

Sustainability Toolkit for Compliant Corporations

Given the tremendous pressures that companies in the region are facing to comply with rapidly developing formal and informal environmental performance standards, what guidance can be provided to enable them to take a proactive approach to improving their environmental management practices?

Fortunately, in recent years various diagnostic and reporting approaches have been experimented with that allow firms to make unilateral performance improvements including five practical tools: (i) EMS, (ii) corporate environmental auditing and reporting, (iii) benchmarking, (iv) LCA, and (v) environmental management accounting.

ENVIRONMENTAL MANAGEMENT SYSTEM

The mechanics of EMS: EMS are internal and are aimed at improving the environmental performance of an organization. Developing EMS generally involves corporations answering the following six questions:

- (i) What are the broad outcomes that are required from environmental management?
- (ii) What are the environmental impacts associated with the organization's activities, products, and services that will affect these outcomes?
- (iii) What is the organization's policy in relation to environmental issues?
- (iv) What are the organization's objectives

and targets for environmental management?

- (v) What systems and procedures need to be implemented to achieve the policy, objectives, and targets?
- (vi) How is the performance of the system to be evaluated?¹⁷⁵

A corporation can answer these questions without any external help, and until the early 1990s, this is what proactive firms would have done if they had wanted to improve their overall environmental performance. At about that time, however, a number of "meta-standards" were developed to provide general specifications of what should be included in a management system.¹⁷⁶ The best known include those of ISO, the British Standards Institution (BS 7750), and the European Community (Eco-Management and Audit Scheme). While there are some substantial differences in what they attempt to achieve, all three standards are broadly similar in that they provide a harmonized framework to ensure that a corporation meets its legal obligations and that it commits itself to a process of continual environmental improvement.¹⁷⁷ While there are a number of models for EMS in existence,¹⁷⁸ the most recognized is the ISO 14001 standard discussed in the previous chapter. It specifies the requirements for EMS against which an organization may be certified by a third party. It is important to note that ISO itself is not involved in certification beyond setting the standard. The specification includes:

- (i) the development of an environmental policy;
- (ii) identification of "environmental aspects" or impacts;

- (iii) establishment of relevant legal and regulatory requirements;
- (iv) development of environmental objectives and targets;
- (v) establishment and maintenance of an environmental program to achieve its objectives and targets;
- (vi) implementation of EMS, including training, documentation, and operational control;
- (vii) monitoring and measuring operational activities, including record-keeping;
- (viii) EMS audit procedures;
- (ix) managerial review of EMS to determine continuing suitability, adequacy, and effectiveness.¹⁷⁹

While this system appears to bring some rigor into the way in which a corporation approaches environmental management, several commentators have pointed out that implementing EMS using the ISO standard does not guarantee that environmental performance will be improved. ISO 14001 is a continuous improvement process, not a performance standard. Just as an accounting system does not automatically ensure that a corporation will be profitable, so ISO certification does not guarantee that a firm's environmental problems will be solved. In fact, ISO 14001 does not require firms to demonstrate actual improvements in environmental performance. It only requires them to commit to doing so and to follow through on these commitments, and it views active EMS as evidence of such commitment. Some critics claim that it is theoretically possible for a corporation to be out of compliance but still maintain its certificate because it remains "committed to compliance."¹⁸⁰

Adoption rates: While it is still early days for ISO 14001, some initial research has investigated a marked divergence recorded in adoption rates across countries. Preliminary work in the PRC has shown that the four strongest factors determining whether a corporation adopts ISO 14001 are (i) multinational ownership, (ii) a high

proportion of sales to multinational customers within the PRC, (iii) a large proportion of output exported to developed countries, and (iv) a high proportion of output exported to developed countries that are active adopters of ISO 14001.¹⁸¹ Clearly, it is the internationally connected and export-oriented firms that are adopting this approach.

This research is supported and extended by more recent analysis of data from 59 countries that suggest that ISO 14001 adoption rates are likely to be higher in countries (i) whose trading partners have adopted the same meta-standard, (ii) embedded in international networks of NGOs, (iii) whose governments flexibly enforce stringent environmental regulations with a less adversarial and litigious stance toward firms, and (iv) where consumers want mechanisms for identifying environmentally progressive firms.¹⁸² These findings go a long way toward explaining why the US has a relatively small uptake of ISO 14001 but probably a larger variety of EMS and why corporations in the PRC have taken to this harmonized form with more enthusiasm in the recent past. It also supports the arguments outlined in Chapter 2 that pointed to the importance of global supply chain pressures.

EMS and environmental performance: ISO 14001 was formally established in 1988, so evaluations of its impact on actual environmental performance are rare and can only be considered as preliminary. A large survey of 1,510 US firms published in 2000 found that overall, the systems were not seen in a positive light. Managers surveyed saw them as having a negative impact on the major strategic dimensions of performance (lead time, costs, and quality). There was, however, a strong positive relationship between the stage of ISO 14001 certification and the effectiveness of the EMS. In other words, the closer the firm was to attaining ISO certification, the greater the positive impact that EMS had on the overall performance of the firm. Of the firms in the sample that had been certified, the majority said that their EMS had reduced waste in the production and had enhanced the reputation

of the company.¹⁸³ A smaller survey of ISO 14001-certified firms in Australia found that 89% of their managers could point to improved environmental performance as a direct result of EMS. Examples varied depending on industrial sector but commonly focused on pollution control, improvements in production efficiency, and increasingly efficient use of energy and water. Respondents also pointed to "ancillary" benefits such as (i) assisting in the assessment of risk, (ii) cost savings in relation to resource inputs and waste outputs, (iii) integration with health and safety provisions where efficiencies could be obtained by coordinating ISO processes, and (iv) improved compliance with regulatory conditions.¹⁸⁴

Finally, World Bank research in Mexico has shed light on the relationship between EMS and compliance rates that might be more relevant to the developing economies of Asia and the Pacific. A survey of 236 factories in heavily polluting industrial sectors showed that there is a direct relationship between adopting ISO 14001 and compliance. As with the US survey mentioned earlier, the Mexican work showed that the closer a firm is to certification, the more environmental benefit it obtains. For example, 86% of plants with high EMS adoption scores were complying with environmental regulations while only 24% of plants with low scores were.¹⁸⁵

Significance of EMS to corporations in Asia and the Pacific: There is considerable pressure on corporations in Asia and the Pacific that export and/or work with MNCs to adopt acceptable EMS. ISO 14001 is rapidly becoming the de facto standard demanded by the market, and this is further encouraged by the link between ISO and WTO. These pressures will continue to build and, in the near future, corporations that cannot show evidence of acceptable EMS in place will find it difficult to do business outside of their national boundaries.

As noted, adoption of EMS under ISO 14001 rules does not directly specify a level of environmental performance. A cynical

view could have it that corporations have an incentive to appear to be adhering to strict self-regulation to which they may in fact be only superficially committed. Unless there are solid gains from the improved inputs and other measures associated with establishing EMS, it is quite possible for certification to become an end in itself with little genuine commitment to environmental improvement.

In many developing countries where the traditional tools of command-and-control regulation have not worked well, mandatory adoption of EMS could offer a real opportunity for governments to extend their enforcement capabilities. Given the risks that the systems might be superficial, however, it is important for both corporations and governments to think carefully about how to make them truly effective and not merely symbolic. For corporations, it appears that for EMS to actually reduce environmental impact, there needs to be a combination of external pressure (from regulators or other stakeholders) and internal pressure from corporate culture or strong leadership. The structure of the systems clearly allows for firms to identify shortcomings and to make genuine improvements. Case studies and surveys have shown this to be the case.¹⁸⁶ For governments, EMS will need to be integrated into public law and policy. The end result will likely be a system of "co-regulation" between the private and public sectors. Generally, regulators using ISO 14001 as a basis for co-regulation will need to investigate ways of extending the standard to allow for forced compliance, evidence of measurable improvements in environmental performance, and public scrutiny of third-party verifications. Open-ended commitment to undertake environmental improvements should not be accepted. This approach is discussed in more detail in Chapter 7.

CORPORATE ENVIRONMENTAL AUDITING AND REPORTING

Auditing: How do managers know when their firms are continuously improving their environmental performances? First, they need internal EMS so that they can monitor and measure performance. Then they need an independent but internal auditing system that warns top management of potential risks and failures of line managers to meet performance targets. One of the earliest uses of an environmental auditing system was in the 1980s in response to a spill of a toxic chemical that polluted the James River in Virginia in the US. Commercial fishing and shellfish harvesting was suspended for 6 months, and the company was forced to pay what was then the largest environmental fine ever. The company retained an accounting firm to design an internal auditing system to prevent such incidents from recurring. Since that time, auditing has been adopted in one form or another by virtually every MNC worldwide. Just like financial audits, most firms assign special teams to conduct them and use outside consultants to provide third-party verification that the system is accurate.

Firms have resisted all efforts by national governments to mandate such audits arguing that a legally binding auditing system would result in a lowest common denominator system dominated by lawyers. The internal system enables top managers to get the unvarnished truth from operating divisions without fear of government intervention. Then management can decide how best to manage risk and ensure that the firm complies with all environmental requirements with adequate margins of safety. There is a wide variety of auditing models and a wide variety of third-party verifiers

willing to audit a firm's internal environmental auditors. Each company must choose a system that enables management to reduce risk and ensure compliance. There are costs associated with auditing just as in any other form of insurance coverage, but experience has shown that companies with environmental auditing systems reduce risks and are able to reduce the costs of liability coverage in addition to avoiding fines for noncompliance.

Environmental reporting: While audits are useful for providing internal management information, how do managers communicate their environmental performance to stakeholders when they have good news to report? Perhaps the first question to ask is, why bother to communicate at all? It is possible for firms to "fly under the radar" and seek anonymity in the short term, a strategy still used by many firms in the region. Silence, unfortunately, can be perceived as having something to hide or, at least, nothing good to report. External reporting signals that the firm is actively trying to manage its environmental impact. Reporting, assuming it is accurate and not just for public relations, monitors progress, documents successes, and gives the firm credit for its efforts. Its reputation can be enhanced, and its products can be given an environmentally friendly tag. In the best case, firms can increase their market shares or stock prices as environmentally responsible. Nevertheless, even in the best-managed firms there is always the inevitable upset, accident, or spill. Firms that have consistently reported and earned a good environmental reputation are more likely to be given the benefit of the doubt when such an event occurs.

For many years, firms in OECD countries have been required to submit strict financial reports. In recent years these requirements have been extended to cover environmental liabilities though the small section on environmental management has tended to get lost in the complex documents. As a result, in the last decade, several MNCs began to issue autonomous environment reports. Beginning around 2000, many of these

reports were transformed into sustainable development reports covering the economic, environmental, and social performance of the firm. In December 2002, the WBCSD issued a report entitled *Sustainable Development Reporting—Striking the Balance*.¹⁸⁷ The three chief executive officer authors stated in their foreword that, "...companies are under increasing pressure from key stakeholders to be transparent about their values, principles, and performance as regards sustainable development. We are seeing a growing recognition by many WBCSD members that external reports dealing with this subject support a company's position and strengthen its reputation. These reports are part of an effective response to the need for greater accountability and transparency."

WBCSD made environmental reports a requirement of membership and encouraged members to move toward a full sustainable development report. "Members should publicly report on their environment performance within 3 years of becoming a member and aspire to widen their reporting to cover all three elements of sustainable development—economic, environmental, and social."¹⁸⁸

Traditionally, there were three key stakeholder audiences for environmental reports: investors, employees, and customers. Today, there are many more diverse stakeholders including current shareholders and potential investors, employees, customers, suppliers, governments and their agencies, the public (particularly the local community where the business is based), NGOs, lenders, and the entire financial community. Sustainable development reports should meet the general needs of most users but should not strive to be everything to everyone. Experience has shown that it is not the quantity but the quality of information that counts.

One complaint of many within the anti-globalization movement was a lack of accountability and transparency on the part of business, especially the MNCs. Environmental or, preferably, sustainable development reporting is a partial answer to

these complaints. Reporting does not allay these suspicions entirely. Critics are quick to label all business environmental reports as "greenwash." However, the reports do begin the process of demystifying business and giving various stakeholders a clearer picture of the values, principles, and performance of firms with regard to the environment. Combined with other outreach activities, environment or sustainability reports send a powerful message to key stakeholders.

In addition to WBCSD guidelines, the Global Reporting Initiative described in Chapter 2 provides an even broader model for environmental reporting with UN sanctions. While the GRI model may be too detailed and too difficult for some firms, an acceptable environmental report should cover most of the topics listed.

BENCHMARKING

Another technical aid in the sustainability toolkit is the concept of environmental benchmarking. In general, benchmarking is a performance measurement tool that can be used in conjunction with improvement initiatives to measure comparative performance and to identify best practices. Unlike most of the other environmental improvement tools discussed in this report, however, there is considerable confusion over how the technique itself can be defined. There are also close links between benchmarking practices and certain aspects of other corporate environmental improvement tools.

Benchmarking is most closely associated with corporate performance assessment; however, the concept is increasingly applied at other levels. For example, various projects associated with improving air quality in Asia are attempting to benchmark urban air quality management in the so-called "mega cities" of the region.¹⁸⁹ For the purposes of this report, however, the concentration is on how

benchmarking ideas are applied by corporations to improve their environmental performances.

Often the term “environmental benchmarking” refers simply to listing and comparing (or ranking) the environmental performance of different organizations. There has been a significant expansion in recent years in the number of third-party ranking schemes that have been developed to allow a comparison of companies’ performance according to their pollution emissions or to performance as defined by corporate environmental reports.¹⁹⁰ However, benchmarking can mean much more than quantitative measurement of a firm’s performance compared to competitors. It can also serve as an improvement tool that involves analyzing the practices that lead to superior environmental performance.

A well-known definition focuses on the improvement aspect of benchmarking suggesting that, “Environmental benchmarking is an environmental management tool that can provide a substantial contribution to the improvement of environmental performance by facilitating the identification of the gap between company performance and a given performance. Any process or business activity can be a candidate for environmental benchmarking.”¹⁹¹

Benchmarking can be further defined and clarified by examining *what* is being compared, and *against whom* comparisons are being made.¹⁹² There are three categories of the *what* question. First, environmental benchmarking can be thought of as relating to performance (or data) benchmarking. Here, the questions focus on, “How well should we be doing it?” and the benchmarks tend to be standards or targets that have been derived by external organizations such as regulatory bodies or industry associations. Another type of benchmarking relates to process. Here the question is, “How do others achieve it?” This type of benchmarking goes beyond the analysis of performance data to attempt to identify the best practices that lie behind the good performances of others. A third what question relates to strategic benchmarking. Here, the

focus is on asking, “What should we be doing?” The comparison is against the strategic choices made by other organizations.

Once it is clear what is being benchmarked, the next question is, “*against whom?*” Benchmarking can be entirely internal. In this instance, comparisons would be between departments or units within the same corporation. Benchmarking can also be against competitors that manufacture the same product or deliver the same kind of service. A third type of comparison can be by function where firms are not direct competitors but share functions. For example, iron ore miners and gold miners might want to compare the way each transports its final product even though they sell to completely different markets. The final against whom category is “generic benchmarking” where the comparison is made with the best processes in existence regardless of the type of industry or service.

Categorizations can be combined to provide a guide to where and when benchmarking might best be applied. Table 3 presents this organizing scheme. This detailed conceptualization of benchmarking points clearly to its potential advantages. Beyond improving bottom-line performance (however defined), the tool can be used to find sources of improvement without trying to “reinvent the wheel.” This implies that it can lead to efficiency improvements. In terms of organizational learning, there is evidence that benchmarking can help employees become more receptive to new ideas and can also provide an effective early warning system.

As with many of the tools outlined in this report, most environmental benchmarking has originated in developed countries. However, there is a growing body of experience with use of the technique in Asia and the Pacific. Possibly the most widespread regional application is in the tourism industry where benchmarking and certification programs such as Green Globe 21 have corporate members from all over the region.¹⁹³ Donor agencies interested in promoting cleaner production activities have also been active in supporting

Table 3: Benchmarking Schemes

	INTERNAL Benchmarking	COMPETITOR Benchmarking	FUNCTIONAL Benchmarking	GENERIC Benchmarking
PERFORMANCE Benchmarking	Important and necessary process, but does not show what performance is really possible.	Gives external reference points. Good comparability of performance indicators.	Useful for certain aspects, but comparability not always given.	Low comparability of pure figures due to differences in processes and products.
PROCESS Benchmarking	Good place to start and learn about benchmarking, but no breakthrough ideas can be expected.	Would be very useful, but has legal and ethical limitations to sharing process information.	Good way for finding new ideas, and less legal limitations than competitor benchmarking.	Best way to find breakthrough ideas and achieving fundamental improvement.
STRATEGIC Benchmarking	Difficult to find clues on better internal strategies.	Competitors are best partners to get ideas about strategies and planning.	Not too useful because of differences in business ideas.	Not too useful because of differences in business ideas.

Source: European Environment Agency. 2001. Quoting Andersen, B. and Pettersen, P. 1996. *The Benchmarking Handbook. Step-by-Step Instructions*. London: Chapman and Hall.

benchmarking research and demonstration projects. For example, the United States Agency for International Development has provided long-term grant assistance through the Clean Technology Initiative to develop benchmarking for private Indian firms active in a range of sectors (especially water, electricity, and hotels).¹⁹⁴ Finally, UNIDO has recently produced computer software program Responsible Entrepreneur to help enterprises quickly benchmark their environmental performances and identify areas of weakness.¹⁹⁵

LIFE CYCLE ANALYSIS/ASSESSMENT

Another corporate environmental management tool that has seen extensive recent use in larger firms is LCA, to identify the environmental impacts of a product, process, or activity throughout its entire “life”—from the extraction of raw materials to processing, transport, use, and disposal.

LCA is sometimes referred to as “cradle to grave” assessment, because it demonstrates that the full environmental impact of an activity can be explained only by examining each step in the value chain all the way to disposal.

The benefits of LCA include the following:¹⁹⁶

- holistic approaches to determining impacts rather than focusing more narrowly on single issues such as energy inputs or recycling;
- scientific methods to collect and analyze data;
- targets for improvement;
- a rational way to evaluate alternatives.

LCA began in the late 1960s and early 1970s as a tool for analyzing energy efficiency in the period of significant oil price rises. When this crisis dissipated, interest in the technique declined, but it then rose again in the late 1980s as a response to a growing interest in the environmental impacts of products.¹⁹⁷ Over the 15 years since its initiation as an environmental management tool, LCA has been used in product improvement, process engineering, strategic planning, and marketing.

In product improvement, the focus has tended to be on dematerialization, reducing

energy requirements, and minimizing waste. Over time, LCA has begun to encourage emphasis on the product design phase. The most widespread use of LCA for product improvement has been in vehicle manufacturing, where all the major MNCs now use the tool to reduce fuel consumption and minimize waste in manufacturing. There are a large number of other examples of LCA application to product improvement, the best known being cardboard and paperboard, plastics and chemicals, steel, aluminum, and nickel.¹⁹⁸

LCA is also used extensively by corporations in process engineering to reduce wastes and improve efficiency. Data collected during LCA can be used as performance indicators for different stages of production processes. When LCA indicators rise, it shows that production is becoming less efficient, and it is also likely that costs are rising. When used in this fashion, LCA is an important component of the cleaner production initiatives that have made substantial strides in Asia and the Pacific.

LCA has also been used in the private sector as a strategic planning and marketing tool. There are examples of firms using LCA to integrate environmental aspects into strategic business planning and long-term product policy development to reduce the risk of “surprise” from tightening regulations or consumer demands.¹⁹⁹ The technique has also been used by firms wanting to substantiate environmental claims used in advertising and in eco-labeling schemes.

LCA Methodology

The rapid development of life-cycle analysis in the late 1980s brought with it the need for a consistent methodological approach. This task was originally taken on by the US-based Society for Environmental Toxicology and Chemistry, which proposed a four-stage conceptual framework in 1993.²⁰⁰ This was later taken up by ISO as the ISO 14040 series of environmental management standards and came into common use in 1997. It is fair to

say that this set of standards has become the de facto benchmark for LCA methodology.²⁰¹

- (i) ISO 14040 (1999) provides the general principles, framework, and methodological requirements.
- (ii) ISO 14041 (1998) provides guidance for determining the goal and scope of an LCA study and for conducting a “life-cycle inventory.” For example, the goal might be to compare two or more different products fulfilling the same function or to identify environmental improvement possibilities within the production process of a single product. Boundaries for assessment need to be set in relation to both geography and time. The inventory analysis step of ISO 14041 is the first significantly quantitative aspect. It involves developing an understanding of inputs (e.g., energy and materials) and outputs (waste). It measures clearly defined physical parameters. This step can be extremely time intensive as it can involve the collection of a large amount of data. Often manufacturing process types are similar, so databases of frequently used commodities for life cycle inventories can be helpful. Industry associations have published inventory databases for plastics,²⁰² aluminum,²⁰³ corrugated board,²⁰⁴ nickel,²⁰⁵ and steel.^{206, 207}
- (iii) ISO 14042 (2000) provides guidance for conducting the “life-cycle impact assessment phase” of an LCA study. Sometimes, corporations using LCA will stop at the end of the inventory phase, especially if their interest is in process engineering and their intention is only to minimize the environmental costs of an existing production process. Most users of LCA want to go beyond inventory analysis, however, to investigate the actual environmental impacts

of activities. This requires them to move on to the life-cycle impact assessment phase (ISO 14042) which involves going beyond data on inputs and wastes to estimating impacts on the environment. This step consists of impact classification (where inventory data are grouped and sorted according to impact categories); impact characterization (where the relative contribution of each inventory item to overall environmental risk is calculated); and valuation (where comparisons are made between the different impact categories through weighting and ranking procedures).

- (iv) ISO 14043 (2000) provides guidance for the interpretation of results from an LCA study. It is the final phase of LCA where the results are subjected to sensitivity analysis, and then communicated to stakeholders.²⁰⁸

LCA and SMEs

The methodology for LCA outlined above can lead to quite complicated and time-consuming studies. As a consequence, there has been considerable discussion of the relevance of the technique to firms other than large multinational manufacturers.²⁰⁹ While there is little in the way of generalizable published material on the success (or otherwise) of LCA, there is substantial business literature that points to the negative consequences of incorrect resource allocation decisions made by SMEs. It is argued that, if anything, LCA is even more important as the size of the firm decreases.²¹⁰ A recent Society for Environmental Toxicology and Chemistry (SETAC) report has suggested that the benefits to SMEs that take the complete life cycle of their products into account, include the following:²¹¹

- reduced operating costs via supply chain coordination of transport to reduce the fraction of vehicles traveling with light or empty loads;

- new product introduction by considering unused raw materials as a marketable asset rather than as a cost-centered waste stream;
- improved credit terms with financial institutions;
- reduced costs to certify to ISO 9001 and 14001;
- improved relations with regulators and reduced disposal costs.

Given the potential importance of LCA to SMEs, much recent academic research has focused on designing simplified methodologies and on the production of LCA-specific software. Most of these less time-consuming approaches use abbreviated matrix systems with environmental concerns along one dimension and life-cycle stages along the other.²¹²

LCA in Asia and the Pacific

It is difficult to find reliable statistics on the uptake of LCA in Asia and the Pacific. Unlike EMS, where certifications are registered and ISO maintains good records of trends across countries, using LCA is less well recorded. In addition, many firms have developed customized versions of the technique and are reluctant to discuss them for fear of giving away a competitive position.

There is, however, a growing practical interest in LCA in some countries in the region. Probably the most active country has been Japan, where the Ministry of International Trade and Industry collaborated with the LCA Society of Japan and 250 corporations to study the methodology and applications of LCA during 1995–1997. This review resulted in the LCA Project funded in 1998 by the ministry to do the following:²¹³

- establish LCA tools for the whole of Japan;
- construct a Japanese database;
- establish LCA application rules;
- establish education and communication systems.

There are also active LCA societies/associations in the Republic of Korea (Korean

Society for LCA), and India (Indian Society for LCA). The Korean Society has been actively involved in a 5-year government project to develop methodology, 180 inventory databases, and case studies.²¹⁴ The Indian Society was inaugurated in late 1997 and has supported a detailed nationwide study of the steel sector.²¹⁵

Other, more isolated examples of the use of LCA exist. A recent detailed study into the life-cycle impacts of paperboard manufacturing was made in Thailand.²¹⁶ Interest in the use of the technique has also been reported in PRC, Kazakhstan, and Viet Nam.²¹⁷

Environmentally sound product designs not only include LCA but also techniques to help designers improve the environmental performance of their products. The most common aspects addressed are (i) recycling, (ii) disassembly, (iii) energy efficiency, (iv) remanufacture, (v) disposability, and (vi) minimizing the use of hazardous materials. Product designs play a crucial role in innovation and creating products that meet consumer demands for environmentally sound goods and services.

ENVIRONMENTAL MANAGEMENT ACCOUNTING

The techniques outlined so far are all focused on improving managerial control of environmental impacts. In varying degrees, the techniques require that environmental costs be accounted for which has led to the development of a new discipline known as “environmental management accounting” (EMA).²¹⁸ This new field provides reports for both internal use (generating environmental information to help make management decisions on pricing, controlling overhead, and capital budgeting) and external use (disclosing environmental information to the public and to the financial community).²¹⁹

This report focuses on EMA for internal use. EMA involves the identification, collection, estimation, analysis, and internal reporting and the use of material and energy flow information, environmental cost information, and other cost information for both conventional and environmental decision making within an organization.²²⁰ It is a more comprehensive approach to management accounting with a particular focus on costs related to wasted raw materials and other environmental issues.²²¹

EMA can trace its historical development back to the 1970s where it began as a subset of social responsibility accounting. Since that time, it has progressed through three stages. In the 1980s, debate focused on the role of accounting in disclosing information on environmental activities. The period from 1990 to 1995 saw a maturing of the discipline of making environmental disclosures and in launching environmental auditing. Since 1996, EMA has been increasingly viewed as measuring environmental performance exceeding regulatory standards.²²²

EMA has developed strongly over the last 15 years. The competitive global market has driven the need for operational and material efficiency gains, and there is a growing need to deal with increases in costs for raw materials, waste management, regulatory compliance, and potential liability. EMA use has also been driven by the increasing pressure on business to improve overall environmental performance, and accountants and business managers have begun to see the limitations of some conventional accounting approaches for the management of environment-related costs. The following conventional management accounting practices might, for example, contribute to the inadequate consideration of environmental costs in internal decision making:

- unintentional “hiding” of many environmental costs in overhead accounts;
- inaccurate allocation of environmental costs from overhead accounts back to

- processes, products, and process lines;
- inaccurate characterization of environmental costs as “fixed” when they may actually be variable (or vice-versa);
- inaccurate accounting for volumes (and thus costs) of wasted raw materials;
- actual lack of inclusion of relevant and significant environmental costs in the accounting records.²²³

As an example of the last point, traditional accounting would allocate only a small proportion of the total costs of waste incineration while the vast majority of costs would be hidden. EMA thinking suggests that total costs are like an iceberg, with most not seen. Examples of hidden costs might include (i) energy costs of waste materials, (ii) purchase costs of waste materials, (iii) costs of additional storage space for waste, (iv) processing costs of wasted materials, (v) labor costs of processing waste and wasted materials, and (vi) administrative costs of processing waste and wasted materials.²²⁴

Numerous case studies now exist of the application of EMA in corporate activities. A recent article listed around 100 examples from 9 reports published in the period 1998–2003.²²⁵ While most of these cases are from developed countries, there are a growing number of examples from Asia and the Pacific. Much of this work has been sponsored by international agencies. The UN Division for Sustainable Development has supported an international expert working group on EMA, and guidance and case studies can be found online.²²⁶ A substantial amount of resource material has also been collected by USEPA and now resides with an independent organization known as the Environmental Accounting Research and Information Center. Networks of EMA practitioners have begun to establish their presence, and the EMA Network (Asia/Pacific) that was established in 2001 has 14 member countries (Australia; PRC; Hong Kong, China; India; Indonesia; Japan; Republic of Korea; Malaysia; New Zealand; Philippines;

Singapore; Taipei, China; Thailand; and Viet Nam).²²⁷ Finally, a German international human resources development agency known as InWent has begun a 4-year project to build EMA capacity in Southeast Asia in conjunction with a range of Asian partner organizations.²²⁸

In conclusion, it is likely that clever corporations will begin to recognize that the distinction between conventional management accounting and EMA is blurred and that the two are merging into a single broad management accounting approach that can better inform all decisions, environmental and otherwise.

FINAL WORDS

All of the environmental management tools outlined in this chapter have been developed and tested over the past 15 years by corporations as methods for improving their own environmental performances. While industry associations and governments have had some involvement in these initiatives, most have been individual experiments by corporations acting independently. A positive outcome has been the development of a sense of ownership, where corporations have seen the benefits of the tools and have refined and adapted them for their own purposes.

The tools vary in the extent of their use. Corporate environmental reporting and EMS have been widely accepted and standardized to the point where there is a worldwide understanding of how these two initiatives should be implemented. The same cannot be said of environmental management accounting and life cycle analysis, where the techniques are less well developed and general applicability is less sure.

It is certainly clear that the necessary tools are already available for Asian and Pacific corporations to take responsibility for the management of their own environmental impacts. As time passes, the tools are being

further refined and made more relevant to the needs of smaller firms and of specific industrial sectors. It is no longer possible for corporations in the region to argue that they do not have the techniques available to improve their environmental management. In fact, failure to adopt the methods and approaches outlined in this chapter will eventually threaten the competitiveness of reluctant firms as relative productivity declines, corporate reputations suffer, and asset values fall as a consequence.