

Toward the Creation of a Closed Resource Cycle Economy : The Eco-business Experiment

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The Role of Eco-businesses within the Closed Resource Cycle Economy

On the outflow, private enterprises are in a position to supply the market with products and services efficiently mitigating the impact on the environment. By reducing the overall environmental load throughout the life cycle of their products, businesses can effectively contribute to the establishment of a closed resource cycle economy. The inflow function is provided by private enterprises with the capability to recycle and appropriately dispose of waste, and to directly supply consumers with information about the influence of products on the environment. Private enterprises are bestowed with a significant role. On the other hand, they are also in the position of shouldering the responsibility for the industrial waste produced in the course of their business activities.

In response to the heightened public awareness of environmental issues and the consequential reinforcement of environmental regulations in recent years, the increased costs of waste disposal and the reduction of the environmental load, existing industries are proceeding to develop environmentally friendly products and systems. New businesses are emerging in unprecedented domains.

The ambiguous definition of the so-called "eco-business" includes such activities as the marketing of environmentally friendly products, the adoption of closed resource cycle production systems, the creation of large-scale waste disposal services, the creation of distribution networks for used parts, and innovative technologies contributing to environmental

conservation. The collaboration of material and manufacturing industries for the reduction of alloy types and polyolefin grades, and the reuse of waste within material industries are also plausible examples of eco-businesses.

The development of eco-businesses will promote the efficient use of resources and energy of the society, minimizing both the input of resources and energy required for economic activities and the output of waste from these activities. The progress will also create new markets and new jobs, driving the expansion of new frontiers of supply.

Future Prospects for Eco-businesses

The "Action Plan for Economic Structure Reform", approved by the Cabinet in January 1999, forecasts a quantum leap in environment-related segments of the market from the current ¥15 trillion with employment of 640,000 to a scope of ¥37 trillion and 1.4 million people respectively by the year 2010.

To turn this vision into a reality, however, a host of difficult problems need to be resolved. Deregulation aiming to proactively utilize the vitality of the private sector, the establishment of effective rules to promote recycling and other areas within the system of the society, the creation of markets for accommodating the development of eco-businesses, support for the reduction of risks associated with investment in recycling plants and similar facilities and an establishment of systems to evaluate environmentally aware business performances are necessary for eco-businesses to grow and prosper.

In various industries, eco-business is positioned as a strategic area with

potential for yielding future business opportunities. The integration of resource and environmental conservation into business activities and the creation of market value corresponding to the constraints in resources and the environment must be furthered side by side.

Examples of Efforts by Eco-businesses

Various aspects of eco-businesses are illustrated in several examples below. It should be noted, however, that the cases indicated here are mere examples, and as more ingenuity is applied in more fields, opportunities for eco-businesses are likely to expand (refer to the attached chart: "Development of New Business in a Closed Resource Cycle Economy").

(1) Closed Resource Cycle Production of Copiers

For the most part, copiers are either leased or rented by corporate users. As a result, the products are almost entirely recovered by manufacturers after use.

In 1995, one manufacturer took advantage of this market characteristic, and introduced a form of closed resource cycle production. The recovered copiers are dismantled and cleaned, and components that meet in-house quality standards are sent back to the production line. A recycling line directly linked to production was set up in one plant, which has been processing about 100 units per day since 1997.

The recovered products are gathered in a warehouse near the plant, to be fed to the recycling line after being carried to the plant two or three times a day. The recycling line consists of sections for dismantling and cleaning, sub-

assembly and inspection. Recycled parts found to be acceptable in the quality inspection are supplied to the production line, together with new parts.

Recycled parts cannot be treated in the same manner as new parts unless the manufacturer clearly recognizes the remaining service life in each of the parts recovered from copiers, the quantity and the likely condition of the available parts. This manufacturer developed a system to evaluate the recycling-tolerance of parts recovered from copiers simply from the product model, the information on the hours of use, and the number of copies made.

The manufacturer is also attempting to design parts with longer service life, durability, compatibility, and ease of detachment on the assumption that they will be reused.

From the corporate management perspective, reusing of parts also enhances the rate of earnings on total capital employed (= ratio of profits to total assets). This manufacturer estimates its parts-reuse operations will become profitable once the usage of recycled parts exceeds 50%.

(2) *Reuse Network for Used Automobile Parts*

Each year, approximately 4.5 million cars are scrapped in Japan. Reusable parts stripped from used automobiles are divided into those salvaged during the wrecking process, to be stored and distributed as used parts after inspection/cleaning, and parts reworked in a series of recycling processes (dismantling / replacement / re-assembly). The latter are distributed as rebuilt auto-parts. The parts are supplied to repair shops as replacement parts though used parts distributors, mostly subsidiary operations of automobile wreckers.

The market size for used automobile parts is valued at ¥90 billion, accounting for 3% of the entire ¥3 trillion market for

automobile repair parts.

An inventory management network for used parts has been created recently, so that firms can flexibly provide excess stock to one another. The movement has formed a broad current in the industry, and in 1992 the Japan Auto Parts Recyclers' Association was organized among enterprises engaged in the recommercialization, sale, and repair of used automobile parts. The Association maintains a distribution system based on a computerized network.

Quality control is of particular concern in the distribution of used parts. The issue of quality control gains significance with the growth of the connection into a nationwide organization, expanding the scope of transactions among the groups. The network is currently moving toward the adoption of a unified quality standard.

The Japanese safety inspection system for automobiles was modified in 1995, leading to de facto self-inspections by car owners. There is substantive demand for used parts among owners seeking to reduce their repair bills through the proactive use of inexpensive parts. The networking trend is expected to gather additional momentum in the future.

(3) *A New Model in Waste Disposal Services*

Under current waste disposal regulations, permission from local municipal authorities is needed to engage in the collection and transport of domestic waste, while the disposal of industrial waste calls for permission from prefectural governments. The current framework does not relate to the collection and transportation of waste on a nationwide scale. One distribution company, however, has developed a nationwide network of waste collection and transport businesses.

This company managed to receive permission for the collection and transport of industrial waste from 83

authorities, including every prefectural government, and is also qualified as a Specially Controlled Industrial Waste Collection and Transport Agent in 58 municipalities. By affiliating with mid-level processors and ultimate disposal companies throughout Japan, the firm established a system of large-scale waste disposal services which covers every phase of the waste-disposal process, from collection and transportation to mid-level processing and ultimate disposal.

Enterprises producing industrial waste are required to subcontract collection / transportation and waste processing individually. In contrast, this distribution company provides a sole point of contact for waste-generating enterprises. While serving as a general coordinator — an intermediary linking its clients with the subcontracted waste processors — the company itself also offers collection / transportation services, delivering the waste to waste-processing firms.

Enterprises with numerous plants throughout the country are faced with an extremely inefficient set-up. In sending the industrial waste generated by respective plants to a locally designated processing facility, the plants must use different collection / transportation companies. In addition, the cost of management rises due to disposal costs that vary depending on the region. That is where the distribution company comes in: by hiring this firm for collection and transportation, waste disposal is efficiently bundled into a single transaction.

(4) *Recycling Through Inter-industry Tie-ups*

A number of enterprises engaged in respective operations within the PET bottle recycling system have jointly invested in the creation of an integrated recycling firm, equipped to produce general-purpose, high-quality recycled material in large quantities. Supported within a municipal project for the

construction of a comprehensive environmental complex, the firm initiated full-scale operations in July 1998. The project was subsidized by the Ministry of International Trade and Industry (MITI) as part of its Eco-town Plan. Classified as eligible waste complying with the sorting standard, PET bottles are sorted, collected and stored by local public entities on the basis of the Law for the Promotion of Sorted Collection and Recycling of Containers and Packaging.

This firm currently serves as the hub in the development of projects for the manufacture, transportation and sale of recycled products by conducting the collection, transportation, storage, recycling and processing of PET bottles. The system involves many processes, and is structured around the characteristic cooperation of various enterprises working together, each playing their respective roles. In this way efficient and high-quality service can be provided.

Each company involved plays its role, undertaking different operations, to form a seamless partnership. Operations include overall and facilities planning; planning and coordination related to distribution and sales, including the cultivation of new markets for recycled materials; the transportation of bales and recycled material making use of local know-how; the transportation of bales and recycled material making use of a wide-ranging national network; and the transportation of waste generated during the recycling process to waste-processing enterprises. The disposal of waste generated during the recycling process is contracted out to a local firm engaged in industrial waste disposal.

The recycled pellets produced are used as fabric materials for making clothes, materials for stationery such as ballpoint pens, materials for containers for laundry detergent and eggs, and materials used in the civil engineering field, such as drainage pipes.

Toward the Development of Eco-businesses

A variety of conditions must be met in the future for the further development of the so-called eco-businesses described above. Primary requirements are as listed below.

(1) Market Expansion

In order for environmentally friendly products and services to be provided to the market in larger volumes, it is necessary for the products offered by enterprises to be accepted by consumers. It is strongly desired that consumers gradually change their lifestyles. Consumers should recognize the significance of environmentally friendly products and services, assuming a more active role in their purchase. Throughout the period of high economic growth, the Japanese continued to demand ever more and newer things. The time has finally come for the Japanese to change such consumption behavior. From now on, cost reduction and enhanced convenience should be highlighted, shifting to the consumption of functions and services. Education and information services can make significant contributions in altering the purchasing habits of Japanese consumers.

It is also important for environmentally friendly products and services to become more reliable in terms of quality and safety. Standards and norms applicable to such products and services must be established through various approaches, including the use of the Japanese Industrial Standard.

The public sector is also capable of directly supporting the activities of eco-businesses by giving priority to the procurement of environmentally friendly products and services, and indirectly by providing information on desirable purchasing behavior to consumers.

(2) Deregulation

In order to enable enterprises to promote environmentally friendly products / services or facilitate recycling, the government should strictly refrain from creating regulations which may inhibit such activities, as well as revising existing regulations as appropriate.

The Law of Waste Disposal and Cleaning provides for a recycling use certification system for the use of certain types of recycled waste. Those certified by the Minister of Health and Welfare concerning the use of such material are exempted from the obligation of obtaining approval to conduct waste-disposal businesses or to install facilities. However, the system is currently limited to the areas of old rubber tires and sludge, and the scope of applicable areas should be expanded. There is also a special case where those designated by the Minister of Health and Welfare to process waste material considered appropriate to be processed in a wider area, are exempted from the obligation of obtaining approval to conduct the business of waste collection, transportation and processing. As tires are the only type of waste eligible for this special case, the scope of eligible items should be extended. Furthermore, there is another special case in respect of the waste materials that are difficult to process properly, where those who are designated by the Minister of Health and Welfare are likewise exempted from the obligation of obtaining approval to conduct the business of waste collection, transportation and processing. Nevertheless, necessary actions should be taken, as there has been no such exemption has been granted so far.

Concurrently with the attendance to the short-term requirements for the deregulation of existing frameworks by expanding the scope of the exceptions mentioned above, fundamental formulae on a mid to long-term basis are also required.

Once certain used products are categorized as "waste" by the definition of the Law of Waste Disposal and Cleaning, they are processed according to the principal objectives of the Law calling for the appropriate disposal of waste. Impartial treatment renders the collection, transportation and disposal of recyclable / reusable products both costly and troublesome. Definitions of the term "waste" should be reviewed, including the judgment of waste and non-waste based on who pays for collection, and the classification of domestic and industrial waste.

Moreover, a certain extent of flexibility in the Operation of the

Law of Waste Disposal and Cleaning is desirable on the part of local governments with an eye toward the promotion of recycling. Clarification and transparency of the standards of approval is required, along with efforts for large-scale disposal through coordination and information exchange among other local governments.

(3) Streamlined System Design

Along with the promotion of free market competition and deregulation as mentioned above, the establishment of definite rules and regulations within the frameworks of an appropriate role definition is also effective in the encouragement of

environmentally aware business activities.

The rules and regulations must be devised after careful consideration, eliminating the possibility of unfair competition within business circles. Enterprises responding to environmental imperatives must not be placed at a disadvantage within the marketplace. It is also important to devise a flexible system conforming to the economic realities by accommodating the differences in material procurement, production, fabrication, assembly, distribution and waste disposal for respective products and industries. **JTI**

