CHAPTER 2
ENVIRONMENTAL MANAGEMENT AND REPORTING STANDARDS

This chapter will discuss environmental management in developed countries and in Thailand. Then the environmental information required by laws or accounting standards will be presented. Finally, generally accepted accounting principles are analyzed for the purpose of implicit understanding of the general background and practices in Thailand, the country in this study.

2.1 Environmental Management

Natural resources such as forest and oil are exhaustable if no action is taken. In the past, business used natural resources for their own benefits but few actions were taken to restrain the deterioration of the natural resources. Later, the public begin to realize the problems related to overall environment, including the air we breathe, the water we use, and the ground we grow plants, as becoming their major concerns. These concerns are even stronger in the government agencies and with environmentalists. The philosophy of "polluters pay" is selected as an important issue. Many laws and regulations are issued to minimize the environmental impacts from factories and business. Also, environmentalists move aggressively to publicize the notion of environmental sustainability. In the following paragraph, this notion and the environmental management in developed countries and in Thailand will be discussed.

2.1.1 Environmental Sustainability

Environmental sustainability deals with the preservation of our environment. Stephan Schmidheiny had prescribed his notion of global sustainable development from a business perspective. "An increasing number of corporate leaders are convinced that it makes good business sense to secure the future of their corporations by integrating the principles of sustainable development into all their operations..." (Schmidheiny, 1992). These leaders believe that no long-term economic growth can take place unless it is environmentally sustainable. The consensus is that this notion of sustainable development is suitable for both nations and corporations.

Another view of sustainable development for business requires corporations to operate in a different framework. Suggested actions include:

a) use renewable resources in preference to non-renewable;
b) use technologies that are environmentally harmonious, ecologically stable and skill enhancing;
c) design complete systems in order to minimize waste;
d) reduce as much as possible the consumption of scarce resources by designing long-life products that are easily repairable and can be recycled;
e) maximize the use of all the services that are not energy-or material-intensive but which contribute to the quality of life. (Davis, 1991)

Thus, there is increasingly widespread agreement about the notion of sustainable development. Companies begin recognizing that a balance between economics and environmental sensitivity is required of business. Further, they recognize that they can achieve competitive advantages through a conscientious examination of processes and products-that a reduction in environmental impacts often leads to increased long-term corporate profitability through higher production yields and improved product quality. Integrating environmental impacts into management decisions often requires balancing economics and the environment. It also often demonstrates the significant financial advantages that can be achieved through innovation in process and product designs motivated by environmental concerns.

2.1.2 Environmental Management in the Developed Countries

Environmental management in this section is separated into management aspects and audit aspects.

- Management Aspects

The notion of environmentally sustainable development comes into play in environmental management. Epstein (1996) has summarized environmental management in the idea of the 3/Rs. The 3/Rs are:

- Reduce: generate less waste;
- Reuse: reuse that which retains its usefulness; and
- Recycle: send for recycling that which cannot be reused.

In the US, one approach governments are using to reduce and prevent pollution is to require manufacturers to "take back" their products at the end of their useful life. The companies must be concerned with the ultimate disposal of their products including post-consumer waste. This approach will encourage manufacturers to be more environmentally sensitive to the components of their products and to apply that sensitivity throughout the supply chain. The German government, for example, is expected to become the first to require most manufacturers to take back and recycle their products once their service life ends. BMW already has set up recycling plants in Germany and in the US (Protzman, 1993). There are numerous other examples of companies participating in programs that focus on the ultimate disposition of their products and the drive to reduce waste. The Unocal Corporation began a program to buy pre-1971 automobiles for $700 in order to reduce pollution emissions in the Los Angeles area. IBM has recycled or reused 82% of the 12,000 metric tons of computers returned to IBM.

Another approach to the consideration of the total impacts of products on various stakeholders is through life cycle assessments. “Life Cycle Assessment [LCA] is a design discipline used to minimize the environmental impacts of products, technologies, materials, processes, industrial systems, activities, or services” (SETAC News, 1993).

Ciba-Geigy has begun using life cycle assessments to aid in project section and as an input to the product design process. It uses LCA to make product packaging choices and to compare the energy requirements for the production of various materials. Dow Chemical has been developing its LCA methodology and has completed pilot programs in the chemical and plastics businesses. Ford issued design guidelines to its suppliers to improve the recycle of its vehicles and increase the recycled material content. Nearly 80% of the content of its new cars now can be recycled.

Another way to minimize environmental impacts is to put pressure on suppliers to reduce the negative environmental impacts of the components of the products or services they provide. By pushing these concerns throughout the supply chain, companies can reduce their environmental impact and their environmental costs. It is also an opportunity to stimulate markets for environmentally sensitive products and materials. McDonald's, for example, has incorporated waste reduction goals into the process of evaluating its suppliers. It encourages suppliers to be proactive in developing environmentally preferable products and packaging. Like many other companies, it is holding its suppliers accountable by conducting audits of supplier facilities, processes, and products for environmental impacts before beginning or continuing relationships. The company's life cycle approach and comprehensive look at its products and processes has significantly affected the volume of packaging used and the amount of waste produced. Further, costs have been reduced substantially so that the benefit to the environment and the company's profits is substantial.

Outside the manufacturing sector, service companies have found numerous opportunities to reduce their environmental impact. Just as consumer products manufacturers and distributors have changed product packaging, restaurants have reduced packaging and often made other significant efforts to reduce environmental impacts. McDonald's drink trays are made from recycled newspapers, and the materials from which the company's buildings are constructed include recycled photographic film, computer casings, and recycled automobile tires. In addition to recycling efforts, the company has reduced the volume of waste produced by switching from foam packaging to paper wrapping.

The Boston Park Plaza Hotel initiated various waste reduction programs into hotel operations. Among those programs were switching from paper and plastic products in the employee cafeteria to china and glass, replacing the small plastic amenity bottles with a pump dispenser system, and replacing all the windows in the hotel with better insulated thermopile windows. The new amenity dispensers cost more than $91,000 to install but save $36,725 per year and eliminated the purchase of almost 2 million small plastic bottles.

- Auditing Aspects

Environmental auditing practices are distinguished widely among organizations depending on the objectives of the audit and the types of environmental risks. Hill (1996) categorizes environmental audits in seven primary types, based on their objectives:

- Compliance audits;
- Environmental management systems audits;
- Transactional audits (also known as due diligence audits);
- Treatment, storage, and disposal facility audits;
- Pollution prevention audits;
- Environmental liability accrual audits;
- Product audits.

- Compliance Audits

The most common environmental audit is the compliance audit. Environmental laws can impose joint and several liability, retroactive liability, and civil and criminal penalties for noncompliance. Compliance audits normally are programmatic and deal with many issues such as reviewing all environmental components the site may affect: air, water, land, and waste water.

- Environmental Management Systems Audits

In the US, due to the retroactive aspect of the Comprehensive Environmental Response, Compensation, and Liability Act [CERCLA], companies are faced with the expense of resolving environmental issues arising from practices that were legal at the time they were undertaken. Thus, companies now are beginning to focus on anticipating future regulatory trends and reflecting them in their current environmental management systems.

- Due Diligence Audits

Due diligence audits or transactional audits are conducted for the purpose of assessing the environmental risks and liabilities of land or facilities prior to a real estate acquisition. They are important because under the current law in the US the current landowner can be held responsible for environmental contamination without regard to who caused the contamination.

- Treatment, Storage, and Disposal Facility Audits

Companies that produce hazardous waste material may contract with other companies to store, treat, or dispose of hazardous material. Yet companies are still liable for any environmental damage that might be caused by the "handling" company. Some companies conduct audits on the facilities they own and on the facilities that handle hazardous waste material for which they contract.

- Pollution Prevention Audits

Pollution prevention audits are designed to minimize waste at the source : elimination, energy conservation, recovery, recycle, treatment, disposal, and release.

Companies examine whether pollution can be prevented through capital improvements, process improvements, or product improvements.

- Environmental Liability Accrual Audits

Internal audits that address the issues of reasonable, probable, and estimable in determining the environmental liabilities to be accrued for financial reporting are important obligations of accounting professionals. Often the auditors seek assistance from the legal professional to determine the accrual rather than a combination of the accounting, operations, Operation Health and Safety, and legal officers.

- Product Audits

Some companies perform audits on specific products to determine whether more should be done to make them environmentally friendly and to confirm that product and chemical restrictions are being met. These audits have resulted in the development of products such as refrigerators and automobiles with higher recyclable contents. The product audit examines the environmental impacts of the product including packaging and distribution.

- Eco-audits

The European Community has been developing and implementing eco-auditing for many years. On a voluntary basis companies are encouraged to set up an environmental management system that covers all the key areas of their environmental impacts including site audits every three years subject to independent verification. This Eco-Management and Audit Scheme [EMAS] permits companies, upon completion, to use the EMAS logo, which signals that they are an environmentally concerned company (Naimon, 1994).

Companies are required to display a Statement of Participation that indicates the registration of a site in the eco-audit scheme. Following an audit, the site must prepare an independently verified statement that describes the activities and environmental impacts at the site. The regulation also requires the employment of an outside "environmental verifier" to check independently whether the company is in compliance. The auditor gives company management a report. It includes substances of noncompliance, defects in the environmental management system, and recommendations to the company.

2.1.3 Environmental Management in Thailand

Industries in Thailand are increasing in number every year resulting from a pro-growth investment incentive policy. Unfortunately, some of those industries have created pollution problems. Because the voluntarilv environmental management in Thailand is rare, this section discusses the companies' management in three areas according to law concerns: water pollution; air pollution; and noise pollution. Environmental audit is also discussed in the latter part.

- *Water Pollution*

Water pollution can come from waste disposal from industries, agriculture, fishery, and mining. The major problem with those industries is the lack of sufficient and appropriate disposal systems. There are nine industries which are the main causes of water pollution based on the survey of Department of Industrial Work's database: sugar, pulp and paper, rubber, beverages, tapioca, abattoirs, canned fish, tannery, and canned pineapple. The major sources of water pollutant are, industries of food, beverage, pulp and paper, rubber, and tannery. Besides those mentioned earlier, these following industries are also considered as the sources of water pollutant: noodle, palm-oil, fruit, and monosodium glutamate.

Polluted water from agriculture can come from direct and indirect sources. Direct sources are those businesses having organic substances such as pig-farm and prawn-farm, while the indirect sources are businesses using insecticides, heavy metals, and fertilizers. The worst problem related to water is hazardous solid substances. Sources of this pollution come from metal melting, tannery, and metal coating.

The industries have to construct waste disposal systems in compliance with the regulation issued by the Ministry of Industry. According to the Environment Act of 1992, some industries are required to send their waste to be treated at the center. However, the water pollution is still a major problem of Thailand based on a recent survey. (Chandrachai and Tanlamai, 1996)

- Air Pollution

Air pollution can come from dust, obnoxious odors, and gas, etc. The sources of air pollution can come from toxic emissions from vehicle and industries. The major sources of air pollutant based on the survey of Thailand Development Research Institute are industrial transportation, power generation, agriculture, and refineries. The automobile is the major source in generating carbon monoxide, nitrogen oxide, and hydrocarbons. Industries such as construction and mining are considered major polluters.

In order to reduce the air pollution problem, the government issued the following regulations to enforce automotive and other industries:

- to use catalytic converter;
- to introduce compressed natural gas as a replacement of gasoline;
- to use unleaded gasoline;
- to control and inspect for the industry's emission level.

- Noise Pollution

Noise pollution can come from noises in offices, industries, and public places. Major sources of noise pollution are automobiles, airplanes, and industries. Noise pollution caused by automobiles and airplanes affects residents and the public in a limited area. Also, noise pollution in industries is always limited to inside the premise and therefore, the problem of noise pollution is less than the other two mentioned earlier. (Chandrachai and Tanlamai, 1996)

Government agencies, especially the police, try to force the owners of automobiles not to modify their engines and exhaust pipes that causes loud noise. Some of the industries use earplugs for their employees to reduce the hazard of noise. However, there is no active action in this area.

In conclusion, water pollution is the main concern to the public and government agencies. Air pollution is beginning to attract a great deal of concern and attention. The laws and regulations have been introduced with the objective of cleaning up the environment. Some of the companies realize the problems and try to create a good image by establishing good environmental management, whereas, some of the companies still avoid compliance with the laws and regulations.

- Audit Aspect

With regard to the audit, there is no evidence of any kind of an audit in relation to the environment performed voluntarily by companies. The government agencies which have responsibly for inspecting industries are the Ministry of Industry and the Ministry of Science, Technology, and Environment. Although these agencies try to control and inspect industries to comply with the law, there are still problems due to the insufficiency of government staff.

2.1.4 ISO Standard 14000 Environmental Management System

Recently, there were agreements from leading companies in Thailand to support ISO Standard 14000. In the agreement the companies that join the project establish plans and a time frame to fully implement ISO Standard 14000 to their production and environment.

ISO Standard 14000 is separated into the following Sub-elements:

ISO 14001 Environmental Management System [EMS]

ISO 14004 Guidelines for EMS

ISO 14010 Guidelines for Auditing

ISO 14011 Procedures for Environmental Auditing

ISO 14012 Qualification Criteria for Environmental Auditors

ISO 14013 Management of Environmental Audit Programs

ISO 14015 Environmental Site Assessments

ISO 14031 Evaluation of Environmental Performance

ISO 14020 Environmental Labeling - General Principles

ISO 14021 Terms and Definitions for Self-Declaration Environmental Claim

ISO 14022 Environmental Labeling - Symbols

ISO 14023 Testing and Verification Methodologies for Environmental Labeling

ISO 14024 Guide for Certification Procedure

ISO 14040 Principles and Guidelines for Life Cycle Assessment

ISO 14041 Goal and Definition/ Scope and Inventory Analysis

ISO 14042 Life - Cycle Impact Assessment

ISO 14043 Life - Cycle Interpretation

ISO 14060 Environmental Aspects in Product Standards.

ISO 14001 requires companies to have a policy, plan and project related to the environment. Moreover, the review and evaluation from the management and the auditors are also required. The company has to disclose environmental management both internally and externally. Policies and projects, auditing projects, management's review, improvement and prevention plans, and environmental reports are the information that should be disclosed to employees. For external disclosure, the company should consider public opinion in its environmental management, disclosure of lawsuits or conflict of interest areas, disclose activities in conjunction with other agencies, and prepare environmental reports. There is no standard format for reporting on environmental management at present.

2.2 Environmental Information Required by Laws and Accounting Standards

Countries in North America have shown a long-standing interest in the development of regulation concerning the environment. In the US, the government enacted the Superfund Act in accordance with the concept of polluters should pay. In the European Community, many countries have introduced specific acts concerning environmental issues with the objective of cleaning up the environment. Unfortunately, those regulations have usually emerged only after problems have arisen. Thus, individual companies benefit while society suffers.

Aside from environmental management, some environmental disclosure is required by accounting standards and regulations. Recognition of contingent liabilities and capitalization of costs are provided under the accounting standards of those countries in North America and the European Community. Disclosure of capital expenditures, costs of bringing an entity into compliance with environmental regulations, and policies related to the environment are generally required for the public companies in those countries. Some countries such as Norway introduced a specific requirement for disclosure on emission levels, contamination, and details of measures planned and undertaken with the objective of cleaning up the environment.

Thailand is facing the problems of pollution from traffic, air-pollution, toxic waste, and water-pollution. Although pressure from society is increasing, the existing regulations and the personnel in authority are powerless to force companies to manage the environment properly. It is prevailing that polluters are still enjoying their value increase at others' costs. Like most other South-East Asian countries, no standard has been issued for the accounting profession in Thailand. The major requirement is the 1992 Environmental Protection law that requires a company to submit a study discussing the impact on the environment when it proposes a big construction project for approval. The details of laws and accounting standards worldwide are shown in Appendix A - 1.

2.3 Accounting Standards and Practices in Thailand

Thai accounting standards have been long developing but the first accounting standard was announced in 1979. The Institute of Certified Accountants and Auditors of Thailand [ICAAT] plays an important role in drafting the standards. However, when passed through public hearing, those drafts need the Ministry of Commerce to endorse and announce as standards. The Ministry of Commerce has direct control over all accounting practices of corporations and partnerships. Thai standards have been developed based upon US, UK, and International Accounting Standards depending on the circumstances when such standards were issued. Recently, ICAAT proposed that Thai standards shall follow the International Accounting Standards. Therefore, some of standards have been changed to match with the International Accounting Standards.

In the past decade, the stock exchange market in Thailand has been rapidly developing. The Stock Exchange of Thailand [SET] has the responsibility to manage the market and control the disclosure requirement of listed companies. Due to changes in economic and financial instruments, the SET suggests additional accounting standards and disclosures for those listed companies. The Securities and Exchange Commission [SEC], founded in 1995, is another authority to govern the listed companies for malpractice. The SEC requires listed companies to submitted additional reports before they can issue securities to the public. Appendix A-3 describes the structure of the SET.

The Revenue Department in the Ministry of Finance is another government agency involved with standards and practices. The Revenue Code provides indirect impacts on the accounting standards and practices. Those small companies and companies who are not listed on the Stock Exchange of Thailand will sometimes choose their accounting practices based upon the Revenue Code. An example is the decision for the useful life of fixed assets. Most companies choose to depreciate their fixed assets using the rate allowed by the Revenue Code.

The Bank of Thailand is another body who has control over the accounting practices of banks, financial institutions, and insurance companies. The Bank sometimes issues additional standards and disclosures for firms operating in the financial sector. In general, those additional standards and disclosures are for the purpose of evaluating the credit performance of businesses.

2.3.1 Generally Accepted Accounting Principles in Thailand

As mentioned earlier, since 1978, the Institute of Certified Accountants and Auditors of Thailand [ICAAT] has supported the International Accounting Standards Committee and has recognized its standards. Thai standards therefore follow International Accounting Standards [IAS]. In cases where IAS are not available, the basic accounting principles practiced in the US are recognized and accepted. In addition, accounting methods and conventions sanctioned by law are considered as generally accepted accounting practices. The details of Thai accounting standards are presented in Appendix A-2.

In review of these standards, there is no specific one concerning environmental issues. The standards of "research and development expenses" and "uncertainty and subsequent events" are the closest one that indirectly related to environmental issues. However, the treatment of environmental liability and assets and expenses is not clearly stated.

2.3.2 Disclosure Requirements by the Stock Exchange of Thailand

Listed companies are required to provide information regarding the operations of the company, its profitability, financial health, growth and prospects so that outside investors are able to make an informed judgment about their investment decisions. This section discusses the disclosures required by the SET. It will seek to give a better understanding of the disclosure practices of listed companies.

In general, the SET requires the following disclosures:

Type of Information	Time Period
1. Quarterly financial statement reviewed by the auditor	- Within 45 days from the end of each quarter.
2. Annual financial statement certified by the auditor. Consolidated statement if the company has invested more than 50% in another company	- Within 60 days from the end of the accounting period if the financial statement of the 4th quarter has not been submitted before and within 3 months if the financial statement of the 4th quarter has been submitted.
3. Annual report	- Within 4 months from the end of the accounting period
4. Form for further disclosure of information to the SET (Form 56-1)	- Within 3 months from the end of the accounting period.
5. Information on operation and financial structure that might affect trading shares and interests of shareholders. For example the Board of Directors resolution to increase or decrease capital and to pay or not to pay dividends.	- To be reported one hour before trading hours (9 A.M. in the morning round and 1:30 P.M. in the afternoon round).

- Annual Report

An annual report of a listed company, which must be certified by a certified public accountant, must be submitted to the SET and SEC within two months from end of the accounting period (if a fourth quarter report is not prepared) and to the company's shareholders within four months from the fiscal year end. It is required to be prepared in accordance with the Thai accounting standards. In cases where an accounting issue is not covered by a Thai accounting standard, the International Accounting Standards and the US GAAP apply respectively. In summary, the SET requires that the annual report contains at least the following information:

1) Comparative financial statements covering two years;

2) Notes to financial statements according to the standards giving details of loan collateral, debt covenants, segmental reporting, related party transactions,, and other company obligations affecting shareholders' benefits;

3) A consolidated statement if a company has acquired more than 50 percent of the voting shares of another company;

4) A statement of cash flows;

5) Other information includes:

5.1 Name and address of the company's headquarters;

5.2 Report of the Chairman or the Board;

5.3 Concise information on the company's activities;

5.4 A brief analytical report concerning the results of the operation and their changes;

5.5 Important information concerning the parent company, subsidiary and affiliated companies;

5.6 Comparative statistical data concerning the results of the operations and the financial status covering a period of at least five year;

5.7 Information concerning the company's executives.

- *Quarterly Report*

Within 45 days from the end of each quarter, a listed company must submit to the SET a quarterly financial statement reviewed by a certified public accountant. A quarterly financial statement must include at least:

1) Income statements for the most recent quarter, the equivalent calendar quarter of the prior year and year-to-date data for both years;
2) A balance sheet as of the end of the most recent quarter and for the equivalent quarter in the preceding year.
3) Notes to financial statements.

From the second quarter of 1997, the quarterly financial statement is encouraged to disclose as much information as the annual financial statement does.

- Additional Information

Within three months from the end of the accounting period, a listed or an authorized company is required to disclose further information in a Form 56-1 and submit to the SET and SEC. The information includes:

1) Description of the business undertaken by the company and its subsidiaries during the year and proposed projects as well as important changes and business developments since the beginning of the fiscal year;
2) A summary of operations of the company or for a company and its subsidiaries consolidated for the last five years and a brief statement of the location and general characteristics of land, buildings and other principal facilities of the company and its subsidiaries;
3) Information on equity shares and debentures at the end of the year as well as changes during the year and number of shareholders and the distribution of share holdings;
4) Particulars of the company's executive officers, directors, and major shareholders such as names and ages, family relationships among them, date of employment, and business experience;
5) Legal proceedings.

Environmental information is generally found in the annual report in the part of other information. The information is in a qualitative format. It generally provides general ideas about the environmental practices of that company. The information disclosed voluntarily by listed companies includes the contribution to environmental projects or foundations, the disposal system, the awards received in relation to environmental performance, the production system related to environmental management, and the achievements such as ISO 14000 accreditation.

The SET has continuously shown interest to encourage more environmental information disclosed by the listed company. It is evident by both voluntary approach and compulsory approach. First, for the annual report award, the environmental analysis is counted for 15 out of total possible 100 points in evaluating the quality and sufficiency of the contents in the annual report. The reward was initiated in 1977. The environmental criteria include: analysis of conditions and prospects of the economy and society in general, conditions and prospects of the industry, and changes in technology which affected or may affect the firm directly or indirectly; and a description of activities that the company conducted to express its social responsibility, including protection, support, or conservation of the environment and/or of energy, responsibilities to its clients or suppliers, employment of women, and disabled persons.

Second, starting in 1997, form 56-1 will be replaced by form 69-1. The form required the listed companies to disclose more information. An additional information includes disclosure of "the impacts of the companies' production to environment". The listed companies are required to explain: the impacts of the companies' production and unused raw materials to environments; the name of the government authorities which control the companies' environmental management; and the real operation comparing to the maximum allowance in accordance with the laws. Finally, the history of environmental mistakes and the policies or plans to remedy are also required to be disclosed.

In the next chapter, the reviews of environmental disclosure and the study related to the association between disclosure level and firm's characteristics are delineated.