been presented as a result. As pointed out by R. Gray on this matter, "Environmental accounting depends on how to interpret it (Gray and Owen 1993)." It is certainly thinkable here that environmental accounting is "a series of action that recognizes, measures, and evaluates matters concerned with environment, and transfer them," as a tentative definition in use for professionals in various fields to match their own purposes (Kokubu 1997).

Scope of Environmental Accounting

A significant aspect of accounting is to measure operating results of companies by monetary unit and to provide information relevant to their operations. Because environmental accounting is thought of nothing but as a part which constitutes accounting (Kokubu 1997), the classification methods applied in accounting can also be applicable to environmental accounting, even though different ways of classification are presented in the field, consistent with each area and helpful to achieve each goal. In other words, corporate accounting provides indispensable economic information (on company operations) with user of information: Financial accounting (i.e., external accounting) gives it to stakeholders outside the company, whereas managerial accounting (i.e., internal accounting) to managers and administrators inside (Noshizawa 1992). Consonant to this scheme, one area in environmental accounting that corresponds to financial accounting can be classified as "external environmental accounting," while the other area that corresponds to managerial accounting as "internal environmental accounting (Kokubu 1997)."

As stated above, financial accounting targets stakeholders outside the company, whereas managerial accounting does managers and administrators inside. Environmental accounting, similar to financial accounting, must function to transfer diversified information both on company operations to stakeholders outside the company and on (company's activities of) environmental protection to enlightened stakeholders (Kokubu 1997). Also with much similarity to financial accounting, however, there tend to occur conflicts among the stakeholders concerned in the field of environmental accounting, as their interests reveal contradictory each other. Needless to claim, the ultimate goal of company is to maximize its profits. If a company executes environment-related activities and the relevant cost increases, the incompatibility between profit maximization and environment protection activities that follow appears as new difficult problem. Therefore in environmental accounting, the new task, difficult to take, comes up: how to adjust pursuit for profits and environmental protection. In addition to this, not a few environmental accounting takes a ("non-monetary-unit") form in which methods of measurement by material unit or description are used, in spite that every figure should be presented in monetary unit, based on the current accounting standards. These methods as alternatives suggest that the current accounting standards and measurement criterion are intangible to grasp environmental accounting, and that the form of "Environmental Report," which contains material unit measurement or description, is required to supplement the elusiveness. Each company draws up its environmental report by its own original method appropriate to the goal, when it is to evaluate its environmental performances. The present article examines and investigates the current status of environmental accounting in two aspects of financial reports and environmental reports.

Environmental Accounting in the Aspect of Financial Reports

The purpose of introduction of environmental accounting can be classified as twofold. One is intensification of internal administration (e.g., thoroughgoing conscience on costs) and the other is disclosure of company information (e.g., information-feeding to its investors). Laws and regulations prescribe that director of company shall draw up Business Report on the company situation - progress, results, etc. of operation activities, including financing and capital investment during the business year - upon the approval of the Board of Directors of company and he/

she reports to the shareholders at every accounting period. However, Financial Reports (e.g., Environmental Reports, etc.) provided by laws and regulations in the past did not cover information related to "environmental accounting". Recently, in order to introduce this information to Financial Reports and materialize it, administrative agencies and industries eagerly joined together and advanced the research.

Looking back on the series of introduction of environmental accounting, the first step was the research report entitled as "*Environmental Costs and Environmental Debts*," presented by the Canadian Institute of Certificate Accountants (CICA) in 1993. It stated clearly that environmental costs are composed of "environment-measures costs" and "environmental losses (Forbes 1999)." Later, in 1995, the U.S. Bureau for Environmental Protection proclaimed "*Introduction to Environmental Accounting* (Forbes 1999)." In the United States, under the influence of law that prescribes strong legal force to environmental purification duties, the significant matters of recognition, measurement, and disclosure of environmental accounting have been up for discussion. Besides, in 1996, WBCSD published "*Monetary Market and Global Environment*," announcing that environmental costs can be divided into the following four categories: capital investments, standing expenses, policies for environmental purification, and R&D costs (Forbes 1999).

Not only in internal environmental accounting, but also in external one is centered accounting method of environmental costs (environment-related expenditures) (Kokubu 1997). In internal environmental accounting, however, the scope of environmental costs is variable both in time and space, on account of the objective of management's decision-making, whereas traditionally in financial reports, environmental costs must presumably be recognized in the framework of matching period expenses with profits (Kokubu 1997). The Canadian Institute of Certificate Accountants (CICA), as described above, categorizes environmental costs into "environment-measures costs" (targeted to decrease load to environment caused by company's standing operations and to reduce its influences) and "environmental losses" (costs unrelated to company's revenues). It is well conceivable that this taxonomy reflects on the idea of financial accounting, which recognizes the relationship between company's expenses and revenues (Kokubu 1997). Based on ongoing accounting standards, environmental costs can be recognized and classified as "current expenses (= costs)" and "future expenses (= assets)." This classification scheme depends on the principles of "accrual concept" and "expenses allocation (Yamagami 1993)." In addition to this scheme, of "future environmental expenses," costs related to past events are allocated as "environmental debts, whereas those relevant to future events if rationally estimated as "environmental allowances (Yamagami 1993)." Though accounting principles in Japan employ revenues-expenses matching approach, based on the principle of matching expenses with revenues, assets-liabilities matching approach is mainly adopted in the United States (Nakamura 1998). The problem on capitalization of environmental costs has gathered attention and facilitated controversies especially in the United States, in which the capitalization to improve asset valuation is the center of the discussion, not the allocation to future revenues (Kokubu 1997).

Speaking concretely, whether to allocate environmental costs to current period or to capitalize them by itself influences current income. Therefore, it is expectedly apprehended that the standard on which these accounting transactions are based may give a strong impact on a series of environment preservation investments of companies. For example, companies that earn small profits may be inclined to restrain the investments, upon the accounting standard that urges their full allocation of environmental costs to expenses, in comparison with the standard that permits capitalization. Presumed by this instance, it is desirable that the broader the range of capitalization covers, the better to facilitate environmental preservation (Kokubu 1997). Also suggested, however, by the example above, the allowance for capitalization means to list low-ability assets, which will earn future economical benefits, in Balance Sheet (Kokubu 1997).

Besides, based on the current accounting standards, every figure should be, in principle, presented in monetary unit. We can easily find out, nonetheless, not a small variation of environmental accounting adopts methods of measurement by material unit or description, not monetary unit. Most typical example refers how to convert company's net "social profits" into monetary values and inform them of enlightened stakeholders (Yamagami 1996). Eager controversies had arisen on this matter in the United States in the past, but it remained as a concept itself, because its conceptual prescriptions and measurement methods were difficult to handle. Since 1990, however, alternative methods have come to be available, in the form of "Environmental Reports" by such measurement methods as material values or descriptive figures, to claim "company as a social entity (Yamagami 1996)." These systems to grasp environmental accounting will substantially imply a problem to lose in touch with traditional measurement methods by monetary unit, based on current and past accounting standards. However, it has become the center of the current issue to construct environmental accounting by "multi-aspect measurement methods (Yamagami 1996)."

Reconfirming Environmental Accounting

As noted earlier, it is impossible to completely recognize environmental accounting from the viewpoints of current accounting laws and regulations and measurement standards. Presuming its social aspect ("company as a social entity"), it is thought of as important to comprehensively grasp corporate accounting in the aspects of "social and environmental" as well as "capital and profits." As to this point, Prof. T. Yamagami pointed out and deliberated construction of "integrative, multi-aspect environmental accounting (Yamagami 1993)." On the other hand, trends in standardization of environmental accounting have gathered practical attentions. That is to say actually in the United States, companies, which give burden to environment, can report and disclose outside what measures they take against environmental preservation. In European countries, they have published Environmental Reports that revealed material values and indices to industrial wastes, without calculating them into monetary values by force. Further, the Japanese Environment Agency (Kankyo-cho) (1999) publicly announced a guideline proposal especially on environmental costs in October 1999, which took up writing and publication of Environmental Reports.

Companies evaluate their results of operations by monetary unit and disclose information on operating activities in the form of Financial Reports. On the other hand, of the correspondence between companies and environmental matters, they analyze and evaluate the corresponding relationships in the figure of "environmental investments and their effects. " Based on environmental accounting, they must, at the first stage, calculate cost utilities and classify a series of related information into the categories that follow: e.g, (1) costs of environmental preservation activities for maintaining production activities; (2) inputs of business resources concerned increase of environmental measures staff and development expenses for environment-related technology; and (3) the effects of degree of contribution, efficiency, etc., relevant to those activities as a result. Focusing closely upon the categories above, they may just as well adopt the following items as primary information of environmental accounting: (a) what items should be listed and taken in; (b) from what background those items are expensed; (c) how much are expensed or required to expense; and (d) how much effects are gained as a result (Komuro 1999).

Consumers' recognition on environment has excessively grown up since 1990. Influenced this rapid recognition, world-leading companies in chemical, forest, paper, pulp, etc. not only have adopted environment-related information in their annual reports, but also have written and published their original Environmental Reports by themselves. Reviewing this matter from practical view, companies can rely on unified standards for measuring and evaluating the effects of environmental costs presented by the guidelines of the U.S. Bureau for Environmental Protection and the Japanese Environment Agency, but those companies have not been inclined to adopt such guidelines in the actual circumstances. Instead, they have developed their own guidelines - self-guided standards, as it were - and measured and evaluated the effects, to socially best suit for themselves (Kokubu 1998). Consistent with the central focus to Financial Reports, that is, Financial Statements summarizing financial performances of companies, appraisal of environmental performances are conducted in accounting for effects of company's operations on environment. Various methods of evaluating environmental performances have been utilized in practice. Based on the published Environmental Reports (Yamagami 1996), those methods can be classified in four as follows:

(a) Individual Evaluation Method:

Appraisers can evaluate social-related activities and environmental preservation performances by this method that is useful for solving complicated, diversified environmental problems.

(b) Material Values and Descriptive Evaluation Method:

Intrinsic method in the meaning that appraisers can grasp environmental issues realistically, without institutional biases.

(c) Monetary Values Evaluation Method:

Different from ordinary accounting method, appraisers can calculate profit per environmental load for each manufacture; for instance, by dividing company's profit value by environmental load. That is to say, one step ahead of monetary recognition for environmental issues, it is important with this method that appraisal index of company is represented by figures related to its specific target values.

(d) Synthetic Evaluation Method:

Appraisers try to evaluate two aspects inherent to company - profitability and sociality - and situations of their achievement.

As described at the beginning of this article, the expected targets of Environmental Reports are enlightened stakeholders. Besides, the main areas that environmental accounting cover to disclose is company's activities related to environmental costs and benefits. In accordance with method (c) (Monetary Values Evaluation Method) as presented above, we can list well-known examples of applications of this method as Environmental Reports of British Airways (1995) and Gebert (Switzerland) (Miyazaki 1997). As to examples in which method (b) (Material Values and Descriptive Evaluation Method) was applied for appraisal, we can highly praise the following reports: "*Life-Cycle*" of Kirin Beer (Japan) (1996), "*Eco-Balance*" of Kunert (Germany) (1995), and Environmental Reports of Volvo (Swedish automobile manufacturer) (1996). A good example of method (d) (Synthetic Evaluation Method) is Nikkei PRISM (*Private Sector Multievaluation System*: Japan) (Yamagami 1993).

Finally, we will focus on official commendation institutions of Environmental Reports. The guidelines for Environmental Reports differ among each nation's laws and regulations. Needless to say, Environmental Reports are merely a tool to give information on company, thus it completely depends on each management's own judgment and decision what criteria he/she employs, what information he/she disclose and by this, what meaning he/she makes company's operations yield. Under such circumstances, official commendation institutions have been operated in order to elaborate the quality of Environmental Reports.

Official commendation institutions have been available, sponsored mainly by environment-conscious economic associations, associations of Certified Public Accountants, etc. of various countries such as the United Kingdom (UK), Germany, Canada, Denmark, Japan, and so forth. Focusing on the content of the commendation, it takes the form of contest, in which the reports applied for nomination by companies are appraised and judged by a certain criteria, and finally award is credited to a winning company (Kokubu 1997). Inconsistent with Financial Statements that are assigned the unified format, Environmental Reports, without synthesized form in hand to share, cannot presume the reactions of information users toward them. This kind of official commendation institution can therefore be regarded as a public formulation of evaluation process of Environmental Reports, being done in nature by relevant stakeholders. If it works out well, through the feedback of results toward companies, quality improvements on the reports are expected (Kokubu 1997).

Reconfirming Environmental Accounting

The purpose of introduction of environmental accounting, if we reconfirm it, can be broken down into two categories: intensification of internal administration and disclosure of company information. Taking internal environmental accounting into account, which corresponds to the former category, the scope of environmental costs is variable both in time and space, due to the objective of managers' decision-making, while in financial reports, traditionally, environmental costs must reasonably be recognized in the framework of matching period expenses with profits.

Ongoing accounting standards urge to recognize and classify environmental costs as "current expenses (= costs)" and "future expenses (= assets)." As to "future environmental expenses," in addition to this typology, costs concerning past events are allocated as "environmental debts, whereas those related to future events, if rationally estimated, as "environmental allowances (Yamagami 1998)." Though Japanese accounting principles adopts revenues-expenses matching approach, upon which the principle of matching expenses with revenues is based, the counterparts in the United States and other countries mainly employ assets-liabilities matching approach (Nakamura 1998). The issue on capitalization of environmental costs has drawn broad attention that facilitated controversies especially in the United States, in which the capitalization to improve - or not to improve - asset valuation is the central point of issue, just not the allocation to future revenues (Kokubu 1997).

Furthermore, as determined in the current accounting standards, every figure should be in principle evaluated and presented in monetary unit. Not a small variation of environmental accounting, however, adopts methods of measurement by material unit or description - by not monetary unit. Eager controversies had arisen on this matter in the United States in the past, but it remained as a concept itself, because its conceptual prescriptions and measurement methods were difficult to execute. Despite this settlement of controversies, alternative methods have come to be available since 1990, by taking the form of "Environmental Reports" by such measurement methods as material values or descriptive figures, and have enabled evaluation of company's environmental performances. It will be a future task to complete, as it has been, how to construct environmental accounting by "multi-aspect measurement methods."

Having pointed out earlier, it is impossible to fully recognize environmental accounting from the view of current accounting laws and regulations and measurement standards. Assuming its social aspect - namely, "company as a social entity" - it is important to comprehensively grasp corporate accounting in the aspects of "social and environmental" as well as "capital and profits." As to this point, attempts are highly praised toward the construction of "integrative, multi-aspect environmental accounting (Yamagami 1998)." On the other hand, trends in standardization of environmental accounting have drawn considerable attentions in terms of practices. To say actually, companies in the United States, which give burden to environment, can report and disclose outside what measures they take against environmental preservation by attaching importance to intensification of internal administration, under the initiative of the U.S. Bureau for Environmental Protection. Besides, in European countries, they have published Environmental Reports on industrial wastes that were evaluated by material unit and descriptions, not calculated by monetary unit. Moreover, the Japanese Environment Agency (Kankyo-cho) (1999) publicly announced a guideline proposal especially on environmental costs in October 1999.

Considering this matter from practical view, companies can depend on unified standards to measure and evaluate the effects of environmental costs officially announced by the guidelines of the U.S. Bureau for Environmental Protection and the Japanese Environment Agency. Those companies in charge, however, have not been prone to adopt such guidelines in the actual circumstances. Instead, they have set their own guidelines - self-guided standards - and measured and evaluated the effects (Kokubu 1998). They appraise environmental performances to account for effects created by company's operations to environment. Various methods of evaluating environmental performances have been introduced and employed in practice, which can be classified, adopted in actually published Environmental Reports (1996), into four as follows: (a) Individual Evaluation Method, (b) Material Values and Descriptive Evaluation Method, (c) Monetary Values Evaluation Method, and (d) Synthetic Evaluation Method. As well-known examples of applications of the method (c) (Monetary Values Evaluation Method), we can list Environmental Reports of British Airways (1996) and Gebert (Switzerland) (1997). As to examples in which method (b) (Material Values and Descriptive Evaluation Method) was applied for appraisal, we can eminently praise the reports that follow: "*Life-Cycle*" of Kirin Beer (Japan) (1996), "*Eco-Balance*" of Kunert (Germany) (1995), and Environmental Reports of Volvo (Swedish automobile manufacturer) (1996). A deserving example of method (d) (Synthetic Evaluation Method) in application is *Nikkei PRISM* (*Private Sector Multievaluation System*: Japan) (Yamagami 1993).

To end off, we focused on official commendation institutions of Environmental Reports. The guidelines for Environmental Reports differ among each nation's laws and regulations. It is completely a matter of each management's autonomous judgment and decision what criteria he/she employs, what information he/she disclose and by this, what meaning he/she makes company's operations emerge. Under such situations, official commendation institutions have been operated, especially for the purpose of improving the quality of Environmental Reports.

Official commendation institutions have been conducted, sponsored primarily by environment-conscious economic associations, associations of Certified Public Accountants, etc. of several countries such as in European and American countries. This kind of official commendation institution can be regarded as a public formulation of evaluation process of Environmental Reports, which should be done in nature by relevant stakeholders. If it brings fruitful results after all, quality improvements on the reports are well anticipated through the feedback of results toward companies (Kokubu 1998).

Further Implications

As final remarks, the author will discuss how environmental accounting will develop toward the future, especially its place in companies' environmental management. This article mainly deliberated the definition, transition, and current status of environmental problems and accounting. Looking back to the past upon this matter, 1990's may be called "The Era of Popularization and Development" of environmental accounting, in which increasing number of companies worldwide began to publish their own environmental reports to make their measures against environmental issues disclosed and public. Counting up the number of environmental accounting publicly available in this era, it is reasonable to assume that the worldwide trend to publish environmental reports is prevailing, no matter what their motives are, mostly encouraged, though a bit restricted, by their countries' official commendation and guidelines.

"The Era of Popularization and Development" of environmental accounting reflects on the "quantity" of environmental reports published, does not assume their "quality." Speaking in detail, environment-friendly companies, which are seen dedicatedly to take advanced actions on environmental protection and safeguards, have been unable to publish environmental reports whose contents are insufficient to describe and/or assess their environmental measures. This kind of insufficiency in quality is attributed to the fact that environmental accounting at the current stage is yet "development," especially about standardization of diversified methods adopted by environment-conscious companies to summarize their environmental measures. That is to say, current environmental accounting is practically less matured thus under development, and, at best, the method in search of standardization has just become a matter of serious controversies and considerations for practical application. Given this status for granted, it is rationally expected that more and more, growing number of companies recognize the valuable feature of environmental accounting and employ it as a series of comprehensive company accounting, facilitated by attempts for standardization as well as coming-up notion of "environmental accounting as a critical yardstick for company evaluation, " working in concern with broad understandings of prevalent environmental problems among universal companies. To date, lack of standardization makes stakeholders of companies unable to fully compare their environmental reports, which inevitably leads to inadequate evaluation for each company in terms of environmental measurements.

Toward the future, it is important to notice that increasing number of companies realize the significance of environmental report and try voluntarily to improve the quality of their management and operations, as "a citizen of the earth," in terms of environmental accountability. Presently, this tendency seems apparent. Rest assured that unsolved tasks are left now, but a good direction is posted for sure, to make the future better.

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