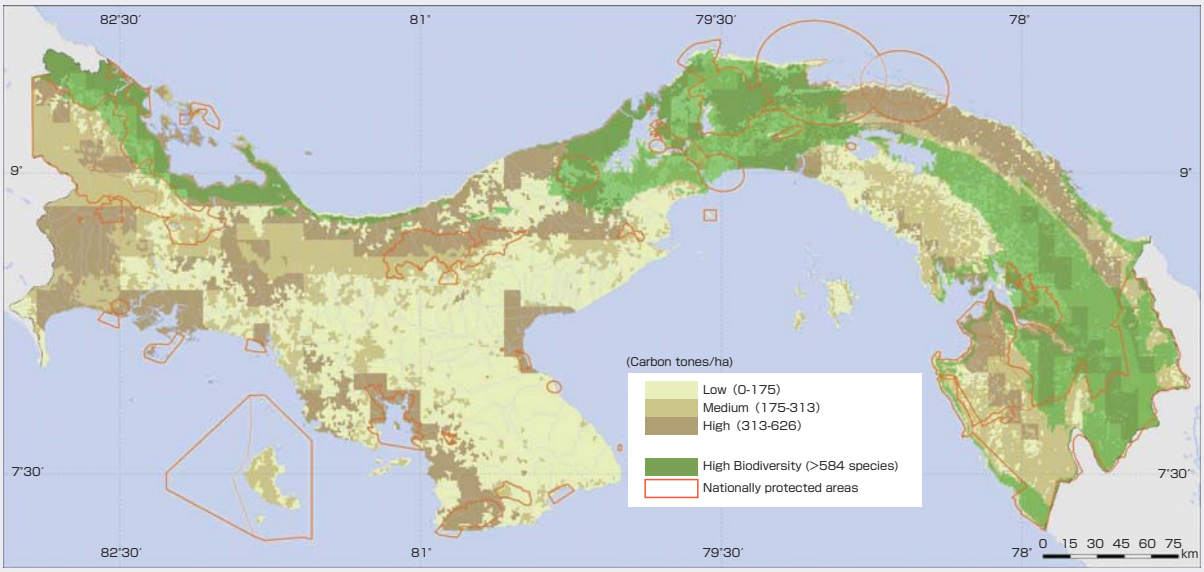
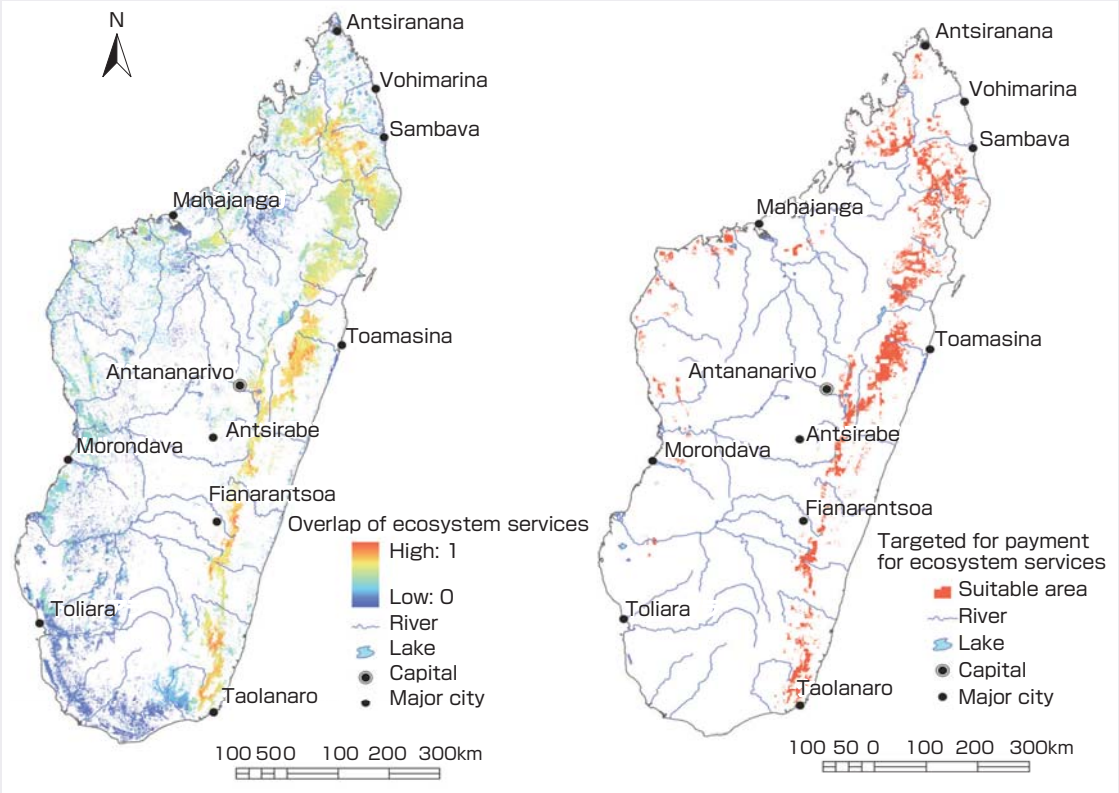
Figure3-2-3 An Example of National Maps Developed by the United Nations Environment Program's World Conservation Monitoring Centre (UNEP-WCMC) (Panama)



Source: Kapos et al. 2008

Figure3-2-4 Targeted Payments for Ecosystem Services in Madagascar



Source: Adapted from Wendland et al. 2009

Section 3 Shift to Biodiversity-Friendly Socio-economy (Mainstreaming of Biodiversity)

In order to realize the coexistence of humans and nature and make a shift to a biodiversity-friendly socio-economy, it is necessary to incorporate the conservation and sustainable use of biodiversity into various social and economic activities on a global scale as well as at the level of civil life (mainstreaming of biodiversity).

Therefore, in this section, we shed light on the relationship between corporate activities and cities and

biodiversity, which has previously been thought to be not even remotely related, and also describe the need for a shift toward biodiversity-friendly lifestyles as well as excellent examples of various entities working for the mainstreaming of biodiversity.

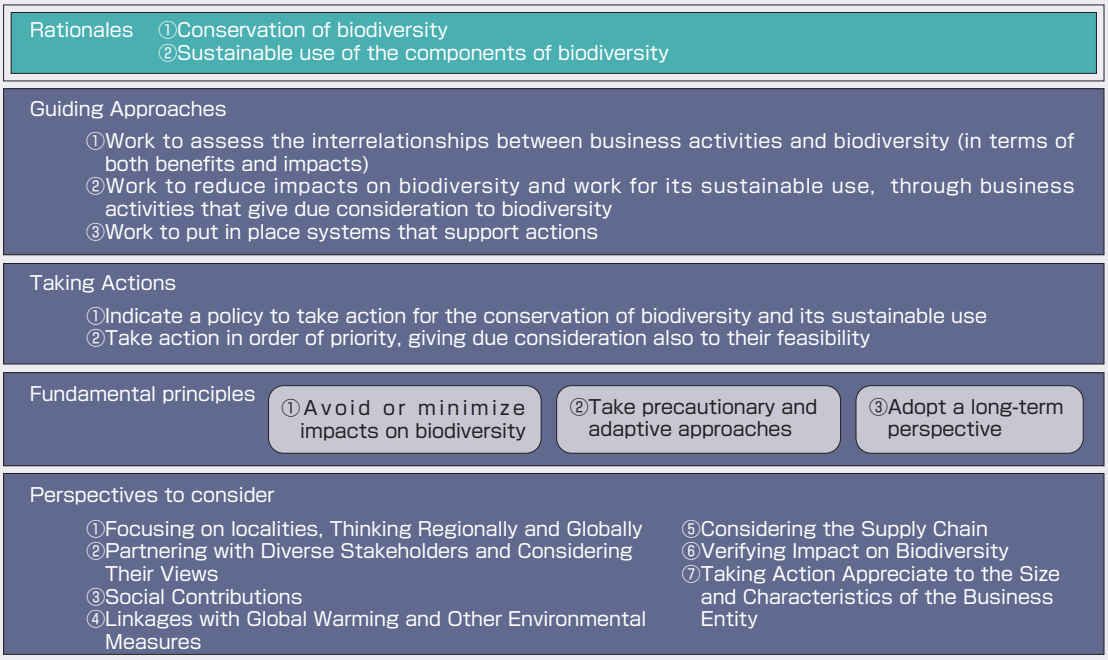
1 Biodiversity and businesses

International movements concerning biodiversity and businesses began with the adoption for the first time of a resolution regarding the importance of private-sector engagement at the eighth meeting of the Conference of the Parties to the Convention on Biological Diversity (COP8), held in Curitiba, Brazil, in March 2006. While noting that the private sector is arguably the least engaged of all stakeholders in the implementation of the Convention, the decision placed high expectations on contributions private-sector businesses can make, noting that (1) the daily activities of business and industry have major impacts on biodiversity, and encouraging business and industry to adopt and promote good practice could make a significant contribution to preventing the loss of biodiversity; (2) individual companies and industry associations can be highly influential on Governments and public opinion, and thus, they have the potential to spread the conservation and sustainable use of biodiversity; and (3) the private sector possesses biodiversity-relevant knowledge and technological resources, as well as more general management, research and communication skills, which, if mobilized, could facilitate practices for the conservation and sustainable use of biodiversity.

At the high-level ministerial segment of COP9 held in Bonn, Germany, in May 2008, a signing ceremony took place for the "Leadership Declaration" on the "Business and Biodiversity Initiative (B&B Initiative)," promoted by the German government, in order to further increase the engagement of private-sector businesses in the achievement of the objectives of the Convention on Biological Diversity (CBD). The declaration states that signatory companies acknowledge and support the Convention's three objectives, and commits them to analyze corporate activities with regard to their impacts on biodiversity. A total of 34 companies, including nine Japanese firms, participated in the signing ceremony. Further, G8 Environment Ministers Meetings in 2007, 2008 and 2009 addressed biodiversity as an important agenda item, underlining the need to strengthen policies to engage the industry sector and consider economic impacts associated with the loss of biodiversity.

In Japan, meanwhile, given the international developments discussed above, "The Third National Biodiversity Strategy," formulated in 2007, set forth the preparation of guidelines for guidance for voluntary actions by businesses. The Basic Act on Biodiversity (Act No. 58 of 2008) provides for obligations of business operators and citizens and also prescribes the promotion of biodiversity-friendly business operations as a national policy. Further, in August 2009, the Ministry of the Environment announced the "Guidelines for Private Sector Engagement in Biodiversity," which serves as guidance for voluntary actions by business operators for the conservation of biodiversity and its sustainable use. The guidelines provide for the philosophy, the direction and procedures of efforts and basic principles for business operators voluntarily taking actions friendly to biodiversity (Figure 3-3-1).

Figure3-3-1 Outline for Guidelines for Private Sector Engagement in Biodiversity



Note: Precautionary approaches/Preventive measures without delay, even in the absence of complete scientific evidence, in case where there may be large scale and irreversible impacts on biodiversity.
Adaptive approaches/Measures based on the ongoing monitoring of business activities and other factors, which are adjusted flexibly based on the monitoring results.
Source: Ministry of the Environment, "Guidelines for Private Sector Engagement in Biodiversity"

Photo3-3-1 Rain Forest Restoration Experimental Project on Borneo Island (Malaysian Territory)

Photo: Mitsubishi Corporation

Photo3-3-2 Mangrove Planting in Ranong, Thailand

Photo: Tokio Marine & Nichido Fire Insurance Co., Ltd.

Photo3-3-3 Tree Planting in Devastated Forests (East Java, Indonesia)

Photo: Sumitomo Forestry Co., Ltd.

Under these circumstances, the business community has embarked on initiatives of their own. In March 2009, Nippon Keidanren announced the "Declaration of Biodiversity by Nippon Keidanren," showing the determination to exert active efforts on biodiversity and providing guidelines for specific actions. In April 2008, the "Japan Business Initiative for Conservation and Sustainable Use of Biodiversity (JBIB)" was launched by Japanese companies for the purpose of learning about the conservation and sustainable use of biodiversity. As another example of various efforts initiated in the private sector, in April 2009, the Shiga Committee for Economic Development announced the "Shiga Business and Biodiversity Initiative for Lake Biwa," with the 10-point declaration statement, including "We practice conservation activities for one species at least, or at one habitat area."

There are also companies that have been undertaking activities that help conserve biodiversity as part of their main business operations or corporate social responsibility (CSR) activities since before the rise in the public awareness of efforts on biodiversity.

For example, a general trading house has been carrying out an experimental project in the Malaysian territory of Borneo Island to restore the rain forest ecosystem in the critical state to natural forests as much as possible at an early date. The project has been under way for 20 years since 1990, with the participation of company employees along with experts and people from local communities (Photo 3-3-1).

A nonlife insurance company achieved the condition of carbon neutral in FY 2007, offsetting carbon dioxide emissions from its domestic business offices by the use of natural energy and the carbon dioxide absorption and reduction effects of mangroves it planted. The planting of mangroves the company has been undertaking for a period of 10 years in partnership with nongovernment organizations (NGOs) has now covered a combined area of about 5,900 hectares in Indonesia, Thailand, the Philippines, Vietnam, Myanmar and Fiji Islands (Photo 3-3-2). The company has also launched a project to donate cash equivalent to two mangrove trees per insurance contract in which a policyholder agrees to read a contract renewal agreement on the website instead of a paper document.

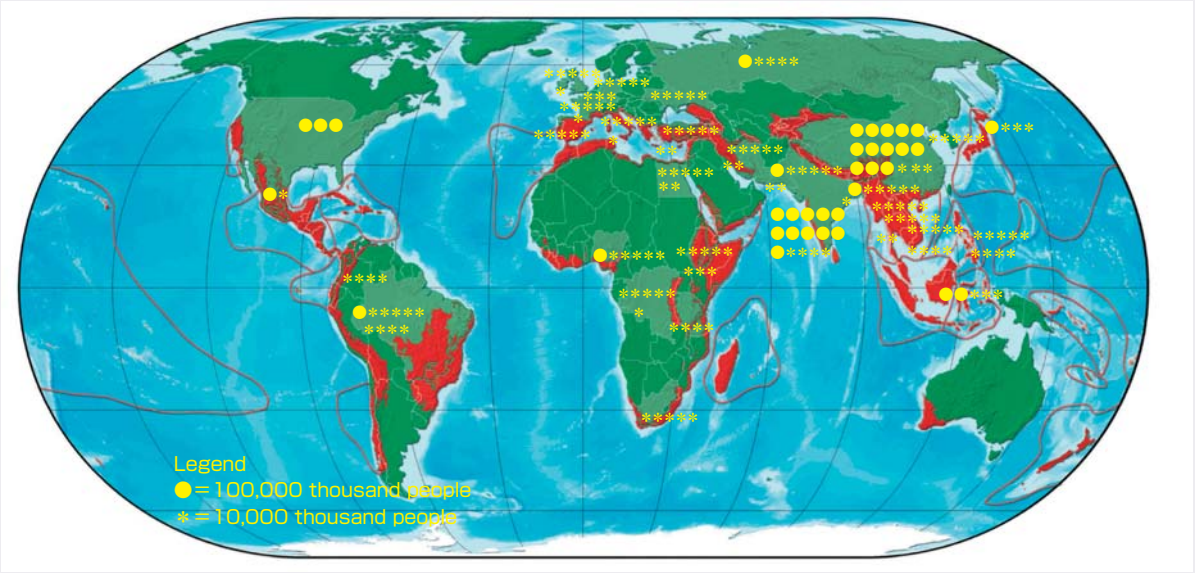
A forestry business company says while domestic forests it owns absorbed 116,000 tons of carbon dioxide in FY 2008, carbon dioxide fixed in lumber used for building wood houses it sold amounted to 210,000. This is a good example of a company contributing to the conservation of nature in its core business operations. The forestry industry contributes to the conservation of biodiversity as well as to the absorption of carbon dioxide. All forests the company owns have already been certified as adequately managed forests in 2006 by the Sustainable 'Green Ecosystem' Council (SGEC). Following the certification, the company has launched a survey to monitor the inhabitation and growth situation of animals and plants mainly in clear-cut areas. In response to deforestation of 1.90 million hectares per year in Indonesia, the company has decided plant trees in 300 hectares of protected forests within national parks and in 1,200 hectares of denuded forest lands outside protected forests (Photo 3-3-3).

As seen above, corporate activities friendly to biodiversity are becoming active both at home and abroad.

2 Cities and biodiversity

The term "biodiversity hotspots," first proposed by conservation biologist Norman Myers in 1988, indicates

Figure3-3-2 Hotspots and Populated Areas



Note: Populated areas = The world's top 30 populous countries (China, India, U.S., Indonesia, Brazil, Pakistan, Bangladesh, Nigeria, Russia, Japan, Mexico, Philippines, Vietnam, Germany, Egypt, Ethiopia, Turkey, Iran, Thailand, Congo, France, Britain, Italy, Myanmar, South Africa, Korea, Ukraine, Spain, Colombia and Tanzania)
Source: Prepared by Ministry of the Environment based on materials provided by Conservation International (www.conservation.or.jp)

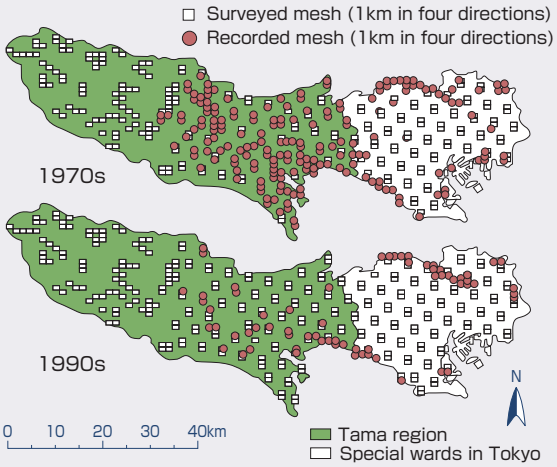
areas that have the high level of biodiversity with at least 1,500 indigenous species of vascular plants and yet at risk of destruction with 70% or more of natural vegetation damaged. A total of 34 areas are designated as hotspots globally, including Japan. The hotspots cover only 2.3% of the surface area of the earth, but include many densely populated areas, an indication of heavy development pressures (Figure 3-3-2).

At present, as seen in the Introductory Chapter, half of the world population lives in cities, in only 2.8% of the earth's land areas. Urban populations keep increasing, with two-thirds of the global population projected to be living in cities by 2050. Urban residents and economic activities consume 75% of resources being consumed by mankind, with a considerable degree of dependence of benefits from biodiversity in surrounding areas (ecosystem services). In fact, the food self-sufficiency rate by prefecture for FY 2007, announced by the Ministry of Agriculture, Forestry and Fisheries, is 1% for Tokyo, 2% for Osaka and 3% for Kanagawa, clearly showing the actual situation that big cities are producing little food to feed their residents.

However, the history of cities is widely varied and they have different backgrounds, including the mode of land utilization and the extent of urbanization as well as economic, social and cultural conditions. As the distribution of living organisms is either shrinking or expanding in accordance with the stage of urban development, as shown in Figure 3-3-3 and in Figure 5-1-5 in Part II, it is deemed necessary to build relationships with biodiversity suitable to respective cities.

In November 2009, the "Local Government Conference on Biodiversity 2009" was held in Nagoya, Aichi Prefecture, with the participation of 103 municipal governments in Japan, sponsored by Aichi Prefecture, Nagoya City and the Aichi-Nagoya COP10 CBD Promotion Committee. In preparation for the "City

Figure3-3-3 Changes in Skylark Distribution in Metropolitan Tokyo



Source: Prepared by Ministry of the Environment based on Tokyo Metropolitan Government, "Survey Report on the State of Procreation of Birds" and "Survey Report on Procreation of Birds"

Biodiversity Summit 2010" scheduled to be called to coincide with COP10, the conference participants discussed problems common to municipalities in Japan and exchanged information on their initiatives for the conservation of biodiversity. In a report on discussions at the conference, the participants confirmed the items that were deemed important when local authorities carry out policies and measures for the conservation and restoration of biodiversity in the future, including the comprehensive perspective of "biodiversity" and the wisdom of a system of circulation and coexistence with the environment.

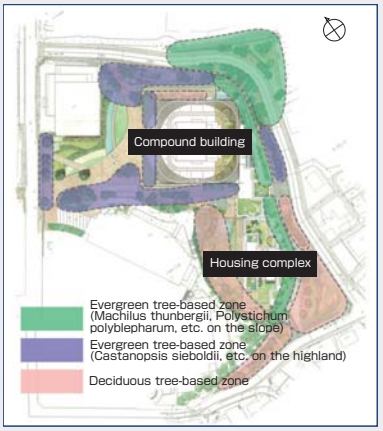
The cooperation among local governments has been extended globally. Already in 1990, officials from over 200 local governments of 43 countries gathered at the United Nations in New York City for the "World Congress of Local Governments for a Sustainable Future," and established the International Council for

Figure3-3-4 Efforts on Biodiversity in Redevelopment Project

Efforts on biodiversity in a redevelopment project in the Toranomon/Roppongi Disrict First Class City Urbanization Area

The project contributes to the conservation and recovery of biodiversity in the following points:

1. Green space based on native species and potential natural vegetation: Restore regional vegetation in the planned area
   ※Main native species: Castanopsis sieboldii, Machilus thunbergii, Quercus glauca Thunb, Styrax japonica, Benthamidia japonica, etc.
2. Large green spaces:
   Enhanced green effect and better connection with surrounding areas
3. Sterical green spaces with the high green coverage ratio:
   Contribute to improved habitats for living organisms
4. Special components of the environment:
   Consideration for components of the environment such as deadwood, tree hollows and fallen leaves



Source: Mori Building Co., Ltd.

Local Environmental Initiatives (ICLEI)." As of December 2009, over 1,100 local governments from 68 countries of the world participate in ICLEI. ICLEI is designed for cooperation among local governments on key themes such as prevention of climate change, comprehensive water management, conservation of biodiversity, building of sustainable local communities and sustainability management, and its activities are guided by the belief that measures developed by local governments are the highly cost-effective way to realize sustainability at the local, national and global level. COP9 held in Bonn, Germany, in 2008 adopted a decision on the promotion of engagement of cities and local authorities, the first of its kind, recognizing the importance of roles of cities and local governments under the Convention on Biological Diversity.

New attempts are under consideration in Japan concerning cities and biodiversity. The City of Nagoya is considering the introduction of a mechanism for conserving forests in suburban private land by administering the city planning system in exchange for the easing of the floor-space ratio for buildings in urban areas.

Among private-sector companies, for example, in open space planning for an urban redevelopment project, a developer launched an initiative to restore nature, the first of its kind in Japan, by paying full heed to native species and potential natural vegetation based on a survey of existing conditions and literature searching. This redevelopment project has been assigned the highest rating of AAA based on an objective quantitative evaluation by the Japan Habitat Evaluation and Certification Program (JHEP), a third-party organization (Figure 3-3-4). JHEP was introduced as a Japanese version of the Habitat Evaluation Procedures (HEP), a method for a quantitative assessment of the natural environment from the standpoint of wildlife habitat developed by the U.S. Department of the Interior in the 1980s. The HEP, noted for its high objectivity and reproducibility as well as for its excellence as an easy-to-understand consensus-building tool, is widely used for environment impact assessment and nature restoration projects in the United States. Separately, as of th end of March 2010, a total of 33 sites have been recognized as the excellent green space actively conserved and utilized by companies and other entities under "the Social and Environmental Green Evaluation System (SEGES)", helping to motivate and strengthen green conservation activities.

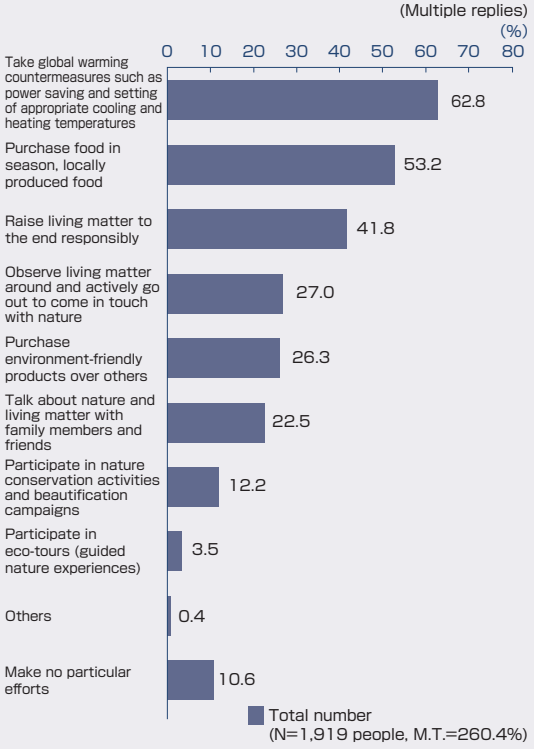
3 Lifestyles mindful of biodiversity

(1) Consideration for biodiversity by choice of manufactured products and food

As discussed above, most of resources and materials essential for our clothing, food and housing are supplied as ecosystem services provided by ecosystems. In this subsection, we describe what we can as consumers. First of all, it is fundamentally necessary to obtain ecosystem services in a sustainable manner that does not disrupt the reproduction function of ecosystem services, as they are provided as renewable services in natural cycles. According to a public opinion survey conducted by the Cabinet Office in 2009, the ratio of people who cited "prioritized purchases of environment-friendly products" as efforts for biodiversity-friendly lifestyles stood at a low 26%, underscoring the need to promote the spread of products that pay due heed to biodiversity (Figure 3-3-5). Next, we introduce sustainable production initiatives and our choices as consumers regarding timber, fisheries resources and agricultural products.

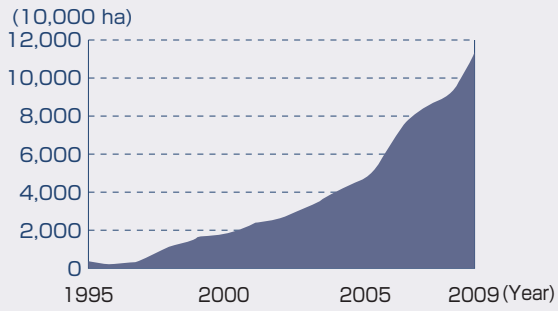
Japan's domestic demand for timber amounted to 77.97 million cubic meters in 2008, of which about 76% was met by imports. Timber is imported mainly from North America, Southeast Asia, Russia, Europe and Australia. In Indonesia, for example, about 1.90 million hectares (equivalent to the area of Shikoku) of forests are lost per year due to forest fires and illegal logging. One of things

Figure3-3-5 Previous Efforts for Biodiversity-Friendly Livelihood



Source: Cabinet Office, "Public Opinion Survey on Environmental Issues"

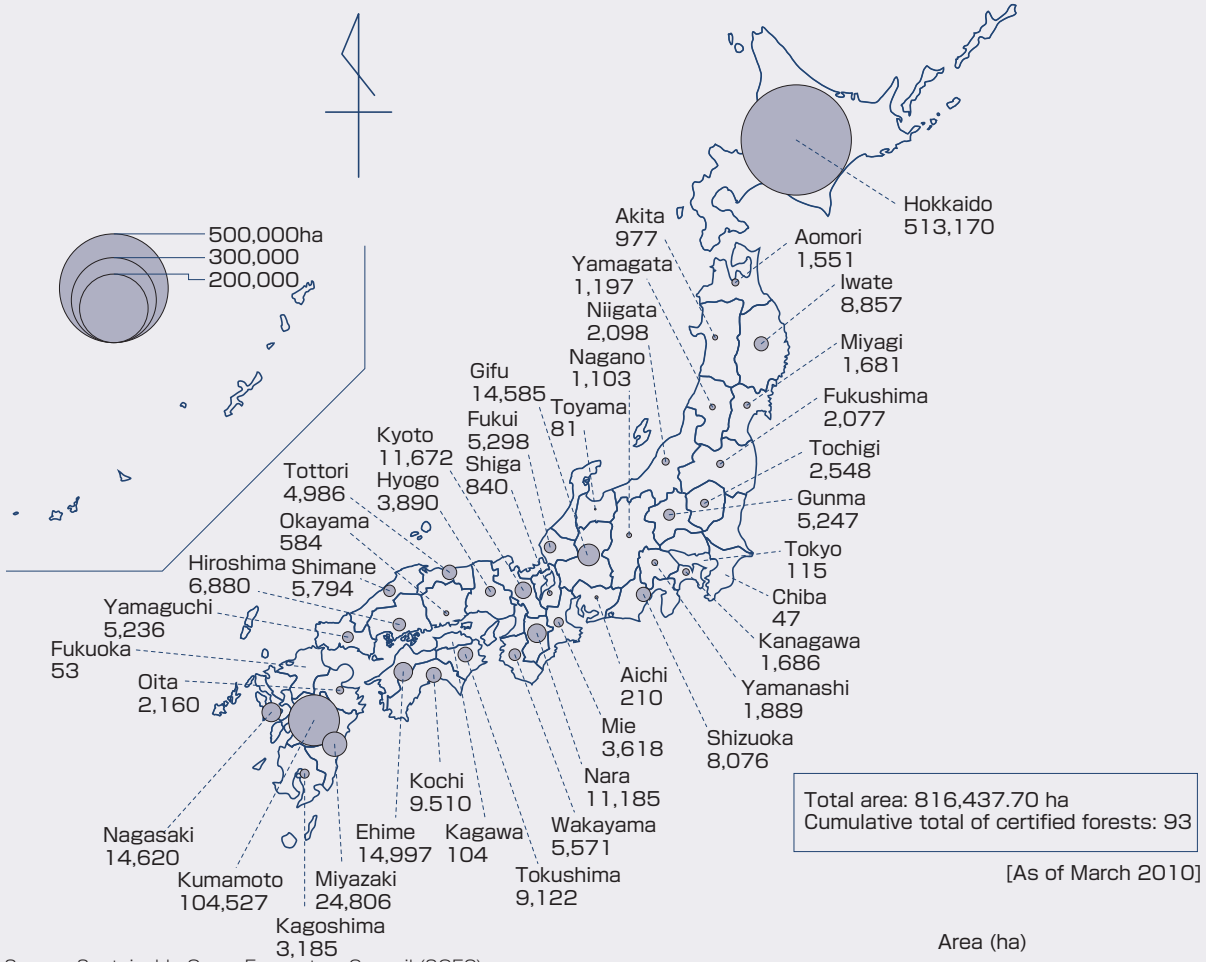
Figure3-3-6 Global Area of FSC-Certified Forests



Source: Forest Stewardship Council (FSC) International Headquarters

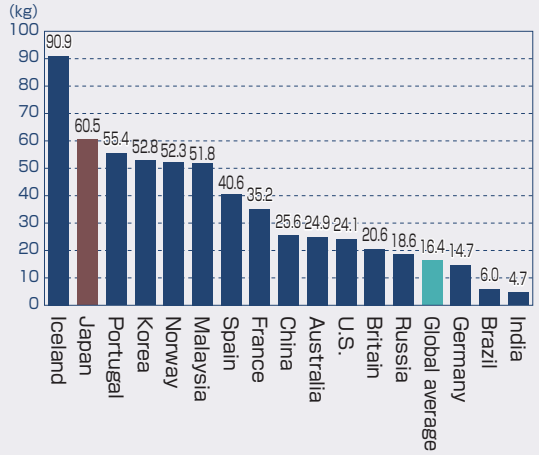
we can do as consumers to reduce illegal logging and maintain biodiversity in countries of origin is to purchase lumber and wood products certified for legitimacy and sustainability. Based on "the Act on Promoting Green Purchasing", the Japanese government since 2006 has been procuring lumber certified for legitimacy and sustainability. In order to promote sustainable forest management, the government has also presented at home and overseas guidelines for requirements of lumber and wood products whose use is to be promoted in Japan. Because of these initiatives, it is now possible to procure lumber and wood products certified for legitimacy and sustainability across the country. Consumers can contribute to the conservation of biodiversity and its

Figure3-3-7 Distribution Map of Japan's SGEC-Certified Forests (By Prefecture)



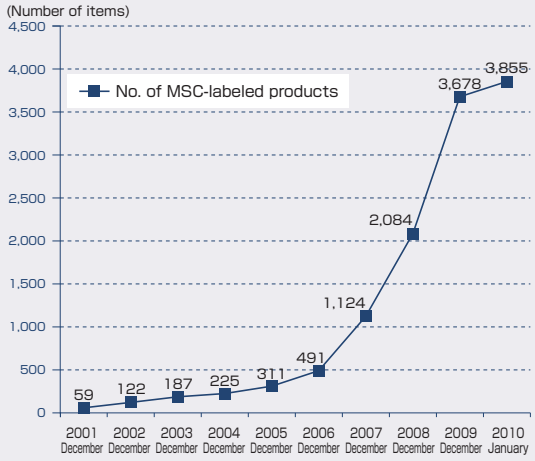
Source: Sustainable Green Ecosystem Council (SGEC)

Figure3-3-8 Per-Capita Annual Consumption of Fisheries Products in Major Countries (2005)



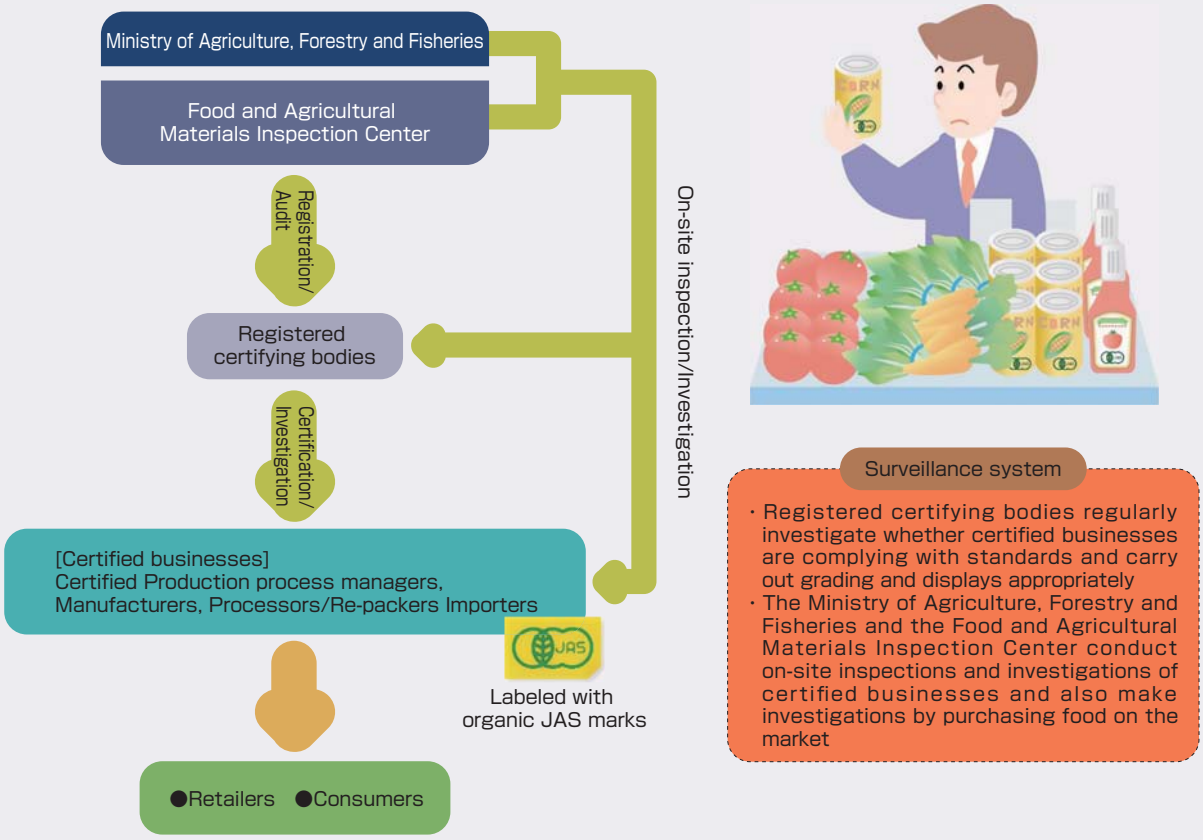
Source: Prepared by Ministry of the Environment based on FAOSTAT

Figure3-3-9 Trends in Number of MSC-Labeled Products



Source: Marine Stewardship Council (MSC) Japan Office

Figure3-3-10 Overview of the Organic Food Inspection and Certification System

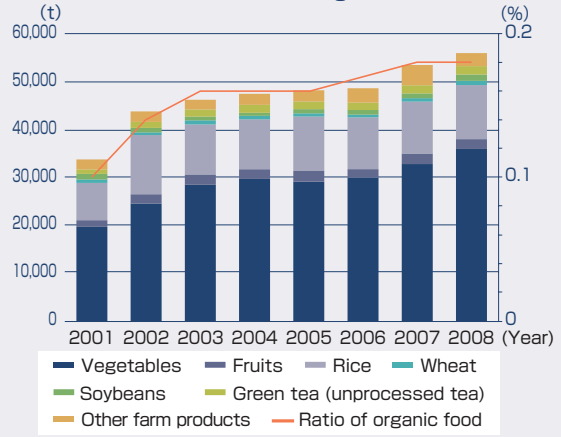


Source: Ministry of Agriculture, Forestry and Fisheries brochure, "Organic Food is Wonderful"

sustainable use by choosing certified products when they purchase products made from trees, such as furniture, stationery, miscellaneous goods used in daily livelihood and paper as well as lumber. A good reference in choosing lumber certified for legitimacy and sustainability is forest certification. Forest certification schemes are private sector-led systems in which third-party organizations certify appropriate forest management by looking into "whether forest managers are complying with laws and international agreements," "whether forests are rich forests offering habitats for many living organisms" and other matters, separately manage timber produced from certified forests for distribution with certification labels. Forest certification schemes include the Programme for the Endorsement of Forest Certification (PEFC), the Forest Stewardship Council (FSC) and the Sustainable Green Ecosystem Council (SGEC). Forest area certified by the FSC is growing globally (Figure 3-3-6), while domestic forests certified by SGEC increased to 93 forests, for a combined area of 816,438 hectares, as of March 2010 (Figure 3-3-7).

Per-capita consumption of fisheries products for

Figure3-3-11 Amount of Graded Organic Farm Products and the Ratio to Total Agricultural Produciton



Source: Prepared by Ministry of the Environment based on Ministry of Agriculture, Forestry and Fisheries, "FY 2008 Results of Grading Concerning Accredited Businesses"

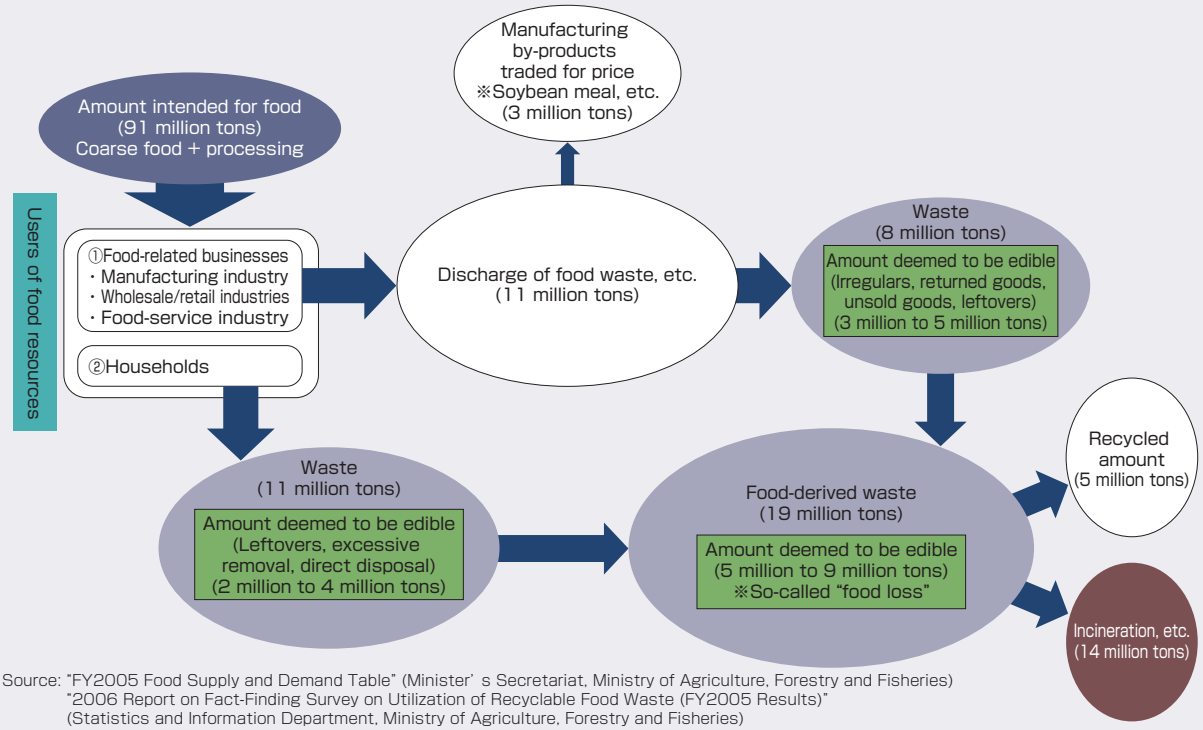
Japanese people is the third largest in the world and about four times the global average (Figure 3-3-8). In order to obtain rich fisheries resources in a stable manner, biodiversity that provides them needs to be conserved. Efforts to avoid the depletion of fisheries resources are necessary to carry out sustainable fisheries operations, by, among others, setting certain rules on catches, kinds of fish to be caught, fishing periods and fishing methods. Certification schemes for such fisheries operations include the Marine Stewardship Council (MSC) and the Marine Eco-Label Japan (MEL Japan). Products with MSC certification labels are seeing increasing sales globally, reaching a total of 3,855 items as of January 2010 (Figure 3-3-9). In Japan, about 170 items certified by the MSC are in the market as of June 2009.

In Japan, production of organic farm products is being carried out under unified rules based on the Act for Standardization and Proper Labeling of Agricultural and Forestry Products (Act No. 175 of 1950) enforced in April 2001. Under this system, accredited business operators can grade agricultural products satisfying JAS (Japan Agricultural Standards) standards for organic vegetables and put organic JAS marks on such products (Figure 3-3-10). Production standards for organic farm products, designed to maintain and improve the natural cyclical function of agriculture, call on producers to (1) prepare soil using compost and not to use, in principle, chemical fertilizers and agricultural chemicals (in over two years prior to seeding and planting and during cultivation) to give full play to the productivity of farmland driving from soil characteristics; (2) produce farm products in agricultural fields that adopt cultivation management methods that reduce burdens traceable to agricultural production on the environment as much as possible; and (3) not to use genetically engineered seedlings. Our purchases of farm products carrying organic JAS marks help promote agriculture with less environmental burdens such as impacts of agricultural chemicals on living organisms and conserve biodiversity. In fact, between 2001 and 2008, amounts of farm products graded under organic JAS standards increased about 1.7 times from 33,734 tons to 55,928 tons (Figure 3-3-11). As the ratio of farm products graded under organic JAS standards to total agricultural production still remains low, we are being called upon to make wise choices for the further spread of organic farm products.

(2) Consideration for biodiversity through reduction of food waste

In Japan, about 19 million tons of food waste are

Figure3-3-12 Flow Chart of Generation of Food Waste



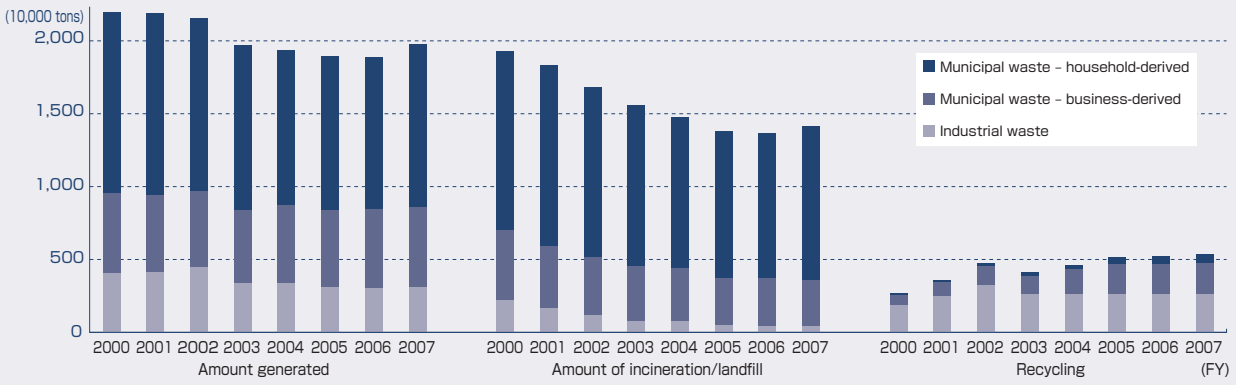
Source: "FY2005 Food Supply and Demand Table" (Minister's Secretariat, Ministry of Agriculture, Forestry and Fisheries)
"2006 Report on Fact-Finding Survey on Utilization of Recyclable Food Waste (FY2005 Results)" (Statistics and Information Department, Ministry of Agriculture, Forestry and Fisheries)
"FY2005 Statistical Survey on Food Loss" (Statistics and Information Department, Ministry of Agriculture, Forestry and Fisheries)
Prepared and estimated by Ministry of Agriculture, Forestry and Fisheries based on "Discharge and Disposal of Municipal Waste, Discharge and Disposal of Industrial Waste, etc." (Ministry of the Environment Estimates of FY2005 results)

discharged annually, of which food that can be eaten but is disposed of, or "food loss," is estimated to account for about 5 million to 9 million tons (Figure 3-3-12). Of food waste discharged by food-related business operators, an amount deemed to be disposed of by incineration or landfill has been on the steady decline year by year to stand at around 60% (Figure 3-3-13). On the other hand, only about 640,000 tons out of food waste discharged by general households is being recycled, with the remaining 94% being disposed of by either incineration or landfill (Table 3-2-4 of Part II).

According to the FAO, the undernourished population in 2009 is estimated to have reached as high as 1.02 billion people in the world, topping the one-billion mark for the first time ever. In Japan, food equivalent to an average 2,473 kilocalories per capital per day was supplied on a calorie basis in FY 2008 (Figure 3-3-14). For the entire population of Japan (127.69 million as of October 1, 2008), this translates into about 315,777 million kilocalories. The difference between the amount of calories supplied and the amount of calorie intake is understood to be a rough indication of food waste and leftovers. In Japan, this difference stood at 708 kilocalories per capital per day in FY 2007, which amounts to a daily food waste of 90,405 million kilocalories per day for the entire nation. If this amount is divided by 2,200 kilocalories per capita per day, which is believed to be the minimum daily calorie intake to keep an adult from undernourishment, we get the amount of nourishment for some 41.93 million people. When there are so many people in the world who cannot get enough food, we need to get food from ecosystem services across more effectively.

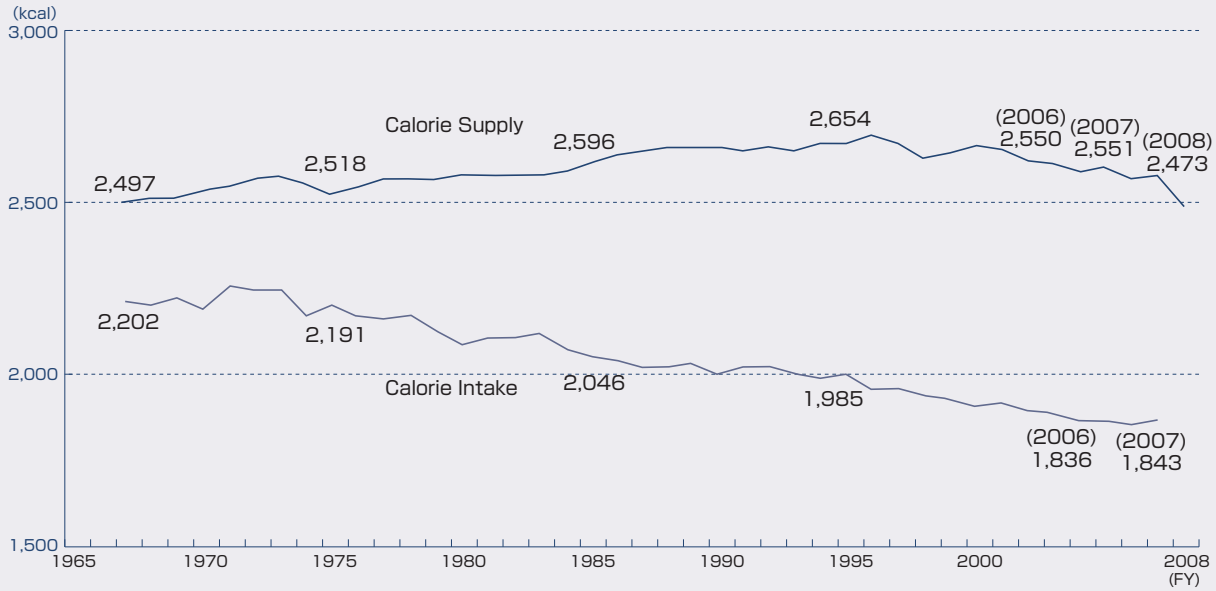
In recent years, "shokuiku (dietary education)" is being actively pursued, including the promotion of cooked rice for school lunch and use of locally produced farm

Figure3-3-13 Generation and Disposal of Food Waste (FY2000-FY2007)



Note: 1 Total may not add up due to rounding
2 The amount of food waste estimated by Ministry of the Environment based on "Discharge and Disposal of Municipal Waste, etc." (FY2007 results) and "Discharge and Disposal of Industrial Waste, etc." (FY 2007 results)
3 The amount of recycling of municipal waste derived from households was similarly estimated by Ministry of the Environment
4 The amounts of municipal waste derived from businesses and industrial waste (including breakdowns) were estimated based on Ministry of Agriculture, Forestry and Fisheries, "2008 Results of Fact-Finding Survey on Utilization of Recyclable Food Waste"
Source: Ministry of Agriculture, Forestry and Fisheries; Ministry of the Environment

Figure3-3-14 Changes in Calorie Supply (Food Supply and Demand Table) and Calorie Intake (National Health and Nutrition Survey)



Note: 1 excluded Alcoholic beverages
2 The difference between calorie supply and calorie intake should be regarded as a rough indicator of leftovers and waste because both calorie data are totally different in statistical survey methods and calorie calculation methods and cannot be compared simply.
Source: Ministry of Agriculture, Forestry and Fisheries, "Food Supply and Demand Table" ; Ministry of Health, Labour and Welfare, "National Health and Nutrition Survey"

products in school lunch. But the main purpose of shokuiku is to have children acquire the fundamental habits of "leaving no food uneaten" and "having a sense of gratitude." This is applicable to household efforts to reduce food waste. Among things individuals can do immediately are to understand the meanings of the use-by date and the expiration date and try to finish up food as food past the use-by date does not become inedible, avoid buying too much food by confirming kinds and amounts of food kept in a refrigerator before going shopping, and finish up purchased food in order by confirming the use-by and expiration dates.

(3) Consideration for biodiversity in initiatives by businesses

Businesses have the important role of providing benefits of biodiversity widely to society through their products and services. In a public opinion survey conducted by the Cabinet Office in June 2009, 82% of respondents said they highly rate corporate activities paying heed to biodiversity. Operations of businesses are supported by attitudes of consumers and have to change in response to consumption behavior of each citizen. At the same time, businesses are expected to make their activities more biodiversity-friendly and encourage a shift in consumer lifestyles by offering products and services that pay greater heed to biodiversity.

Activities by businesses give an impact on biodiversity in various situations and also benefit from biodiversity. For example, food, wood, paper, fiber, fuel and water are essential for business activities. A variety of genes are useful for development of pharmaceutical products and cultivar improvement. Aside from the supply of material, stable climate and prevention of natural disasters such as landslides and floods are necessary for stable business activities. Furthermore, technological innovation is often inspired by forms and functions found in the natural world. This is called "bio-mimicry," meaning mimicry of living organisms, and one of the well-known examples is the design of the lead vehicle of Shinkansen bullet train shaped like the halcyon beak to reduce pneumatic resistance.

Meanwhile, development and utilization of iron ores and other mineral resources as well as oil and other fossil fuels affect biodiversity through land conversion and global warming. Disposal of waste, treatment of drainage water and construction of business offices and industrial plants may also affect biodiversity in their processes. Furthermore, we may get involved with biodiversity through investment in and loans to economic activities as well as social action programs.

As seen above, whether we are in agricultural, forestry and fisheries industries, construction industry and manufacturing industry or in retail industry, financial services industry and mass media, we affect biodiversity and rely on its benefits through utilization of biological resources, supply chain and investment and loans. Such benefits and impacts occur both at home and abroad. In particular, Japan bestowed with few natural resources depends on other countries for their supply, and we must not forget that our present livelihoods are underpinned by exploitation of ecosystem services overseas.

While efforts by businesses so far have rather centered on activities related to corporate social responsibility (CSR), from now on, it will become important for them to address biodiversity in their main business lines. As the direction of efforts by businesses, the Guidelines for Private Sector Engagement in Biodiversity state that businesses should (1) strive to grasp linkages between business operations and biodiversity (benefits and impacts); (2) strive for mitigation of impacts on biodiversity and sustainable utilization of biodiversity; (3) strive to enhance structures to promote efforts on biodiversity. Businesses' involvement with biodiversity is varied depending the category and size of their operations. It is important for each business operator to understand linkages between its business operations and biodiversity, and then proceed with efforts in order of priority while taking feasibility into account.

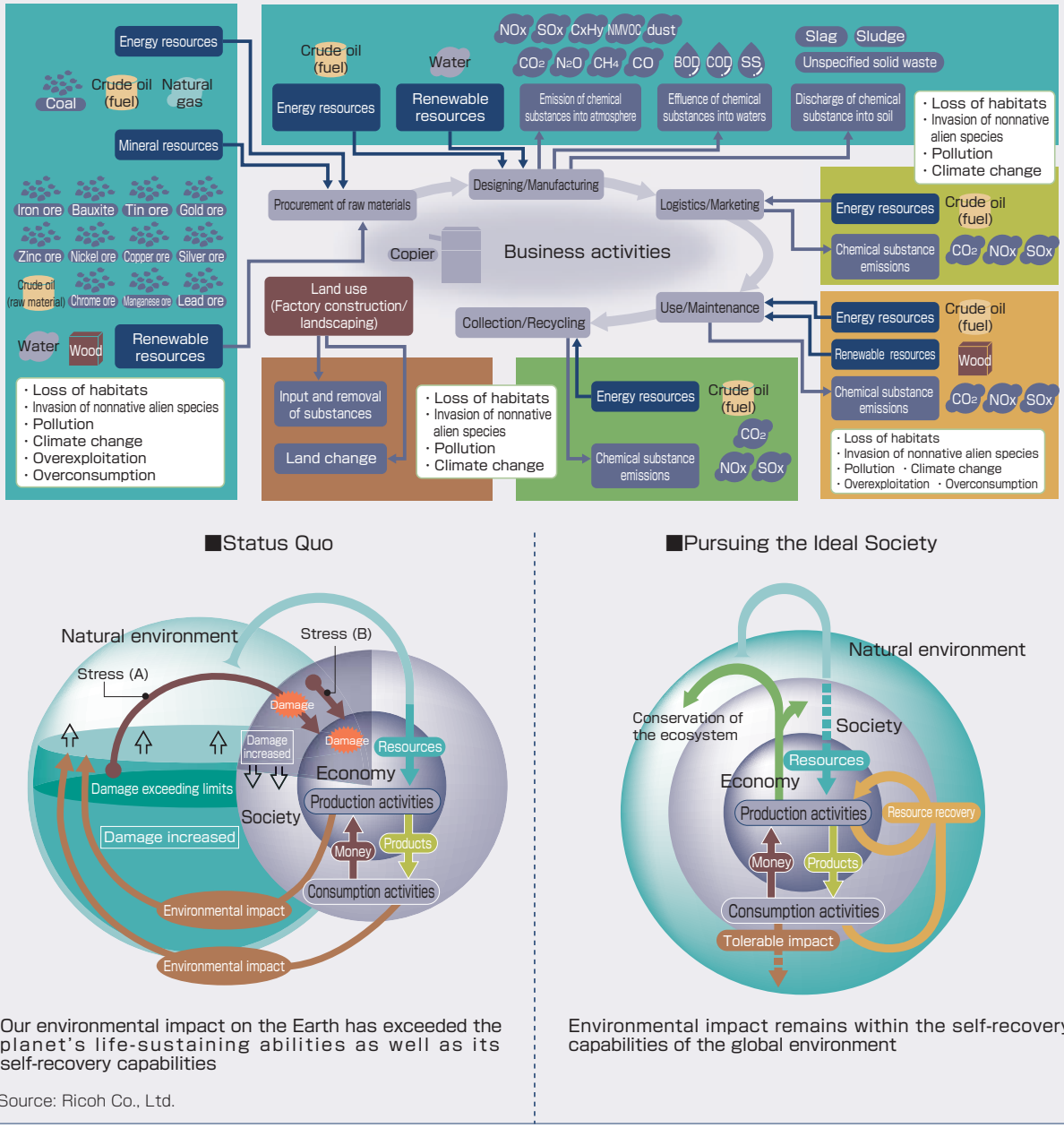
Businesses' efforts on biodiversity involve both risks and opportunities (Table 3-3-1). For example, while work to review the procurement of raw materials from the perspective of biodiversity may require additional costs, reduced risks related to the procurement of raw materials are expected to help stabilize business management. Japan depends on overseas for about 60% of food, about 80% of timber and almost all of mineral resources and

Table3-3-1 Examples of Risks and Opportunities in Business Activities

Type		Examples of risks and opportunities
Operational	risks	· Scarcity of raw material inputs or increased costs of procurement of material inputs, such as due to declines in living resources · Reduced output or productivity, or disruption of business operations, due to declines in living resources availability
	opportunities	· Development of production processes that are less affected by scarcity of material inputs, by means of sustainable use or reduction in use of living resources · Strengthening of the supply chain through the promotion of actions by suppliers
Regulatory /legal	risks	· Imposition of fines, suspension or rejection of licenses or permits, lawsuits, etc. due to legal violations related to biodiversity · Cuts in quotas for living resources or imposition of new user fees
	opportunities	· Official approval received to expand operations thanks to consideration of biodiversity · Development or sales of new products that comply with new regulations, etc. related to biodiversity
Reputational	risks	· Damage to brand or corporate image, and risk to social "license to operate" due to discovery of negative impacts on biodiversity
	opportunities	· Demonstration of consideration of biodiversity improves brand image, appeals to customers, and differentiates company from others in the industry · Consideration of biodiversity helps to obtain the understanding of the local community or strengthen relationships with local residents and other stakeholders
Markets/ products	risks	· Loss of customers due to promotion of green procurement in public and private sectors · Decline in market competitiveness of products or services due to lower environmental product quality
	opportunities	· Development of products and services that consider biodiversity, and new markets for certified products, etc. · Development of new technology, products, etc. that promote conservation and sustainable use of biodiversity. · Appeal to consumers who have high ethical sensitivity for environmentally concerned, corporation and products, etc.
Financing	risks	· Potential refusal of financing requests due to more rigorous lending criteria at financial institutions
	opportunities	· Appeal to investors who emphasize social responsibility
Internal	risks	· Decline in employees' morale
	opportunities	· Improved employees' morale

Source: Ministry of the Environment, "Guidelines for Private Sector Engagement in Biodiversity"

Figure3-3-15 Map of Corporate Activities and Biodiversity



Our environmental impact on the Earth has exceeded the planet's life-sustaining abilities as well as its self-recovery capabilities

Environmental impact remains within the self-recovery capabilities of the global environment

Source: Ricoh Co., Ltd.

fossil fuels. In that sense, efforts on biodiversity are also important as a resources strategy.

As seen above, businesses' efforts on biodiversity in cooperation with various entities, including consumers, are necessary not only to accelerate movements of society as a whole toward realizing natural symbiosis society but also to carry on with their business operations in the future.

For example, an office equipment maker is striving to grasp the linkage with biodiversity in each stage of a whole range of business activities from the procurement of raw materials, designing/ manufacturing, logistics/ selling to use/maintenance and recovery/recycling and reduce burdens on biodiversity (Figure 3-3-15). This company has found that in the copier business, for example, the impact of business operations on biodiversity was the largest in the procurement of raw materials, such as paper and pulp and metallic resources and water resources used in production. Instead of linear business activities where it manufactures products by the input of resources and ultimately disposes of them into the environment, the company is pursuing business activities whose impacts remain within the self-recovery capabilities of the global environment (Figure 3-3-15).

A Japanese consumer electronics maker launched its efforts on biodiversity since October in 2008 by supporting the "Arctic Program," one of measures to protect the global environment being undertaken by the World Wildlife Fund (WWF). The WWF's project is designed to promote the understanding about the Arctic and manage ecosystems by the following four methods:
Communicating the global implications of Arctic climate change;
Ensuring the Arctic biosphere does not become a new source of atmospheric carbon;
Eliminating the additional pressures on the environment caused by unsustainable exploitative activities;
Establishing governance regimes to conserve the ecosystems and species of the Arctic for future generations.

The company has "coexistence with the global environment" as one of the guiding principles for its business operations, and contributing to "removal of threats of environmental destruction in the Arctic and conservation of the environment of the Arctic region that greatly impacts global warming" is consistent with the objectives of its business activities. The company's support is extended mainly in the form of financial assistance, and assistance of 470,000 euros is planned over a three-year period. The company and the WWF are cooperating in efforts on environmental analyses and surveys as well as on support for the continued well-being of Arctic ecosystems, including the polar bear.

Column Food Bank Activities

In recent years, "food bank" activities are spreading. A food bank is a system under which it receives food and food materials that are deemed not good enough to go through regular distribution channels but have no food quality problems from food manufacturers and retailers, etc. and donates them to welfare facilities and other organizations in need of support free of charge, supported by many volunteers. The United States has a history of about 40 years of food bank activities (with 220 organizations involved across the country and 2 million tons of food handled annually), and there is also an international organization for food bank activities with the membership of 18 countries across the world. In Japan, Second Harvest Japan (a specified nonprofit corporation established in 2002 in Taito Ward, Tokyo) has the largest scale of food bank activities and is a member of the international organization. In 2008, it handled 8.5 million tons of food with the monetary equivalent of about ¥510 million, and companies that provide it with food are estimated to have been able to reduce food disposal expenses by about ¥92 million.

Supporting companies that provide food to Second Harvest Japan have reached a cumulative total of some 500 firms, and the circle of support is now widening, including cooperation of distribution companies, apparently as part of corporate CSR activities. Foods handled are wide-ranging, from staple food (rice, bread, noodles, etc.), supplementary dishes, articles of taste (sweets, beverages) and seasonings, perishable food, chilled and frozen food, instant food and food stocks in case of natural disasters. About a dozen food banks have been established in recent years, with their activities spreading from cities to rural area. Since the food bank mechanism is beneficial to both supporting companies and aid-receiving welfare facilities and other organizations, and also in light of the original objective of taking good care of food, it is hoped that food bank activities will spread further widely.

Performance of Food Bank Activities

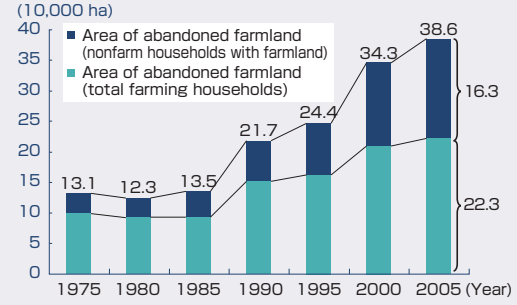
Year	Amount handled (ton)	Welfare contributions (¥10,000)	Donation multiplier	Corporate contributions (¥10,000)
2006	255	15,300	10.0	2,766
2007	370	22,200	8.0	3,900
2008	850	51,000	14.0	9,200
2009	560	33,000	11.4	5,600

Source: Second Harvest Japan Secretariat

Column Utilization of Abandoned Farmland

As of FY 2005, there were about 390,000 hectares of abandoned farmland. Abandoned farmland is "farmland where no crops were grown at least in a past year with no clear intentions indicated for cultivation resumption over the coming few years." Abandoned farmland stood at 135,000 hectares in 1985, and increased nearly 2.5 times in the past 20 years. Amid expectations of tightening global food supply and demand in the medium and long-term, the objectives of recovering and utilizing abandoned farmland include the need to ensure the stable supply of food and the need to secure various functions including the preservation of national land, cultivation of water sources, prevention of disease and disease and pest damage and bird and animal damage, and conservation of biodiversity through appropriate management of hillside and mountainous areas.

Changes in Area of Abandoned Farmland



Source: Ministry of Agriculture, Forestry and Fisheries, "Agroforestry Census"

4 Budding "Mainstreaming"

A variety of entities have already launched social and economic activities paying heed to biodiversity. In this subsection, we describe activities by local governments, companies and nongovernment organizations (NGOs), centering on activities chosen for the first outstanding performance awards of the "Japan Awards for Biodiversity," established by the Ministry of the Environment and the AEON Environmental Foundation in order to promote the conservation of biodiversity and its sustainable use.

(1) Efforts by local governments

Prefectural governments and municipalities have been undertaking various efforts on the conservation of biodiversity, including preservation of nature parks and other protected areas, protection and management of wild birds and animals, protection of rare species of wild fauna and flora, conservation and revitalization of urban green areas and measures to deal with alien species. For example, regarding the protection of rare species of wild fauna and flora, all the prefectural governments have formulated the red data book and the red list by 2005, and 27 prefectural governments enacted ordinances on the protection of rare species of wild fauna and flora by FY 2009. Furthermore, a total of 30 prefectures introduced the forest environmental tax and similar tax systems for the purpose of conserving forests and water sources by FY2009, with specific efforts funded with these tax revenues.

In addition to these efforts, local governments are developing regional biodiversity strategies based on the Basic Act on Biodiversity, in order to proceed with the conservation of biodiversity and its sustainable use in accordance with natural and social characteristic of their regions. As of the end of March 2010, Saitama Prefecture, Chiba Prefecture, Aichi Prefecture, Shiga Prefecture, Hyogo Prefecture, Nagasaki Prefecture, Ngareyama City, Nagoya City and Takayama City have already formulated their regional biodiversity strategies, while many other local governments are considering the formulation of such strategies.

(2) Corporate Initiatives

A construction company, in cooperation with organizations concerned, has expanded upon previous studies on ecological networks and developed a system to evaluate an impact of urban development projects on local ecosystems in an easy-to-understand manner, and is already applying the system to actual construction projects such as hospitals and business buildings. The company is also breeding Japanese honeybees, a native species, as a sentinel species of the urban environment for the collection and analysis of data on their flight paths and distances and honey source plants, and is making use of such data for biodiversity-friendly cities.

A housing maker, in order to allow for sustainable wood use, in collaboration with timber suppliers and NGOs, developed in 2007 "timber procurement guidelines" with 10 procurement policies from the broad perspectives of not only legitimacy of procured timber but also biodiversity conservation, livelihoods of residents in logging areas and revitalization of the domestic forestry industry. The company classifies timber into four categories by a sum of evaluation points for each procurement policy, and strives to increase the percentage of timber produced with due heed given to biodiversity. These efforts bring benefits to timber suppliers as well in that they can independently change timber procured in accordance with objective standards.

A shinkin bank (credit association) has offered the "time deposit for considering biodiversity" in order to help enhance the interest in COP10 to be held in Nagoya City, Aichi Prefecture, its business area, and deepen understanding about biodiversity. Bank employees met personally with over 20,000 customers and engaged in activities to mutually deepen the interest and understanding about the importance of biodiversity and COP10. The shinkin bank sold out the time deposit product two months earlier than originally scheduled, contracted ¥3,076 million in 4,164 accounts (about 3,400 depositors), with 0.01% of the deposited amount donated to the Aichi-Nagoya COP10 CBD Promotion Committee.

A detergent maker is purchasing land for the restoration of rain forests and engaged in activities to preserve Borneo elephants driven out of their habitats by donating 1% of sales of coconut detergents to the Malaysian government-sanctioned "Borneo Conservation Trust." Aside from financial assistance, the company is also organizing Borneo eco-tours for consumers as part of diffusion and educational activities to enhance environmental conservation awareness. These efforts have drawn massive consumer support.

(3) Efforts by NGOs, etc.

The Shiretoko Nature Foundation has been conducting long-term monitoring and biological surveys and genetic diversity surveys on brown bears, Yezo sika deer, marine mammals, white-tailed sea eagles and other large animals living in the Shiretoko Peninsula, the world natural heritage site. Through environmental education and experience-based education programs making use of such research results, the Foundation is also engaged in activities to communicate the importance of nature and biodiversity in Shiretoko to local residents and visitors. Furthermore, commissioned by Shari Town and Rausu Town, its founders, the Foundation is contributing to the conservation of local biodiversity through continuous efforts, including the protection and management of brown bears and other wild animals and the "Shiretoko 100 m^2 Forest Trust," one of pioneering national trust movements in Japan.

Since its establishment in 2001, the Research Institute of Agriculture and Nature, a specified nonprofit corporation, has developed an index of 5,470 species of animals and plants in rice paddies and a list of surveys on the distribution of their habitats, based on the belief that "ordinary insects," not destructive inspects or helpful insects, form the rice field environment, and submitted them to relevant research institutions. The institute is also trying to make 230 species each of animals and plants into indicator species to evaluate biodiversity in

rice fields. Further, the institute carried out a research and analysis of organism species in rice paddies and dikes under pesticide-free production, developed agricultural technology by utilizing its research and analysis results, publicly proposing it evaluation methods. It is spreading these research results to farmers, nature protection organizations and people related to environmental education.

(4) Cooperative efforts by companies and NGOs

The Asaza Fund, a specified nonprofit corporation, has revived Yatsuda, a reservoir for Kasumigaura Lake, and since 2008, has been producing Japanese sake using brewer's rice produced in revived Yatsuda with the cooperation of a local sake brewery. The Fund is hugely successful in selling its sake through the cooperation with local sake retailers and it is using part of sales for the revival of Yatsuda. Efforts to restore the Yatsuda reservoir are under way in a broad area around the lake in collaboration with other companies and volunteer groups.

In Toyooka City, Hyogo Prefecture, in order to secure biodiversity-rich rice fields where white storks that have returned to the wild feed, JA Tajima, White Stork Shicchi Net, the municipal government of Toyooka, the Toyooka Agricultural Improvement and Diffusion Center of Hyogo Prefecture and others are cooperating to promote "white stork-nurturing farming method" to produce safe and secure rice and nurture a variety of living organisms at the same time by reducing the use of agricultural chemicals or with no agricultural chemicals. They are also carrying out surveys on living organisms in rice paddies by developing a method of survey farming household can conduct on their own and by cooperating citizens and consumers. Part of proceeds from the sale of "white stork-nurturing rice" planted under the above-mentioned farming method is donated to the "Toyooka White Stork Fund" to be used to improve habitats for white storks, including feeding grounds. The price is about 50% higher than ordinary rice for rice produced with no agricultural chemicals used and about 20% higher for rice with reduced use of agricultural chemicals. Since sales have been robust despite high prices, however, farming households producing these types of rice are increasing year after year. Sales of the 2008 crop amounted to 520 tons (produced in about 200 hectares of rice paddies) for about ¥170 million.

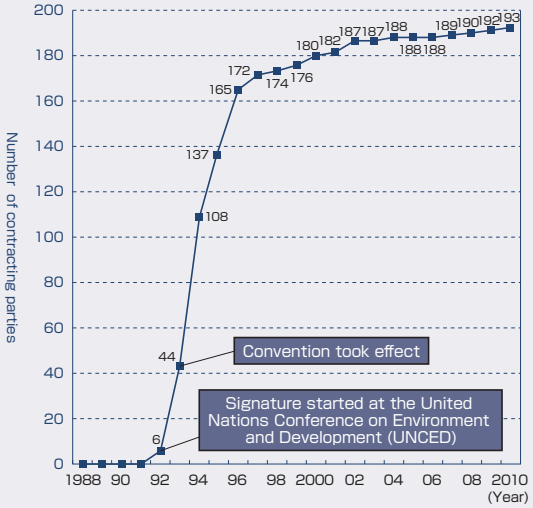
Section 4 10th Meeting of the Conference of the Parties to the Convention on Biological Diversity (COP10) That Determines the Direction of Life on the Earth

In order to maintain the sound foundation for existence of mankind, not only global warming countermeasures but also the conservation of biodiversity and its sustainable use are essential. Therefore, given the experience of failure to achieve the 2010 Biodiversity Target, the international community is getting into action to set a new target for years beyond 2010. Japan, as the host country of COP10, will make the meeting successful and promote efforts for sustainable exploitation of ecosystem services.

1 The international community at a major turning point

"The Economics of Ecosystems and Biodiversity (TEEB)" released at the high-level ministerial segment of COP9 in 2008 in its preface noted that "we are still learning the 'nature of value,' as we broaden our concept of 'capital' to encompass human capital, social capital

Figure3-4-1 Changes in Number of Contracting Parties to the Convention on Biological Diversity



Source: Prepared by Ministry of the Environment based on the website of the Secretariat of the Convention on Biological Diversity Secretariat

Figure3-4-2 Developments and Trends of International Efforts

1993	Convention on Biological Diversity entered into force (Three main objectives) ・The conservation of biological diversity ・The sustainable use of the components of biological diversity ・The fair and equitable sharing of the benefits arising out of the utilization of genetic resources
2002 (COP6)	Adoption of the Convention on Biological Diversity Strategic Plan 2010 Target: Achieve a significant reduction of the current rate of biodiversity loss by the year 2010
2006 (COP8)	Release of the second edition of Global Biodiversity Outlook (GBO2) Loss of biodiversity still continuing
2007	The G8 Environment Ministers Meeting held in Germany addressed biodiversity as a major agenda for the first time
2008 (COP9)	Decision to hold CBD COP10 in Nagoya City, Aichi Prefecture
2010 (COP10)	Release of the third edition of Global Biodiversity Outlook (GBO3) Failed to achieve the 2010 Target

Source: Ministry of the Environment