

Environmentally Conscious Corporate Management Required for Global Business Competitiveness

Yoshiaki Ichikawa

Cross-Market Solution Systems Division, Hitachi, Ltd.

E-mail: yichika@itg.hitachi.co.jp

There has been a major paradigm shift in environmental management activities worldwide, especially in the field of industries. The new paradigm is "Eco-production" while the former paradigm was the "Environmental Protection". What caused this movement is Eco-product Policies newly introduced or prepared in various nations, like ELV and RoHS directives (both are chemical substance restrictions for products on European market). Triggered by the major global company's countermeasures against these policies, huge-scaled chaining of environmentally conscious procurement have emerged in not only global but also domestic markets. This paper summarizes current major issues of environmental management considering this paradigm shift, and proposes solutions by integrating IT systems with environmental corporate governance.

1. Introduction

Episode 1 (modified story): A letter from a global motor company in US suddenly came to an automobile parts supplier in Japan. The letter started "Since we do business on a worldwide market this letter has global implications", mentioning "it is essential for us to have a precise knowledge of the composition of the components", and finally required the substance constituent data of all the products of the supplier. Since providing the data is mandatory for automobile parts being purchased on a global market, the supplier spared several thousand hours to prepare the data. On the background, the global company's letter was triggered by ELV (End of Life Vehicle directive) or Heavy Metal Ban in EU, which prohibits cars from being put on the European market containing certain hazardous substances in any portion of the components and materials.

Episode 2 (modified story): Millions of a Japanese global company's best-selling products were suddenly rejected from the Dutch market because of a tiny component which contains cadmium over the allowable limit determined by the domestic law of the nation. This caused a huge amount of loss for the company, and stimulated the company's green procurement activity. The company's procurement division issued a notice for all suppliers requiring a cadmium-free certification or disclosure of all the substances contained in products. Since no manufacturer obtained complete data of purchased components in its products, this requirement triggered the same type of chain reactions along large supply chains initiated from the global company, which spread nationwide in Japan.

These episodes suggest that the scene of environmental activities is not any more on the backyard, but on the battlefield of business. Some corporate executives of environmentally advanced companies are gradually getting aware of this trend, whereas, not so many are recognizing the importance, nor preparing for it. This paper presents current major concerns of advanced environmental managers as well as a trend of worldwide Eco-product policies, and proposes effective solutions with IT systems integration.

2. Major concerns of advanced environmental managers

The paradigm of environmental management shifted twice until now. The earliest paradigm was pollution control or "End-of-pipe scheme" introduced in 1970s. In 1990s, the second paradigm called "EMS" or "ISO14001" appeared. Whereas the focus was widened to cover upstream decision-making processes, these activities were still limited within the production facilities, and environmental managers were recognized as "costs", an adverse effect to business. Very recently, since 2000s, the idea of "Environmental Corporate Management" emerged, in which environmental approach was recognized as a key to enhance financial status of a company by promoting corporate brand as well as enlarging product shares. In this paradigm, environmental management was no more a cost center.

In this latest paradigm, the following three issues are major concerns of environmental managers.

(1) From behind-the-scenes activities to direct business contribution:

As stated above, the mission of environmental management has been changed. Environmental managers have to respond quickly to the customer's sudden requests for data disclosure, namely, "Product Environmental Information Disclosure (PEID)". However, a serious problem has arisen; the preparation for PEIDs for all the products must take a huge amount of time and cost, moreover, this task can not be handled by environmental people alone. Another potential problem lying underneath is the situation frequently seen everywhere; the environmental management division has been far apart from business divisions, which makes it very much difficult for them to cooperate each other.

(2) Consolidated environmental management for multiple sites:

In 1990s, the EMS has been site-oriented. For example, a company with 100 facilities obtained 100 independent ISO14001 certificates, where very little shared information or consistency in EMSs among these facilities were observed although they belong to the same company. However, these days, a global trend is expanding where large-scaled enterprises conduct consolidated environmental management over their multiple facilities including subsidiary companies in accordance with consolidated accounting scheme. Companies still running a number of separate EMSs are very much eager to catch up with this trend since it will achieve a great cost reduction and a high degree of corporate governance.

(3) Disclosure and risk communication

Since we are facing the age of disclosure, private company's environmental data which have been deeply hidden from public are getting uncovered. PRTR (Pollutant Release and Transfer Register) is one of such triggers initiated from legislation. Inevitably, much more preparation for risk communication become mandatory than before, such as training of communication experts or establishing a means of quick access to abundant background data.

3. A new survival competition on Green Procurement and Eco-product Policy

As mentioned in Episode 1 and 2, global companies have started to collect detailed environmental data on their purchasing parts/materials by making it mandatory for suppliers to provide sufficient data. Such data called PEID (Product Environmental Information Disclosure) should cover substance constituents (Material Disclosure),

environmental burdens (Life Cycle Inventories), and recyclabilities. Since it is very much rare that a product is manufactured in a single company alone from scratch, the requested company has to again require PEIDs on their subparts contained in their products. This situation makes a huge-sized chaining in the market (as shown in Fig. 1).

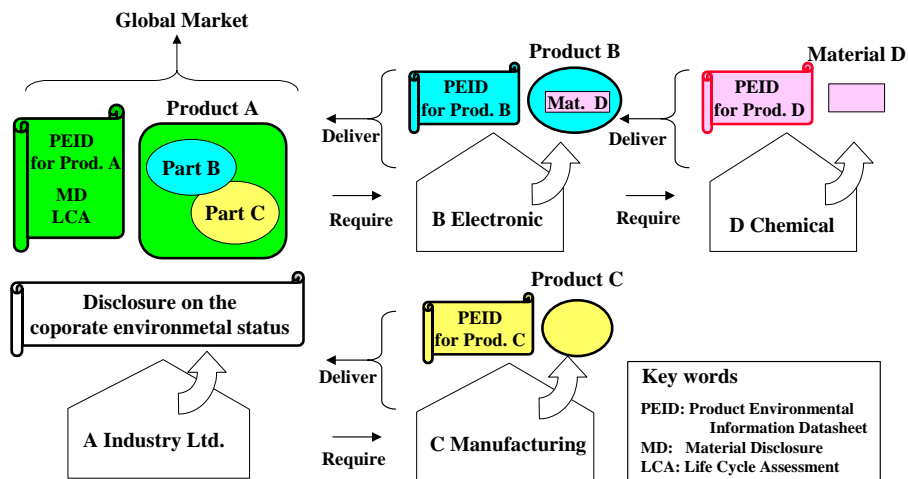


Fig. 1 Global & Rapid Expansion of Green Procurement

As far as currently observed, this chain-reaction of green procurement is rapidly growing both worldwide and nationwide. It is noticeable that in spite of its global origin, the chain expands deep inside domestic markets because of the initiation of some advanced global companies with their power of large procurement volumes.

On the background, Eco-product Policy issued in Europe played an important role. Besides ELV just mentioned, RoHS (Restriction of Hazardous Substances in electric and electronic appliances) is coming, and the White Paper "Strategy for Future Chemicals Policy" has been adopted in EU. A unique feature of these policies is an expanded focus of restriction; from pure chemicals to "chemicals in products". Similar movements are also observed in US like Proposition 65 in California, which focuses hazardous substances in all the consumer products which have any possibility of human exposure.

A serious problem has been risen by the green procurement chains; the data preparation task for providing PEIDs is highly labor and cost consuming, which could even affect the corporate balance sheet. Thus, in order to survive the age of Green Procurement, industrial companies must establish effective schemes to cope with this.

4. Importance of Corporate Governance

The advantage is apparent for a large conglomerate with hundreds of subsidiary companies to conduct ISO14001 activities in unison, a consolidated fashion. The cost for ISO certification would be drastically reduced by the order of million dollars, and moreover, the degree of Environmental Corporate Governance could be highly

enhanced. These days, the public ratings weighing this feature heavily can move the corporate values (stock values, brand images, market shares, etc.) very sensitively.

The problem in this area is data collection, since it is crucial for conducting consolidated management to share mutual data with all the sub-organizations in a consistent manner. The larger effect we expect, the harder it becomes to collect environmental data, because the number of sub-organizations and their diversities increase.

5. Solution with Proactive IT Systems with database for multiple purposes

The issues just discussed could not obviously handled with human laboring power any more. Some sort of large-scaled data integration systems is needed to execute all the tasks incorporating PEID preparation, consolidated environmental management, and risk communication support.

Since 1996, the authors have been providing advanced global companies in Japan as well as Hitachi Group with IT solutions for environmental management, which have been proved very successful so far. Those companies usually self-motivated to introduce such systems, recognizing the global trends stated above because they were doing business on worldwide markets. The crucial viewpoint of their IT system selection was "Proactive feature" of our system.

As already mentioned, the paradigm of environmental management shifted from "End-of-pipe" to "ECM (Environmental Corporate Management)". The IT systems must change their scheme accordingly (See fig. 2). The axes shown in the fig. 2 characterize recent trend, namely, the number of purposes are becoming multiple (increasing) which causes increasing volume of data needed.

The IT system best fitted to this trend should be designed to support quick decision making process on business scenes. For this purpose, we proposed a key word "proactive" in contrast to ordinary "reactive" systems. The technical specifications are featured by its realtime, wide-range, detailed data-collection and analysis capabilities.

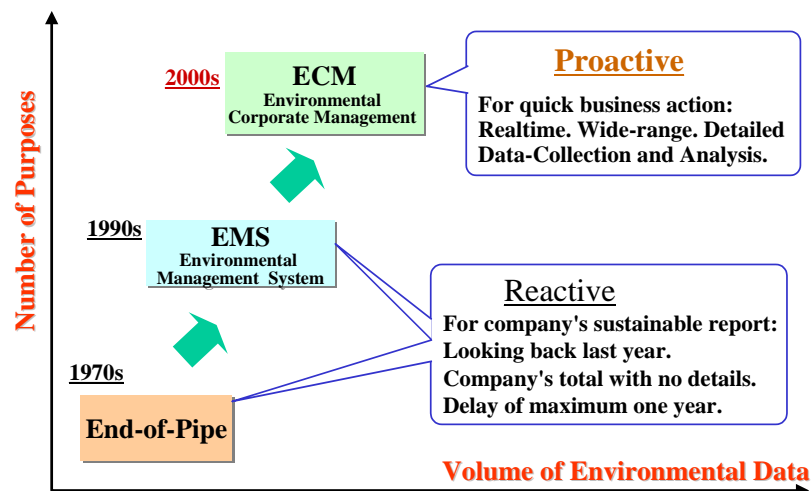


Fig. 2 Proactive scheme of IT systems fitted to Environmental Corporate Management

The schematic view of the total system's configuration is outlined in fig. 3. In the middle of the figure, a varieties of tasks are depicted which are representing multiple purposes needed for Environmental Corporate Management. The feature of this scheme is that they are all connected to the Integrated Database on top. As a matter of fact, this Integrated Database is virtual or theoretical, being composed of multiple task-oriented databases. However, these task-oriented databases are not running independently, but sharing the same data which should be mutual or identical for the tasks; a typical example is "chemical substances database" which apparently should be shared by all the tasks. This data-sharing is a key to realize "one database for multiple purposes" which is ,we believe, a key concept for modern environmental management.

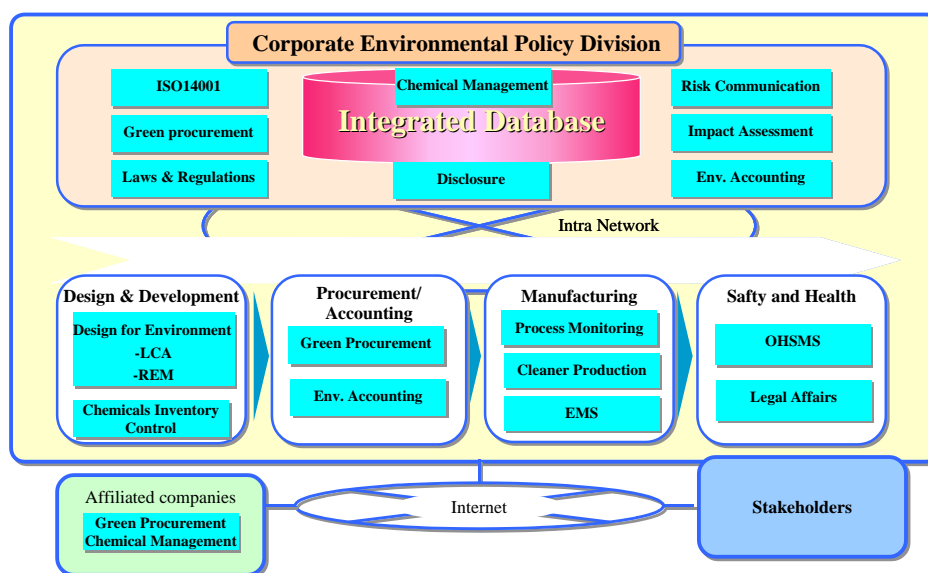


Fig. 3 The schematic view of the system configuration

6. Conclusion

There is an interesting episode recently heard from a client, which shows the need of the proactive system: One day, an environmental director was called for the board meeting and questioned as to the current situation on the use of a hazardous substance in the company. He quickly returned to his office, wrote a letter of questions on the subject, and sent a hundred of copies to all factory managers in the company. As soon as each factory manager received the letter, he wrote memos to all production-line managers in his factory requesting related data. It took two months of painstaking labor for the environmental director to collect all datasheets, however ended up a lethal delay of decision making on the company's exporting business.

We hope that our solution could support Environmental Corporate Management so that such a tragedy won't happen again.