Declaration of Commitment to
Development of an Eco-Oriented Nation

Perspectives on Environmentally Sound Corporate Management and Environmental Businesses

Interim Report by

The Industry & Environment Subcommittee,

Environmental Committee, Industrial Structure Council

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Declaration of Commitment to Development of an Eco-Oriented Nation

Proposals for environmentally oriented business management and environmental businesses

(Compiled from the Interim Report of the Industry & Environment Subcommittee of the Environmental Committee, Industrial Structure Council)

Introduction

Faced with the ever-worsening environmental problems of global warming, resource depletion and waste disposal, the issue of how to pursue the dual goals of environmental protection and industrial development and develop a sustainable economy has become a matter of extreme importance. At the same time, a large proportion of these environmental problems stem from industrial activities. As a result, corporate management is under pressure to make greater efforts for environmental protection. Recent years have seen an increasing number of private companies making their own efforts towards environmental preservation as evidenced by the increase in acquisitions of ISO14001 certification, the advancement of information disclosure through environmental reports, the growing trend towards setting voluntary environmental targets and the greater provision of environmentally sound products and services. The current trend towards voluntary environmental management by private industry is fundamentally different from the reactionary environmental activities of the 1960s and 1970s, which were largely performed in response to the Basic Law for Environmental Pollution Control passed by the so-called anti-Pollution Diet in 1970. This is indicative of the increasing number of companies which practice sustainable management and eco-conscious management as a means for generating profit, and which consider environmental efforts as crucial to the development of competitiveness and new businesses.

In order to promote voluntary environmental management and the establishment of environmental businesses in the market, it is essential to first develop an environmentally oriented market, one that can support creative business models as well as obtain the cooperation of citizens, consumers and public administration..

In light of these circumstances, a new committee was formed to examine the directions our economy should take in order to become an eco-oriented economy. Named the Industry & Environment Subcommittee, the new committee was established in October 2002 under the Environmental Group of the Industrial Structure Council. This report is based upon the findings of the Subcommittee.

Chapter 1. History of industrial environmental problems

1. History of industrial environmental problems

During the 1960s and 1970s, the problem of pollution became widely recognized in Japan. The pollution at this time largely stemmed from industrial activities, and various laws and regulations were executed in an effort to curb this. During the 1980s and the first half of the 1990s, global environmental problems such as global warming, the depletion of the ozone layer and the disposal of waste become topics of concern. The period was also marked by increasing awareness of the dangers of hazardous chemicals. Many of these problems arose not only from industrial activities but also from the day-to-day activities of ordinary citizens. Unlike industrial pollution, the new problems stemmed from all elements of society and affected the entire nation. The second half of the 1990s was characterized byan increasing awareness of the fundamental problems of economic systems based on mass production, mass consumption and mass disposal.

2. History of environmental policy

Environmental policy has progressed along with the changes in environmental issues and conditions. Over the years, the government has made efforts to alleviate environmental problems through preparation of legal systems and industrial support. During the late 1960s to early 1970s, the government enacted various pollution control laws such as the Clean Air Law (1968) and the Clean Water Law (1970) in an effort to incorporate environmental strategies into the industrial sector. Furthermore, in order to help industries achieve better environmental performance, the government supported implementation of end-of-pipe technologies such as desulfurization and denitration, and provided facility investment support. During the first half of the 1990s, amid the surge in public concern with the environment, the government enacted the Basic Environment Law (1993), and promoted voluntary environmental efforts by corporations

through the Action Program to Arrest Global Warming (1990) and Law for the Promotion of Utilization of Recycled Resources (1991). Greater support was also extended to technical production facilities with the passing of the Energy Saving and Recycling Support Law in 1993.

In the second half of the 1990s, various recycling laws were executed based on the Basic Law for Establishing a Recycling-Based Society. Systemized resource saving and recycling measures were also promoted through the "Eco-Town" system. In an effort to combat global warming, the Energy Saving Law was reviewed in 1997 and the "Top Runner System" was implemented. The Top Runner system requires manufacturers to improve the energy performance of their products each year so that the average products of tomorrow exceed the performance of today's very best "top runner" product. It is an ideal environmental system that fosters ingenuity and creativity in manufacturers. Under the PRTR system, set forth in the Law Concerning Reporting, etc of Releases to the Environment of Specific Chemical Substances and Promoting Improvements in their Management, companies are required to provide data on releases and transfers of specific chemical substances.

Furthermore, the government established a Green Purchasing Law in 2000, which helped to support producers by promoting the demand for green products. As illustrated by these examples, the government has implemented various methods to deal with environmental problems, including establishment of new laws, provision of economic assistance, and mandatory data disclosure.

3. Development of environmental management

In accordance with the above changes in environmental problems and policies, the efforts of companies towards environmental problems have also been developing. In the 1960s and 1970s, new regulations were established requiring companies to invest in anti-pollution strategies. The new regulations did not include any incentives for companies to recover their increased costs, and companies of the time responded in a reactionary manner to the new requirements. From the 1980s to the first half of the 1990s, the notion that environmental problems have a negative effect on corporate management came to be recognized. As a result, companies began to develop their own voluntary environmental strategies, based on the concept that preventive methods are financially beneficial in the long run. In 1991 the Japan Federation of Economic Organizations became one of the first in the world to establish an Earth Environmental Charter, and pledged to help its member companies in their voluntary environmental preservation activities. This event added a great deal of momentum to the environmental efforts of the nation's industries. The type of environmental management carried out by the majority of companies at the time, however, was still closer to reluctant acceptance of mandatory regulations than a proactive effort.

The second half of the 1990s saw a significant increase in the number of companies acquiring ISO14001 certification, releasing environmental reports, and setting their own voluntary targets, as well as many examples of voluntary practice of environmental management throughout entire corporate groups in preparation for export and sales in markets with a high level of environmental awareness, such as the EU. With the practice of environmental management becoming the norm rather than the exception in the late 1990s, companies without strong environmental strategies found it increasingly difficult to compete.

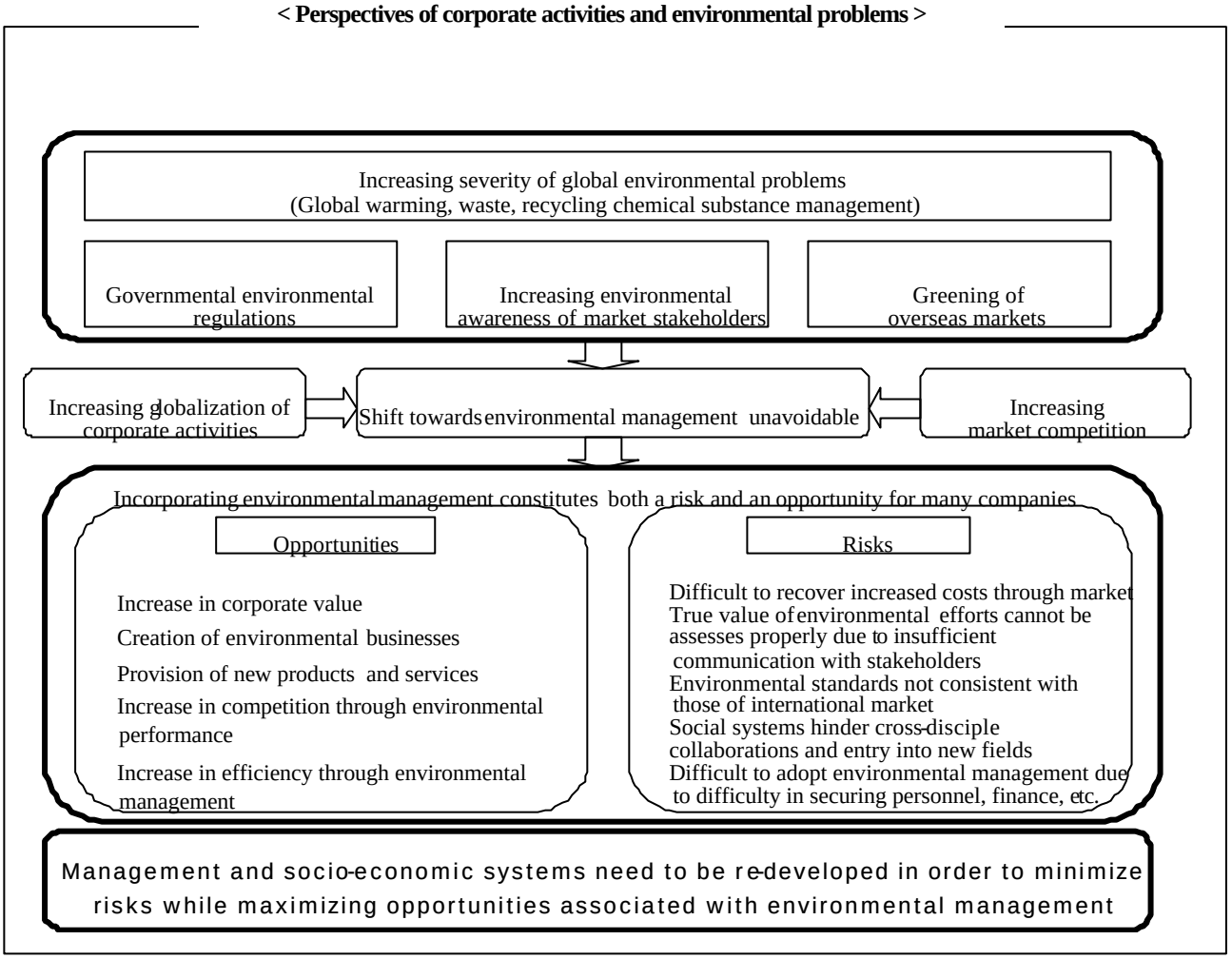
4. Expansion of the market for environmental businesses

The nation's market for environmental businesses is currently estimated to be in the order of 48 trillion yen. This is expected to expand further to reach 67 trillion yen by 2010. Environmental businesses currently provide employment for 1.36 million people. This is expected to expand to 1.7 million by 2010.

Chapter 2. Points at issue regarding eco-conscious economic development

1. Environmental and market issues

< Perspectives of corporate activities and environmental problems >



(1) Environmental regulations — risk or opportunity?

In today's world, companies are subject to a wide range of demands and regulations concerning environmental matters, including increasing social concern with the environment, tightening of national environmental laws and a rise of the notion of environmental preservation as a corporate social responsibility. Accordingly, the business management policies of each company vary considerably depending on whether they view such demands and regulations as a business opportunity or as an obstruction. It goes without saying that in the international marketplace, companies are forced to compete in a wide range of fields, not only environmental matters. In view of such circumstances, there is a strong need for the implementation of regulatory systems that allow corporate environmental efforts to be evaluated under fair and competitive conditions and that promote voluntary environmental efforts as a means to gain a competitive edge within the market.

Concerning this matter, the following opinion was raised within the Committee: "Although the international marketplace is not exactly fair in that companies' environmental efforts are not fully appreciated, companies are compensating for the difference with technology and know-how."

(2) Environmental costs

Companies face additional costs when carrying out environmental strategies. In the course of pursuing eco-conscious economic activities, the question of how to treat such additional costs is a topic of considerable debate. In connection with this, committee members voiced a variety of opinions, namely: "The notion of having society as a whole bear the costs of environmental preservation, as is popular

in Europe, is worth considering, but would require a national consensus. Although this would mean that companies and consumers would share environmental costs at a certain ratio." "In view of the heavy burden of environmental costs on small- and medium-sized companies, tax and subsidiary systems should be developed to help alleviate this." "There are various arguments as to who should bear environmental costs, but when you think about it, companies have the strongest potential to reduce such costs. Japanese companies in particular can be counted on to do this, as finding ways to cut costs is one of their strong points."

(3) Supply and demand in the marketplace

It is often claimed that the current market provides little opportunity for consumers or citizens to evaluate or appreciate the eco-conscious products or activities of companies. Regarding this matter, a number of committee members have recommended the creation of more opportunities for environmental education, citing the low level of environmental awareness among consumers and the lack of information disclosure by companies.

(4) Corporate management and environmental strategies

Regarding the relationship between corporate management and environmental strategies, the view that companies should emphasize economic factors while carrying out their social responsibilities is the most common. Regarding this matter, the Committee maintains a number of views, namely: "Although companies should actively deal with environmental matters, treating such as a social issue and acting as a member of society, in the case of joint-stock companies, they should carry out environmental measures only to the extent that they satisfy the interests of shareholders, as excessive environmental strategies may cause shareholder opposition." "The environmental costs to be borne by companies as social costs should be determined by the public and vary according to the degree of public concern."

2. Unification of environmental regulations and standards in domestic and overseas markets

One outcome of the increased global activities of the nation's corporations is that environmental activities carried out in an effort to improve competitiveness in overseas markets can serve to both help and hinder a company's competitiveness in domestic markets. Consequently, in the interests of fair market competition, the standardization of domestic and international environmental regulations and the establishment of international standards is essential.

Concerning this matter, the Committee put forth a number of views, namely: "In the EU market, domestically manufactured products are subject to the EEE directive and the Rohs directive under a government-initiated go-green policy. Although this has helped to improve the competitiveness of products in overseas markets, it has also served to make the products less competitive in domestic markets where environmental performance is less of an issue. In fact, domestic products are facing stiff price competition from imported products, which is completely unfair." "It is important that the Japanese market becomes a leading-product market in the interests of securing international competitiveness." "It is doubtful that the greening of markets of advanced nations will bring about a virtuous circle in their relationships with developing countries."

3. Points at issue concerning government environmental legislation and economic approaches

(1) Environmental regulations and voluntary efforts of companies

Another major point in question is whether the government should establish and enforce strict environmental regulations or merely support the voluntary environmental activities of companies, in its pursuit of environmental preservation. This issue deserves particular consideration, especially in today's market where the voluntary environmental activities of many companies are not always given their appropriate weight in the principle of the market mechanism.

Regarding this matter, the Committee voiced a number of views, namely: "The fundamental purpose of environmental regulations is to protect the environment. The setting of stringent environmental regulations is also a good thing as it will force companies to develop the technology to reach the targets, increasing their technological prowess and competitiveness in the process." "New environmental

regulations should be conservative; in fact they should function to enhance the voluntary environmental efforts already being performed by companies." "Regulations should be combined and balanced with the voluntary environmental activities of companies."

(2) Review of current administration of environmental regulations

Under the current regulations of national government and local authorities concerning air pollution, water quality and waste, etc., the ultimate responsibility for the activities of private industry remains with the government, as such activities are carried out under government approval. Accordingly, the question of the degree to which the government should be involved in corporate activities as a topic of considerable debate, especially in view of the current climate of widespread voluntary environmental activities and the trend towards eco-conscious economic development. Regarding this matter, the Committee voiced a number of views, namely: "Current environmental regulations should be relaxed, rationalized and coordinated in order to stimulate the creation of innovative businesses that embrace the principle of self-responsibility." "Regulations should be reviewed as they serve as a barrier, hindering the development of new environmental businesses." "The government should consider streamlining the authorization procedures of local authorities in line with the movement towards information disclosure." "We should consider the voluntary agreement system used in Europe as a method for promoting independence in industry."

(3) Review of economic measures by the government

In order to cover costs arising from environmental measures and establishment of conditions for free competition in the marketplace, the government utilizes economic measures such as subsidies and tax systems as part of its environmental policy. Another significant point in question regarding environmental policy is the diversification of economic measures. Regarding this matter, the committee holds two principal views , namely, that the government should do more to support the environmental activities of small and medium-sized companies through financial aid, and that it should promote expansion of green purchasing and setting of high environmental targets (i.e., higher than those set under subsidy systems, which are apt to hinder free competition) in companies that already carry out environmental activities as part of their business strategy.

4. Points at issue regarding environmental technology systems

The task of finding economically viable solutions to environmental problems will require the application of new technologies that can reduce the environmental impact of products and their manufacturing processes. At the same time, however, there remain a number of issues that must be resolved before the fruits of environmental technology can be transformed into viable businesses or even begin to contribute to environmental preservation. Accordingly, the support of the national government, regional authorities and researchers is essential. In addition, environmental technology is an objective-based technology, that is, a technology that aims to preserve and improve the environment for the good of society. Furthermore, it is a cross-disciplinary science involving a wide range of fields, such as materials technology and biotechnology. In view of these circumstances, steps should be taken to develop a cross-disciplinary network of experts so as to provide the opportunity for collaborative efforts that will lead to the development of new technologies. Moreover, the transfer of some of the nation's advanced environmental technologies such as energy-saving technology is an important example of the application of environmental technology.

Chapter 3. Current state and issues surrounding company management with environmental and economic goals

1. The advancement of corporate environmental activities - from production process to product & business management

(1) Advancement of voluntary environmental management

(i) Trends in domestic and international environmental management

The 1990s were marked by proposals from both domestic and international business circles for companies to make active efforts towards sustainable development and the creation of international standards for environmental management systems such as the ISO1400 series. Furthermore, recent years have also seen trends towards the establishment of standards for corporate social responsibility.

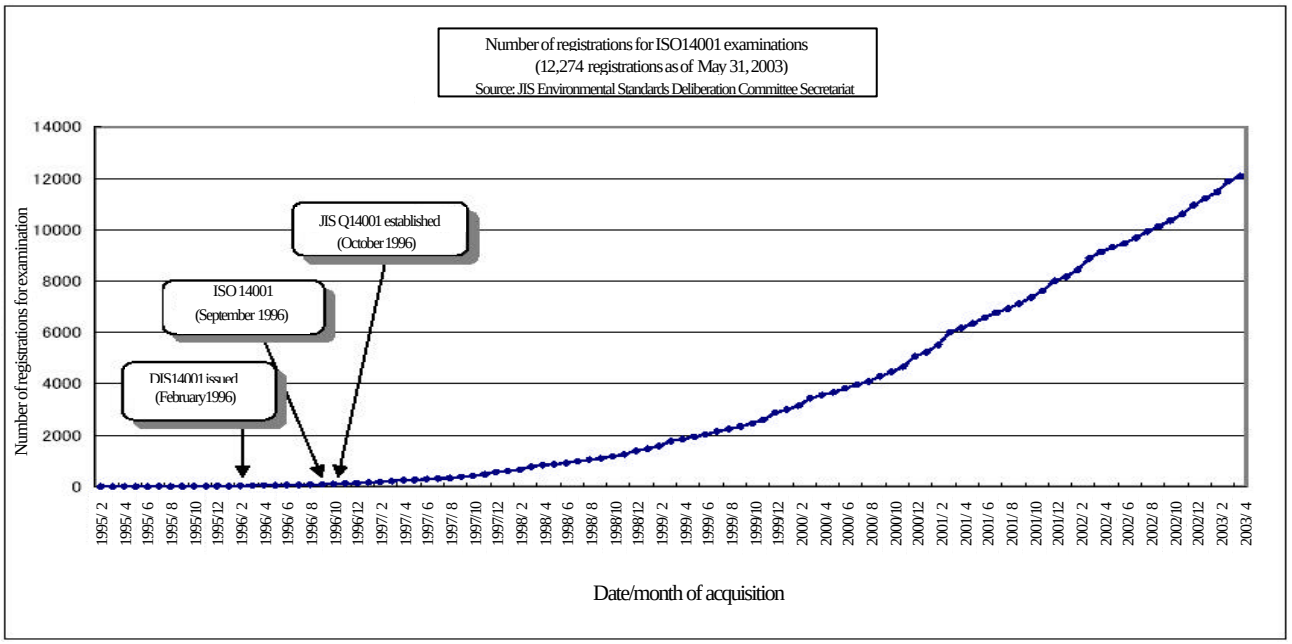
< Development of environmental management >

The first indication of resolute corporate efforts towards sustainable development occurred in 1991 when the International Chamber of Commerce released its "Industrial Charter for Sustainable Development." The release of this report helped set the stage for tightening of standards for environmental management at the Rio Summit in 1992 and the Johannesburg Summit in 2002 and prompted the development of environmental management standards by the ISO. The Japan Federation of Economic Organizations also released the world's first Earth Environment Charter.

Furthermore, recent years have seen a trend towards establishment and unification of standards for not only environmental matters but corporate social responsibility management systems as well. The ISO has started to examine the need to establish standards for Corporate Social Responsibility (CSR) and a draft proposal for the adoption of a common set of CSR regulations for the entire EU was released.

(ii) Diffusion of environmental management systems

Environmental management is practiced widely in Japan, as evidenced by the world's largest number of corporate registrations for ISO14001 examination. Furthermore, there has been a substantial increase in the number of regional authorities and other public administration bodies making efforts to attain ISO14001 certification.



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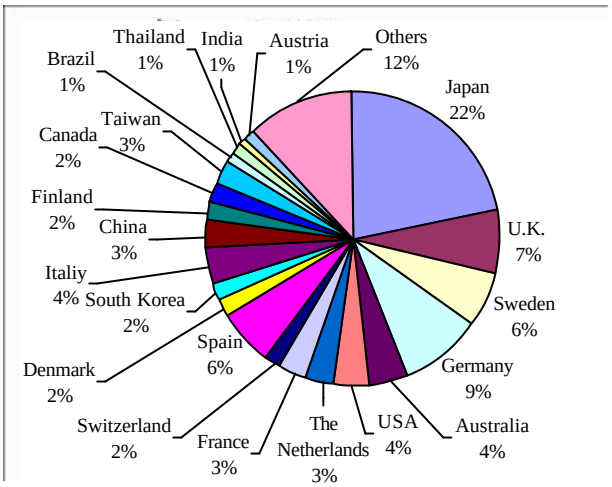


Total world registrations: 36, 765

(Registered with ISO as of Dec. 31, 2001)

(Source)JIS Website

(iii) The advancement of environmental governance

Recent years have seen a reinforcement of systems for improving corporate governance of environmental management systems, including improved company auditing systems and strengthening of relationships with stakeholders (employees, suppliers, consumers, NGOs, etc.) and a broadening of the scope of corporate responsibility to include social and environmental factors that take into account corporate ethics and long-term corporate profit.

(iv) Advancement of environmental accounting

Environmental accounting is a system of accounting that quantifies the environmental activities of a company so as to provide information for internal decision-making in much the same way as in managerial accounting. The Ministry of the Environment and the Ministry of the Economy, Trade and Industry advocate the spread of environmental accounting in their guidebook Environmental accounting has found favor with numerous companies, many of whom have used the system to improve yield on raw materials and reduce waste treatment costs.

(v) Offering incentives to employees who contribute to environmental management

Recently, we have seen increased use of incentive systems to reward employees who show exceptional performance in environmental management. Many companies implement environmental incentive systems by adding environmental features to their in-house award systems.

< Example of application of environmental management in performance evaluations >

Since the first half of fiscal 2000, the home appliance manufacturer "Company S" has used environmental activities as a measure of business performance in its domestic production divisions. Environmental matters account for 10% of items evaluated by the company. Points acquired for environmental performance are added to points acquired in other fields, and are taken into account when determining bonus payouts of section chiefs or managers of higher rank.

Environmental performance evaluations consist of "green product evaluations," which measure efforts and achievements related to the development of green products and "green factory evaluations," which measure efforts and achievements related to reducing the impact of the production site on the local and global environment.

Items evaluated in FY2002

Items evaluated		Detailed description
Green Products (GP)	1.GP achievement ratio	Number of certified GPs (Points given according to number of new GPs released for sale)
	2.**G** Seal acquisition ratio	Number of products with G seal on sale (Points given according to number of certified GPs)
Green Factory (GF)	3.CO2 Reduction ratio	Points given for degree of achievement of emission reduction targets.
	4.Zero emission reduction ratio	Points given for degree of achievement of plan for reduction of landfill amount.
	5.Chemical substance management	Points given for degree of achievement of plan for reduction of specified chemicals under PRTR law.

Certified GPs /	Products in compliance with standards set forth in the Green Products Guideline
G seal products /	Products that conform with the Green Seal Certification Standards (In-house standard for certifying green products with particularly high performance in energy and resource saving.) Products that meet these standards are marked with the official Green Seal
Final adjustment /	Evaluations made for overall efforts towards compliance, CO2 reductions, and prevention of waste and reduction of emissions, etc.

Note: The number of items evaluated, their relative importance and year-on-year performance advancement are reviewed each year.

(2) Advancement of eco-conscious products and services

(i) Use of LCA, DfE

In order to promote the development of eco-conscious products, many companies make use of a method called Design for Environment (DfE), with some even producing their own DfE guidelines. When designing a product under the under the DfE system, companies follow a pre-determined set of rules designed to promote energy saving, reduce use of harmful chemicals and increase use of used parts and recycled materials. Also, more companies are using the Life Cycle Assessment (LCA) method in the design and manufacture of eco-conscious products. Under this system, companies design products with low environmental impact following analysis of the potential environmental impact of the product throughout its entire life cycle, from procurement of raw materials to disposal. Standards for life cycle assessments have been established under the ISO1400 series. Furthermore, in 1998, the government initiated a 5-year national project to prepare inventory data to be used for life cycle assessments and evaluation of environmental impact. Prompted by this project, many companies also now disclose the results of such life cycle assessments in annual environmental reports.

(ii)Environmental efficiency

Environmental efficiency is the measurement of product improvement and service efficiency against environmental impact. It is determined by performing a relative comparison of environmental impact and the value of the product or service (e.g., product sales / environmental impact). The method was first put forward by the Wuppertal Institute of Germany in the early 1990s, and is currently being examined by various OECD governments. Being relatively easy to grasp, many business circles in Japan have showed interest the concept of environmental efficiency. Many companies now release data on environmental efficiency in their environmental reports, using their own methods of calculation.

(iii) Environmental JIS

The Japanese Industrial Standards Committee established its "Action Program to Promote Environmental JIS" in April 2002. The program calls for the establishment of 200 categories of environmental standards by April 2003.

(3) The development of greener production processes

Prompted by the bitter experiences undergone during the oil shocks in the 1970s, Japanese industries have made great strides in implementing energy-saving technologies, especially in high energy-consumption industries. More recently, an increasing number of companies have been implementing energy-saving technologies into production processes such as assembly systems and reducing the environmental impact of such processes by reducing waste generation, thereby contributing to improvement in management efficiency. Furthermore, there has been an upsurge inthe number of companies that have realized zero-emission and which contribute to the recycling of industrial waste.

(4) Advancement of corporate tie-ups between different industries

With the trend towards a tightening of environmental management, many companies are expanding their efforts for environmental procurement within the supply chain.When evaluating the qualities of a potential supplier, many companies now include environmental soundness as an important matter for consideration alongside the more conventional factors of quality, cost, delivery timeframe and financial strength, with some establishing their own green purchasing standards and guidelines. In order to improve the overall environmental performance of the supply chain, many companies are stepping up their efforts to form partnerships with different industries, especially those with small and medium-sized suppliers, whose cooperation is essential in order to realize an overall improvement. Such efforts are not only restricted to the supply chain. In the Chubu region some 300 companies have joined to form the non-profit organization EPOC in order to carry out collaborative projects, including the development of methods and evaluation systems for environmental management, training, and the development of universal systems for companies to disclose the state of their environmental efforts.

< Examples of collaborative efforts for promotion of environmental management >

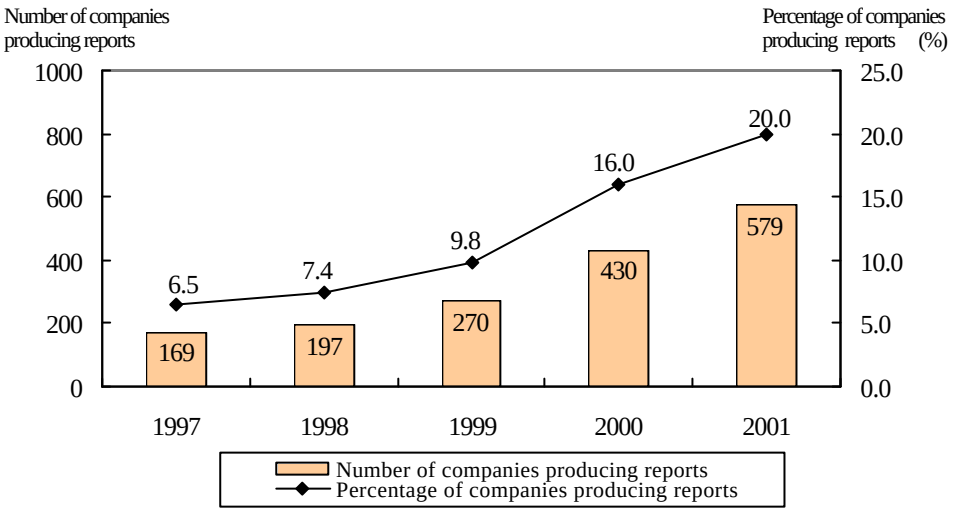
		Details of Efforts
Promotion of environmental strategies throughout the entire supply chain	**ISO14001 group exami-nations**	Company M performs group-based consulting and examinations in preparation for acquisition of ISO14001 certification, dividing its materials suppliers into five or six different groups. The company has compiled a compliance manual setting forth the activities common to each group. The aim of the examinations is to establish two environmental management systems, one for the elements common to each group and another for everything else in an effort to improve the efficiency and economy.
	Joint R&D	Company F performs joint research and development with its parts suppliers by holding meetings once or twice a month to discuss common themes regarding environmental strategies and to present reports on progress made in this regard. Under this system, each company is responsible for its own research and development. The effort has led to a number of new developments, which have served to strengthen the overall competitiveness of each supplier.
Provision of consulting services by large corporations to local industries	**Energy-saving diagnosis**	In FY 2000, Company E began an energy-saving consultation and diagnosis service targeting local industries. The service enjoys a good reputation. "We now know the direction to take in our energy-saving efforts," was the comment made by one local firm.
Promotion of environmental efforts by regionally based industrial group	**Environ-mental Partnership /CLUB (EPOC)**	In the Chubu region some 300 companies have joined to form the non-profit organization EPOC in order to carry out collaborative projects, including training, and the development of methods and evaluation systems for environmental management, and of universal systems for companies to disclose the state of their environmental efforts.

2. Disclosing data to stakeholders—the advancement of environmental communications

(1) Efforts to disclose information through environmental reports

The Environmental Ministry andthe Ministry of Economy, Trade and Industry have released guidelines advocating the release of environmental reports. According to the Environmental Ministry's report on corporate environmental activities (FY2002), the trend towards release of environmental data has been increasing throughout all industries, regardless of company size. Based on the number of replies received in a recent survey, the Ministry estimates that 20% of companies produce their own environmental reports and estimates that around 1,000 companies released such reports in FY2002.

Number of companies producing environmental reports



(Source: Environmental Ministry's "Examination of Environmentally-Sound Companies," FY2002)

(2) Development of environmental labels

The use of environmental labeling to provide information on the environmental performance of products and services has become popular among companies in recent years. The ISO has established three different categories of standards for environmental labels that are intended as a means of environmental management. Category I covers labels that are awarded by third parties in recognition of achievement of certain standards. Category II covers labels that indicate achievement of standards set by the manufacturer. Category III covers labels that indicate quantitative environmental information. In Japan, special symbols are used to indicate the type of environmental label concerned. Category III labels provide quantitative environmental information for the entire lifecycle of the product and are designed to allow the purchaser make up his/her mind as to the significance of this. The "Eco-Leaf Environmental Label," operated by the Japan Environmental Management Association for Industry (JEMA) is one such Category III label. As of November 2002, JEMA had registered 41 different products from 14 different companies in this category.

< Registrations for Eco-Leaf environmental label >

Products registered on Eco-Leaf (As of June 30, 2003)

Product type	Total points of registered products	Number of companies participating
Dry indirect electrostatic copiers	18	9
Polystyrene chip packing material	3	3
Disposable cameras	18	2
EP and IJ printers	13	10
Cameras(using silver-salt film)	3	5
Digital printers	4	3
Data projectors	0	7
Thermoelectric card printers	1	1
Facsimiles	2	8
Water supply meter boxes	4	3
Communication code	0	1
Hot-Water washing toilet seats	0	5
Structural aggregates	1	1
Ceramic products	0	2
Office desks	0	3
Digital cameras	1	7
Laptop computers	1	1
System Electric Power	0	3
Drainage covers	0	1

* "Number of companies participating" may include replications of the same company (Source: Website of Japan Environmental Management Association for Industry)

(3) State of environmental public relations activities

Many companies are employing a variety of innovative public relations efforts to raise awareness of their environmental preservation activities, including efforts to establish relationships with consumers, use of eco-products as advertising materials, presentation of green factories in advertising materials or environmental educational programs, indication of numerical targets, and even release of negative information in an effort to search for solutions with the help of users.

(4) Advancement of environmental communications

Many companies now perform "environmental communications," that is, provide environmental seminars and stage environmental events, etc. for local citizens and/or consumers in an effort to foster appreciation of their own environmental preservation activities.

< Examples of company environmental education programs >

The Eco-Nico Workshops (nico=smile)

In 1997, company S, a distribution company, established its Eco-Nico Workshops for children. Originally held at storefronts, the workshops were devised to awaken interest in the environment through the introduction of products with environmental features such as energy-saving and recycled products.

In recent years, the workshops have also been held at recycling plants and parks. In FY2001, the company held a total of 11 workshops, attended by a total of 5,555 children.

Eco-Kids Page

Company T, a brewing company, has established an "Eco-Kids" page for children within its website. The page has been designed to help children learn about environmental matters in a fun and lively way, and includes such menu headings as Woodland recycling factory (The riches of refuse), Digital picture card show (Where do all those used containers go?), and Our green balance sheet.

Environmental Energy Pavilion

In 1998, company T, a gas company, opened its "Environmental Energy Pavilion." The pavilion has been especially designed to allow children to learn about the environment and energy through fun, hands-on experiences.

The pavilion includes displays and theaters as well as working examples of solar batteries and miscellaneous water systems that can be operated and studied at will. A total of 980,000 people visited the pavilion in FY 2001.

3. Advancement of stakeholder demands regarding environmental activities

(1) Advancement of green purchasing and procurement

Green procurement is the practice of giving priority to environmentally sound products and services during the procurement or purchasing process. The practice of green purchasing is becoming more widespread among general consumers, businesses and governmental organizations. According to the Green Purchasing Survey (No.6) performed by the Green Purchasing Network (a voluntary organization) in October 2001, 75% of private industry and government offices practice green procurement of office supplies (stationary, office supplies, paper, office equipment, uniforms, vehicles, etc.), while 38% of companies practice green procurement of materials (parts, raw materials, wrapping, etc.). The survey also predicts the trend towards green procurement to gain further momentum in the future. An increasing number of companies are establishing their own standards and guidelines for green procurement when purchasing products. These guidelines set forth rules concerning the use of chemical substances in procured parts and raw materials, the reduction of environmental impact during the processing stage, and the use of raw materials with low environmental impact. Some even demand the establishment of environmental management systems certified to the ISO14001 standard. Furthermore, many home appliance and automobile manufacturers are stepping up their efforts to establish environmentally sound supply chains by setting global standards for green procurement. Another trend has been for corporate headquarters to attempt to establish common guidelines concerning use of chemical substances among its domestic affiliates and to work in cooperation with overseas industrial organizations to establish these as global standards.

(2) Eco-funds

Recent years have seen the creation of a market for eco-funds, which make direct investments into corporations with an environmentally sound business performance. This has come about as a result of the increasing concern of consumers and investors with environmental matters and the advancement of voluntary environmental efforts by corporations. The practice of socially responsible investment (SRI), has also been gaining momentum in Europe and the United States. Under SRI, investors consider social, environmental and ethical factors in addition to financial soundness when making investment decisions. In Japan, securities firms began offering eco-funds in August 1999. By June 2002, the eco-fund net asset amount exceeded ¥100 billion, illustrating the development of a distinct trend towards green investment.

(3) Environmental ranking systems

The practice of using environmental rankings to evaluate a company's environmental performance is becoming more widespread. In the United States and Europe, a number of environmental ranking companies already exist, and institutional investors often refer to environmental rankings when making investment decisions. In Japan the trend towards the provision of environmental information on companies and products has also taken root, as evidenced by the establishment of a number of academic societies and private ranking organizations, and the practice of ranking companies according to the results of surveys has become widespread. A typical example is the Environmental Management Survey performed by the Nihon Keizai Shimbun since 1997.

4. Issues associated with voluntary environmental management

(1) Strengthening personal and technical support in order to promote environmental management

The establishment and operation of a meaningful environmental management system can be a formidable task for many private industries, especially if they are small or medium in scale. Furthermore, cases of successful adoption of environmental management systems cannot always be replicated in other companies, as successful operation often hinges on the degree to which a system is customized to fit the characteristics of the company concerned. Accordingly, in order to establish an independent environmental management system tailored to their company's needs, companies must first strengthen their personal and technical support systems.

(2) Designing environmental management systems to promote independence within companies

The effectiveness of global standard environmental management systems such as those certified under the ISO14000 series largely depends on the way the system is adapted to fit in with the characteristics of the company concerned. Thus, in order to foster independence within a company and stimulate the creation of competitive environmental management systems in the marketplace, companies should be encouraged to take their own creative approach towards implementation. Government guidelines have played a significant role in prompting companies to produce environmental reports and adopt accounting systems. At the same time, however, this has occasionally led to perfunctory efforts, some of which even run counter to the original objectives of disclosure, that is, accountability and improvement in managerial efficiency. In order to avoid this situation, and in the interests of stimulating competition, it is therefore important to foster independence within companies and provide support for corporate environmental activities as well as to foster demand for green purchasing, etc.

(3) Establishing domestic environmental standards consistent with international standards

Given the increasingly global scope of corporate activities, the establishment of conditions for fair competition with overseas industry is essential, as is the need for international environmental standards concerning production processes and product specifications. Much thought needs to be given to the WTO theme of "Trade and the Environment," including evaluation of environmental factors in the domestic market. Furthermore, in the interests of preservation of the global environment, the government should be promoting nationwide efforts to establish Japan's advanced environmental and energy technologies as international standards.

Chapter 4. Current state of environmental businesses and related issues

1. Diversification of environmental businesses

Recent years have seen the emergence of many new environmental business models designed to support sustainable management. Many of these models were developed in response to the environmental problems associated with our social economy and include global warming prevention strategies, waste and recycling strategies, and chemical substance management strategies.

(1) Service businesses

A large number of service business models have been developed. These businesses aim to reduce environmental impact by creating businesses that will provide an economically viable solution to the environmental problems of the company concerned.

The emergence of energy service companies is an example of this. Such companies have made a new business out of specializing in energy-saving equipment and provision of performance-guaranteed energy-reduction solutions services, and are currently undergoing rapid expansion.

(2) New businesses using existing production facilities

Although Japan's domestic manufacturing industries have been facing tough international competition in recent years, a number have managed to carve out a new niche for themselves in recycling, using existing production facilities and know-how. Such new recycling businesses promise to play a leading role in public-oriented recycling activities in the future. An example of this type of business is steel manufacturers which recycle waste plastic as fuel in blast furnaces, thereby reducing reliance on overseas coal resources.

(3) Cross-industry tie-ups

Cross-industry tie-ups have become more commonplace in recent years. Such arrangements typically involve tie-ups between companies operating in different industries such as material suppliers and assemblers, or producers and waste disposers. The benefits of tie-up businesses include stability in supply of raw materials and more efficient use of existing facilities. Such arrangements are expected to bring about economic benefits while reducing environmental impact. Many examples of cross-industry tie-ups can be seen in eco-town businesses where companies often join forces to carry out waste collection, reuse discarded materials, maintain joint facilities and perform joint sales. The collection of waste paper from such eco-towns by paper manufacturers is another good example. By forming a cooperative relationship with citizen groups for the collection of used paper, paper manufacturers are assured of a stable supply of paper for recycling while the citizen groups achieve green procurement through the purchase of recycled paper.

< Examples of Businesses performed at eco-towns >

Location	Overview	Examples of tie-up businesses
Zero-emission industrial park in Kawasaki Eco-Town	• 13 companies (paper manufacturers, metal processors, electroplaters, casters, etc.) set up operations within the park, forming a partnership in the process. • By forming business tie-ups with each other, and with other companies in the region, companies can find solutions to waste problems that are beyond the capacity of each individual business.	• Waste paper that arises within the group is collected by the group and recycled by companies within the zero-emission industrial park. • Waste plastic that arises within the group is collected by the group and reused as blast furnace fuel at another eco-town near the sea in Kawasaki. • The energy emitted from heating furnaces and incinerators is reused as heat energy. • Incineration ash is reused in cement making. • Raw garbage arising within the group is turned into compost and used as fertilizer in the gardens around the industrial park.
Automobile recycling company in Hibiki Recycle Industrial Park in Kita Kyushu Eco-Town	• The Hibiki Recycle Industrial Park is being developed to support small-and medium sized businesses. • The Kita Kyushu ELV, a partnership consisting of 7 local companies, established an automobile recycling zone. The partnership began construction of the zone in September 2001and began recycling operations in May 2002. The aim of the zone is to entice the various dismantling companies dotted around the city to move to the park where vehicles can be recycled using efficient, environmentally sound methods.	(Common parts warehouse) The partnership has established a common warehouse for storing and managing parts removed from vehicles such as bumpers, doors, engines and electrical system parts. Inventory control is fully computerized. The warehouse supplies parts directly to the used part market. (Joint processing businesses) The partnership has also established a body processing system for vehicles that have had their engines and other parts removed. During processing, the body is crushed into a block after removing the wiring and glass, etc. (Joint sales businesses) The partnership performs package sales of commercial metals such as steel and aluminum.
PET bottle recycling operation in Sapporo Eco-Town	• The Sapporo municipal government formed a partnership with private industry to establish the Sapporo Recycling Industrial Park, a specialized recycling facility. • The land for the park was provided under a leasing system in order to promote development of sites and reduce the initial investment of new businesses entering the park.	• The municipal government joined forces with two private companies to develop an efficient PET bottle recycling system. • The tasks of flaking the PET bottles, turning them into sheets, and applying the sheets to other uses has been divided into three separate operations. • The partnership solved the problem of finding sales outlets for the recycled products by joining with consumer cooperatives, the users of the original bottles. • The sheets created through PET bottle recycling are used as raw materials in packaging for confectionary, eggs, etc.

(4) Community businesses

Recent years have seen the development of new community-based businesses that combine the resources of local industry, regional authorities and local residents to develop products and services with a strong local flavor, thereby stimulating and providing employment within the local community. A good example of a community business is the Rape Blossom Project carried out by the Shiga Prefecture Environmental Cooperative Group. Under this project, the group produces rapeseed oil, which it sells as cooking oil to local schools and supermarkets. The group grows rape flowers in disused paddocks, and performs all operations including planting, harvesting, pressing, refining and distribution. The group even reuses the leftover seed husks as fertilizer and recovers used oil for further processing into bio-diesel, which is then used as a fuel for public vehicles, garbage collection trucks, farm tractors and fishing boats.

(5) Eco-product businesses

Eco-product businesses are businesses that deal with the supply of environmentally sound eco-products such as energy-saving products, 3R products, and products free of hazardous chemicals. Although such products are sold at higher prices than general products, they often can compete on the strength of brand image and high eco-performance such as long-life and waste reduction. A typical eco-product is the inverter-type fluorescent light. Such lights boast high energy-efficiency and help to reduce CO2 emissions and waste, and have remained strong sellers even as sales for fluorescent lights have fallen.

2. Issues associated with the expansion of the environmental business market

(1) Securing public acceptance for environmental business sites

One of the essential conditions for successful commercialization of a new environmental technology is the securing and public acceptance of the production site. This in itself involves considerable effort, including assurance of transparency and accountability by the company concerned, as well as coordination of requirements for development of environmental businesses by the local authorities.

(2) Establishment of business networks

In order to promote speed and efficiency in efforts to tackle common environmental problems, it is necessary to execute cooperative businesses that make the most of the resources of each business sector. Specifically, this will mean the development of new business models such as tie-ups between businesses and suppliers / distributors of environmentally sound materials within the supply chain, cross-industry tie-ups to ensure more effective use of existing facilities, and multi-level tie-ups between regional authorities, consumers and NPOs, etc.

(3) Opening of government businesses by regional authorities - Prospects for the public market

Recent years have seen increased demands for reforms in government policy, including administrative policy (e.g., decentralization of regional authorities and the opening of the public service market to private industry); commercial, industrial and urban development policy (e.g., support for creation of new businesses designed to increase tax revenues and employment and stimulate the local economy and develop local communities); and waste and recycling policy (e.g. restrictions on landfill sites). Environmental businesses are expected to play a significant role in realizing these demands. In addressing these demands, it is hoped that government authorities will transform themselves from mere administrators of environmental regulations into multi-functional bodies that can provide information to support the environmental efforts of citizens and companies, provide incentives and coordinate tie-up operations, improve the overall environmental performance of local regions, and expand the public market by contracting government-run environmental businesses to private industry.

(4) Providing incentives for the development of innovative business models

The creation of new, innovative business models is vital to the development and maintenance of sustainable business operations. Without the proper conditions for growth, however, many new business models will never develop their full potential. Accordingly, it is essential for the government to establish incentive systems to encourage businesses to make full use of their creative talents. Ideally, such systems will allow companies who actively develop environmentally sound products and services to acquire competitiveness and proper recognition within the marketplace. Of particular importance is the encouragement and support of new business models that inspire a transformation within our economic system towards provision of functions and performance rather than mere products.

(5) Development of overseas businesses

The nation's environmental businesses have the potential to make even greater contributions to environmental preservation if they can be applied in overseas countries. Specifically, this would mean global application by the ODA of the nation's environmental technology such as energy-saving and waste processing technology and development of recycling and water processing technologies in developing countries. Companies with advanced environmental technologies should consider such applications as an opportunity to enhance business as well as to contribute to environmental preservation on a global scale.

3. Issues associated with expansion of recycling businesses

(1) Promoting use of existing facilities in arterial businesses

Recycling businesses must reduce the cost of recycled materials further so as to remain competitive with suppliers of virgin raw materials. In order to achieve this, such businesses must make greater use of existing production systems, devise and execute business models with lower depreciation costs, and make environmental efforts beyond their normal scope of business as well as efforts to develop new markets for recycled materials. At the same time, however, in view of the considerable risk involved in realizing such goals, recycling businesses also require governmental support.

(2) Promotion of multiple business tie-ups to receive benefits of scale

Material recycling businesses often suffer from the inherent risks of poor stability of product quality and supply volume. Nevertheless, by forming collaborative relationships of right mix of scale and variety, it is possible to reduce this risk considerably. Specifically, this would involve the formation of multiple business tie-ups over a broad area, including cross-discipline collaborations, and tie-ups with businesses in other cities and prefectures. Needless to say, the government needs toestablish support systems to encourage this.

(3) Proposal of recycling models involving overseas markets

Recent years have seen an increasing trend towards the export of recycled resources and used products. In view of this trend, the government should consider new business models involving recycled products in overseas markets. This should be carried out with due consideration, however, taking into account the provisions of the Basel Convention and the need to strike a balance with domestic recycling facilities, and with sufficient precautions to ensure that this does not lead to illegal disposal or treatment of waste in overseas countries. Prompted by the difficulty in securing stable supplies of recycled materials in overseas sites, a number of Japanese companies have already began exports in waste plastic chips for use in their own factories abroad. In view of this situation, the establishment of recycling networks in East Asia is a matter of particular importance.

(4) Achievement of transparency and consistency in legal systems

The Waste Disposal Treatment Law, the laws and regulations of the legal systems of local authorities, and their execution are also in need of review in order to encourage development of the recycling industry.

Chapter 5. Current state of environmental preservation activities involving collaborative efforts of citizens, businesses and public administration

1. Advancement of cross-sector collaborative businesses operations

(1) Environmental preservation activities by local citizens

Following the enactment of the NPO law in 1998 there has been a surge in environmental activities of local citizens, including the formulation of a large number of NPOs, and activities aimed at revitalizing local economies, community building, and environmental improvement. A number of these activities have developed into sustainable community-based businesses, which should be recognized as proper environmental businesses in their own right.

(2) Current state of environmental preservation activities involving collaborative efforts of citizens and businesses

An increasing number of companies are involving citizens and NPOs in their environmental preservation efforts, which include information disclosure, provision of eco-conscious products and services that respond to consumer needs, and implementation of philanthropic efforts and taking greater social responsibility.

< Relationships between companies, citizens and NPOs >

- Many of the nation's corporations now work in cooperation with citizens and NPOs when performing environmental activities.
- Such cooperative efforts bring many advantages to companies and NPOs alike. In the case of companies, collaborating with an NPO can serve to improve transparency and reputation, while making it easier to keep in touch with consumer opinion when performing environmental activities. NPOs, on the other hand, can make use of the financial support and networking opportunities afforded by the relationship, which in turn can enable the pursuit of bigger and better projects normally out of reach.

Type of collaborative effort	Examples in practice
Joint operation	The Tokyo Electric Power Company (TEPCO) made a donation of funds to the Renewable Energy Promoting Peoples' Forum (NPO), which in turn uses it to offer financial assistance to persons who install solar power systems in their homes. TEPCO also collects data on the amount of power generated by the systems to support its efforts to promote home solar power generation systems.
Product development	Toshiba had The Natural Step, Japan (NPO) present a seminar for its employees who work in new product development. The company also develops prototypes of products based on the principal of sustainable development as advocated by The Natural Step.
Environmental reports	NEC produces environmental reports in cooperation with the NPO, The Japan Association of Environment and Society for the 21st Century (JAES 21) as part of a 3-year joint project. The foremost objectives of the effort are (1) to produce clear, stimulating environmental reports that will appeal to a wide audience, and (2) to promote further environmental efforts.
Recycle center management & operation	Tama Eco FTC, the cooperative in charge of treating garbage produced within Tama New Town, has subcontracted the operation and management of its recycling center to the Tokyo Tama Citizen's Recycling Federation (NPO). At the recycling center, the federation recycles raw garbage, repairs and sells bicycles, and posts information on unwanted goods for sale. In the near future it hopes to offer guided tours of the center's waste treatment plant and recycling workshops.
Cooperative efforts between labor unions and local citizens	The labor unions of Toyota, Panasonic and Tokyo Gas perform environmental activities in cooperation with local citizens and regional authorities.

(3) Regional authority coordination activities

Prompted by the limitations of efforts to lure industry into regional areas, regional authorities have been making efforts to spur local development using local human resources. Part of this involves the development and coordination of cooperative projects with NPOs, which support the objectives of both industry and local citizens. NPO-backed environmental preservation activities have proven to be instrumental in helping the government to achieve is local development plans. The following describes three typical examples of such collaborative efforts: In Tajimi, Gifu Prefecture, the municipal government has embarked on a collaborative project involving citizens groups, local residents, and elementary schools to maintain and manage the "Medaka Douri," a canal running through the city. In Iwate Prefecture, residents, businesses and environmental organizations have joined forces to form the "Environmental Partnership," a network that conducts mutual dialog and other activities concerning environmental matters. In Sendai, the municipal authorities held a "Citizens' Activity Exhibition" in an effort to promote the formation of collaborative relationships between NPOs and private companies. NPOs planned and executed many of the exhibition events, which included examples of collaborative efforts between NPOs and industry, and proposals for new joint projects.

2. Issues associated with expansion of collaborative efforts

(1) The development of environmental activity networks as a citizens' movement

The cause of Japan's current environmental problems is not due to any a single factor but to a vast range of elements involving everything from the day-to-day activities of individuals to the business operations of major corporations. In light of these circumstances, any endeavor to resolve such problems should be a well-coordinated collaborative effort involving all entities of society. Above all, coordination is of vital importance. A lack of coordination between consumer demand and green product development, for example, will merely render the manufacturer's environmental efforts ineffective. By the same token, companies with bold new proposals to establish environmental R&D centers in regional areas are likely to find their plans thwarted if they fail to acquire understanding and acceptance from local residents and authorities. In light of these circumstances, the development of a national network for environmental activities is

desirable. The network should be of a large scale, enabling participation by all people on all levels, and be coordinated so that overall cross-industry collaborations and cooperative arrangements bring about a synergy effect and combine and develop into a nationwide movement.

(2) Pivotal role of NPOs in socio-economic activities

Given the nation's expanding proportion of senior citizens and shrinking child population, the task of encouraging involvement of regional citizens in environmental activities has become increasingly important. One way to achieve this is to promote increased involvement by citizens' groups and private individuals in NPOs. In view of this, NPOs are now expected to play a pivotal role in increasing local participation and interest in environmental matters. Furthermore, increased participation by local citizens will also lead to improved efficiency in administrative activities of regional authorities as well as stimulate urban development. Given the effectiveness thereof, participation by citizens' groups in environmental preservation activities is both important and desirable, as are collaborative efforts between corporations, local authorities and NPOs.

(3) Private and public participation in urban development

Given that environmental issues are also economic problems that affect the whole of society, they should be tackled through a variety of activities, including those involving ordinary citizens, such as collaborative efforts between companies and citizens' groups. This could be achieved by involving local citizens in environmentally oriented urban development projects, such as those that use lifecycle assessments as a key design factor. Projects such as this so would also serve to increase the understanding and acceptance of environmental undertakings by local citizens.

Chapter 6. Proposals for simultaneous pursuit of environmental and economic interests

The achievement of environmentally sound economic development is a worldwide issue.

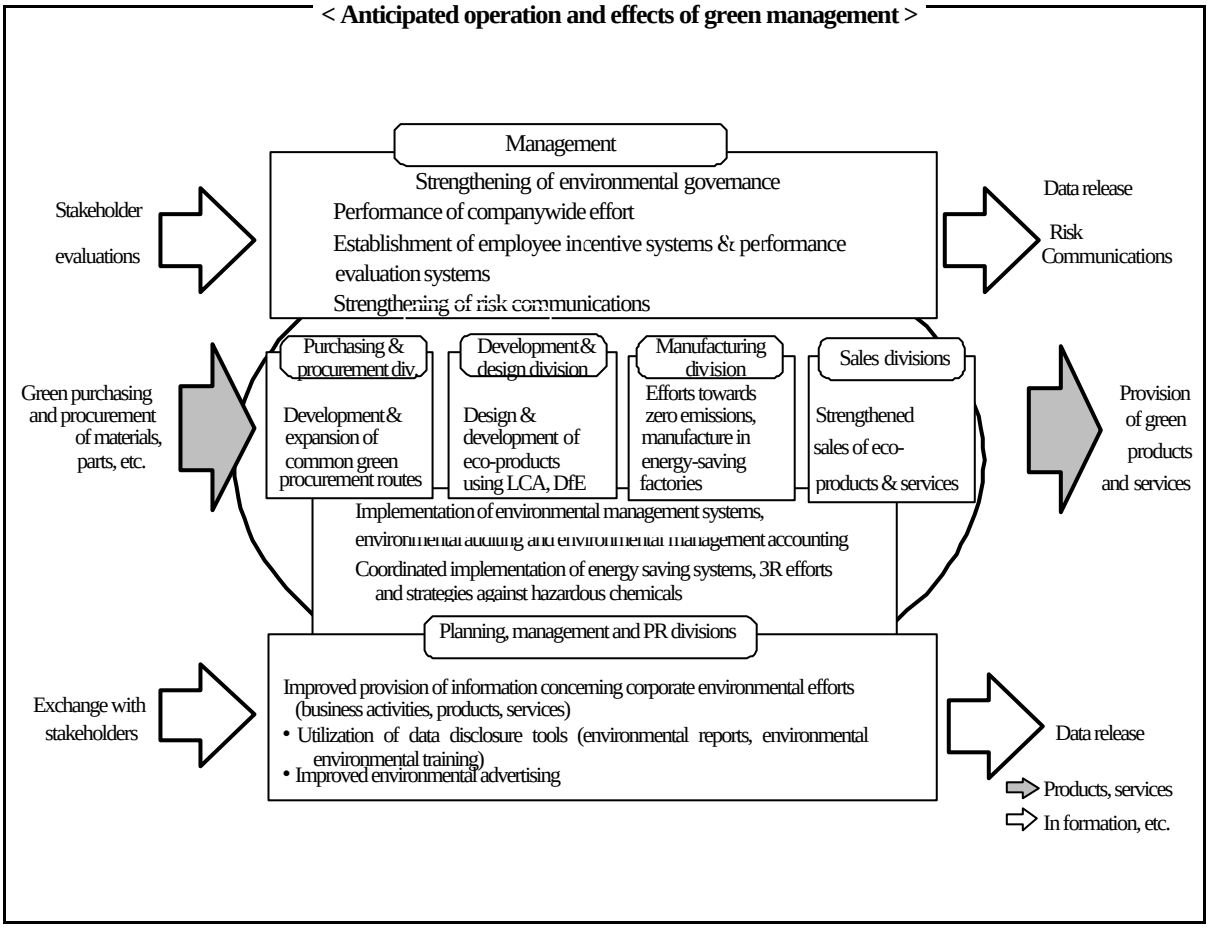
The world currently faces environmental problems on a global scale, including global warming, waste disposal, recycling and chemical substance management. Given that the causes of these problems are multiple, involving a vast range of economic entities, it is reasonable to ask that each company, group and person should make efforts to increase their understanding of environmental problems and actively undertake environmental activities. Specifically, this means that the nation should work towards becoming the world's first economy to pursue and achieve of dual policy of environmental preservation and economic development. The first step towards this is performance of voluntary activities by companies, consumers, and investors and the provision of environmental information to stakeholders. Such efforts would stimulate activities in individual markets that would trickle down to stimulate the overall economy, finally developing into nationwide citizens movements.

It is hoped that this proposal will serve as the basis for future policy of stakeholders in the marketplace and as a reference when determining future efforts by regional authorities.

Furthermore, the underlying theme of "go green" in this proposal has been used to emphasize the importance of strengthening efforts towards environmental preservation in all fields while keeping in mind the rationale of socio-economic factors.

1. Anticipated effects of corporate activities - Green management

The activities performed by companies account for a significant proportion of all social and economic activities. Consequently, an issue of considerable interest for such companies is how to buildenvironmental factors into products while maintaining the profitability of the product concerned. Recent years have seen an increasing number of companies make voluntary efforts to build environmental considerations into their corporate management policy, actively producing and supplying environmentally sound products and services while improving business management and efficiency in the process. Such trends signal the establishment of a business culture that places as much importance on environmental protection as it does on pursuit of economic goals, and which promises to serve as a driving force for increasing the competitiveness of companies in this new age of increasing environmental demands.



(1) Environmental management systems and corporate governance

In Japan, many companies now incorporate environmental considerations into their day-to-day corporate activities in a way that is both effective and economically viable. In the majority of cases, the company president takes the leading role in setting the company managerial and environmental policy while the executive staff develop and carry out strategies and methods for its execution. In view of the dangers associated with waste disposal and management of chemical substance (when left to themselves, even small problems can develop into serious environmental problems that can threaten the very foundations of management), many companies develop manuals setting forth procedures for emergency response and daily monitoring and assessment tasks. Furthermore, in addition to corporate monitoring systems, a number of companies now practice corporate governance by allowing greater participation in corporate affairs by stakeholders such as shareholders and consumers.

We hope that Japan's corporations actively implement corporate governance as a vital tool for improving environmental performance and market competitiveness. Specifically, this will mean improving transparency and accountability in regard to environmental management policy and organizational structures, strengthening risk management performance, and improving operational efficiency through environmental accounting such as material flow cost accounting.

(2) Expanding the scope of environmental information provided by companies

When a company voluntarily pursues environmentally sound business activities that are well documented and presented to the public, it not only enhances the company's reputation but also brings it added economic value. The practice of providing regular, well-documented information to the public, however, is still not firmly established in many of the country's firms. However, given the fact that the number of companies releasing environmental reports is believed to be in excess of 1,000, it stands to reason that many stakeholders

do not fully appreciate the efforts being put into information release. Accordingly, it is hoped that companies will step up their efforts to provide further information to stakeholders. Consumers in particular need information concerning the environmental activities of distributors, wholesalers and retailers, considering the roles that such businesses play in their daily lives. It is also desirable that they be provided with environmentally sound products and services. This means that companies should make greater efforts to promote disclosure of environmental information such as environmental reports, make greater use of advertising to raise awareness of environmentally oriented brands, and promote use of environmental labels, as well as providing environmental seminars for citizens.

(3) Promotion of environmentally sound production processes and services

Prompted by the bitter experiences of the oil shocks in the 1970s, Japanese industries have made great strides in implementing energy-saving technologies, especially in high energy-consumption industries. Today, an increasing number of factories are making efforts to reduce landfill waste, some even achieving zero emission through on-site reuse and stringent application of waste separation procedures. In the assembly and processing industry, many companies have converted to cell-based production systems, which offer greater efficiency and flexibility towards fluctuations in demand, besides helping to reduce energy consumption and reduce waste.

Efforts such as these lead to direct improvements in managerial efficiency while reducing environmental impact. In this respect, they are ideal arrangements that realize the dual objectives of economic development and environmental preservation. Accordingly, such arrangements are expected to play a significant role in the development of sound production processes in the future.

Currently, personal use and transportation use are being called upon to execute measures against global warming. Companies are responding to such demands by improving energy efficiency and reducing the use of hazardous substances in the development of products and services.

In response to the establishment of new regulations such as the Top Runner standards under the Energy Saving Law, and prompted by the environmental regulations in force in Europe, companies are now designing and producing products with high environmental performance. Examples include the development and supply of energy-saving home appliances, the development of low-pollution vehicles such as fuel cell-powered vehicles, and the use of lead-free solder and development of non-CFC air conditioners, etc. Furthermore, in addition to production systems that use recycled parts, recycling systems that incorporate the three Rs (Reduce, Reuse and Recycle) are beginning to emerge. As illustrated by these examples, the supply chain for supporting the development of eco-products is becoming greener, with more and more companies incorporating environmental management systems, performing LCA assessments, and keeping chemical substance inventories.

In the future, the trend towards voluntary environmental preservation activities such as these is expected to increase further. The challenge now is for companies to promote voluntary efforts for the development and implementation of innovative new technologies, commercialize environmental technologies using DfE, continue development of an environmentally sound supply chain, supply eco-products, and release environmental information to overseas audiences.

(4) Towards innovative environmental businesses

In order to solve environmental problems in an economically viable way, the commercialization of innovative new environmental businesses by private industry is essential. Recent years have seen the emergence of environmental businesses that solve other companies' environmental problems through the provision and execution of solutions such as ESCO (Energy Service Company) operations and site ground contamination cleanup services. We hope to see further development of innovative new business models such as these by private industry. Another area of expansion is environmental businesses borne from cross-discipline, cross-industry collaborative efforts, and the future also looks bright for environmental businesses such as tie-ups between material manufacturers and assemblers, as well as new businesses that utilize existing production facilities.

The key advocators of these new environmental businesses are expected to emerge from a number of fields including existing businesses, venture businesses, citizens' movements, and newly privatized government businesses. In light of these circumstances, the

government should develop systems to promote the creation of new businesses , such as financial support systems and deregulation.

Furthermore, given that such innovative environmental businesses will also contribute to overseas environmental preservation, the government is counting on the nation's corporations to make further efforts to establish environmental businesses in overseas countries using technologies with good potential for local application.

(5) Dialogue and cooperation with stakeholders

In the course of reinforcing their environmental management efforts, companies need to promote further dialogue and collaboration with their stakeholders, keeping in mind that stakeholders constitute a diverse group, many of which are already involved in environmental activities.

2. Expected activities of stakeholders - The development of an environmentally sound market

In our economy, the market is affected by not only corporate activities but also by those of stakeholders such as shareholders, investors, suppliers, consumers and financial institutions. Accordingly, companies who fail to obtain the understanding and appreciation of their stakeholders will find it difficult to establish sustainable management. Furthermore, the activities of external stakeholders may have a significant impact on the activities of such companies.

In the USA, activities by citizens groups such as NPOs, socially responsible investment, and consumer trends have a significant impact on corporate activities.

In recent years, the nation has seen a surge in stakeholder-related environmental efforts such as the advancement of environmental NPOs, the development of eco-funds, the expansion of green procurement in consumption, etc. It is hoped that not only stakeholders but all market entities will become involved in environmental preservation activities in the future.

(1) Towards greener business transactions

Besides setting standards for procurement necessary for the production / supply of products and materials such as raw materials, parts, etc., businesses also function as consumers of office supplies and equipment. Therefore, it is hoped that companies will make efforts to promote greener business-to-business transactions that will help to improve the environmental competitiveness of the nation's companies, including small- and medium-sized companies.

(2) Towards greener financing and investment

Being key corporate stakeholders, financial institutions not only play an important role in securing the funds that help to realize projects, but they are also in a position to factor in environmental evaluations and strategies when determining loans, conditions or business plans. Accordingly, financial institutions are expected to play a significant role in providing incentives for companies to pursue voluntary environmental strategies.

(3) Towards greener consumption

Many citizens' groups, families and individual citizens are making efforts towards green purchasing, energy saving and reduction and separation of household refuse. We look forward to further expansion of such grass-roots environmental preservation activities, and believe that companies and local authorities can play a significant role in supporting this.

(4) Towards greener citizens movements

Environmental NPOs and other citizen-based groups are becoming increasingly active. It is hoped that private industry will form partnerships with such groups and that local authority coordination between private industry and NPOs will help to stimulate local economies.

3. Expectations of regional authorities - Development of environmentally sound regional policy

The nation's local authorities are making efforts to improve the environmental performance of their administrative activities through acquisition of ISO14001 and improvement of operational efficiency. An increasing number of authorities are applying environmental efforts in regional business circles and urban development policy. Accordingly, what is needed is a merging of the policies of various government departments towards the common goal of environmentally sound urban development. These include the environmental departments (which deal directly with waste problems and environmental preservation of local authorities), the commercial and industrial labor departments (which deal with industrial advancement and employment strategies), the citizens' life departments (which deal with urban planning and support of citizens' movements such as NPOs), the Education Committee (which handles educational matters) and the financial and construction departments (which deal with green purchasing and procurement). It is also hoped that these government departments will make further efforts to transform themselves from mere administrators of environmental regulations into bodies that that actively contribute to regional industrial and urban development, while at the same time preserving nature.

It is hoped that such eco-conscious urban planning will promote regional environmental preservation efforts, serve as a domestic and international example of an eco-conscious economic model, and help to stimulate local economies.

(1) Promotion of environmentally sound urban development - coordinating activities of citizens and private industry

Ideally, local authorities should function to coordinate the environmental strategies of local industry and the various environmental activities of local citizens. The coordination activities should bring about a synergy effect between companies and local citizens, as well as stimulate the local economy through urban development and creation of new employment opportunities.

(2) Opening of the public market to environmental undertakings

A large proportion of the undertakings concerning environmental matters under the jurisdiction of regional authorities are performed by government-run businesses. In view of the potential for stimulation of local economies and provision of employment opportunities, it is desirable that such undertakings be sub-contracted to private industry.

(3) Support of citizens' movements and education concerning environmental matters

Efforts towards citizen's environmental education are also on the rise. It is desirable that regional authorities play a significant role in securing environmental instructors in regional areas and help coordinate the activities of employees of local industries.

(4) Promotion of environmental education

Given that local authorities are the directors of elementary and intermediate education, it is desirable that they play a significant role in incorporating environmental matters into school educational programs. This is a realistic objective now that schools are afforded greater freedom in choosing the content of their educational programs and given the rising awareness in the importance of adapting curricula to suit the characteristics of each region. It is hoped that educational programs will cover items such as the importance of executing strategies to tackle the problems of global warming, waste, recycling, and chemical substance management, as well as acknowledging the importance of environmental efforts by local citizens.

4. Harnessing the nation's potential - Environmentally sound national policy

The development and execution of sound environmental policy in Japan is expected to promote voluntary efforts by various stakeholders such as companies, consumers, investors, citizens and governmental organizations and promote the voluntary environmental preservation efforts by companies, thereby leading to the development of rules for competition in the global market and the development of international recycling mechanisms.

Accordingly, it is hoped that environmental policy will be developed to stimulate demand for environmental education and support voluntary environmental preservation efforts by private industry, thereby leading to an increase in green purchasing.

Furthermore, the national government is expected to play a role in the development of networks between citizens, companies and

regional authorities, in view of the fact that cooperation between stakeholders is essential in the pursuit of eco-conscious economic development.

In the course of implementing environmental regulations, policymakers will need to carefully consider the positive effects that a national environmental preservation policy will bring to the economy, namely, that environmentally oriented economic activity is the very means of achievement of sustainable development, and that pursuit of such policy will serve to enhance the value of Japanese products and services in the international market.

(1) Support for companies performing voluntary environmental management

Giving companies the incentive to make voluntary efforts towards environmental preservation activities is an important issue. However, it appears likely that companies engage in environmental activities if it can be assured that:

(a) The environmental preservation activities themselves will help to improve the efficiency of the company concerned and,

(b) The environmental preservation activities will receive market recognition, which in turn will lead to added economic value.

To ensure that voluntary environmental efforts will lead to economic benefits and added value, it will be necessary to develop the socio-economic structures to support this.

(i) Research, development and application of environmental management systems

In the interests of operational efficiency improvement, it is desirable that further research, development and application be made of environmental management systems such as those in the ISO14000 series, environmental accounting, environmental efficiency evaluation methods and LCA, DfE, etc. The national government is expected to assist companies who pursue these goals, especially small and medium-sized companies, by offering technical guidance and staff development assistance.

(ii) Supporting overseas development of advanced environmental business models

The national government will need to assist companies to commercialize and develop innovative business models in overseas markets. Furthermore, it will need to support cross-industry tie-ups aimed at commercializing environmental technologies and businesses.

(iii) Development of methods to evaluate environmental strategies and businesses , and development of data infrastructure

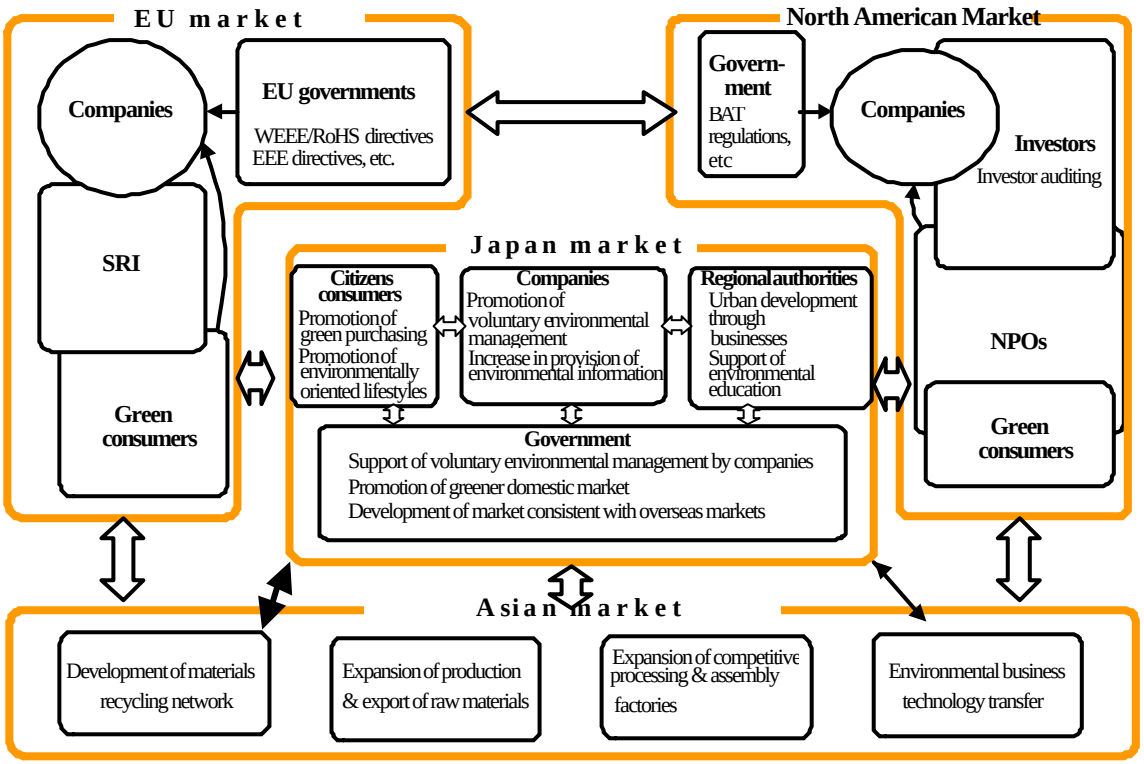
It will be necessary to develop methods to evaluate the environmental strategies of companies and the economic performance of such strategies, as well as a database to process the data disclosed by such companies. Furthermore, the proactive disclosure of a wide range of environmental information compiled by the government will also play an important role in promoting environmental education and increasing the level of stakeholder interest in environmental matters.

(2) Development of environmental standards consistent with those in overseas markets and recycling networks

In the interests of promotion of voluntary environmental efforts by companies, it is important that the implementation of environmentally sound production processes and the provision of environmentally sound products and services be given proper recognition in the marketplace. We now live in a world where establishment of production bases, procurement of raw materials and sale of products occur on a global scale, and price-competitive materials and products from Asia are a regular feature of domestic markets. One factor that can still have significant influence on the competitiveness of such products and trade is environmental standards. The desire for environmental preservation is a common value throughout the world. It therefore stands to reason that companies that purse this desire should be evaluated according to common global standards.

Recent years have seen a rise in overseas exports of recyclable resources, partly due to changes in domestic production bases and a sharp increase in the amount of recyclable resources recovered. This situation has prompted a number of criticisms to the effect that it will be impossible to achieve a fully recycling-oriented society through domestic markets alone. In order to alleviate this situation, it is therefore necessary to develop an international recycling system based in East Asia and recycling networks with other countries.

< Overview of internationally viable environmental strategies >



(3) Greening demand though environmental education and governmental green purchasing

With the enactment of the Green Purchasing Law in May 2000 and its execution in April 2001, governmental organizations are now required to perform green purchasing on their own initiative. As of February 2003, the law applied to 176 items in 13 categories. The system is seen as a strategy for securing initial demand and strengthening competitiveness of environmentally sound products and services such as those related to energy saving, 3R, or chemical substance management, and will require further strengthening and improvement in the future. Furthermore, it is desirable that higher green purchasing standards be applied to products and services to be purchased by the government, and that interim targets be applied to promote voluntary technical development in companies. It is hoped that green purchasing by government agencies will have a ripple effect on transactions between regional authorities and private businesses, and on the consumption habits of consumers, which in turn will contribute to the overall greening of the domestic market.

It will also be necessary to strengthen environmental education. This should cover such aspects as the current state and urgency of global environmental problems, the fact that all economic entities are both the cause and the victim of environmental problems, and that efforts by each and every entity are necessary to combat this problem.

(4) The development of a broad environmental network

The worldwide problems of global warming, waste disposal, recycling, and chemical management need to be tackled by all entities of our society, including companies, citizens, governments and academic experts. It is essential that these entities each develop a common awareness of environmental problems and make collaborative efforts to improve the effectiveness of their environmental activities. The government is expected to play a significant role in coordinating environmental activities of such entities, including the development of networks and cross-discipline collaborative efforts, promoting exchange and collaboration between academic societies.

(5) Formulating policy for environmentally sound economic development

Addressing global environmental problems while maintaining economic viability is an urgent issue for Japan. In the course of drafting and reviewing sound environmental policy, including review of existing laws and prospective system structures, the following points need to be considered:

(i) Will the proposed policy measures be effective in bringing about the desired environmental preservation effects?

(ii) Will the proposed environmental regulations serve to encourage additional investment?

(iii) Will the proposed regulations and other means of coercion have an adverse effect on business, suppressing creative efforts by companies to improve their economic efficiency?

(iv) Will the proposed guidance regulations be economically sustainable?

Conclusion

Recently, companies, citizens and government agencies have made considerable progress in the performance of economically viable environmental activities. At the same time, however, the Committee's review has shown that virtually none of these efforts are developing of their own accord and that a considerable number of issues remain.

The committee noted a number of issues related to environmental problems that need to be reviewed or addressed by stakeholders, namely, the state of corporate environmental management and other forms of corporate governance, provision of environmental information by companies to stakeholders, adjustment of domestic and overseas markets that can affect corporate management, the roles of market stakeholders such as consumers and financial institutions, the coordinating role of government agencies and local authorities, and government environmental policy.

In this interim report, the Committee set forth various proposals to achieve the greening of companies, cities, regional policy and national policy, and made suggestions concerning the directions and roles that should be taken by various entities such as companies, citizens, consumers and government bodies. That is, we have set forth proposals for the ideal forms and functions of various entities such

as companies, market stakeholders, regional authorities and the national government so that Japan may emerge as an "Environmental Nation." Corporate environmental management and the fruits of environmental businesses are expected to play a crucial role in helping to resolve the nation's environmental problems. It is hoped that developments in this regard will contribute significantly to our emergence as an environmentally aware country.

In the near future, we believe that Japan will see the further development of trends towards this through better corporate environmental management, active participation in environmental preservation activities by investors and other market stakeholders, and specific actions by local authorities and the national government. In addition, as national environmental policy carries universal themes, we believe it is important to plan and implement environmental policy through closer coordination and cooperation between the ministries and agencies concerned, and look forward to the realization of environmentally orientedsocio-economic models in the domestic market.

Topics for future discussion by the Committee are likely to include economically viable environmental policy in the global economy and methods to achieve this, both important references for the development of future environmental policy. We have already had some preliminary discussions regarding these matters, and more in-depth discussion will commence at a later date.

Finally, we hope to conduct a follow-up to this paper, to examine the socio-economic trends of the nation and the development of government policies to reflect such trends.