

## Chapter 5: Case Study of the Construction of Environmental Management Systems

In September 1996, the International Organization for Standardization (ISO) issued the international standard ISO 14001 in relation to environmental management systems. In some cases, construction of an environmental management system based on standards and obtaining certification may bring business advantages to international trade. This chapter introduces cases where companies actually constructed environmental management systems. For details of the environmental management system, see Appendix 5.



## Case 11: Construction of an Environmental Management System Integrated with the Head Office in Japan

### 1) Profile of the company

Company K (same as Company E in Case 5)	
Business activities:	Manufacture and sale of automobiles
Number of employees:	Approximately 1,900
Start of operation:	1988 (a factory in Metropolitan Manila), 1997 (a factory in a suburb of Manila)
Location:	One in Metropolitan Manila, the other in a suburb of Manila
Ownership ratio of headquarters in Japan:	40 percent

### 2) Background

Company K's previous approach had emphasized waste water treatment. Occasioned by participation in an environmental management seminar hosted by the head office in Japan, however, it reinforced and amplified its approach into a comprehensive one including construction of a total environmental management system (EMS) in response to the increased concern about environmental problems. The system aims at reduction of environmental impact per se.

### 3) Organization

At Company K, activities related to concern for the environment are under the jurisdiction of the Environmental Control Section of the Plant Engineering Department in the Manufacturing Division.

### 4) Contents

Company K's approaches to environmental preservation began with its acquisition of permits for the construction and operation of pollution-preventing facilities upon the start of its production operations in 1989. Ever since, it has attached priority to strict observance of environmental standards for waste water.

Full-fledged efforts to construct the EMS were occasioned by the company's participation in the first training seminar for specialists related to environmental management (i.e., the First Environmental Management and Specialist Training Seminar) held by the head office in Japan in 1994. The seminar was staged with the objective of transforming all overseas members of the corporate group into environment-friendly ones. The seminar was followed by close dialogue between the Environmental Management Section of Company K and the Global Environmental Department of the head office, which decided to promote the programs together. At this stage, however, waste water countermeasures was still emphasized.

Thereafter, gradual progress was made, as exemplified by the establishment of Plant Environmental Committee, a company-wide organization headed by the Manufacturing

Division Manager. Although effectiveness was limited due to the lack of clearly defined policy and guidelines at this stage, the movement is beginning to show some results. These include the formulation of plans for environmental efforts and identification of tasks as the objectives for the time being, as well as collection of data on the volume of material consumption, environmental burden, and other such items. Subsequently, it constructed a new Waste Water Treatment Plant (WWTP) Phase I (Chemical Treatment) in 1993 in preparation for the tightening of environment standards relating to waste water in 1995. And in 1994, it constructed WWTP Phase II (Biological Treatment). Thereafter, Company K has been rated highly as one of water-pollution-free company by the Department of Environment and Natural Resources (DENR).

In 1995, Company K sent one Filipino technician to the head office in Japan for training in environmental management. The objective was to acquire the skills needed for taking sure environmental measures and constructing an appropriate EMS on the occasion of the construction of a new plant in southern Manila. The company reported that the importance of environmental measures was recognized as a result of the training, which led to a more positive approach, rather than just waste water treatment.

Subsequent to its participation in the Second Environmental Seminar, which was staged at the Japanese head office in October 1996, Company K decided to redouble its environmental efforts with a view to obtaining ISO 14001 certificate.

The approaches described above were made possible by the initiative and support of the head office. In order to reinforce environmental measures in local factories, the understanding of the head office and the following factors are indispensable: presentation and indication of clear environmental policies as well daily information, receiving of trainees and technical guidance. In the Philippine factories, the local staff members responsible for the operation of not only waste water treatment plants but in each line must understand the importance of tackling environmental problems, and so must be given information and training concerning the environment. This was another key factor for the success.

#### 5) Issues for the future

The immediate agenda items are formulation of environmental guidelines and targets and proper construction and operation of EMS for obtaining ISO 14001 certificate.

## Case 12: Establishment of an Environmental Management System and Environmental Targets

### 1) Profile of the company

Company L	
Business activities:	Manufacture and sale of various kinds of electrical consumer goods
Number of employees:	Approximately 4,000
Start of operation:	1967
Location:	Two factories in a suburb of Manila
Ownership ratio of headquarters in Japan:	80 percent

### 2) Background

Electrical consumer good manufacturers faced constructing EMSs in early stages as the percentage of exports among overall sales were comparatively high. The head office in Japan decided that Group companies developing abroad should obtain ISO 14001 certificate, and Company L was one of those companies (although 95 percent of Company L's products were targeted to the domestic market in the Philippines.)

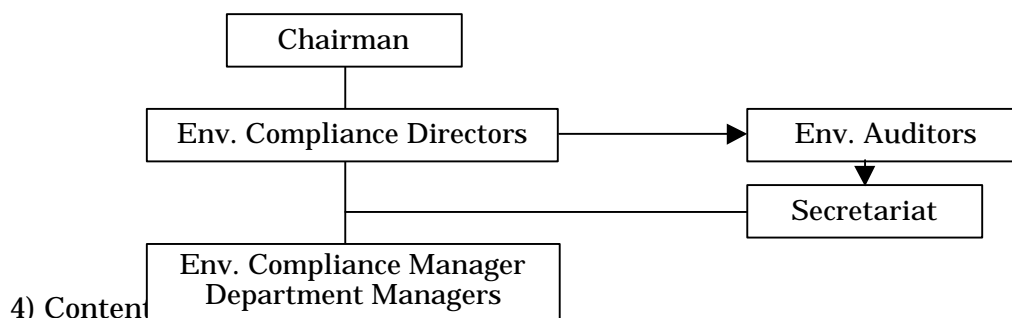
Company L has tackled waste water treatment and other countermeasures against pollution aggressively for a long time.

### 3) Organization

Although Company L follows overall corporate policies, it is basically an independent corporation from its head office in Japan. The Philippines Environmental Control Committee (PECC) organized by its group companies generalizes approaches to the environmental problems of each group company located in the Philippines. Company L has two factories in the Philippines with ISO 14001 certificate. Working committees, which are in charge of the ISO 14001, are established in both factories. The working committees consist of representatives from on-site divisions and groups in each factory, and provide support for constructing EMS and draw up environmental policies, objectives and targets in compliance with existing national controls, regulations and legislation.

Company L's organization for environmental measures is shown below.

Figure 5-1 Company L's Organization for the Environmental Measures



### 4) Content

## Environmental policy

The environmental policy adopted by Company L is as follows:

Company L subscribes to the corporate goal of environmental protection, thereby committing ourselves to the implementation of the EMS in compliance to existing national rules, regulations and legislation through the continual improvement of our operational control with consideration for the sustainable use of natural resources.

## Environmental targets for 1997

The targets set up for 1997 by Company L are as follows:

- Improvement and rehabilitation of drainage system.
- Improvement and rehabilitation of waste water treatment facilities.
- Implementation of the following voluntary plans:
  - Energy conservation: 5% reduction over 1996 levels
  - Waste minimization: 20% reduction and recycling
  - Water conservation: Recycling of refrigerator production's used water
- Improvement of waste disposal system over 1996 levels.
- EMS establishment: Receipt of ISO 14001 certificate targeted by the end of 1997.
- Environmental awareness for employees and training programs on the development of the EMS: The first seminar was held (in March 1997).

## Case 13: Construction of an Environmental Management System for Obtaining ISO 14001

### 1) Profile of the company

Company M (Same as Company B in Case 2)	
Business activities:	Manufacture and sale of electronic components and products for floppy disk drives and video cassette recorders
Number of employees:	Approximately 1,900
Start of operation:	1987
Location:	In a suburb of Manila
Ownership ratio of headquarters in Japan:	51 percent

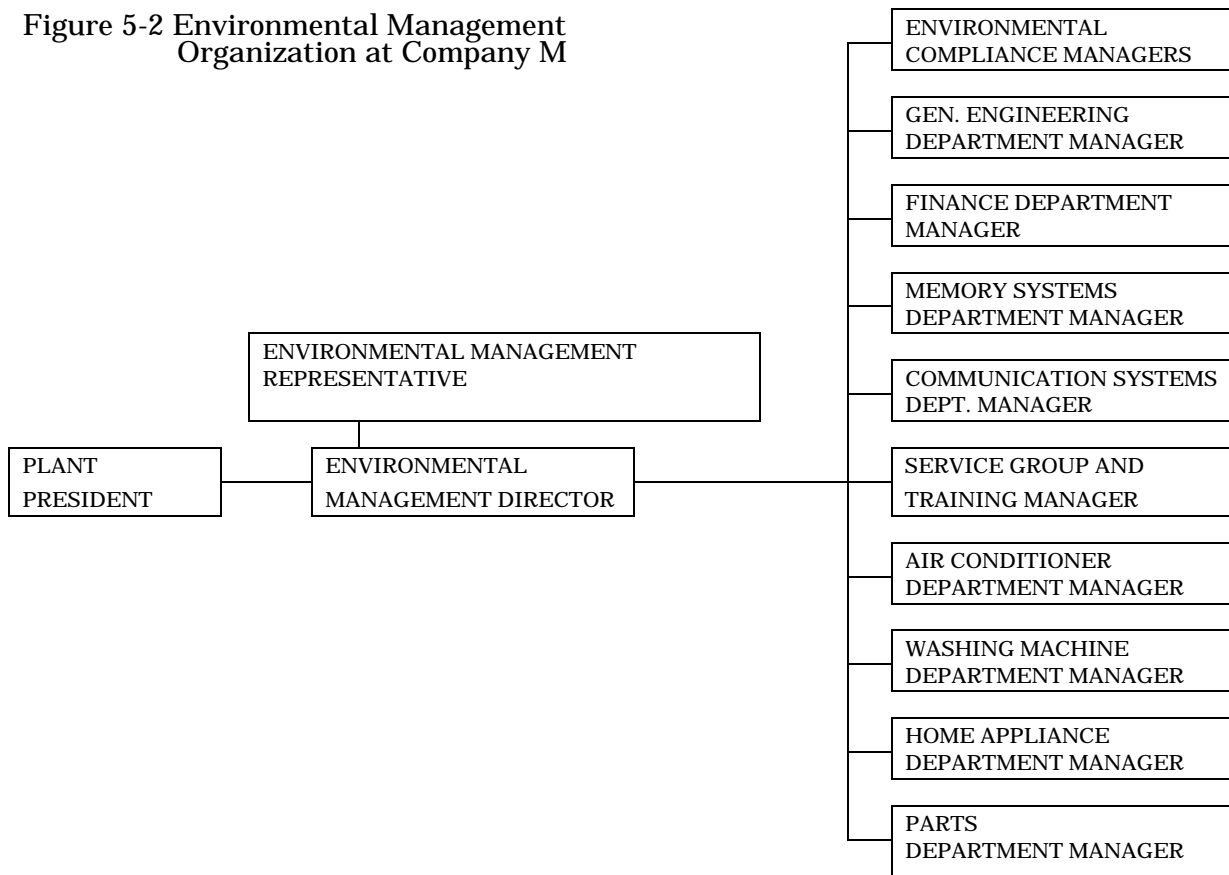
### 2) Background

The head office in Japan decided that group companies developing products abroad should obtain ISO 14001 certificate, so Company M began to address the requirements in order to obtain certification.

### 3) Organization

The organization of environmental management at Company M is shown below.

Figure 5-2 Environmental Management Organization at Company M



#### 4) Contents

##### Basic policy on the environment

Company M's basic policy on the environment is summarized in the following statement.

Be a company that is environment friendly by promoting the use of earth friendly materials and equipment to ensure manufacturing processes that is in consonance with our objective of protecting our natural environment. In accordance with this basic policy, the following policies should be observed.

- Satisfaction of ISO 14001 prerequisites through continuous review and improvement of operations, and operation and maintenance of an appropriate EMS
- Appointment of the General Engineering Department Manager as Environmental Management Representative responsible for operation of the aforementioned EMS
- Determination of the environmental policy and objectives, and setting of related targets in the early part of each term
- Notification of the environmental policy and objectives to all employees by such means as training and orientation programs
- Application of the EMS for satisfaction of legal and social requirements
- Adoption of the slogan noted below in the interest of constant awareness of the need for environmental protection among all employees

An environment with:

- Blue Sky that symbolizes the clean air.
- Green Tree that symbolizes the clean land.
- and the Blue Water symbolizes the clean water.

Ultimate responsibility for operation of the EMS described above resides with the company president.

##### Management objectives (for fiscal 1997 - 1998)

Company M has determined the following policy, objectives and targets for fiscal 1997 - 1998.

Environmental policy: pursue our commitment to contribute in the preservation of our ecology and natural resources by improving our environmental performance, through the operation of the environmental management system.

Objectives and targets:

- 1) Control of input materials to lessen its operational impact
  - a) Built and update chemical usage database and institute chemical substance control in all departments by September 1997
  - b) Reduce electric consumption per unit production by 5 percent per year relative to 1996 in each manufacturing department
- 2) Control of waste and process discharges to minimize pollution
  - a) Reduce waste per unit production by 20 percent relative to 1996 in each



manufacturing department

- b) Identify process emissions and institute monitoring programs by September 1997
  - c) Identify and control other sources of effluents by July 1997
- 3) Establishment and implementation of an EMS
- a) Obtain ISO 14001 certificate by December 1997

5) Issues for the future

As one of the leading companies in the electric equipment industry in the Philippines, Company M strictly observes all laws and regulations related to the environment. In addition, it employs its own system of voluntary control for environmental impact from those processes that are not covered by the existing legislative framework.

Under the influence of the group-level policy on the environment, and for compliance with the environmental laws and regulations in the Philippines, the company has incorporated environmental preservation activities into its production process.

Company M is now introducing an EMS. Once this system is solidly in place, the company will be in a position to aim for not only observance of environmental laws and regulations but also the target of zero emissions, which the head office in Japan aims to attain by the year 2000.

## Case 14: Placing Emphasis on Environmental Training for Employees, and Establishing Environmental Management

### 1) Profile of the company

Company N	
Business activities:	Manufacture and sale of pumps, etc. cast with corrosion-resistant and heat-resistant stainless steel
Number of employees:	Approximately 300
Start of operation:	1991
Location:	In a suburb of Manila
Ownership ratio of headquarters in Japan:	90 percent

### 2) Background

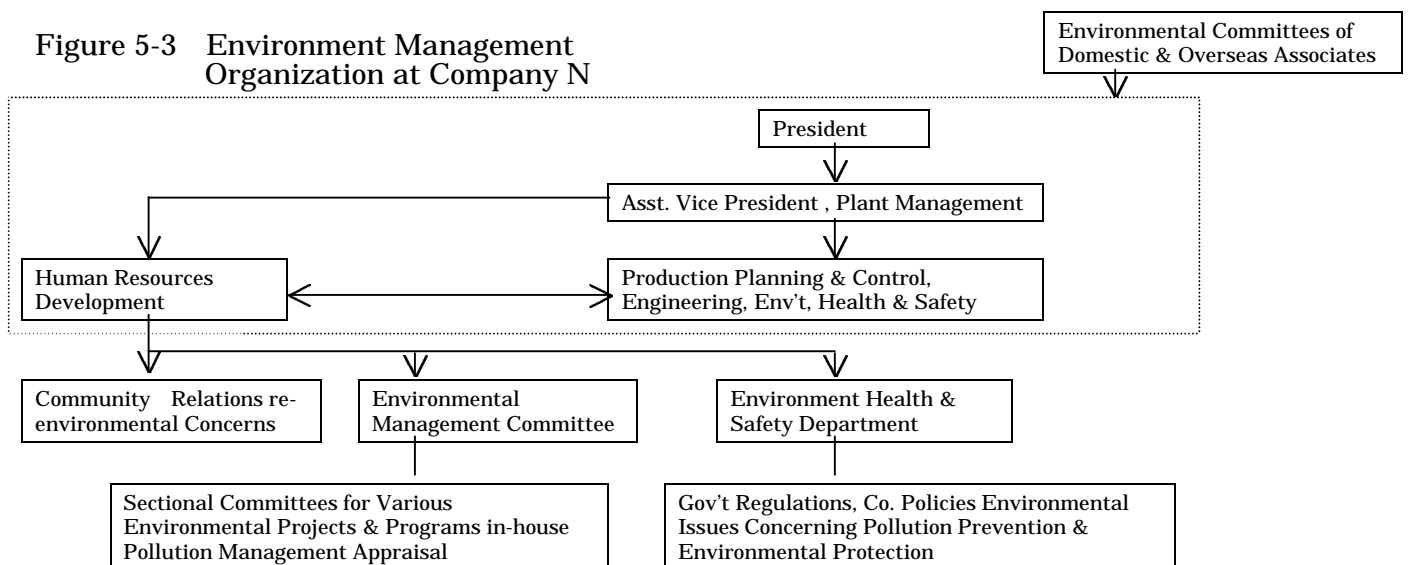
In addition to sales of environment-related equipment and plant manufacturing equipment, the head office of Company N located in Japan, also provides a consulting service for environmental management. Having adopted a complete set of regulations to prevent environmental pollution as a manufacturer and retailer of casting, the company then installed a high-grade plant for treating waste water (both domestic and factory).

Company N was examining the possibility of expanding its environment-related services into the Philippines, but as a pre-requisite, it needed to establish its own effective EMS. Company N set up an Environmental Management Committee (EMC) in December 1994 with the participation of both its manufacturing and non-manufacturing departments. In February 1995, the company drew up an "Environmental Basic Policy" and developed various environmental conservation activities based on the policy. It is working hard to provide environmental education for its employees.

### 3) Organization

The organization of Company N's EMS is as follows:

Figure 5-3 Environment Management Organization at Company N



#### 4) Contents

##### Fundamental environmental policies

- To conduct business operation while maintaining a clean and safe environment.
- To continuously support environment's and management's programs on environmental protection.
- To strictly implement government's environmental laws and regulations.
- To set up an effective EMS and pursue seriously ISO 14001 certificate.
- To promote awareness among all employees and suppliers of their environmental responsibility.

##### Environmental training for employees

An environmental calendar has been created by the environmental management committee in order to inform all employees of internal and external information, and of reforms and experiences.

This sets certain environmental targets on a monthly basis, and its objectives are:

- Education about environmental responsibilities and duties for all employees
- References for creating action plans for effective EMS
- Preparation for ISO 14001 certificate
- Implementation of environment-related projects both in-house and the community including employees' families

##### Environmental calendar

The contents of the calendar are as follows:

Figure 5-4 Environmental Calendar Compiled by Company N

January	Good housekeeping/5S (adjustment, arrangement, cleaning, neatness, discipline) month
February	"Think health"/Physical fitness month
March	Fire prevention month
April	Preventive maintenance month
May	"Save the River" (SAGIP-ILOG) and community service month
June	Environmental audit month
July	Safety month
August	Pollution prevention month
September	Ecology circles and greening month
October	Enviro-tech month
November	Waste minimization (recycling/reusing) month
December	Resources and energy savings month

The main features of the environmental conservation activities that Company N is involved in are as follows:

Company policies and reports, pollution control services, all facilities, including waste water treatment plants, and solid waste management, are reported to the public and to

the government to demonstrate the company's commitment to environmental conservation.

In addition to overall safety, environmental leadership (evaluation of environmental behavior of employees) has been added to the criteria for staff assessment in order to raise environmental awareness among employees.

A transition from polluting to non-polluting materials is being made. To protect the ozone layer, the materials used in air conditioners and fire extinguishers will be changed from CFC to non-ozone depleting substances (in 1997). To conserve forests, wooden palettes were changed to plastic palettes, which reduced costs and improved safety and quality. Efforts are also being made to save energy.

In order to control solid waste, an experiment to harden sand discarded from a casting process is being carried out. The sale or handling of metal chips and continuous research on appropriate processing methods of solid waste products is being conducted. A policy that promotes awareness of environmental responsibilities among the suppliers and surveys their EMS policy in order to meet the standards of Company N.

## 5) Results

The results of the environmental calendar are as follows:

- Waste minimization, utilization and exchange improved.
- 5S Audit identified companywide.
- No-smoking campaign progressed.
- More data was collected on waste reduction.
- Projects to prevent pollution and reduce waste progressed.

Other results:

- Effluent criteria relating to waste water and emissions could be monitored.
- Awareness of the importance of protecting the environment was enhanced among employees and suppliers and further improvements are expected.
- Reduction and recycling of waste was advanced.