

# Implementation of Environmental Management Based on ISO14001

● Mitsugu Satou ● Seiji Kawaguchi

*(Manuscript received March 9, 2005)*

To implement Environmental Management, by which environmental activities are conducted within the corporate activity framework, the Fujitsu Group started ISO14001 authentication acquisition activities in its plants. Then, in fiscal 2003, these activities were unified within the Group to enhance the environmental activities within the original business framework. These activities for collective Environmental Management System (EMS) authentication are characterized by a matrix organization consisting of lines and sites, establishment of an independency-oriented internal audit system, effective IT tool utilization, and use of environmental themes linked to the business of each division. These activities have been conducted on one of the largest scales in Japan. This paper introduces the past results and the future plan of Fujitsu Group EMS activities of the top management of Fujitsu Ltd. and all Group companies for environmental management conforming to international standards.

## 1. Introduction

Because environmental activities are important factors of corporate management, each company of the Fujitsu Group has used international standard ISO14001 to implement Environmental Management, by which environmental activities are executed within the framework of business activities. In 1995, the Numazu plant was the first to acquire Environmental Management System (EMS) authentication. Also, each division conducted environmental activities, and the production divisions acquired EMS authentication by the end of fiscal 1997. The main development and service divisions completed authentication acquisition by the end of fiscal 2000. The Fujitsu Group Environmental Protection Program(Stage IV) unified these division-dependent authentications into a single authentication at the end of fiscal 2003 in order to systematize all-business environmental activities. This comprehensive

authentication will include overseas Group companies by the end of fiscal 2005. Current activities are being held so that business activities will be merged into environmental activities on a consolidated basis.

## 2. Background and history of environmental activities

### 2.1 Voluntary environmental activity flow of companies and ISO validation

The Fujitsu Group started the Environmental Engineering Center in 1991 as an organization dedicated to environmental activities. By changing the policy from the conventional pollution resolution to pollution prevention, we have positively contributed to the conservation of the global environment.

This voluntary environmental activity flow of the companies was stimulated by the World Summit on Sustainable Development (WSSD) held in June 1992. In Japan, the Global Environ-

ment Charter of the Japan Federation of Economic Organizations was established in April 1991 and the Basic Environment Law was established in November 1994. Thus, the ideas of the voluntary environmental activities were introduced. Against this background, the importance of international standards for environmental management was recognized, and ISO14001 came into effect in 1996.

## 2.2 Independent activities of respective divisions

The targets of the Fujitsu Environmental Protection Program(Stage II) (for fiscal 1996 to 2000) were to construct and operate an EMS based on the ISO standards by the end of fiscal 2000 for all plants and divisions (including development and service divisions).<sup>1)</sup> Based on this plan, an EMS has been constructed for the plants, development divisions, and service divisions. As a result, all of our manufacturing plants in Japan acquired ISO14001 authentication by the end of fiscal 1997.<sup>2)</sup> These activities have contributed to a systematic understanding of the importance of conforming to the relevant laws and the prevention of environmental risk by environmental facility improvement.

In addition, our activities have mainly focused on reducing the environmental burden of divisions, for example, by reducing energy use, waste generation, and chemical emissions.

When the targets of the activities were later extended to the development and service divisions, fundamental entities such as the design and development divisions were requested to engage in activities. The main targets have been changed to the supply of Green Products and the promotion of green procurement. Especially, product environment assessment was applied to all products in order to make them Green Products. For this purpose, these activities were linked with environmental management activities. Those products that did not satisfy the green product standards were defined as “aspects have significant impacts” in the environmental management.

Thus, these activities have contributed to the introduction and establishment of Green Products (Figure 1).

## 2.3 Unification of environmental activities of all divisions

After the EMS was introduced independently to each division, the following problems arose:

- 1) A need for the same (inter-division) framework as that for corporate management (i.e., a need for participation by top management).
- 2) Inability to meet some of the business targets in the management systems controlled by each divisional head.
- 3) Delayed execution of systematic environmental activities in the software service department, which is the center of business activities.
- 4) Different divisions requested different EMSs according to their customers' green procurement activities.
- 5) Person-hour reductions in EMS operation and maintenance.

To solve these problems, we decided to change the division-dependent EMS authentication activities into a unified Fujitsu all-division

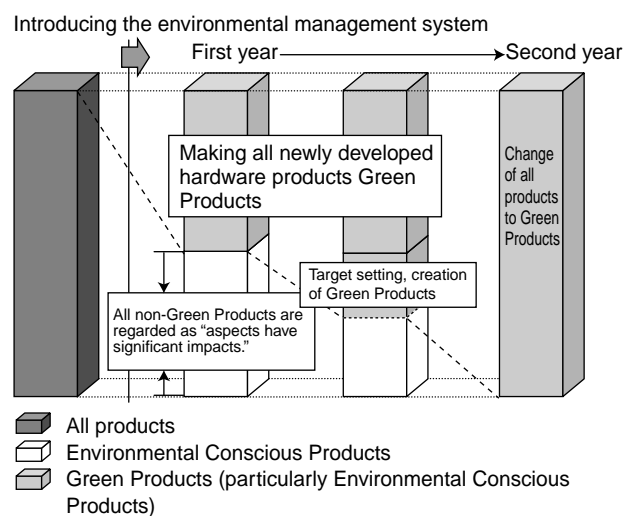


Figure 1  
Introducing an environmental management system to help make all products Green Products.

system that enables environmental activities to be performed in the same framework as the management framework (**Figure 2**). This system is characterized as follows:

- 1) Execution of environmental activities in the same framework as the management framework

Because these environmental activities apply to all divisions, Top Management can directly participate in the status reporting of environmental activity execution (e.g., policy approval and environmental action planning) and in the EMS review by the environmental committee (**Figure 3**).

- 2) Matrix organization of lines and sites

To more effectively advance the targets that are directly related to divisions, for example, Super Green Product development and complete abolishment of harmful substances in products, the business-promoting line activities and conventional division-dependent EMS activities were organized into a matrix so problems could be solved from both the line (business) side and site (division) side (**Figure 4**).

Because the corporate organization has changed, many divisions of the Fujitsu Group have constructed and operated EMSs in their business offices. At present, these divisions have fewer environmental target that can continuously

improve environmental performance solely through direct environmental activities. Therefore, for a more effective environmental improvement, each division has at least one environmental target based on the business activities specific to itself.

- 3) Efficient construction and operation

It can be predicted that person-hours will be increased by widening the application range and adding new activity units. Therefore, for more efficient construction and operation, new IT tools were developed and applied.

- Introducing e-learning for all employees

An e-learning system was established to give all employees the required general education. This system enables employees to participate in courses at a convenient time according to their work status, rather than having to gather at a specific time in a specific room. Introducing this e-learning system has reduced the environmental burden by 98% compared with conventional group education (**Figure 5**).

- Introducing an internal environmental audit support system

As the environmental activity range increased, also the number of organizations to be audited increased. Therefore, the communication system was changed from the conventional report-attached e-mail sending system to a Web-based



Figure 2  
Outline of unified system.

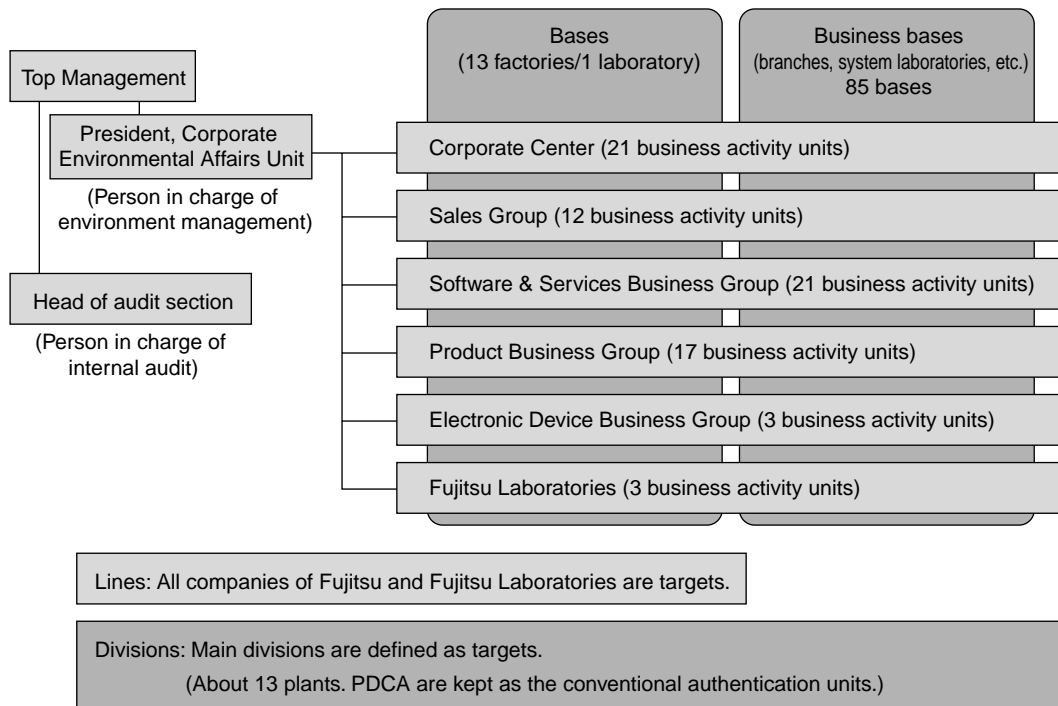


Figure 3  
Environmental activity organization is the same as management organization.

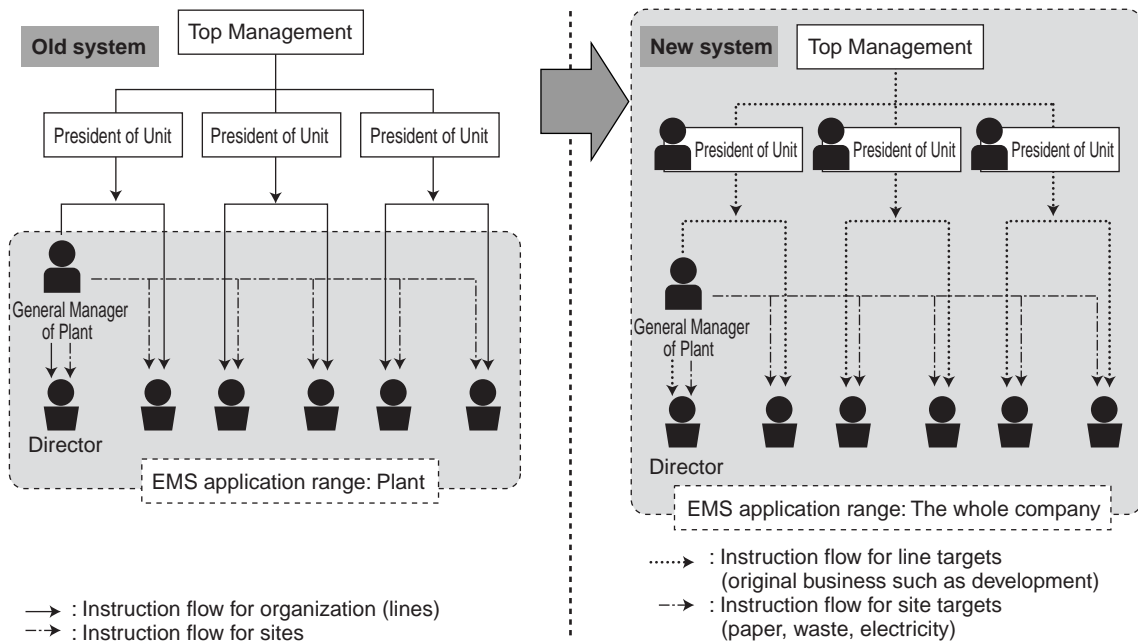


Figure 4  
Matrix organization of lines and sites.

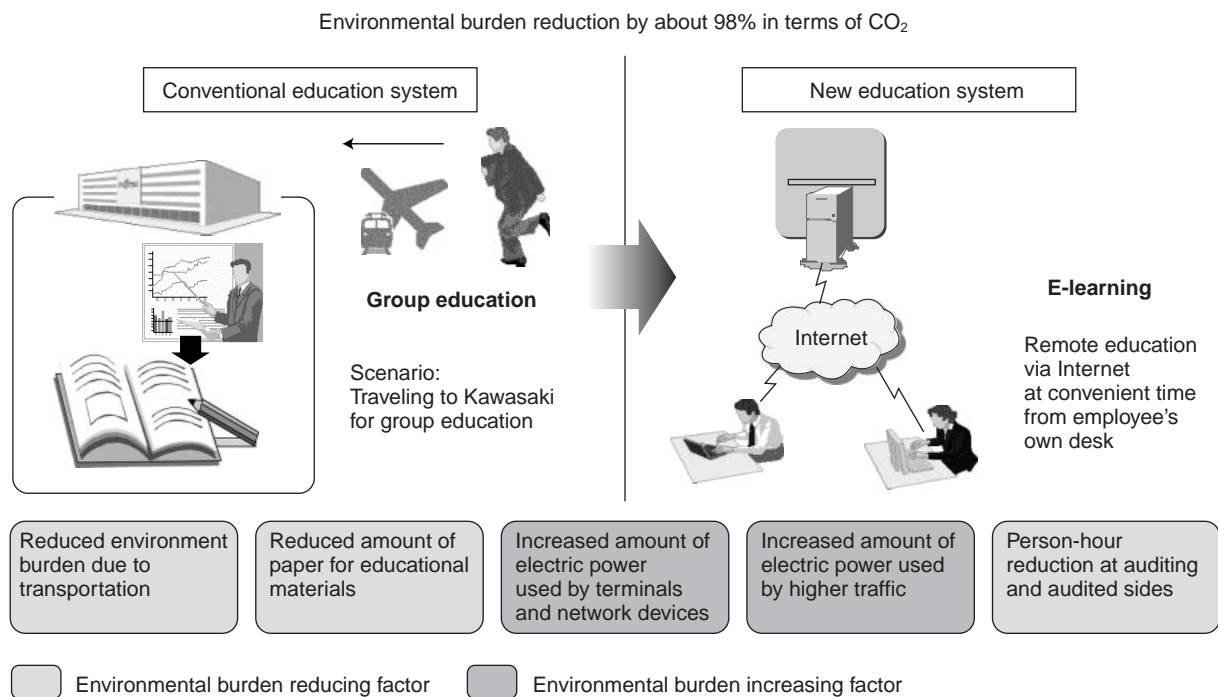


Figure 5  
Introducing e-learning for all employees.

internal environmental audit support system. This contributes to operation efficiency improvements such as fewer printed documents, efficient creation and operation of audit reports, more efficient analysis of internal audit results, sharing of audit result information, and data recording and storage using non-paper media (**Figure 6**).

- Introducing a standard management system  
To execute ISO-based activities, various procedures must be written. The approval and operation of these procedures at system introduction were done on paper, and only procedure browsing was done using electronic files. However, the recently introduced standard management system enables electronically stored procedures, for example, the daily basic system, to be linked with the personnel database to support investigations and approvals. This contributes to operation efficiency improvements such as fewer printed documents; quick creation, investigation, approval, and disclosure; and data recording and storage using non-paper media.

#### 4) Strengthening internal environmental audit independency

One of the means to effectively implement EMS is the internal environment audit. When the internal environmental audit range was expanded to include every company in the Fujitsu Group, the independency of the internal environmental audit was strengthened by making the audit department manage all of the internal environmental audit fields. This makes the internal environmental audit more effective (**Figure 7**).

### 3. Future plan

The target of the Fujitsu Group Environmental Protection Program(Stage IV), which is the middle-term plan for the Fujitsu Group's environmental activities, is to establish an environmental management framework based on EMS in every company in the Fujitsu Group by the end of fiscal 2005. In the first step, Fujitsu Group companies with consolidated accounting in Japan will be managed by the integrated management system

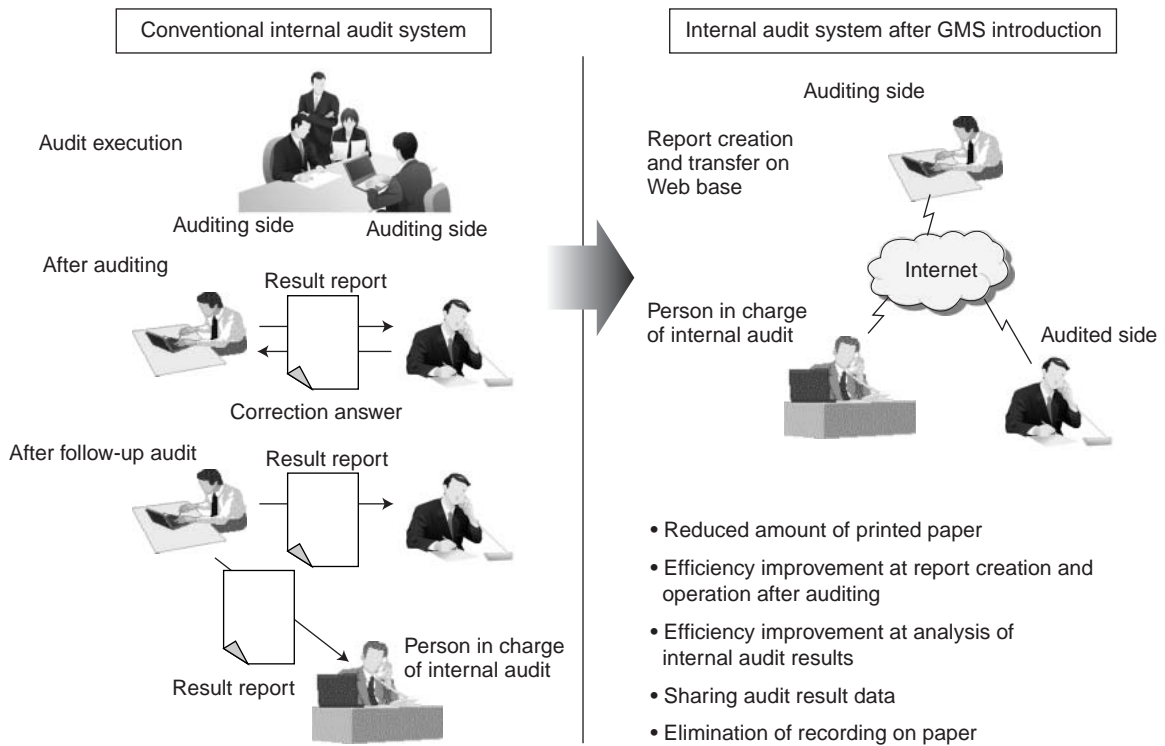


Figure 6 Introducing an internal environmental audit support system.

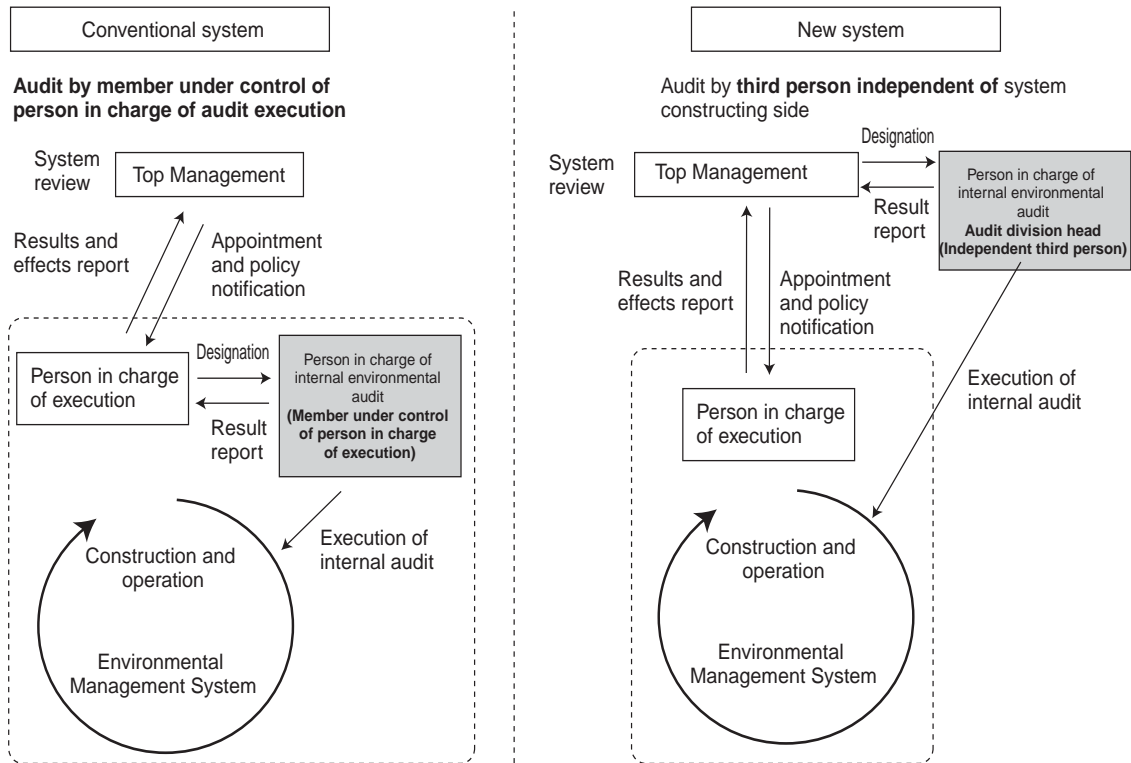


Figure 7 Introducing an independency-strengthened internal environmental audit system.

by the end of fiscal 2004. These activities have the following three targets:

- 1) The change of corporate structure increased the overall environmental burden of the Fujitsu Group. Therefore, the governance must be strengthened to control the Group companies as well as the head company.
- 2) Also, from the viewpoint of CSR, the total targets of the Fujitsu Group (i.e., the fourth-term Fujitsu Group environmental activity planning process, applying the plan to respective Group companies, and its operation and management) must be checked externally to improve the transparency of the environmental activities.
- 3) Moreover, the System Engineering (SE) companies and sales subsidiaries that did not have systematic environmental activities must be controlled by this plan, and each employee's environmental awareness must be improved.

These activities will also cover overseas Group companies by the end of fiscal 2005. However, because foreign countries have different cultures and different ISO understandings, these activities need not be applied uniformly. The conditions and range of activities will be determined by considering the environmental burden intensity and business merits.

#### 4. Conclusion

In the earlier stage of environmental management system introduction, the management department that performed exit management could remarkably reduce the environmental burden with comparatively low investment.

On the other hand, at present, environmental problems are complicated and closely related to the corporate business basis. Considerable investment, therefore, is needed to provide significant effects. In addition, measures that contribute to business are requested.

In the future, investment should be concentrated in the most needy areas, while carefully

considering the financial efficiency by promptly checking the environmental activity results using IT.

Although efficiency improvement using IT must be advanced continuously, we require realistic, common activities that all employees can directly participate in and deeply consider in order to deepen their environmental awareness. These activities will also thicken the stratum of employees with a high environmental awareness. We are advancing these activities so the environmental activities will be conducted within the business framework and each employee can participate in the environmental activities without needing a special environmental awareness.

#### References

- 1) K. Kobayashi: With the Aim of Becoming a Leading Runner in Recycle-Oriented Society. (in Japanese), *FUJITSU*, **52**, 3, p.164-168 (2001).
- 2) T. Koga: Fujitsu's Concept of Environmental Management Strategy. (in Japanese), *FUJITSU*, **54**, 6, p.436-440 (2003).



**Mitsugu Satou** joined Fujitsu Ltd., Tokyo, Japan in 1973 to work in the Advertising department. He is currently planning an environmental activity policy for the entire Fujitsu Group and constructing environmental communication/management systems.

E-mail: satomm@jp.fujitsu.com



**Seiji Kawaguchi** joined Fujitsu Ltd., Kawasaki, Japan in 1993. He currently works in the corporate Environmental Management department, where he is constructing environmental management systems, promoting green procurement, and constructing overseas recycling systems.

E-mail: s.kawaguchi@jp.fujitsu.com