

Abridged and Illustrated for Easy Understanding

Annual Report on the Environment in Japan 2006

Overview 1: Population Decline and the Environment
**Overview 2: Fifty Years of Minamata Disease,
Origin of Japan's Environmental Problems**



Ministry of the Environment

To Our Readers

This booklet, *Abridged and Illustrated for Easy Understanding--Annual Report on the Environment in Japan*, is a summary of the *Quality of the Environment in Japan 2006* (White Paper), an annual report on the environment issued by the Government, published on May 30, 2006. The content of this booklet was edited to reach out to a wider readership with a more readable publication. This booklet offers an overview of several subjects including “Population Decline and the Environment” and “Fifty Years of Minamata Disease, Origin of Japan’s Environmental Problems” (in Part One) as well as a digest of environmental conservation policies and measures implemented by the Government in FY 2005 (in Part Two).

The *Quality of the Environment in Japan 2006* was printed by Gyosei Corporation. The Ministry of the Environment also intends to publish the *Annual Report on the Environment for Children* this fall, which is edited for easy understanding by primary and middle school students.

These publications are also available on the Ministry of the Environment websites:

Quality of the Environment in Japan (<http://www.env.go.jp/policy/hakusyo/>);

Annual Report on the Environment for Children (<http://www.env.go.jp/policy/hakusyo/kodomo.html>) (these two documents are available only in Japanese); and back issues of *Quality of the Environment in Japan* and *Abridged and Illustrated for Easy Understanding--Annual Report on the Environment in Japan* are available on the Ministry of the Environment website (<http://www.env.go.jp/en/w-paper/index.html>).

Besides the topics covered in this booklet, *Quality of the Environment in Japan 2006* also introduces the following websites for your reference:

- Toward the Realization of a Virtuous Circle for Environment and Economy in Japan (http://www.env.go.jp/policy/env_econo/index.html) (in large part, Japanese only)
- Ecominister (My family’s Minister of the Environment) (<http://www.env.go.jp/policy/wagaya/index.html>) (in Japanese only)
- EcoFamily Website (<http://www.eco-family.jp/>) (in Japanese only)
- Global Environment Information Centre (<http://www.geic.or.jp/geic/>)

The drawing on the front cover is the work of Misato Kato, who at the time was a freshman at the Shizuoka Prefectural Hamamatsu Enoshima High School. The drawing won the Minister of the Environment Award (General Category; high school and above) in the 2006 White Paper on the Environment Cover Page Illustration Contest sponsored by the Ministry of the Environment and the Japan Environment Association.

Ms. Kato commented, “The poster represents a landscape where we live in harmony with the riches of the air, vegetation and water as well as animals”

The drawing on the back cover is the work of Keiko Ihara, who at the time was a junior at Kagawa Prefectural Takamatsu-Kougei High School. It received the Japan Environment Association Chairman Award (General Category) in the same Cover Page Illustration Contest.

Ms. Ihara said “I would like everyone to understand all plants and animals will grow well if we have clean water.”

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Part One

Overview

Overview 1

Population Decline and the Environment

Introduction

(1) Advent of the Era of Declining Population

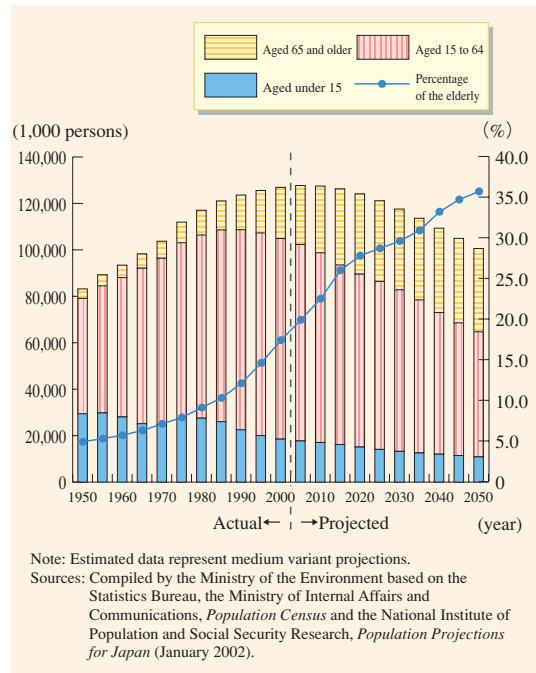
Japan has been pushing ahead with education, labor and social security policy initiatives, aimed at making it easier to have and raise children, but the nation will start seeing a significant population decrease in 2006. Japan's population is estimated to decrease by approximately 10 million by the year 2030.

The advent of the declining population era will have significant impacts on Japan's socioeconomic structure and citizens' daily lives, such as slowing economic growth, raising the level of the social security burden, and increasing the pressure on fiscal resources. These factors will, in turn, have various impacts on the environment. However, it might provide a good opportunity to improve the environment and achieve more affluent lifestyles.

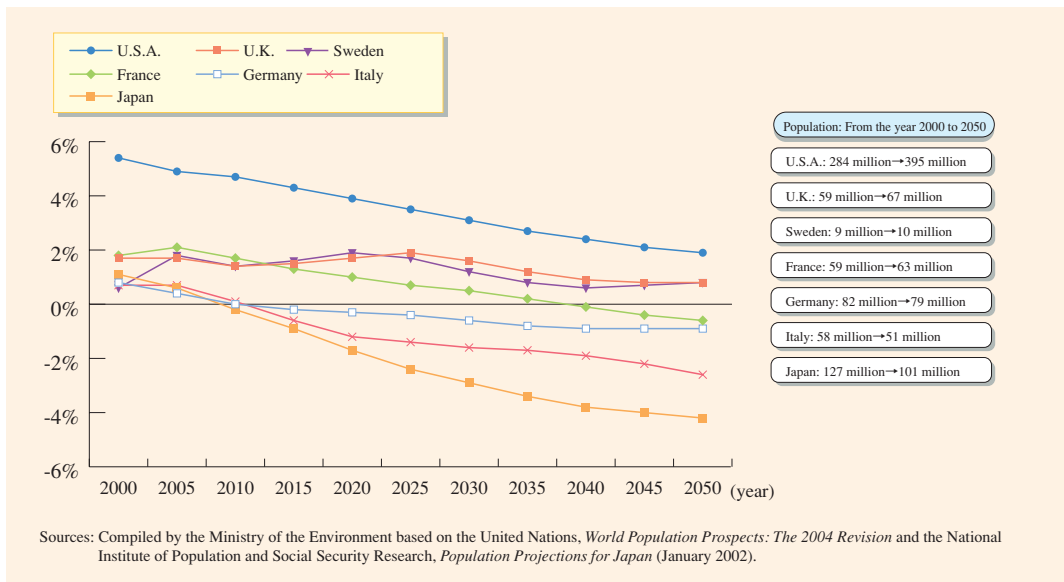
This section describes what kind of positive and negative impacts the falling population will have on the environment.

Except for the U.S. and some other nations, the total population is estimated to remain the same or decrease in most developed nations. However, Japan will see its population decrease at the fastest rate.

Trends in the number of the major age composition



Population Growth Rate in Major Nations

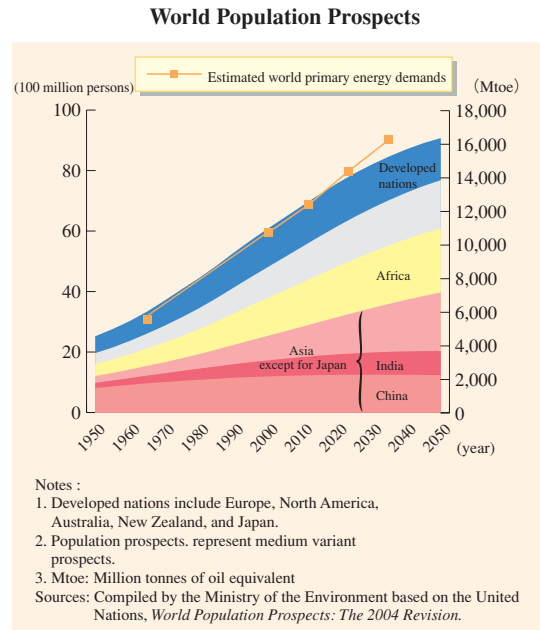


Population decline has already begun in some rural areas in Japan. Japan will see a rapid population decrease in the future. The percentage of the elderly is higher in rural areas, but it will also increase rapidly in urban areas in the future.

(2) Impacts of World Demographic Trends on Japan

The global community is expected to undergo a population explosion. According to the UN's medium variant prospects, the total world population will reach 9.3 billion in 2050.

Such a population explosion will bring about a stronger global demand for natural resources, energy, food and water, and increase environmental burdens. It will also have significant impacts on the socioeconomic structure and environment in Japan.



Chapter 1

Environment in the Declining Population Era

<Summary of Chapter 1>

A new declining population era has begun in Japan. This decline will speed up societal changes. These societal changes include changes in demographic structure such as decreasing birthrates and an aging population, as well as uneven regional population distribution resulting from rapid depopulation in rural areas and diffusion of urban areas.

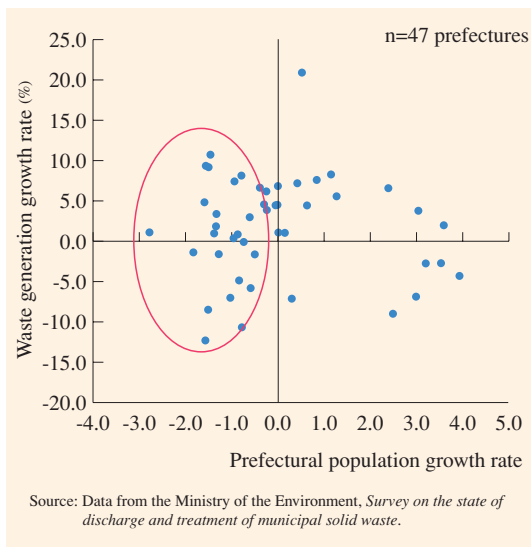
Chapter 1 examines what kind of impacts these factors will have on the environment.

Section 1. Demographic Trends and the Environment

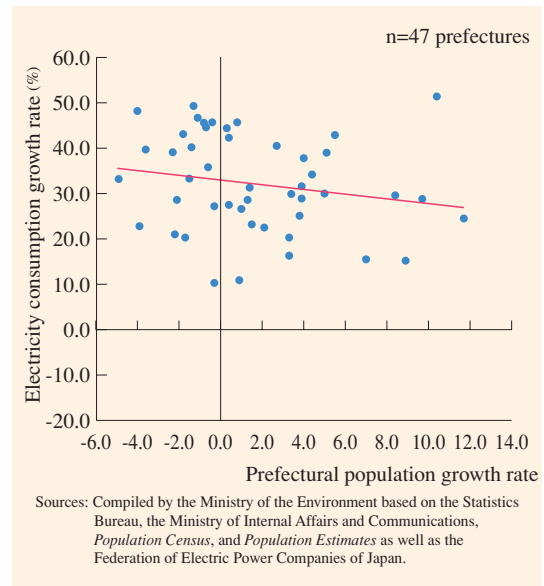
1. Environmental Changes Resulting from Population Decline

Since population decline will decrease the consumption of resources and energy, environmental burdens should be reduced to some extent in the long run. However, comparisons between population growth rate and total waste generation or electricity consumption in 47 prefectures in Japan have revealed that population decline bears no relationship to changes in waste generation or electricity consumption. This is probably because changes in social structures, values, lifestyles, or increased economic activities offset the smaller environmental burdens resulting from population decrease.

Comparison between Prefectural Population Growth Rate and Waste Generation Growth Rate (FY1998→FY2003)



Comparison between Prefectural Population Growth Rate and Electricity Consumption Growth Rate (FY1990→FY2003)

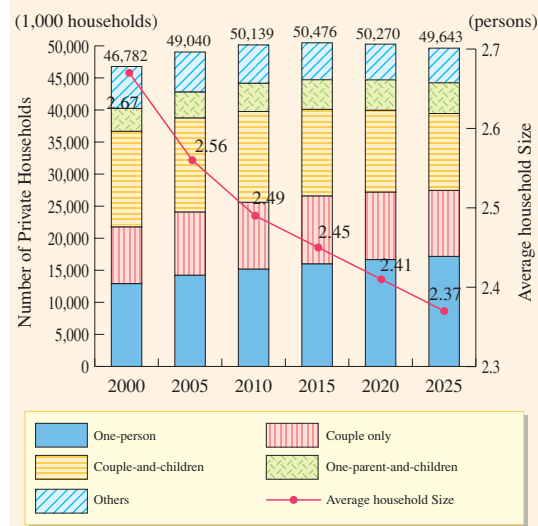


In this way, demographic structural changes or rapid socioeconomic changes due to population decline would have impacts on the environment. The belief that “A population decline would decrease the environmental burden and have positive impacts on the environment” is not necessarily correct.

2. Household Changes and the Environment

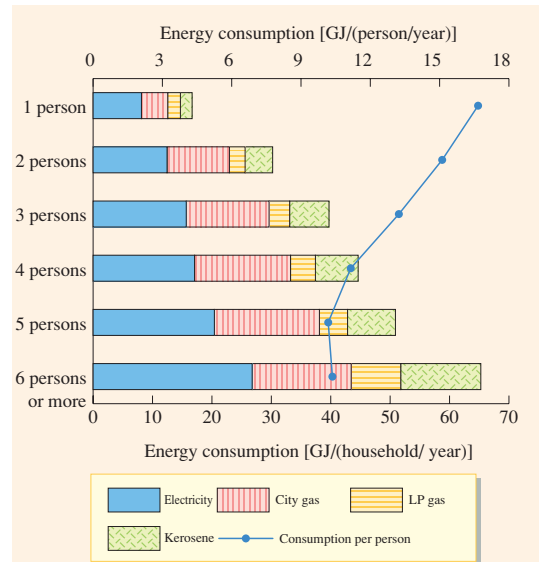
While Japan will experience a further decline in the birthrate and an increasingly aging population, single-person households will increase. Fewer family members in each household will push up the total number of households for a while even after Japan's total population starts decreasing. Because in many cases family members share hot water heating and electric appliances, energy consumption per person is likely to increase as the number of family members in each household decreases.

Number of Private Households by Family Type, and Average Household Size



Source: Compiled by the Ministry of the Environment based on the National Institute of Population and Social Security Research, *Household Projections for Japan*.

Energy Consumption per Household Member

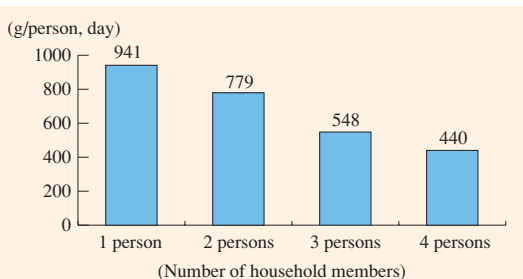


Source: Compiled by the Ministry of the Environment based on the Architectural Institute of Japan.

If other conditions remain unchanged, household energy consumption in Japan is projected to keep increasing until 2010, up 4.0% from the 2000 level, because the decrease in family members in each household will have a greater impact than the population decrease.

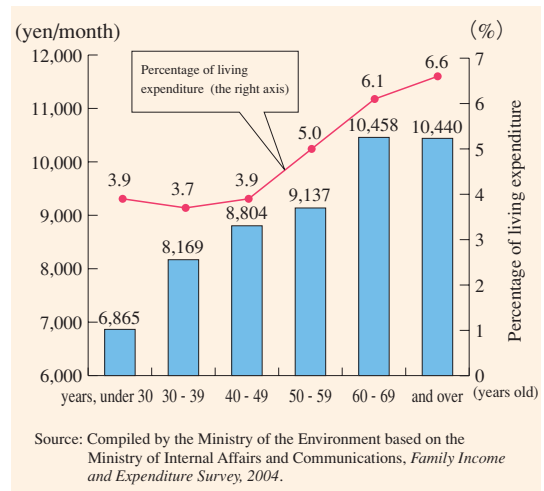
In single-person households that provide comparable data, water, lighting, and heating expenses increase as the head of the household gets older. In this context, an aging population will result in an increase in household energy consumption.

Amount of Household waste per Person Generated per Day by Household Size (2003, Kawasaki City)



Note: Household waste means ordinary trash, recyclable waste (sorted waste), or waste collected by citizens' groups.
Source: The Ministry of the Environment prepared this chart, drawing upon data from the Kawasaki City

Household Fuel, Light and Water Charges, and the Percentage of Living Expenditure (One-person Households on a Monthly Basis)



Source: Compiled by the Ministry of the Environment based on the Ministry of Internal Affairs and Communications, *Family Income and Expenditure Survey, 2004*.

With regard to household waste, the amount generated per person tend to increase as the number of family members decreases. This is because each household produces a sizable amount of garbage regardless of the number of family members. As the number of family members in each household will decrease further in the future, the amount of household waste per person will probably increase.

Column: The Amount of Food Waste Depends on the Cook's Environmental Awareness

There is a relationship between the age of the family member who buys/cooks food and takes care of meals at home, and food loss (leftover or dumped portions of edible food) per person per day in household food consumption (except for delicatessens and food cooked outside the household, such as lunch boxes). Food loss increases with the age of the family member responsible for family meals.

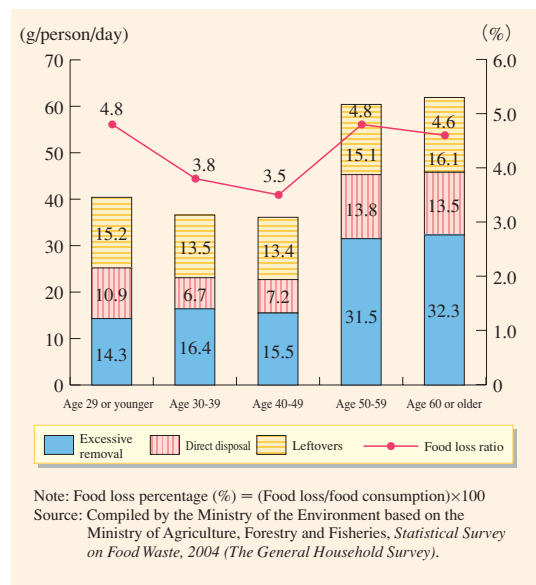
More specifically, leftovers (leftover or dumped portions of cooked meals) show no significant difference for all age groups, regardless of ages of family member responsible for food services, or the amount of food consumed.

Direct disposal (foods uncooked and discarded because the expiry date has passed or for other reason) increases for the age groups 29 or younger, and 50 or older. This is because people in the former group are unaccustomed to well-planned food purchase/consumption, while those in the latter group tend to buy unnecessary foods even after their family size decreases when their children leave home.

For excessive removal (edible portions that are removed and dumped with bones, peels or other inedible portions in the cooking process including excessive radish peels but excluding inedible portions such as vegetables/fruit peels or fish bones normally discarded), the figure for age 50 or older is twice that for age 49 or younger. This results from two factors: People aged 50 or older consume 20-30% more food because they have more opportunities to have their meals at home; and they consume larger amount of food where edible portions are likely to be peeled off with inedible portions (e.g., vegetables, fruits, and seafood).

Elderly people are generally believed to have a greater consciousness to carefully use things and avoid wasting food. However, such a belief is not necessarily correct because elderly people actually buy a large amount of food and dump a lot.

Food Loss and Food Loss Ratio by Age Group of Each Family Member Responsible for Family Meals (per Person per Day)



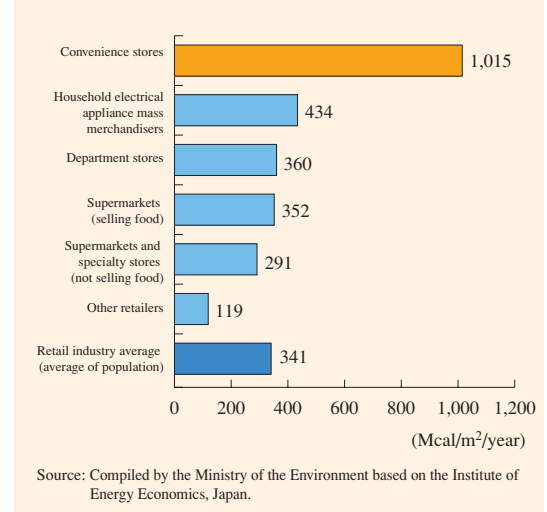
Analysts point out that we now have an “open 24 hours” lifestyle in which a segment of the population is active every hour of the day.

Recently, convenience store (CVS) chains, which are synonymous with “open 24 hours,” have significantly expanded their sales networks and floor space. As a result, carbon dioxide emission from CVS chains has increased 310% from 823,000 tonnes in 1990. It has been rising at a much faster pace than that of the corporate and public sectors (up 7.0% from the 1990 level). As this “open 24 hours” lifestyle permeates society, there might be a further increase in these overnight shops.

Although Japan’s population will decrease in the future, changes in household structure or lifestyles will probably push up environmental burdens. Efforts will have to be made to reduce the environmental burdens generated by the activities of our daily lives. For example, “Team Minus 6%,” a nation-wide project calling for reduced greenhouse gases, encourages the following actions: More household-level efforts

such as “increasing efforts to save energy by spending more time with family members”; reducing containers and packages by employing “*Mottainai Furoshiki*” intended to encourage the 3R approach. It is important to pay a little more attention to making

Retail Industry's Carbon Dioxide Emissions per Selling Floor Space



these efforts in our daily lives. Well-designed policy initiatives are necessary so that these behaviors will take root in our daily life.

3. Decrease in the Size of the Labor Force

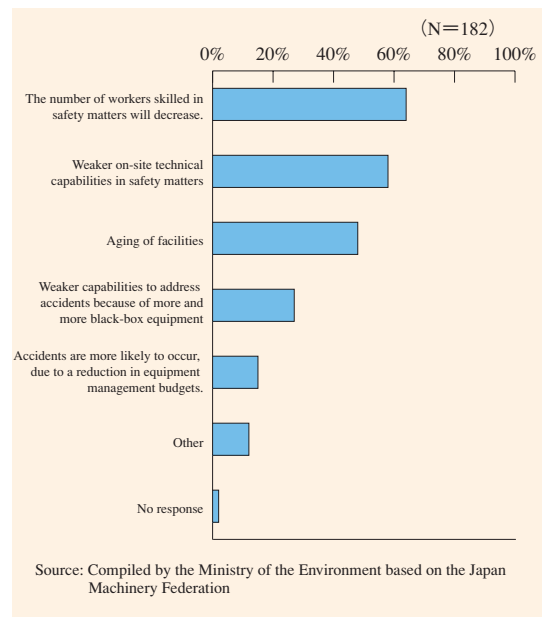
Baby boomers who have seen serious pollution and oil shocks from the late 1960s to the early 1970s will start leaving their jobs in large number in 2007 on reaching their retirement age. As a significantly large number of baby boomers will retire at around the same time, corporations and the government sector need to transfer baby boomers' techniques, skills, and experience to younger generations.

According to a survey, the largest percentage (63%) of respondents is concerned about more frequent accidents because "The number of workers skilled in safety issues will decrease." In environmental matters closely connected with safety issues, Japan might also suffer a shortage of technical staff after baby boomers retire from their jobs.

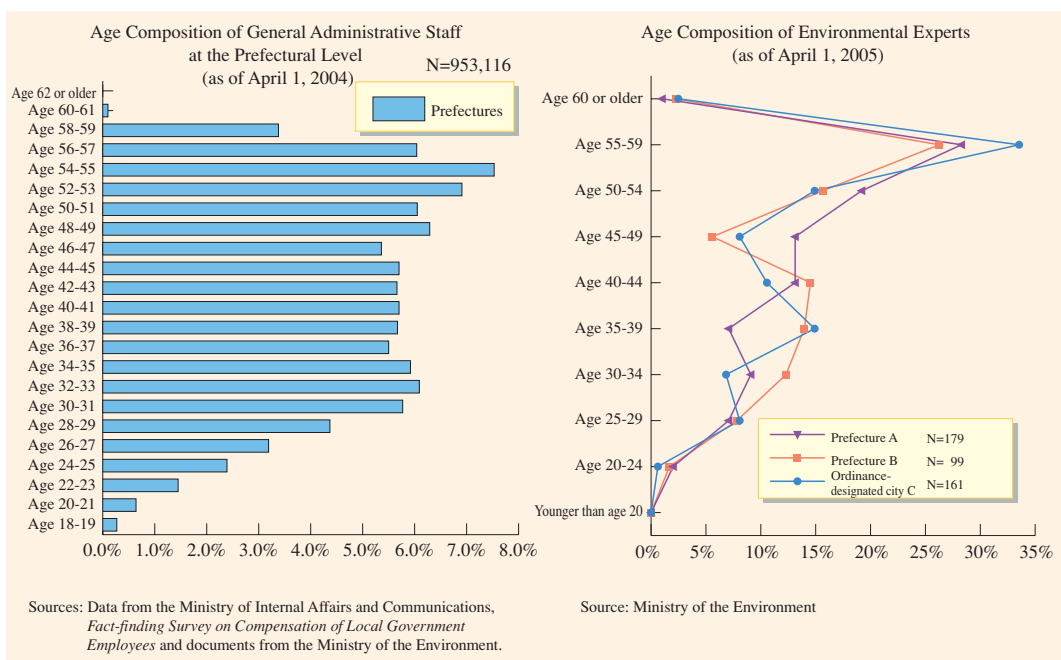
At the local government level, a lot of prefectures and ordinance-designated cities hired staff to be responsible for environmental issues in order to address serious pollution problems from the late 1960s to the early 1970s. This means that highly skilled staff with valuable experience in addressing and analyzing pollution problems will be leaving their jobs. In this situation, it is needed to transfer these valuable skills to the next generations.

In large-scale prefecture A, medium-scale prefecture B and ordinance-designated city C that have had serious pollution problems, environmental experts (usually, technical staff working for an environmental conservation section) in their late 50s make up a quarter of all the environmental experts, while civil servants in their late 50s account for less than 10% of the overall staff as a national average at the prefectural level. In these local governments, staffs in their 50s register almost 50% of all the environmental experts. From 2007 on, the problem of the loss of environmental experts might have a much more significant impact than the loss of general administrative staff.

Factors that Could Lead to Accidents



Age Composition of General Administrative Staff at the Prefectural Level



Manufacturing and some other sectors have already started to address the 2007 problem by transferring techniques, skills and experience to younger generations. They are aiming to use OJT (on-the-job training) programs to transfer the know-how of skilled engineers and to create a database of examples and actual experiences of crises engineers have encountered.

As it is almost impossible to explain experiences or techniques for addressing serious pollution problems by reducing them to numerical or statistical data, transferring these experiences or techniques to the next generation as a manual will require significant difficulties. For this reason, it is important to provide a societal framework in which trained, knowledgeable, and skilled elderly people will be able to draw upon their wide work experience in environmental matters to lead on-site or grass-root environmental efforts at home and abroad.

Section 2. Uneven Regional Population Distribution and the Environment

1 *Satochi-satoyama* Areas (Community-based Forest Areas and the Surrounding Countryside)

Satochi-satoyama (community-based forest areas and the surrounding countryside), which have been created through interactions between humans and nature, now occupy approximately 40% of Japan. This moderate level of human intervention has yielded and maintained unique environments in these areas, providing habitats for various plants and animals, including endangered species. In addition to providing “desirable spaces for primary industry,” these areas are becoming more important in providing city residents with easily accessible natural environments near urban areas.

Rural *satochi-satoyama* areas are now suffering rapid depopulation. Analysts point out that some depopulating local communities might disappear in these rural areas. According to the “Actual Conditions of Anti-Depopulation Policy Actions” released from Ministry of Internal Affairs and Communication in July 2005, approximately 10% of some 49,000 depopulating communities are facing difficulties in maintaining a viable community.

Through agriculture and forestry, *Satochi-satoyama* have provided suitable habitats for a diverse range of plants and animals and has led to harmonious coexistence between human beings and nature. However, Japan has recently seen a decrease in the number of farmers at the national level, while highly trained, knowledgeable and skilled farmers are getting increasingly older. These factors have resulted in stagnating/reducing agricultural production, weakening of local communities, and the expansion of abandoned agricultural land.

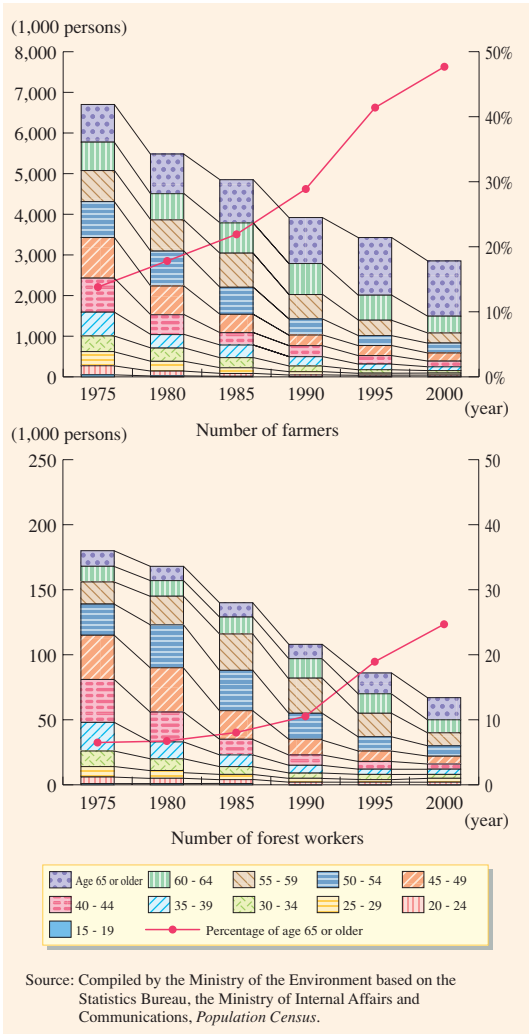
In addition, forestry activities are also stagnating, affected by deteriorating forestry productivity due to lower prices for Japanese lumber, as well as weaker demand for fuel wood because of the post-war energy revolution. As a result, workers in the forestry sector are getting older and decreasing in numbers. In addition, since some forests are suffering from inadequate replacement, care, tree thinning or other maintenance work, they might not be able to fully benefit the public.

A progress in depopulation as well as further decrease in profit margins and stagnating activities in the agricultural and forestry sectors has deteriorated the quality of secondary natural environments that have been created and maintained due to a moderate level of human intervention, leading to the disappearance of wide range of wildlife characteristic of such environments. In this context, natural environments including *satochi-satoyama* areas are facing a crisis of a reduction in their biodiversity.

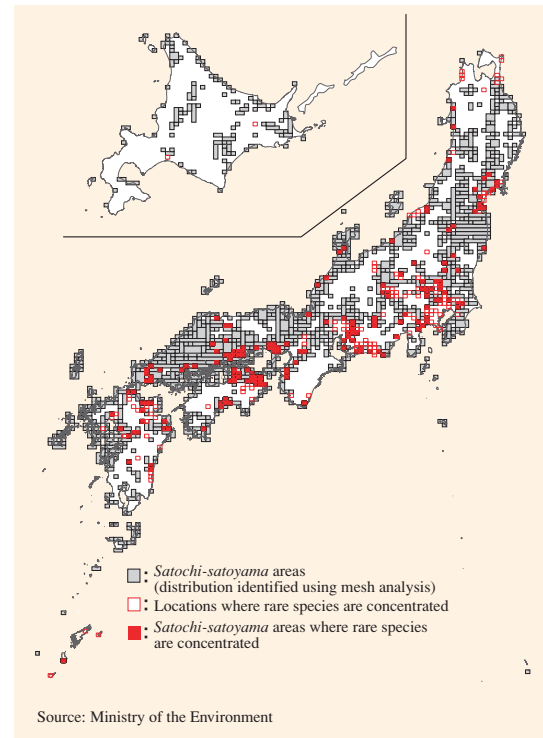


Satochi-satoyama

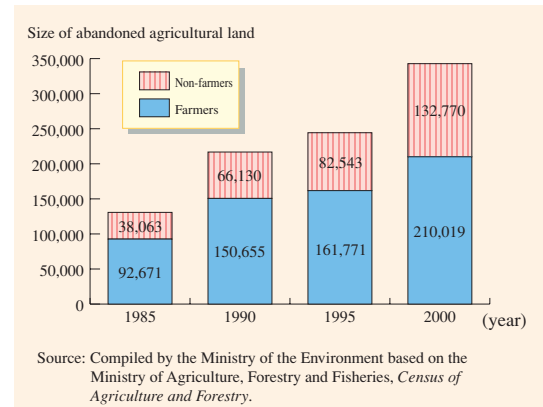
Number of Farmers and Forestry Workers by Age Bracket



Overlapping Relationship between Satochi-satoyama and Rare Species Habitats



Trend of Abandoned Agricultural Land



a. Rice Paddy Fields

Rice paddy field farming creates and maintains shallow marshes which provide habitats for cyprinodonts and other wildlife. However, if farmers abandon paddy field farming, rice paddy fields will dry out and thick weed growth will prevent riparian creatures from living there. If pampas grass or other perennial plants grow thickly on abandoned agricultural land in rural areas, such condition will provide suitable hideaways for wild boars or other animals and might lead to bird and animal damage.



Abandoned agricultural land



Diving beetle

b. Secondary Forests

Quercus serrata, sawtooth oak, and Japanese red pine forests have been used as ideal material for firewood, while their fallen leaves have been utilized for fertilizers. However, much weaker demand for firewood and fertilizer made from fallen leaves as well as depopulation of rural areas has pushed up the number of abandoned secondary forests. These abandoned secondary forests have larger trees, and turn into evergreen broad-leaved forests such as phaius flavus with bamboo grass, preventing sunlight from reaching the forest floor. Dog's tooth violets find it difficult to survive on these shady forest floors, as does *Luehdorfia japonica*, which sucks nectar from dog's tooth violets.



Forest devastation



Luehdorfia japonica

c. Artificial Forests

Through post-planting weeding/bush clearing, improvement cutting and tree thinning, cedar and other artificial forests benefit the public by preventing mountain disasters or global warming.

Stagnation of forestry services in recent years has resulted in some poorly managed artificial forests, which prevent adequate growth of grasses or shrubs in the forests due to insufficient sunlight. This might have negative impacts on animals or plants living in and around these forests.

d. Increased Conflict between People and Wildlife

The loss of moderate human intervention in nature obviously resulted in negative impacts on wild birds and mammals, such as wild boars. Medium and large mammals used to live in natural areas in the mountains or on the borders with *satochi-satoyama* areas, but they are expanding their habitats. For example, the 1978 and 2003 surveys have revealed that wild boars have expanded their habitats to farmland, secondary forests, and plantation forests. This resulted from the following factors: Expansion of abandoned agricultural land where thick growth of grasses and bushes has provided safe shelter for wild boars; and less active human intervention in *satoyama* areas has made it easier for wild boars to move from forests into abandoned agricultural lands.

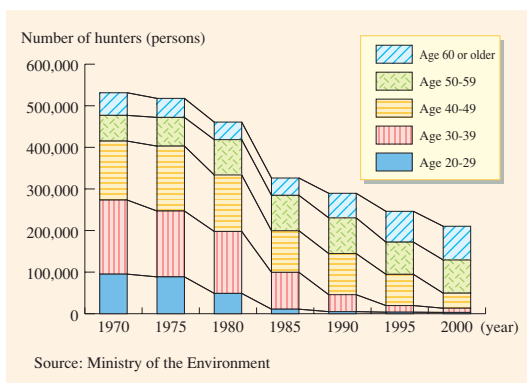
In addition to expanding habitats for wild boars, the lack of moderate human intervention has also brought about adverse impacts on the agriculture and forestry sectors by wild birds and mammals. According to a “Survey of the Government Sector and Agricultural Groups on Measures against Damage by Wildlife (Preliminary Data)” (Ministry of Agriculture, Forestry and Fisheries, 2005), about a half of agricultural groups said that they suffered increased damage from wild boars.

To mitigate these conflicts between people and wild life, it is important to properly protect and manage wild life as well as to comprehensively prevent such harm, by measures such as adequate fencing.

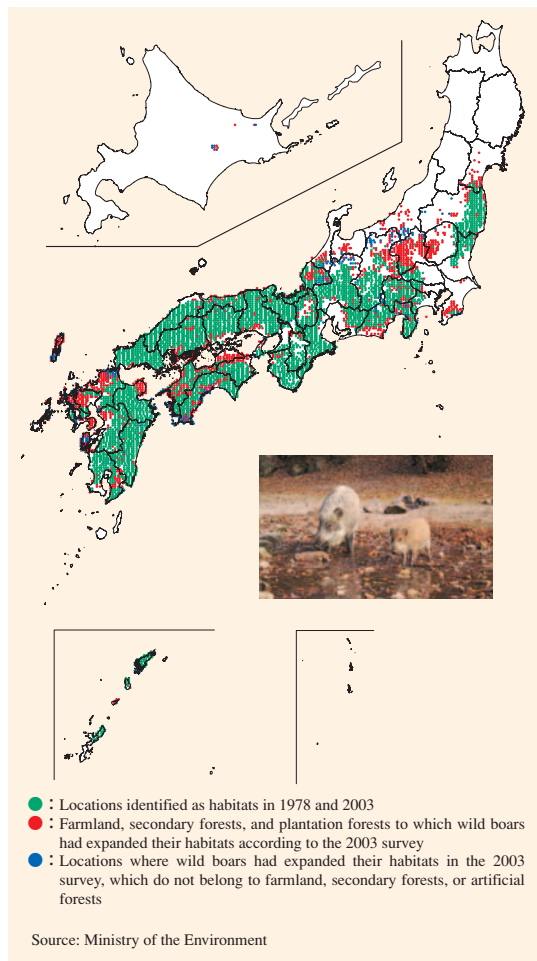
Hunters (hunting license holders) have played important roles in protecting or managing wildlife. However, since 1970, hunter numbers have decreased and they have become older, which suggests that it is necessary to ensure that there are a certain number of hunters and to transfer their expertise to the next generation.

In *satochi-satoyama* areas, further depopulation and weaker agricultural and forestry activities in the era of declining population might upset the proper balance between nature and human activity, which results in a negative impact on conservation of biodiversity.

Trend of Hunters by Age Bracket



Farmland, Secondary Forests, and Plantation Forests Where Wild Boars Have Expanded Their Habitats



If we really want to continue sustainable use of such abundant secondary natural environments in *satochi-satoyama* areas while ensuring that these environments are passed on to the next generation, it is important to realize such areas have been maintained by positive use rather than restrictive measures. In such areas, human life and productive activity are closely connected with regional biodiversity. Each local community should secure activities necessary to conserve *satochi-satoyama* and develop systems to promote such activities.

2. Cities and the Environment

With consistently significant population growth and high economic growth rates in the post-war era, Japan has seen rapid population inflow to urban areas. Densely inhabited district (DIDs) populations have been increasing as a percentage of Japan’s total population, while the size of DIDs has been expanding at a faster rate than the rate of population inflow to urban areas. Consequently the population density for DIDs has decreased.

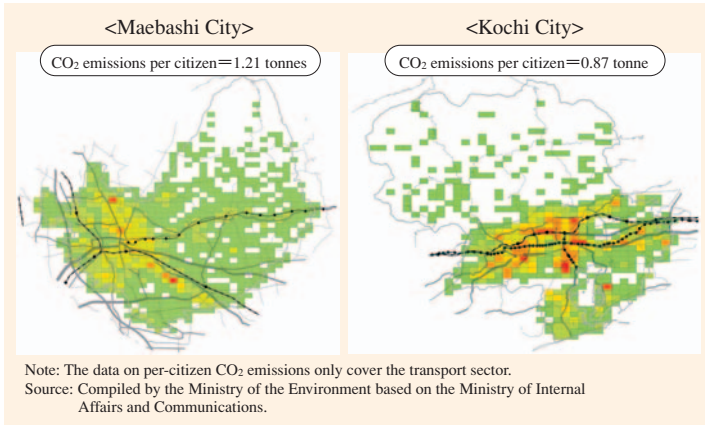
As above, Japanese cities are surrounded by low-density urban areas, which are constituted mainly from residential sectors. Such expansions of urban areas have brought significant impacts on the environment.

According to analysis on DID population density and automobile dependency rate or the transport sector’s CO₂ emissions, urban areas with lower DID population densities (i.e., more expansive urban areas) tend to show a higher automobile dependency

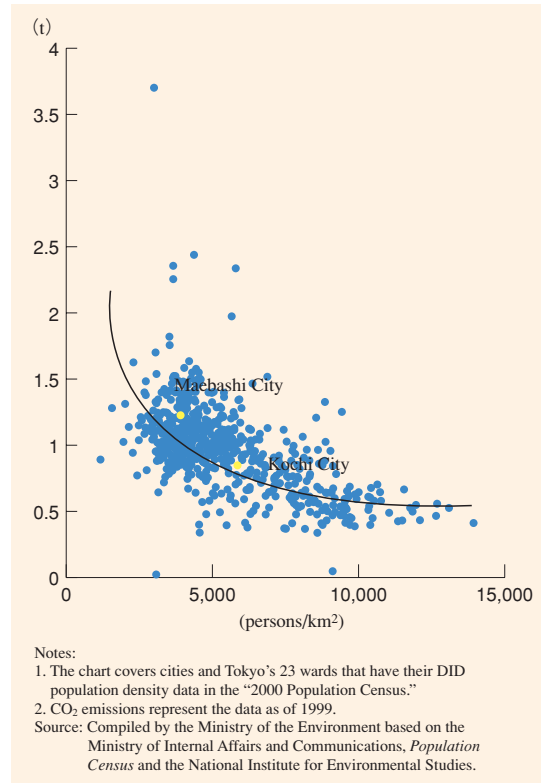
rate and a larger CO₂ emission per resident. These data obviously suggest that expansion of urban areas is a main reason why Japan's transport sector has increased its CO₂ emissions.

Higher automobile dependency rates have recently pushed down the number of people using public transportation. If the declining population causes problems in maintaining the current public transportation network, the automobile dependency rate will increase further, resulting in a vicious cycle which will push up CO₂ emissions.

Population Density and Urban Traffic in Maebashi and Kochi Cities

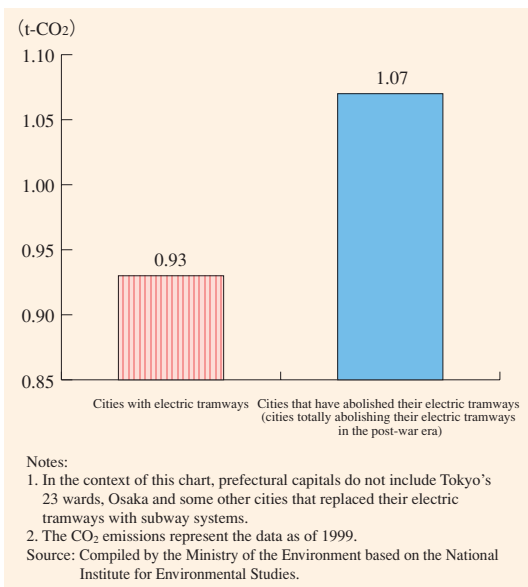


Transport Sector's CO₂ Emissions per Citizen (on Annual Basis) and DID Population Density



The design of urban areas also impacts on administrative costs. Analysis of population density and administrative costs has revealed that urban areas with a lower population density have higher administrative costs.

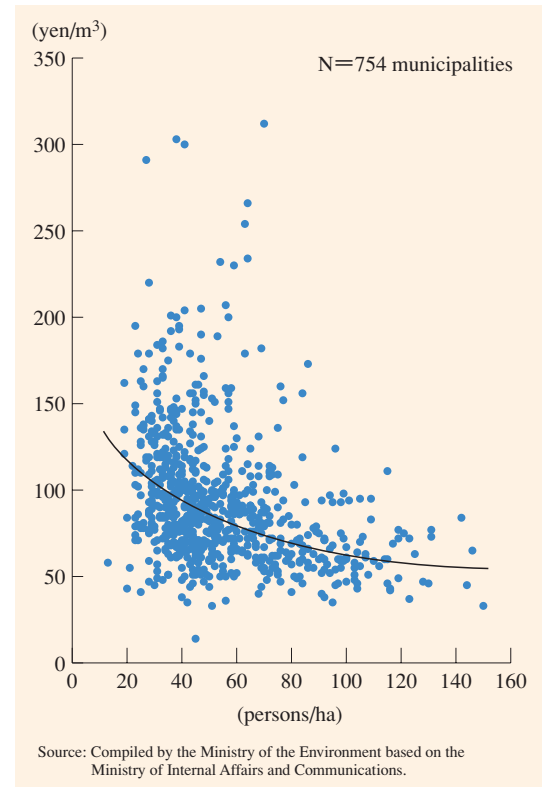
Transport Sector's CO₂ Emissions for Prefectural Capitals (annual data/person)



In particular, in public services relevant to the environment such as sewage or garbage collection, local governments with a higher population density enjoy the economy of scale because they tend to see lower administrative costs per citizen.

As population decline will further accelerate diffusion of urban areas, it is necessary to change the design of urban areas to suit their population size. To this end, there is a real need for efforts to prevent urban areas from haphazard expansion and try to create smaller local communities by restraining exurban development plans, concentrating urban functions in downtown areas, and paying attention to local needs. When reorganizing urban areas, it is necessary to pay due attention to global warming countermeasures and waste-related policy initiatives as well as the environmental perspectives stated below.

Decontamination Capital Costs (Maintenance Costs) and Population Density in Areas with Sewage Treatment



a. Natural Environment Restoration

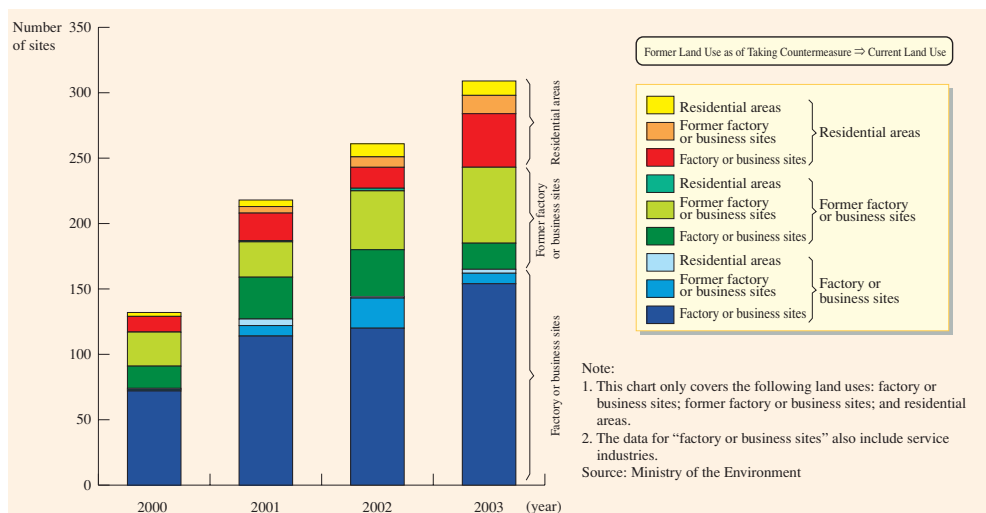
As urban areas have expanded through the conversion of land from agricultural, forestry, or mixed agricultural/forestry use to urban use (such as factories, or residential areas), many natural environments have disappeared. In this context, it is necessary to attempt to restore natural environments when creating more compact local communities.

b. Soil Contamination Countermeasures

In recent years, urban redevelopment projects or other projects that convert former factory sites into residential areas provide opportunities to identify soil contamination. The number of cases that conversion of former factory/business sites into residential areas provide opportunities to identify soil contamination is increasing.

More cases of soil contamination would be identified as more former factory sites are turned into residential areas. Because of this, it is necessary to proceed with more economic and rational surveys and soil contamination countermeasures.

Land Use for Major Contaminated/Surveyed Sites



c. Traffic Pollution Control Measures

It is necessary to shift to active utilization of public transportation to avoid heavy inbound traffic in a location with serious air pollution, improve traffic flows, and create open spaces near intersections. Recognition of the fact that the shape of urban areas or buildings impacts on the quality of the local atmospheric environment and the urban environment measures in the medium and long term are required.

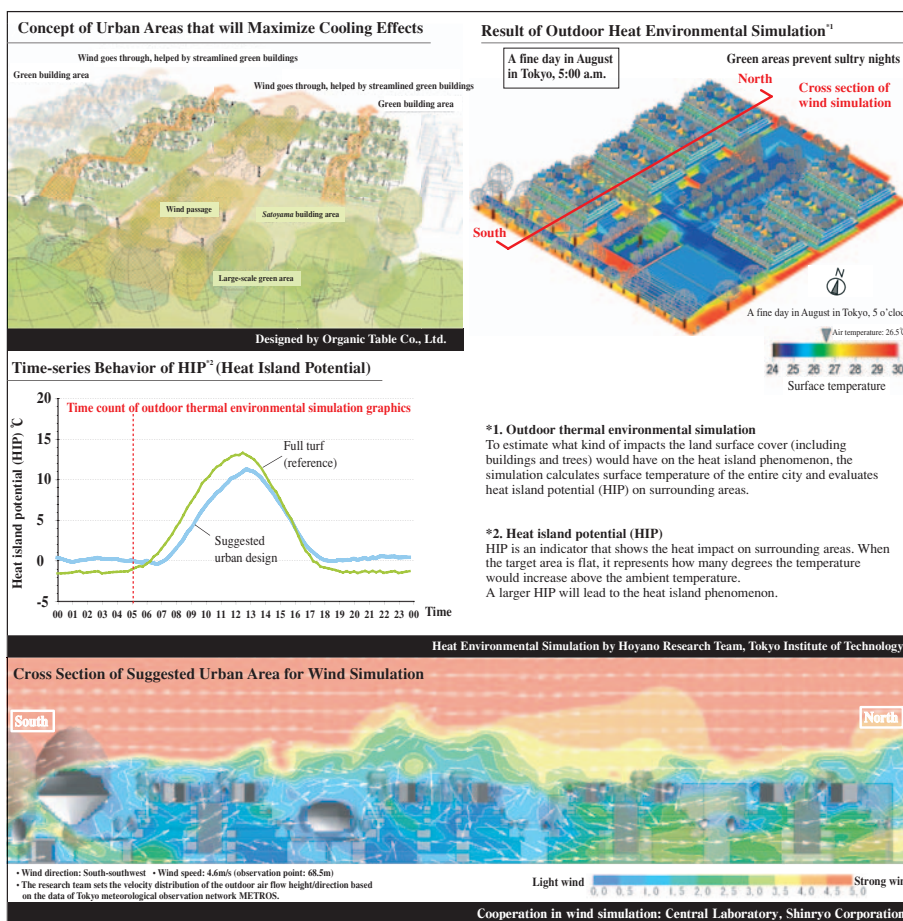
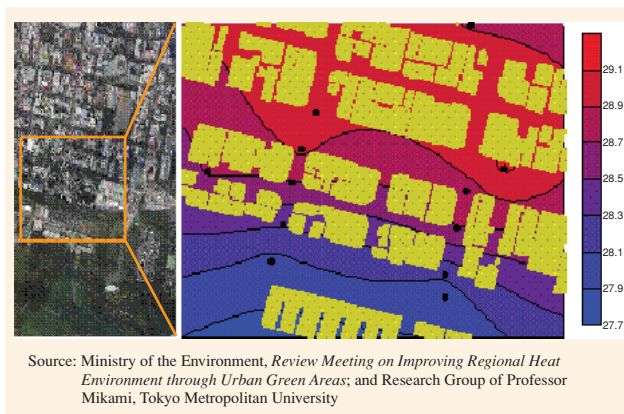
d. Urban Heat Island Countermeasures

It is necessary to create water and green networks. According to our survey in last summer on the cooling effect of the Shinjuku Gyoen National Garden, urban green area, the average temperature was more than 1°C lower than urban areas, and the gardens cooled the temperature in the surrounding 100 meters. We also outlined possible urban designs that would maximize such cool island phenomena. It is necessary to proceed with implementation of policy to build compact urban areas with minimal environmental burdens.

The mechanism of the heat island phenomenon is complex because it results from the interaction of various factors such as anthropogenic exhaust heat, land surface cover, urban design, topography and climate conditions. We should conduct surveys, carry out research and work on mitigating the heat island phenomenon, drawing upon survey results, state-of-the-art technologies and up-to-date scientific knowledge.

Because the urban environment is created by a complex interaction of various factors, it is necessary to design urban areas so that the environmental burdens of entire cities will not increase.

Average Temperature on the North Side of the Shinjuku Gyoen National Garden (July 27 to August 29, 2005)



Source: Ministry of the Environment, Review Meeting on Improving Regional Heat Environment through Urban Green Areas

Chapter 2

Creating a Sustainable Society Compatible with a Declining Population

<Summary of Chapter 2>

Due to population decline, we need to intensify our innovative environmental conservation efforts, while retaining the flexibility to address social changes.

The era of declining populations will lead to different values and a richer living environment, providing a strong impetus for the creation of a sustainable society. Chapter 2 covers opportunities to create a more sustainable society in the era of declining populations and the actions of various actors, so that suggests outlining a sustainable society compatible with a dwindling population.

Section 1. Opportunities for Creating a Sustainable Society

1. Our Values Will Change

In this era of declining populations, we have different values from those we had in the past. These changes in values will have positive impacts on creating a sustainable society.

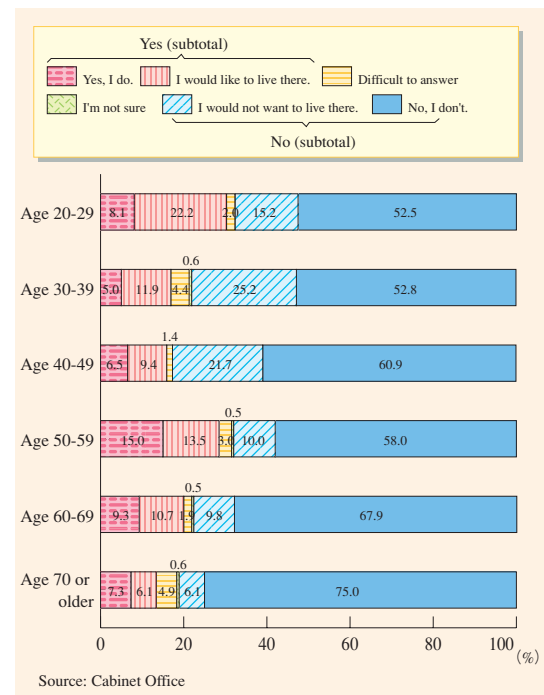
More and more people are putting a higher value on spiritual affluence rather than material wealth. They tend to seek a lifestyle providing spiritual affluence rather than material comfort. Because of peoples' different sense of values, the government launched the "COOL BIZ" campaign in the summer of 2005. (Considering high temperature and high humidity during summer in Japan, "COOL BIZ" encourages people to wear cool and stylish clothes without ties and jackets even in business occasion (even when the office temperature is 28°C)). A higher air-conditioning temperature has reduced the CO₂ emissions by approximately 460,000 tonnes, which is equivalent to the CO₂ emissions generated by about 1 million households in a month.



Buzzword of the Year "COOL BIZ"

Environmental-oriented reforms will have impacts on people's lifestyles, environment-related markets, and the financial markets that provide funds to these markets. People are becoming increasingly aware of environmental conservation. For this reason, in addition to financial indicators such as corporate profit or profitability, people are paying more attention to the socially responsible investment (SRI) indicator which evaluates corporate environmental conservation and other social activities in financial terms. Japan's SRI investment trust asset value

Do You Want to Live Permanently in Agricultural, Fishing, or Mountain Villages?



stood at approximately 260 billion yen as at the end of March 2006, and is estimated to grow further in the future.

As more and more people seek an “affluent life” in touch with nature, Japanese citizens have a stronger desire to settle in agricultural, fishing, and mountain villages. In particular, people in their 50s (baby boomers) tend to have such a desire, while younger people in their 20s might also wish to do so.

As baby boomers reach retirement age, more and more people are expected to return to live or stay in natural environments such as *satochi-satoyama* areas.

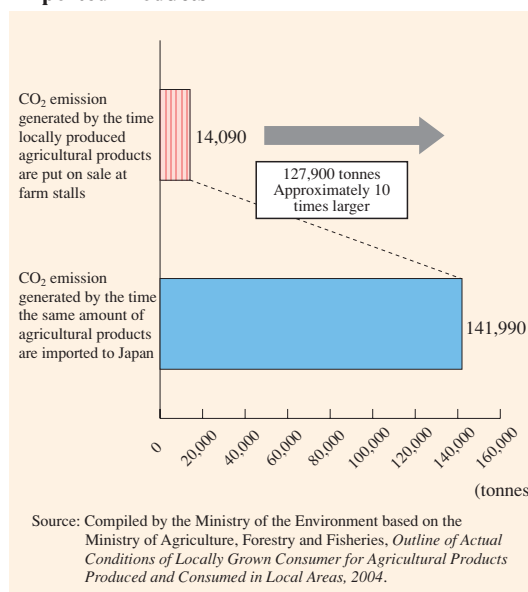
In addition, local policymakers are taking policy initiatives to encourage local production for local consumption. If farmers produce more food for local consumption, so-called “food mileage” will decrease, reducing environmental burdens, such as CO₂ emissions.

As of FY2003, 2,982 Farm Stalls provide locally produced agricultural products. Their total sales stand at 177.2 billion yen, which is 1.7% of the overall agricultural output (excluding stock farm products). According to our food mileage calculations, if we entirely replaced these

locally produced foodstuffs with imported agricultural products, CO₂ emissions would increase to almost 10 times the current level. This suggests that local food production for local consumption has a significant impact on the environment.

More and more people will have a different set of values, and at the same time efforts to address such changes will permeate society. These factors are expected to provide strong driving forces to create a sustainable society. In addition, attempts to create a new society where we enjoy lifestyles compatible with these new values will play an important role in achieving spiritual affluence.

CO₂ Emissions if Japan Replaces Locally Produced Agricultural Products (Sold at Farm Stalls) with Imported Products



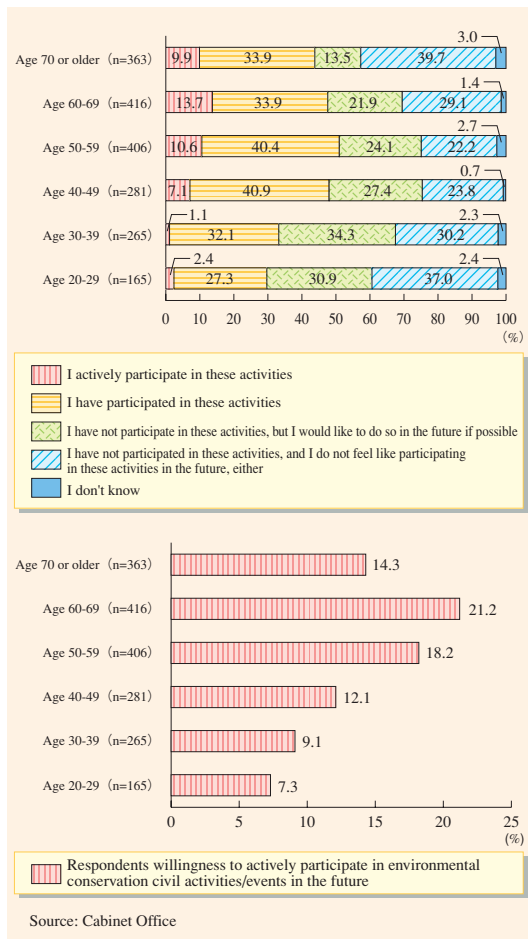
2. Taking Advantage of More Leisure Time

As working hours and household duty hours are generally getting shorter, Japanese citizens have a longer free time. As baby boomers retire from their professions, there will be a larger number of active seniors (energetic elderly people in their 50s and 60s) who have plenty of leisure time and are expected to participate in a range of activities.

According to the opinion survey on environmental conservation activities, respondents who have participated in environmental conservation activity make up 51% of overall respondents in their 50s, which is a higher percentage than in other age groups. In addition, respondents who are willing to participate in environmental conservation civil activities or events also register a higher percentage in the 50s and 60s age brackets. This suggests that elderly people are more active in environmental conservation activities than younger people.

An increase in active seniors with plenty of leisure time will be a turning point to lead to the progress of environmental conservation activities. In order to support these activities, it is important that local governments and the business community cooperate to provide environmental education programs, secure and properly provide opportunities for environmental conservation activities, and set up an appropriate framework that will provide the opportunity for many people of different ages to participate in environmental conservation activities. This will result in more effective activities.

Actual Experience or Willingness to Participation in Environmental Conservation Activities



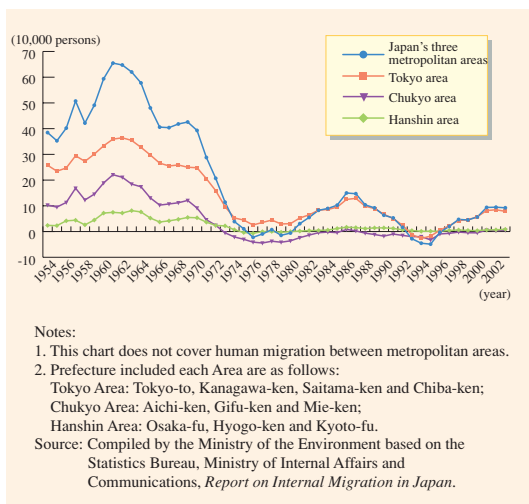
3. Toward Effective Use of National Territory Space

As the population declines in the future, urban areas in large cities or local cities will stop diffusing due to a weaker demand for new houses. Combined with a decreasing population density, this makes it possible to realize better living environment including improving housing/land problems in large cities.

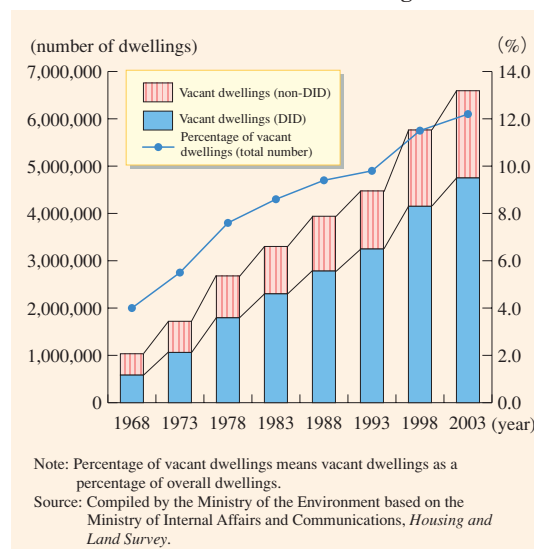
In addition, the number of unoccupied houses tend to increase. Further population decline in the future will accelerate this trend. Despite the declining population, the number of households will keep increasing up until 2015. However, the housing stock will be more effectively utilized due to the repair or refurbishment of the existing stock as well as the conversion of unoccupied houses for other purposes.

Since the existing stock, including houses and commercial buildings, usually consume a significant amount of energy, repair or refurbishment should effectively enhance the energy efficiency of the existing stock. Therefore, this strong demand for renewal, repair, and refurbishing, combined with the introduction of energy-saving equipment, should have a positive impact on energy saving.

Net-migration for Tokyo Area, Chukyo Area and Hanshin Area



Number of Vacant Dwellings



We have now entered a new era of population decline. By recognizing that the enormous replacement demand for housing or social infrastructure stocks in the near future will provide good opportunities, and by taking appropriate policy actions to achieve better and more environmentally friendly living conditions compatible with the era of declining population, it is necessary to seek new directions for creating a sustainable society.

Section 2. Initiatives Started for Creating a Sustainable Society

1. Creating Our Society in Cooperation with the Elderly People

In Tsuyama City, Okayama Prefecture, the forest owning municipal government is working with a volunteer group “*Kikori-no-kai*” (i.e., woodcutters’ association) mainly consisting of retired elderly people in order to revitalize rundown *satoyama* areas. Together with environmental education programs for local elementary school pupils and their parents, they also hold nature observation sessions, charcoal burning workshops using thinned wood, outdoor experience workshops for inoculating fungi, and tree-planting workshops.

As a result of these efforts, elderly people improve their health and have more meaningful lives. In addition, these efforts have had positive impacts on the environment including the return of orchid species and certain insects (such as dragonflies).



Charcoal burning workshop by “*Kikori-no-kai*”

2. Transferring Environment-related Skills

The SCE · Net (Senior Chemical Engineers Network), which mainly consists of retired technical staff, has set up a database of retired veteran engineers’ work experiences, and provides guidance and advice corporate clients on required subjects such as wastewater treatment and ISO14001 certification. They also give university extension lectures on their environment-related experiences and techniques (such as PRTR system) for audiences (mainly in their 30s or 40s), prepare teaching material from these lectures, and endeavor to transfer their valuable experiences and skills to the general public.

3. Environmental Conservation Efforts in *Satochi-satoyama*

In Higashiomi Area (Shiga Prefecture), wild boars, monkeys, deer, and some other wildlife threaten to cause serious damage. The Agricultural Extension Center coordinated a project team to systematically address this threat of damage by wildlife. Their efforts include traditional approaches, such as capturing animals or preventing their access, as well as more comprehensive countermeasures by the local community. These include systematic removal of pre-harvest farm crops which encourage wildlife onto agricultural land, the setting up buffer zones between humans and wildlife in order to prevent access to farmland, and pasturing farm animals. These efforts are yielding very positive results, and have significantly reduced damage by wildlife.



Fence to prevent intrusion by monkeys or wild boars
(Installing “*Oumi Enraku/Shishi Dome Kun*” fence)

4. Creating Sustainable and Pleasant Urban Space

European nations, which already have mature societies, started projects to create sustainable cities much earlier than Japan.

In Denmark, a nation with advanced social-welfare system, the capital Copenhagen has pushed ahead with policy initiatives based on the concept of normalization, and creates family-friendly local communities as well as has made it the most environmental city in Europe. To be more specific, the city regards the 5 suburban train lines (S-Bahn) as 5 human fingers, and intends to form its urban area along these S-Bahn routes, while intensifying restrictions on land use in other locations as well as provide large green areas and introduce district heat supply systems by creating compact local communities. This approach is called the “Finger Plan.” As a result, Copenhagen successfully keeps large green areas close to urban areas, which have a positive

influence on the environment and serve as places of recreation and relaxation for Copenhagen residents.

In Japan, it is becoming more conscious of creating sustainable cities. The public sector, local communities and many other actors are launching their urban policy programs.

Toyama City (in Toyama Prefecture) intends to revitalize its downtown district by creating pedestrian-friendly urban districts that do not excessively depend on automobile transportation. To achieve this, it provides grants and subsidies to increase the number of inner-city residents, redevelop its downtown district by, for example, utilizing vacant stores, and provide better public transportation, such as introducing an electric tramway called LRT (Light Rail Transit), which is more user friendly for elderly people and others who find traveling difficult. By doing this, the city is aiming to revive and revitalize its urban area. These policy initiatives will not only revitalize Toyama's downtown district, but will also reduce the environmental burdens because compact urban areas will save energy.

Since creating sustainable cities and sustainable societies is not simple, such ideas are still in the conceptual phase. Realizing such concepts will require reforming social structures and modifying lifestyles. However, if these various initiatives have successful synergistic effects, it might be able to take the necessary policy actions in the very near future. Government sectors and other actors will be expected to play greater roles in this.

In cooperation with the National Institute for Environmental Studies, the Ministry of the Environment has launched the “Low-Carbon Society Scenario toward 2050” which outlines the requirements for achieving a low carbon society in 2050 examines possible countermeasures based on a backcasting approach. In addition, the ministry has also started examining “Super Long-term Visions for Environmental Policies (provisional title),” which will describe super long-term outlooks (up until 2050), countermeasures which should be taken from now in the ultralong run, and appropriate lifestyles and social systems for the future.

To encourage various programs aimed at achieving a sustainable society and maximizing their impacts, it is important to push ahead with the aforementioned policy actions from a long-term perspective.



**Compact city that effectively uses natural energies
(Copenhagen)**



Barrier-free ultra low floor train

Conclusion

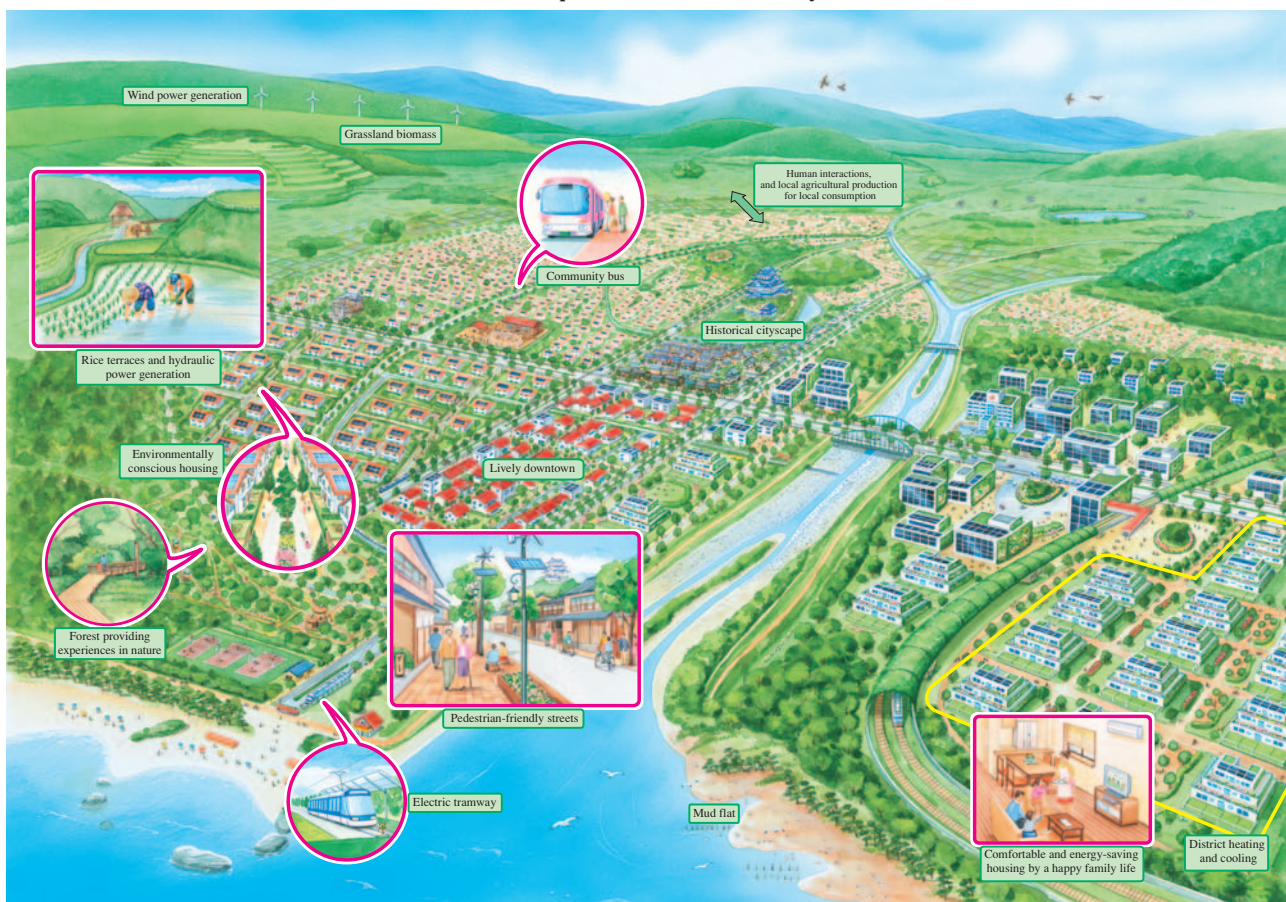
The era of declining population will have significant impacts on the economy, society, and the environment, but it will also provide good opportunities to achieve spiritual richness and affluent lifestyles that will contribute to a sustainable society.

On April 7, 2006, the Koizumi Cabinet approved “Third Basic Environment Plan - The Way to New Richness developed out of the Environment.” The Plan describes directions for future environmental policy development, calling for “Integrated Improvements of the Environment, Economy, and Society” by taking into account economic and societal trends, as well as “Formation of sustainable national land and nature” considering the relationship between the national land and nature in the context of a declining population. In line with this basic plan, the government ministries will work together to achieve a “healthy, rich, and beautiful environmentally advanced country” (HERB) in cooperation with various actors.

If these efforts successfully provide hope for people (including people in their child-raising years) that they will happily live their lives, without anxiety, in a healthy and beautiful environment, Japan may be able to put a brake on the declining birth rate.

Japan started seeing a population decline at the start of the 21st Century called the “Environmental Century.” Overcoming a declining population and creating a sustainable society are not easy tasks from either an economic, societal or environmental perspective. Japan’s population is decreasing at much quicker rate than any other nation in the world. If Japan successfully creates a sustainable society, we will be able to play a significant role by demonstrating best practice to the world, and serving as a leader in the international community.

A Example of a Sustainable City



Overview 2

Fifty Years of Minamata Disease, Origin of Japan's Environmental Problems

2006 is the 50th year since the government officially acknowledged Minamata disease.

In affected areas, various stakeholders are working on relief activities for victims and regional revitalization programs, but a lot of people are still applying for official certification as Minamata disease victims in accordance with the “Law concerning Compensation and Prevention of Pollution-related Health Damages” (LCPPHD) or filing lawsuits for damage compensation. In this sense, Minamata disease is an ongoing problem.

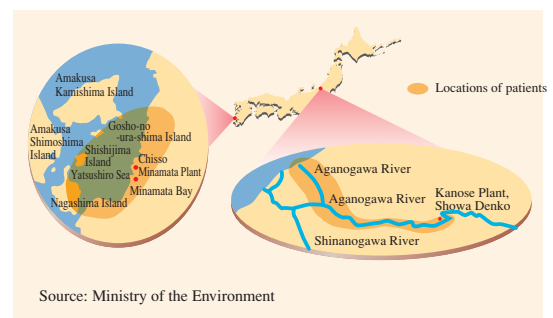
Taking the opportunity of the 50th year since Minamata disease occurred; this section describes the historical background and the current situation of Minamata disease so that we will think again what kind of policy actions are necessary to prevent a problem like Minamata disease occurring again.

Section 1. What is Minamata Disease?

Minamata disease is a toxic nervous disease caused by eating seafood contaminated with methyl mercury compounds discharged from the Minamata plant (in Kumamoto Prefecture) of Shin-Nippon Chisso Hiryo K.K. (subsequently renamed “Chisso Corporation” at a later date) or the Showa Denko K.K. plant in Kanose Town, Niigata Prefecture.

Its major symptoms include sensory disturbance, ataxia, concentric constriction of the visual field, and auditory disorders. If a mother is highly exposed to methyl mercury during pregnancy, her baby might suffer from fetal Minamata disease, which is clinically different from the adult condition.

Location of Minamata Disease Patients



Section 2. Emergence and Expansion of Minamata Disease

On May 1, 1956, the Minamata Public Health Center was informed that a patient in the Tsukiura district of Minamata City had been hospitalized due to a brain disorder of unknown cause. This was when the government officially acknowledged Minamata disease for the first time.

After that, Kumamoto University and some other institutes started projects to identify the root cause of Minamata disease, but it was impossible to immediately identify the causal substance and the responsible company due to conflicts of opinions between scientists and the company.

At the end of 1959, Chisso installed coagulation sedimentation equipment and signed an agreement with victims to make consolation payments. (The mass media reported that the equipment would purify wastewater, but it was not designed to remove mercury, failing to remove water-soluble methyl mercury compounds.) As a result, disputes surrounding Minamata disease in the Minamata area calmed down, without a call for clear social responsibility.

On May 31, 1965, the Sanitation Department of Niigata Prefecture was also informed of a patient who was suspected of having organic mercury poisoning. On September 26, 1968, the Ministry of Health and Welfare and Science and Technology Agency publicly announced the government's collective opinion on the causal substance and companies responsible for Minamata disease that occurred in Kumamoto and Niigata Prefectures.

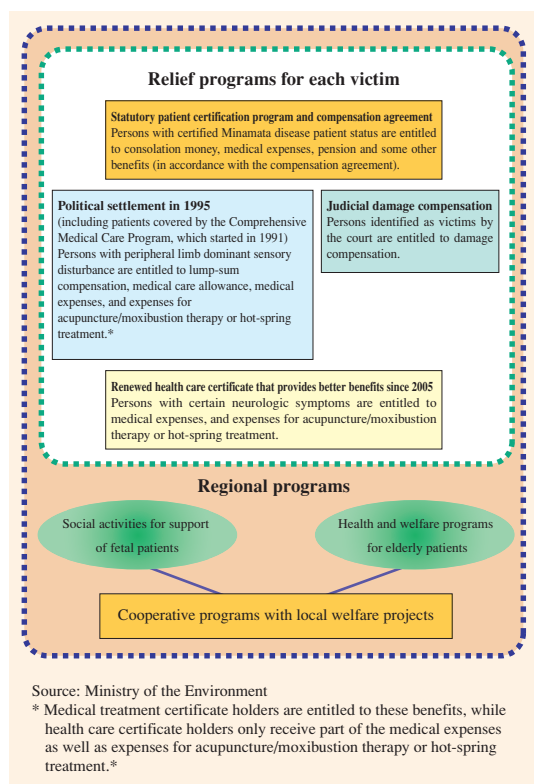
The harm inflicted by Minamata disease increased in Japan's era of high economic growth. At that time, Chisso produced acetaldehyde, a material used for plastics and other plasticizers, and Chisso's production of acetaldehyde was the largest in Japan. In addition, Chisso Minamata plant played an important role in the local economy with regard to job opportunities and tax revenue.

In around November 1959, the government should have recognized (even though it could not conclude with certainty) that Chisso was highly likely to be discharging organomercury compounds, the causal substance of Minamata disease. However, the government failed to prevent the incidence of Minamata disease from increasing. This was probably because policymakers at that time were worried about the possible negative impacts on Minamata's local economy and Japan's high economic growth. Due to the social conditions at the time, the government failed to prevent harmful impacts on human health from increasing because it did not take strict measures against the responsible companies for a long time. This historical background still provides valuable lessons today, because it shows how important it is to take countermeasures quickly as well as how preventive countermeasures should be taken even when there is scientific uncertainty over the cause of the problem.

Section 3. Remedies for the Harm Caused by Minamata Disease

The following relief programs are applicable to Minamata disease victims.

Outline of Relief Programs for Minamata Disease Victims



1) Statutory Patient Certification Program and Compensation Agreement

In 1973, the responsible companies and the victims entered into a compensation agreement that provides consolation money (lump-sum compensation), medical expenses, pensions and some other benefits for victims. All patients with certified victim status in accordance with LCPPHD have chosen from the options provided by this compensation agreement.

2) Political Settlement in 1995

As a lot of Minamata disease victims were denied LCPPHD's certified victim status and filed lawsuits, conflicts and confusion surrounding Minamata disease remained unsolved. With the intention of bringing about an amicable settlement between the parties concerned, in September 1995, the three ruling parties (Liberal Democratic Party, Social Democratic Party of Japan, and New Party Sakigake) made a proposal for a full and final settlement. Under this framework, the parties concerned agreed to settle the dispute. This framework provides a lump-sum payment, a medical treatment certificate, medical expenses, a medical care allowance and some other benefits to Minamata disease victims who satisfy certain criteria, such as peripheral limb dominant sensory disturbance specific to Minamata disease. Some victims are not

entitled to receive the medical treatment certificate, but they are able to receive a health care treatment certificate and some medical expenses as long as they suffer certain neurological symptoms.

3) Judicial Damage Compensation

After the August 1985 high court judgment on the 2nd Kumamoto Minamata disease lawsuit and the 1995 political settlement, there was only one dispute unsettled: the Minamata disease Kansai lawsuit. According to the October 2004 Supreme Court judgment on this lawsuit, the victims without certified victim status in accordance with the LCPPHD are entitled to damage compensation based on different criteria from the requirements stated in the LCPPHD.

4) Future Minamata Disease Countermeasures

When the Supreme Court delivered its judgment on the Minamata disease Kansai lawsuit on October 15, 2004, the Minister of the Environment released her statement, saying "We really feel sorry because we failed to prevent damage increasing....I would

like to express my sincere apologies to a lot of people who have suffered significant pain beyond all description for a long time.”

Taking the opportunity of the 50th year since the government officially acknowledged Minamata disease, and taking into consideration the 1995 political settlement, and the supreme court judgment, the government officially announced “Future Minamata disease countermeasures” in April 2005 to grant the full amount of medical expenses self-pay portion to health care certificate holders. In October 2005, the government re-started accepting application forms for a health care certificate, which would provide better benefits than in the past. In addition, the government intends to start new regional programs in FY2006, such as supporting social activities for fetal patients.

To provide better conditions in the future so that Minamata disease victims are able to lead their lives without any concerns in their local community, it is necessary to expand relevant medical programs and proceed with cooperative programs with local welfare projects.

Section 4. Projects for Addressing Environmental Pollution

As a countermeasure against polluted sediments, Chisso, the central government, and Kumamoto Prefecture paid the costs from 1977 to 1990 of dredging and reclaiming a portion of Minamata Bay in Kumamoto Prefecture where the concentration of mercury in the sediments exceeded the removal standard value (mercury: 25ppm). In Niigata Prefecture, in 1976, Showa Denko paid the costs of dredging mercury-containing sediments from locations near the factory wastewater channels where the concentration of mercury exceeded the removal standard value.

In Minamata Bay and the Aganogawa River, water quality, sediments, and fish have been monitored on a regular basis. Surveys conducted by Kumamoto and Niigata Prefectures in FY2005 have revealed that Minamata Bay and the Aganogawa River had satisfactory stay in good water quality like in the preceding year.

It is important to continue regular monitoring of water quality, sediments, and fish in these locations. With regard to Minamata Bay, it is also important to conduct appropriate safety control measures, such as inspection of reclaimed land.



Reclaimed land in Minamata Bay Photo:courtesy of Minamata Disease Municipal Museum

Section 5. Toward Revitalizing Local Communities and Transferring Valuable Lessons

Minamata disease, which marked the origin for Japan’s environmental problems, has posed health problems for every victim and resulted from environmental pollution. In addition, it has had a range of negative impacts, with discrimination against victims and conflicts among residents that have disrupted local communities. Because of this, local government in particular started “*Moyai-naoshi*”^{*} programs to revitalize local communities. They are also working on disseminating information on their experiences dealing with Minamata disease.

As 2006 is the 50th year since the government officially acknowledged Minamata disease, the national government, relevant local governments, Minamata-disease-related organizations, and local residents worked together to establish the “Executive Committee for the 50th Year Minamata Disease Programs” and agreed to work jointly on the 50th Year Minamata Disease Programs, such as holding a symposium to pass on valuable lessons to future generations.

At its 164th ordinary session, taking the opportunity of the 50th year since the official acknowledgement of Minamata disease, both at the House of Representatives and the House of Councillors of the Japanese Diet passed the “Resolution to Solemnly Undertake not to Repeat Miserable Pollution.” On April 28, 2006, the Prime Minister delivered his “Statement on the 50th Year since the Official Acknowledgement of Minamata Disease.”

^{*} *Moyai-naoshi*: “*Moyai*” is a Japanese term that originally meant tying up ships or joint efforts, while “*Naoshi*” means repair work. Policymakers in Minamata named this project “*Moyai-naoshi*” because they intend to come to grips with Minamata disease, carry out discussions and work together in Minamata where human relationships and relationship between nature and human beings were once destroyed.

By working with local governments and relevant organizations, the national government has been providing remedies for health damage, revitalizing local communities, and disseminating relevant information adopting a trial-and-error approach. Fifty years have already passed since the official acknowledgement of Minamata disease, but a lot of problems remain unsolved because many victims are still applying for the certified victim's status in accordance with LCPPHD or filing lawsuits to seek damage compensation. The government is aiming at providing appropriate medical services combined with local welfare programs appropriate for Minamata disease victims who are getting older so that they can live their lives without any worries. In addition, from the viewpoint of environmental conservation and local "*Moyai-naoshi*," the government will push ahead with truly necessary and effective policy actions. To prevent problems like Minamata disease in the future, the government will continue providing information and the lessons learnt from Minamata disease-related experiences both at home and abroad.



Minamata disease memorial monument Photo: courtesy of Minamata City

The memorial monument has the epitaph, "All deceased victims slumbering in Shiranui Sea, we will never repeat this tragedy again. Requiescat in pace."

Part Two Current Environmental Issues and Government Environmental Conservation Measures

Part Two of the *Quality of the Environment in Japan 2006* (White Paper) includes the following chapters to introduce in current environmental issues and environmental conservation measures implemented by the government in FY2005.

Part Two of this booklet will report on the issues and current state of environmental problems in the following major fields:

- Chapter 1. Prevention of Global Warming and Preservation of the Ozone Layer
- Chapter 2. Conservation of the Atmospheric Environment
- Chapter 3. Conservation of the Water, Soil, and Ground Environments
- Chapter 4. Measures and Policies related to the Material Cycle, including Waste and Recycling Measures
- Chapter 5. Measures for Chemical Substances
- Chapter 6. Conservation of the Natural Environment and Promoting Contact with Nature
- Chapter 7. Basis of Various Measures, and Measures Facilitating the Participation of Various Actors and International Cooperation

1. Prevention of Global Warming and Preservation of the Ozone Layer

(1) Global Warming

Expanding human activities have resulted in the emission of massive amounts of greenhouse gases (such as carbon dioxide and methane) into the atmosphere, exacerbating the greenhouse effect, and possibly leading to higher temperatures on the earth's surface.

According to the *Third Assessment Report: Climate Change 2001* published by the Intergovernmental Panel on Climate Change (IPCC), the global mean surface temperature increased by approximately 0.6°C over the 20th century, and consequently the mean global sea level rose by approximately 10-20cm.

Based on multiple scenarios, with certain assumptions on worldwide economic growth, population, technological innovation, economic/energy structures, and some other trends, the report also makes forecasts, predicting that the globally averaged surface temperature will increase by 1.4-5.8°C in the period from 1990 to 2100.

According to analysts, the Earth has not seen such a rapid rise in temperature in the last 10,000 years.

Further global warming would have large-scale and serious impacts on the living environment of humans as well as on wildlife habitats.

Impacts of Global Warming Observed in Recent Years

Indicator	Changes Observed
Global mean surface temperature	Increased by approximately 0.6°C over the 20 th century
Global mean sea level	Increased by 10-20cm over the 20 th century
Hot days/heat index	Increased (likely)
Cold/frost days	Decreased for nearly all land areas
Heavy precipitation events	Increased at mid- and high latitudes in the northern hemisphere
Drought	Increased frequency in some areas
Glacier	Receded in wide areas
Snow cover	Decreased in area by 10% since the 1960s

Source: Compiled by the Ministry of the Environment based on the IPCC, *Third Assessment Report*.

Projected Impacts of Global Warming

Index	Projected Impacts
Global mean surface temperature	Increase of 1.4-5.8°C from 1990 to 2100
Global mean sea level	Rise of 9-88cm from 1990 to 2100
Impacts on meteorological phenomenon	Increase in floods and droughts, and stronger typhoons
Impacts on human health	Greater heat stress, spread of infectious diseases
Impacts on ecosystem	Extinction of some animals and plants, shift in ecosystem ranges
Impacts on agriculture	Grain production will decrease in many areas. Some areas may experience increase for a while.
Impacts on water resources	Changes in water demand/supply balances, and negative impacts on water quality
Impacts on markets	Developing nations dependent upon the production of primary products will suffer immense economic losses.

Source: Compiled by the Ministry of the Environment based on the IPCC, *Third Assessment Report*.

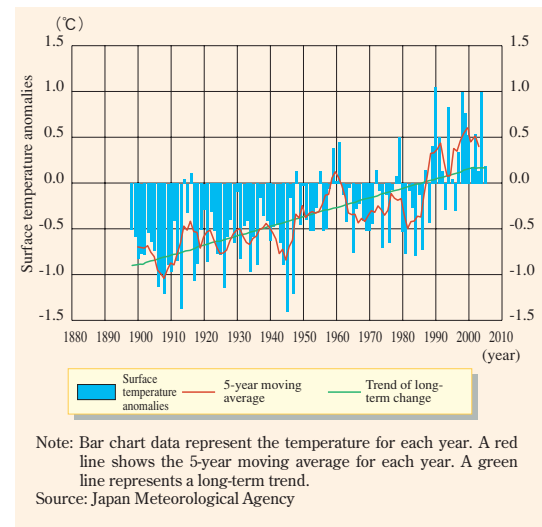
In Japan, the average temperature has risen by approximately 1°C during the 20th Century. Climate change will have significant impacts on ecosystems, agriculture, social infrastructure, and human health, possibly leading to drastic lifestyle changes.

To address this problem, the 3rd Conference of the Parties (COP3) to the UN Framework Convention on Climate Change (UNFCCC) (held in Kyoto in 1997) adopted the Kyoto Protocol, which sets out the legally binding numerical targets for reduction of greenhouse gases emissions in developed nations. The Kyoto Protocol became effective in February 2005.

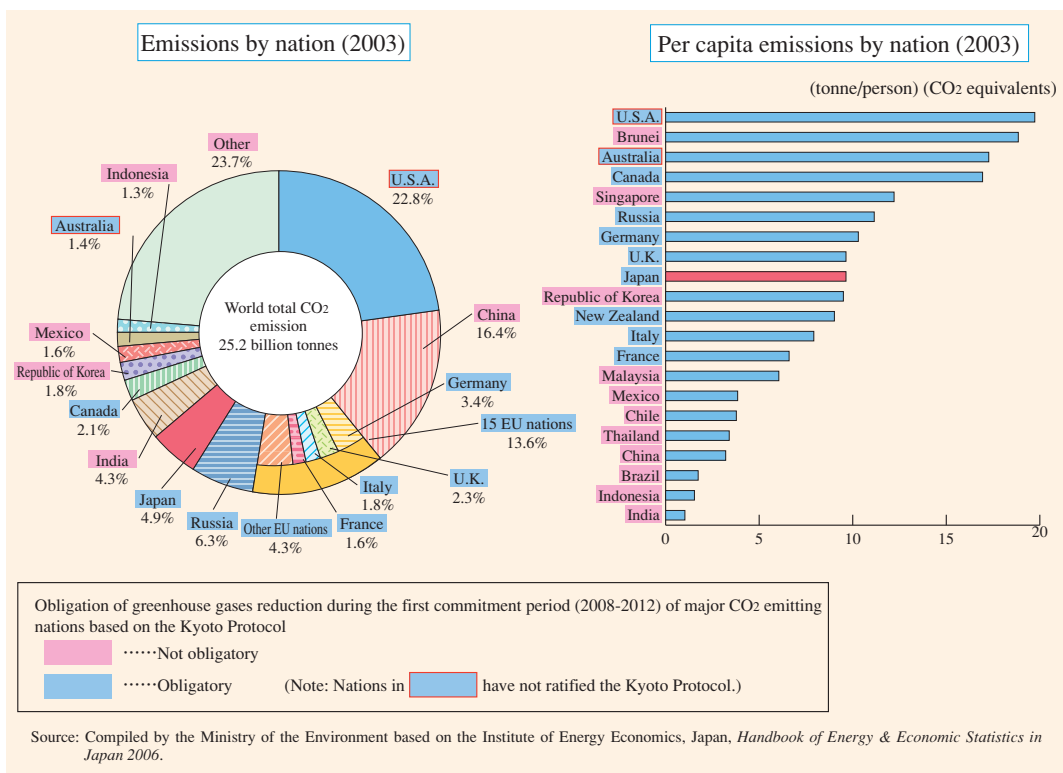
In addition, at the 11th Conference of the Parties (COP11) to the UN FCCC, and the 1st Conference of Parties serving as the meeting of the Parties to the Kyoto Protocol (COP/MOP1) that were held in Montreal in November-December 2005, state parties began discussing possible international policy actions after 2013, which is immediately after the end of the first commitment period of the Kyoto Protocol.

Japan produces approximately 5% of the total world CO₂ emissions, which is the 4th largest in the world after the U.S.A. (about 23%), China (about 16%) and Russia (about 6%). Developed nations produce larger CO₂ emissions per capita than developing nations.

Chronological Change in Japan's Annual Average Surface Temperature Anomalies (1898-2005)

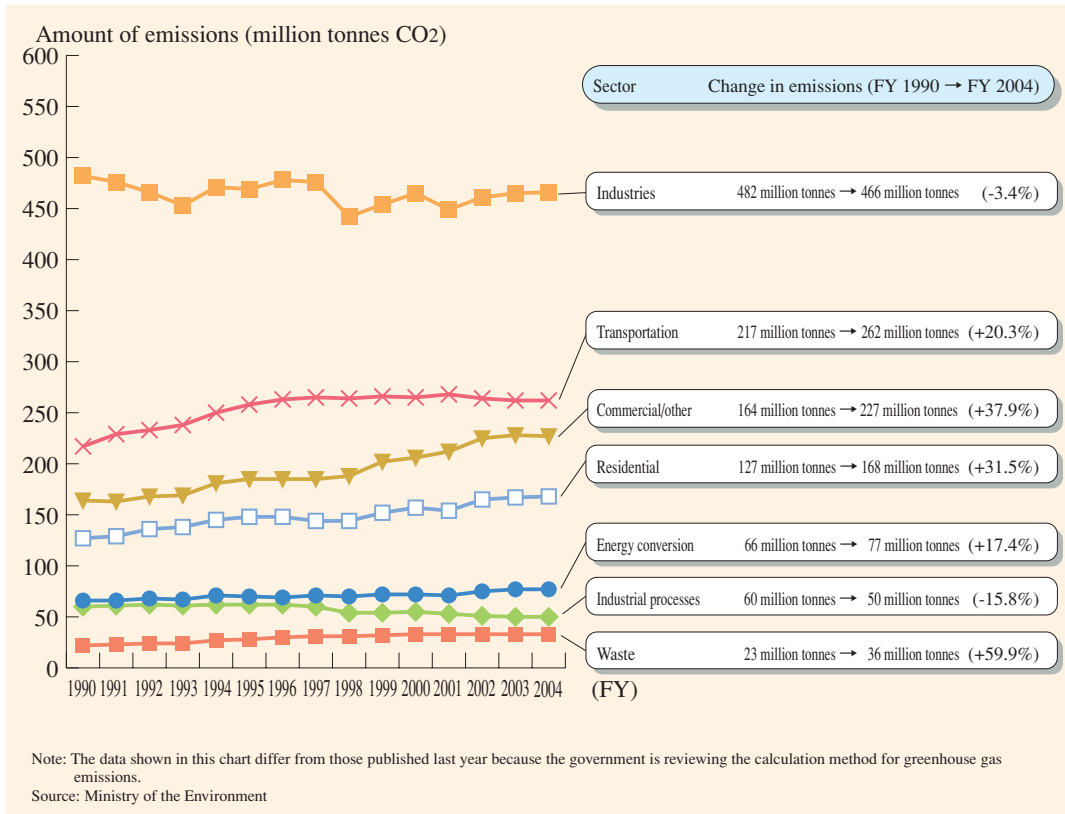


CO₂ Emissions and Per Capita CO₂ Emissions by Nation



Japan emitted 1,355 million tonnes* of greenhouse gases (hereinafter, figures marked with * represent data for CO₂ equivalents) in FY2004, which was 8.0% higher than the total emissions of the base year (1,255 million tonnes*) as stipulated in the Kyoto Protocol. Japan's greenhouse gas emissions were 0.2% lower than the preceding year. Compared to the base year level (1990 in principle), a breakdown by sectors shows that the emissions of greenhouse gases for the industrial sector had decreased by 3.4%, while that of the transport sector had increased by 20.3%, the commercial and other sectors had increased by 37.9%, and the residential sector had increased by 31.5%.

CO₂ Emissions in Japan



For this reason, the government approved the “Kyoto Protocol Target Achievement Plan” at a cabinet meeting in April 2005 in order to proceed with various policy actions, such as introducing low-emission vehicles, energy-saving equipment, and solar power generation systems. Because carbon dioxide arises from every aspect of human activities, achievement of a 6% reduction commitment, in accordance with the Kyoto Protocol, will require a collective effort by all levels of society from the national and local governments, to business owners, and each individual citizen to implement energy-saving measures.

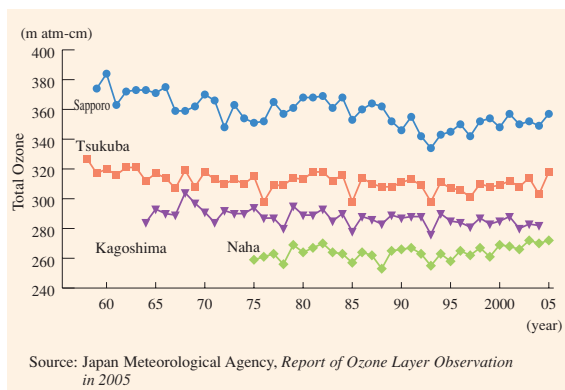
(2) Depletion of the Ozone Layer

CFCs and some other substances are found to have been depleting the ozone layer. There is concern that depletion of ozone layer may increase the amount of harmful ultraviolet radiation reaching the earth, leading to increased damage to human health such as skin cancer and cataracts, as well as hindered growth of plants and plankton.

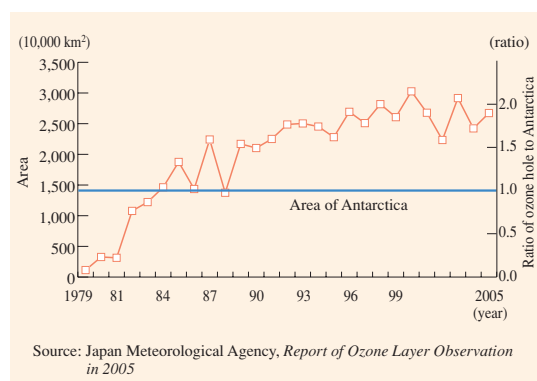
The ozone layer has been depleted, in particular in the 1980s, over the whole globe, except for the tropical areas. The total ozone over Japan also decreased, especially in the 1980s, but it has remained constant or slightly increased since the 1990s.

As of 2005, the ozone hole over the Antarctica had an average size of the previous 10 years.

Changes in the Annual Average of Total Ozone over Japan



Changes in the Size of Ozone Hole over Antarctica



In Japan, in order to prevent further depletion of the ozone layer, the production of ozone-depleting substances is regulated pursuant to the Ozone Layer Protection Law. In addition, the recovery and destruction of fluorocarbons at the disposal stage of products are mandated by the Home Appliance Recycling Law, the Fluorocarbons Recovery and Destruction Law, and the End-of-Life Vehicle Recycling Law.

2. Conservation of the Atmospheric Environment

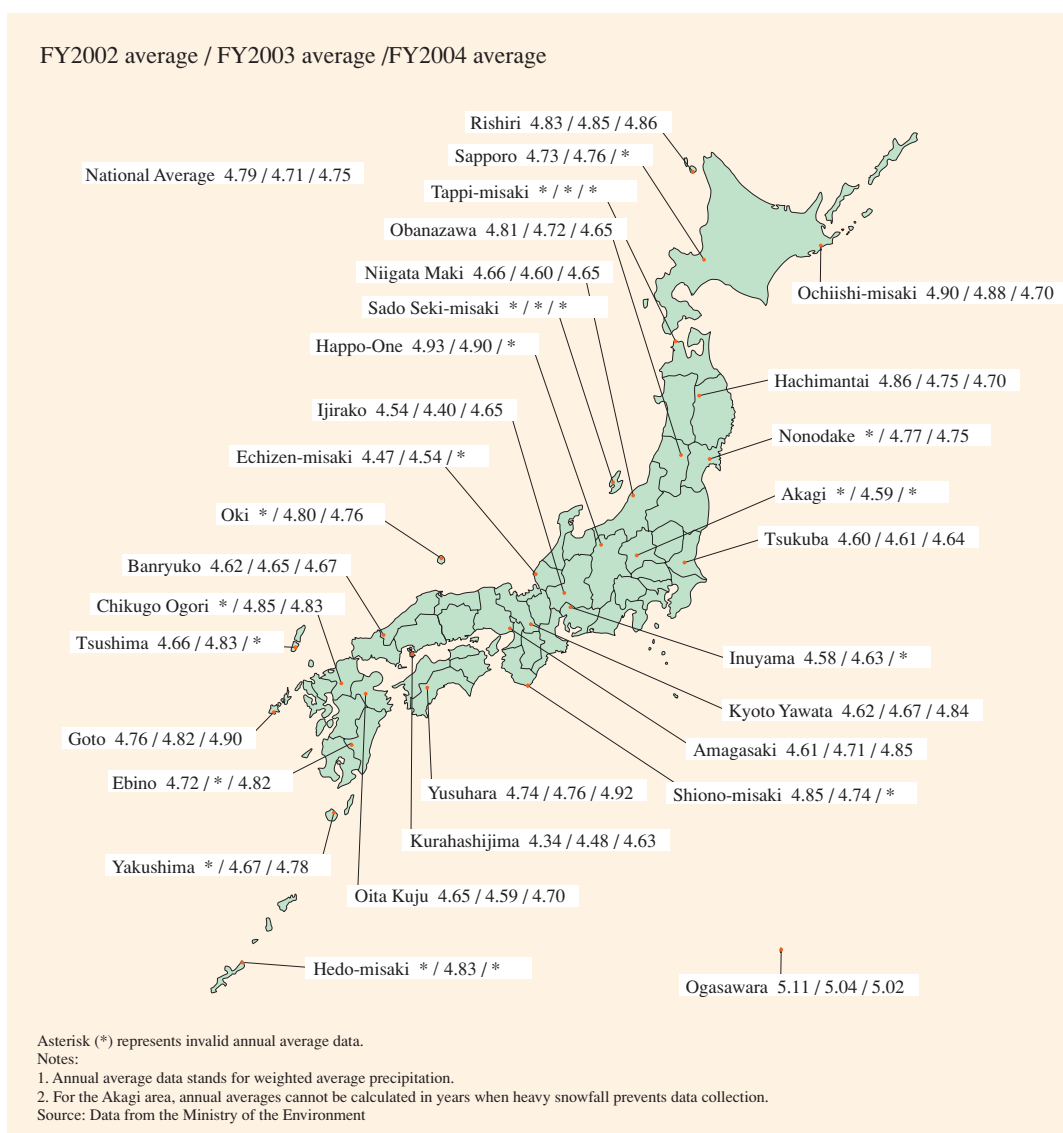
(1) Acid Deposition and Dust and Sandstorms (DSS)

Acid deposition can produce a range of effects on the environment and living creatures such as trees or fish by increasing acidity in soil, lake water, etc. Buildings, artificial constructions, and cultural assets can be affected by acid deposition. In the U.S. and Europe, acidification of lakes/reservoirs and the decline of forests caused by acid deposition have been reported.

Japan has also had almost the same level of acid deposition as the Western nations that have suffered some damage. However, it is still unclear how acid deposition will impact on ecosystems in Japan. As it will take longer for the affects of acid deposition to become apparent, negative impacts will only surface in the future if Japan's acid deposition remains at the current level.

The Acid Deposition Monitoring Network in East Asia (EANET) became fully operational in FY2001. It is aiming to identify the state of acid deposition and its impacts on East Asia and to establish the framework for a regional cooperative approach to acid deposition problems.

Levels of pH in Precipitation



In Japan, long-term monitoring of acid deposition is carried out to detect its effects as early as possible and to forecast its effects in the future.

Dust and Sandstorms (DSS), which blows over from China and Mongolia, has been seen more frequently in Japan than in the past. China, Republic of Korea, Japan, and some other nations share a common interest in dealing with DSS. In Japan, the government has established DSS monitoring systems. In addition, China, Mongolia, Korea, Japan, the United Nations Environment Programme (UNEP), and some other international organizations are working together to explore effective measures to deal with DSS in the future.

(2) Photochemical Oxidants

Photochemical oxidants is a collective term that includes ozone and some other secondary substances generated in the presence of sunlight (photochemical reaction) from nitrogen oxides (NO_x), volatile organic compounds (VOCs), or other primary pollutants emitted from factories, businesses, or automobiles. Photochemical oxidants are the cause of photochemical smog, which causes eye and throat irritation and respiratory distress. In almost all regions throughout Japan, photochemical oxidants still exceed the environmental quality standard (EQS) (a one-hour value of 0.06 ppm or less).

As one of the measures to combat photochemical oxidants, the Air Pollution Control Law was revised in May 2004 to control VOC emissions from factories. By combining VOC emission regulations and voluntary measures by business operators, the revised law provides an effective solution for curbing VOC emissions. Since April 1, 2006, VOC-emitting firms have been required to submit notification of their VOC-emitting plants and comply with the emission criteria. As a result, these firms are expected to take voluntary action. In accordance with the Air Pollution Control Law, Japan's regulatory authority has put in place tighter restrictions on VOCs emitted from automobiles.

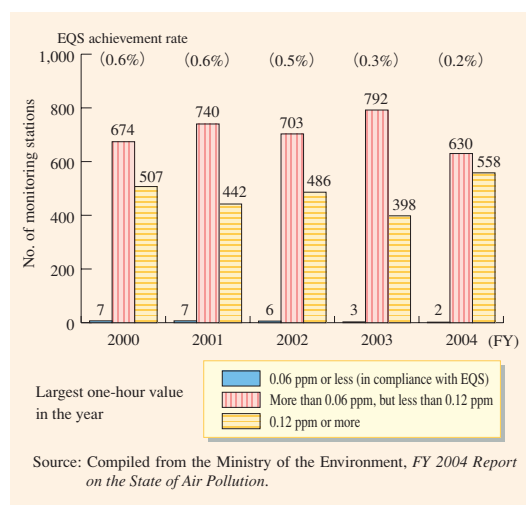
Through the Atmospheric Environmental Regional Observation System (nickname: *Soramame-kun*), the government collects on a real-time basis the nationwide atmospheric environment data measured at a prefectural level as well as the photochemical oxidant warning data, and makes these data available on the Internet.

(3) Nitrogen Oxides

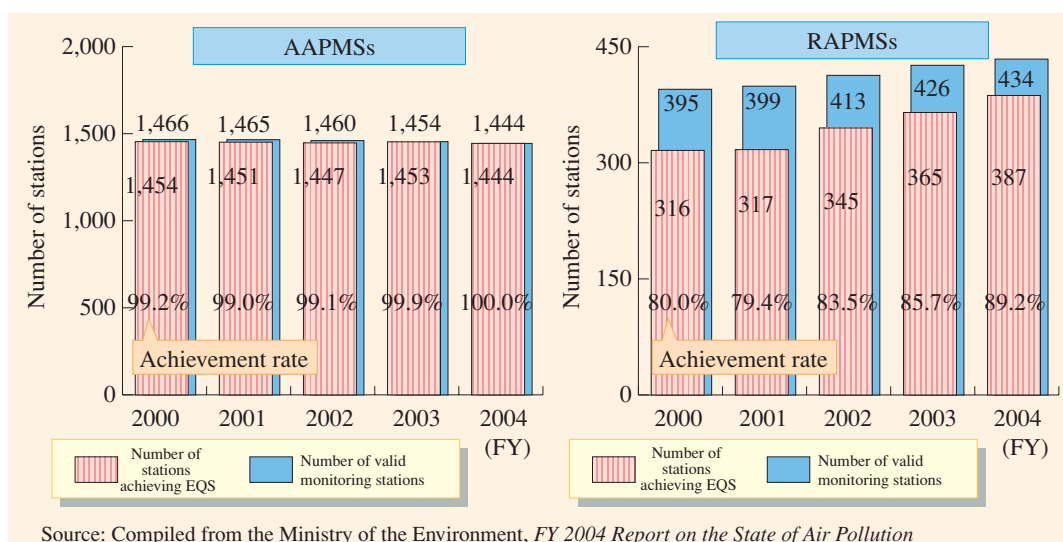
Nitrogen oxide (NO_x) is a by-product of combustion, generated mainly from stationary sources (such as factories) and mobile sources (such as motor vehicles). NO_x contributes to photochemical oxidants, suspended particulate matter, and acid deposition. High concentrations of Nitrogen dioxide (NO₂) may have a negative impact on health by causing irritation to the respiratory organs.

Compared to the previous year, the achievement rates for the NO₂-related EQSs were slightly improved in FY2004. The achievement rate of the ambient air pollution monitoring stations (AAPMSs) was 100%, and that of the roadside air pollution monitoring stations (RAPMSs) was 89.2%.

Changes in the Number of Monitoring Stations by Photochemical Oxidant Concentration Level (AAPMSs and RAPMSs) (FY 2000 – 2004)



Changes in Achievement of NO₂-related EQS (FY 2000-2004)



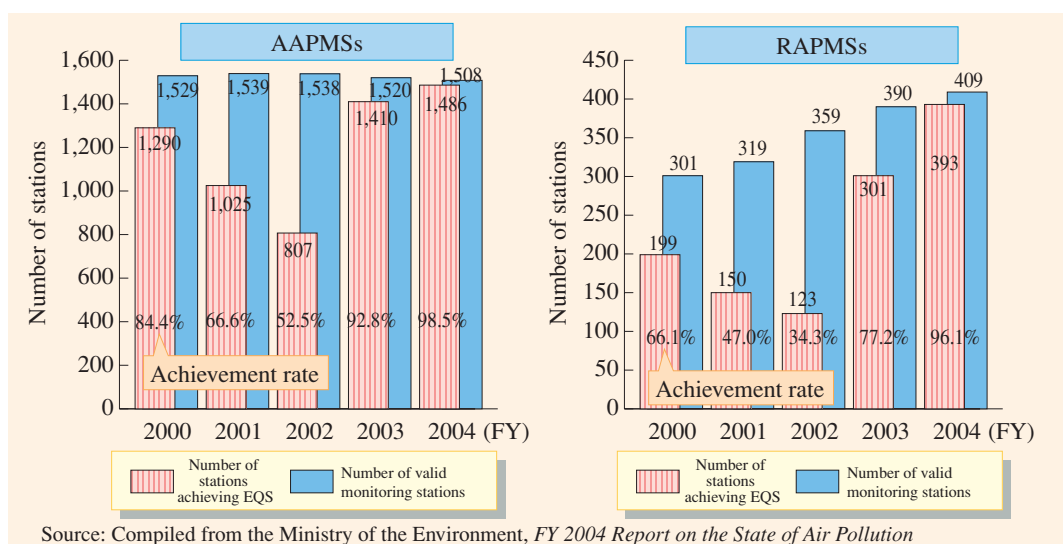
(4) Suspended Particulate Matter (SPM)

Suspended particulate matter (SPM), which floats in the air and has a diameter of 10 μ m or less, is classified into primary particles and secondary particles. Primary particles include soot and dust from factories, diesel exhaust particles (DEP) generated from diesel vehicles, and soil particles dispersed in the air. Secondary particles are formed in the atmosphere from gaseous substances such as nitrogen oxides (NO_x). Because SPM is of a minute size, it stays in the air for a long time. An accumulation of SPM in high concentrations in the lungs or the trachea can have damaging effects on the respiratory system.

The SPM-related EQS achievement rate improved in FY 2004 compared to the previous year.

In addition, experts are carrying out research on fine particulate matter with a diameter of 2.5 μ m or less and diesel exhaust particles because analysts recently pointed out that these substances can have an adverse affect on human health.

Changes in Achievement of SPM-related EQS (FY 2000-2004)



(5) Hazardous Air Pollutants

Various chemical substances, though low in concentration, have been detected in the atmosphere, raising concerns about the health effects of long-term exposure to these hazardous substances. In terms of the four substances that have EQSs in place, benzene's observed value improved in FY 2004, with 5.5% of monitoring stations recording data exceeding the EQS. As for the other three substances, all monitoring stations recorded data better than the applicable EQSs.

In an attempt to reduce hazardous air pollutants, the government set up maximum permissible levels for benzene and other

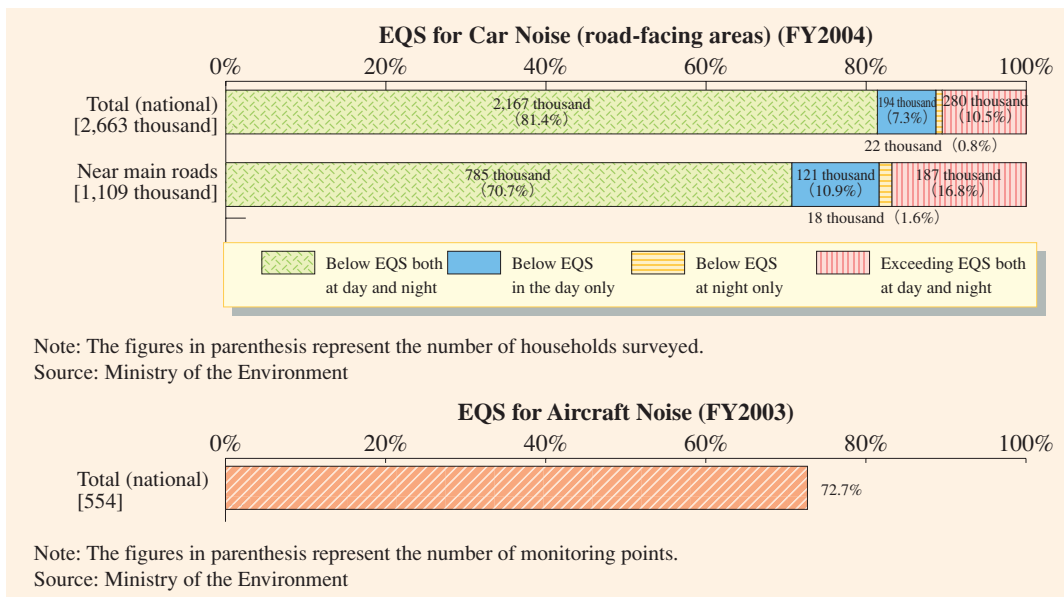
designated substances in accordance with the Air Pollution Control Law, intending to control emissions of these substances. The government also encourages the private sector to take voluntary actions to curb emissions. Due to voluntary management plans at the industry association level, as well as various projects in accordance with regional voluntary management plans on benzene, total emissions of hazardous air pollutants have been significantly reduced from FY2001 to FY2003.

(6) Noise, Vibration, and Offensive Odors

The number of complaints about noise has been gradually increasing over several years to 16,215 in FY2004. Complaints about offensive odors had been increasing for the service and other sectors for a couple of years. There were only 19,657 complaints about offensive odors in FY2004, a decrease for the first time in five years.

Out of the 2,663 thousand noise observation points (households) in residential areas nationwide, 496 thousand households (19%) exceeded the EQS either at day or night in FY2004. Out of the 1,109 thousand observation points (households) facing a main road, 325 thousand households (29%) exceeded the EQS either at day or night. With regard to aircraft noise, 73% of the observation points were within the EQSs satisfactory level in FY 2003.

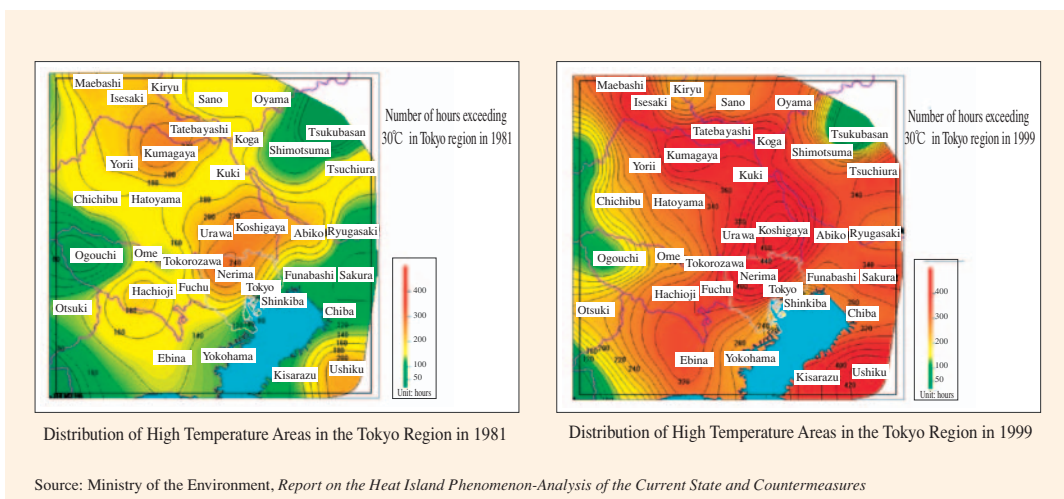
Attainment of the EQS for Transportation Noise



(7) Heat Island Phenomenon

“The heat island phenomenon” means that urban areas have a higher temperature than surrounding suburban areas. This phenomenon results in an increase in the number of sultry nights in the summer. As waste heat from air conditioners also raises the

Distribution of High Temperature Areas in the Tokyo Region (1981 and 1999)



temperature, even more energy is required for air conditioning, which leads to a vicious cycle.

In line with the “Outline of the Policy Framework to Reduce Urban Heat Island Effects”, the government is now taking policy action to reduce heat islands consisting of four major pillars: reducing anthropogenic exhaust heat, improving urban land surface cover, improving urban structure, and improving lifestyles.

(8) Countermeasures against Asbestos

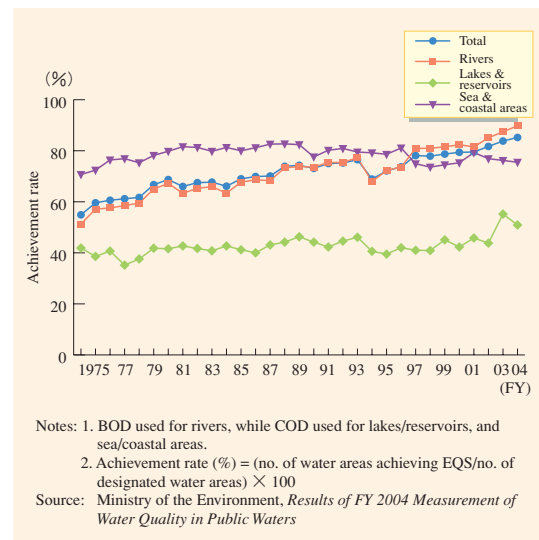
Asbestos was used in many products because of its heat resistance. However, as asbestos is carcinogenic and has other negative effects on human health, manufacture or use of asbestos is prohibited in Japan in principle. The Air Pollution Control Law imposes emission controls and some other restrictions on plants that manufacture asbestos. In the past, the regulatory authority put work standards in place for demolition work on buildings of a certain size made fire-resistant with spray-type asbestos. However, in order to effectively prevent asbestos from being spread in the atmospheric environment, the government amended the enforcement ordinance and enforcement regulations of the Air Pollution Control Law in December 2005. This amendment has expanded the scope of the restricted building materials, and also abolished the size limitations on buildings. In February 2006, lawmakers amended the Air Pollution Control Law, intending to place restrictions on demolition works not only for buildings but also for facilities in general.

3. Conservation of the Water, Soil, and Ground Environments

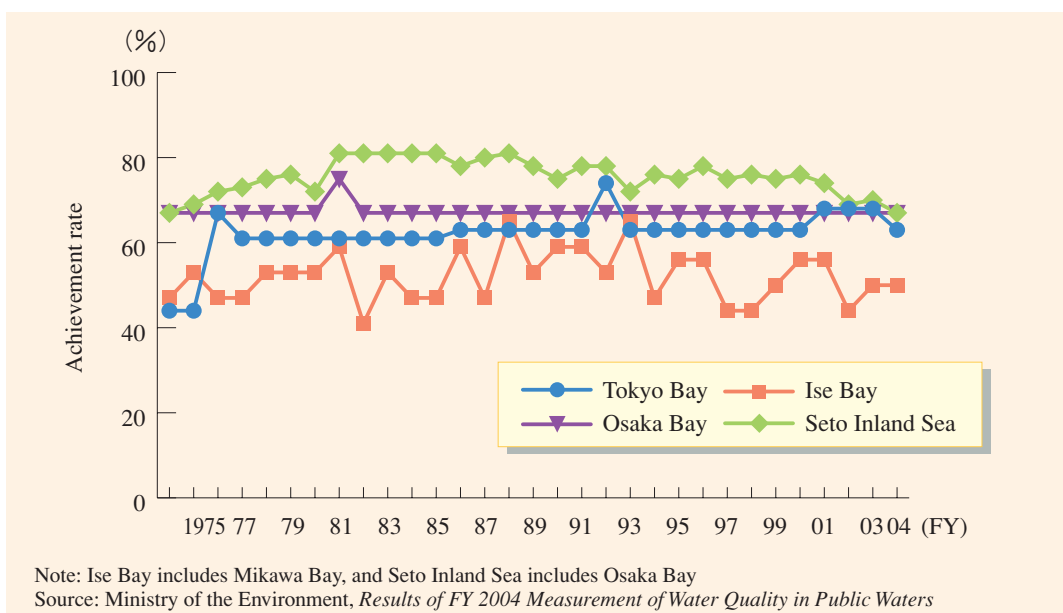
(1) Water Environment

According to the Results of FY 2004 Measurement of Water Quality in Public Waters, the achievement level of the EQS for the protection of human health from substances, such as cadmium, was 99.3%. Standards set for protecting the living environment were achieved at slightly lower rates. The BOD (or COD) level is an EQS for the conservation of the living environment and is a typical water-quality indicator for organic contamination. Its EQS achievement level remained at 85.2%. By water area, the achievement levels were 89.8% for rivers, 50.9% for lakes and reservoirs, and 75.5% for sea areas. In particular, achievement rates for enclosed water areas, such as lakes, reservoirs, inner bays, and inland seas were still low. In terms of COD, the achievement rates were 63.2% for Tokyo Bay, 50.0% for Ise Bay, and 67.3% for the Seto Inland Sea.

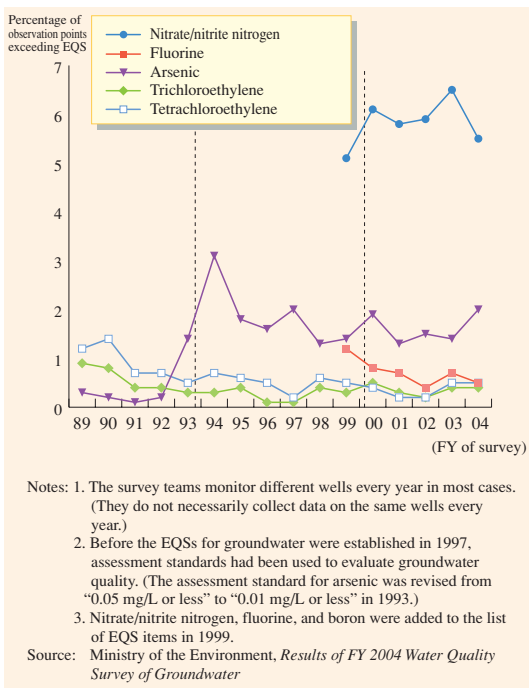
Trends in EQS Achievement Rate (BOD or COD)



Trends in EQS Achievement Rate (COD) in Three Coastal Regions



Percentage of Observation Points Exceeding the EQS for Groundwater Contamination (Categories with a High Percentage of Contamination)



Consequently, lawmakers amended the Law concerning Special Measures for the Preservation of Lake Water Quality in order to launch two new schemes: The Effluent Water Control District Program, which promotes measures to reduce pollution loading from farmland or urban areas to further conserve the water quality of lakes and reservoirs; and the Lakeshore Environmental Protection District Program, which protect plants capable of improving water quality.

According to the Results of the FY 2004 Water Quality Survey of Groundwater, 7.8% of the total wells surveyed exceeded the EQS. Specifically, 5.5% of the wells did not meet the EQS for nitrate-nitrogen or nitrite-nitrogen. These wells were probably polluted by farmland fertilization, livestock excreta, or domestic wastewater. Urgent measures are needed to prevent groundwater being polluted by nitrate/nitrite nitrogen.

The "Inter-Ministry/Agency Coordination Committee for Building Sound Water Cycle" is pushing ahead with policy actions to provide a healthy water cycle by holding information/opinion exchange sessions, encouraging research activities, and serving as a coordinator of policy actions.

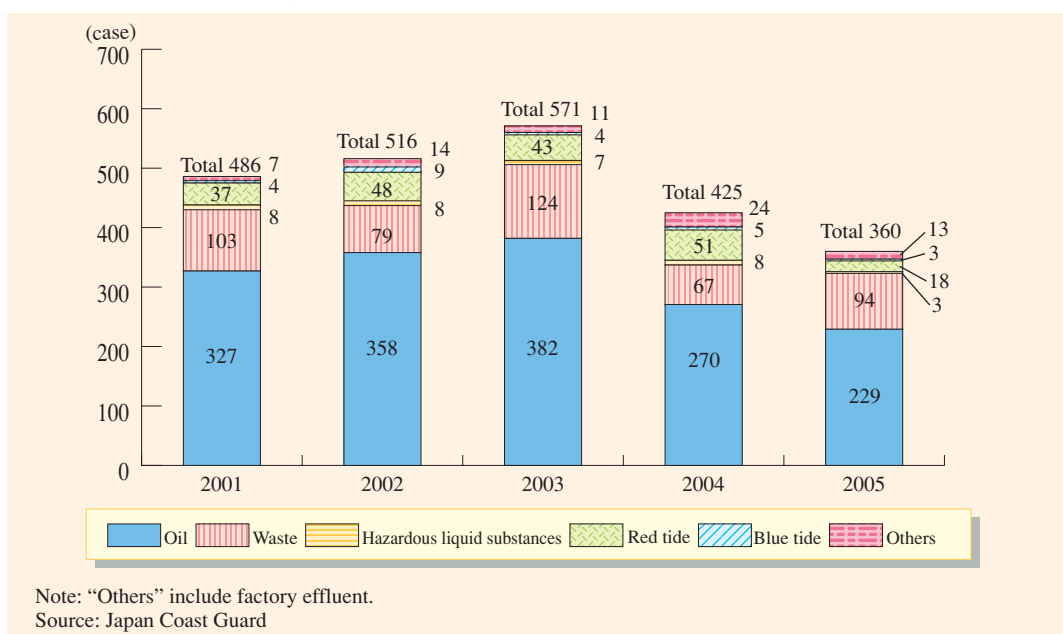
(2) Marine Pollution

For conservation of the marine environment, Japan is a state party to the London Convention, which regulates ocean dumping from vessels, and to the MARPOL 73/78 Convention, which prevents marine pollution caused by ships. In response to these conventions, Japan has taken domestic measures to prevent marine pollution.

In order to assess and monitor the conditions of the marine environment, Japan conducts marine environment monitoring programs, to systematically collect comprehensive data on water quality, bottom sediments, and aquatic organisms.

In terms of marine pollution caused by oil, waste, and red tides, 360 cases were identified in 2005, a decrease of 65 cases from the 2004 level.

Changes in the Number of Marine Pollution Cases Identified

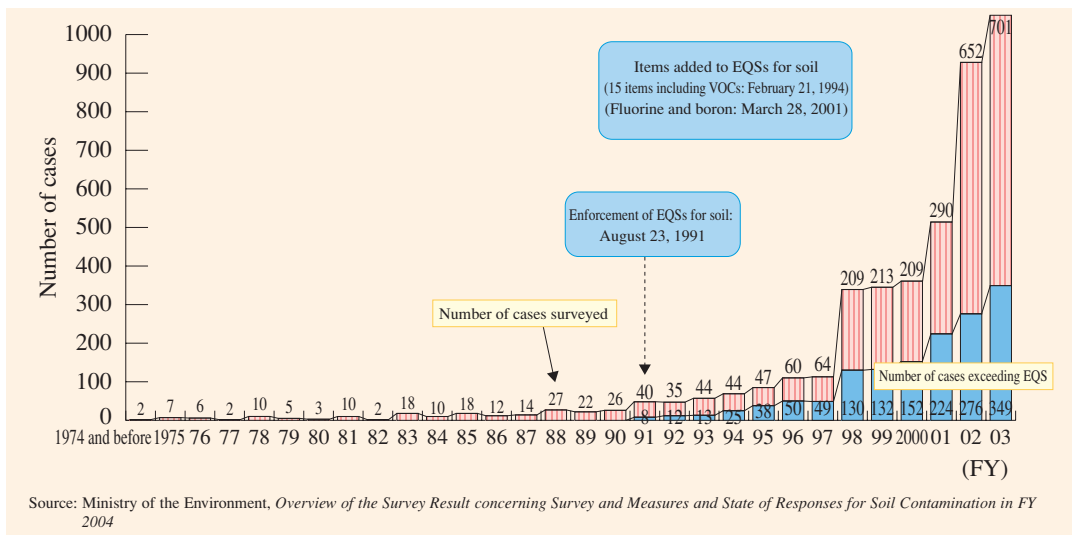


(3) Soil Contamination

Once soil is contaminated, it accumulates hazardous substances, perpetuating the state of pollution.

In order to address such soil contamination, the Ministry of the Environment is pushing ahead with appropriate countermeasures on soil contamination in accordance with the Soil Contamination Countermeasures Law, and conducted a survey, with the intention of establishing more comprehensive EQS that would regulate extensively of pollutants and exposure paths. A larger number of soil contamination cases have been identified in urban areas as a result of redevelopment projects at former factory sites. In FY2003, the regulatory authority acknowledged 349 cases that exceed the EQS for Soil Contamination or Soil Contamination Countermeasures Law.

Number of Soil Contamination Cases Identified by Fiscal Year

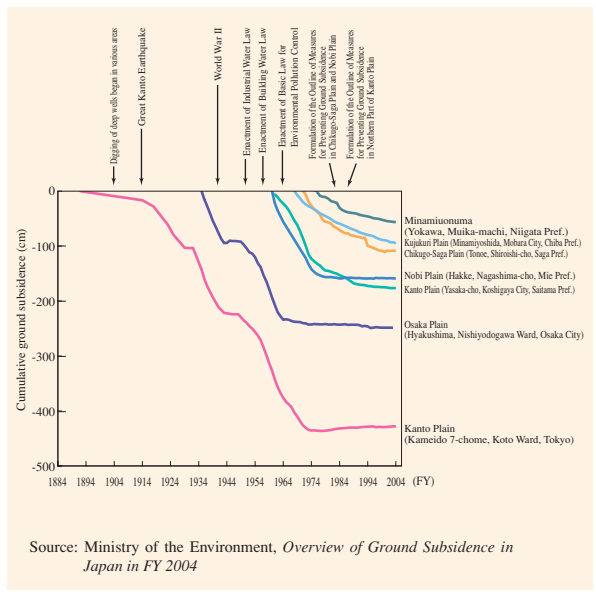


(4) Ground Subsidence

Ground subsidence is caused by excessive pumping of groundwater, which lowers the level of the groundwater and shrinks the clay layer. As of FY 2004, 61 areas in 37 prefectures suffered ground subsidence. Restrictions on the pumping of groundwater and other measures have mitigated ground subsidence in Tokyo's 23 wards, Osaka City, and Nagoya City, where remarkable ground subsidence had occurred in the past.

However, ground subsidence still occurred in certain areas such as the Kujukuri plain in Chiba Prefecture. Some areas that are lower than sea level due to ground subsidence may face the danger of huge damages caused by high tides or floods. For this reason, besides imposing restrictions on the pumping of groundwater, measures are being taken to deal with high tides and to build facilities to protect the coastline.

Changes in Ground Subsidence in Selected Areas



4. Measures and Policies related to the Material Cycle, including Waste and Recycling

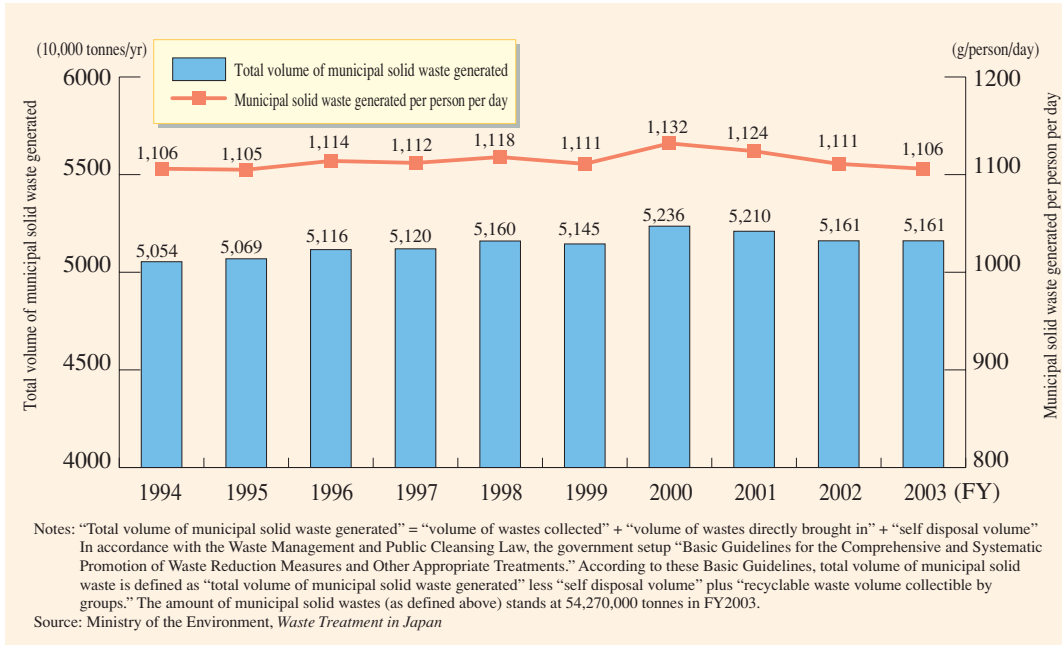
Measures

Since FY1989, Japan has been generating municipal solid waste at an annual volume of approximately 50 million tonnes or more. These annual volumes of municipal solid waste have remained steady over the last several years. In FY 2003, of all

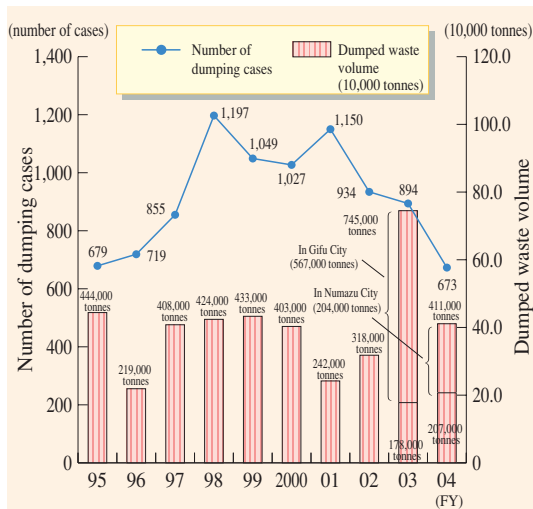
municipal solid waste, direct incineration accounted for 78.1%, while recycling accounted for 18.3%. The final volume disposed of at landfill sites was 8.45 million tonnes, a decrease of 580,000 tonnes from the previous year.

The total volume of industrial waste generated in Japan has also remained steady over the last few years. The volume was approximately 412 million tonnes in FY2003, up 4.7% from the previous fiscal year. Approximately 30 million tonnes was registered as final disposal volume in FY2003, a significant decrease of about 10 million tonnes from the previous fiscal year. Nationally there is a lack of disposal capacity, with final disposal sites having an average capacity of only another 6.1 years.

Changes in Total Volume of Municipal Solid Wastes and Waste Volume Generated per Person per Day



Trend of Illegal Dumping Cases and Illegally Dumped Waste Volume



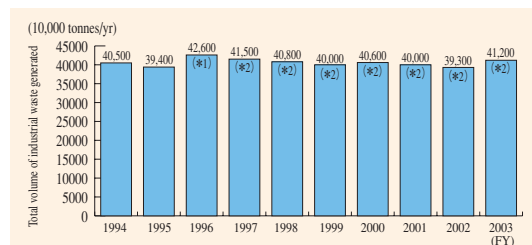
Notes:

- The chart above illustrates illegal dumping of industrial wastes (at least 10 tonnes per case) identified by prefectures or cities with public health offices. (However, cases that involve specially controlled industrial waste are all included in the chart)
- As shown in the chart above, the illegal dumping case in Gifu City was discovered in FY2003, while that in Numazu City was detected in FY2004. Because waste disposers illegally dumped industrial wastes for several years before that, these two cases were identified as large-scale dumping cases in said years.

Source: Ministry of the Environment, *State of the Illegal Dumping of Industrial Waste*

To solve these problems, it is necessary to implement waste and recycling measures, taking into account the following priorities stipulated in the Fundamental Law for Establishing a Sound Material-Cycle Society: (i) reducing wastes; (ii) reusing end-of-life products and parts; (iii) recycling wastes as raw materials; (iv) recovering heat; and (v) appropriate disposal as final waste. In line with these basic principles, the government will implement the Waste Management and Public Cleansing Law as well as other recycling-related legislation.

Changes in the Volume of Industrial Waste Generated



Notes: (*1) The 1996 data indicate the waste volume in FY 1996, as defined in the "Target of Waste Reduction" (government decision, September 28, 1999). In the "Target for Waste Reduction," the government aims to achieve its targets at the latest in FY2010 based on the "Basic Policy for Dioxin Measures," which was decided by the Ministerial Meeting on Anti-Dioxin Measures. (*2) The amount of waste from FY 1997 onward was calculated using the same calculation approach as *1 above.

Source: Compiled from the Ministry of the Environment, *State of the Generation and Treatment of Industrial Waste*.

Lawmakers partially amended the Waste Management and Public Cleansing Law in February 2006 with the intention of encouraging smoother but safer disposal of asbestos waste. The amended legislation aims to introduce a new scheme (detoxification process accreditation scheme). Under this new scheme, waste disposers do not have to obtain a license from the prefectural governor if the Minister of the Environment recognizes that these disposers employ an advanced technique such as meltdown for making asbestos harmless.

In FY2004 there were 673 cases of illegal dumping of industrial waste in Japan, continuing the downward trend of the consecutive two years. However, including the 204,000-tonne illegal dumping in Numazu City, Shizuoka Prefecture, this amounted to approximately 411,000 tonnes of illegally dumped industrial waste, (Waste disposers probably started illegally dumping industrial wastes in Numazu City much earlier than FY2003.)

If illegal dumping is to be detected and prevented from increasing, the monitoring system needs to be improved. To achieve this, the Ministry of the Environment increased the number of staff responsible for waste and recycling when the ministry restructured the organization at the Regional Environment Office level in October 2005. The ministry hopes to enhance cooperative relations with prefectures by sending these staff to assist with on-site inspections.

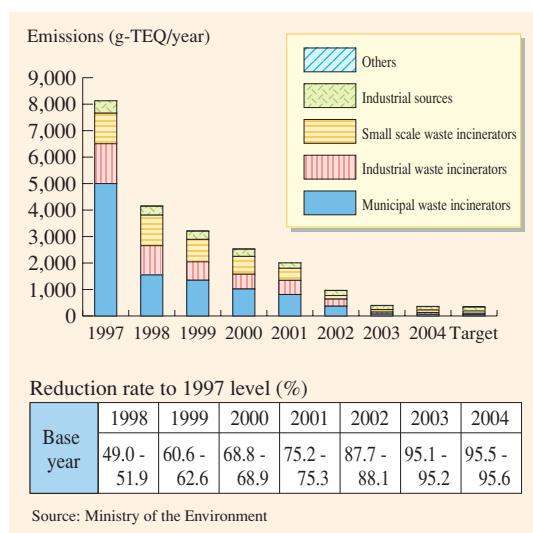
5. Measures for Chemical Substances

To prevent adverse environmental effects from the production, distribution, use, or disposal of the several tens of thousands of chemical substances that are traded in Japan, it is necessary to evaluate and properly address their environmental risks (i.e., possible negative impacts from an environmental conservation perspective). For this reason, the Ministry of the Environment conducted a survey to identify the existence of chemical substances in the environment (Environmental Survey and Monitoring of Chemicals). The ministry has evaluated the possible impacts on human health or ecosystems of 93 chemical substances in circulation in Japan in 2005.

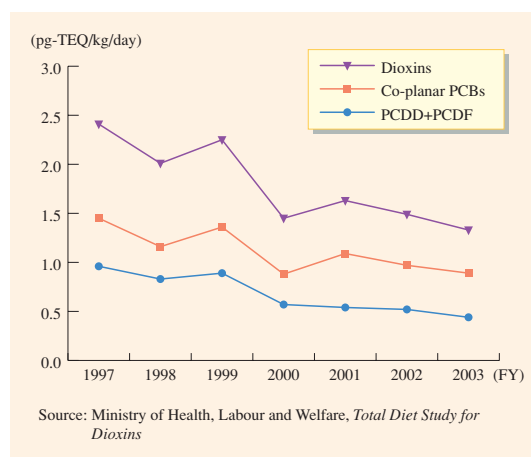
In accordance with the Chemical Substances Control Law, the government controls new chemical substances that are manufactured or imported based on an examination of their biodegradability, bioaccumulation, and toxicity to human, plants and animals. As of the end of FY2005, the manufacture, import or use of 15 kinds of chemical substances, including PCBs, is virtually prohibited. In addition, manufacturers must report scheduled production volumes of 23 kinds of chemical substances such as trichloroethylene. For another approximately 800 kinds of chemical substances, it is necessary to report production or import volumes.

In 2004, Japan successfully achieved its reduction target for emission of dioxins. The ministry also amended the reduction plan in 2005, with the aim of achieving a 15% reduction from the 2003 level in 2010 at the latest. It is estimated that the total emission of dioxins in 2004 was 10% less than that in 2003. Daily dioxin intake per person has been decreasing every year. It is now below the tolerable daily intake level (4pg-TEQ/kg/day), which is low enough that even if this amount was taken throughout one's lifetime it would not cause adverse health effects.

Changes in Total Emission of Dioxins

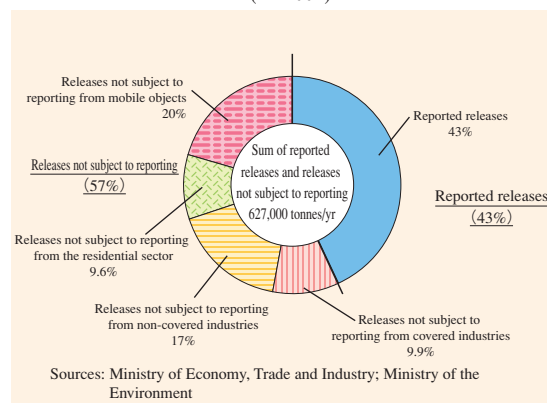


Chronological Changes in Daily Intake of Dioxins from Food



Japan has also implemented the PRTR (Pollutant Release and Transfer Register) system for chemical substances possibly harmful to human health or ecosystems. Under the PRTR system, businesses identify and report to the government the amount of chemical substances that are released to the environment or transferred as waste materials. The government then aggregates the data from businesses and publishes them together with the estimation of releases that are not reported to the government (e.g. household, transport, small businesses, etc). The fourth aggregate result was published in February 2006. It is important to further promote risk communication to enable all parties, including citizens, industries, and the administrative agencies, to share accurate information on chemical substances and to improve communication with each other.

Reported Releases vs. Releases not subject to reporting (FY2004)



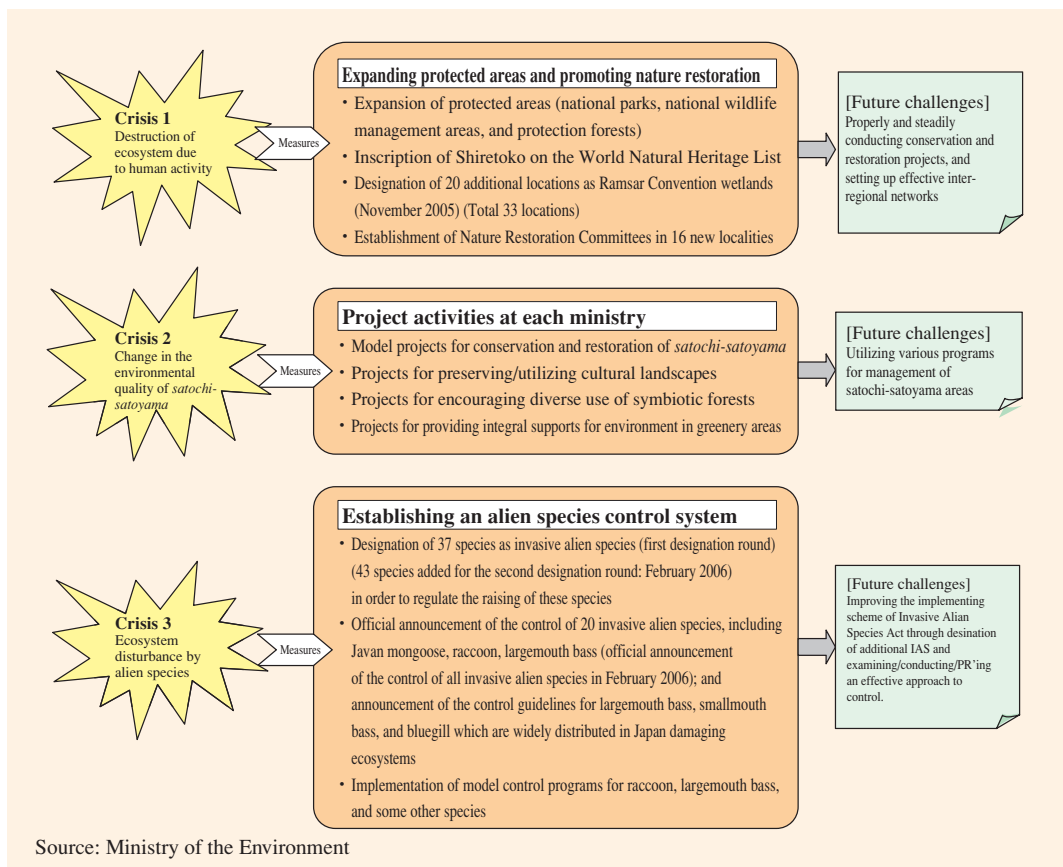
With regard to policy actions on poison gas bombs in Japan, the government ministries, in line with Cabinet approval on June 6, 2003 and the Cabinet decision on December 16, 2003, are working together to conduct an environment survey with the intention of preventing possible damage from former Japanese Army/Navy gas bombs. In addition, the Poison Gas Information Center, established in the Ministry of the Environment, collects relevant information on an ongoing basis and distributes such information and general guidance to citizens.

6. Conservation of the Natural Environment and Promoting Contact with Nature

(1) Conservation of the Natural Environment and Promoting Contact with Nature

Pursuant to the new National Biodiversity Strategy in which all ministries work together to realize “a society in harmony with its natural environment,” the third review on its implementations was carried out in FY 2005. After being reported the results of the review, the Central Environment Council pointed out that the biodiversity crisis still remains to be resolved although policy actions on biodiversity have been moving forward. The Council also called for further policy actions: Collecting basic data on the natural

Newly Implemented Policy Actions for Addressing Biodiversity Crisis (Third review on implementation of the strategy: Approved in September 2005)



**Threatened Wildlife of Japan
(Species Listed in the Red List)**

(as of August 2006)

	Taxonomical group	Species assessed	Extinct	Extinct in the wild	Threatened species		Near threatened	Data deficient	Threatened local population	Total number of species listed
					Critically endangered + Endangered	Vulnerable				
					Category IA + Category IB					
Animals	Mammals	approx. 200	4	0	48 ----- 32 ----- 12 20	16	16	9	12	89
	Birds	approx. 700	13	1	89 ----- 42 ----- 17 25	47	16	15	2	136
	Reptiles	97	0	0	18 ----- 7 ----- 2 5	11	9	1	2	30
	Amphibians	64	0	0	14 ----- 5 ----- 1 4	9	5	0	4	23
	Brackish water and freshwater fish	approx. 300	3	0	76 ----- 58 ----- 29 29	18	12	5	12	108
	Insects	approx. 30,000	2	0	139 ----- 63 -----	76	161	88	3	393
	Land/freshwater mollusks	approx. 1,000	25	0	251 ----- 86 -----	165	206	69	5	556
	Spiders/crustaceans	approx. 4,200	0	1	33 ----- 10 -----	23	31	36	0	101
	Subtotal for animals			47	2	668 ----- 303 365		456	223	40
Plants	Vascular plants	approx. 7,000	20	5	1,665 ----- 1,044 ----- 564 480	621	145	52	0	1,887
	Bryophytes	approx. 1,800	0	0	180 ----- 110 -----	70	4	54	0	238
	Algae	approx. 5,500	5	1	41 ----- 35 -----	6	24	0	0	71
	Lichen	approx. 1,000	3	0	45 ----- 22 -----	23	17	17	0	82
	Fungi	approx. 16,500	27	1	63 ----- 53 -----	10	0	0	0	91
	Subtotal for plants			55	7	1,994 ----- 1,264 730		190	123	0
Total			102	9	2,662 ----- 1,567 1,096		646	346	40	3,805

Notes:

1. Data on the assessed animal species (including subspecies) were derived from the Environment Agency, *Checklist of Japanese Species of Wildlife* 1993, 1995, and 1998.

2. Data on the vascular plants (including subspecies) were gathered by the Japanese Society for Plants Systematics.

3. Data on the species of bryophytes, algae, lichen, and fungi (including subspecies) were derived from Ministry of the Environment surveys.

4. Data on the current state of threatened species (including subspecies) were derived from *Ministry of the Environment Red List*.

The categories are considered as follows:

Extinct: Species that are extinct in Japan

Extinct in the wild: Species that are known only to survive in captivity or in cultivation

Critically endangered + Endangered: Species in danger of extinction

Vulnerable: Species facing increasing danger of extinction

Near threatened: Species with weak foundation for survival

Threatened local population: Population of a species that is isolated in an area and has high possibility of extinction.

Source: Ministry of the Environment

environment; giving greater importance to biodiversity education; and providing better supports to NPOs.

The Red List provides the status of threatened wildlife species. Facing extinction, it reports, are a little more than 20% of mammals, amphibians, brackish water and freshwater fishes, and vascular plants (tracheophyte), a little less than 20% of reptiles, and a little more than 10% of bird species inhabiting Japan. Furthermore, 73 species have been designated as national endangered species of wild fauna and flora pursuant to the Law for the Conservation of Endangered Species of Wild Fauna and Flora, including four species of mammals and 39 species of birds.

A variety of measures are being taken to help conserve biological diversity in Japan.

To protect and increase the use of natural parks properly, the government is conducting an overall review of park areas and park plans to meet changes in social and other conditions surrounding parks.

To more effectively preserve internationally important wetlands, the government designated an additional 20 locations in Japan (including various wetland topographies such as marshes, tidal flats, coral reefs and karst topographies) as Ramsar Convention-registered wetlands.

Under the Law for the Promotion of Nature Restoration, 18 new Nature Restoration Committees had been established as of March 2006, initiating efforts toward nature restoration.

In accordance with the Invasive Alien Species Act (effective in June 2005), the government designated 37 species as invasive alien species in the first round, and 43 species in the second round.

List of Invasive Alien Species under the Invasive Alien Species Act

(as of February 1, 2006)

Class	Name of Species
Mammals	Brushtail possum, all species of the genus <i>Erinaceus</i> , Taiwan macaque, crab-eating macaque, rhesus macaque, nutria, Pallas's squirrel, Russian flying squirrel (excluding Japanese subspecies <i>Pteromys volans orii</i>), gray squirrel, Eurasian red squirrel (excluding Japanese subspecies <i>Sciurus vulgaris orientis</i>), muskrat, crab-eating raccoon, raccoon, American mink, Javan mongoose, all species of the genus <i>Axis</i> , all species of the genus <i>Cervus</i> (excluding the native subspecies of Sika Deer), all species of the genus <i>Dama</i> , Pere David's deer, and Reeves's muntjac
Birds	Laughing thrushes, masked laughingthrush, white-browed laughingthrush, and red-billed mesia
Reptiles	Snapping turtle, green anole, brown anole, brown tree snake, Taiwan beauty snake, and Taiwan pit vipers
Amphibians	Cane toad, Cuban treefrog, Puerto Rican coqui, bullfrog, and Asian tree frog
Fish	Channel catfish, northern pike, muskellunge, western mosquito fish, bluegill, smallmouth bass, largemouth bass, white bass, striped bass, Eurasian perch, pikeperch, Mandarin fish (<i>Siniperca chuatsi</i>), Mandarin fish (<i>Siniperca scherzeri</i>)
Insects	All species of the genus <i>Cheirotonus</i> (excluding Yanbaru long-armed scarab), Argentine ant or tropical fire ant, fire ant, red imported fire ant, and little fire ant
Invertebrates	All species of the family Buthidae, all species of the genera <i>Atrax</i> and <i>Hadronyche</i> (family Hexathelidae), 3 species of the genus <i>Loxosceles</i> , 4 species of widow spiders, all species of the genus <i>Astacus</i> , signal crayfish, rusty crayfish, all species of the genus <i>Cherax</i> , all species of the genus <i>Eriocheir</i> (excluding <i>E. japonica</i>), all species of the genus <i>Limnoperna</i> , quagga mussel, zebra mussel, cannibal snail, and predatory flatworm
Plants	Alligatorweed, floating marshpennywort or pennywort, water lettuce, water fern, lanceleaf tickseed, Senegal tea plant, cutleaf coneflower, Madagascar ragwort, bur cucumber, parrotfeather, common cord grass, water speedwell

Source: Ministry of the Environment

Some regions have recently had an increase in deer, wild boar, and some other birds and animals as the number of hunters, who played an important role in controlling their numbers, has decreased. This contains a risk of serious damage to agriculture, forestry, and natural vegetation, as well as reducing the quality of habitats for wildlife and the number of migratory birds in some locations. To further encourage wildlife management by active hunting, the government submitted the bill on Wildlife Protection and Proper Hunting Law to the Diet.

The lawmakers amended the Law for Welfare and Proper Management of Animals (amended legislation came into force in June 2006), with the intention of enhancing animal welfare and management practices for animals. The main revised points are that the registration system for animal dealers and the nationwide permission scheme for specified animals (dangerous animals).

In addition, an emphasis is also being placed on people's contact with nature. It is considered that nature helps develop a healthy mind, revitalize humanity, and learn more about coexistence with nature.

As a part of continued efforts to promote ecotourism since FY2004, the government has launched 5 new policy initiatives: i) The Ecotourism Charter; ii) The Ecotourism Promotion Manual; iii) The Ecotour Travel Guide; iv) The Ecotourism Awards; and v) model projects. At "the First Ecotourism Awards" to honor ecotourism best practices, the Minister of the Environment granted Grand Prix (1 award winner), Prize for Excellence (4 award winners), and Special Prize (6 award winners) at the commendation ceremony held at the 2005 World Exposition, Aichi, Japan venue. In addition, the Ministry of the Environment held a symposium to provide information on various best practices. In the "model projects," the government has provided support for the rulemaking process or travel attendant training programs in 13 districts, paying careful attention to their local needs, as well as holding

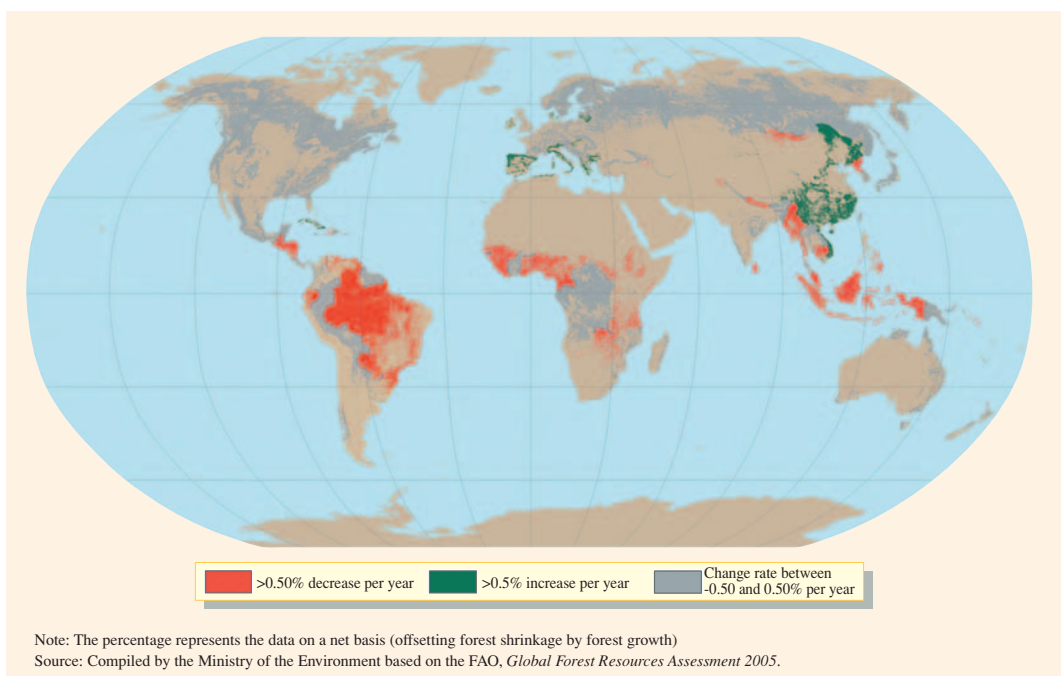
orientation sessions for presentations or sharing information about work in model districts. As well as holding “National Ecotourism Seminars” for ecotourism travel agents, the Ministry of the Environment conducted surveys in two locations to promote ecotourism in national parks.

To address the problems of hot spring business operators (e.g., how to put up a notice with data on hot springs for visitors), the government revised the enforcement regulation for the Hot Spring Law (effective on May 24, 2005). According to the amended regulation, hot spring operators are required to provide information on the hot water supply, water heating, and circulation systems (e.g., cyclical filtration equipment), as well as bathwater additives, and disinfection methods.

(2) Conservation of Natural Environment Outside Japan

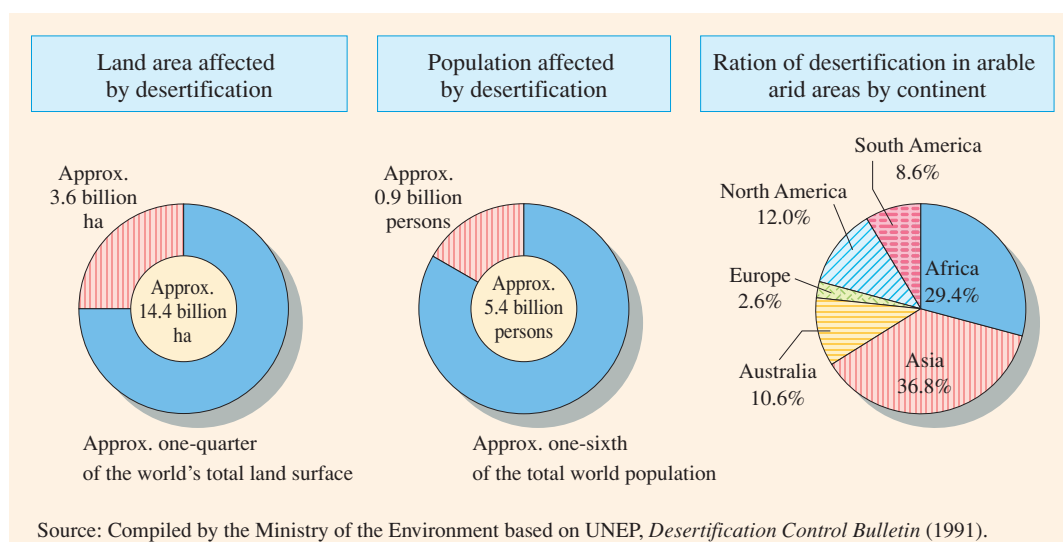
Forests in the world decreased at a rate of about 7.32 million hectares per year on average from 2000 to 2005. African, South American, and Southeast Asian from Asian region forests, where the tropical forests are located, have suffered a significant reduction in their size. This is mainly attributable to forest fires, and illegal logging as well as conversion of forest to other land uses such as agriculture. In this relation, at the 6th session of United Nations Forest Forum in February 2006, policymakers discussed how they could strengthen the international framework to solve world forest problems.

How Fast are the Forests in the World Getting Larger or Smaller? (2000-2005)



About one-quarter of all land areas in the world and 900 million people, accounting for one-sixth of the world’s population, are affected by desertification, which is defined as land degradation in arid and semi-arid areas etc. As background of this problem, there are factors such as poverty and population growth in developing nations. Therefore, international efforts are being made under the UN Convention to Combat Desertification (UNCCD).

Current State of Desertification



7. Basis of Various Measures, and Measures Facilitating the Participation of Various Actors and International Cooperation

(1) Making Progress with Environmental Education and Environmental Learning

Since it is important to encourage environmental education, the Japanese Diet passed the “Law for Enhancing the Motivation on Environmental Conservation and Promotion of Environmental Education” in July 2003. After the Cabinet decided on its fundamental policies in accordance with the legislation, the Ministry of the Environment established the Ministerial Ordinance on the Registration of Human Resource Accreditation etc. Enterprises. The law became fully effective on October 1, 2004.

In relation to this, the Ministry of the Environment has launched the Junior Eco-Club program, which is a program for supporting elementary/middle school pupil’s environmental conservation activities, as well as the Environmental Counselor Project to provide advisors and instructors for environmental conservation activities. In FY2005, the ministry also launched “My Family’s Minister of the Environment” program (a program supporting family ecoliving), and the “School Eco-Renovation and Environmental Education Project,” to carry out environmental education through renovation and effective utilization of environmentally friendly school facilities.

(2) Efforts for Achieving a More Environmentally Friendly Socioeconomic Structure

Government-related organizations provide subsidies for environmental conservation projects.

Another idea is to impose economic costs in an attempt to reduce environmental burdens. Possible policy approaches would include suppressing waste generation as well as controlling carbon dioxide emissions to prevent global warming. To identify appropriate policy approaches, the government conducted a research project to survey and collect data on foreign best practices and examine possible positive effects that these policies would have on environmental conservation or the national economy.

The “Law Concerning the Promotion of Procurement of Eco-Friendly Goods and Services by the State and Other Entities” aims at encouraging a demand shift to eco-friendly goods (goods and services with low environmental load) by promoting procurement of eco-friendly goods in the public sector (the national government, independent administrative institutes, and public organizations) and actively providing environmental information. In line with these basic policies, the national government and other public-sector organizations established their FY2006 eco-friendly goods procurement plan and attempted to promote procurement eco-friendly goods based on their own plan.

In addition, following the enforcement of the “Law Concerning the Promoting of Business Activities with Environmental Consideration by Specified Corporations, etc., by Facilitating Access to Environmental Information and Other Measures” came into force in April 2005 the government drew up the “Guide for Environmental Reporting for ‘Specified Corporations’” (e.g.; public institutions, etc.). This guide has drawn up for the convenience of business activities who are inexperienced in preparing and

releasing their environmental report, including those who make their first attempt at these issues. And another thing, the government prepared “Guide for Self Evaluation of an Environmental Report” which helps them evaluate their own report mainly based on “Environmental Reporting Guidelines (Fiscal Year 2003 Version)” and enhance the reliability by themselves.

The Development Bank of Japan (DBJ) started its Loans for Promoting Environmentally Conscious Management in 2004, the low-interest loans through screening of environmental perspectives to provide supports for environmentally conscious companies.

(3) Environmental Impact Assessment

In accordance with the Environmental Impact Assessment Law, environmental impact assessments had been conducted on 161 projects up until the end of March 2006. Of these projects, the environmental impact assessment procedures were completed for 14 projects during FY2005. Through these procedures, environmental considerations were included in the process of establishing social infrastructure.

Status of Environmental Impact Assessment Procedures in Accordance with the Environmental Impact Assessment Law

(As of the end of March 2006)

	Road	Dam etc.	Railway	Airport	Power station	Disposal site	Reclamation	Area development	Total*2
Procedures started	67 (45)	6 (6)	13 (9)	8 (8)	39 (26)	3 (2)	10 (7)	20 (11)	161 (111)
Opinion of the Minister of the Environment	37 (16)	3 (3)	10 (7)	6 (6)	25 (13)	—*3	—*3	12 (4) *3	93 (49)
Procedures completed	35 (14)	3 (3)	10 (7)	6 (6)	23 (11)	3 (2)	5 (3)	12 (5)	94 (49)
Procedures discontinued	7 (6)	—	—	—	2 (2)	—	—	2 (1)	11 (9)

*1. Figures in () show the number of cases conducted under the Law from the start of procedure. Figures outside () include these numbers.

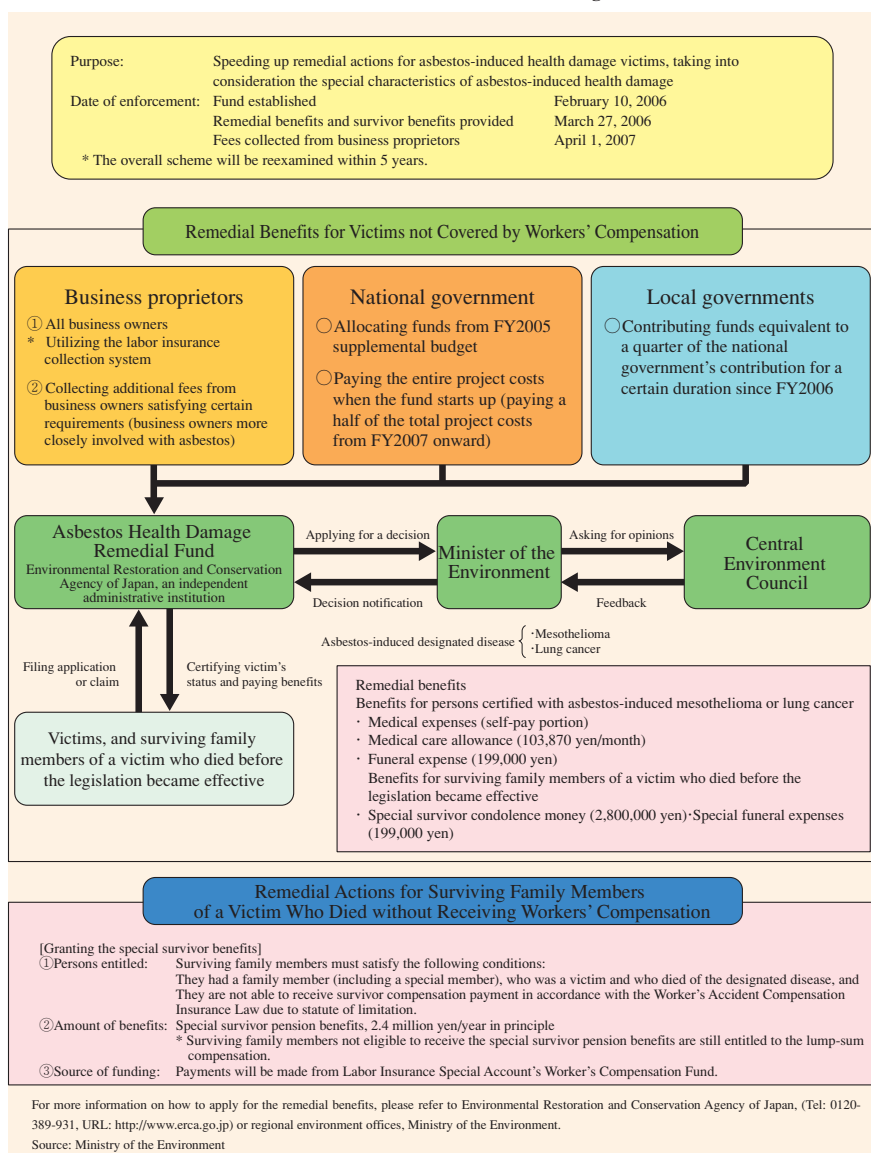
*2. When two projects are implemented together, it is counted as one.

*3. The Prefectural governor is the authority giving permissions for all or a part of the projects. In this case, the Minister of the Environment has no authority to get involved in the procedure under the Environmental Impact Assessment Law.

(4) Remedial Actions for Asbestos-induced Health Damage

Because of the special characteristics of asbestos health damage, the government submitted “the Bill on Asbestos Health Damage Relief” to the 164th Diet session on February 3, 2006, which envisioned to give relief to those who are suffering from health damage induced by asbestos as well as family members of those who died from the health damage. The Diet passed the bill.

Outline of an Act on Asbestos Health Damage Relief



(5) International Policy Measures

In July 2005, the Central Environment Council submitted its opinion paper on future international environmental cooperation. The opinion paper describes new dimensions in international environmental cooperation that would address the ever-changing trends at home and abroad in global environmental conservation over recent years.

○ Environmental Conservation Measures to be Implemented in FY 2006

The Quality of the Environment in Japan 2006(White Paper) reports the environmental conservation policies and measures to be implemented in FY2006.

- Chapter 1: Prevention of Global Warming and Preservation of the Ozone Layer
- Chapter 2: Conservation of the Atmospheric Environment
- Chapter 3: Conservation of the Water, Soil, and Ground Environments
- Chapter 4: Measures and Policies related to the Material Cycle, including Waste and Recycling Measures
- Chapter 5: Measures for Chemical Substances
- Chapter 6: Conservation of the Natural Environment and Promoting Contact with Nature
- Chapter 7: Basis of Various Measures, and Measures Facilitating the Participation of Various Actors and International Cooperation



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● If you have any opinions and comments regarding this booklet, please contact the following:

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**Abridged and Illustrated for Easy Understanding
Annual Report on the Environment in Japan 2006**

Published by: Ministry of the Environment
Translated by: Ministry of the Environment
Published in October 2006

