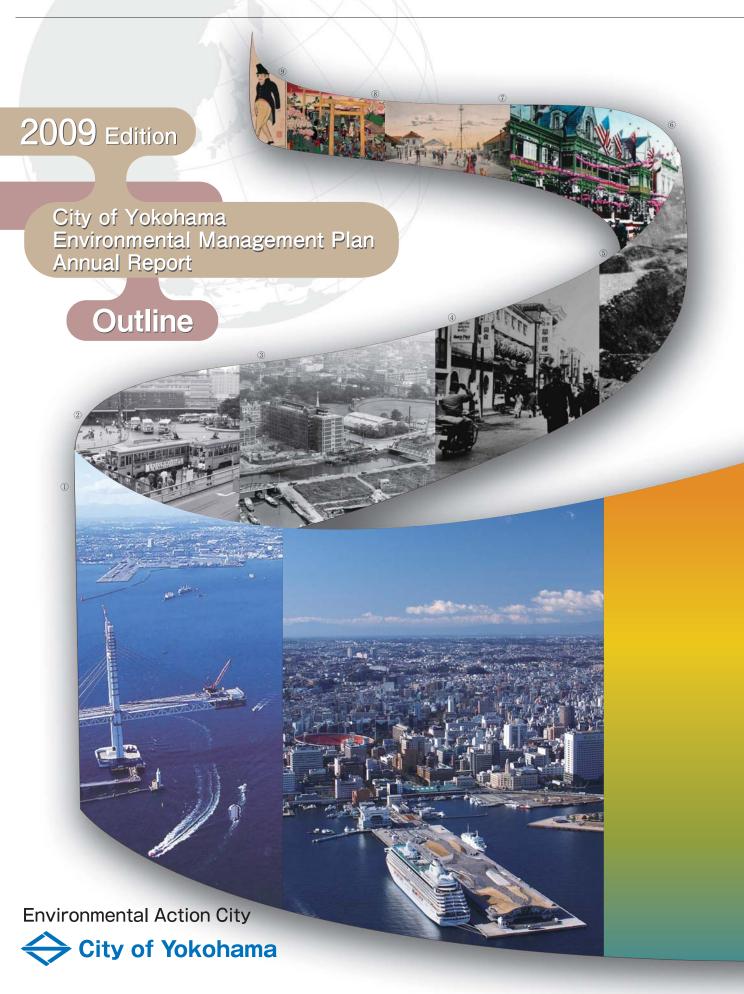
# The Environment of Yokohama

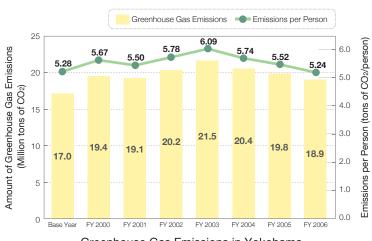


## **Promotion of Measures for** the Prevention of Global Warming

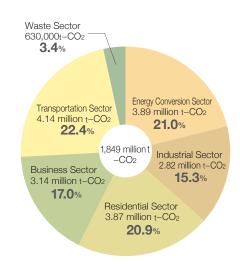
#### Status of Global Warming and Measures for Prevention

As an "Environmental Model City", Yokohama is working together with its citizens, businesses and government agencies on measures to reduce greenhouse gas emissions based on the city's "Yokohama Climate Change Action Policy (CO-DO30)" and the "Yokohama Global Warming Measures Regional Promotion Policy" in an effort to tackle global warming, an issue being faced by all mankind.

Greenhouse gas emissions in Yokohama in FY 2006 were the equivalent of about 1,889 million tons of CO2 (1.4% of the national total), which represents an increase of 11.1% over the base levels that were set out in the Kyoto Protocol (FY 1990 levels). Per capita emissions of CO<sub>2</sub> were 5.24 tons, which is a decrease of 0.7% from the base levels.



Greenhouse Gas Emissions in Yokohama



Breakdown of Yokohama's CO2 Emissions (FY 2006)

Joint Action of Eight Cities and Prefectures Against Global Warming "Eco Wave"

With the cooperation of citizens and businesses in the Minato Mirai 21 area, lights were temporarily switched off as part of the "Tanabata Light Down".



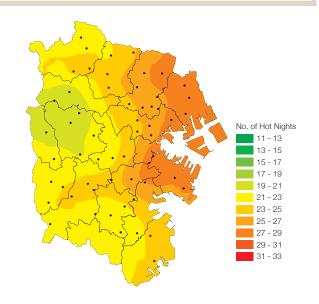
Before Going Dark



After Going Dark

#### Heat Island Policies

The heat island phenomenon refers to the tendency of areas in the heart of a city to have higher temperatures than those outside of the city, forming an "island of heat", and a FY 2003 survey confirmed that this phenomenon is also present in Yokohama. In order to relieve these heat island symptoms, comprehensive and effective policies are being promoted through activities such as endeavors taking into account regional characteristics, and the "Yokohama Heat Island Action Plan", which outlines specific measures.





#### Efficient Use of Energy

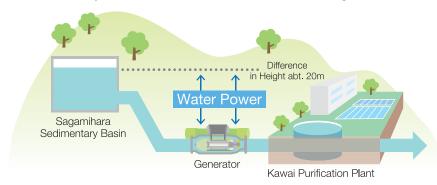
The City of Yokohama is promoting the implementation of energy-saving and new energy options for the establishment of a low-carbon society.

#### Hama Wing (Yokohama Wind-Power Generator)

With the participation of citizens in the "Hama-Bond Wind Turbine" and cooperation of businesses as "Y Green Partners", the citizens, businesses and municipal government collaborated together in funding the Hama Wing. The project was promoted as a symbolic project of Yokohama's environmental action, and generated two million kWh of energy in FY 2008.



#### ■ Small Hydro-electric Power Generator Utilizing Water Flow in Pipes

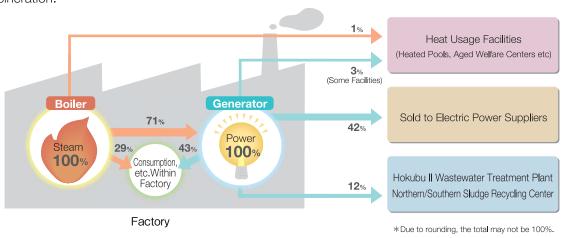


Utilizing the difference in height between the basin and the waterworks, hydro-electric power is being generated on a small scale.

Date of Implementation	Location
FY 2006	Kohoku Distribution Reservoir
End of FY 2009 (planned)	Kawai Purification Plant
End of FY 2010 (planned)	Aoyama Sedimentary Basin

#### Power Generation and Heat Utilization at Waste Incineration Plants

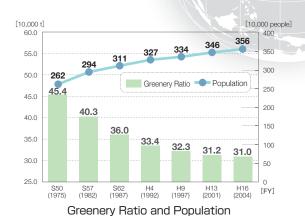
At waste incineration plants, electricity is generated from steam generated in waste incineration, with the power supplied to heat utilization facilities, wastewater treatment plants and sludge recycling centers, and the excess energy is sold to electricity companies. Also, steam is used for internal equipment and air conditioning, as well as heated pools etc. to make use of the remaining heat generated from waste incineration.



# Promotion of Urban Development Rich in Water and Greenery

## Action Plan for the Conservation and Creation of a Water/Greenery Rich Environment

There are many different kinds of 'greenery' in the city, from large-scale fields, farmland and forests to smaller parks, school fields, gardens and street-side trees. This 'greenery' can be represented by a 'greenery coverage ratio' (measured as the percentage of green in the city limits as viewed from aerial photographs), and in Yokohama this ratio is currently 31% (as of FY 2004). This ratio has decreased by about 14 points over the last 30 years, making it necessary for the promotion of new greenery and the conservation of existing greenery within the city.



In response to this need, Yokohama formulated the "Yokohama Water and Greenery Master Plan" in FY 2006 in an effort to comprehensively and effectively promote measures to conserve and create a water and greenery rich environment. A leading part of this plan is the "Yokohama Greenery Plan", which aims to ensure a focus on the maintenance and improvement of the total amount of greenery (greenery ratio of 31%).

#### Yokohama Greenery Plan (New/Expanded Measures) and Yokohama Greenery Plan Civic Promotion Council

Yokohama is looking to implement new and expanded measures in addition to the "Yokohama Greenery Plan" in order to stop the decline in greenery around the city and promote a "Greenery-Rich Yokohama" for the benefit of the next generation. Under the "Yokohama Greenery Plan (New/Expanded Measures)", the "Yokohama Greenery Plan Civic Promotion Council" has been established in order to provide information to citizens and gain a broad grasp of civic opinion, as well as cooperate with citizens in receiving/making business evaluations and proposals and clarifying the usage of the Yokohama Greenery Tax.

#### Conservation of Forests

Forests dot the city, along with organized forests in the city's "10 Bases of Greenery", and Yokohama is working to preserve these 2,173ha of forests that make up about 5% of the city's total area.

## Conservation of Farmland and Promotion of Agriculture

Farmland accounts for about 7.4% of the total land in the city, or 3,231ha, and forms a lush environment together with woodlands and rivers around urban



▲ Yokohama Local Production for Local Consumption Forum 2008

areas. Farmlands are not merely places for the production of agricultural products, but are also open spaces of natural environments that provide soil, water and greenery as well as beautiful scenery. With the goal of "agricultural urban development", the city is investing its efforts into conserving farmlands, which have a variety of functions, as well as promoting sustainable urban agriculture (promoting "Local Production for Local Consumption", etc.).

# Kawai/Yasashi/Kamiseya Kawai/Yasashi/Kamiseya Kamiida/Izumi /Nakata Area Maioka/Noba Shimoizumi /Higashi/Matano /Fukaya Area Enkaizan Area Woshiba Enkaizan Area Tomioka Peturned facilities: acilities to be returned under "Usage Guidelines for Peturned Us Military Facilities" \* Peturned facilities: facilities to be returned under "Usage Guidelines for Peturned Us Military Facilities"

#### Maintenance and Management of Parks

There are 2,575 city parks covering a total of 1,726ha\* (as of the end of FY 2008), which play an important role in improving the urban environment by such means as the mitigation of heat island effects and providing habitats for living organisms. \*4.72m² per citizen

#### Maintenance of Rivers

In FY 2008, 20 river embankments were rehabilitated, and maintenance of the water environment at river banks with an accessible waterfront was also promoted.

#### Planting of 1.5 Million Trees

As part of the celebrations of the 150th anniversary of the port opening, citizens, businesses and the government joined together with the challenge of planting 1.5 million trees between FY 2006 and the end of FY 2009 (about 1.28 million planted as of the end of FY 2008) as an endeavor to increase greenery in the city and leave a rich environment for future generations.



## **Creation and Conservation** of Habitats for Living Creatures

The developments in urbanization, wetland reforms and coastal reclamations in the Yokohama natural environment have been insufficient to secure coherent and connected greenery and wetlands. Therefore, in order to redevelop existing facilities in Yokohama as natural habitats, action is being taken in rainwater catchments and parks to provide natural habitats for living creatures such as birds, insects and fish.

#### Promotion of "Eco-Up"

"Eco-Up" is a term coined in Yokohama which means "improving the environment to make it ecologically considerate". "Eco-Up" refers to the process of making an environment friendly for living creatures when creating ponds or other green areas in schools and parks etc, or reclaiming rivers or drainage basins, etc. In FY 1997, the "Eco-Up Master Plan" was developed, and various "Eco-Up" measures are being implemented.



2008 Kid Explorers "Dragonfly Catching"

▲ Marking research on dragonflies as environmental indicators have been conducted since 2003 at factory site biotopes in the Keihin coastal region.

#### Role and Activities of the Yokohama Municipal Zoo

Yokohama has three zoos (Zoorasia, Nogeyama Zoo, and Kanazawa Zoo), and they each have individual characteristics, while at the same time carrying out activities in accordance with four common roles. One of these roles is the conducting of educational programs at each zoo where visitors can learn about the environment through their interest in animals.

Role the Zoo

- 1) Breeding and protecting wildlife in danger of extinction (species preservation)
- 2 Genetic, physiological and ecological research on animals
- 3 Outreach education on the natural environment and wildlife
- (4) Recreational facilities for rest and relaxation



Kanazawa Zoo Environmental Learning Course

#### Wildlife Policies

Recently, with the distance between the living spaces of humans and wild animals getting closer, there have been instances of wild animals causing problems such as noise and home invasions, etc. Therefore, policies have been put in place against certain dangerous wild animals to maintain a safe, comfortable living environment for our citizens.



▲ Crow Caution Signs



Awareness Leaflets

## Promotion of Minimal-Burden Urbanization



#### Promotion of Planned Urbanization

Based on changes in population and industrial trends, the "Urban Planning Master Plan" is developed at the three levels of city, ward and district to indicate future developments and prioritize individual city plans. The comprehensive city plan decided upon in January 2000 emphasized "the creation and conservation of a comfortable and safe environment" and indicated its "environmental management policy: environmentally friendly urban development in which people and nature can coexist". Specific examples of these policies are given below:

- Improvement of damage from industrial and city/living pollution and the prevention of environmental pollution
- Ourban greening and the improvement of water quality, waterfront development, and the creation and conservation of natural habitats
- Maintenance of public transportation, rational and efficient use of energy, and the establishment of recycling-oriented social and economic systems
- Sustainable urban development that contributes to global environmental conservation
- Environmental consideration when planning for urban development and the cultivation of cities that make the most of the functionality provided by the natural environment

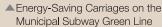
## Comprehensive Maintenance of the Public Transportation System for a Comfortable Environment

Basic policies such as the "Promotion of Cooperative Transportation Policies", "Achievement of Environmental and Citizen-Friendly Transportation", and "Achievement of Convenient Transportation for Everyone", will be promoted for the realization of sustainable transportation.

## Opening of the Green Line (Yokohama Municipal Subway)

On March 30, 2008, the rapid railway No. 4 (Green Line) was opened between Nakayama Station and Hiyoshi Station. Various environmental measures have been implemented, such as the introduction of the latest energy-saving carriages and the installation of solar power equipment at depots.



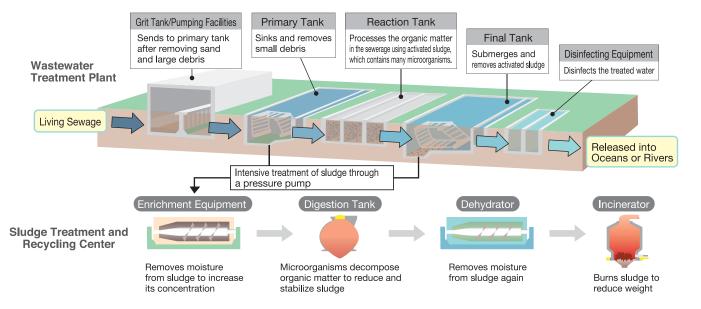




▲ Solar Power Plant at Kawawa Depot

#### Sewerage System

Yokohama has eleven "Wastewater Treatment Plants" and two "Sludge Treatment and Recycling Centers". There is also a pumping station for sewerage and rainwater drainage. These facilities are operated and maintained to provide sewerage for a safe and comfortable city. (Percentage of Sewerage Coverage: 99.8% as of the end FY 2008)



# **Creation and Conservation**of Quality Urban Landscapes



Modern architecture, Western style homes, and other structures from the time of the port opening remain in Yokohama, and old homes and shrines left in the suburbs also convey a rural atmosphere. In order to preserve and utilize this atmosphere, the "Outline for Urban Development that Utilizes Historical Sites" was implemented in 1988. Also, in order to create an urban landscape that suits the charm and character of Yokohama, the "Yokohama Ordinance for the Creation of an Attractive Urban Landscape" was implemented in April 2006.

#### Creating an Attractive Port

Since the opening of the port, Yokohama Port has maintained a unique landscape full of history and cultural heritage loved by many. Measures have been taken to maintain this "Port City Yokohama" feel, with a landscape that is attractive and friendly and of which its citizens are proud, and also allows visitors to enjoy its uniqueness. "Zonohana Park" was opened in June 2009 as a symbol of the history and future of Yokohama in the Zonohana district, the birthplace of the port of Yokohama, taking advantage of the historical assets of the area.



▲Zonohana Park

#### Quality Living Climate

In order to promote better living conditions in accordance with regional characteristics, we are collaborating with the ward offices in projects centered around "Urban Rule-Making Consultation Centers" for citizens involved in urban development activities. Urban development courses are held, community planning coordinators are dispatched, grants and other support activities are provided, and building and landscaping agreements, urban development rules, and district and landscape plans are made based on citizen proposals.



▲ Streets in accordance with Urban Development "Shin-Honmoku area, Naka Ward" \*Hedges or nets are used for fences to ensure visibility

## Comprehensive Assessment System for Built Environmental Efficiency (CASBEE Yokohama)

The act of building, from construction to demolition, consumes a lot of energy and places a heavy burden on the environment.

Yokohama uses the "CASBEE Comprehensive Assessment System for Built Environmental Efficiency" for large-scale building projects in order to reduce the burden on the environment, and these buildings are required to notify the city of the results of evaluations of long-life and energy-conservation measures, which are then published on the city's website.

Also, Yokohama is the only city in the country to have developed a certification system. This system is an objective system whereby the city reviews evaluations made by academic experts. Six buildings have been certified with an S rank as of June 2009.



CASBEE Yokohama Character

– Casbeeppi

#### S-Rank Certified Buildings



▲ Collaboration Complex, Hiyoshi Campus, Keio University



▲ Nissan Motor Co. Global Headquarters



Fourth Building Independence Wing, Hiyoshi Campus, Keio University

## **Pollution (Living Environment) Policies**

As the lifestyles of citizens diversify, interest in their living environment also increases. In order to prevent new forms of environmental pollution and to maintain a comfortable living environment, measures such as regulatory guidance and environmental surveys for businesses have been set out by laws and regulations to protect against air, water, soil, and noise pollution, as well as vibrations, traffic pollution and other hazardous materials.

#### Air Pollution Measures

In order to understand the current status of air pollution, pollutants such as nitrogen oxides, suspended particulate matter and photochemical oxidants emitted from sources including factories and cars are measured at 28 monitoring stations around the city.

For stationary sources such as factories, regulations and guidance are provided in relation to the emission of pollutants.

Also, for measures against cars and other mobile sources of pollution, the use of public transportation and low-emission vehicles are promoted.



▲ Eco-Car World 2008 in Yokohama (June 7-8 2008)

#### Water Pollution Measures

In order to understand the current status of water pollution, regular measurements are conducted on rivers, the ocean, and ground water for the presence of health-related items such as cyanide as well as living environment properties such as BOD/COD.

Regulatory standards and guidance are provided for factories and construction sites that are a source of pollutants.

#### Subsidence Measures

Precise leveling surveys are conducted as research pertaining to land subsidence, etc.

When companies extract ground water, this must be carried out in accordance with the relevant ordinances and regulations, with permission or notification required for the use of pumping equipment. Also, drilling companies must provide reports when engaging in drilling projects beyond a certain scale.

#### Noise/Vibration Measures

Regulations and guidance are provided for the improvement of work methods as well as factories and construction projects that produce noise/vibrations, requiring the use of low-noise and vibration reduction facilities. Regarding measures against noise and vibrations from the traffic environment including roads and Shinkansen railways, surveys and measurements are carried out at certain points around the city, and also upon request from local citizens.

#### Odor Prevention Measures

Strict regulations and guidance are provided for regulatory standards at factories, etc.

#### Soil Pollution Measures

Guidance is provided to factories for soil pollution surveys. According to ordinance, guidance on soil investigation and measures is provided for factories that use hazardous substances when they are decommissioned or when modifying their lots, etc.

#### Hazardous Chemicals Measures

We are promoting collaborative measures between the citizens, businesses and municipal government for the prevention of environmental pollution from hazardous substances. Also, in order to determine the amount and emissions of chemicals under PRTR law, lectures are provided to the public and businesses to raise awareness and understanding of risks involved.



Public Lecture: "Proper Handling of Common Chemicals

## Creating a Recycling Urban Environment



#### Promotion of Reduction, Recycling and Appropriate Disposal of General Waste

The goal of the "Yokohama G30 Plan" (Yokohama's fundamental policy for general waste disposal) to reduce waste by 30% by FY 2010 compared to FY 2001 levels was achieved five years early with a 33.9% reduction by FY 2005, thanks to the understanding and cooperation of citizens and businesses.

Therefore, in FY 2006, as part of its medium term plan, Yokohama set the goal of a "35% reduction in waste by FY 2010", taking one more step towards the realization of an environmentally friendly city, with the city hall, ward offices and local organizations playing a central role in cooperation between citizens, businesses and the municipal government to implement a variety of measures including the separation and collection of waste.

As a result, the amount of waste in Yokohama was about 949,000t in FY 2008, marking a 41% (about 660,000t) reduction as compared to FY 2001.



▲Collection Center Tour (Sakae Office)

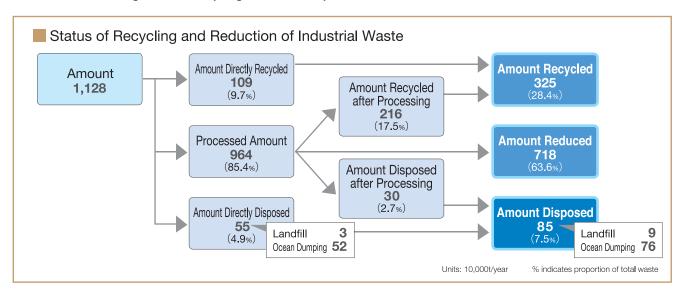


▲G30 On-Site Courses (Midori Office)

#### Promotion of the Containment, Reduction, Recycling and Appropriate Disposal of Industrial Waste

Yokohama has developed guidelines for industrial waste in the form of its "Yokohama Industrial Waste Processing Guidelines (No. 5: FY 2006-2010)".

Under this plan, recycling, cyclical usage and appropriate disposal are promoted as well as the containment of the generation of industrial waste, with generating companies, disposal companies, citizens and the municipal government freely exchanging information and working towards a recycling-oriented society.



## Improvement of Environmental Awareness and Promotion of Environmental Education

#### Promotion of Environmental Education and Environmental Learning

Yokohama developed the "Yokohama Environmental Education Policy" in FY 2004, which indicates the various roles and important systems of major actors such as citizens, schools, civic groups, businesses and the municipal government in terms of appropriate environmental education in Yokohama, based on various local characteristics and past experience. Furthermore, based on this policy, the "Yokohama Environmental Education Action Plan" was formulated in FY 2005 as a guide for environmental activities.

In FY 2008, with the continued implementation of on-site courses in schools and local communities, an integrated local model implementing three major environmental activities\* was implemented in the Wakabadai district (Asahi Ward). This area, in cooperation with the City of Yokohama, began such activities as the reduction of plastic bags and conducting of environmental surveys. Also, the former Central Parks Greenery Office in Maita Park has begun working together with environmental action groups (11 organizations) as the "Maita Park Environmental Action Center" to form the "Maita Eco-Salon", which conducts an Autumn Festival and continuous courses in relation to regional environmental activities.

In the future, Yokohama aims to further promote environmental education through the continued implementation and expansion of these "pilot programs".

\*① Global warming prevention activities by 3.66 million people ② 3R activities (Reduce, Reuse, Recycle) ③ Environmental conservation activities connecting water and greenery







▲ Event at the Maita Eco-Salon

#### Citizens/Businesses Promoting Environmental Activities

In Yokohama, activities related to the environment and environmental education are being carried out enthusiastically by the citizens, NPO/NGOs, universities, businesses and the municipal government.

#### RCE Yokohama

Aiming for the realization of a sustainable society, universities, companies and local authorities have strengthened cooperation, and the headquarters (RCE\*2) used to promote local ESD\*1 was certified by the United Nations University as RCE Yokohama in April 2006. RCE Yokohama is a forum for the exchange of information and interaction between various entities, such as through the holding of symposiums, as well as the provision and sharing of information using the internet, serving as a place for people involved in ESD to meet, socialize and collaborate.



▲ Activities at RCE Yokohama

#### Yokohama Environmental Action Award (Commendations)

In order to further enhance interest in environmental conservation, regeneration and development, and to promote local environmental activities and environmentally friendly urban development, a system has been put in place to recognize the efforts of individuals, organizations, businesses and students that are active in environmental activities locally, and awards are given out each year.



▲ FY 2008 Yokohama Environmental Action Awards



#### Promotion of International Cooperation in the Environmental Field

Yokohama has provided its experience in overcoming industrial pollution through a significant period of economic growth as well as its accumulated technical expertise and know-how in relation to all aspects of the environment to other Asian countries through technical cooperation and exchanges. In addition to current technical cooperation and exchange activities involving the environment with Beijing, Shanghai and Hanoi, Vietnam, Yokohama has also joined in cooperation with the Japan International Cooperation Agency (JICA) and the Regional Network of Local Authorities for the Management of Human Settlements (CITYNET) to promote international exchange activities and international contributions.

#### Uganda Wildlife Conservation Project

Since FY 2008, trainees have been received from the Uganda Wildlife Education Center (UWEC), and specialists have also been dispatched to the center from Yokohama. In 2008, two officials from UWEC came to Yokohama, and two zoo workers from Yokohama were sent to UWEC to offer guidance on artificial incubation and breeding for birds.



▲Training at the zoo

#### Project to Return the Bali Myna to the Wild

In an effort to protect the critically endangered Bali Myna, Yokohama has joined with the Indonesian Ministry of Forestry in a project to return 100 Bali Myna birds that were bred in our breeding center to the wild in Indonesia. In FY 2008, we were able to confirm growth in the wild population from these bred birds, to an extent never seen before.



▲Bali Myna

Introduction of the Environment
Characters of Yokohama

#### Water Environment Character



#### Dai-chan the Hippo

I want you all to know what happens to the water that you use. It goes to a wastewater treatment plant where it is cleaned, and then it goes back to the rivers and ocean. Come and see for yourself!

#### Environmental Action Information Site "Eco-Port" Character



I love everything that's environmentally-friendly. I'm always flying around Yokohama looking for environmentally-friendly activities. I want to meet a lot of people and join them in doing environmentally-friendly things!

#### Yokohama Anti-Global Warming Character

#### Minna no Earth-kun



It's too hot... My body is the earth, where everybody is living. The earth is getting warmer by the minute. Please live in an environmentally-friendly way so that the earth doesn't get any warmer!

#### Yokohama Brand Agriculture Character



Fruits and vegetables that have the "Hama-na-chan' mark are made in Yokohama Let's all eat fruits and vegetables that have been carefully grown by Yokohama's farmers!

#### "Yokohama G30" Mascot



#### Mio from the Planet Hera (30)

Thanks to everyone's help, garbage has been reduced and I've been able to go on a diet! But I'm worried about a rebound. Let's all work hard to make sure that my diet continues!

Cover Images

①"Yokohama Bay Bridge Before Opening", 1989 (Source: Public Relations Division, Civic Affairs Bureau) ②"Yokohama Station East Exit", 1970 (Source: Public Relations Division, Civic Affairs Bureau) ③"Yokohama City Hall Under Construction", 1959 (Source: Public Relations Division, Civic Affairs Bureau) ④"Yamashita-cho", War and Post-war period, 1941-1964 (Yokohama City Central Library Holdings) ⑥"Hodogaya Fissure", Earthquake Reconstruction, 1923-1940 (Yokohama City Central Library Holdings) ⑥"Yokohama Grand Hotel (Coastal No. 20)", Industrial Bidding Period, 1900-1922 (Yokohama City Central Library Holdings) ⑥"Yokohama City Central Library Holdings) ⑥"Drawing of Red-Haired Foreigner", Opening of the Port and Country, 1854-1867 (Yokohama City Central Library Holdings)

#### **About the Yokohama Environmental Management Plan**

The Yokohama Environmental Management Plan is formulated based on the "Basic Ordinances for the Creation and Conservation of the Environment in Yokohama". This plan stipulates the roles of the city, citizens and businesses, and systems for the active cooperation of these parties in relation to the creation and conservation of the environment. It also brings up the current environmental issues to be resolved by an ideal Yokohama (the 5 visions of urban environment) and the 20 basic policies that are targeted for achievement.

This pamphlet is a summary of the status of policies and projects in action under the Yokohama Environmental Management Plan, which is published on an annual basis under the title "The Environment of Yokohama".

Environmental
Management Plan
〈Policy/Project Flow Chart〉



- 1) Atmospheric Conservation
- 2 Water Conservation
- 3 Soil Conservation
- (4) Promotion of Hazardous Chemical Measures
- (5) Promotion of Noise/Vibration Measures

A city that continues to make improvements in urban and lifestyle pollution, as well as prevents new damage to the environment



# Conservation of the Natural Environment and Creation of a Comfortable Environment

- ① Promotion of Urban Development Rich in Water and Greenery
- ② Conservation and Creation of a Natural Habitat
- ③ Conservation and Creation of a Comfortable Urban Landscape

A city of peace and warmth in close harmony with nature



## Promotion of Environmental Conservation

- 1 Promotion of Anti-Global Warming Policies
- ② Promotion of Ozone Layer Policies
- 3 Promotion of Other Environmental Conservation Policies
- Promotion of International Cooperation in the Environmental Field

A city that is working from a regional perspective to deal with global environmental issues

#### Yokohama's Visions of Urban Environment

#### Enhancement of Environmental Awareness and Promotion of Volunteer Activities

- 1) Promotion of Environmental Education and Environmental Learning
- ② Promotion of Environmental Activities by Citizens and Businesses
- 3 Development of the City's Environmental Activities

A city with a strong awareness of environmental conservation and creation, carrying out environmental activities enthusiastically



### Creation of a Minimal-Burden/ Recycling City

- 1 Promotion of Minimal-Burden Urban Development
- ② Promotion of the Containment, Recycling, Reduction and Appropriate Disposal of Industrial Waste
- 3 Promotion of the Reduction and Recycling of General Waste
- 4 Promotion of Soil Policies for Construction
- (5) Promotion of the Efficient Use of Energy (also posted in "Measures for the Prevention of Global Warming", p2)

A city with a low environmental burden and established societal recycling systems



