横浜市
環境管理計画

2018年11月

横　浜　市

Introduction.

Thanks to the passion and tireless efforts of our predecessors for the city, the City of Yokohama has preserved and created an environment where people can experience greenery, flowers, agriculture, and water in the places close to their daily lives, despite being a large city. In recent years, Yokohama has also taken on the challenge of implementing pioneering environmental measures such as smart cities, and has been disseminating successful examples of such measures both in Japan and abroad that can serve as models for other cities and regions.

Looking around the world, the international community is at a new turning point in its efforts to achieve a sustainable society. The Sustainable Development Goals (SDGs)adopted by the United Nations in 2015 are supposed to be achieved in harmony with the environment, economy, and society, and it is important for all stakeholders to work together to achieve them. 2016 saw the entry into force of the Paris Agreement, a new international framework to combat climate change, and the world is moving toward "de carbonization.

In this revision of the Environmental Management Plan, Yokohama has reiterated its commitment to "strengthening collaboration" as part of its environmental administrative efforts to ensure that the irreplaceable environment is passed on to future generations. Yokohama has set forth its vision for the future environment as "a city that significantly reduces greenhouse gas emissions toward decarbonization" and "a city with a natural environment rich in water and greenery and blessed with biodiversity", and will further develop environmental administration in a more comprehensive and cross-sectional manner in cooperation not only with the environmental field but also with the economic and social fields. We will continue to develop environmental administration in a more comprehensive and cross-sectoral manner in cooperation not only with the environmental field but also with economic and social fields.

In June of this year, the City of Yokohama was selected by the government as an "SDG Future City" to lead local government efforts to achieve the SDGs. We will continue to work together with our citizens and business partners to realize an attractive and sustainable city of Yokohama, while exercising firm leadership. We look forward to your continued support and cooperation.

November 2018

eye order

Chapter 6. Environmental Assessment and Publication, etc.

material material

Chapter 1

Revision of the Plan

1 Positioning of the plan, etc.

(1) Positioning of the plan

The "Yokohama City Environmental Management Plan (hereinafter referred to as the "Environmental Management Plan" or "the Plan")The "Yokohama City Environmental Management Plan (hereinafter referred to as "Environmental Management Plan" or "Plan")" is a plan for comprehensively and systematically promoting environmental policies based on the "Yokohama City Basic Ordinance on Environmental Conservation and Creation (hereinafter referred to as "Basic Ordinance") The "Yokohama City Environmental Management Plan" (hereinafter referred to as "Environmental Management Plan" or "the Plan") is a plan for comprehensively and systematically promoting measures related to the environment based on the "Yokohama City Basic Ordinance on Environmental Conservation and Creation" (hereinafter referred to as "Basic Ordinance"), which provides medium- to long-term goals and policies in the environmental field.

Yokohama City has formulated various individual plans in the environmental field, such as the "Yokohama City Action Plan for Global Warming Countermeasures" and the "Yokohama City Basic Plan for Water and Greenery," consistent with the Environmental Management Plan, to promote environmental administration in a comprehensive manner through measures and projects, and disseminate the status of the environment in easy-to-understand annual reports and other forms of information.

In this revision, the "Yokohama Action Plan for Biodiversity (Yokohama b-Plan)" a regional biodiversity strategy based on the "Basic Act on Biodiversity," is incorporated into this plan, and its main contents are described in Chapter 5 Basic Measures 2 "Biodiversity.

Environmental education and learning, which have been promoted in the past, are also incorporated into this plan as a foundation for all environmental measures. The main contents are described in Chapter 5, Basic Measure 7 "Environmental Education and Learning" and positioned as the "Action Plan for Environmental Education, etc." based on the "Law Concerning the Promotion of Environmental Conservation Efforts through Environmental Education, etc.".

(2) Plan period

The planning period of this plan is until FY2025, in line with the "Yokohama City Basic Concept (Long-term Vision)."In the plan before the revision, short-term targets for specific project implementation were set for the period up to FY 2017, consistent with the "Yokohama City Medium-Term Four-Year Plan 2014-2017," but in this revision, in order to show the direction that environmental measures are aiming for from a medium- to long-term perspective, only medium- to long-term targets up to FY 2025 are shown. The current revision is to indicate only the "medium- and long-term targets

I was very pleased with the results.

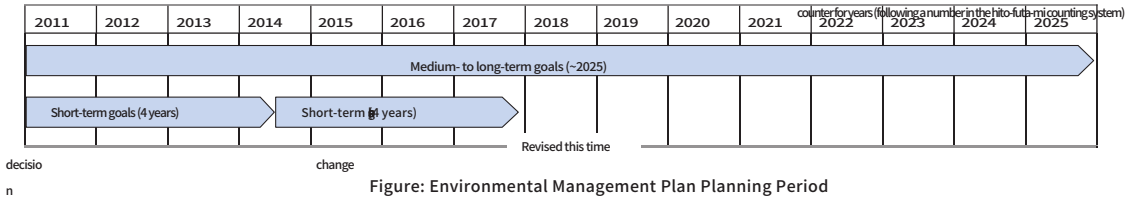


Figure: Environmental Management Plan Planning Period

2 Background of Revision

~~This revision is due to the expiration of the short-term target period (FY2017) of the Environmental Management Plan revised in January 2015 and the~~ Yokohama Biodiversity Action Plan (Yokohama b Plan), a regional biodiversity strategy based on the "Basic Act on Biodiversity" More than three years have passed since the January 2015 revision, and the related environmental While the plan has been steadily promoted in alignment with the individual plans of each field, progress management and evaluation have overlapped with the content of progress management and evaluation of individual plans, making it difficult to understand. In addition, in response to changes in social conditions, such as the fact that various issues faced by various environmental fields are more deeply related to society and the economy, and are becoming more diverse and complex, in October 2017, we consulted the Yokohama City Council for Environmental Creation on the "Revision of the Yokohama City Environmental Management Plan and the Yokohama Action Plan for Biodiversity".

In response to this report, the Yokohama City Council on Environmental Creation repeatedly reviewed the plan based on changes in social conditions, public awareness of the environment, and the status of efforts and issues in the plan, and in March 2018 received a report for the further comprehensive promotion of environmental policies. Based on the report, a revised draft was compiled in June, followed by public comments on the revised draft, which has now been compiled as the revised plan, reflecting the opinions and comments received from citizens.

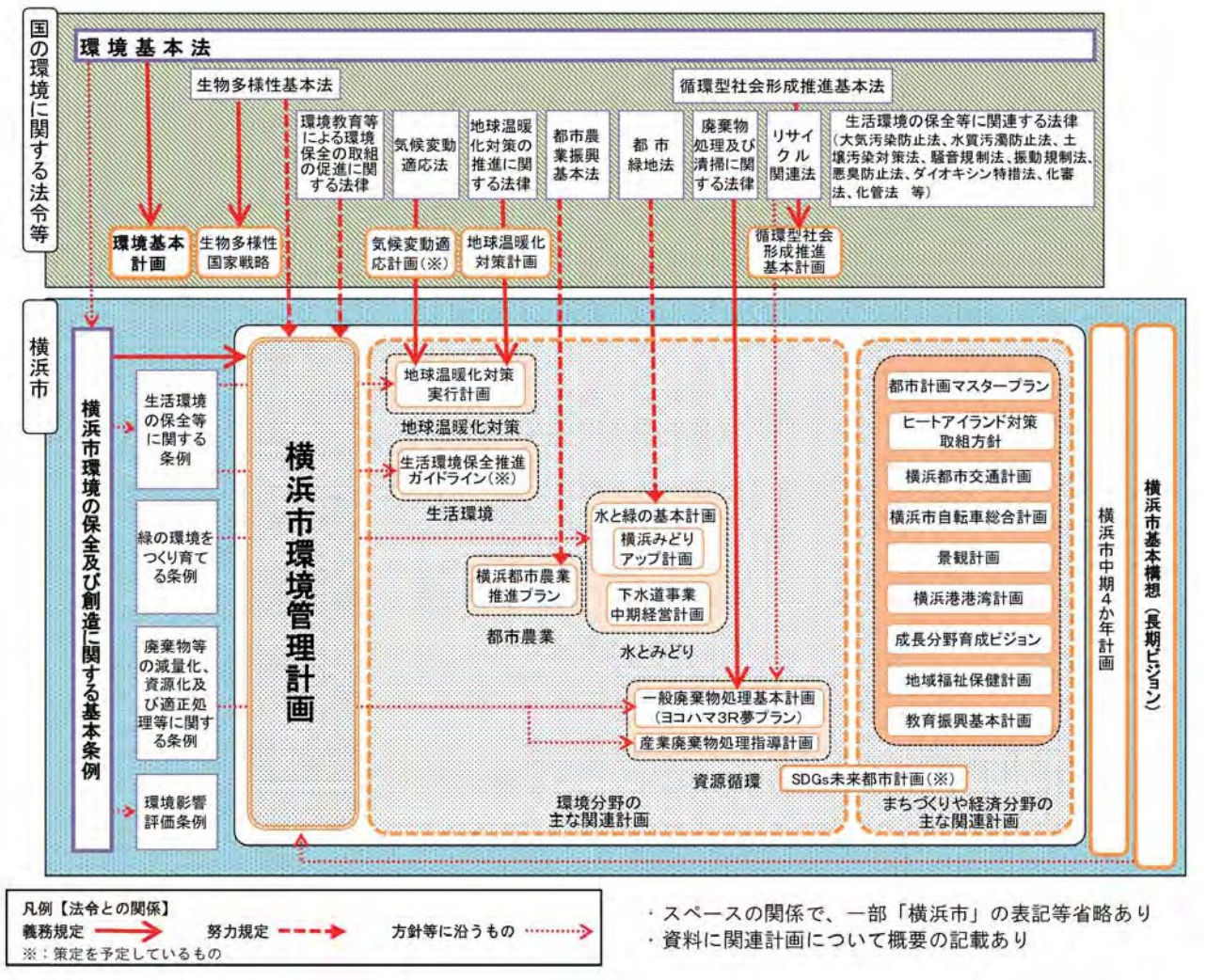


Figure: Relationship between environmental management plan and related plans

3 Background of Revision

(1) Social conditions

● Situation in Yokohama City

Yokohama City's population will peak in 2019 and begin to decline as the city heads into an era of declining population, while the aging of the population continues.

The population of 65 years old and over is estimated to reach 1 million and 600,000, respectively, by 2025, and the number of those 75 years old and over is expected to increase to nearly 600,000 by 2025.

Urban infrastructure such as roads, water supply, sewage systems, and city parks are aging. Social demands for disaster prevention and mitigation against the risk of disasters such as large-scale earthquakes that are feared to occur in the near future and localized heavy rainfall due to climate change, etc. are also increasing.

Yokohama has a high concentration of people and urban functions, and buildings are becoming denser and taller, especially in the city center. While the concentration of people and buildings in a certain area allows for the efficient supply of energy and services, it also raises concerns about the occurrence of major fires in the event of a disaster and increased living environment risks due to the interruption of energy systems.

● Diversification and complexity of environmental issues

Recent environmental issues range from environmental problems close to our daily lives to climate change and the resulting natural disasters, loss of biodiversity, etc., and the scope of impact has also diversified and become more complex, ranging from local to broad areas and deeply related to economic and social sectors.

● Rapid progress in information and communication technology (ICT)

ICT has been evolving rapidly in recent years, and in the environmental field, the Internet of Things (IoT) has made it possible to collect and accumulate a variety of data (big data) and process and analyze it using artificial intelligence (AI) to understand current conditions and predict the future. In addition, social networking services (SNS), whose use is increasing, are not only a communication tool, but are also being used in various ways, such as as information media in times of disaster. Proactive use of ICT is also expected in the development of environmental policies.

● Growing importance of environmental education

In order to pass on a rich natural environment to the next generation, it is becoming increasingly important for all people to take an interest in the environment and act accordingly. In the country's "Fifth Basic Plan for the Environment," "promotion of environmental education and environmental learning, etc." is also listed as "a key strategy and a fundamental measure for various policies. Education" is also listed as one of the "Sustainable Development Goals (SDGs)" an international goal to be achieved by 2030, as described below, and it is necessary to develop measures in light of these circumstances.

● Climate Change and Biodiversity in the Global Effort

A quarter of a century has passed since international frameworks such as the Framework Convention on Climate Change and the Convention on Biological Diversity were established at the United Nations Conference on Environment and Development (Earth Summit) in 1992.

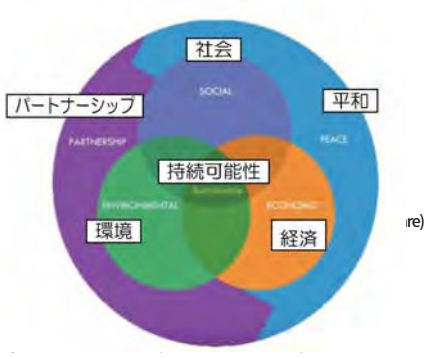
The Paris Agreement, which came into effect in 2016, stipulates that anthropogenic emissions and absorption of greenhouse gases must be balanced in the second half of the century, and that adaptation measures must be promoted along with mitigation measures, with the aim of limiting the increase in global average temperatures.

With regard to biodiversity, it is necessary to further promote biodiversity conservation efforts toward 2020, the target year of the Aichi Targets (Strategic Plan for Biodiversity 2011-2020) established at the 10th Conference of the Parties (COP 1 0) to the Convention on Biological Diversity (CBD) in 2010.

● Sustainable Development Goals (SDGS)

The SDGs are international goals to be achieved by 2030, as stated in the "2030 Agenda for Sustainable Development" adopted by the United Nations General Assembly in 2015, and are to be achieved by the international community as a whole in partnership and peace, with "economy, society and environment" working in harmony, The country's Fifth Basic Plan for the Environment also states that "it is important to promote the concrete realization of integrated environmental, economic, and social improvements, utilizing the SDGs approach as well.

On the other hand, in the financial sector, ESG investments (environmental, social, and corporate governar development of a sustainable society.



The United Nations Information Center, "Sustainable Development Goals") (Source: United Nations Information Center, "Sustainable Development Goals")

There is a growing trend to view this as one of the factors in making decisions on

The Environmental Management Plan has been promoting basic policies from the perspectives of "people and community," "econc capture these trends and continue to promote efforts in cooperation between the environment, economy, and social sectors and Y.

● Inter-city competition in the midst of globalization: Toward a sustainable city chosen by the world～

The increasing concentration of population in cities around the world is causing a variety of urban environmental issues to

emerge.

Since its rapid postwar growth period, Yokohama City has faced all kinds of environmental challenges, such as waste problems, deterioration of the water environment, and a decrease in green space. In recent years, the city has been striving to lead the world in environmental policy through measures to combat global warming and the Garden City Yokohama initiative. Yokohama's strength lies in the technology *and* know-how that it has accumulated through the creation of an attractive environment and the solution of such problems.

As competition among cities accelerates, it is necessary to work more than ever to solve environmental issues and create an attractive environment from various perspectives, as well as to communicate the attractiveness and strengths of Yokohama, so that people and companies from Japan and abroad will choose Yokohama as their city of choice.

(2) Citizens' awareness of the environment

The City of Yokohama conducts the "Survey of Citizens' Environmental Awareness(*)" with the aim of understanding citizens' awareness of the environment and utilizing the results to implement environmental initiatives.

Internet survey (by registered monitors of private companies) of 1,000 citizens aged 20 and over.

● Current State of the Environment

About 40% of citizens answered that the current state of the environment in Yokohama is "fairly good" or "good.

About 50% of the respondents felt that they were "favorable". About 50% of the respondents felt

"Normal".

and feel that, although there are some fluctuations

This trend has continued since fiscal 2011.

I am here.

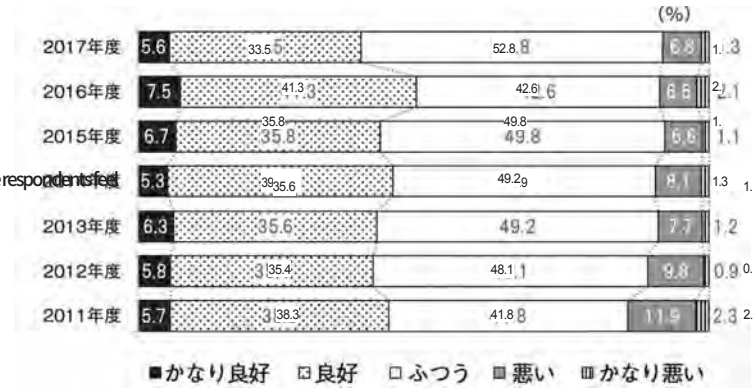


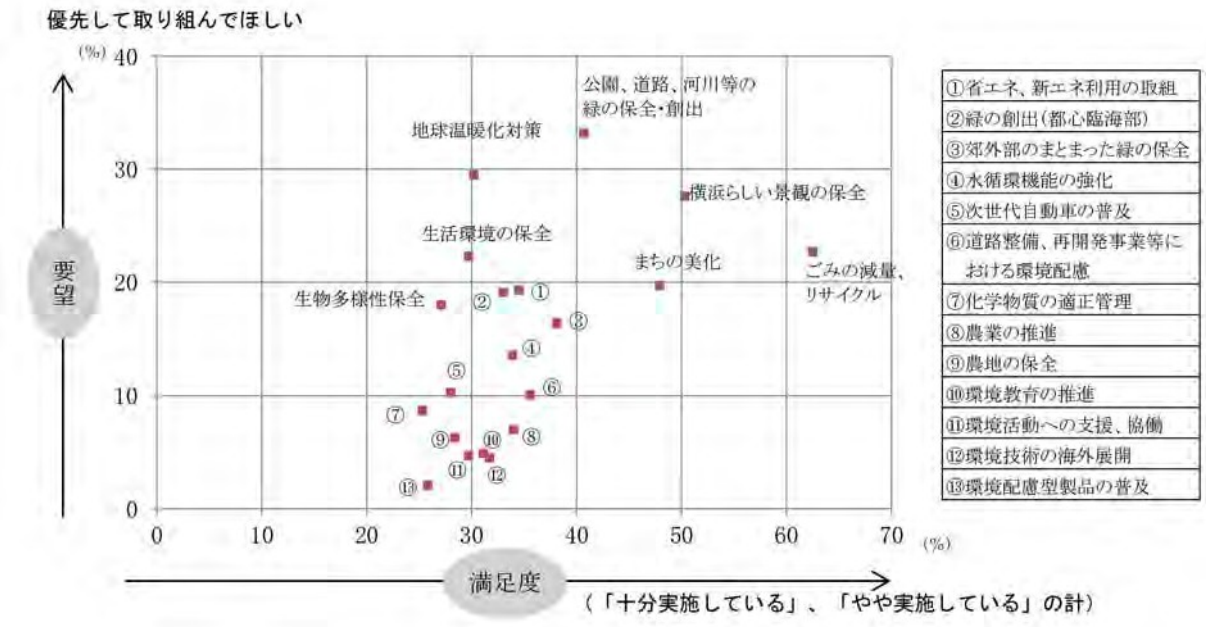
Figure Trends in awareness of the current state of the environment in Yokohama (2011～ 2017 survey)

● Initiatives that citizens are satisfied with and expect to be prioritized

Among the environmental initiatives implemented by the City of Yokohama, those that citizens feel are "fully implemented" or "somewhat implemented" include "waste reduction and recycling" and "preservation of Yokohama's unique landscape.

On the other hand, there are high expectations for "global warming countermeasures" and "conservation and creation of greenery in parks, etc." as priority initiatives.

Figure Satisfaction with and Requests for Environmental Policies (2017 Survey)



Status of Environmental Action Practices

The practice rate of environmental behaviors such as "separate garbage and put it out" and "be careful not to produce food loss" is higher than other items, indicating that garbage-related behaviors are generally part of daily life. A relatively high percentage of respondents also practice actions such as "saving energy at home" and "selecting and purchasing energy-efficient products," which are promoted as measures against global warming.

On the other hand, "growing greenery" and "going out to nearby rivers and parks to experience the natural environment" were not highly practiced, but the intention to practice them in the future was relatively high.

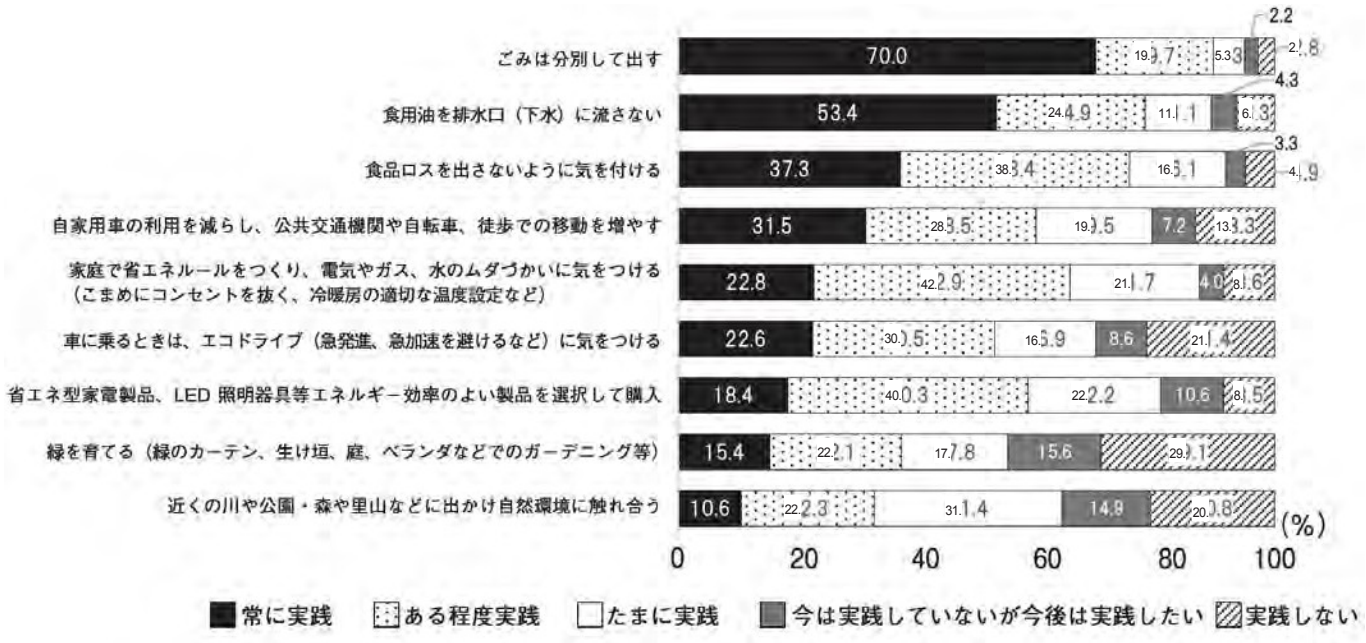


Figure Environmental Actions Practiced (2017 Survey)

Acquisition of environment-related information

They "don't get much" of the information they need about environmental issues and activities,

The number of citizens who feel that they "don't get it at all" has remained at approximately 70-80%, indicating the continued importance of efforts and information dissemination that lead to proactive action by citizens.

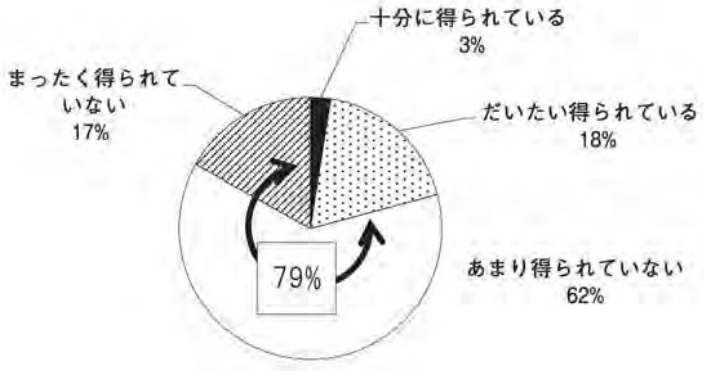
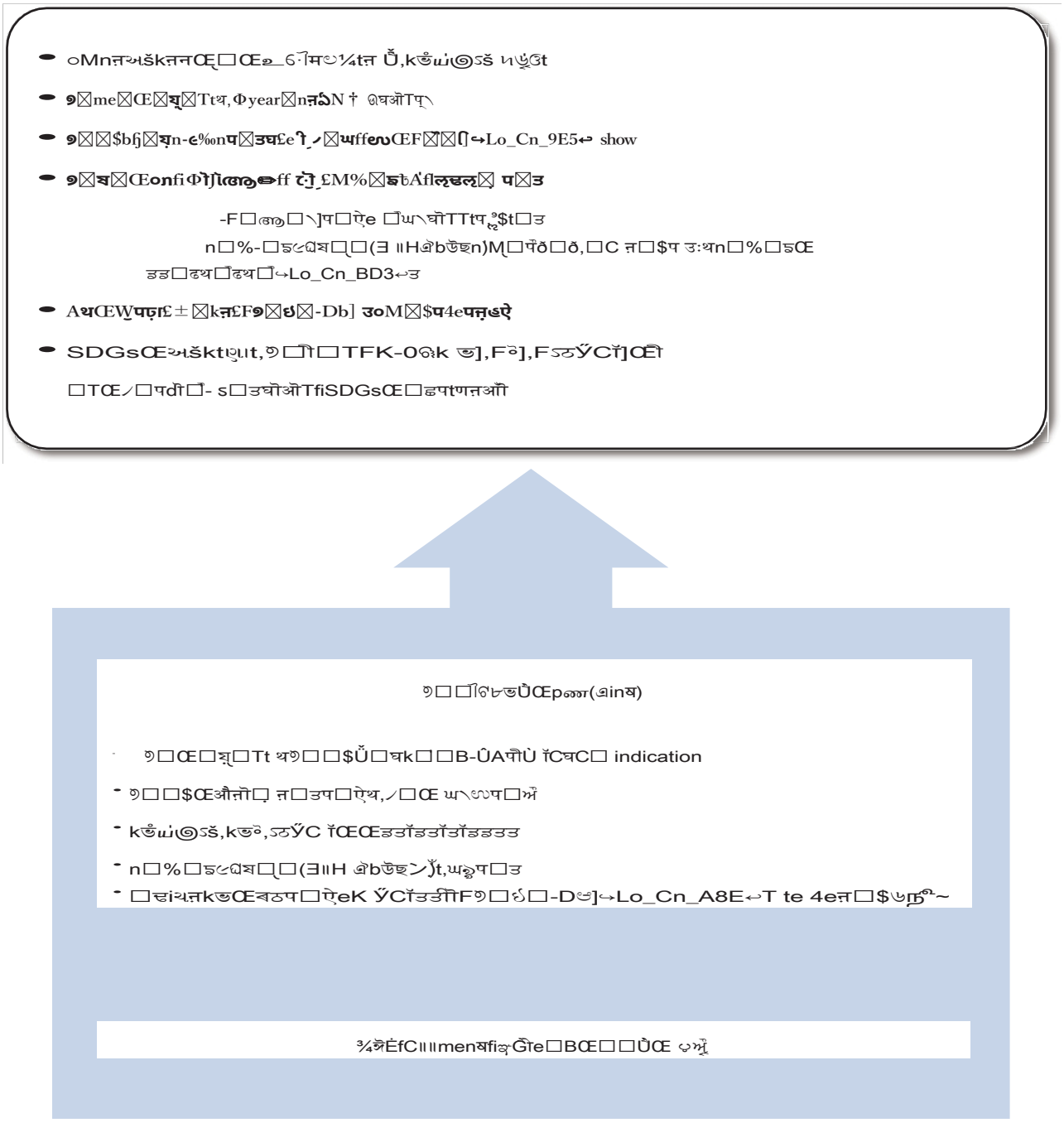


Figure Information on environmental issues and activities

Acquisition status of the (2017 survey)

4 Concept of Revision

The revision is based on the following ideas, reflecting the social situation, the results of the public awareness survey, the report from the Environmental Creation Council, and the opinions of the public through public comments.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Chapter 2

Yokohama's vision for the future environment

1 Yokohama's Vision for the Future Environment

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Citizens, businesses, and various other entities will work together to realize the future environmental vision, as well as to revitalize Yokohama's economy and society, further improve its attractiveness, and create a sustainable city.

2 Future Image by Region and Entity

(1) Local environment

- In urban areas, even amidst rows of high-rise buildings, parks, street trees, and open spaces allow people to feel nature, such as water, greenery, living creatures, and wind, close at hand.
- In the suburban areas, the living environment is being developed to take advantage of the abundance of nature, including water and greenery. In addition, compact urban areas are being formed and cohesive wooded areas are being preserved.
- Trees planted in the plaza in front of the station and along the street create a space that is sheltered from the sun and comfortable to walk in, enhancing the character and charm of the city.
- A network of water and greenery has been created to maintain a habitat and growth environment for a variety of living creatures, and the heat island phenomenon has been mitigated.
- More and more buildings are being built with high thermal insulation performance and high environmental performance, including the use of renewable energy sources such as solar power.
- The introduction of renewable energy, the utilization of unused energy, and the use of hydrogen (e.g., fuel cells) in homes, factories, businesses, public facilities, rivers, water and sewage systems, etc., are progressing, and local production for local consumption of energy is advancing.
- Energy management using IoT, AI, and other technologies is progressing, including the storage battery function of electric vehicles (EVs).
- The area is becoming more self-reliant and decentralized with renewable energy, unutilized energy, and cogeneration systems being used more efficiently.
- ICT is being used to measure water levels in sewer pipes to predict flooding during heavy rainfall, which is then used for appropriate response and information dissemination to avoid extensive damage.

(2) Traffic environment

- Many vehicles are being replaced by next-generation vehicles such as EVs and fuel cell vehicles (FCVs).
- Railroads to the Tokyo area are further enhanced and access to Shibuya, Shinjuku, and Saitama areas has become easier and more convenient.
- As roads have been improved and traffic congestion has been eliminated, people no longer have to worry about emissions from automobiles when walking or biking through the area.

(3) Satoyama, rivers and oceans

- The satoyama has been maintained through cooperation with various entities, including a patronage association, and is used as a place to relax, learn, and play for children, with many small birds and insects being seen in the area.
- Through cooperation with various entities, such as the association for the protection of the headwaters, the forested areas in the headwaters are being preserved, thereby protecting the habitat and growing space for valuable plants and animals. The abundance of spring water is also being maintained.
- In the sea, the frequency of red tides is decreasing, and shellfish, seaweed, and fish can be seen in the shallow water areas, making the sea rich in abundance. Parks and other facilities have been established for children to interact with the water, and are used as places for citizens to relax.

(4) Citizens' Lives

- Living in a house with high environmental performance makes it possible to stay comfortable and healthy even without using air conditioning. In addition, the energy management system makes efficient use of energy by utilizing electricity generated by solar panels and E V storage batteries.
- Instead of energy conservation through endurance, people can lead comfortable and healthy lives by choosing low-carbon electricity, LED light bulbs, and other environmentally friendly products and services while feeling the benefits naturally in their daily lives.
- We practice behaviors that care for the natural environment by interacting with familiar creatures in our daily lives.
- The rainwater is collected and used to water the trees, plants, and flowers that have been added to the garden. In addition, rainwater infiltration tanks that allow rainwater to soak into gardens are being installed more widely, and efforts are underway to slow down the flow of rainwater.
- We select and purchase fresh foods that are in season and produced in Yokohama. For foods from outside the city and imported foods, we try to select more environmentally friendly products by checking the place of origin and the environmental efforts of the producer.
- An environmentally friendly lifestyle has taken root in which each family member is aware of the 3Rs and everyone practices environmental behavior as a matter of course.
- I have started living without my own car since a car sharing location was established nearby. I mainly walk, bike, and use public transportation to get around as well as to stay healthy.

Figure A day in the life of an environmentally friendly lifestyle incorporating environmental behavior

Take a morning walk and feel the "greenery" around you!

Taking "Local Production for Local Consumption" eco-friendly night!

Smart housing and put in a smart home!

My Favorite My Bottle Take it out with you! Have an

Let's go out to experience nature during the day!

Let's go cycling!

(5) Business activities of companies, etc.

- Biotopes have been established on the grounds of many offices, creating an environment where small birds and insects can come and go.
- By viewing activities toward decarbonization as a business opportunity and actively investing in energy-efficient facilities and equipment, EVs, and FCVs, businesses are making more efficient use of resources and energy in the workplace, reducing expenses and greenhouse gas emissions, and improving their image.
- An increasing number of companies are using renewable energy sources to meet all of their energy needs for business activities, or are using carbon offsets to offset the carbon dioxide emissions associated with their business activities.
- Energy management systems are being introduced at factories, including the use of biofuels and more efficient energy use between factories.
- When considering suppliers of raw materials, etc., we give due consideration to the local environmental impact and other factors when making our selections. In addition, we are promoting environmentally conscious initiatives not only by ourselves but also by our business partners and other related parties.
- The transition to a decarbonized economy is underway, including a significant increase in carbon productivity (GDP per greenhouse gas emissions), while also utilizing ICT and other technologies such as IoT and AI.
- The city's economy is being revitalized by the development of cutting-edge environment-related technologies utilizing the technological capabilities of local businesses and research institutions, and by the expansion of environmental business into rapidly growing markets in emerging countries and other regions.

(6) Local community

- The area is becoming greener and more diverse creatures are living and growing in the area, each with its own unique characteristics. Small birds and insects are often seen in parks and towns.
- We work with the local community to nurture a mindset that values the relationship between the natural environment and the local culture and lifestyle, etc., from childhood, in a familiar environment.
- Cooperation with citizens, activity groups, businesses, etc., such as creating flowerbeds in the town and cleaning up the community, is progressing, and local environmental activities are becoming more active.
- At school, students investigate the surrounding environment and learn about the environment through outreach programs. The environmental actions learned at school are enjoyed and practiced with their families back home.
- We are promoting the development of disaster-resistant communities, including earthquake and flood countermeasures.

Colum

The Connection Between Our Lives and the Environment

We come into contact with the "environment" in various situations at different stages of life. In this way Encounters with the environment in the form of natural and manmade environments nurture a rich sensitivity to the environment, and create opportunities to develop a sense of attachment to and protection of the familiar environment.

In particular, childhood experiences such as playing in the mud, catching insects, and exploring in the forest will remain in one's memory as a precious memory even after adulthood.

However, as Yokohama becomes more urbanized, urban lifestyles are spreading, and opportunities to learn about the wonders and fears of the natural environment are diminishing. In order to realize a future Yokohama where children's smiles shine brightly, it is important to increase opportunities for children growing up in Yokohama to have contact with their immediate environment and to support efforts by the entire community.

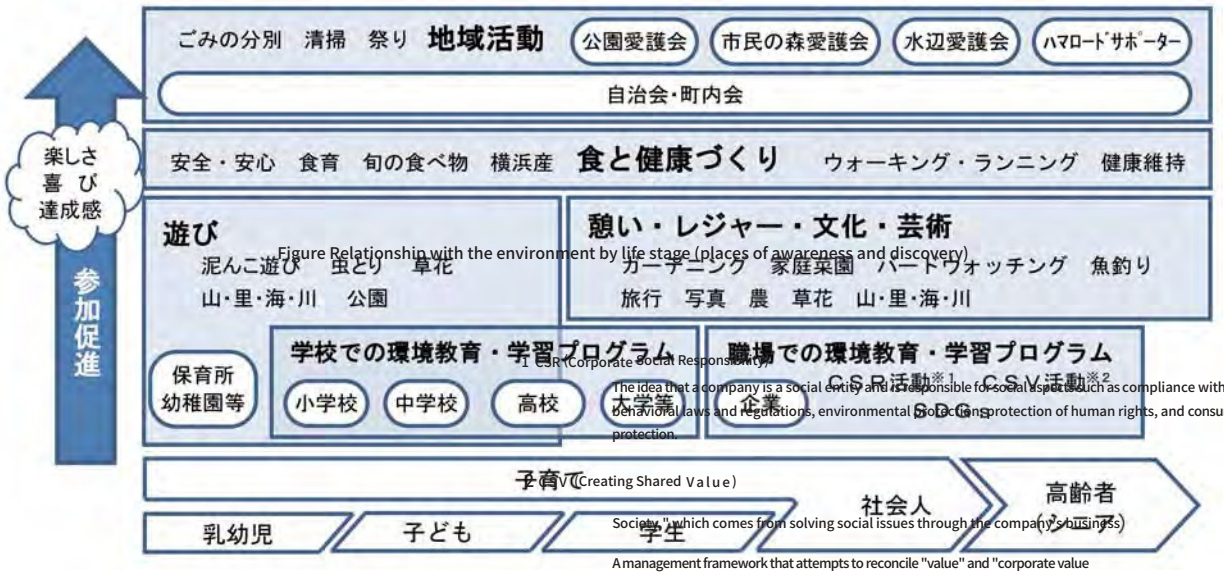


Figure Relationship with the environment by life stage (places of awareness and discovery)

※1 CSR (Corporate Social Responsibility)
The idea that a company is a social entity and is responsible for social aspects such as compliance with behavioral laws and regulations, environmental protection, protection of human rights, and consumer protection.

※2 CSV (Creating Shared Value)
Society," which comes from solving social issues through the company's business)
A management framework that attempts to reconcile "value" and "corporate value

3 Basic Concept of Environmental Administration for Realization of Future Environmental Vision

Aiming for "Harmonious Coexistence of Nature and People

Our lives depend on various "blessings" of nature, such as a stable climate, clean air and water, abundant greenery, beautiful rivers and oceans, and the food, clothing, and shelter provided by them, which are essential for our survival. On the other hand, the Great East Japan Earthquake that occurred in March 2011 reminded us of the limits of human power and its sometimes powerlessness in the face of the overwhelming "threat" of nature, and also made us, as a city with a large population, think about the state of modern society that relies on the consumption of large amounts of resources and energy. The city of Yokohama, with its large population, needs to rethink its modern society, which relies on the consumption of large amounts of resources and energy.

In order to realize our vision of the future environment, we need to take actions based on the fact that nature has two aspects, "blessings" and "threats. What we should do in response to the "blessings" and "threats" of nature is to pass on the "blessings" to the next generation and to recognize the "threats" and prepare for them in various ways on a daily basisWe should also be aware of the "threats" and incorporate various preparations into our daily lives, aiming for a society in which nature and people can coexist in harmony. In recent years, the concept of Eco-DRR (Ecosystem-based Disaster Risk Reduction), which reduces disaster risk by actively utilizing the disaster prevention and mitigation functions of healthy ecosystems, has also been attracting attention.

Recently, a series of events that have shaken ecosystem services, such as increased heavy rainfall, habitat shifts of organisms, and damage to crops, which are believed to be caused by global warming, have had various impacts on our lives. In order to mitigate and adapt to these impacts as much as possible, "symbiosis between nature and people" is important.


Nature's Blessings

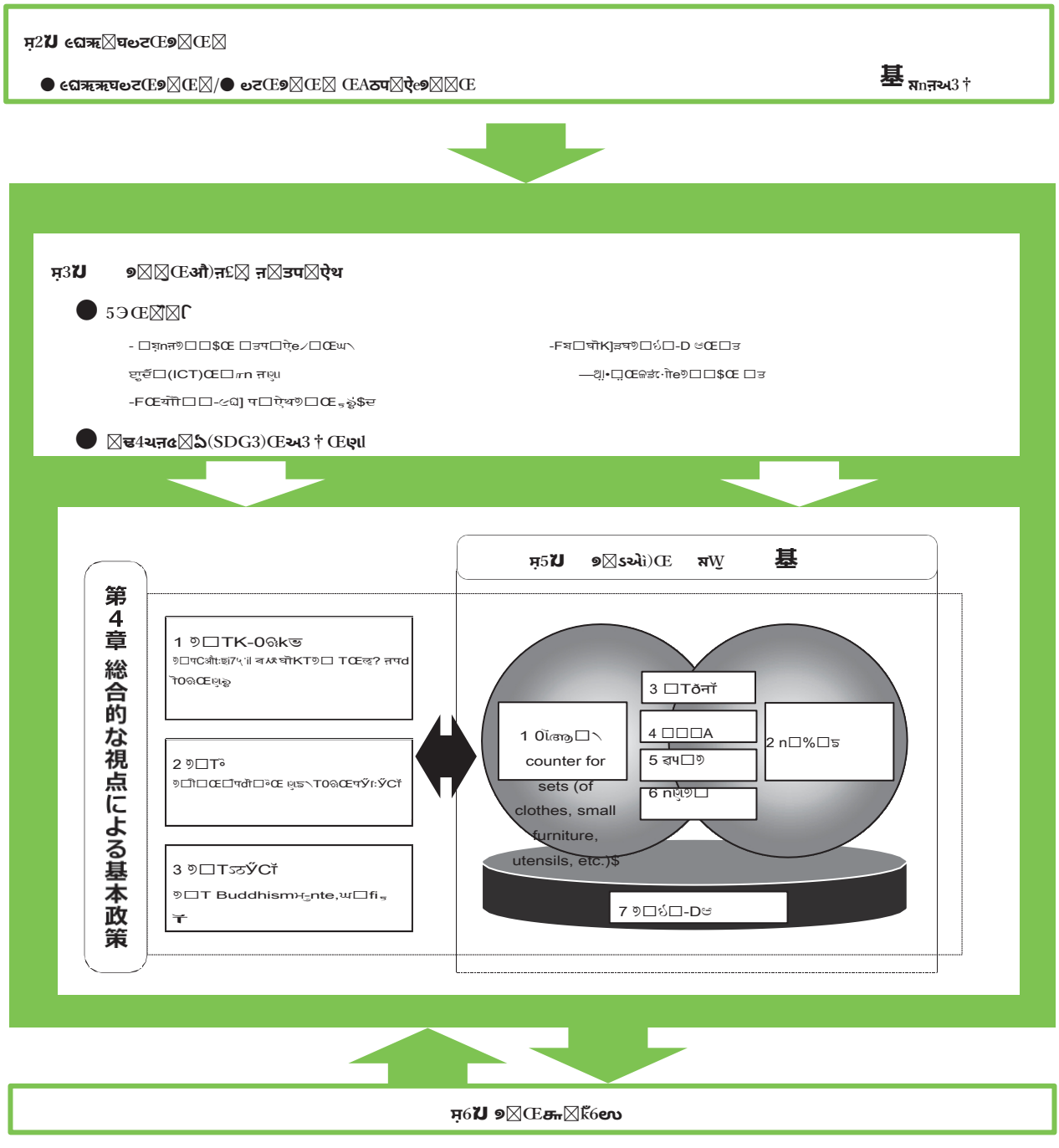

Nature's Threats

● Promote "environmentally friendly lifestyles

In order to achieve "symbiosis between nature and people," it is necessary to be concerned about the current status and changes in the environment around us, to value our connection with the local community, to naturally incorporate more environmental considerations into our daily lives, and to spread a lifestyle that encourages people to enjoy and continuously practice environmental behavior.

In order to realize Yokohama's vision for the future environment, the City of Yokohama will actively encourage the spread of environmentally friendly lifestyles to achieve the environmental administration's goal of "harmony between nature and people.

4 Plan Structure



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Chapter 3.

Toward a More Comprehensive Environmental Policy

1 Five Approaches

~~For the further comprehensive promotion of environmental policy, we will clearly state five common attitudes that each sector should pay attention to~~ in the "Attitude toward Efforts".

Attitude 1 Strengthen collaboration to promote comprehensive environmental policies

● Strengthening of various collaborations

In order to develop environmental policies more effectively and efficiently in response to increasingly diverse and complex environmental issues, and to contribute to solving economic and social problems, comprehensive efforts will be made through various forms of collaboration, including collaboration among environmental policies, collaboration with economic and social sectors, wide-area regional collaboration, and collaboration among various entities. Through collaboration, mutual understanding and empathy will be encouraged, innovation will be born, and as a result, it is expected that a great deal of momentum will be generated, such as by expanding the effects of initiatives.

● Emphasis on global warming countermeasures and biodiversity conservation

Global warming countermeasures" and "biodiversity conservation" are deeply related to the natural environment, such as water and greenery, as well as resources, energy, and other environmental fields. We will continue to place priority on these two areas so that the development of measures in each area will also contribute to "global warming countermeasures" and "biodiversity preservation.

,,

Table Examples of Collaboration

Type of collaboration	case Example
(i) Between measures in the environmental field	Utilization of green infrastructure (e.g., flood control measures through sewer/park linkage) Mutual energy transfer (treated water, electricity, biogas)bylinking sewage and waste treatment Maintain a relaxing and peaceful waterside space utilizing reclaimed sewage water. (Egawa Seseragi Greenway, Taki no Kawa Seseragi Greenway, etc.)
(2) Economic and social fields, etc.	Environmental-friendly urban development (e.g., promotion of sustainable suburban residential redevelopment Promote the spread of self-distributed energy facilities, ZEH, and next-generation vehicles. Promote local production for local consumption by promoting "Yokohama Farms
(iii) Inter-regional	Various environmental measures (e.g., diesel vehicle regulations)through cooperation among the nine prefectures and cities Environmental measures (Yamamoto Town, Ishinomaki City, Miyagi Prefecture, etc.) through support for reconstruction following the Great East Japan Earthquake (water supply and sewage restoration and reconstruction work, work toward new community development, etc.) International technical cooperation utilizing Yokohama's resources and technologies through public-private partnership (Y-PORT)
④ Between various entities	International technical cooperation utilizing Yokohama's resources and technologies through public-private partnership (Y-PORT) Utilization of biomass and energy from sewage systems through public-private partnerships (conversion of sewage sludge into fuel) Processing and commercialization of city agricultural and livestock products in collaboration with citizens and businesses Thesurvey conducted in collaboration with children in the Maioka area.

Colum

Green Infrastructure as a Climate Change Adaptation Strategy

In recent years, natural disasters, such as an increase in torrential rains, which are believed to be caused by climate change, have been occurring frequently, affecting the lives of citizens and urban functions in various ways. To cope with such impacts and ensure safe and secure civic life, Yokohama City has been promoting comprehensive flood control measures in cooperation with rivers, sewers, and parks, and has been promoting the conservation of greenery with multifaceted functions in cooperation with various entities.

Efforts utilizing the concept of "green infrastructure," which takes advantage of the multifaceted functions of the natural environment, have been increasingly expected as a measure for adaptation to climate change. We will continue to promote various initiatives utilizing green infrastructure in a cross-sectional and strategic manner.

Grand Mall Park (N

(Creation of goo y (during sunny days) (versity pre trol effects)

(during r Retain a nfiltrate rainwater underground

(Public-private partn Creation of a lively a ugh collaboration with neighboring companies,

Egota Seseragi Greenway (Tsuzuki W

(whe a babbling brook utilizing highly treated w a place for relaxation

(Regulating reservoirs for temporary storage of rainwater during rainy weather)

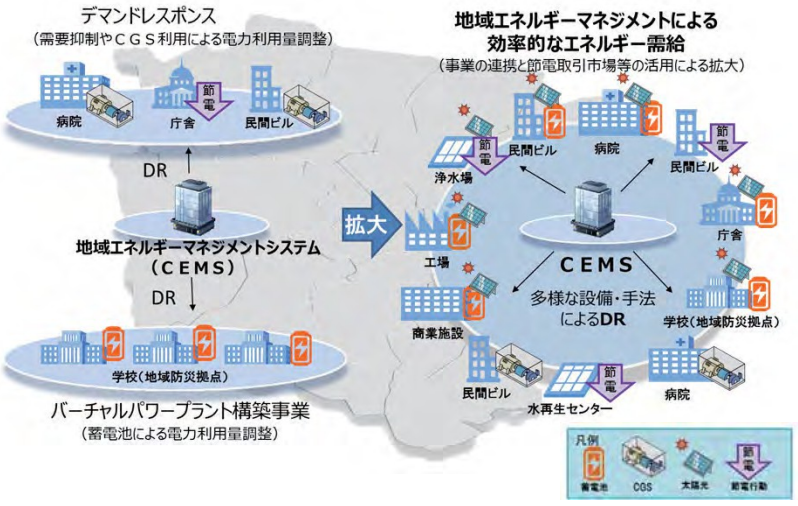
(Public-private partnership) Daily maintenance by citizens and businesses

Colum

Yokohama Smart City Project for an Energy Recycling City

Yokohama City was selected by the Ministry of Economy, Trade and Industry (METI) in 2010 as a "Next Generation Energy and Social Systems Demonstration Area" and has been promoting the Yokohama Smart City Project (YSCP) demonstration project. In the project, leading Japanese energy-related companies, electrical manufacturers, and construction companies are working together to introduce systems to optimize the balance of energy supply and demand in homes, business buildings, and other existing urban areas.

In 2015, we established a new public-private partnership, the Yokohama Smart Business Council (YSBA), to take advantage of the technology and know-how cultivated in the YSCP and expand from "demonstration to implementation. In 2015, a new public-private partnership organization, the Yokohama Smart Business Association (YSBA), was established to take the technology and know-how developed through the YSCP from demonstration to implementation, aiming to create an energy-recycling city that excels in disaster prevention, environmental friendliness, and economic efficiency.



Attitude 2 Promote environmental education and learning to increase "people of action

In order for citizens, businesses, and other entities to work together to address environmental issues, it is necessary for them to think about the connection between environmental issues and themselves, deepen their understanding, and act proactively. Therefore, we will further promote "environmental education and learning" through various opportunities and venues by various actors to increase the number of "people who take action" on their own initiative. At the same time, we will expand the circle of environmental action by providing awards, training opportunities, and proactively disseminating best practices.

Colum

Environmental Education Delivery Lecture" to lead to environmental action

In fiscal 2017, 129 lectures were held and 9,893 people attended.

In addition to coordinating the courses, Yokohama City provides skill improvement training for lecturers to make the lectures more fulfilling. This training is also used as an opportunity for instructors to interact with each other.

Through the implementation of delivery lectures and efforts to enhance them, various entities will work together to expand the circle of people who understand and act on environmental actions.


Lectures by civic groups


Courses by International Organizations


Courses by Businesses


Lectures by Yokohama City

Approximately 30,000 elementary school students participated!

Environmental efforts by elementary school students in the city are leading to environmental conservation in Japan and abroad.

～Children's "Eco-Life Operation!"～

Children's "Eco-Life Operation" "Eco-Katsu" for children is a program in which elementary school students in the city engage in various environmental activities such as biodiversity conservation, energy saving, 3R, and local production for local consumption, using the "Eco-Life Check Sheet" during the summer vacation.

The Yokohama Environmental Conservation Council and member companies of the Yokohama Chamber of Commerce and Industry support this initiative, and the sponsorship money raised is donated to environmental conservation activities in Japan and abroad.

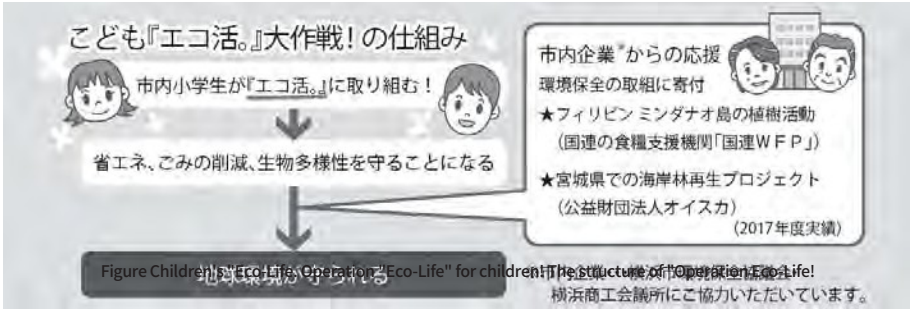


Figure Children's "Eco-Life Operation" "Eco-Life" for children! The structure of "Operation Eco-Life!

In fiscal 2017, 27,277 children from 245 of the 341 public elementary schools in the city participated in the program, and a total of 1.2 million yen was sponsored by 56 member companies and 1 organization of the Yokohama Environmental Conservation Council and the Yokohama Chamber of Commerce and Industry, which support this initiative. The sponsorship money was donated to tree-planting activities in Mindanao, Philippines, conducted by the United Nations food aid agency, the United Nations World Food Programme, and to a coastal forest restoration project in Miyagi Prefecture by the OISCA Foundation.

Ecolife Check Sheet

(Photo by WFP /Fahima Abdulaziz)

Tree planting activities in Mindanao, Philippines

(UN WFP, the UN's food aid agency)

(Photo courtesy of OISCA Foundation)

Coastal Forest Restoration Project in Natori City, Miyagi Prefecture

(Public Interest Incorporated Foundation OISCA)

Attitude 3

Proactive use of information and communication technology (ICT)

Technological innovations such as IoT and AI are bringing about significant changes in environmental policies.

We will continue to utilize state-of-the-art ICT for various initiatives, including environmental condition monitoring, energy management systems, public facility and infrastructure maintenance management, and disaster countermeasures. In addition, we will promote "visualization" of environmental information and the use of open data, as well as the creation of an environment that facilitates the use of information, so that citizens and businesses can take concrete actions and create innovations.

Colum

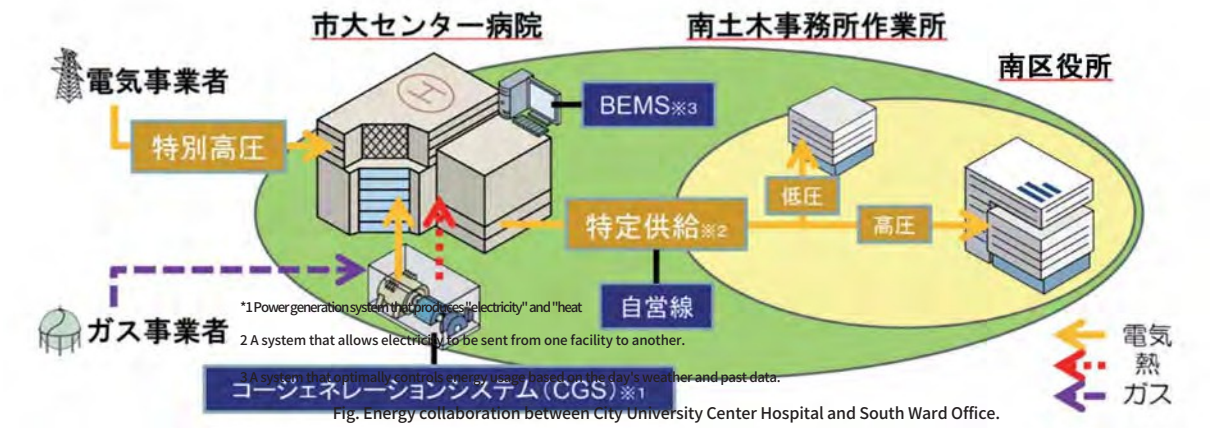
municipality first

Electricity" is sent from the City University Center Hospital to the South Ward Office.

~City University Center Hospital and South Ward Office of Energy Cooperation～

In conjunction with the relocation and redevelopment of the Minami Ward Office in February 2016, two additional cogeneration systems (CGS)(*1) were installed at the City University Center Hospital, and the "electricity" generated by the CGS is transmitted to the Minami Ward Office through a specified supply*2. The "heat" generated in the process effectively utilized at the City University Center Hospital in order to optimally manage these "energies", a (building energy management system) (BEMS)*3 has been newly installed.

- Cogeneration system with excellent disaster-prevention performance is added to the City University Center Hospital.
- Energy linkage between nearby public facilities to improve disaster preparedness, reduce CO2 emissions, and save costs
- Effective energy use through optimal control of cogeneration systems using BEMS
- First specified supply in a municipality after relaxation of permit standards



*1 Power generation system that produces "electricity" and "heat

2 A system that allows electricity to be sent from one facility to another.

3 A system that optimally controls energy usage based on the day's weather and past data.

Fig. Energy collaboration between City University Center Hospital and South Ward Office.

- This energy collaboration is one of the initiatives to implement the demonstration results obtained in the Yokohama Smart City Project, and is a cross-sectional project being promoted by Yokohama City University and the relevant ward bureaus of Yokohama City (Global Warming Prevention Headquarters, Policy Bureau, Building Bureau, Civic Affairs Bureau, Fire Department, and Minami Ward) with the aim of improving disaster prevention, environmental friendliness, and economic efficiency.
- This project is the first initiative by a municipality as a specified supply after the relaxation of licensing standards.

Colum

Avoiding Flood Damage by Using ICT to Communicate Water Levels in Sewer Pipes

In recent years, localized heavy rains have caused flooding damage, and it has become necessary to promote "adaptive measures" to minimize or avoid damage from heavy rains that exceed the level of sewerage system maintenance. In particular, the Yokohama Station area has a high concentration of urban facilities and underground spaces such as underground shopping malls, which can be expected to cause extensive damage due to flooding.

Image of dissemination of information on water level attainment

*Water level awareness sewers: Predicts flooding during heavy rainfall by measuring the water level in sewer pipes using ICT. The purpose is to avoid serious damage by providing this forecast information to underground mall managers and visitors, and by utilizing the information in flood prevention activities.

Colum

AI-based chatbot "EEO's Garbage Separation Guide

Yokohama City uses AI technology to provide interactive guidance on how to dispose of garbage.

EEO's Waste Separation Guide" is being implemented.

This is the result of a powerful combination of NTT DOCOMO, Inc.'s AI technology and the City of Yokohama's 20,000 words of search data, which led to the full-scale implementation of the system after a verification experiment.

When you talk to Eo on the system about the garbage item you want to check, Eo will answer you about the sorted items and how to dispose of them.

Our goal is to provide an opportunity for people unfamiliar with searching and younger generations accustomed to smartphone communication to become interested in waste sorting.

Yokohama 3R Dream! Mascot Eo

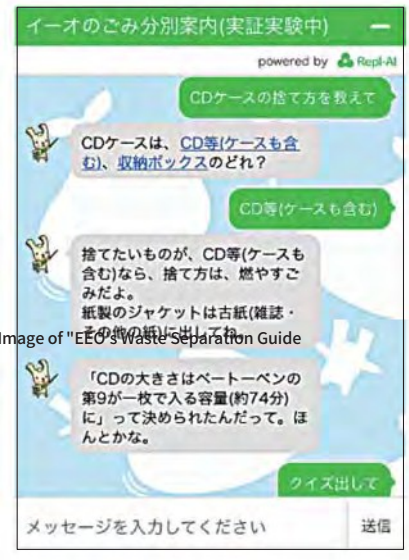


Image of "EEO's Waste Separation Guide

≪FEATURES.

- The system was developed by Yokohama City's sorting and searching system (MICTIONARY).
  It will guide you through sorting methods for over 20,000 words, miscellaneous trivia, quizzes, and more.
- NTT DOCOMO's expertise in language processing is utilized to support a variety of conversational expressions.
- You can get the information you want to know smoothly by guiding in a chat format.

Attitude 4

Promote environmental policies that incorporate a disaster prevention/mitigation perspective

In the environmental field, we will work to minimize damage from various natural disasters and create a resilient city that can quickly recover and rebuild.

Specifically, we will promote the spread of renewable energy sources that can effectively function as emergency power sources in the event of a disaster and strengthen the independence of energy systems. In addition, efforts will be made to utilize the concept of "green infrastructure," which utilizes the multifaceted functions of the natural environment, such as park development and preservation of wooded areas and farmland, which contribute to biodiversity conservation as well as reduce flooding damage.

Colum

Reinforcement of energy system independence in the Minato Mirai 21 district in the event of a disaster

In the Minato Mirai 21 District, in light of changing social conditions and the need to incorporate new elements such as countermeasures against global warming and BLCP*, we formulated the Minato Mirai 2050 Project Action Plan in March 2015.

The Plan identifies the creation of a safe and secure city that is resilient to disasters as an important issue, and in the energy sector, along with the promotion of efforts toward decarbonization, it outlines a policy of initiatives in response to the BLCP, such as "strengthening the independence of energy systems to cope with disasters," and initiatives are being implemented in line with this policy. The energy sector is proceeding accordingly.

BLCP (Business and Living Continuity Plan): A plan to ensure the continuity of business activities and daily life at a minimum level in the event of a disaster or accident.

The action plan for crisis management.

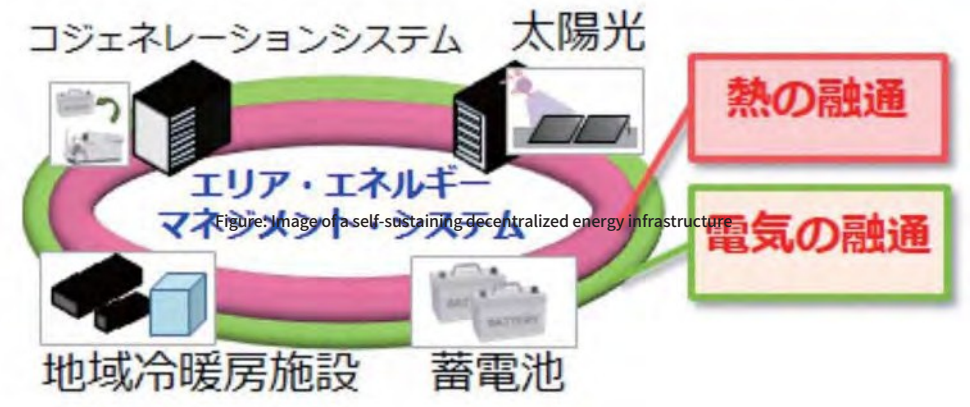


Figure: Image of a self-sustaining decentralized energy infrastructure

Colum

Development of parks with diverse functions for disaster prevention and mitigation

～Hodogaya-ku, Tokyo Hoshikawa Central Park～

Hoshikawa Chuo Park is located in the center of Hodogaya Ward, and the area used by the local community as "Navel Plaza" and "Hoshikawa Grand" has been developed into a beautiful park with flowers and greenery, but it also has two important facilities in case of emergency.

One is an underground rainwater control pond to protect the city from flood damage, which can store 42,500 m^3 of rainwater (equivalent to 105 cups of water in a 25 m school swimming pool). The other is an underground water supply tank for disaster relief, which can provide 15 m(3) of drinking water for people who cannot return home in the event of an earthquake or other disaster.

We will continue to promote disaster prevention and mitigation measures across the board, seizing opportunities for public facility development and other measures to build a resilient city.

Hoshikawa Central Park (use of upper part of rainwater regulation pond)

Star-imaged playground equipment

Health equipment plaza

Rainwater control pondinstalled underground in the park

Attitude 5 Promoting the attractiveness of the environment toward "Yokohama, the City of Choice".

In order to become a city of choice in the world, it is important for a city to have its own unique attractions. As seen in the recent Olympic and Paralympic bids, advanced efforts to address environmental issues are a major factor in enhancing a city's brand power.

Yokohama's attractions will be widely and effectively communicated both domestically and internationally, including publicity of Yokohama's blessed natural environment, such as water and greenery; promotion of Yokohama's unique landscape and attractions, such as flowers and greenery; promotion of technologies and experience in the environmental field through international technical cooperation; and promotion to a wide audience through collaboration with other fields, such as the arts.

Colum

Nightscape creation event combining environmental technology and art

～Smart Illumination Yokohama

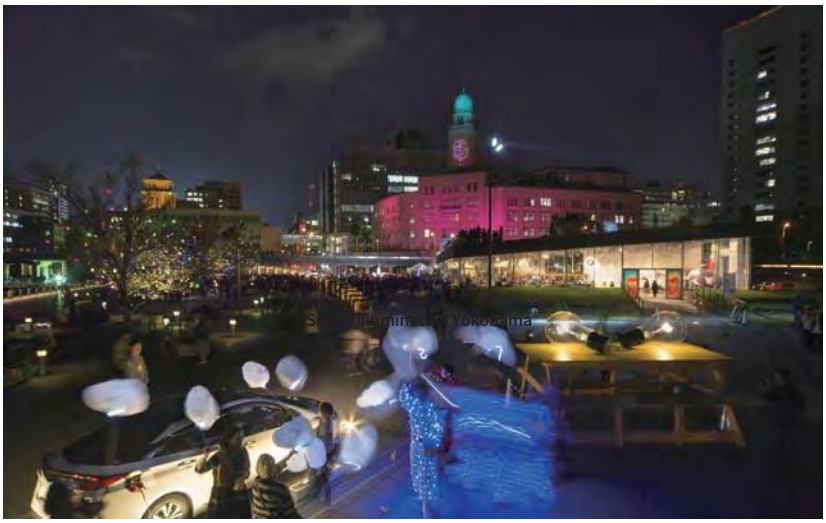
The "Smart Illumination Yokohama," a nightscape creation event that combines LED lighting and other cutting-edge environmental technologies with the creativity of art, is held to promote energy-saving behavior and greenhouse gas emission reductions.

In FY2017, the Core Festival (held November 1-5) attracted approximately 182,000 visitors, and Yokohama Illumination Month (held through December 31) attracted approximately 1.06 million visitors.

Nineteen artists from Japan and abroad, including artists from Austria, France, and other countries, participated in the Core Festival, creating artworks with an international flavor.

More than 40 organizations and companies cooperated in the event, and the main piece, "Kao Hame the World," was powered by Toyota Motor Corporation's fuel cell vehicle (FCV), allowing the latest environmental technologies to be promoted.

Suburban development in the two wards of Midori-ku and Izumi-ku has continued, and the event has become established as an event that can be enjoyed by a variety of people.



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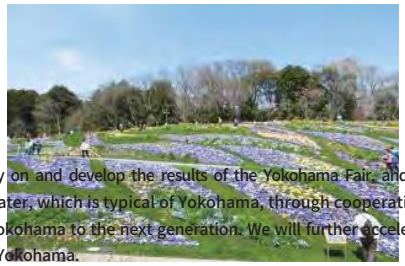
Succeeding the Yokohama Fair, Yokohama's Attractiveness as a City of Choice

~Promotion of Garden City Yokohama～

At the 33rd National Urban Greenery Yokohama Fair (held in spring 2017), more than 6 million people from within and outside the city enjoyed the city of Yokohama, which was beautifully decorated with flowers and greenery.

In addition, in each ward of the city, various partnerships and cooperation with citizens, volunteers, and businesses related to flowers and greenery were promoted. In this way, the Yokohama Fair has contributed to the enhancement of the city's attractiveness, creation of liveliness, and contribution to tourism and MICE through flowers and greenery, as well as to the excitement and momentum of the various entities that are familiar with flowers and greenery.



By promoting the Garden City Yokohama, we will carry on and develop the results of the Yokohama Fair, and further accelerate our efforts to create a rich natural environment with flowers, greenery, agriculture, and water, which is typical of Yokohama, through cooperation among various entities, including citizens, businesses, and government, and pass on a pleasant and relaxing Yokohama to the next generation. We will further accelerate our efforts to create a rich natural environment with flowers, greenery, agriculture, and water that is uniquely Yokohama.

Since FY 2018, we have been implementing the "Garden Necklace Yokohama" as a leading initiative to promote the Garden City Yokohama, creating city attractions with flowers and greenery in the city center waterfront area and suburban areas (Satoyama Garden), as well as in all city and regional areas.

Main initiatives of the "Garden Necklace Yokohama

▶ Creating city attractions and liveliness through flowers and greenery in the waterfront area of the city center

▶ Creation of attraction and liveliness through flowers and greenery in a satoyama garden in a suburban area

▶ Creation of flower and greenery attractions in all cities and regions

- Ward collaboration: Community-based initiatives in each ward to promote familiarity with flowers and greenery in collaboration with diverse entities.
- Promotion of full of flowers in the community: Efforts to develop the new flower bed creation method of the Yokohama Fair in the activities of park protection associations in each community.
- Creating attractive flower spots: Promoting the creation of attractive flower spots in parks using flowers and trees

Garden Necklace Yokohama 2018 official brochure

2 Use of the Sustainable Development Goals (SDGs) concept

(1) What are Sustainable Development Goals (SDGS)?

In September 2015, the 2030 Agenda for Sustainable Development was adopted at UN Headquarters. The goals set forth in this agenda are the Sustainable Development Goals (SDGs), which consist of 17 goals (targets) and 169 targets set for each goal.

The SDGs are goals that the entire international community, including not only developing countries but also developed countries, will work toward in global partnership and peace, to achieve "economic, social and environmental" goals in a harmonious manner.

Figure 17 Goals (targets) of the SDGs

(2) Domestic SDGS Compliance

In December 2016, the Cabinet Office formulated the Guidelines for the Implementation of the Sustainable Development Goals (SDGs), presenting a vision of "pioneering a future that is sustainable, resilient, and leaves no one behind, with integrated economic, social, and environmental improvements realized. The guidelines also point out the importance of the role of local governments, as they are encouraged to reflect SDG elements to the maximum extent possible in the formulation and revision of various plans and other measures. The Ministry of the Environment states that at least 12 of the 17 goals (targets) are related to the environment.

In addition, the Japan Business Federation revised its Charter of Corporate Behavior from the perspective of the SDGs in November 2017, and the number of companies in the private sector that incorporate the SDGs into their corporate strategies is steadily increasing.

(3) The relationship between the environmental management plan and the SDGS

In addition to the "Basic Policies from Environmental Aspects," the Environmental Management Plan has, since FY2011, set forth basic policies from three comprehensive perspectives ("People and Local Communities," "Economy," and "Urban Development"), systematized environmental policies in line with these policies, and promoted comprehensive and cross-sectional efforts in cooperation with various entities. The company has been working on a comprehensive and cross-sectoral approach in cooperation with various entities.

The direction of environmental policy already indicated in the Environmental Management Plan is in the same direction as the basic idea of the SDGs: the need for partnership and the goal of development that harmonizes the environment, economy, and society.

By promoting various initiatives based on three comprehensive perspectives ("people and communities," "economy," and "community development") and further promoting collaboration with diverse entities, we will contribute to the realization of comprehensive environmental policies and ultimately to the achievement of the SDGs.

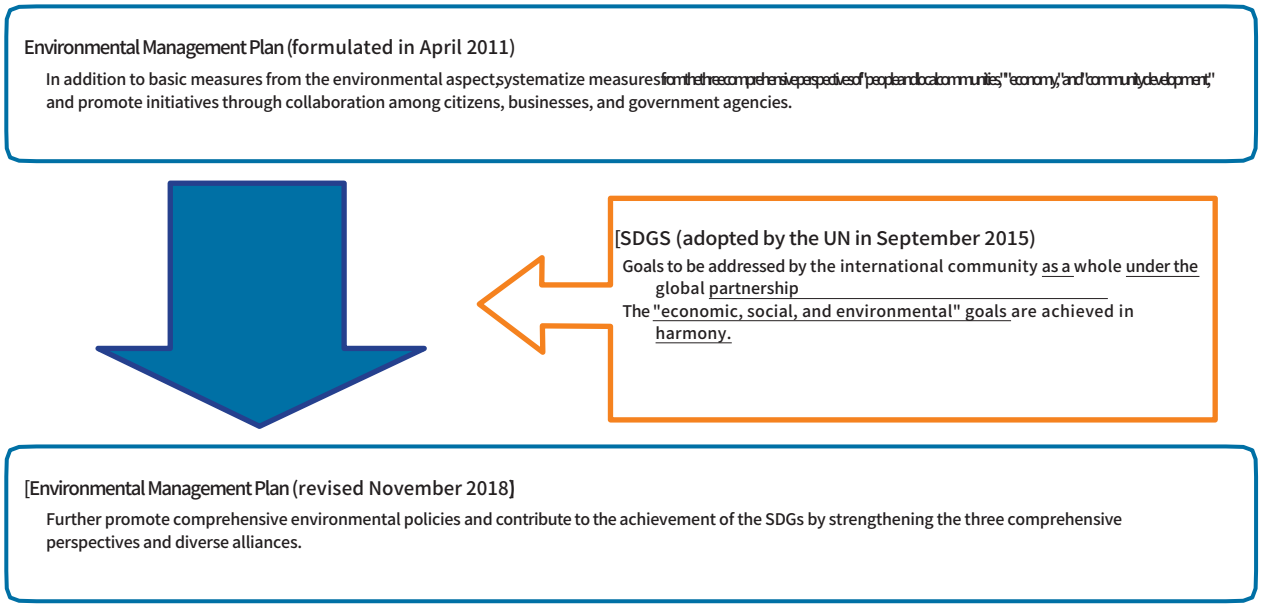


Figure Environmental Management Plan and its relation to the SDGs

Colum

Selected as "SDGs Future City

The City of Yokohama was selected as an "SDGs Future City" in June 2018, and our city's initiatives were selected as a "Municipal SDGs Model Project".

SDG Future Cities" are municipalities (cities) that propose outstanding initiatives to achieve the SDGs. 29 cities have been selected by the government. Among them, 10 projects have been selected as "Municipal SDGs Model Projects" that are particularly leading initiatives.

From the perspective of the SDGs, which are common global goals, we will "continue to create new value through the economy and culture and the arts, with the environment at the core.

city" and to make this vision a reality.

Selected as SDGs Future City

The Company will continue to promote initiatives for the promotion of the "sustainable development" of the community in cooperation with the public and private sectors.

Chapter 4.

Basic Policy from a Comprehensive Perspective

To address today's increasingly diverse and complex environmental issues, it is difficult to solve them only through policies from an environmental perspective. We will continue to promote comprehensive and cross-sectoral policies in cooperation with the fields of "people and communities," "economy," and "urban development."

Basic Policy 1 Environment, People and Community Society

Basic Policy 2 Environment and Economy Economy

Basic Policy 3 Environment and Community Development

What is the basic policy from a comprehensive perspective?

In order to address today's increasingly diverse and complex environmental issues, it is important to not only implement measures from an environmental perspective, but also to promote initiatives from a comprehensive perspective in cooperation with economic and social fields.

<How to read each page

❶ Basic policy name

The policy name and the catchphrase for each policy are shown.

Environmental targets by FY2025

The following table shows the environmental goals that each policy aims to achieve by FY2025.

❸ Current Status and Issues

It shows the current status and challenges of each policy.

❹ Initiatives Policy

policy direction for the achievement of environmental goals.

Photos and diagrams are included to help you visualize the initiatives.

❺ Examples of major initiatives

The following is a list of the main projects and initiatives that will be implemented in accordance with the initiatives policy.

*The same initiatives may be listed in multiple policies and measures.

❻ Column

It introduces examples of initiatives and explains terminology, etc.

Basic Policy 1

Environment, People and Community

～With people who practice an environmentally friendly lifestyle

Local Vitality through Ties with the Environment～

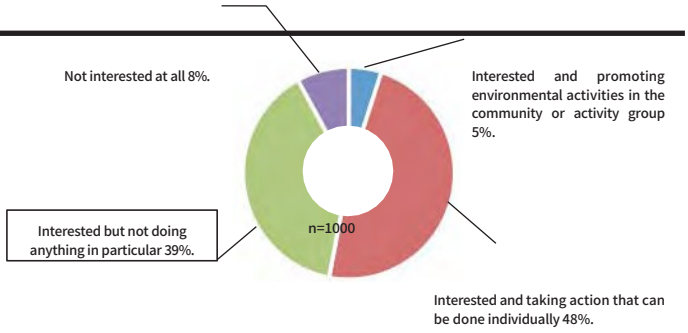
1 Environmental Targets by FY2025

- Many citizens have had the opportunity to experience Yokohama's satoyama, rivers, sea, and other living creatures since childhood, and an environmentally friendly lifestyle that values the relationship between the natural environment and local culture and other aspects of life has permeated their daily lives.
  Many businesses are working to reduce the environmental impact of their business activities and are actively developing technologies and conducting community activities that lead to environmental improvements.
- Community activities are enthusiastically carried out with the participation of citizens of various ages, and familiar parks, rivers, woodlands, farmlands, and roads are maintained through the power of the community and in cooperation with the government.
- The efforts of the groups have expanded, leading to the conservation of biodiversity, as well as to the creation of a network of inter-organizational and citizen-oriented activities.
- Networks with businesses are being formed, as well as community and citywide efforts.

2 Current Status and Issues

Public awareness of environmental activities, etc.

- About 90% of citizens are concerned about the environment, but about 40% are interested but have not yet implemented environmental activities.
- It is necessary to create opportunities to start initiatives from familiar things that capture the diverse needs of citizens.



Concerns and actions regarding the environment

(Source: Yokohama City Survey of Citizens' Attitudes Toward the Environment (FY 2017 Survey))

Status of efforts by organizations and businesses in the city

- More than several thousand organizations are involved in environmental activities in the city. In many parks, roads, woodlands, rivers, and waterfront facilities, local residents and others have organized groups to clean up and maintain these facilities.

- Environmentally friendly business activities are being conducted by businesses in the city, including the introduction of advanced energy-saving technologies, waste recycling, and environmental management systems. The company also conducts activities that contribute to the local community, such as the development of a biotope for living creatures to live and grow on the premises, cleanup activities in the surrounding area, and environmental education for elementary and junior high school students.
- With the population of people aged 65 and over estimated to approach 1 million by 2025, there are even greater expectations for activities related to the local environment as a place for seniors to play an active role and for the formation of local communities.

Table Major organizations active in the city (as of the end of FY 2017)

Name	Number of Groups	Examples of Activities
park patronage association	2,478 Organizations	Park cleaning, weeding, watering trees as needed, and raising awareness of user etiquette
riparian protection society	92 organizations	Cleanup and weeding of rivers and waterfront facilities, and implementation of events using waterfront facilities
Citizen's Forest Patronage Association	31 organizations	Cleaning, mowing, and patrolling of walking paths and open spaces
Fureai no jyurin wo hogo kai (Fureai tree protection association)	12 organizations	Walking paths, plaza cleaning, weeding, patrolling, plant and animal , and other friendly activities
Forest Growing Activity Groups	35 Organizations	Tree-planting area conservation activities
Volunteer Water Environment Guides	1 organization (28 persons)	Explanation of the water environment through tours of the Water Reclamation Center facilities and delivery lectures, etc.
Yokohama Agriculture and Greenery Association Hama Nohraku	1 organization (182 persons)	Farming assistance, weeding and flowerbed maintenance, training, publishing newsletters, etc.
Yokohama Green Promotion Organization	1,073 Organizations	Activities to create and nurture greenery and flowers around the community
Environmental Business Promotion Committee	1 organization (4,090 persons)	Promotion of 3R activities and city beautification activities in the community, etc.
Hama Road Supporter	483 organizations	Ongoing cleanup and beautification activities on familiar roads
YES Collaborative Partners	147 Organizations	Conducting lectures and events related to the environment and global warming

Yokohama City Initiatives

- We create opportunities for citizens to start taking environmental action while having fun by disseminating information through various media such as the Internet and PR newsletters, and by holding events to spread awareness.
- To deepen understanding of environmental issues such as global warming countermeasures and biodiversity conservation, and to promote the development of people who practice environmentally friendly behavior, we hold environmental education classes at schools and in local communities in the city.
- We are working to further enhance environmental activities in the community through a system that encourages action, including subsidies for environment-related activities and an award system for citizen groups, businesses, and schools.
- In order to spread environmentally friendly lifestyles, "environmental promotion" is necessary to reach out to all entities through active publicity and collaboration with other fields and entities.

3 Policy for Initiatives

(1) Building Ties between People and the Environment

To enable as many citizens as possible to visit and feel the blessings of Yokohama's nature and resources that are close at hand, we will increase opportunities for citizens to connect with their local environment by disseminating information about the natural environment around them and events in the community, and by holding events to convey the attractions of Yokohama.

Exhibition on the environment at the Central Library

(2) Promotion of environmental activities and networking

We will encourage citizen groups and businesses that are enthusiastic about taking measures against global warming, preserving biodiversity, and implementing the 3Rs, etc., through commendation programs and other means. In addition, we will further expand the circle of environmental activities by connecting active groups and businesses, as well as groups and businesses with citizens (local communities). Furthermore, to encourage citizens to participate in new environmental activities, we will disseminate environmental information in an effective way that is appropriate for each generation, while also utilizing ICT. City Hall, as a business entity, will also actively engage in and disseminate the contents of these activities.

Yokohama Environmental Activity Award for citizens, companies, and students who are actively engaged in environmental activities in the community.

(3) Creating a place and circle of "learning"

In cooperation with activity groups and businesses, we will promote the creation of learning opportunities that allow people to learn while enjoying themselves according to their individual needs, such as their level of interest, to promote environmentally friendly lifestyles. In addition, we will enhance learning opportunities by providing training for leaders involved in environmental education and learning, and expand the "circle of learning" through effective environmental promotions.

Environmental education delivery lectures offering a variety of programs in cooperation with businesses and organizations

4 Examples of Major Initiatives

(1) Building Ties between People and the Environment

- Publicity for the natural environment around us
- Efforts in collaboration with a wide variety of fields
- Promotion of Garden City Yokohama

(2) Promotion of environmental activities and networking

- Publicizing the environmental actions of businesses
- Workshops on environmental laws and regulations for businesses
- Efforts based on environmental preservation agreements
- Promoting environmental management at businesses
- Technical consultation services (energy conservation consultation)
- Publicity and awareness-raising for practicing environmental activities
- Support for activity groups, etc.
- Promote environmental action in the community
- Promoting Environmentally Conscious Behavior in City Hall

(3)Creating a place and circle of "learning

- Yokohama Eco School (YES)
- Environmental Education Delivery Lecture (YES! on Biodiversity)
- Children's "Eco-Life. Operation!
- Promote nature experience activities
- Support for schools engaged in environmental education and learning
- Environmental education and learning at zoos, etc.
- Environmental Picture Diary Exhibition
- Children's Eco Forum
- Parent-child windmill tour

Colum

Collaborative efforts by citizens, experts, businesses, and the City of Yokohama in consideration of biodiversity

～Dragonflies fly to the forum

The "How Far Do Dragonflies Fly Forum," which began in 2003, aims to improve the quality of green spaces and increase biodiversity in the Keihin waterfront area.

With the aim of contributing to diversity, 32 organizations from citizens, experts, businesses, and the City of Yokohama participate in their respective capacities. The Forum proactively conducts environmental surveys and study sessions using dragonflies as an indicator, events for children, and environmental restoration projects.

Citizens are the driving force behind these activities, experts scientifically analyze and evaluate the survey results, businesses are responsible for the creation of green spaces, and the City of Yokohama provides comprehensive support for each effort.

The Forum's research activities have promoted the development of new green areas and dragonfly ponds at business and public facilities, fostering an environment that plays a satoyama-like role in the Keihin waterfront area.

In addition, by conducting surveys in which citizens and businesses participate, we provide a valuable opportunity for citizens and businesses to get in touch with nature around them and learn the importance of biodiversity.

Survey using dragonflies as an indicator of the environment in the Keihin waterfront area

Captured dragonflies (released after recording)

Basic Policy 2

Environment and Economy

～Revitalization of the city's economy through environmental initiatives and Creating a lively community～

1 Environmental Targets by FY2025

- The promotion of new technology and product development in the environmental field has stimulated the city's economy, leading to further diffusion and promotion of initiatives in the environmental field.
- Environmental considerations by businesses in the city, including global warming countermeasures and biodiversity conservation, are becoming more mainstream.
- New developments such as eco-tourism utilizing Yokohama's local resources and the accumulation of environmental technology and know-how are leading to city promotion in Yokohama.
- Yokohama's unique vitality and vitality through collaboration with businesses and value-added improvement of agricultural and livestock products.
- Urban agriculture is being developed in the city.

2 Current Status and Issues

● Mainstreaming environmental considerations into economic activities

- With the entry into force of the Paris Agreement, the world is moving toward a decarbonized economy, and with the expansion of ESG investment, businesses are required to take environmental considerations such as global warming countermeasures and biodiversity conservation not only in their own businesses but also in their entire value chains, including those of their suppliers and other stakeholders, The economic scale of the environmental and energy sectors is on an upward trend.
- In order to increase demand in the city, it is important for City Hall, which is one of the most active consumer centers in the city, to continue to take the lead in promoting environmentally conscious behavior, and for citizens and businesses to take action to encourage environmentally conscious behavior.
- New technologies such as IoT and AI are also expected to promote a shift to a greener economic system, including improved productivity in factory operations management, energy efficiency, etc., and the creation of new environmental business forms.

City promotion utilizing local resources

- Just as many cities have put forth various attractions based on their history, culture, and geographical features, it is important for a city to have its own unique attractions in order to become a city of choice in the world.
- Yokohama's history and culture since the opening of the port, its beautiful urban landscape, open waterside space, and cohesive greenery, as well as its many environment-related facilities and the advanced environmental activities of its citizens and businesses, can be expected to play an important role in attracting people from Japan and abroad to the city.
- It is important to utilize Yokohama's attractive regional resources and develop effective promotions, taking advantage of opportunities such as information dissemination at international conferences and acceptance of visitors from overseas.

Expanding environmental business overseas through public-private partnerships

- Emerging economies in Asia and elsewhere continue to enjoy robust economic growth and have come to lead economic growth as a global market. In response to the resulting concentration of population in urban areas, infrastructure development and environmental measures have lagged behind, and cities are facing urban challenges such as air and water pollution and waste management. Efforts toward an internationally decarbonized society and good environmental practices need to be promoted.
- While utilizing the expertise Yokohama City has accumulated in solving environmental and other issues, we must continue to work with businesses in the city to solve urban issues in emerging economies, thereby contributing to the sustainable growth of emerging economies, expanding business opportunities for businesses in the city, and revitalizing the city's economy. In addition, we need to expand business opportunities for businesses in the city, thereby revitalizing the city's economy.

Promotion of urban agriculture

- Yokohama City has been promoting the preservation and promotion of agricultural land, the expansion of opportunities for citizens to interact with agriculture, and the promotion of local production for local consumption.

  The city has been actively promoting advanced agricultural policies that take advantage of the characteristics of a large city, such as

  indicat
  es
  directi
  on or

  The city has been actively promoting progressive agricultural policies that take advantage of its metropolitan characteristics, such as

  goal
  (e.g.
  "to")
- Citizens' needs are high for places and opportunities to buy agricultural and livestock products produced within the city.
  Interest in agricultural and livestock products produced in the city is growing among citizens and businesses, with some businesses actively using these products.
- On the other hand, agricultural management is always unstable due to soaring costs of agricultural materials and fluctuating yields and prices of agricultural and livestock products caused by weather conditions, so it is necessary to continue to make efforts to stabilize agricultural management.

3 Policy

(1) Expand environmental business and promote mainstreaming of environmental considerations in economic activities

The project aims to create demand in the environmental and energy fields by supporting the introduction of environmentally friendly products and services, such as energy-saving equipment and devices, to citizens and businesses.

In cooperation with financial institutions, the project will also promote the dissemination and sharing of information by holding training sessions on environmental management, etc. for small and medium-sized enterprises (SMEs) to promote investment. In cooperation with financial institutions, we will also promote the dissemination and sharing of information by holding training sessions on environmental management, etc., among SMEs to promote investment.

（Yokohama will promote itself as an environmentally advanced city through eco-tourism, holding environment-related events and international conferences, demonstration projects, and acceptance of inspection tours, etc., taking advantage of its natural environment blessed with water and greenery, zoo, historical landscape, and other local resources, despite being a large city. Yokohama is an environmentally advanced city, and we will continue to promote the city.

Nightscape creation event combining environmental technology and art

(Smart Illumination Yokohama)

Colum

Rising expectations for technological innovations such as IoT and AI in Yokohama

Survey on the status of IoT utilization and level of interest in IoT among companies in the city

The survey showed that 75.7% of the companies in the city were interested in the project.

The City of Yokohama is also promoting support for the creation of businesses that utilize cutting-edge technologies, taking advantage of its strengths in the manufacturing and IT industries.

Advanced technologies such as IoT and AI, which are currently being used in energy management and other areas, are making dramatic progress, and the market is expected to expand in the future. Through technological innovations such as IoT and AI, we will continue to develop new technologies, products, and services that will reduce environmental burdens and contribute to economic growth.

The project is also expected to revitalize the economy.

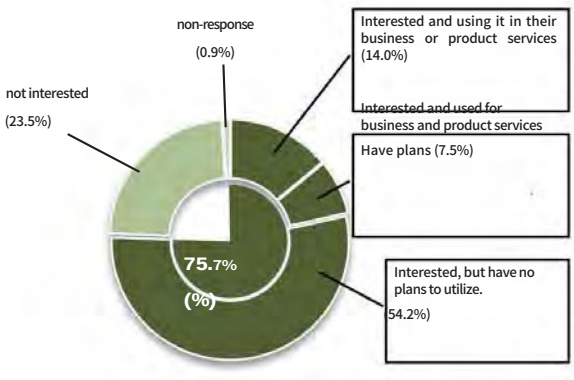


Figure Status of IoT utilization and level of interest in IoT among companies in the city

(Source: Yokohama City Business Conditions and Management Trends Survey, 98th Special Survey)

(Implemented in fiscal year 2016)

(3) Support for environmental measures in emerging countries and overseas development of environmental businesses

Yokohama will further promote international technical cooperation through public-private partnerships, such as the Y-PORT* project, by taking advantage of the good partnerships with various overseas cities, urban development, technologies and know-how for solving environmental issues that Yokohama has cultivated, as well as the excellent cutting-edge technologies of business enterprises, to develop environmental businesses overseas. This will help revitalize the city's economy and ultimately enhance Yokohama's presence in the world.

Y-PORT: Yokohama Partnership of Resources and Technologies

The white arch is a full-scale model of a sewer pipe flowing into the water reclamation center.

A center for disseminating technologies related to water environment solutions that accepts overseas visitors

(Northern Japan Water Reclamation Center No. 2)

(4) Promotion of Yokohama's distinctive urban agriculture

- Yokohama Farms' development" will revitalize urban agriculture in order to revitalize Yokohama's economy through the environmental sector.
- We will promote the development and renewal of production infrastructure for stable agricultural production.
- Promote local production for local consumption in cooperation with citizens and businesses, and promote the branding of agricultural and livestock products produced in the city.
- We will support the production of agricultural and livestock products that are in high demand from restaurants, etc., and the introduction of advanced cultivation techniques utilizing ICT, etc., to create a management model that produces highly profitable, high-quality agricultural and livestock products and promote efficient agricultural management.

The exchange meeting between producers and restaurants

Image of "Development of Yokohama Farm

4 Examples of Major Initiatives

(1) Expand environmental business and promote mainstreaming of environmental considerations in economic activities

Promote the Yokohama Smart City Project

Promote the spread of independent and decentralized energy facilities.

Promote eco-renovation of homes

Promotion of ZEH (Net Zero Energy House)

Energy-efficient housing consultation program for citizens

Promote the spread of next-generation vehicles (FCVs, etc.)

Promote the development of hydrogen stations

Technical consultation services (energy conservation consultation)

Subsidy for capital investment in small and medium-sized manufacturing facilities

Small and Medium Enterprise Loan Program (Yokohama Plus Fund (environment and energy measures)

Revitalization of the Keihin waterfront area (efficient use of energy through collaboration among business sites, etc.)

Promote energy-saving measures for security lights and shopping street lights, etc.

IoT Promotion Industry Activation Project (I-TOP Yokohama)

Subsidies to promote the location of growth industries

(2) Develop city promotions that take advantage of local resources

International technical cooperation through public-private partnerships (projects, etc.)

City promotion using the zoo

Smart Illumination Yokohama

(3) Support for environmental measures in emerging countries and overseas development of environmental businesses

International technical cooperation through public-private partnerships (projects, etc.)

Promote the Yokohama Smart City Project

Support for overseas water business development by companies in the city

Promote low-carbon partnerships with domestic and international cities

International Contributions to Environmental Conservation Technology

(4) Promotion of Yokohama's distinctive urban agriculture

Promoting sustainable urban agriculture

Creating a place where citizens can feel familiar with agriculture

Use of advanced cultivation techniques

Promotion of "Yokohama Farm

Colum

What is Y-PORT Business?

In Asia and other emerging countries, infrastructure development and environmental measures are lagging behind the rapid population concentration that accompanies economic growth and urbanization, resulting in a variety of urban problems. Expectations are growing not only from overseas countries and cities, but also from the Japanese government, international organizations, and various other quarters for Yokohama's urban development and the use of corporate technology and expertise to support it. Since January 2011, the City of Yokohama has been engaged in the "International Technical Cooperation through Public-Private Partnerships Utilizing Yokohama's Resources and Technology (Y-PORT) Project"with the aim of supporting solutions to urban issues in emerging countries and other regions and assisting companies in their overseas expansion.

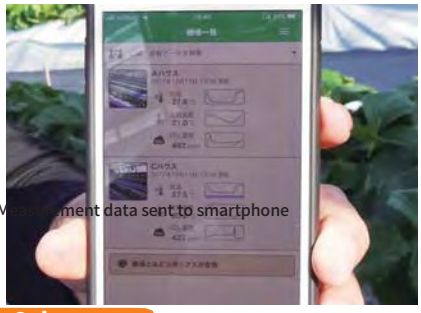
Colum

Utilization of advanced cultivation technology equipment, etc. using ICT

The growing environment is a very important factor in the production of agricultural products. For this reason, ICT-based production facilities are being introduced to measure values such as temperature and humidity and adjust the environment to be comfortable for the growth of agricultural and livestock products. Visualization" of the cultivation environment through data leads to everyone being able to utilize the know-how of farmers with high technical skills, which is helpful for efficient agricultural management and the passing on of skills.

Environmentally controlled nursery facilities

In Yokohama City, systems have been introduced that allow users to check various data measured by environmental measurement equipment at any time via smartphones or other devices, operate control equipment from remote locations, and control temperature and watering in detail according to pre-set conditions. Yokohama City supports the introduction of such advanced cultivation technology equipment to improve the quality and productivity of agricultural and livestock products produced in the city.



Measurement data sent to smartphone

Colum

International technical cooperation through public-private partnerships and support for overseas business development of companies in the city

In Hanoi, Vietnam, rapid population growth and urbanization have led to the emergence of water pollution in rivers, lakes, and marshes, as well as flooding damage due to a lack of rainwater drainage facilities.

In order to solve these issues, we will implement technical cooperation utilizing the technology and know-how possessed by the City of Yokohama and local companies through public-private partnerships, and at the same time, we will support the overseas business development of local companies in order to revitalize the city's economy.

Strengthening Intercity Partnerships

Business Outline

- Name: JICA Grass-roots Technical Cooperation Project (Special Framework for Regional Revitalization)
  Name: JICA Grassroots Technical Cooperation Project (Special Framework for Regional Revitalization) Capacity Development for Operation of Sewerage Works in Hanoi, Vietnam (Phase 2)
- Period Period December 2017 - March 2021 (planned)
- Implementing agency: JICA, Hanoi Department of Construction, Yokohama City Environmental Creation Bureau

Workshop with Vietnamese national engineers

Basic Policy 3

Environment and Community Development

～Creating a strong and attractive town in harmony and symbiosis with the environment～

1 Environmental Targets by FY2025

- We aim to create a city that is easy to live and work in, where a balance is maintained between global warming countermeasures, biodiversity conservation, and urban activities, in line with the formation of compact urban areas to cope with future population decline and the aging of the population with low birthrates.
  We aim to create a city that is resilient to disasters while promoting community development that includes the creation of diverse energy sources that are uninterrupted in the event of a disaster and measures to prevent flooding.
- Create an environmentally friendly transportation and logistics environment that is easy for people and goods to move around, centered on walking, bicycling, and public transportation.
- Increase the number of environmentally friendly buildings with anti-global warming and long-life measures.
-

2 Current Status and Issues

● urban centre

- Water and greenery are important elements in the urban landscape, but the waterfront and greenery in the city center are less abundant than in the suburban areas. From the perspectives of preservation of rich biodiversity, mitigation of the heat island effect, and disaster prevention and mitigation functions, the Yokohama Station District, Minato Mirai 21 District, and other waterfront areas in the city center are required to create attractive urban spaces utilizing water and greenery as the gateway to Yokohama.
- In urban centers where large commercial and office buildings are concentrated and energy consumption is high, it is necessary to promote low-carbon and disaster-resistant urban development by introducing cutting-edge technologies, actively utilizing renewable energy and unused energy, and establishing a system for energy interchange in the community.

● suburban area

- In order to realize a city where everyone can live comfortably and easily, it is necessary to control the proliferation of urban areas and create compact urban areas by concentrating functions according to regional characteristics around railroad stations while taking advantage of existing urban infrastructure and cohesive greenery.
- In suburban residential areas, there are concerns about declining population, falling birthrates, and aging populations, as well as declining vitality due to aging housing and increasing numbers of vacant houses. There is a need for revitalization that incorporates the perspectives of "living, working, and being active" while collaborating with diverse entities such as businesses and universities, as well as the development of living environments that take advantage of the lush natural surroundings.

Rivers, oceans, and other riparian environments

- In addition to improving the quality of treated water discharged from the Water Reclamation Center into rivers and the sea, we are working with citizens and businesses to purify the water quality of the sea by creating shallow areas, planting seagrasses, improving bottom sediment, and installing biofouling platforms.
- In recent years, there has been concern about the impact of microplastics and other substances on ecosystems, and surveys have begun to ascertain the actual situation.
- Holding events using the sea, such as the World Triathlon, and creating opportunities to interact with living creatures have led to a bustling town, and it is necessary to continue to make efforts to promote these events.

Impacts of climate change and the heat island effect

- Summer temperature observations in the city show a trend toward higher temperatures in the northeastern part of the city during the daytime and around the Port of Yokohama during the nighttime. In recent years, there have been concerns about the impact on human health, such as an increase in the number of heat stroke patients, as the total number of hours in which temperatures exceed 30 degrees Celsius has been increasing and the number of tropical nights has been on the rise.
- These trends can be attributed to both climate change and the heat island effect. The heat island effect is a phenomenon in which temperatures in urban centers are higher than those in suburban areas, and is a prominent environmental problem in large cities.
- From the perspective of mitigating and adapting to climate change and the heat island effect, especially summer heat, it is necessary to steadily promote the efficient use of energy, the conservation and creation of greenery, and the introduction of heat-prevention technologies.

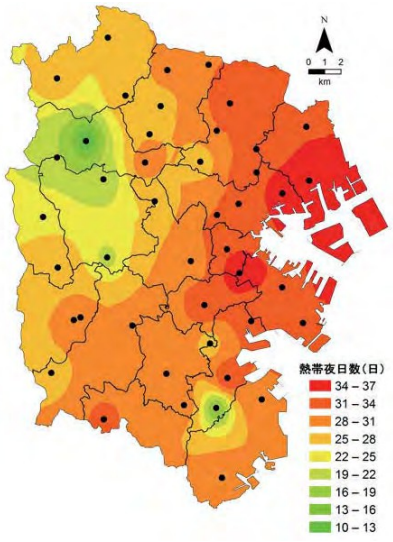


Figure Distribution of Tropical Night Days

(July-August 2017)

Traffic and logistics environment

- Traffic congestion leads to environmental problems such as air pollution, noise, and other impacts on the roadside environment, so it is necessary to continue working on congestion countermeasures. Furthermore, from the perspective of preventive measures against greenhouse gas emissions and fuel shortages in the event of a disaster, a shift to a transportation and logistics environment that minimizes dependence on fossil fuels is required.
- Therefore, it is necessary to change lifestyles that rely excessively on private cars and promote travel by walking, bicycles, and public transportation, as well as to make comprehensive efforts to improve the environment for safe and secure transportation, to popularize next-generation vehicles and develop infrastructure that facilitates their use, and to improve urban planning roads. In addition, the early diffusion of new environmentally friendly transportation services, such as EV buses and EV cab services, is also expected.
- The Port of Yokohama, designated as an International Container Strategic Port as one of Japan's leading trading ports, has been actively promoting low-carbon initiatives such as promoting green logistics and studying the formation of an LNG bunkering base. It is important to continue to expand its environmental conservation efforts.

Housing & Buildings

- In order to reduce carbon dioxide emissions in the residential and commercial sectors toward de-carbonization, there is a need to improve the environmental performance of homes and buildings through measures to achieve significant energy savings by improving insulation performance, which also leads to health and comfort, and by introducing high-efficiency equipment, etc., as well as by promoting net zero energy houses and buildings that use renewable energy to meet their annual energy consumption (ZEH / ZEB), measures to extend the service life of existing homes and buildings, and the spread of value-enhancing initiatives such as energy-saving renovations.
- It is also important to use domestic and other timber that contributes to sustainable forest management and low carbon emissions. It is necessary to seize opportunities for maintenance and renewal of public buildings (school facilities, municipal housing, civic use facilities, etc.) in response to their progressive aging, and to steadily implement energy conservation, introduction of renewable energy, and promotion of the use of domestic timber based on the principle of extending service life, leading to the reduction of greenhouse gases.

Park development, maintenance, and management

- Parks provide people with a favorable urban environment with greenery, serve as places of relaxation for various generations, and have diverse functions such as serving as evacuation centers in the event of a disaster. While properly maintaining and managing the approximately 2,700 parks currently in the city, it is necessary to systematically renew facilities and develop new parks in areas where they are lacking. In large-scale parks, it is important to promote the maintenance of parks that preserve and create greenery, provide opportunities for environmental education and learning, respond to diverse community needs, and also take into account disaster prevention functions such as evacuation sites in the event of a disaster.
- Characteristic management of parks is required to increase user satisfaction and enrich the lives of citizens.

Maintenance and management

Development and maintenance of sewers and rivers

- Sewerage systems are being upgraded to handle approximately 50mm of rainfall per hour in naturally drained areas with high ground, and approximately 60mm of rainfall in pumped drainage areas along rivers and other areas with low ground. In recent years, however, rainfall exceeding the maintenance level has been observed, leading to a rapid increase in the amount of water flowing into the pipeline via road surfaces and a sudden rise in the water level of waterways, increasing the risk of flooding damage.

Table Percentage of maintenance as of the end of fiscal year 2016

Rainwater Trunking Ratio for Rainfall of 50mm/hr.	65.9% (in %)
Rainwater trunk line coverage in rainfall of approximately 60 mm per hour	62.5% (in %)

- For this reason, in addition to conventional hard maintenance such as the construction of rainwater trunk lines and installation of rainwater infiltration facilities, the inland water hazard map, which indicates areas where there is a risk of flooding due to overflows from sewers and waterways, etc., has been developed.

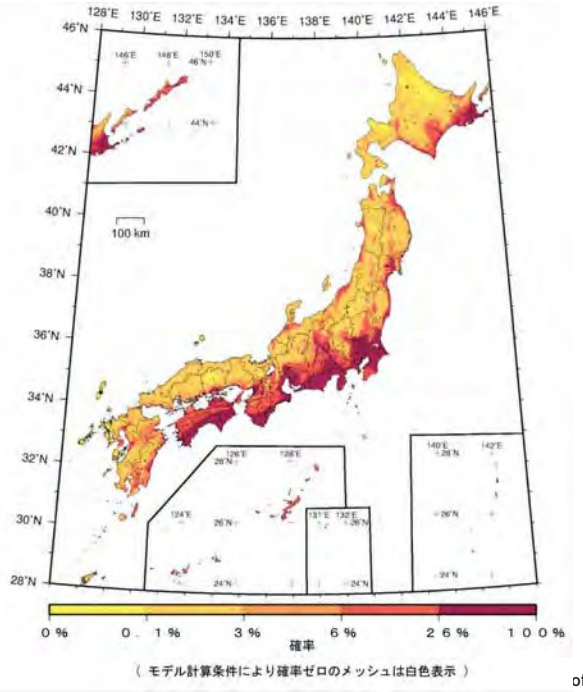
Fi

The city is promoting comprehensive inundation countermeasures to reduce damage from inundation, such as the creation of a "disaster prevention plan" and efforts to raise citizens' awareness of disaster prevention and encourage them to act voluntarily.

- In the area of rivers, 28 major rivers (85 km in length) of the first, second, and sub-rivers that flow through the city are being upgraded to handle approximately 50 mm of rainfall per hour. In addition, rainwater harvesting and infiltration facilities, which are effective against recent localized heavy rains by controlling rainwater runoff in the watershed, are also being developed. In order to further improve flood control safety, the level of river maintenance needs to be strengthened.
- In order to realize the benefits of sewer and river maintenance, planned maintenance and renewal of facilities are necessary in addition to day-to-day maintenance and management.

Efforts for Disaster Prevention and Mitigation

- The probability that Yokohama City will be hit by an earthquake of intensity 6 or lower on the Japanese seismic intensity scale within 30 years is predicted to be 81%.
- In addition, the number of localized heavy rains and strong typhoons has been increasing in recent years due to climate change, causing flooding and other damage within the city limits. In Japan, river overflows have caused extensive damage, and the number of extreme weather events due to climate change is expected to increase in the future.
- Disaster prevention and mitigation measures against disasters include the development of planned rainwater trunk lines and rivers, further effective utilization of existing facilities, and the securing of infiltration areas focusing on the water retention and storage functions of woodlands and farmlands, and the promotion of rain storage in residential areas in addition to the storage functions utilizing all public lands such as roads, parks, and school grounds, It is necessary to promote basin-wide climate change adaptation measures that utilize green infrastructure.
- In addition, there is a need to promote a variety of energy sources such as renewable energy and electric vehicles that can be used as emergency power sources in times of disaster, as well as to properly and promptly dispose of waste generated during disasters to prevent environmental degradation after the disaster.



of

Probabilities

Probability of being hit by a tremor of intensity 6 or greater in the next 30 years (average case, all earthquakes)

(Source:"National Earthquake Motion Prediction Map 2017," Earthquake Research Institute, Japan.

3 Policy for Initiatives

(1) Community development according to regional characteristics

● Environmentally friendly urban development in the waterfront area of central Tokyo

We will promote urban development that has a low environmental impact in terms of energy and transportation, as well as disaster resilience. In addition, we will promote the development of waterfront spaces where citizens can relax, increase the amount of greenery that citizens can experience, and create a city with a rich environment where people can feel close to living creatures.

Maintenance of flower beds in the Shinko Chuo Plaza

(Nakaku-ku, Tokyo)

● Compact and vibrant suburban community development

Promote land use guidance in line with compact urban development. In order to revitalize and revitalize residential areas, we will support the revitalization of apartment complexes, improve lifestyle support functions such as medical care, welfare, and childcare, and promote the creation of a living environment that makes the most of the rich natural environment, favorable townscape, and other attractions of the area. In addition, in the area surrounding stations, we will create an environment that is easy for everyone to live and work in, and promote the development of comfortable environments such as green spaces, by developing station plazas, pedestrian spaces, and other facilities that meet local needs, such as the development of commercial facilities and other lifestyle convenience facilities, and by concentrating functions to meet local needs.

Sustainable Residential Land Promotion Project

(Image perspective of the Utsukushigaoka area)

● Creating a rich ocean

In cooperation with various entities, we will promote the creation of oceans rich in biodiversity as well as countermeasures against global warming through surveys and research on blue carbon, shallow water and seaweed bed formation, and microplastics. We will further promote the creation of attractive oceans by promoting water quality improvement projects that utilize the purification ability of living organisms, which will lead to the holding of various ocean events such as the World Triathlon Series in Yokohama.

● Urban Planning for Decarbonization

In each of the model districts in the Tokyo waterfront and suburban areas, various stakeholders will develop and share future visions based on local characteristics and the natural environment, and promote the use of independent and decentralized energy sources such as electricity and heat, etc., to develop them as environmental model zones with highly convenient urban functions and low carbon emissions in harmony.

Wakame Harvest Event

(Promotion of Yokohama Blue Carbon)

● Promotion of heat protection

From the viewpoint of mitigating and adapting to the urban "heat" caused by climate change and the heat island effect, we are working to increase the amount of greenery in urban centers and to promote citizen and

Fuel cell vehicles (FCVs) running in the city

We will promote green curtains, rooftop greening, energy conservation, etc. through collaboration between businesses and the government. In addition, support will be provided for the introduction of artificial sunshades and other heat-protection technologies.

Rooftop greening (Minami Ward Office)

(2) Formation of an environmentally friendly transportation and logistics environment that facilitates the movement of people and goods

Promote the use of public transportation and the spread of environmentally friendly next-generation vehicles.

We will work to reduce the environmental burden of automobile traffic through the formation of a traffic network that will lead to progress, reduce traffic congestion, and so on. In addition, we will promote the development of a comfortable and pleasant transportation environment for people on foot and by bicycle, such as by creating barrier-free streets and improving the environment for bicycle use. At the Port of Yokohama, we will promote low-carbon initiatives by improving the port road network and making the port smarter.

Formation of transportation network
Yokohama Aoba IC, Yokohama Loop Northwest Route

JCT (tentative name) (Aoba Ward)

(3) Dissemination of environmentally friendly housing and buildings

We will promote energy-saving and low-carbon new homes and buildings in harmony with the natural environment, energy-saving renovation of existing homes and buildings, and installation of renewable energy equipment in homes and buildings. We will increase the number of environmentally friendly, health-conscious, and highly comfortable buildings by promoting energy conservation and longer life of public buildings, installation of renewable energy equipment, and use of domestic timber.

Construction of public buildings to be converted to wood

(South Ward Office)

(4) Development, maintenance, and management of parks that create a favorable environment (4) Development, maintenance, and management of parks that create a favorable environment In addition, we will promote the creation and cultivation of attractive and lively areas with greenery and flowers in waterfront areas in the city center. In addition to steadily promoting the maintenance, management, and renewal of facilities and creating a safe and comfortable environment for users, we will also create attractions and liveliness through public-private partnerships.

(5) Promotion of disaster prevention and mitigation measures in the environmental field

Comprehensive measures to reduce flood damage will be promoted, including the steady promotion of the development of rainwater trunk lines and rivers, the utilization of green infrastructure, and the provision of information through the use of hazard maps. In addition, we will combine environmental preservation and disaster prevention functions by creating diverse energy sources that will not be interrupted in the event of a disaster, such as solar power generation and electric vehicles, taking into consideration the diverse roles of parks and wooded areas, and developing towns in coordination with disaster prevention measures.

Creation of attractive and lively atmosphere through greenery and flowers

(Green and flower management at Yamashita Park)

River maintenance

(Akuwa River, Keirin Bridge replacement)

4 Examples of Major Initiatives

(1) Community development according to regional characteristics

● Environmentally friendly urban development in the waterfront area of central Tokyo

- Promoting Environmental Initiatives at Excite Yokohama 22
- Promotion of Minato Mirai 2050 Project
- Promotion of Yokohama Smart City Project

● Compact and vibrant suburban community development

- Promote environmental initiatives in the development of bases around railroad stations
- Promote environmental initiatives in regional community development
- Promote sustainable suburban residential area revitalization

● Creating a rich ocean

- Shallow water and seaweed bed formation
- Promotion of Yokohama Blue Carbon
- Biological Habitat Survey
- Research and Studies on Microplastics

● Urban Planning for Decarbonization

- Dissemination of environmental model zones in urban centers (Shin-Yokohama and Minato Mirai 21 districts)
- Promote sustainable suburban residential area revitalization
- Formation of LNG Bunkering Base at the Port of Yokohama

● Promotion of heat protection

- Continuous temperature observation
- Promote conservation and creation of greenery
- Verification of effectiveness of heat control technologies and support for their introduction
- Spreading awareness of heat-related measures to prevent heat stroke

(2) Formation of an environmentally friendly transportation and logistics environment that facilitates the movement of people and goods

- Reduction of environmental impact through the development of transportation networks
- Promoting Mobility Management
- Promote regional transportation support
- Development of safe and secure walking space
- Improvement of Bicycle Usage Environment
- Promotion of car sharing

(3) Dissemination of environmentally friendly housing and buildings

- Promote environmentally friendly housing and buildings
- Promote eco-renovation of housing
- Promote energy conservation in public buildings
- Promote the use of domestic timber in public buildings

(4) Development, maintenance, and management of parks that create a favorable environment

- Development of familiar parks and large-scale parks and other facilities to accommodate land use conversion
- Maintenance and management according to park characteristics
- Creation and cultivation of attractive and lively areas with greenery and flowers
- Creating Attractiveness and Liveliness in Parks through Public-Private Partnerships

(5) Promotion of disaster prevention and mitigation measures in the environmental field

- Maintenance and preventive maintenance of sewage systems
- Dissemination of information on predicted inundation
- Dissemination of inundation (internal flooding, flooding) hazard maps
- River maintenance and preventive maintenance
- Promotion of multi-nature river development
- Study and introduction of further utilization of unused energy and other resources in public facilities
- Cultivation of good forests
- Park Maintenance
- Green infrastructure-based stormwater slow-flow watershed measures
- Promotion of low-carbon transportation
- Promoting Environmental Initiatives at Excite Yokohama 22
- Promotion of environmental initiatives in the Minato Mirai 21 district

Chapter 5.

Basic Measures from the Environmental Aspect

The Environmental Management Plan sets forth seven basic measures to steadily address individual environmental issues. Global warming countermeasures" and "biodiversity," which are the cornerstones of environmental administration, are addressed as priority measures.

Basic Measure 1	Measures to combat global warming
Basic Measure 2	Biodiversity
Basic Measure 3	Water and land
Basic Policy 4	Urban Agriculture Industry
Basic Measure 5	Resource Circulation Circulation
Basic Measure 6	Living Environment Environment
Basic Policy 7	Environmental Education and Learning

What are the basic measures from the environmental aspect?

These seven basic measures to steadily address individual environmental issues are "Global Warming Countermeasures," "Biodiversity," "Water and Greenery," "Urban Agriculture," "Resource Recycling," "Living Environment," and "Environmental Education and Learning."

Global warming countermeasures" and "biodiversity conservation," which are the cornerstones of environmental administration, are positioned as priority measures because they are deeply related to the natural environment, such as water and greenery, as well as to resources and energy. In addition, "environmental education and learning" is positioned as a basic measure as the foundation for all measures.

<How to read each page

Name of basic measures

The following table shows the policy names and the catchphrase for each policy.

Environmental targets by FY2025

The goals for fiscal year 2025 show the environmental picture that each of the measures aims to achieve.

❸ Status of the environment as a guideline for achievement

These indicators are used to evaluate the status of achievement of environmental targets. Quantitative and qualitative evaluations are conducted according to the projects and initiatives of each program, and the status is monitored each fiscal year and announced in the annual report.

❹ Approach to Goal Setting

This section presents our approach to setting "environmental conditions that serve as a guideline for achievement.

❺ Current Status and Issues

The following table shows the current status and issues for each policy.

Policy

The policy for measures to achieve environmental targets.

Photos and diagrams are included to help you visualize the initiatives.

❼ Examples of major initiatives

The following is a list of the main projects and initiatives that will be implemented in accordance with the initiatives policy.

*The same initiatives may be listed in multiple policies and measures.

❽ Column

This section includes case studies of initiatives and explanations of terminology.

Basic Policy 1

Global Warming Countermeasures

～Shift to a lifestyle less overly dependent on fossil fuels～

1 Environmental Targets by FY2025

With a view to achieving zero real greenhouse gas emissions (decarbonization) as early as possible in the second half of the century, activities toward decarbonization are spreading among citizens and businesses, resulting in comfortable living and increased productivity as well as significant reductions in greenhouse gas emissions. In addition, the city is adapting to the effects of climate change that are already taking place and achieving a safe, secure, and sustainable city.

Environmental conditions that serve as a guideline for achievement

- Greenhouse Gas Emissions
  - By FY2020, 22% reduction compared to FY13
  - 30% reduction from FY2013 level by FY2030
- Energy consumption
  - 10% reduction from FY2013 level by FY2020
  - 18% reduction from FY 2013 level by FY 2030

Goal-setting approach

- In light of global trends after the adoption of the Paris Agreement, etc.

Under the slogan "Zero Carbon Yokohama," the goal of Yokohama's global warming countermeasures is to "achieve zero greenhouse gas emissions (decarbonization) as early as possible in the second half of the century," with an eye toward 2050.

- Promote steady reduction of greenhouse gas emissions Short- and medium-term targets for FY2020 and FY2030 were selected as evaluation items.
- The reduction of energy consumption in the city, which is not affected by the emission factor of electricity and the results of efforts are relatively easy to understand, was also included as an evaluation item.

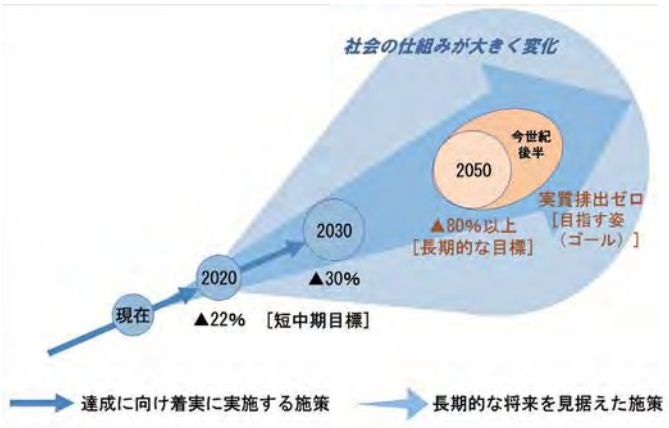


Image of Yokohama City's goal of global warming countermeasures (Goal)

- Along with "mitigation measures" to reduce greenhouse gas emissions, "adaptation measures" to cope with the effects of climate change and minimize or avoid damage must also be promoted.

Individual plans related to

Yokohama City Action Plan for Global Warming Countermeasures

2 Current Status and Issues

~~Greenhouse gas emissions in Yokohama City in FY2015 were 17.34 million t-CO_2, a 14.2% (2.87 million t-CO_2) decrease from FY2005, when~~ calculated using FY2010 electricity emission factors.

On the other hand, the emission factor for the year was 19.34 million t-CO_2, a decrease of 4.3% (861,000 t-CO_2).

In order to achieve decarbonization, it will be difficult to extend current efforts, and it will be necessary to mobilize wisdom and maximize the pursuit of solutions through innovation in technology, economic and social systems, and lifestyles. In order to support the efforts of citizens and businesses toward such innovation, it is important to clearly indicate the direction of "decarbonization". In addition, in a situation where the "race to transition to a decarbonized economy" is in full swing, it is also necessary for Yokohama City to improve the quality of life of its citizens and increase its added value and international competitiveness as a metropolis,

Efforts to "decarbonize" are considered important.

At COP 23, the major role of cities and regions in "decarbonization" was confirmed. Yokohama is expected to be a dynamic metropolis on the receiving end of many people and businesses, and to continue to create economic, social, cultural, and environmental value through active activities and exchanges. As a city supported by the supply of human resources, food, water, and energy from other regions in Japan and abroad, it is Yokohama's responsibility to return to the world the value created by the challenge of "decarbonization" and ways to solve urban issues.

In addition, the world is discussing the realization of decarbonization at the earliest possible stage, including the Talanoa Dialogue*1 agreed at COP 23 and the Global Stocktake*2 based on the Paris Agreement, and Yokohama City is required to review its plans as appropriate and consider a path toward the realization of decarbonization. Yokohama City is also expected to review its plans as appropriate and consider a path toward decarbonization.

*1: Facilitating dialogue to achieve the 2°C target

*2: Mechanism to check the progress of global implementation every five years

Figure: Change over time in greenhouse gas emissions and energy consumption in Yokohama City

3 Policy

(1) Promotion of initiatives based on citizen power and corporate collaboration

Yokohama City has been working on global warming countermeasures while utilizing its high citizen power and the superior technological capabilities of local companies. However, with an eye toward decarbonization in the second half of this century, it is necessary to promote lifestyle changes among citizens and businesses. Therefore, under the catchphrase "COOL CHOICE YOKOHAMA," we will promote the spread and enlightenment for innovation by each entity, expansion of initiatives to a wider range of generations, and new developments to strengthen cooperation with diverse entities.

(2) Realization of state-of-the-art smart cities

Aiming to realize a "cutting-edge smart city" that can control energy supply and demand by networking various urban facilities, EVs, independent distributed power sources, etc. that exist in the city using IoT, AI, etc., taking advantage of the characteristics of a large city, the Yokohama Smart City Project (YSCP) will be implemented and other creative initiatives by the public and private sectors will be promoted. We will promote creative initiatives through public-private partnerships, such as the implementation of the Yokohama Smart City Project (YSCP).

(3) Virtuous Circle of Environment and Economy

The challenge of transformation and transition to a decarbonized economy is seen as an "opportunity" for economic growth, job creation, and innovation, and we will work for a virtuous cycle between the environment and the economy by promoting R&D in environmental technologies, stimulating environmental finance and investment in cooperation with financial institutions, and studying and promoting initiatives related to carbon pricing. In addition, we will work to simultaneously solve social issues such as population decline and aging society.

(4) Inter-city cooperation and international dissemination

As the "role of cities" becomes increasingly important, Yokohama will develop and strengthen partnerships with cities in Japan and overseas, share experience and knowledge, and promote technical cooperation, based on the domestic and international networks in which Yokohama participates. In addition, the City of Yokohama will contribute to global warming countermeasures and enhance its presence in the world.

(5) Thorough energy conservation

We will promote thorough energy conservation in all sectors, including households, business, and industry. To this end, we will shift from the conventional thinking of patience and perseverance regarding energy conservation, and aim to link the improvement of living comfort and business productivity with activities toward decarbonization by shifting to lifestyles that are not overly dependent on fossil fuels. City Hall itself will take the initiative in introducing more high-efficiency distributed power sources, energy-saving homes and buildings, and next-generation vehicles, while promoting the spread of information and other educational activities to citizens and promoting further initiatives by businesses based on the Yokohama City Global Warming Prevention Plan System.

(6) Sustainable Community Development

Each model area, such as the Minato Mirai 2050 Project and the Environmental Model Zone, has its own characteristics.

We will promote urban development that takes into account the convenience and energy-efficient use of land. In addition, we will promote low-carbon transportation and ports, coexistence with nature through the preservation and utilization of greenery, and recycling-oriented urban development through the promotion of the 3Rs. We will also promote compact urban development and recycling-oriented urban development, and contribute to building cities that are easy to live in, comfortable, vibrant, and attractive, and that are geared toward decarbonization.

(7) Maximize the introduction of renewable energy and realize a hydrogen society

Utilizing the city's resources, such as public facilities, housing, and buildings, which are unique to a large city, the city will actively introduce renewable energy in the city and promote local production for local consumption of energy, as well as strengthen cooperation with RE100* companies located in the city. In addition, since there is a limit to the amount of renewable energy that can be procured solely within the city, the city will work to develop wide-area partnerships. Furthermore, we will promote the selection of low-carbon electricity by citizens and businesses. In addition, as a milestone for the future, we will promote the utilization of hydrogen to realize a hydrogen society.

*: International initiative involving companies with the goal of procuring 100% of their business operations from renewable energy sources.

(8) Strengthen adaptation measures

In order to cope with the increasingly serious effects of climate change and to minimize or avoid damage, we will study and promote long-term efforts to address risks from future temperature increases and other factors, improve resilience, promote understanding and action by citizens and businesses, and collect and disseminate information on climate change risks and adaptation. In addition, we will strengthen the measures that Yokohama City has been promoting so far, including the use of green infrastructure that takes advantage of the multifaceted functions of the natural environment.

Colum

Promote low-carbon electricity supply and choice

~Improving the environmental performance of electricity is also important as a measure against global warming~

Under national law, all energy suppliers are required to promote the use of non-fossil energy sources and the effective use of fossil energy raw materials. In addition, the total deregulation of electricity retailing began in April 2016, allowing even relatively small-scale users of electricity, such as households and stores, to freely choose their electricity supplier.

The amount of carbon dioxide emissions associated with the use of electricity varies greatly depending on the combination of energy sources used to produce the electricity and the power generation system (power source configuration). Therefore, it is important to proactively select low-carbon electricity produced by a power source configuration that has a smaller environmental impact as a measure against global warming.

Yokohama City has introduced a new system for retail electric utilities, which will allow the city to calculate the emission factor of retail electric utilities that supply electricity to the city, the renewable energy
The information is provided to citizens and businesses, and is used to promote the COOL CHOICE YOKOHAMA program and other activities.
The company will promote the supply and selection of low-carbon electricity by generating

4 Examples of Major Initiatives

(1) Promotion of initiatives based on citizen power and corporate collaboration

- Citywide by COOL CHOICE YOKOHAMA

  Creating a chain of global warming countermeasures

- Promote supply and selection of low-carbon electricity*.

  Low-carbon electricity: Electricity with low greenhouse gas emissions through the use of renewable energy, etc.

(2) Realization of state-of-the-art smart cities

- Promote implementation of the Yokohama Smart City Project (YSCP) verification results in collaboration with the members of the Yokohama Smart Business Association (YSBA)
- Full-scale development of virtual power plant (VPP) construction business
- Study on smart use of renewable energy

  (Local production for local consumption of energy, wide-area cooperation, etc.)

(3) Virtuous Circle of Environment and Economy

- Carbon offset projects triggered by large-scale events
- Transition considerations to a decarbonized economy and promotion of innovation

(4) Inter-city cooperation and international dissemination

- Promotion of cooperation among domestic and international cities on global warming countermeasures
- Attracting international conferences with a strong global presence for overseas dissemination
- International technical cooperation through public-private partnerships (Y-PORT project, etc.)

(5) Thorough energy conservation

- Promote energy conservation in housing and buildings
- Enhancement of the Yokohama City Global Warming Prevention Plan System, etc.
- Promotion of low-carbon next-generation transportation
- Introduction of high-efficiency equipment through ESCO projects, etc.
- Promote the use of LEDs in public facilities

(6) Sustainable Community Development

- Dissemination of environmental model zones in urban centers (Shin-Yokohama and Minato Mirai 21 districts)
- Promote sustainable suburban residential area revitalization
- Formation of LNG Bunkering Base at the Port of Yokohama

(7) Maximize the introduction of renewable energy and realize a hydrogen society

- Study on smart use of renewable energy

  (Local production for local consumption of energy, wide-area cooperation, etc.)
- Study of increasing digestion gas by accepting city biomass into sewage facilities
- Promote utilization of hydrogen energy

(8) Strengthen adaptation measures

- Green infrastructure-based stormwater slow-flow watershed measures
- Spreading awareness and alerting the public about heat stroke countermeasures
- Urban heat studies and research

Basic Measure 2

biodiversity

～A rich life where people can feel and enjoy nature and living creatures around them.～
[Yokohama Action Plan for Biodiversity (Yokohama b-Plan)

1 Environmental Targets by FY2025

- Everyone practices a lifestyle that brings them closer to nature and living creatures in their daily lives.
- Woodlands and farmlands, which are important habitats and growth environments for living creatures, have been stably preserved, and the rich water and green environment has increased in residential areas and urban centers, strengthening the connection among living creatures and enriching biodiversity throughout the city area.
- In the distribution process of companies, biodiversity considerations are incorporated from the viewpoint of material procurement, production process, and consumption behavior, and biodiversity plays a major role as a market value.

•The image of Yokohama as a city is "rich biodiversity supported by the proactive actions of citizens and businesses.

The "new" is now well established in the market.

Environmental conditions that serve as a guideline for achievement

- Promotion of preservation of habitats and growing environments for a variety of plants, animals, and other living creatures
- Increase opportunities for citizens to interact with and enjoy nature and living creatures around them.
- Increase in the number of citizens and companies that take biodiversity-conscious actions on their own

Goal-setting approach

- The evaluation item was the status of promotion of conservation of the rich natural environment, mainly through conservation of the remaining woodlands and agricultural lands in the city, which form the basis of rich biodiversity.
- In order to deepen understanding of the importance of biodiversity, the evaluation item was to increase opportunities to interact with and enjoy learning about familiar creatures.
- The status of proactive actions by citizens and companies to shift to biodiversity-conscious social systems and lifestyles is included in the evaluation items.

2 Current Status and Issues

(1) Blessings and crises of biodiversity

Biodiversity is the rich individuality and connectivity of living things.

On the earth, there are various natural environments such as forests, rivers, and oceans, and many creatures that have evolved to adapt to each environment live by connecting and supporting each other.

We humans are also blessed with air, water, and food through our connections with many living creatures. Biodiversity provides us with safety in our daily lives, such as disaster prevention, as well as culture and recreation rooted in local communities.

Now, however, biodiversity is threatened by the extinction or decline of living creatures due to human influence.

(2) Conditions Surrounding Creatures in Yokohama City

● Characteristics of Water and Green Environment

Despite being a large city, Yokohama has a rich and varied water and green environment, including woodlands, farmlands, parks, streams, and waterfronts, in places close to where people live.

In the suburban areas, there are cohesive forested areas and farmlands. Even within the urban area, woodlands and farmlands are interspersed in a mosaic-like pattern, allowing people to experience the workings of nature in the immediate vicinity of urban life. In addition, many waterways and rivers flow through the city, originating from the valleys in the "10 Green Centers" and other areas, and connect the city to the sea.

● Status of habitat and growth environment of living creatures

Woodlands and agricultural lands

Rapid population growth has led to development that has resulted in the loss of many woodlands and farmlands that provide habitats and nurturing environments for living creatures. In addition, due to changes in lifestyles and a lack of maintenance and management personnel, the satoyama-like environment that has been nurtured through interaction with people's daily lives is disappearing. Under these circumstances, the City of Yokohama has been working with citizens, businesses, and other diverse entities to conserve woodlands and farmlands, and to maintain and manage them in consideration of biodiversity. It is necessary to continue to work on the conservation and appropriate maintenance of woodlands and agricultural lands.

River area

In rivers, water quality has improved due to the expansion of sewage systems, and many living creatures such as fish and aquatic insects are returning to the rivers. In addition, the creation of multi-nature rivers is progressing, and vegetation is recovering. On the other hand, in small and medium-sized rivers and waterways, daily water volume is declining, and in some areas the habitat and growth environment has deteriorated. Headwaters are valuable habitats for many creatures, including rare species, but the situation is not well understood, so it is necessary to understand the current situation and implement conservation measures. It is necessary to support cleanup activities by conservation groups and continue efforts toward a healthy water cycle.

Sea area

Although the water quality in the sea tends to improve gradually, during the summer, the area near the seafloor is low in oxygen, and only a limited number of creatures are able to live in this environment. In the few remaining shallow water areas, efforts are being made to restore the habitat and growth environment in collaboration with citizens and businesses.

Water and Green Network

Isolation and fragmentation of habitats and growing environments due to urbanization have led to a lack of connection among living creatures. Not only forests, rivers, and oceans, but also rice paddies, fields, waterways, parks, street trees, flowers and greenery in residential and urban areas, ponds, and biotopes are important habitats and growth environments for living creatures in urban areas. By ensuring the quality, quantity, and continuity of these water and greenery, habitat and growth environments and migration routes are preserved and created. It will also provide a place where citizens can feel nature and living creatures in their immediate surroundings. It is necessary to continue preserving and creating network bases, including efforts to conserve the remaining woodlands and agricultural lands in urban areas and greening of buildings and factory sites.

Factors that degrade the habitat and growth environment of living creatures

In recent years, an increasing number of non-native species have been causing damage to ecosystems, humans, and agricultural crops. Among the invasive alien species that cause such damage, those that are considered to have a particularly large impact are designated as "Specified Invasive Alien Species" under the Invasive Alien Species Act (official name: Act on the Prevention of Damage to Ecosystems by Specified Invasive Alien Species, enacted in 2005) which prohibits the breeding, cultivation and transportation of such species. Therefore, it is necessary to continue to promote awareness of and take measures against invasive alien species.

There is also concern about the effects of climate change, thought to be caused by global warming, on living creatures. Rising temperatures are also affecting the blooming time of plants and trees in the city and the ecology of migratory birds.

In order to promote biodiversity conservation, it is necessary to understand the current status and changes in the habitat and growth areas and number of living creatures based on scientific knowledge. It is also necessary for citizens to take an interest in the current status of living creatures that inhabit and grow in their immediate environment, conduct their own research, and make use of this information to improve their immediate environment.

● Preserving a rich natural environment for future generations

Having a natural environment rich in biodiversity close at hand is also important for becoming a city of choice.

The natural environment that remains close at hand and the history and culture nurtured with it are the city's charms, and the rich natural environment must be passed on to the next generation.

(3) Mainstreaming biodiversity

In order to continue to benefit from biodiversity in the future, it is important for each citizen to think and act in harmony with nature.

To this end, the City of Yokohama, citizen groups, and businesses must work together to communicate in an easy-to-understand manner that the lives of each and every citizen are supported by the blessings of biodiversity, and what actions in our daily lives and corporate activities lead to the conservation of biodiversity.

In particular, the City of Yokohama must be keenly aware that all of its environmental efforts are linked to the conservation of biodiversity, and communicate this to its citizens.

Attitudes of Yokohama Citizens

Yokohama is a large city with approximately 3.7 million citizens and many companies located in the city. A city that attracts many people and goods will benefit from more biodiversity and will have a significant impact on biodiversity.

However, according to a survey of citizens' awareness of the environment conducted by Yokohama City, the percentage of citizens who cited "biodiversity crisis" as an environmental issue or activity of concern has remained around 20% in recent years, which is still low compared to "global warming" and "waste reduction and recycling (promotion of 3Rs)".

In addition, the most common situation of difficulty in implementing environmental actions and reasons for not being able to or not taking action is "not knowing what to do or what actions to take.

This implies that there is a segment of the population that, if informed, may take biodiversity-friendly environmental actions.

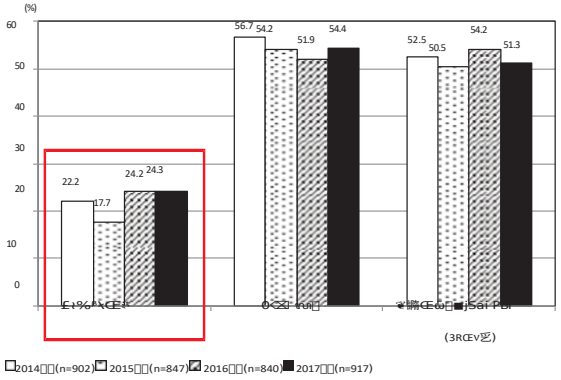


Figure Environmental issues and activities of interest (multiple responses allowed)

(2014～ 2017 survey)

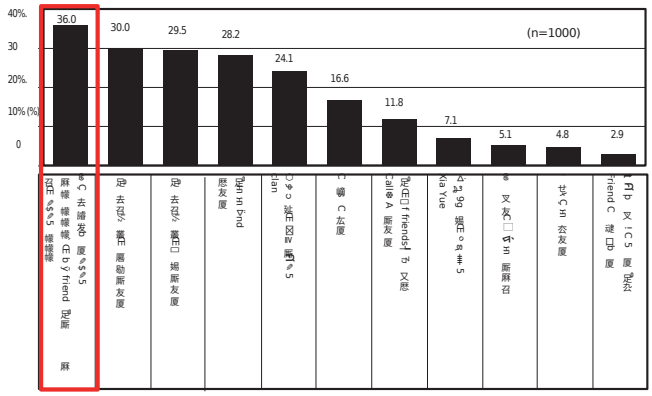


Figure Difficulties in implementing environmental actions, reasons for not being able to or not taking action (up to 3 multiple responses allowed)

(FY 2017 survey)

(Source: Results of Yokohama City survey on citizens' awareness of the environment)

Linkage between citizens' lives and biodiversity conservation

It is important to continue to support environmental education and learning through experience and support for environmental activities in order to bring nature closer to people and deepen their understanding of biodiversity.

In addition, in order to lead to actions that protect biodiversity, it is necessary to promote awareness of biodiversity-conscious consumption behavior, such as choosing environmentally friendly products and locally produced agricultural and livestock products. Such consumption behavior will contribute to the conservation of biodiversity and encourage companies to give consideration to the procurement of raw materials.

Linkage between business activities and biodiversity conservation

Businesses play an important role in biodiversity conservation. They are deeply involved with the world's biodiversity through their business activities and have a significant impact on the relationship between consumers and biodiversity through their products and services. Continuing business activities without taking biodiversity into consideration creates risks such as the inability to procure raw materials and the inability to sell products.

In addition, biodiversity-conscious initiatives will enhance corporate value and appeal to consumers and investors.

Promote mainstreaming of biodiversity

It is necessary to promote "mainstreaming of biodiversity," a shift to biodiversity-conscious social systems and lifestyles, by deepening understanding of biodiversity among citizens and businesses through various initiatives, and by proactively taking action toward biodiversity conservation and sustainable use.

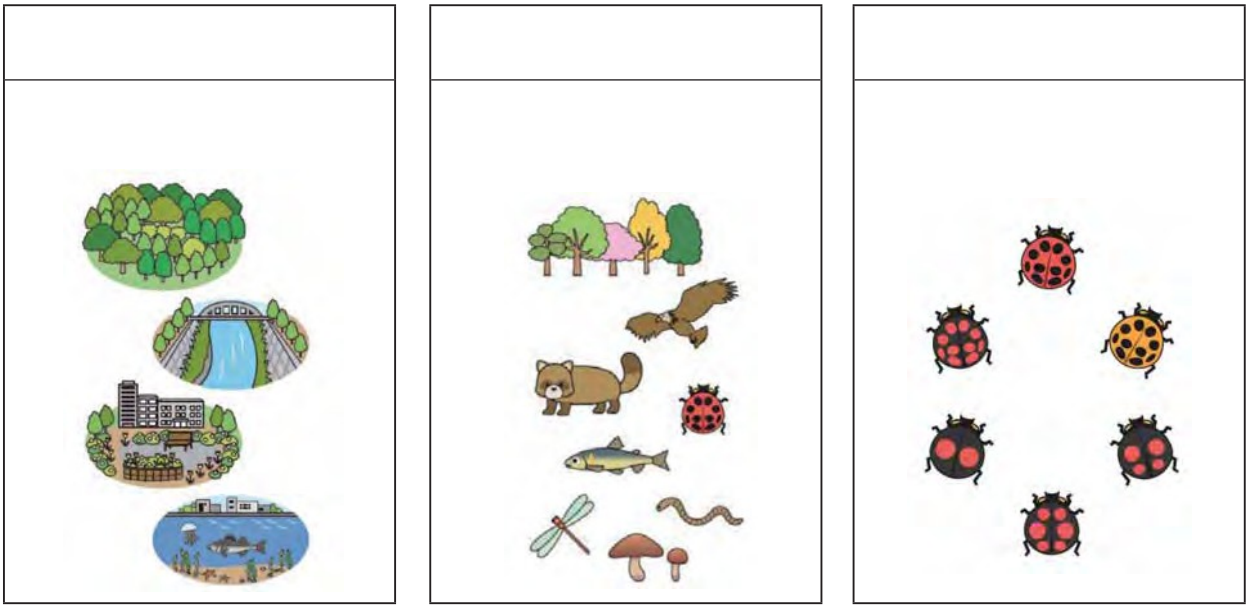
What is biodiversity?

Biodiversity refers to the rich individuality and connectivity of living things. During its long history of 4 billion years, life on earth has evolved by adapting to various environments, giving birth to a diversity of creatures said to be as many as 30 million species. Each of these lives has its own individuality, and they all live by supporting each other directly and indirectly.

Three Levels of Biodiversity

The Convention on Biological Diversity defines "biological diversity" as "all the expressed diversity of living organisms," with diversity at three hierarchical levels.

(1) Biodiversity of ecosystems	(2) Biodiversity of species	(iii) Biodiversity of genes
The presence of various types of natural environments	The variety of living things, from microorganisms to plants and animals	Having different genes and various personalities within the same species



Four ecosystem services - Blessings of biodiversity～

Our lives are supported by the blessings provided by ecosystems based on biodiversity. These blessings are called ecosystem services.

Ecosystem services can be divided into four categories based on their function.

(1) Supply Service	Blessings that provide the resources we need for our daily lives, including food, water, timber, paper, clothing, fuel, and medicine
(2) Coordination Service	Forests prevent floods and landslides, purify water, regulate the climate, and provide other blessings that protect the safety and security of our lives.
④Basic Services	The blessings support the supply of services (1) to (3), such as the generation of oxygen through photosynthesis, the formation of soil through the decomposition of fallen leaves, dead plants and animals by microorganisms, and the circulation of water and nutrients, and provide the basis for the survival of all life, including human beings.
(iii) Cultural services	Blessings that nurture a rich culture, including community-based festivals, cuisine and customs, recreational activities such as cherry blossom viewing and forest walks, and peace of mind

Four Biodiversity Crises

According to the "National Biodiversity Strategy 2012-2020 Summary Version," the following four causes are responsible for the rapid extinction and decline of living organisms.

Although mass extinctions have occurred in the past due to natural phenomena and other factors, this is now being referred to as the sixth mass extinction. The rate of extinction of species on the earth is about 100 to 1,000 times faster than in the natural state, mainly due to the effects of human activities, and many living creatures are in danger.

(i) Crisis due to human activities such as development

Development has reduced or worsened the habitat and growth environment of living creatures. In addition, the number of living creatures is decreasing due to overhunting.

(2) Crisis due to reduced outreach to nature

Lack of care for wooded areas, fields, and satoyama has led to a decrease in the number of living creatures that inhabit and grow there.

(iii) Crisis caused by things brought in by humans

Toxic chemicals are having a negative impact on living creatures. In addition, non-native species are eating creatures that were originally in the area and taking away their habitat, growth environment, and food.

④ Crisis due to global environmental change

Climate changes due to global warming and other factors have eliminated habitats and growth environments for living creatures, or caused them to become extinct.

Biodiversity, which sustains our lives and livelihoods, is in a critical condition due to human intervention. We need to act now so that we can continue to enjoy the richness of biodiversity for years to come.

Colum

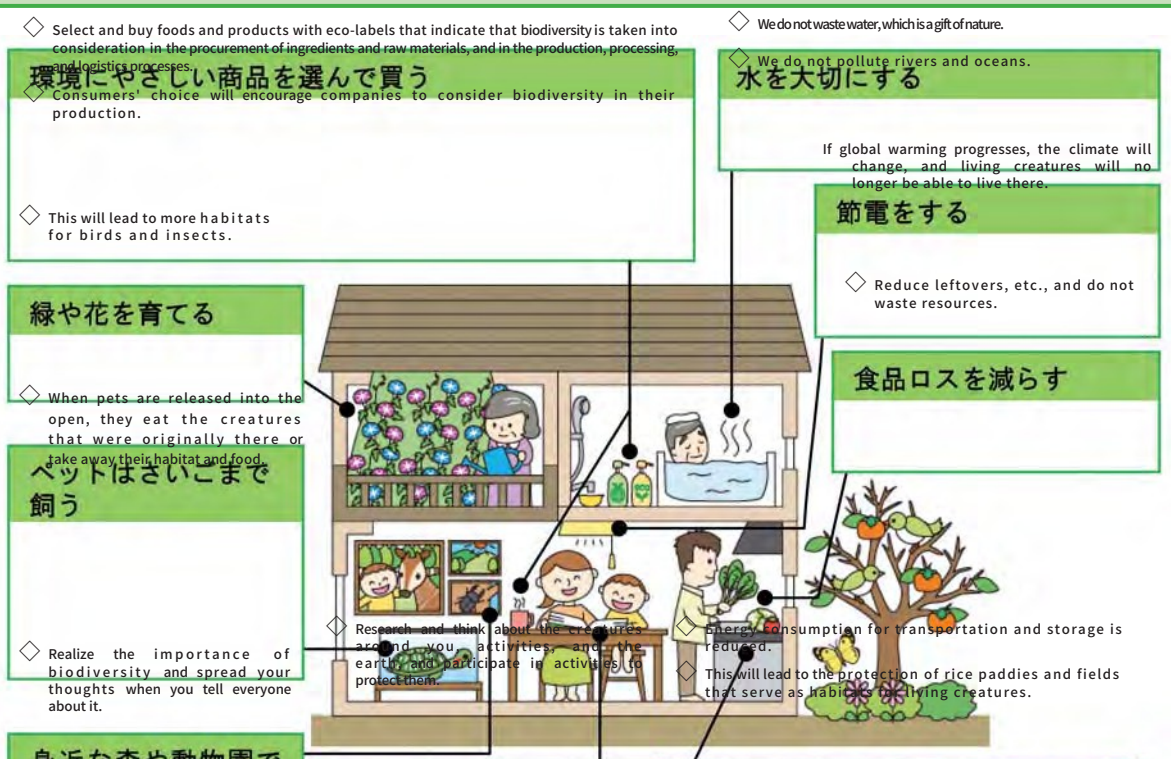
What we can do to protect biodiversity

We will protect the biodiversity that sustains life on earth and our livelihoods, and we will continue to rely on the blessings of biodiversity for the future.

There are things we can do now to ensure that people can continue to lead affluent lifestyles in the future.

A little ingenuity and care by each of us in our daily lives will help protect biodiversity. Furthermore, if we expand our efforts to the community, our peers, and our workplaces, we will become a great force for good.

Think about why actions you can take around you can contribute to biodiversity!



The Japan Committee for the United Nations Decade on Biodiversity (UNDB-J), established in September 2011 to promote participation and cooperation among all sectors in Japan and to promote initiatives to conserve biodiversity, is calling for five actions that can be taken to protect biodiversity so that each and every citizen can see the relationship with biodiversity in their own lives. The UNDB-J is calling for action to be taken to protect biodiversity so that every citizen can see the relationship with biodiversity in their own lives.

MY 行動宣言

1 たべよう　2 ふれよう　3 つたえよう　4 まもろう　5 えらぼう

3 Policy

(1) Public Awareness ～Promote initiatives that enable everyone to become familiar with nature and living creatures in their urban lives and put them into practice.～

Initiatives through "b-Promotion

In order to expand the circle of efforts to deepen understanding of biodiversity, we will develop "b-promotions" to spread awareness of biodiversity in cooperation with citizens, companies, and citizen groups. In developing b-promotions, we will place children in particular in the lead role. To this end, we will protect places where children can come into contact with living creatures in their immediate surroundings and promote initiatives to increase such opportunities. The experience of "coming into contact with living things and enriching one's senses" as a child, for example by looking for fish by the water or observing insects in the forest, is very useful for later growth.

The "b" in b-promotion stands for biodiversity.

● creating a (spring) opportunity

We will promote opportunities for people to become familiar with nature around them.

We will actively publicize places where citizens can become familiar with nature and its creatures, such as civic forests, parks with woodlands, riverside bases, Yokohama Furusato Village, and Blessing Village. We will develop a variety of public relations activities, such as cooperating with various fields, organizing events, and creating guide maps.

● hands-on learning

We create opportunities for hands-on activities to enjoy and learn about nature and living creatures around us.

Citizen groups and companies serve as lecturers to share their own experiences and initiatives at lectures held at schools, local communities, and other locations. At welcome centers, parks, outdoor activity facilities, etc., citizen groups and companies will provide opportunities to experience nature and learn about the environment in cooperation with their CSR activities. In addition, the city will promote initiatives to create opportunities for citizens to interact with agriculture by opening citizen farms and holding hands-on agriculture classes.

Furthermore, we will promote the conservation of the valley environment, which is an important area as a habitat and growth environment for living creatures and valuable from the viewpoints of history, culture, and landscape, and will utilize the area as a place for hands-on learning.

In developing initiatives, we will always give due consideration to the balance between conservation and utilization.

● Environmental education and learning at zoos, etc.

The zoo and breeding center will promote awareness of biodiversity conservation through environmental education programs for schools and other groups, as well as guided tours of the zoo, special exhibitions, facility tours, and lectures. The zoo also conducts educational activities on wild injured and sick birds and animals brought to the zoo by citizens for protection.

Public awareness of invasive species

We will promote awareness-raising activities to ensure that people correctly understand the problems caused by invasive alien species, such as their major impact on ecosystems, human health, and agriculture, forestry, and fisheries, and what each and every citizen can do to prevent damage.

Support for activities and collaborative efforts with citizen groups, businesses, etc.

To promote the development of environmental activities by citizens' groups, communities, schools, companies, etc., such as activities that allow children and other citizens to experience living things in their daily lives and biodiversity conservation activities, we provide support through an award system, activity subsidy system, training programs for human resource development, and opportunities for collaboration and information exchange.

In addition, as a member municipality of the "Local Governments Network for Biodiversity," we will share and disseminate information with other local governments throughout Japan and collaborate with various entities as part of domestic and international collaborative efforts.

Spreading biodiversity-conscious consumption behavior

Promote biodiversity-conscious consumption and lifestyles in cooperation with citizen groups. We will expand opportunities for people to experience local production for local consumption by supporting the development and operation of direct sales outlets, etc. and promoting PR activities. In addition, we will promote and raise awareness of environmental certification systems, etc., which are awarded to biodiversity-conscious products and services.

(2) Conservation, Restoration and Creation ～(2) Conservation, revitalization, and creation～

● Efforts focusing on preservation of habitat and growth environment of living creatures

We will conserve cohesive forests (woodlands) and farmlands that form the core of the green network, and nurture the conserved greenery together with diverse entities to pass it on to the next generation.

In addition to preserving forested areas through the expansion of designation under the green space preservation system and purchase by the city, we will promote the creation of good forests while taking into consideration the safety of users and the area surrounding the forested area, so that the various functions expected of a forest can be fulfilled. Forest creation will be carried out in accordance with a conservation and management plan formulated based on the characteristics of the region, and in cooperation with various entities such as patronage associations. In addition, we support activities to conserve paddy fields and maintain agricultural land in good condition. We will conduct surveys of creatures such as designated and registered cultural properties within the city area, and preserve their habitats.

Regarding raccoons and chestnut-bellied squirrels (Formosan ground squirrels), which are specified invasive alien species, we will promote efforts to support their capture as part of measures against damage to the lives of citizens caused by wild animals.

● Species conservation efforts in zoos (ex situ conservation)

At the zoo and breeding center, in cooperation with zoos and habitats in Japan and abroad, we will work on the conservation and breeding of animals that are in danger of extinction worldwide, including rare animals living in Yokohama City and Japan, as the city's central facility in species conservation. We will also promote research related to wildlife conservation, including gene and sex hormone analysis, artificial insemination techniques, and preservation of genetic resources such as sperm, oocytes, and somatic cells.

● Efforts Focused on Revitalization

We will promote efforts to restore the environment, including water and greenery, which will contribute to the improvement of biodiversity.

We promote the development and maintenance of water and green environments such as rivers, parks, and roadside trees that serve as habitats and nurturing environments for living creatures. In addition, we support the activities of citizen groups and other organizations working to conserve biodiversity.

While taking into consideration the connection with the surrounding environment, we will promote the development of waterfront centers that can be used by citizens as places for familiarization, nature experience, environmental education and learning, habitat and growth environment for living creatures, management of rainwater control reservoir biotopes, and creation of multi-nature rivers.

We aim to create rivers where more living creatures can inhabit and grow by developing citywide efforts to create rivers where ayu (sweetfish), which prefer clean waters and are an indicator of improved water quality and continuity between rivers and the sea, can come back to the rivers. To improve water quality in rivers and the sea, we will introduce advanced treatment and expand treatment facilities in conjunction with the renewal of facilities and equipment at the Water Reclamation Center. We will also work to eliminate households with unused or unconnected sewage systems and to monitor and provide guidance on wastewater discharged from factories.

Through citizen cooperation and coordination with roads, parks, etc., we will promote the installation of rainwater infiltration cisterns, in-home rainwater infiltration cisterns, and rainwater storage tanks in order to revitalize the water cycle.

Creation-focused initiatives

We will promote the creation of greenery that will not only enrich and comfort citizens, but also contribute to the preservation of biodiversity by providing a habitat and nurturing environment for living creatures.

We will create seasonal greenery that matches the characteristics of the area and facilities in places where many citizens can see it, and we will secure land for land use conversions and other opportunities to create lush green spaces. In nursery schools, kindergartens, elementary and junior high schools, which are spaces for nurturing children, we will work to create spaces where children can interact with living things. We will support citizens and businesses that are actively engaged in creating and nurturing greenery, including community-led initiatives to create greenery appropriate to the community.

In the Tokyo waterfront area and other areas, we will promote the improvement of the attractiveness and liveliness of the city through the use of greenery and flowers.

Forest of Connection

Rich ecosystems are nurtured by the habitats and growing environments of living creatures in woodlands, rivers, farmlands, and parks, as well as by the connections among living creatures and the diverse entities involved, such as activity groups, citizens, and businesses. In the area rich in natural resources, centered around the Enkai Mountain area in the southern part of the city, from the Itachi River to the Koshiba district,

In July 2012, we formulated the "Yokohama Tsunagari no Mori" concept.

The Yokohama Biodiversity Center has set a future vision of "all citizens experiencing and being moved by the 'Yokohama Tsunagari Forest,' a treasure trove of biodiversity in Yokohama, and passing it on to the next generation and generations to come." While maintaining a balance between conservation and utilization, the center promotes activities based on the two pillars of "valuing the diversity of living things" and "enjoying nature.

In our efforts to "cherish the diversity of living things," we will conserve and further enrich biodiversity in green spaces and waterside areas that are familiar to citizens. We aim to improve the habitat and growth environment of living creatures by ensuring continuity between green areas and waterfront areas and connecting them.

In the "Enjoying Nature" initiative, we will work with a variety of entities to promote awareness-raising and human resource development among citizens, especially children, and to ensure that the Yokohama Forests of Connection will be a link to the future. The zoo area of Kanazawa Nature Park (Kanazawa Zoo) will be redeveloped as a facility where visitors can enjoy and learn about the relationship between human life and nature through animals and plants, including animals and insects that live in the forests of Yokohama and Japan. The zoo area of Kanazawa Nature Park (Kanazawa Zoo) will be redeveloped as a facility where visitors can enjoy and learn about the relationship between human life and nature through animals and plants, including animals and insects living in the forests of Yokohama and Japan.

(3) Creation of mechanisms　～Promote the creation of a mechanism to address conservation, evaluation, etc.～

● Yokohama Creature Exploration　Living Creature Investigation

We will conduct surveys of living organisms in order to understand the actual status of the biota in Yokohama City. In addition, we will continue to accumulate and utilize the data from these surveys.

Conduct ongoing biological surveys of terrestrial and aquatic areas, as well as surveys of ponds and headwaters in the park in response to policy and other needs.

We will conduct a survey of living creatures with the participation of citizens in order to increase interest in local nature and living creatures, as well as to obtain basic data for biodiversity conservation.

In recent years, with the advancement of ICT-related technologies and the spread of smartphones, an environment is being created in which citizens can collect, transmit, and share information on a daily basis. We will collaborate with citizens, businesses, universities, and other organizations on the efficient collection and accumulation of data and the conversion of data into open data in response to utilization needs.

Colum

Examples of data collection and accumulation of living organisms through citizen participation

～Citizen Science in Practice～

Since 2013, Yokohama City has been conducting the "Children's 'Iki-iki' Living Things Survey" in which children in municipal elementary schools are given a survey form and asked to report living things they see or hear near their homes or schools during summer vacation. In FY2017, 13,695 children from 189 of 341 municipal elementary schools participated in the survey.

Through this survey, we are trying to increase children's interest in local nature and living creatures, as well as to understand the distribution of living creatures in the city area. The survey results are published on the Yokohama City website and shared with citizens.

Fig. Children's "Iki-Iki" Living Creature Survey Questionnaire

● Creating a lively environment for living creatures

From the viewpoint of biodiversity, we will promote measures to conserve and guide the habitat and growth environment of living creatures according to the characteristics of the region, as well as the creation of a system for the development and maintenance management methods of the habitat and growth environment of living creatures.

Ten major green centers and their surroundings

In the 10 major green areas, a variety of natural environments remain, including grasslands and farmlands, as well as large-scale forested areas. From the viewpoint of biodiversity, they are valuable habitats and nurturing environments for living creatures, including rare species.

We will promote conservation, mainly through designation under the Green Space Preservation System, and increase biodiversity through appropriate maintenance and management.

10 The area around the major centers is an important buffer zone (zone of protection) for the environment. With waterways, rivers, lush parks, residential gardens, and other greenery, it is an important area from the perspective of creating a "living link" for birds, butterflies, and other creatures, as well as a place for citizens to feel close to living things, and therefore, conservation, restoration, and creation efforts will be promoted.

Urbanizing urban areas

In highly urbanized areas such as waterfront areas and urban areas undergoing development, efforts are required to restore the habitat and growth environment for living creatures so that citizens can experience the richness of living in a green city. We will actively promote the creation of greenery and other activities to attract back living creatures by utilizing park greenery, roadside trees, shallow water areas, rivers, and other areas.

Network Locations

Wooded areas in parks, biotopes in schools, ponds, roadside trees, shrine and temple forests, rivers, and shallow water areas around the 10 major green centers and in urban areas are places where biodiversity has been protected and created mainly through the relationship between people and nature. These need to continue to be conserved as important "network centers" for living creatures. By ensuring the quality, quantity, and continuity of water and greenery, we will preserve and create habitats, growth environments, and migration routes for living creatures.

Figure: Image of connection with living creatures and environment

City Hall's initiative

Yokohama City Hall will take the lead in promoting biodiversity initiatives throughout the city in cooperation with citizens and businesses. We will hold case study presentations and training sessions to share the biodiversity initiatives implemented by various departments in accordance with the characteristics of their respective operations, as well as the wisdom, experience, and know-how cultivated in the field, and to expand these initiatives throughout the City of Yokohama.

(4) Community development and economic activities ~Promoting support for community development and economic activities that contribute to biodiversity～

● Community development that contributes to biodiversity

We will take various opportunities to contribute to biodiversity by creating a favorable water and green environment and promoting measures to combat global warming.

We will promote community development that contributes to the community.

For example, in the area around Yokohama Station, we aim to create an advanced community that addresses environmental issues, such as the creation of a variety of water and greenery, including tree species, greenery, and biotopes that take biodiversity into consideration.

In the Minato Mirai 21 district, we will consider smart urban development that incorporates measures against global warming and BLCP (Business and Life Continuity Plan). In addition, we will aim to realize an urban structure that takes biodiversity into consideration. We will promote the improvement of the quality of greening throughout the district, including public spaces such as street trees and parks.

● Sea of Connections

In order to make the sea, one of the symbols of Yokohama, a place where citizens can feel more familiar with many living creatures, we will promote efforts to create a rich sea in cooperation with various entities.

The oceans are closely connected to forests and other terrestrial areas and rivers through the flow of water, sediment, nutrients, etc., and fish runs.

Especially in coastal areas, biodiversity and water purification are deeply related, as organic matter, total nitrogen, total phosphorus, and other substances flowing into the water from rivers are removed by storage by algae, filtration by shellfish, and removal by fish and birds. Therefore, in the coastal area, we will promote environmental conservation activities such as the creation of shallow areas and seaweed beds, the development of seawalls in harmony with living organisms, and the improvement of the underwater environment, as well as environmental education and learning, in cooperation with various entities, in order to create a more attractive sea where a variety of living creatures can live and grow.

In addition, we will promote "Yokohama Blue Carbon," a global warming countermeasure that utilizes marine resources such as seaweed, sea grass, and seawater heat utilization. By combining environmental education, learning, and awareness-raising activities, we will simultaneously promote global warming countermeasures and the creation of an ocean that is friendly to citizens.

● Economic activities that contribute to biodiversity

Efforts are being made in various aspects of economic activities to contribute to the preservation and creation of habitats and growing environments for living creatures, such as consideration of preserving nature in development, greening of sites, and procurement of raw materials in consideration of biodiversity.

We will actively publicize the biodiversity and other environmental initiatives that companies are proactively undertaking, utilizing commendation programs and other means. We will also promote initiatives in cooperation with companies and citizen groups.

4 Examples of Major Initiatives

(1) Public Awareness

～Promote initiatives that enable everyone to become familiar with nature and living creatures in urban life and put them into practice.～

- Environmental Education Delivery Lecture (YES! on Biodiversity)
- Creating Fun in the Forest
- Promotion of initiatives to help citizens enjoy and support agriculture
- Environmental education and learning at zoos, etc.

(2) Preservation, regeneration and creation

～according to the characteristics of the region.

Promoting Conservation, Restoration and Creation Initiatives～

- Preservation of paddy fields
- Expansion of designations under the Green Space Preservation System
- Promote forest development focusing on the diverse functions of forests
- Rare Animal Conservation Efforts
- Efforts to support the capture of raccoons and chestnut-backed squirrels (Formosan ground squirrels), etc.
- Creating a river where ayu can run upstream
- Green town planning in cooperation with citizens and businesses
- Kanazawa Nature Park (Kanazawa Zoo) redevelopment

(3) Creating a mechanism

～Work on conservation, evaluation, etc.

We will promote the creation of a mechanism.～

- Biological habitat monitoring surveys
- Promote surveys of living organisms with citizen participation

(4) Community development and economic activities

～Community development that contributes to biodiversity and

Promote support for economic activities～

- Promoting Environmental Initiatives at Excite Yokohama 22
- Promotion of Minato Mirai 2050 Project
- Promote greening of public spaces in the Minato Mirai 21 district
- Creating a rich ocean
- Promote local production for local consumption in cooperation with citizens and businesses

Colum

Protecting Yokohama's diverse natural environment together

Yokohama City has a diverse natural environment that includes woodlands, farmlands, rivers, and the sea. The greenery of the watershed and the sea are connected by rivers, and each has a close relationship with the other through the flow of water, sediment, nutrients, and other elements, as well as fish runs. For example, preserving forested areas not only directly protects the environment of the forested areas, but also the river and the ocean.

In addition to protecting the natural environment, deepening understanding of biodiversity through hands-on environmental education/learning and environmental activities will also lead to conservation and sustainable use of biodiversity.

In order to protect the diverse natural environment of Yokohama together with everyone, we are promoting various initiatives in cooperation with citizens, companies, and others.

■Conservation of remaining greenery in the city area

- We are working to conserve woodlands and farmlands, which provide valuable habitats and nurturing environments for living creatures.

■Cultivation of good forests

- In the forest areas that have been conserved, we will work with various entities, such as patronage associations, to create good forests in accordance with the forest development guidelines and conservation and management plans established for each forest.
We are working on forestation.

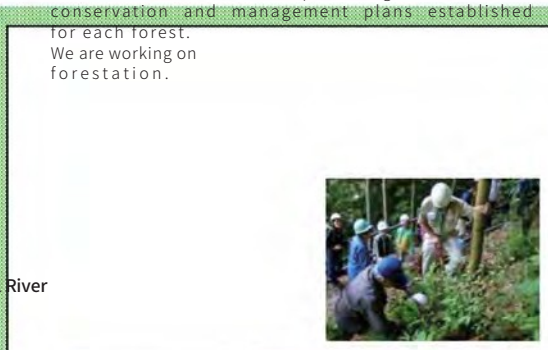
緑の環境を守る取組

Habitat and growth environment for living creatures

Conservation - Creating a Multi-natural River

Taking advantage of river improvement and other opportunities, we are working to create a multi-nature river by taking into consideration vegetation at the water's edge and installing fishways.

- Also, in the Mail River, the river～
We are working to create a river that allows ayu (sweetfish) migrating to the sea to return to the river.



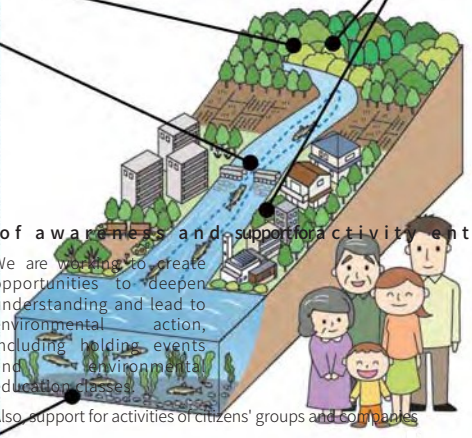
川の環境を守る取組

■Creating a rich ocean in cooperation with companies, etc.

- We are also promoting environmental [illegible] efforts through the formation of seaweed [illegible] and the creation of shallow areas in cooperation with companies and other organizations, as well as nature study events and other initiatives.

■Promotion of awareness and support for activity entities.

- We are working to create opportunities to deepen understanding and lead to environmental action, including holding events and [illegible] environmental education classes.
Also, support for activities of citizens' groups and companies and collaborative efforts are also underway.



海の環境を守る取組

環境活動を広げる取組

Colum

Role of Zoos in Biodiversity Conservation and Initiatives at Municipal Zoos

Four Roles of the Zoo

Zoos have four roles: recreation, species conservation (preservation) environmental education, and research and investigation.

In recent years, however, the Convention on Biological Diversity (CBD) has been enacted in response to the threat of species extinction. The National Biodiversity Strategy established based on the Convention has created an action plan for the conservation of the natural environment and rare animals, and the importance of working for the conservation of biodiversity on a global scale is increasing.

Against this backdrop, zoos are now required more than ever to take actions to conserve species, such as rare animals from Japan and abroad, as part of biodiversity conservation.

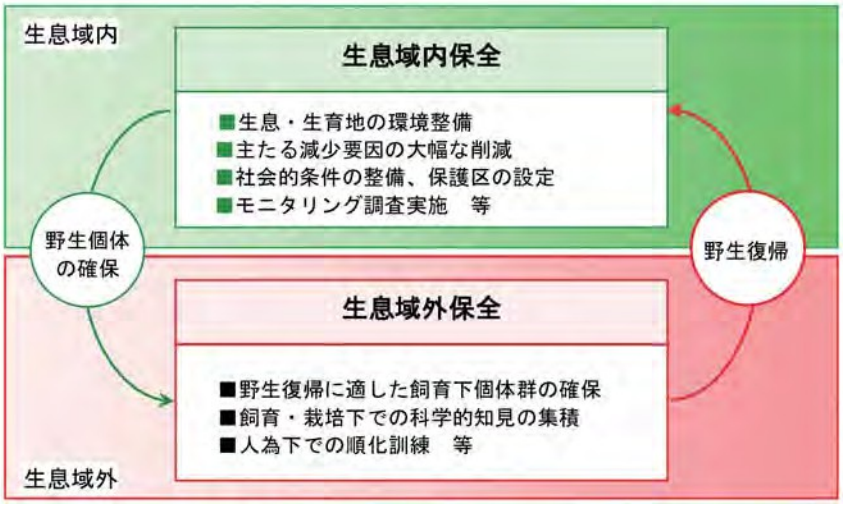
Efforts to conserve species

Living creatures are often threatened with extinction due to habitat development and poaching, etc. In order to preserve species, it is first necessary to protect and improve the environment of their habitats. Such efforts are called "in-habitat conservation. However, there are various factors that cause the habitat environment to deteriorate, and improving these factors is not easy and time-consuming. Therefore, it is necessary to avoid extinction by once protecting the creatures to facilities outside their habitat and breeding them in captivity. This kind of ex situ conservation of rare animals is called "ex situ conservation," and zoos play an important role in ex situ conservation efforts. In 2018, the Ministry of the Environment established the Certified Rare Species Conservation Zoo and Botanical Garden System in order to further promote ex situ conservation efforts in zoos.

The zoo's "ex situ conservation" efforts preserve species by promoting breeding while maintaining genetic diversity, and also by accumulating valuable data to conduct research on species conservation.

Furthermore, zoos are also required to serve as a bridge between "ex situ conservation" and "in situ conservation," returning the results of their efforts, such as cooperation in reintroduction to the wild, to the habitat.

In-habitat conservation and ex-habitat conservation processed based on "Mamorou: Japanese Creatures" (Ministry of the Environment, 2018))



Initiatives at the Municipal Zoo

~Bali Crested White Mukes Returned to the Wild～

Camellia japonica 'Camurimus shiromuku' (cultivar of common camellia)

The crested white stork is a rare bird species that once inhabited only the island of Bali, where its population was once reduced to less than 20 birds. Yokohama City has been involved in the conservation of this bird since the 1970s, and since 2003, in cooperation with the Republic of Indonesia, the Yokohama Breeding Center (hereinafter referred to as "Breeding Center"),a research facility located in Yokohama Zoo Zoorasia, has been working on a local reintroduction plan for the bird.Since2003,we have been cooperating with the Republic of Indonesia in their plan to reintroduce the birds to the wild by, for example, sending birds bred at the Breeding Center to the Conservation Center in their habitat.

~ Protecting rare species close to home～

Among the creatures that once lived in places familiar to citizens, the number of species whose habitats are in danger is increasing. In order to preserve familiar creatures for the future, the Breeding Center and the Municipal Zoo are working together to protect Mizogoyi, frogs, and other species, and to study their habitat conditions and breeding techniques.

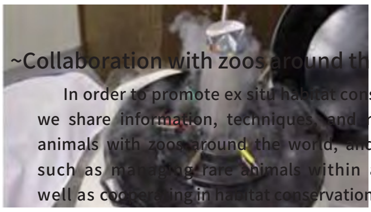
We have also begun cooperating with citizen groups to preserve habitats.

(upper left) Japanesered frog, (right) Mizogoyi

(bottom left) Reverdin's stag beetle

~Frozen Zoo (conservation of genetic resources)

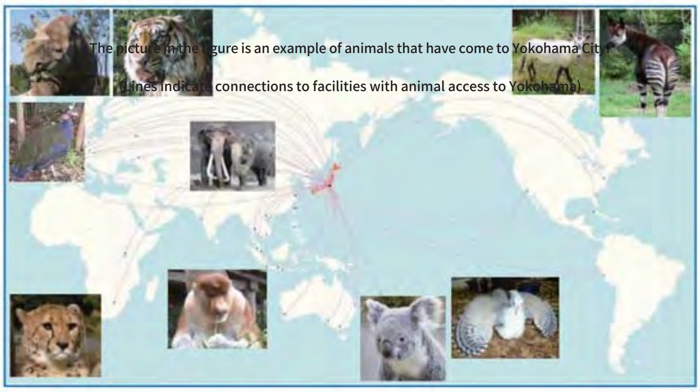
The Breeding Center freezes and preserves gametes, somatic cells, genes, etc. of rare animals bred in municipal zoos and domestic zoos as valuable resources for the next 100 or 200 years. The center also conducts research on artificial insemination using the frozen resources.



Tanks of liquid nitrogen for storing gametes, etc.

~Collaboration with zoos around the world～

In order to promote ex situ habitat conservation internationally, we share information, techniques, and research results on rare animals with zoos around the world, and promote cooperation such as mating rare animals within a global framework, as well as cooperating in habitat conservation activities.



The picture in the figure is an example of animals that have come to Yokohama City
(Lines indicate connections to facilities with animal access to Yokohama)

Basic Measure 3

water and greenery

～Conservation, restoration, and creation of an environment where people can enjoy the blessings of nature～

1 Environmental Targets by FY2025

- In addition to the preservation of cohesive forests and farmlands, new forests are being created in urban areas such as urban centers.
- The widespread use of rainwater infiltration tanks and other devices has led to increased infiltration of rainwater, which in turn has led to groundwater recharge, increased runoff, and increased water volume in rivers and waterways, thereby restoring a favorable water cycle.

Environmental conditions that serve as a guideline for achievement

- Maintain and improve the total amount of greenery (green cover)
- Expanding the designation of wooded areas under the green space preservation system
- Promote projects for water circulation functions (expand the number of rainwater infiltration canals, rainwater storage, etc.)

Goal-setting approach

- The evaluation items were the maintenance and improvement of the green cover ratio, which is an indicator of the total amount of greenery (woodlands, farmlands, and grasslands), and the expansion of the designated area of woodlands under the Green Space Preservation System, which has been promoted based on the "Yokohama Green Up Plan" since FY2009.
- Since rainwater infiltration functions need to be strengthened for the regeneration of the water cycle, the status of project promotion of water circulation functions, such as the installation of rainwater infiltration canals, was selected as an evaluation item.

Individual plans related to

Yokohama City Water and Green Basic Plan, Yokohama Green Up Plan, Yokohama City Sewerage Business Mid-term Management Plan

2 Current Status and Issues

With regard to greenery, the "Yokohama Green Up Plan," a priority green initiative based on the "Yokohama City Water and Greenery Basic Plan," has made steady progress in preserving forested areas and creating greenery in urban areas. However, there are still many forested areas in the city that need to be preserved. From the viewpoint of preserving biodiversity and demonstrating the various functions of green infrastructure, such as retaining and infiltrating rainwater for groundwater irrigation, it is necessary to continue to preserve cohesive forested areas and properly maintain and manage the greenery that has been preserved and created.

In addition, the National Urban Greenery Yokohama Fair held in the spring of 2017 attracted many visitors, with flowers and greenery attracting people and creating a lively atmosphere in the city. It is necessary to continue to promote Garden City Yokohama by enhancing the city's attractiveness, circulation, and liveliness through flowers and greenery.

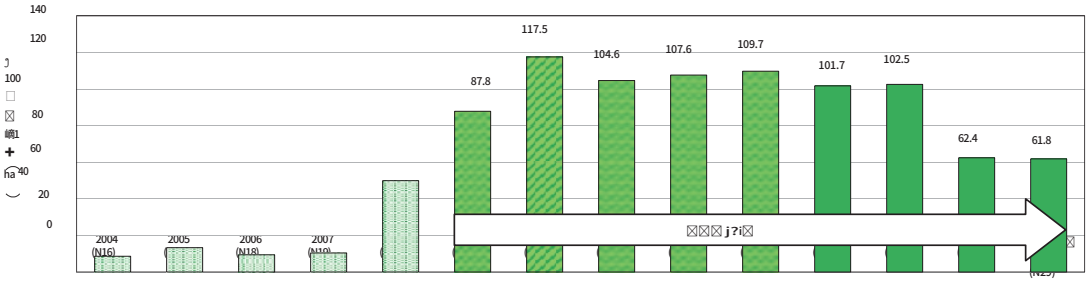


Figure: Changes in the area of newly designated green space under the Green Space Preservation System, etc.

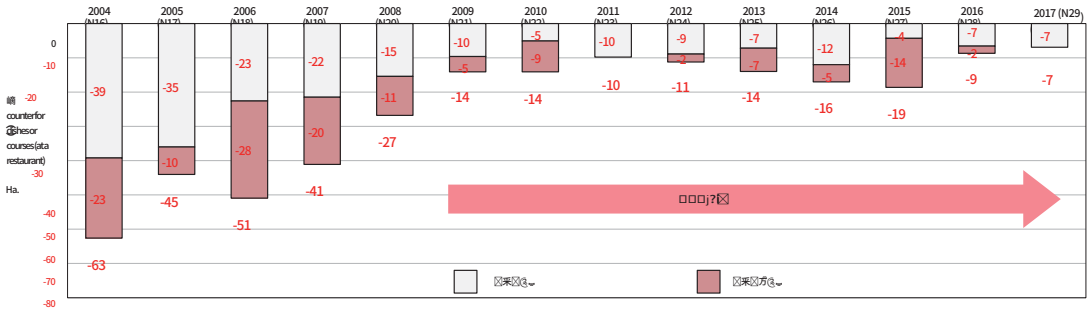


Figure Decrease in taxable land area of forests

In the water environment, efforts toward a healthy water cycle are progressing, including the installation of rainwater infiltration tanks and rainwater storage tanks. In addition, the water quality and environment of rivers and sea areas have been improved through the introduction of advanced treatment facilities, effluent discharge regulations for businesses, and river improvement that takes the natural environment into consideration, restoring the habitat and growth environment for living creatures. However, there are still areas that need to be improved for the restoration of the water cycle and rivers and sea areas that require water quality improvement. Continuous efforts are needed, including the use of green infrastructure from the perspective of the watershed.

The maintenance and utilization of the water and green environment secured so far are supported by many citizens, including various citizen groups and businesses. As the stock of water and green environment that has been preserved and created increases, the role of citizens' activities is becoming more important. In order for citizen activities to continue to be active, it is necessary to create a system that enables more citizens to participate in activities and to promote cooperation among activity groups.

3 Policy for Initiatives

(1) Promote conservation and utilization of woodlands

To preserve cohesive wooded areas in the city, we will promote the designation of green spaces under the Green Space Preservation System.

In the case of forested areas such as civic forests and city-owned green spaces, we will promote good forest development while taking into consideration the safety of users and the surrounding area, so that the forest can fulfill its various functions, such as preserving biodiversity, ensuring comfort, creating favorable landscapes, and preventing and reducing disasters. Forest creation will be carried out in cooperation with various entities, such as patronage associations. In particular, forest areas open to the public will be maintained and managed in consideration of citizen use and safety, and will be utilized as a place for nature observation, environmental education, and learning to create opportunities for citizens to become involved in the forest.

(2) Promote creation and cultivation of greenery

We will promote the creation and enhancement of greenery in public facilities, civic facilities, station plazas, and other symbols of the city that are used by many citizens, greening through the greening area system and district plans, and green city planning in cooperation with citizens and businesses. In addition, we will seize opportunities for new community development and land use conversions to create open spaces such as parks and plazas. When greening these spaces, we will create greenery that is highly visible and open to the public. The created greenery will be utilized as a local resource in cooperation with citizens, NPOs, and businesses, and will be properly maintained, managed, and nurtured.

(3) Restoration of the water cycle

By promoting initiatives that utilize green infrastructure, such as the preservation of forested areas and the construction of rainwater infiltration facilities, we will work to restore the water cycle, secure the volume of water in rivers during normal times, and control rainwater runoff during heavy rains and other events.

As part of efforts to conserve the water quality of rivers and sea areas, we will work to improve the quality of water discharge through advanced sewage treatment, etc., and to restore seaweed beds. In addition, we will conduct water quality surveys and communicate the water quality status of rivers and sea areas around us in an easy-to-understand manner.

(4) Promote preservation, creation and management of waterfront areas

Seizing opportunities such as urban redevelopment, we will promote the creation of waterfront areas that citizens can enjoy. In the development of waterfront areas, consideration will be given to biodiversity, safety, and harmony with the landscape. In addition, we will create waterfront spaces that are easy to use by integrating them with facilities used by citizens (e.g., public transportation) and parks.

Regarding maintenance and management of waterfront areas, we will properly maintain and manage facilities and conduct waterfront conservation activities in cooperation with waterfront patronage associations and other groups. In addition, we will utilize the waterfront space we have preserved and created as a place to experience nature and recreation, and promote the creation of a place where citizens can become familiar with water.

4 Examples of Major Initiatives

(1) Promote conservation and utilization of woodlands

- Expansion of designations under the Green Space Preservation System
- Promote forest development focusing on the diverse functions of forests
- Promote environmental learning and nature experiences utilizing the greenery around the Welcome Center

(2) Promote creation and cultivation of greenery

- Creation and cultivation of greenery in public facilities and public lands
- Creating attractive spaces with greenery and flowers in waterfront areas in the city center, etc.
- Green town planning in cooperation with citizens and businesses

(3) Restoration of the water cycle

- Green infrastructure-based stormwater slow-flow watershed measures
- Introduction of advanced treatment facilities at water reclamation centers

(4) Promote preservation, creation and management of waterfront areas

- Promotion of multi-nature river development
- Development of waterfront bases
- Support for activities of citizen volunteer groups such as patronage association activities

Colum

Utilizing Green Infrastructure

Promote flood control measures by strengthening rainwater infiltration functions

The utilization of green infrastructure is an attempt to utilize the functions of the natural environment, such as parks, woodlands, farmlands, rivers and waterways, and roadside trees, to solve various problems in society.

In recent years, flooding damage has been occurring frequently due to torrential rains thought to be caused by climate change and the decrease in greenery caused by urbanization. In order to reduce flooding damage and restore the function of the water cycle, greenery that retains rain in the ground and allows it to slowly percolate into the ground is being used.

We will promote measures that make use of the infrastructure.

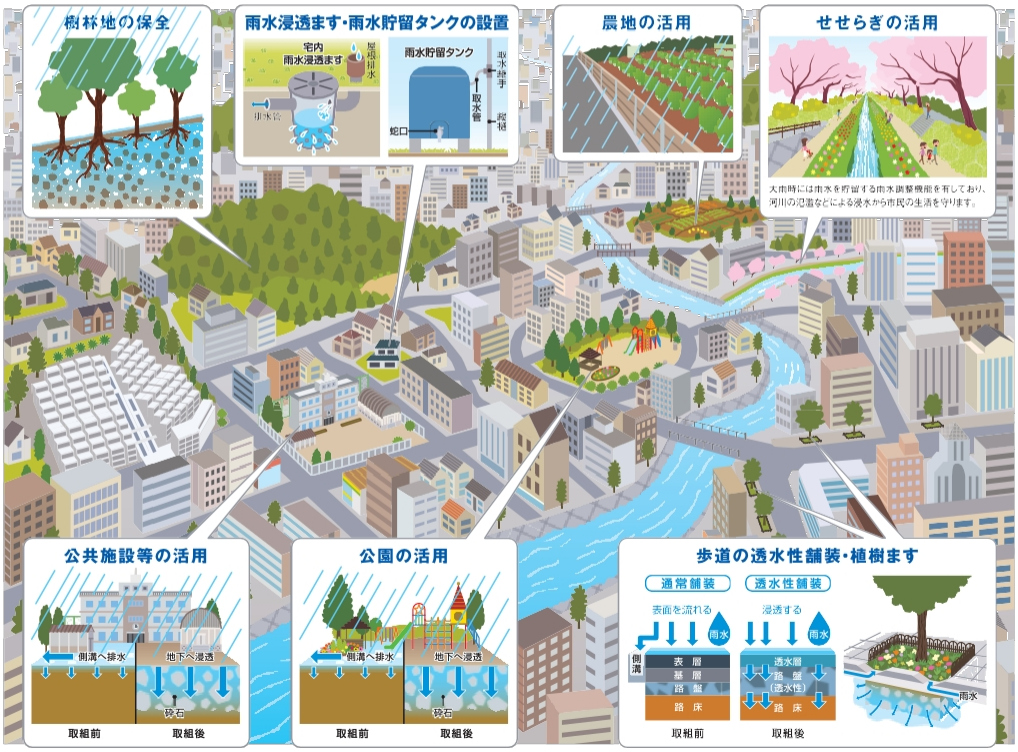


Image of Green Infrastructure Utilization

Basic Measure 4

urban agriculture

～Vibrant Urban Agriculture for the Future～

1 Environmental Targets by FY2025

- The agriculture that sustains Yokohama's food supply and urban life as a major consumption center coexist, and urban agriculture that produces a variety of agricultural and livestock products is actively pursued throughout the city while actively promoting local production for local consumption and incorporating new technologies.
- In addition to being a place for agricultural production, farmland fulfills multiple functions, including the formation of rich agricultural landscapes, preservation of biodiversity, a place for environmental education and learning, disaster prevention and mitigation, and the natural environment.
- Progress is being made in creating places where citizens can feel close to agriculture, and citizens are becoming more familiar with agriculture.

Environmental conditions that serve as a guideline for achievement

- Promotion of local production for local consumption in cooperation with citizens and businesses
- Expand opportunities to purchase agricultural and livestock products produced in the city
- Promote activities to maintain good agricultural landscapes
- Support for the establishment of farms tailored to various citizens' needs

Goal-setting approach

- The promotion of urban agriculture is based on the "Yokohama Urban Agriculture Promotion Plan" formulated in accordance with the Yokohama City Ordinance on Local Production for Local Consumption and the Basic Plan for Water and Greenery, etc. The plan has two pillars: efforts to promote sustainable urban agriculture and efforts to create places where citizens can feel agriculture close at hand.
- The Yokohama Green Up Plan also includes the following two initiatives to promote local production for local consumption: "Promotion of local production for local consumption in cooperation with citizens and businesses" and "Expansion of opportunities to purchase agricultural and livestock products produced in the city". Promotion of activities to maintain a good agricultural landscape" as an initiative to demonstrate the multifaceted functions of farmland, including landscape formation, preservation of biodiversity, and rainwater retention and infiltration as green infrastructure. The "support for opening farms that meet the needs of various citizens" was selected as an evaluation item to provide citizens with a place to interact with agriculture.

Individual plans related to

Yokohama Green Up Plan, Yokohama Urban Agriculture Promotion Plan

2 Current Status and Issues

The City of Yokohama has been working to create a city where urban life and agriculture coexist, by designating farmland in the Urbanization Control Area, which is a mosaic of urban areas, as agricultural zones, and promoting infrastructure development and production promotion measures. At the same time, the city has pioneered the implementation of urban agriculture measures such as farmland preservation, production promotion, and support for farmers in all areas of the city, including farmland in urbanized areas close to citizens and cohesive farmland in suburban areas. As a result, agriculture is being conducted in places close to citizens, providing opportunities for citizens to experience agriculture and promoting local production for local consumption, which is unique to Yokohama. It is necessary to continue to respond to the background and social changes surrounding agriculture in Yokohama. Specifically, it is necessary to continue to promote efforts to increase agricultural income through efficient production of agricultural and livestock products and high value-added products to stabilize agricultural management, to foster and support bearers who support Yokohama's agriculture, to redevelop production infrastructure facilities for efficient agricultural production, and to consolidate agricultural land.

In addition to supporting farmers to stabilize their farming operations, it is also important to create opportunities for citizens to experience agriculture close at hand. More and more citizens are seeking opportunities to interact with agriculture, such as enjoying growing vegetables as a leisure activity or casually harvesting vegetables and fruits. Citizens' interest in food and agriculture is high, and efforts to promote local production for local consumption need to be further promoted.

Colum

Family Farming Experience Classes

~Providing a place where citizens can experience agriculture close at hand～

Do you know how vegetables grow and what kind of work is required before they reach your dinner table? The "Family Farming Experience Lecture" is for families with elementary school children to experience a series of farm work, from planting sweet potato and rutabaga seedlings to harvesting them. The course includes weeding, fertilizing, setting up bird repellents, and gathering soil to make it easier for the fruits to grow in the fields of the Environmental Activity Support Center.

Soiling of rhododendron ticifolium

Participants commented, "I learned the difficulty of farming, which is affected by the weather," "It's hard work, but it felt good to have a clean field," and "Even if it doesn't look good, the food we grow tastes good. By working together as a family, it seems that they are able to enjoy conversation at the dinner table about how the vegetables were grown.

This course is one of the educational opportunities for children who will support the coexistence of agriculture and urban life in the future.

Planting sweet potatoes

3 Policy

(1) Promote sustainable urban agriculture

To stabilize and improve the efficiency of agricultural management, we will support the introduction of equipment necessary for production, sales, distribution, etc., and promote the creation of models for initiatives to increase the added value of agricultural and livestock products, etc. In addition, we will develop agricultural production infrastructure and support the improvement of the farming environment necessary for agricultural production. In addition, in order to promote effective use and intensification of farmland, we will conduct surveys on the use of farmland and promote the leasing of farmland to farmers who wish to expand the size of their farms and newcomers to the farming industry.

Regarding the development of bearers who support Yokohama's agriculture, we will train and support core bearers in the region who are ambitiously engaged in agriculture, according to the needs of the bearers.

(2) Create a place where citizens can feel agriculture close at hand

While focusing on the various functions and roles of farmland, we will preserve the agricultural landscape, open citizen farms, and create a "platform for agriculture. (Yokohama Farm" (a place for networking and connecting various entities involved in local production for local consumption, such as producers, businesses, and consumers) and promotion of local production for local consumption through active promotion of "Yokohama Farm", and other efforts to create opportunities for citizens to feel familiar with agriculture.

4 Examples of Major Initiatives

(1) Promote sustainable urban agriculture

- Improvement and renovation of agricultural production infrastructure and facilities
- Promotion of effective utilization and intensification of agricultural land
- Promotion of efforts to increase the added value of agricultural and livestock products

(2) Create a place where citizens can feel agriculture close at hand

- Support for continued conservation of rice paddies
- Promote activities to maintain good agricultural landscapes
- Establishment of farms to meet various citizen needs
- Support for the development and operation of direct sales centers, etc.
- Promotion of "Yokohama Farms

Basic Measure 5

resource recycling

～Building a Recycling-Oriented Society～

1 Environmental Targets by FY2025

[General waste]	• An environmentally friendly lifestyle and business style in which everyone cooperates with each other and everyone practices the 3 R's has become widespread. • Waste disposal systems with less environmental impact are being built. • A clean and beautiful town has been achieved. • A livable city where all citizens do not have to worry about garbage has been realized.
[Industrial waste]	• Yokohama is making progress in reducing, recycling, and properly disposing of industrial waste generated or disposed of in the city.
[Disaster waste]	•A "rapid treatment and disposal" system has been established.

Environmental conditions that serve as a guideline for achievement

[General waste]	• Reduce total emissions (total amount of waste and resources) by 10% or more (approx. 130,000 tons) compared to FY2009 • Reduce greenhouse gas emissions from waste disposal by 50% or more (approx. 140,000 t-CO_2) compared to FY2009 • Reduction of final disposal volume through further promotion of 3Rs
[Industrial waste]	• Thorough guidance on proper disposal of industrial waste
[Disaster waste]	• Promote initiatives in collaboration with citizens and businesses that match the characteristics of each region of the city

[Goal-setting concept].

[General Waste] • Based on the "Yokohama City Basic Plan for General Waste Disposal (Yokohama 3R Dream Plan)" the evaluation item was to reduce the total amount of waste and resources generated by 10% by promoting the 3Rs, especially the most environmentally friendly Reduce (reduce generation) efforts.
• In promoting citywide decarbonization efforts, the reduction of greenhouse gases generated from waste disposal was also an evaluation item.

[Industrial waste] • Because a large amount of industrial waste is still expected to be generated from Yokohama City, The evaluation item was to further reduce the final disposal volume based on the "Seventh Yokohama City Industrial Waste Disposal Guidance Plan (FY2016-2020)" and to thoroughly implement the guidance.

[Disaster Waste]• In order to promote more rapid disposal of disaster waste, the status of promotion of efforts in cooperation with citizens and businesses based on the "Yokohama City Disaster Waste Disposal Plan" was set as an evaluation item.

Individual plans related to

Yokohama City Basic Plan for General Waste Disposal (Yokohama 3R Dream Plan) The 7th Yokohama City Industrial Waste Disposal Guidance Plan, Yokohama City Disaster Waste Disposal Plan

2 Current Status and Issues

[General waste]

- In order to realize a recycling-oriented society that reduces consumption of natural resources and environmental impact as much as possible, we are promoting initiatives centering on the most environmentally friendly of the 3Rs, Reduce (Reduce Generation), as well as sorting and recycling.
- In order to reduce waste, it is important to reduce food waste, which accounts for about 35% of burnable waste, and especially food loss (about 111,000 tons per year (estimated in FY2015), which is food that should be eaten but is thrown away. Food loss in Japan is estimated to be approximately 6.64 million tons per year (estimated in FY2015), which is equivalent to about twice the amount of food aid provided by the United Nations World Food Programme (WFP) to the entire world. As we depend on production in other countries for much of our food, we are called upon to appreciate the importance of food and not to waste it.
- Facilities such as incineration plants, relay transportation facilities, and sorting facilities, which are used to steadily promote resource recycling through the 3Rs, are aging and frequently experiencing problems such as incinerator stoppages. Along with daily repairs, drastic measures must be taken to ensure stable operation. In addition, since there is growing social demand for renewable energy sources such as waste power generation, it is necessary to study how to effectively create and utilize energy. The Minami Honmoku Block 5 Waste Final Disposal Facility (put into service in October 2017) needs to be used carefully and for as long as possible.

[Industrial waste]

- Yokohama's waterfront area forms one of the world's leading industrial zones and is home to a diverse range of manufacturing industries, including electronics, machinery, and automobiles. The wide variety of business activities that take place there generate approximately 10 million tons of industrial waste per year.
- Although the final disposal volume in FY2020 is expected to decrease compared to the FY12 actual volume, we must continue to provide guidance for further reduction of final disposal volume in order to realize a recycling-oriented society.
- Hazardous wastes such as asbestos and PCB wastes may have a serious impact on the environment, so it is necessary to thoroughly instruct businesses on the proper disposal of such wastes.
- It has been observed that an excessive amount of construction waste generated during demolition work is stored at material storage sites in urbanization control areas, etc. Therefore, it is necessary to thoroughly instruct businesses to comply with storage management standards.

[Disaster waste]

- In recent years, large-scale disasters caused by earthquakes and torrential rains have occurred in many parts of Japan. For their recovery and reconstruction, it is essential to dispose of disaster waste as soon as possible. To this end, it is important to quickly establish a treatment system and take action in cooperation with citizens and businesses after a disaster strikes.

3 Policy

[General waste]

(1) Environmental education and public awareness

To ensure that information is delivered to citizens, we will enhance and strengthen the educational functions of collection offices and incineration plants, actively disseminate information and environmental learning to the community, and promote 3Rs and other environmental actions in cooperation with the community, with the aim of establishing voluntary and spontaneous initiatives.

(2) Promotion of Reduce

Together with citizens and businesses, we will promote initiatives to reduce waste by not producing or receiving items that become waste, and we will build a unique Yokohama Reduce Model with the aim of developing into concrete initiatives.

(3) Promotion of proper disposal

In addition to promoting thorough separation of garbage and beautification of the community, we will strive to reduce the environmental impact of the disposal of waste that remains even after promoting the 3Rs. In addition, to ensure safe and stable disposal, we will promote the maintenance and renovation of incineration plants and final disposal facilities.

[Industrial waste]

(1) Promotion of a recycling-oriented society

For businesses that generate large amounts of industrial waste, we promote voluntary efforts toward 3R and proper disposal by businesses through the "Voluntary Waste Management Program" implemented in cooperation with Kanagawa Prefecture, Kawasaki City, Yokosuka City, and Sagamihara City. In addition, we promote the 3Rs of construction waste, which accounts for approximately 30% of the total industrial waste generated, as well as the smooth operation of the Construction Recycling Law to promote sorted demolition and recycling of specified materials.

(2) Promote safe and secure waste disposal

We will inform and provide guidance on the proper disposal of hazardous wastes such as asbestos and PCB wastes. We also conduct on-site inspections of industrial waste generators and disposers, and provide guidance on compliance with legal standards and the use of industrial waste management sheets.

[Disaster waste]

(1) Conduct a variety of disaster drills

In order to make the "Yokohama City Disaster Waste Disposal Plan" workable, various drills will be conducted to establish a system for disposal in the event of a disaster.

(2) Public relations and information dissemination to citizens

From normal times, publicity and information dissemination will be conducted in order to deepen interest and understanding of disaster waste among citizens and businesses.

4 Examples of Major Initiatives

[General waste]

(1) Environmental education and public awareness

- Awareness-raising tailored to target groups such as newcomers, foreign residents, and the elderly
- Conducting on-site lectures and incineration plant tours by collection offices and incineration plants
- Promote environmental action in the community in cooperation with environmental project promotion committee members, etc.

(2) Promotion of Reduce

- Citizens, Businesses, and Government Begin to Reduce

A place to share information and actions on the 3Rs for the purpose of disaster management

Operation of "Yokohama R (Reduce) Hiroba

- Promotion of food loss reduction

(3) Promotion of proper disposal

- More thorough separation
- Extend the service life of existing plants and promote the development of new plants
- Promote energy creation and energy conservation
- Effective use of incinerated ash
- Beautification of the town

[Industrial waste]

(1) Promotion of a recycling-oriented society

- Guidance on the formulation of treatment plans, etc., for businesses that discharge large quantities of waste, etc.
- Promoting the 3Rs of construction waste
- Smooth operation of the Construction Recycling Law

(2) Promote safe and secure waste disposal

- Promote proper disposal of hazardous waste, etc.
- Guidance on proper disposal of PCB waste
- Provide guidance on proper disposal to dischargers, processors, etc.

[Disaster waste]

(1) Conduct a variety of disaster drills

- Conduct disaster drills in cooperation with citizens and businesses

(2) Public relations and information dissemination to citizens

- Creation of leaflets
- Disseminating information through participation in regional disaster prevention base drills

Colum

Yokohama City's Efforts to Reduce Food Loss

The SDGs, international goals to be achieved by 2030, set a target of "halving per capita food waste" with respect to food loss.

Yokohama City households generate 111,000 tons of food loss annually (estimated in FY2015), and reducing food loss is an urgent issue. Yokohama City views food loss reduction from a perspectives, including the environment, food education, hunger, and poverty, and conducts publicity and awareness-raising activities from various perspectives.

We offer suggestions and workshops to help you put them into practice.

Kick-off Symposium in Yokohama
(October 1, 2017)

Basic Measure 6

one's (living) environment

～Preservation of a safe, secure and comfortable living environment～

1 Environmental Targets by FY2025

- Air, water, and other environmental conditions are well preserved, and environmental risks such as chemical substances are reduced.
- The environment, including sounds and smells, has been improved, and the comfort of citizens' lives has been enhanced.
- All entities in the city are actively implementing initiatives related to the living environment.

Environmental conditions that serve as a guideline for achievement

- Improve and continue to achieve environmental standards and water environmental targets
- Reduce the number of photochemical smog alerts issued to 0
- Achieve 100% target rate of water quality assessment by bioindicators
- Improve citizens' satisfaction with their living environment
- Promote environmental actions that lead to the preservation of the living environment

Goal-setting approach

- The quality of the living environment is comprehensively evaluated by setting environmental goals from the following three perspectives: the perspective on environmental impact and environmental risks to protect the health of citizens (safety and security), the comfort of citizens' lives (comfort) and the perspective of environmental behavior of all entities necessary to preserve and improve the living environment (action).
- We will use environmental standards as a guide to achieve safety and security, and will continue to improve the rate of achievement of these standards and achieve them.

  The evaluation item was the completion of the project.
- With regard to photochemical oxidants, for which the achievement rate of environmental standards is low nationwide in the atmospheric environment, the number of times a photochemical smog alert is issued is an evaluation item, and we aim to reduce the number of such alerts to zero. In addition, water quality assessment using bioindicators as a familiar indicator for the water environment will be an evaluation item, with the goal of achieving a target achievement rate of 100%.
- As a measure of achievement regarding "comfort," the satisfaction level of citizens with their living environment will be used as an evaluation item to improve it.

  The goal is to
- As a guide to achieve "Action", the following activities are to be carried out by all entities in the city, which will lead to the preservation of the living environment.

  The status of promotion of environmental actions is an evaluation item.
- Methods for evaluating environmental standards for nitrogen dioxide in the atmospheric environment and water environment targets will be defined in individual plans, etc.

Individual plans, etc.

Yokohama City Basic Plan for Water and Greenery, Guidelines for the Promotion of Living Environment Preservation (to be developed)

2 Current Status and Issues

environmental standard

The condition of the living environment in the city has achieved various environmental standards for most items and points, and this good condition should be maintained (table below).

As for the atmospheric environment, the concentration of air pollutants has been decreasing due to environmental conservation efforts by businesses (Figure: Atmospheric Environment) On the other hand, photochemical oxidants have not yet achieved the national environmental standard, and further efforts are needed.

With regard to the water environment, although water quality is improving due to the spread of sewage systems, there are still issues such as some items not meeting environmental standards (Figure: Water Environment) In addition, there are issues such as the prevention of groundwater pollution, and it is necessary to continue to reduce the burden on the environment.

Regarding the sound environment, the compliance rate with environmental standards for road traffic noise is improving and should continue to be addressed (Figure: Sound Environment)

Table Achievement of Environmental Standards in Yokohama City (FY2016)

		Environmental standard items		Status of achievement *1
Atmospheric Environment	air pollutant	4 items including sulfur dioxide		All items achieved at all locations
		nitrogen dioxide		25/28 *2
		photochemical oxidant		0/19
	Hazardous Air Pollutants	4 items including benzene		All items achieved at all locations
aquatic environment	health item	27 items including cadmium		All items achieved at all locations
	Living Environment Items	rivers	biochemical oxygen demand (BOD)	21/21
		area of ocean	chemical oxygen demand (COD)	4/7
			total nitrogen	6/7
			whole forest	4/7
	Groundwater*3	general survey	mesh survey	6/6
			fixed-point survey	22/25
		Continuous Monitoring Survey		19/38
sound environment	noise	General environmental noise		Daytime 142/152 *4 Night time 119/152 *4
		Road traffic noise (areal assessment)		93%.
		Shinkansen railroad noise		Type I 13/21 Type II 3/3
dioxins		Four items: air quality, water quality, bottom sediment, and soil		All items achieved at all locations

1 ○/○ indicates the number of points achieved / number of points measured

2 Nitrogen dioxide achievement status is evaluated at the lower limit of the environmental standard value (daily average of 0.04 ppm for 1 hour value).

*3 General survey: Survey to determine the overall groundwater quality in the city.

(1) Mesh survey: A survey conducted on each parcel of land divided into 2 km squares.

(2) Fixed-point surveys: Surveys that look at changes over time over a long period of time

Continuous monitoring surveys: Surveys to continuously monitor conditions at sites and items that have been contaminated in previous surveys.

4 2013～ Surveyed in three years, FY 2015

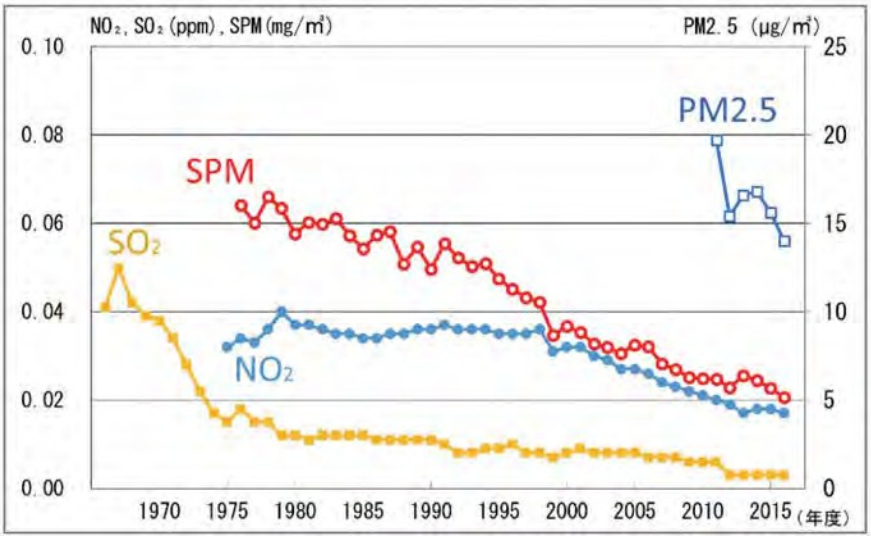


Figure Atmospheric environment (annual average concentrations of air pollutants)

- Nitrogen dioxide (NO_2)
  Air pollutants produced when petroleum and other fuels are burned. Cause of respiratory diseases.
- Sulfur dioxide (SO_2)
  An air pollutant with a pungent odor produced when sulfur-containing fuels are burned.
- Suspended Particulate Matter (SPM)
  Fine dust particles of 10 micrometers or less in diameter suspended in the air.
- Fine particulate matter (PM 2.5) SPM with a diameter of 2.5 micrometers or less.

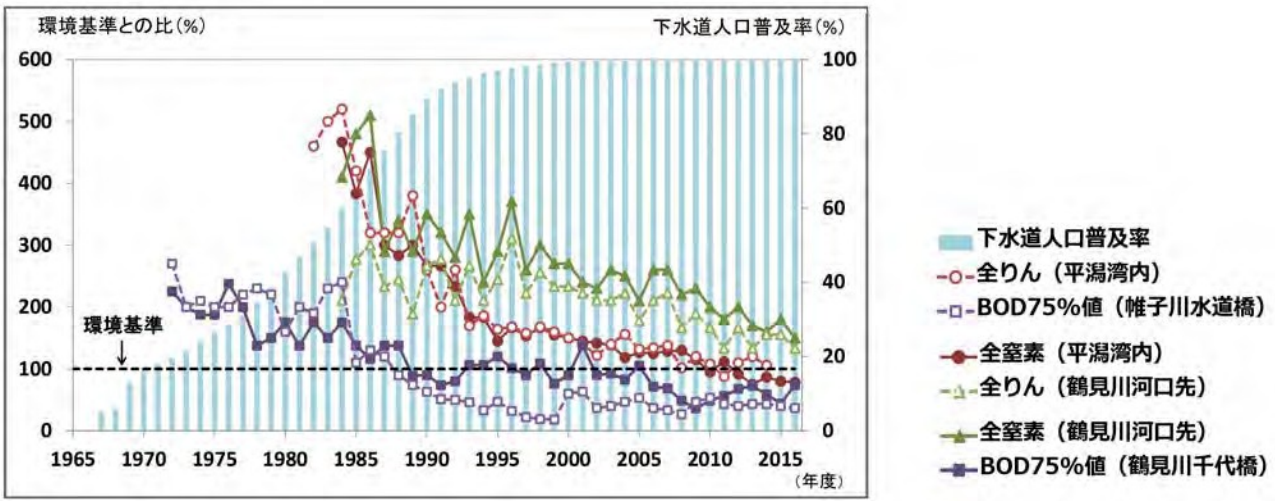


Figure Water Environment (Sewerage Diffusion and Water Quality in the Water Environment)

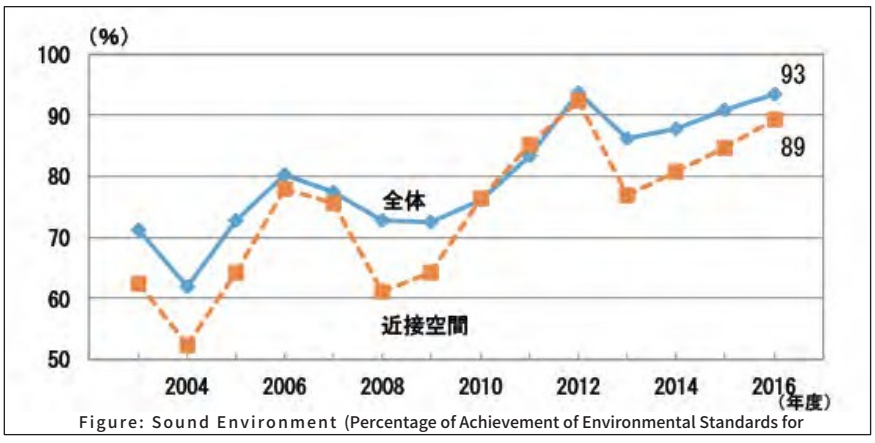


Figure: Sound Environment (Percentage of Achievement of Environmental Standards for Road Traffic Noise (areal assessment))

- Areal assessment of road traffic noise
  A method of evaluating road traffic noise that indicates the degree to which environmental standards for noise are met in areas facing arterial roads.
  All dwellings, etc., located within 50 m of a trunk road are evaluated by assessing the noise level situation and calculating the percentage of units that comply with environmental standards (the target routes are evaluated on a five-year cycle)
- near space
  Of the 50 m area to be evaluated for surface evaluation, 15 m from the edge of the road for arterial roads with two or fewer lanes, and up to 20 m from the edge of the road for arterial roads with more than two lanes.

photochemical smog

Photochemical smog advisories have been issued six times a year on average over the past 10 years. When photochemical smog occurs, there is a risk of headaches, flickering eyes, and other effects, especially for children and the frail. In order to protect the health of citizens, efforts to reduce photochemical oxidants, the causative agent, are necessary.

Figure Table of the number of times photochemical smog alerts have been issued

Water Environment Targets

Regarding the status of achievement of water environment targets in FY2016, water quality targets for rivers are highly achieved, but the situation is low for marine areas. Efforts need to be promoted to achieve an enriched environment. In terms of evaluation based on riparian bioindicators, surveys were conducted from FY2012 to FY2015, and 94% of sites achieved their targets. We need to continue to maintain this favorable biological habitat.

Achievement of water environment targets (FY2016)

			Status of achievement*1	rate of achievement
Water Quality Target	rivers	bandwidth-on-demand	62/74	84%.
	area of ocean	COD	1/8	13%.
		total nitrogen	3/ 8	38%.
		whole forest	2/ 8	25%.
Bioindicator*2			44/47	94%.

1 ○ / ○ indicates the number of points achieved / the number of points measured.
*2 Evaluation conducted from FY2012 to FY2015.

Yokohama City's "Water Environment Goals

Yokohama City has established "Water Environment Targets" consisting of "Achievement Targets" and "Supplementary Targets" for each water area and "Uniform Achievement Targets for All Water Areas" for the entire city as a guideline for the water environment.

The "Water Environment Targets" are stricter than environmental standards in some water areas, and are in addition to water quality targets. The river is also defined in terms of water quality evaluation based on bioindicators, river depth and velocity, riverbed (sediment) condition and aesthetics, and the surrounding environment.

Table Environmental Standards and Yokohama City Water Environmental Targets

	Environmental	Yokohama City Water Environmental Targets
basis	Environmental Basic Law	Yokohama City Water and Green Basic Plan
Contents	It defines the goals of measures to be implemented to maintain the level of air, water, soil, and noise as standards that should be maintained for the protection of human health and preservation of the living environment at the end of the process. Environmental standards for water pollution include "environmental standards for the protection of human health (e.g., cadmium)" and "environmental standards for the preservation of the living environment (e.g., BOD)	Targets" are targets to be achieved for each water body category and consist of "water quality assessment by bioindicators" and "water quality targets (BOD, COD, fecal coliform group count, total nitrogen, and total phosphorus) Supplemental targets" are guidelines that should be achieved based on the use needs of the water body, and consist of "water depth and flow velocity," "riverbed (sediment) condition and aesthetics," and "surrounding environment. In addition, "uniform attainment targets for all water bodies" are environmental standards (excluding items specified as attainment targets for each water body category).

chemicals

The emissions of chemical substances in Yokohama City have recently leveled off. In order to reduce the environmental risks of chemical substances, it is necessary to continue to promote proper use and management of chemical substances by businesses. In addition, according to the "Survey of Citizens' Awareness of the Environment," 40% of respondents felt that information sharing on chemical substances should be promoted to deepen understanding.

Figure Trends in Chemical Emissions in the City

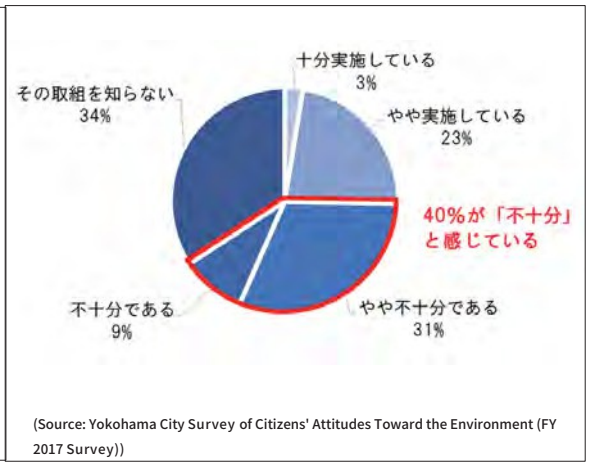


Figure Satisfaction with proper management of chemical substances and information sharing to the public

Consultation on complaints about living environment

In FY2016, there were 2,498 consultations regarding complaints about the living environment, of which 346 were related to noise, the largest number. In the "Survey of Citizens' Awareness of the Environment," 40% of respondents answered that they were "dissatisfied" or "very dissatisfied" with the state of their living environment. In order to preserve a comfortable living environment that satisfies citizens, it is necessary to get closer to the community and enhance communication with citizens and businesses.

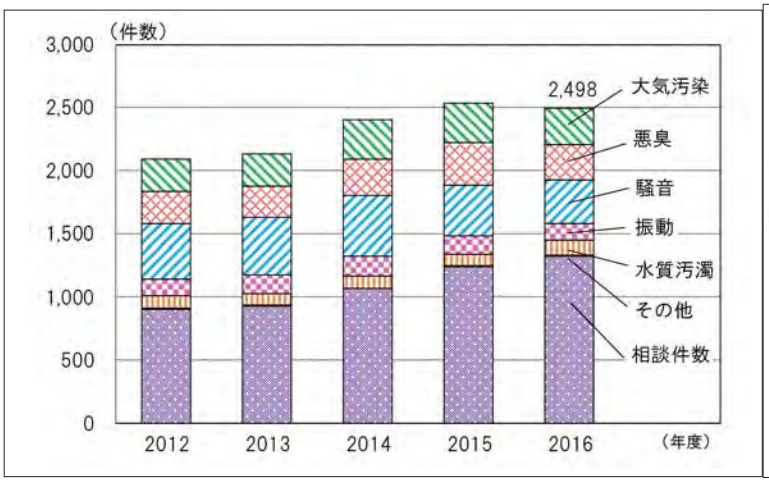
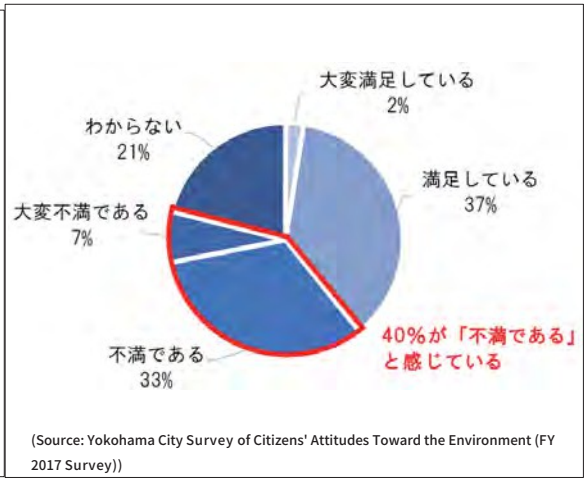


Figure: Number of complaints and consultations



Citizen satisfaction with the living environment in terms of air quality, noise, vibration, etc.

3 Policy

(1) Reduction of environmental impact

With approximately 3.7 million citizens living in Yokohama and 120,000 business establishments operating in the city, the environmental impact of all entities in the city is not small. We will reduce the environmental impact of the Yokohama city area by implementing various initiatives, such as regulatory efforts based on environmental laws and regulations and promotion of appropriate management of chemical substances, etc.

On-site inspections based on environmental laws and regulations

(2) Promotion of community-based environmental measures

Yokohama has various areas such as urban centers, suburban areas, waterfront areas, and industrial areas, and in some cases, familiar environmental problems such as noise complaints arise according to the characteristics of these areas. We will improve the living environment by responding to complaints about the living environment from citizens and promoting environmental communication between citizens and businesses in close contact with the community. Furthermore, we will provide the community with a comfortable environment through the use of the waterfront and other environmental features.

Responding to complaints from citizens

(3) Promote environmental action by all entities

We will encourage citizens to take environmental action through environmental seminars, etc., and promote voluntary environmental management by concluding environmental conservation agreements, etc., with businesses. Through various initiatives tailored to the needs of each entity, we will encourage voluntary and proactive environmental actions to conserve the living environment and reduce the burden on the environment.

(4) Dissemination and sharing of environmental information

There are various types of environmental information, such as measurement data on the air and water environment in Yokohama and the status of environmental activities by citizens and businesses. Yokohama City will use ICT to survey and collect this environmental information and disseminate it in an easy-to-understand manner to deepen the understanding of citizens and businesses about the environment. In addition, by providing the accumulated information as open data, the City of Yokohama will develop new environmental measures in collaboration with social and economic sectors.

Colum

Monitoring and dissemination of information on air and water quality, etc.

The monitoring center conducts monitoring to accurately assess the status of the air and water environment in the city. Monitoring results can be viewed on our website.

● PM 2.5

New environmental standards for PM 2.5 were established in September 2009, and we began measuring PM 2.5 in FY2011. In FY2016, we achieved the environmental standard at all 20 locations. In addition, PM 2.5 concentrations are disseminated in real time on the monitoring center's webpage.

● Measurement of water quality in public waters

In accordance with the water quality measurement plan formulated by Kanagawa Prefecture based on the Water Pollution Control Law, we conduct periodic measurements of river, sea, and groundwater quality. In the sea area, we also observe red tide at the time of measurement.

PM 2.5 Automatic Measuring Instrument

Water quality measurement in marine areas

Colum

Toward the Era of Creating the Environment

In the past, "environmental problems" were air pollution, water pollution, and other pollution-related issues, for which specialized measures were taken in each field and a certain degree of success was achieved. In recent years, however, "environmental problems" have become complicated and intertwined with a wide variety of issues, such as global warming countermeasures and biodiversity conservation, and these issues must now be solved simultaneously.

For example, measures against soot and sulfur oxides are being promoted by requiring the use of gaseous fuels for large-scale boilers, etc. as a measure against air pollution. At the same time, there is a growing need to introduce biomass fuels such as wood chips from the viewpoint of global warming countermeasures and utilization of recyclable resources.

Environmental issues today must be tackled with such contradictions. Environmental administration in the future must not be limited to the initiatives in each policy area as in the past, but must also promote initiatives from various perspectives and angles, based on collaboration among areas and cooperation among various entities, in order to secure and create a sustainable and diverse environment.

The situation surrounding environmental administration has changed from the "era of overcoming pollution," in which each field aimed for zero from negative, to the "era of creating the environment," in which various fields and entities participate and collaborate to achieve positive results from zero.

In order to develop environmental administration that responds to the demands of the times, it is necessary to constantly check and improve our current efforts and methods to ensure that they meet the needs of the current era. By reviewing the existing systems and methods once again, and by steadily implementing this plan, we will "hand on Yokohama's irreplaceable environment to the future".

4 Examples of Major Initiatives

(1) Reduction of environmental impact

- Regulatory efforts based on environmental laws and regulations
- Efforts based on environmental preservation agreements
- Promoting environmental management at businesses
- Efforts to reduce photochemical oxidants
- Promote proper management of chemical substances
- Consideration of environmental measures to meet the needs of the times
- Introduction of advanced treatment facilities at water reclamation centers
- Combined sewer improvements

(2) Promotion of community-based environmental measures

- Responding to complaints from citizens regarding the living environment
- Response to Water Quality Accidents
- Promoting Environmental Communication
- Promote use of waterfront and other environmental features

(3) Promote environmental action by all entities

- Environmental Seminars for Citizens
- Workshops on environmental laws and regulations for businesses
- Dispatch of advisors and other technical assistance to SMEs
- Efforts based on environmental preservation agreements
- Promoting environmental management at businesses
- Promote proper management of chemical substances

(4) Dissemination and sharing of environmental information

- Monitoring and dissemination of information on air and water quality, etc.
- Dissemination of information on environmental actions by citizens and businesses
- Research on the environment and consideration of new measures based on research
- Promoting Environmental Communication
- Providing environmental information through open data

Basic Measure 7

Environmental Education and Learning

～Developing people who think for themselves and practice concrete actions toward the realization of a sustainable society～

[Action Plan for Environmental Education, etc.]

1 Environmental Targets by FY2025

- People are learning not only about the environment, but also about lifestyles and the social economy, thinking for themselves, and practicing concrete actions that will lead to the realization of a sustainable society.
- Environmental education and learning are being developed by all entities through hands-on activities* in all settings, not limited to themes such as nature and energy, but in a comprehensive and interrelated manner.
- Initiatives and activities that have been promoted in school education, community activities, and as government policies are further developed and deployed through the collaboration of all entities.

Environmental conditions that serve as a guideline for achievement

- Increase in the number of citizens and others practicing environmental actions

Goal-setting approach

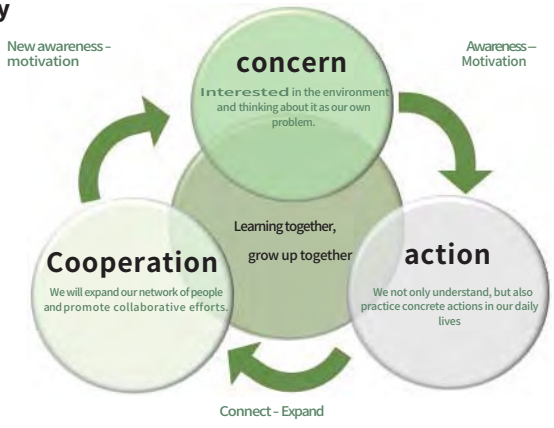
- Yokohama City has established a policy for the enhancement of environmental education and promotion of environmental learning in Article 16 of its "Basic Ordinance". In addition, the City of Yokohama has positioned environmental education and learning in various plans such as the "Yokohama City Basic Plan for Education Promotion" and the "Yokohama City Basic Plan for Water and Greenery," and has developed policies related to environmental education and learning.
- Citizen groups, schools, and businesses are also promoting initiatives for environmental education and learning, and environmental activities are being carried out in collaboration with other entities.
- Although these initiatives have individually produced results, it is necessary to further expand the circle of cooperation and collaboration among various initiatives through the participation of all entities, and to further expand the circle to the entire city of Yokohama. We aim to increase the number of citizens who engage in environmental activities by promoting environmental education and learning initiatives, and have made the status of such increase an evaluation item.

Direction of Development of Environmental Education and Learning in Yokohama City

We promote environmental education and learning based on three keywords: "interest," "action," and "collaboration."

It is necessary to develop an interest in the environment based not only on knowledge, but also on "experience" and "actual feelings. Then, it is necessary to go beyond interest and understanding, to communicate this interest and understanding, to think for oneself and link it to concrete actions, and furthermore, to connect various entities through partnership and cooperation, expanding the circle of collaboration. It is necessary to expand the theme from familiar actions through each individual's daily life and business activities to local issues, citywide issues, and global environmental issues, by increasing the number of friends.

The company is a member of the Japan Society for the Promotion of Science (JSPS).



Individual plans related to

Yokohama City Water and Green Basic Plan, Yokohama Green Up Plan, Yokohama City Action Plan for Global Warming Countermeasures, Yokohama City Basic Plan for General Waste Disposal (Yokohama 3R Dream Plan) Yokohama City Child and Child Rearing Support Project Plan, Yokohama City Basic Plan for Education Promotion, etc.

*What are "hands-on activities" in environmental education and learning?

The program is not limited to experiences in nature, but is also broad in scope, including social experiences that expose participants to the sites that support the creation of a sustainable society, daily life experiences that expose them to cultures and customs that differ from their daily lives, and experiences interacting with people who can serve as role models.

2 Current Status and Issues

(1) Environmental education and learning at home and in the community

For citizens, their homes and communities are the most familiar places for environmental education, learning, and action. In our daily lives, through activities such as community cleanups, beautification activities, and events, we have passed on to our parents, children, and grandchildren a spirit of protecting the local environment, being considerate of one's surroundings, and taking good care of things.

Families play an important role in promoting environmental education and learning from early childhood. In addition, there are organizations that are linked around the community, such as neighborhood associations and neighborhood councils, and these organizations are suitable as places to act on common goals because their members share the same environment.

However, as the birthrate declines and the population ages, intergenerational interaction is disappearing, and in addition to the growing number of nuclear families and single-person households, life is becoming an individual unit within the family. In addition, although there are some community-based initiatives such as neighborhood associations and community-wide efforts, their functions are not fully fulfilled due to the decline of local community functions and other factors. While restoring environmental education and learning functions at home and in the community, it is necessary to further revitalize community functions in local communities in order to increase opportunities and venues for hands-on activities such as playing in nature close at hand, as well as to disseminate and share environmental information.

(2) Environmental education and learning at schools, etc.

There are many environmental education and learning facilities in the city, including schools, museums, zoos, and botanical gardens. Elementary, junior high, and compulsory education schools, high schools, and special support schools offer a variety of environmental education and learning programs for children, who are members of society, according to their developmental stages. Environmental education and learning are conducted in cooperation with the local government and local human resources through various subjects, special activities, and comprehensive learning time. For example, some schools utilize lectures given by Yokohama City, conduct hands-on agricultural activities with the cooperation of the local community, and take advantage of the characteristics of the surrounding environment to create places where students can interact with living creatures and learn about the connections among them, in cooperation with local people and guardians. An increasing number of schools are conducting field surveys and research on specific themes as part of their studies. We have also been involved in the preparation of environmental education instructional materials, training for teachers and staff, and environmental education and learning activities.

We have also promoted environmental education and learning as one of the important learning themes in "Yokohama Time".

Children are expected to continue to see global issues such as environmental problems and the future of their communities and societies as their own challenges, and to think about what they can do and practice it in cooperation with diverse people. Environmental education and learning need to be enhanced.

To this end, it is important for faculty and staff to fully understand the necessity and concept of ESD and SDGs, including environmental education and learning. In addition, there is an increasing need to promote initiatives in collaboration with various educational institutions such as universities, businesses, citizen groups, environmental education/study facilities, and other local human resources and organizations. The collaboration of various initiatives is expected to have a significant effect.

(3) Environmental education and learning by citizens' groups

Citizen's groups are engaged in a variety of activities, such as preservation of oceans, rivers, woodlands, and parks, 3R activities, and activities to promote renewable energy. Some of these groups conduct environmental education and public awareness activities through hands-on activities at schools and in local communities, such as nature walks and events, and visiting lectures at schools.

Through these activities, the group will share information, knowledge, technology, and experience, build a network, and provide citizens with opportunities and venues for environmental education and learning, thereby further raising citizens' environmental awareness and playing a pioneering role in environmental initiatives. On the other hand, there are also issues to be addressed, such as raising funds, sustaining activities, becoming self-supporting, and recruiting new members.

Yokohama City has a system to support the activities of citizens' groups, but more support is needed to help groups become independent and continue their activities.

(4) Environmental education and learning undertaken by businesses

As businesses are required to expand their environmental business and promote environmental considerations, not only are they required to reduce the environmental impact of their business activities, but they are also promoting various environmental and social contribution activities, especially among major companies. These activities include publication of environmental reports, etc., implementation of environmental education and training for employees, acquisition of ISO 14001 certification, opening of facilities to the community, nature observation events, provision of opportunities for hands-on activities and environmental conservation technologies, social contributions by employees, and many others.

There are many business establishments in the city, but their environmental efforts and social contribution activities differ depending on the size and type of business.

(5) Environmental education and learning at Yokohama City Hall

As one of the largest business offices in the city, Yokohama City Hall is taking the lead in environmental conservation efforts, including measures against global warming, promotion of the 3Rs, and green purchasing. We are working to improve the awareness and knowledge of our employees in these efforts through various in-house training programs, such as the Yokohama City Environmental Management System. We will continue to conduct ongoing training to further raise the environmental awareness of each and every employee and to encourage them to take action on their own. In addition, the City of Yokohama will continue to support citizens' environmental education, learning, and action by collecting and providing information and promoting awareness of environmental issues.

In addition to implementing projects and enhancing venues and opportunities for activities, they also play a role in linking the activities of various entities. In particular, ward offices, which are close to citizens, play an important role in promoting hands-on environmental education and learning, taking advantage of local environmental resources and human resources.

Furthermore, it is necessary to verify and improve whether these efforts are in line with the needs of users, such as citizens and schools, and whether they result in the implementation of environmental actions by each entity.

Colum

Growing importance of environmental education and learning

The importance of environmental education and learning has long been pointed out, and various environmental education and learning programs have been promoted in schools and communities in Japan and abroad. Yokohama City has also promoted environmental education and learning focusing on global environmental issues and sustainable society, starting with pollution education in the 1960s and continuing through the Earth Summit in 1992. Citizens' awareness of the environment and their interest in and understanding of environmental issues have increased, and a variety of environmental initiatives have been developed by a wide range of entities.

However, today's environmental issues are closely related to each individual's lifestyle, socioeconomic system, and community development. Therefore, in order to get out of the current critical situation and build a sustainable society, we need to fundamentally review our lifestyles, socioeconomic systems, and community development, make decisions on environmental issues based on our own thinking, and work together through concrete actions. To this end, environmental education and learning in all places and for all actors are indispensable, based on a common understanding of the need to realize a sustainable society.

The importance of environmental education and learning was reaffirmed at the World Summit on Sustainable Development, the so-called Johannesburg Summit, held in August 2002, and the "United Nations Decade of ESD*" (2005) adopted by the UN General Assembly in December of the same year.

～2014) and the resulting Global Action Program on ESD (GAP) (2015).

～ (2019), various measures are being implemented in Japan to promote ESD.

The City of Yokohama is also working to promote ESD in schools and support networking among student groups engaged in environmental activities.

In addition, education is the foundation of all SDGs, and working on ESD will lead to the achievement of the SDGs. Yokohama City will also promote ESD in schools and communities by taking care of the issues at hand while keeping an eye on the SDGs.

ESD (Education for Sustainable Development)

Learning and activities that aim to create new values and actions that lead to solutions to global issues (environment, poverty, human rights, peace, development, etc.) in today's society, and to create a sustainable society by learning to think globally and act locally, and by developing the ability to take action from the immediate surroundings. Learning and activities that aim to create a sustainable society by learning to think globally and act locally.

3 Policy for Initiatives

(1) Cultivate people who will work for the conservation and restoration of the natural environment by cultivating a sensitivity to the importance of nature and life. We will foster people who understand the importance of the natural environment and the importance of living in harmony with individual lives and many living things.

(2) Cultivate people who value limited resources and things and practice lifestyles with less environmental impact. We cultivate people who understand global environmental issues, value things, and practice lifestyles with less environmental impact by promoting energy conservation and introducing renewable energy.

(3) Practice of environmental education and learning that expands from familiar issues to global environmental conservation

Environmental issues are both familiar and global in scope, and their impact concerns future generations. They are also connected to socioeconomic and poverty issues. To help students understand the multifaceted nature of these environmental issues, we implement environmental education and learning with a global perspective.

(4) Realization of a society that learns and practices environmental action in all places

We will realize a society where environmental education and learning programs are enhanced through hands-on activities, etc., and where there are ample opportunities and places to practice environmental actions, so that all people can learn and practice environmental actions toward a sustainable society in all places.

(5) Realization of environmental action through collaboration

We will develop a wider range of cooperative efforts to produce significant results in environmental education and learning. Each entity will work independently, based on mutual understanding and respect, sharing objectives based on equal relationships, and clarifying roles and responsibilities. Yokohama City will create mechanisms and enhance support measures so that various forms of cooperative efforts can be developed among various entities.

4 Examples of Major Initiatives

Organized and listed by environmental measure (including reprints)

<General

- Publicity and awareness-raising for practicing environmental activities
- Publicizing the environmental actions of businesses
- Yokohama Environmental Activity Award
- Children's "Eco-Life. Operation!
- Tours of environment-related facilities
- Environmental Picture Diary Exhibition
- Children's Eco Forum
- ESD and Environmental Education Promotion Project
- Collaborative, local and global school initiatives
- Yokohama RCE Network
- Support for activities of citizen volunteer groups such as patronage association activities
- Technical consultation services (energy conservation consultation)
- Promote environmental action in the community

<Global Warming Countermeasures

- Yokohama Eco School (YES)
- Parent-child windmill tour
- Promotion of ZEH
- Energy-efficient housing consultation program for citizens
- Promote eco-renovation of housing
- Citywide COOL CHOICE YOKOHAMA

Creating a Chain of Custody against Global Warming

- Promote low-carbon electricity supply and choice

＜Biodiversity

- Environmental Education Delivery Lecture (YES! on Biodiversity)
- Environmental education and learning at zoos, etc.
- Promote nature experience activities
- Promote surveys of living organisms with citizen participation

<Water and greenery

- Promote environmental learning and nature experiences utilizing the greenery around the Welcome Center
- Creating Fun in the Forest
- Green town planning in cooperation with citizens and businesses
- Development of waterfront bases

<Urban Agriculture

- Promote local production for local consumption in cooperation with citizens and businesses
- Support for the development and operation of direct sales centers, etc.
- Establishment of farms to meet various citizen needs
- Promotion of initiatives to help citizens enjoy and support agriculture

<Resource Recycling

- Awareness-raising tailored to target groups such as newcomers, foreign residents, and the elderly
- Conducting on-site lectures and incineration plant tours by collection offices and incineration plants
- Operation of "Yokohama R (Reduce) Hiroba," a place for citizens, businesses, and government agencies to share information and actions regarding the 3Rs, including Reduce.
- Promotion of food loss reduction
- Promote environmental action in the community in cooperation with environmental project promotion committee members, etc.

<Living Environment

- Environmental Seminars for Citizens

Chapter 6.

Environmental assessment and publication, etc.

1 Environmental Assessment and Disclosure

(1) Evaluation and publication

The Basic Ordinance requires that an annual report be prepared and published on the state of Yokohama's environment and the status of measures implemented in accordance with the Environmental Management Plan. It is important that this annual report be published in an easy-to-understand format to encourage proactive action by citizens and businesses.

Therefore, we will summarize the state of the environment in Yokohama from a comprehensive perspective, based on the status of efforts based on the basic policies and policies, the "environmental status as a guideline for achievement," and the results of surveys of citizens' environmental awareness, and after reporting to the Environmental Creation Council and receiving its opinions, we will compile them into an annual report for wide publication. The contents of the annual report will be fed back to the entities implementing the policies and related individual plans, and will be utilized in their efforts in the following fiscal year and beyond, leading to the further comprehensive and cross-sectional promotion of environmental policies.

We will also consider the use of ICT, which has been rapidly developing in recent years, as we believe that increasing the speed of information sharing will enable us to promptly reflect the results in subsequent efforts. In addition, we will promote the use of open data on the state of the environment.

(2) Promotion structure of the plan

Existing councils and other bodies composed of citizens, businesses, and the City of Yokohama will be utilized to steadily promote the plan. In addition, Yokohama City Hall will promote the plan comprehensively and effectively while utilizing cross-agency organizations such as the Environmental Management Plan Promotion Council, which is composed of relevant ward bureau chiefs.

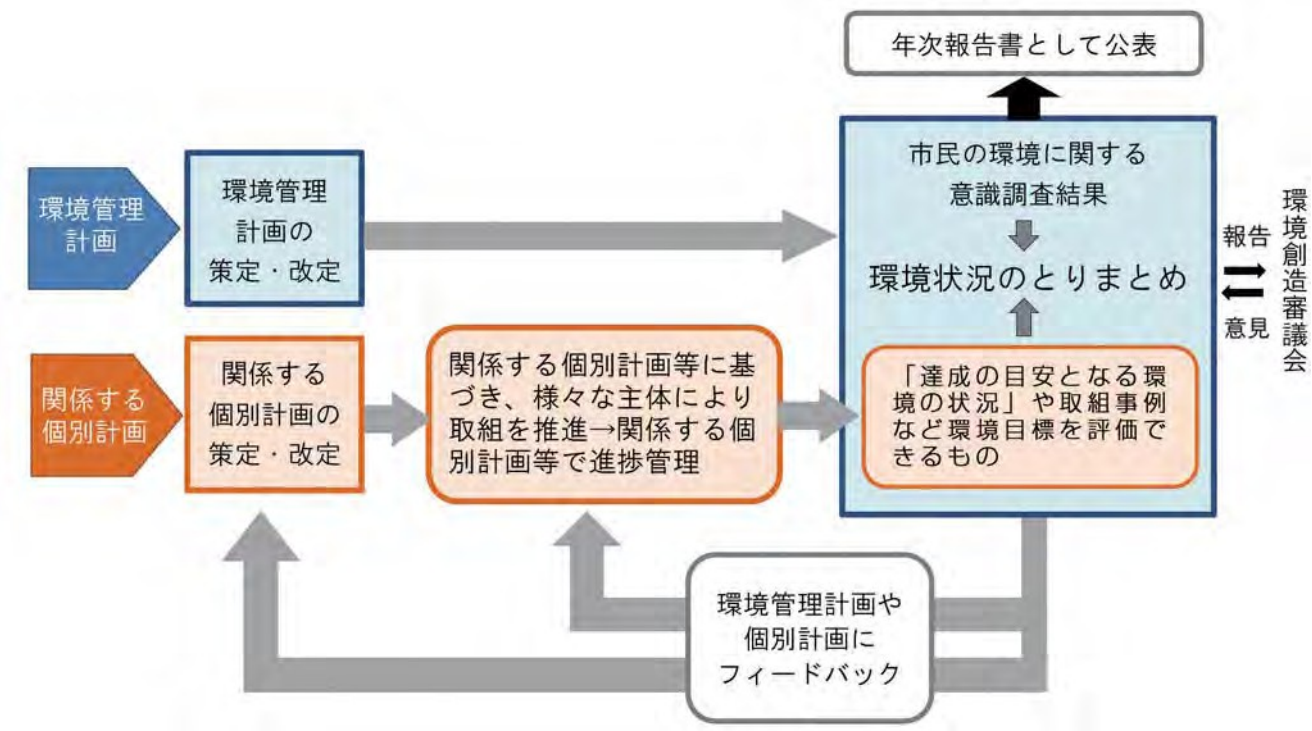


Figure Procedures for assessing environmental conditions

Table List of "Environmental Status as a Reference for Achievement

Basic measures set forth in Chapter 5	Environmental conditions that serve as a guideline for achievement
Global Warming Countermeasures	Reduction of greenhouse gas emissions
	Reduction of energy consumption
Biodiversity	Promotion of preservation of habitats and growing environments for a variety of plants, animals, and other living creatures
	Increase opportunities for citizens to interact with and enjoy nature and living creatures around them.
	Increase in the number of citizens and companies that take biodiversity-conscious actions on their own
Water and Green	Maintain and improve the total amount of greenery (green cover)
	Expanding the designation of wooded areas under the green space preservation system
	Business Promotion of Water Circulation Functions
City Agriculture	Promotion of local production for local consumption in cooperation with citizens and businesses
	Expand opportunities to purchase agricultural and livestock products produced in the city
	Promote activities to maintain good agricultural landscapes
	Support for the establishment of farms tailored to various citizens' needs
Resource recycling	Reduction of total emissions (total amount of refuse and resources)
	Reduction of greenhouse gas emissions from waste disposal
	Reduction of final disposal volume through further promotion of 3Rs
	Thorough guidance on proper disposal of industrial waste
	Promote initiatives in collaboration with citizens and businesses that match the characteristics of each region of the city
Living	Improve and continue to achieve environmental standards and water environmental targets
	Reduce the number of photochemical smog alerts issued to 0
	Achievement rate of water quality assessment target by bioindicators to 100％.
	Improve citizens' satisfaction with their living environment
	Promote environmental actions that lead to the preservation of the living environment
Environmental Education and Learning	Increase in the number of citizens and others practicing environmental actions

Environmental conditions that serve as a guideline for achievement].

- This indicator is used to evaluate the status of achievement of "environmental targets by FY2025" set for each basic measure.
- The evaluation will be quantitative or qualitative, depending on the item.

•For "Environmental Objectives by FY2025," please refer to the description of each measure in Chapter 5.

2 Promoting Environmentally Conscious Actions in the City

Yokohama City Hall is one of the largest emitters of greenhouse gases in the city, and the environmental impact of its administrative and business activities on the city's economy and society is extremely large. The Yokohama City Office is taking the initiative in promoting environmentally conscious actions.

● Operation of Yokohama City Environmental Management System

The Yokohama City Environmental Management System promotes the continuous improvement of each and every employee's knowledge and environmentally conscious behavior through the implementation of general environmental training and other measures to reduce the environmental impact of daily business activities, such as the promotion of energy conservation, the 3Rs, and paperless operations, as well as environmental behavior, such as consideration for biodiversity. We will promote the continuous improvement of each employee's knowledge and environmentally conscious actions through the implementation of general environmental training and other measures.

● Reduction of greenhouse gas emissions

Based on the Yokohama City Action Plan for Global Warming Countermeasures (City Hall version), we will implement initiatives that are highly effective in reducing energy consumption, such as facility management using energy conservation diagnosis, promotion of LED in public facilities, expansion of introduction of next-generation vehicles, promotion of the Yokohama 3R Dream Plan, and study of energy-saving sewage treatment methods. We will implement initiatives that take advantage of the characteristics of each project, such as promoting the Yokohama 3R Dream Plan and studying energy-saving sewage treatment methods.

● Promoting Green Purchasing

Based on the "Yokohama City Basic Policy on Promoting Green Purchasing" and the "Yokohama City Procurement Policy for Promoting Green Purchasing," we are promoting efforts to achieve a 100% green procurement rate by providing e-learning training to staff in charge. In addition, the city's initiatives are communicated at forums organized by the Ministry of the Environment and the Green Purchasing Network to encourage citizens and businesses to shift their demand to environmentally friendly goods and services.

● Promote 3R (Reduce, Reuse, Recycle)

In order to reduce the amount of garbage generated within the City Hall, we have been promoting the "City Hall Zero Garbage" program, which requires employees to separate garbage into separate categories and to reduce the amount of garbage generated within the City Hall.

Reduce and recycle waste by making common rules for waste reduction known and ensuring 3Rs and proper disposal.

We will work on ő.

Colum

Yokohama City Action Plan for Global Warming Countermeasures (City Hall version)

This report summarizes the measures taken to reduce greenhouse gas emissions related to the operations and businesses conducted by Yokohama City, This is a statutory plan positioned in the "Action Plan of Local Public Entities (Office Work)" as stipulated in Article 21, Paragraph 1 of the "Law Concerning the Promotion of the Measures to Cope with Global Warming".

We have set a target of reducing emissions by 30% in FY2030 compared to FY 2013, and are promoting initiatives based on the following five action policies.

Ⓛ Thorough operational measures

② Measures in new construction and renovation of public buildings

(iii) Expand introduction of renewable energy

® Promote measures to reduce greenhouse gas emissions from automobiles, etc.

② Promote initiatives that take advantage of the characteristics of each major business, including general waste disposal and sewerage services.

Table Greenhouse Gas Emissions Reduction Targets by Project

(Unit: 10,000 t-CO_2, % of base year)

division classification		Base year (2013)	Fiscal 2016 Results	Fiscal Year 2021		Fiscal year 2030	
				Target emissions	Change from base year	Target emissions	Base Year Comparison
Total emissions		91.6	93.7	85.7	▲7%	64.1	▲30
Government buildings, etc.*1		17.3	16.3	16.1	▲7%	12.3	▲29%
Main Business	General waste disposal business	32.8	36.1	29.1	▲11%.	19.1	▲42%
	Sewerage business*2	18.1	17.1	16.9	▲7%	13.4	▲26%.
	waterworks projects	6.8	6.3	6.1	▲10% (%)	4.4	▲36%.
	High-speed rail	5.0	6.2	5.6	12%.	4.6	▲8%
	Automotive Business	3.4	3.4	3.4	▲1	3.2	▲5% (of the total)
	Education Business*4	6.1	6.6	6.3	3	5.1	▲17%.
	Hospital Business*5	2.1	1.9	2.2	3	2.0	▲5% (of the total)

1 The scope of "government buildings, etc." includes government buildings, facilities, etc. other than major projects and official vehicles (including vehicles not included in major projects)

2 "Sewerage projects" set targets that include the impact of increased electricity from the operation of sewage sludge fuel conversion facilities introduced in FY2016 and later.

3 The "High-Speed Rail Business" target includes the impact of the increase in the number of services due to the introduction of rapid transit operations and other measures implemented from July 2015 onward.

4 "Education projects" set targets that include the impact of an increase in total school floor space by FY2021.

The target for "Hospital Business" includes the impact of facility expansion due to the redevelopment project of the Municipal Hospital, which is scheduled to open in FY2020.

3 Guidelines for Conservation and Creation of the Environment

(1) Basic Concept

In order to realize the future environmental vision of Yokohama City, it is important not only for the City of Yokohama to take the initiative in promoting initiatives based on this plan, but also for citizens and businesses to voluntarily implement environmental actions in their daily lives and business activities. In conducting business activities, etc., compliance with relevant laws and regulations is a prerequisite, but it is expected that even more active consideration will be given to the environment in order to conserve and create a better environment.

Here, basic items related to the environment that should be considered based on compliance with laws and regulations are organized as "Basic Items for Environmental Conservation and Creation (hereinafter referred to as "Basic Items")". The basic items that should be considered based on compliance with laws and regulations are organized as "Basic Items for Environmental Conservation and Creation (hereinafter referred to as "Basic Items"). Citizens, business operators, and the City of Yokohama will share a common understanding and work together to give consideration to the contents of the Basic Items.

(2) Promote environmental conservation and creation by utilizing each guideline

Yokohama City has established various guidelines as a means of encouraging specific environmental considerations.

Specifically, the "Yokohama City Environmental Impact Assessment Ordinance" establishes the "Yokohama City Environmental Consideration Guidelines" for business operators to consider environmental impacts in planning their projects.

In addition, the "Yokohama City Ordinance on Conservation of Living Environment" provides a number of guidelines, such as the "Guidelines for Reducing Environmental Impact (Items to be Considered by Business Establishments)" to support efforts by business operators to reduce their impact on the environment. Therefore, the Environmental Management Plan does not specify the specific contents of the guidelines, but aims to promote more effective environmental administration through the appropriate application of these guidelines and other measures.

Table Basic Items for Environmental Conservation and Creation

way of thinking	basic matter	Details to be considered
Reduction of the burden on the global environment, including promotion of global warming countermeasures	Global warming, energy conservation, etc.	Considerations to prevent, mitigate, and adapt to global warming, including rational and efficient use of energy
	Global environment, etc.	Consideration for global impacts such as ozone layer depletion and acid rain
Conservation, restoration and creation of the natural environment around us, including biodiversity, water cycle, and creation of greenery	biodiversity	To conserve, regenerate, and create biodiversity, including habitats and habitats for plants and animals consideration (for the future)
	greenery (esp. fresh verdure)	Consideration for Green Conservation and Creation
	water circulation	Conservation of water resources, river and ocean flow, flow paths, etc., and groundwater irrigation in the surrounding area Consideration for impact on nurturing functions
Preservation of a safe and comfortable living environment	saving resources	Consideration for rational and efficient use of resources
	Waste, etc.	Reduce, recycle, and reduce the volume of general and industrial waste. Promotion, consideration for secondary pollution generation
	air pollution	To prevent the generation of air pollutants that affect human health or the living environment, etc. taking care of something
	water pollution	To prevent the generation of water pollutants that affect human health or the living environment, etc. taking care of something
	soil pollution	(2) Release of soil and groundwater contaminants that affect human health or the living environment, etc. Caring for Life
	noise	Consideration for the generation of noise affecting human health or the living environment, etc.
	vibration	Consideration for the generation of vibrations that affect human health or the living environment, etc.
	land subsidence	Consideration for land subsidence that affects the living environment, etc.
	stench	Consideration for the generation of odors that affect human health or the living environment, etc.
	heatisland	Considerations for rising temperatures associated with urbanization
Specific measures need to be considered in the future.	low-frequency sound	(2) For the generation of infrasound that affects human health or the living environment, etc. consideration
	radio interference	For the occurrence of radio wave interference affecting reception of television, radio, etc. consideration
	sunstroke	Consideration for the occurrence of sunlight disturbance affecting living environment, crops, etc.
	wind or storm damage	Consideration for localized wind damage that affects the living environment, etc.
	Light pollution, etc.	against the occurrence of light pollution on the living environment and habitat/growth environment of animals and plants. consideration
	biohazard	(Leakage of Genetically Modified Organisms, etc. that Affect Human Health or the Living Environment, etc.) Considerations for emissions
	electromagnetic field	Electromagnetic leakage below 10 kHz affecting human health or living environment Consideration for the World
	safety	Consideration for natural and man-made disasters
Ensuring a pleasant local environment	local community	Consideration for impact on the local living environment, such as community fragmentation, traffic safety, etc.
	scenery	Preservation and creation of naturallandscapes(including topography),regionallandscapes(including color) and views Consideration for construction

	Cultural assets, etc.	Tangible cultural assets, historic sites, scenic spots, natural monuments, cultural assets such as buried cultural assets, and famous trees and Consideration for old trees, etc.

This section describes details that should be taken into consideration based on compliance with laws and regulations.

The basic items listed here are reorganized from the previous plan, based on the policy system of this plan. Depending on the type of business activity, etc., new items not listed here may also need to be considered.

 **material** **material** 

1 History of the Plan to Date

(1) Environmental management plan

Date of Establishment (Revision) Plan period	Concept of Formulation and Revision
March 1986 Formulation	• Established to address urban and lifestyle pollution (e.g., pollution of rivers and sea areas due to wastewater from daily life) in addition to industrial pollution, as well as the needs of citizens for a comfortable environment.
September 1996 Formulation [Until fiscal 2010	• Newly formulated based on the "Yokohama City Basic Ordinance on Environmental Conservation and Creation" enacted in 1995. • Additional global environmental protection measures, etc.
Revised March 2004 [Until fiscal 2010	• Revised to respond to the adoption of the Kyoto Protocol, development of laws related to global warming countermeasures, laws related to a recycling-oriented society, etc.
April 2011 Formulation Medium- to long-term goal: by FY2025 Short-term target: by FY2013	• In order to promote comprehensive and cross-sectoral measures, in addition to basic measures on environmental aspects (global warming countermeasures, biodiversity, etc.), establish a policy system from basic policies from a comprehensive perspective of "people and local communities," "economy," and "urban development." • Set short-term goals and manage the progress of specific initiatives
Revised January Medium- to long-term goal: by FY2025 Short-term target: by FY2017	• The Great East Japan Earthquake has led to the positioning of basic concepts such as "Aiming for symbiosis between nature and people." • Additional perspectives on disaster prevention in environmental administration

(2) Yokohama Action Plan for Biodiversity (Yokohama b-Plan)

Date of Establishment (Revision) Plan period	Concept of Formulation and Revision
April 2011 Formulation Medium- to long-term goal: by FY2025 Short-term target: by FY2013	• Developed as a regional biodiversity strategy based on the Basic Act on Biodiversity. • The "Future Vision for 2025" and "Priority Measures" and "Specific Efforts and Goals by 2013" to realize the vision are defined.
Revised January Medium- to long-term goal: by FY2025 Short-term target: by FY2017	• Specific initiatives and goals were revised as the plan period expired. • Mainstreaming Biodiversity" is reflected in the significance of the planning process, etc.

2 Progress of Plan Revision

(1) Yokohama City Council for Environmental Creation

◯ The 24th Yokohama City Council for Environmental Creation (held on October 27, 2017)

Revision of the Yokohama City Environmental Management Plan and the Yokohama Action Plan for Biodiversity (Advisory)

z The 25th Yokohama City Council for Environmental Creation (held on March 28, 2018)

Revision of Yokohama City Environmental Management Plan and Yokohama Action Plan for Biodiversity (Report)

(2) Environmental Management Plan Revision Subcommittee

◯ First Revision Subcommittee Meeting (held October 27, 2017)

Election of Chair and Vice-Chair

The concept of revision of the Yokohama City Environmental Management Plan and the Yokohama Action Plan for Biodiversity

◯ Second Revision Subcommittee Meeting (held November 17, 2017)

Revision of the Yokohama Action Plan for Biodiversity

The positioning of "environmental education

The relationship between Yokohama City's environmental policies and the Sustainable Development Goals (SDGs)

◯ Third Revision Subcommittee Meeting (held on January 29, 2018)

The "System of the Plan" and "Stance on the Plan

Status of the Environment as a Guideline for Achievement" and "Action Policies

◯ Fourth Revision Subcommittee Meeting (held March 8, 2018)

Revision of Yokohama City Environmental Management Plan and Yokohama Action Plan for Biodiversity (Draft Report of the Subcommittee)

3 Status of Plan Initiatives to Date

(1) Environmental management plan

Regarding the status of achievement of the goals for the 208 initiatives set forth in the plan, approximately 90% of the respondents rated their progress as "progressing above target" or "generally on target" for the four-year period from FY2014 to FY2017, the short-term target period.

The details of our efforts are summarized in an annual report each fiscal year, which is made public through our website and other means.

(2) Yokohama Action Plan for Biodiversity (Yokohama b-Plan)

Of the 89 items in the plan, approximately 90% were rated as "progressing above target" or "generally on target" for the four-year period from FY2014 to FY2017, the short-term target period.

The details of our efforts are reviewed on a yearly basis, and the results are summarized and announced on our website and other media.

4 Status of Reflection of the Report

The report from the Environmental Creation Council and the status of its reflection in the plan are as follows.

(1) Roles, etc. required for the plan

answer excuse me! (when calling out to someone)	revised plan
• Clearly indicate the direction that environmental measures should aim for as a comprehensive plan for the environment, based on the premise that the fundamental direction of the current plan will be inherited and promoted.	• The "Yokohama's Vision for the Future Environment," "Basic Philosophy of Environmental Administration," and "System of Policies" are basically inherited (Chapter 2). • Newly defined five approaches as the direction that all environmental measures should aim for (Chapter 3).
• Effective communication of the environmental situation and the direction that environmental measures are aiming for, using specific images and examples of initiatives, is necessary to help citizens and businesses understand and take action. • It is important to communicate the overall environmental assessment and efforts in an easy-to-understand manner.	• Describe the contents of the plan by actively using specific illustrations and examples of initiatives (entire plan) • Quantitative or qualitative evaluation is conducted according to the items and published in an easy-to-understand manner, utilizing the results of citizen awareness surveys on the environment, etc. (Chapter 6).
• The Yokohama Action Plan for Biodiversity, which comprehensively summarized and promoted environmental policies from the perspective of biodiversity, should be strengthened as part of a comprehensive environmental policy, and biodiversity should be further mainstreamed. • The Yokohama Action Plan for Biodiversity should be integrated with the Environmental Management Plan, a comprehensive plan, and promoted more strongly together with further comprehensive environmental policies	• Incorporate the Yokohama Action Plan for Biodiversity into the Environmental Management Plan and promote comprehensive efforts (Chapter 1)
• Based on the fact that individual plans are formulated for each environmental field and initiatives are steadily implemented and progress managed, the environmental management plan indicates the direction that the environmental policy aims to take through mid- to long-term environmental targets, etc. (The same applies to the Yokohama Action Plan for Biodiversity)	• Clarify the direction to aim for as a comprehensive plan for the environment from a medium- to long-term perspective, and clearly state the environmental targets by FY2025 and the approach to achieve them (Chapters 4 and 5).

(2) Direction of comprehensive promotion of environmental policy

answer excuse me! (when calling out to someone)	revised plan
In light of recent social conditions, promote environmental policies comprehensively, paying attention to the following perspectives • Strengthening various alliances to simultaneously solve environmental, economic, and social problems • Further promotion of environmental education and learning to encourage citizens and businesses to take the initiative • Active use of ICT • Strengthening Disaster Prevention and Mitigation Perspectives • To become a "city of choice" both domestically and internationally, we are working to create a metropolis and a city of the future. Promoting Yokohama's environmental attractions	• The Environmental Management Plan newly describes five approaches to comprehensively promote environmental policies. The approaches are explained in an easy-to-understand manner based on specific illustrations and examples of initiatives (Chapter 3).
• Contribute to the achievement of the SDGs through various initiatives based on the three comprehensive perspectives (people and community, economy, and urban development) and by further promoting cooperation with diverse entities	• Based on the newly established "Approach", we will continue to promote the three basic policies from a comprehensive perspective and the seven basic measures from the environmental aspect to achieve the SDGs. Contributed to the achievement (Chapter 3)

(3) Direction of Policy Development

answer excuse me! (when calling out to someone)	revised plan
Conduct necessary reviews as appropriate in accordance with the status of related individual plans and the formulation of laws and regulations.	Each was reviewed based on the report of the Environmental Creation Council.
Basic Policy from a Comprehensive Perspective • Strengthening policies in "Environment and Urban Development" by adding a new perspective on disaster prevention and mitigation.	Basic Policy from a Comprehensive Perspective: Chapter 4 • New policy (promotion of disaster prevention and mitigation measures in the environmental field) was established under "Environment and Urban Development.
Basic measures from the environmental aspect • Global warming countermeasures" will be consistent with the Council for the Creation of a New Environment report. • Biodiversity is positioned as a regional strategy based on the Basic Act on Biodiversity. • Change "Food and Agriculture" to "Urban Agriculture" and align environmental goals accordingly. • Living environment" measures are restructured into quantitative targets based on environmental standards and qualitative targets such as "comfort" and "behavior" (comprehensive evaluation of the quality of the living environment) which are separately compiled in the form of action plans, etc. and disseminated in an easy-to-understand manner. • Continue to position "environmental education and learning" as one of the basic measures from the environmental aspect, and continue the existing environmental education goals and action policies.	Basic measures from the environmental aspect: Chapter 5 • Global warming countermeasures": consistent with the action plan for global warming countermeasures • Biodiversity: positioned as a regional strategy based on the Basic Act on Biodiversity • Urban Agriculture: Policy renamed and content revised. • Living Environment": The "Guidelines for the Promotion of Living Environment Preservation" to be developed after the revision of this plan will state that efforts will be promoted. • Environmental education and learning": positioned in the action plan under the Law for the Promotion of Environmental Education, etc.

5 Results of Public Comments on the Revised Draft

In revising the "Yokohama City Environmental Management Plan" based on the "Yokohama City Basic Ordinance on Environmental Conservation and Creation," the City of Yokohama published a revised draft of the plan on June 22, 2018, and conducted public comments. The results are as follows.

(1) Outline of implementation

implementation period	Monday, June 25 through Tuesday, July 31, 2018
Submission Method	By mail, fax, electronic application, in person, or e-mail
Place of publication of the Draft	Citizen Information Center, Public Relations and Consultation Section of each ward office, Policy Division of the Environment and Creation Bureau and homepage

(2) Implementation results

Number of submitters	48 Name			
Submission Method	16 by mail, 1 by fax, 25 by electronic application, 2 in person, 4 by e-mail			
Number of Opinions	136 cases			
Number of opinions by sector	General Planning	45 cases	water and greenery	9 cases
	Environment, People and Community	2 cases	urban agriculture	4 cases
	Environment and Economy	2 cases	resource recycling	10 cases
	Environment and Community Development	23 cases	one's (living) environment	8 cases
	Global Warming Countermeasures	10 cases	Environmental Education and Learning	9 cases
	biodiversity	12 cases	Other	2 cases

(3) Classification of submitted comments and status of reflection in the plan

(i) Reflected in the plan based on the purpose of the comments	19 cases (14%)
(ii) Those that have the same purpose as the draft or those that have been endorsed and evaluated.	38 cases (28%)
(iii) Opinions on individual projects, etc. for reference	58 cases (43%)
(iv) Other items or questions that do not appear to be related to the Plan.	21 cases (15%)

(4) Amendments not based on public comment

Necessary revisions have been made to the wording based on the latest findings and data after the release of the revised draft.

6 Outline of Major Related Plans, etc.

Yokohama City Basic Concept (Long-term Vision)	Formulated in June 2006
It is a vision for the future of Yokohama shared by all citizens, and serves as a basic guideline for all individuals, organizations, businesses, and governments that support the city of Yokohama to work toward its realization while sharing the challenges they face. The five pillars of this vision are "Interaction Hub City," "Vital and Creative City," "Comfortable City," "Environmentally Active City," and "Safe and Secure City," and the efforts and basic stance to realize them are presented.	

Yokohama City Mid-Term Four-Year Plan　2018～2021	Formulated October 2018
It is an implementation plan to materialize the policies and processes to realize the vision of the city that the "Yokohama City Master Plan" sets forth. The plan sets forth the vision and targets to be achieved over the four-year period from FY 2018 to FY 2021, as well as the indicators to be achieved during the plan period.	

Yokohama City Action Plan for Global Warming Countermeasures	Revised October 2018
In accordance with Article 21, Paragraph 3 of the Law Concerning the Promotion of the Measures to Cope with Global Warming, this plan establishes measures to control greenhouse gas emissions throughout the city. The city will promote global warming countermeasures (mitigation and adaptation measures) with the goal of "achieving zero greenhouse gas emissions (decarbonization) as early as possible in the second half of this century.	

Yokohama City Basic Plan for Water and Greenery	Revised June 2016
It is a comprehensive plan that comprehensively defines the direction and approach of the city's water and green environment policies to protect, create, and nurture a water and green environment tha is unique to Yokohama, by integrating water and green spaces such as rivers, waterways, forested areas, agricultural land, and parks in the city.	

Yokohama Green Up Plan	Formulated November 2018
The plan is to use the "Yokohama Green Tax" as part of the financial resources to pass on Yokohama, a city rich in greenery, to the next generation, and to work on the three pillars o "nurturing forests for the next generation together with citizens," "creating places where citizens can feel agriculture close at hand," and "creating greenery and flowers that citizens can feel," along with "developin effective public relations.	

Yokohama City Sewerage Business Mid-term Management Plan 2018	Formulated November 2018
This is a medium-term plan for the sewerage business in Yokohama City. It sets forth management principles and policies, as well as goals and initiatives for policies and financial management.	

Yokohama Urban Agriculture Promotion Plan	Revised November 2018
In order to respond to changes in the environment surrounding agriculture in Yokohama, issues faced by farmers, and the diverse needs of citizens, thi plan is being formulated to summarize future agricultural policies, including the future vision of urban agriculture in Yokohama, a city of 3.7 millio people, and the projects that will be undertaken.	

Yokohama City Basic Plan for General Waste Disposal (Yokohama 3R Dream Plan)	Formulated in January 2011
This is a long-term plan for Yokohama City's general waste management, which aims to promote 3Rs, especially environmentally friendly "reduce, reduce, reduce" to reduce the environmental burden and to secure effective use of resources and energy. emissions (total amount of waste and resources) by more than 10% (about 130,000 tons) and greenhouse gas emissions from waste disposal by more than 50% (about 140,000 tons-$CO_{(2)}$) by FY2025 compared to FY2013.	

The Seventh Yokohama City Industrial Waste Disposal Guidance Plan	Formulated March 2016
The plan systematizes the direction and measures of industrial waste administration in order to promote reduction, reduction, recycling, and proper disposal of industrial waste generated in Yokohama City, and the plan period is from FY2016 to FY2020. The achievement target is indicated in terms of the final disposal rate.	

Yokohama City Disaster Waste Disposal Plan	Formulated October 2018
This is a plan that outlines emergency measures and recovery/restoration measures for the proper, smooth and prompt disposal of disaster waste generated in the event of various natural disasters in Yokohama City.	

Yokohama City Urban Planning Master Plan (Overall Concept)	Formulated in March 2013
It establishes policies for preparing "urban plans" that stipulate necessary matters to concretize the state of a town during "urban development" or "city planning". It is prepared with a view to the overall life of citizens, based on plans for industry, welfare, environment, community, disaster prevention, and other fields related to urban planning. It is headed by "Formation of Compact Urban Areas," which involves efficient infrastructure development and functional concentration etc., commensurate with the size and composition of the population, We have set seven "Goals for Urban Development. We aim to realize the urban vision set forth in the Yokohama City Master Plan: "A city that generates new 'Yokohama-ness' through the power of citizenship and creativity.	

Yokohama Port and Harbor Plan	Revised December 2014
This is a basic plan established under the Port and Harbor Law for the systematic development, utilization, and preservation of the Port of Yokohama. The three pillars of the plan are "an internationally competitive port," "a port where citizens can gather and relax," and "a safe, secure, and environmentally friendly port," aiming to create a comprehensive port that will revitalize Yokohama's economy and enrich the lives of its citizens.	

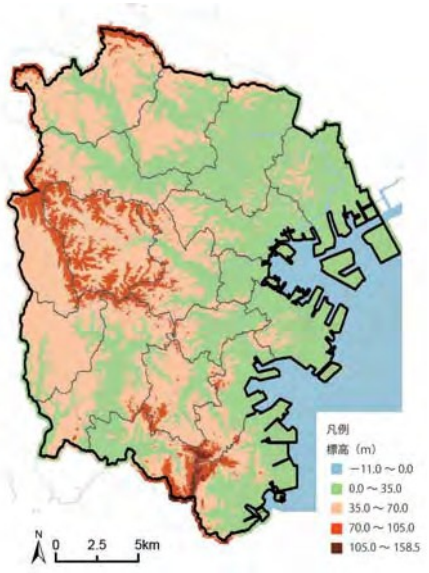
7 Yokohama City Regional Characteristics

(1) Topography

The topography of Yokohama City is characterized by the Tama and Miura Hills running through the center of the city, and the city has a continuous water and green environment over a wide area due to the greenery of the hills and rivers.

Yokohama City is home to many rivers, including the Tsurumi River and the Katabira River, four of which (the Katabira River basin, the Irie River and Takinogawa River basins, the Ooka River basin, and the Miyagawa and Samurai River basins) and a cluster of smaller basins that drain directly into the sea are complete watersheds within Yokohama City. From the headwaters and upper reaches to the middle reaches of the rivers flowing through Yokohama City, diverse nature and satoyama landscapes such as coherent woodlands, farmlands, springs, and waterside areas remain, and these greens are positioned as "10 major green bases".

In addition, woodlands and farmlands exist from the urbanization control zone into the urbanization zone, and many woodlands and farmlands can be seen in the urban area.



Topography of Yokohama

(Source: "Yokohama City Basic Plan for Water and Greenery")

Figure: Location map of river basins flowing through the city

(Source: "Yokohama City Basic Plan for Water and Greenery")

(2) Land use

Looking at land use trends from 1992 to 2013, urban land use such as residential land and land for roads and transportation facilities has increased, while natural land use such as agricultural land and forested land has decreased.

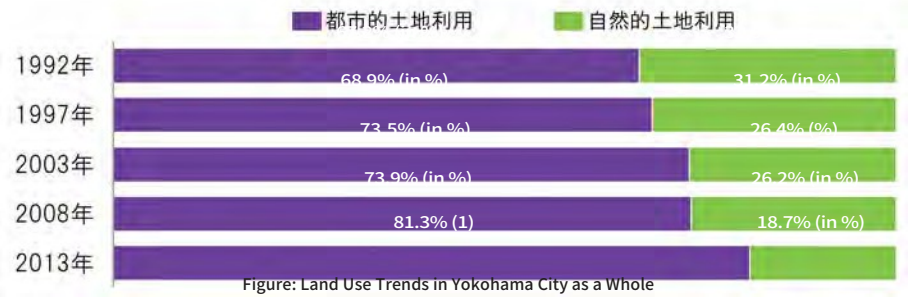
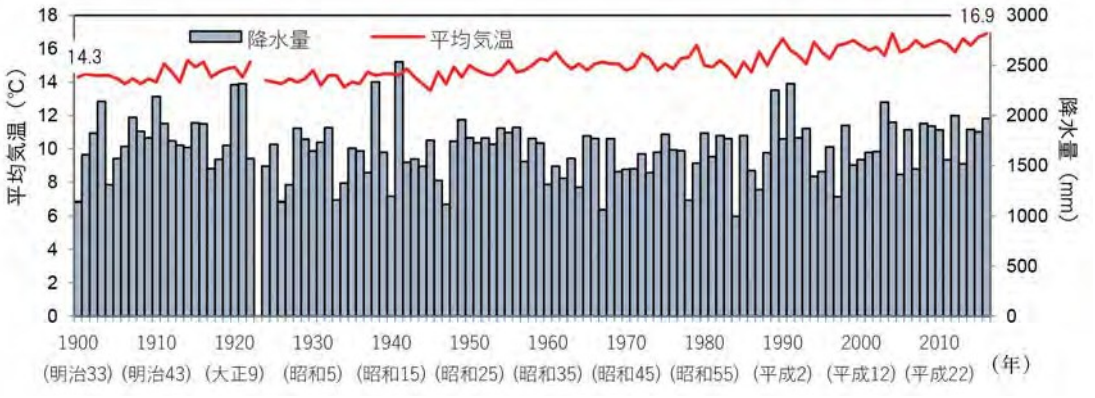


Figure: Land Use Trends in Yokohama City as a Whole

(Source: Compiled from "Yokohama City Urban Planning Basic Survey")

(3) Weather

Yokohama City faces the sea and has a warm and rainy Pacific Ocean-side climate. Trends in temperature and precipitation are shown in the figure. The average temperature was 14.3°C in 1900 and 16.9°C in 2016, showing a long-term upward trend.



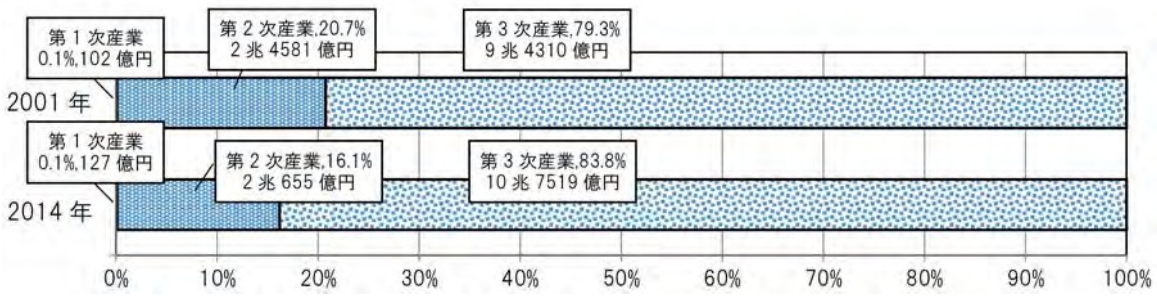
Temperature and precipitation

(Source: Historical weather data, Japan Meteorological Agency)

Note: Data for 1923 are not described due to lack of documentation.

(4) Economy

Looking at the city's gross production by industry in FY2014, the percentage of secondary industry decreased while the percentage of tertiary industry increased significantly. The city's agricultural output is the highest in the prefecture, and with a large consumption area, farmers in the city have a variety of sales methods, including market shipments, sales at the estimated 1,000 direct sales outlets in the city, and contract farming.



Gross Municipal Product Composition by Industry

(Source: Compiled from "Prefectural Accounts", Cabinet Office)

(5) History

Yokohama is a city that developed with the opening of the Port of Yokohama in 1859, and has a rich historical and cultural heritage since the opening of the port. One of Yokohama's unique cityscapes and landscapes have become a tourist resource for the region, including the area around the Port of Yokohama.

8 Yokohama City Basic Ordinance on Environmental Conservation and Creation

Ordinance No. 17 of March 24, 1995

Table of Contents

Chapter 1 General Provisions

(Purpose)

Article 1 This Ordinance establishes the basic principles for the City of Yokohama (hereinafter referred to as "the City") in environmental conservation and creation, clarifies the responsibilities of the City, business operators, and citizens, and sets forth basic matters regarding measures for environmental conservation and creation. Article 1 The purpose of this ordinance is to comprehensively and systematically promote measures for environmental conservation and creation by establishing basic principles for the City of Yokohama (hereinafter referred to as "the City"), business operators, and citizens to work together, by clarifying the responsibilities of the City, business operators, and citizens, and by providing basic matters for measures for environmental conservation and creation, and thereby to contribute to ensuring the healthy and cultural lives of present and future generations of citizens. The purpose is to contribute to ensuring healthy and cultural lifestyles for citizens in the present and future generations.

(Definition)

Article 2 In this Ordinance, the meanings of the terms listed in the following items shall be as prescribed respectively in those items.

(1) Environmental Impact: Impacts on the environment caused by human activities that have the potential to cause disturbances to environmental conservation.

(2) Pollution: Among environmental preservation hindrances, this term refers to damage to human health or living environment caused by air pollution, water pollution, soil contamination, noise, vibration, ground subsidence, and offensive odor over a considerable area resulting from business and other human activities.

(3) Global environmental preservation means preservation of the environment pertaining to global warming or progressive depletion of the ozone layer, pollution of the oceans, reduction of wildlife species, and other situations affecting the environment of the Earth as a whole or a broad part thereof due to human activities, which contribute to the welfare of humankind and ensure a healthy and cultured life for the citizens of the Earth. (2) The term "environmental conservation" shall mean the conservation of the environment with respect to

(Basic Philosophy)

Article 3. Considering that a healthy and bountiful environment is indispensable for the healthy and cultural life of all citizens, the preservation and creation of the environment shall be actively promoted to maintain and improve it in the future, and to enable present and future generations of citizens to enjoy its benefits. The same shall apply to the following

2 The preservation and creation of the environment is a sustainable process with minimal impact on the environment. The city shall be actively engaged in the rational and efficient use of energy, the recycling of resources, and other actions related to environmental conservation and creation, with the aim of realizing a city that is capable of development, through active efforts by the city, business operators, and citizens, based on the sharing of roles according to their respective responsibilities.

3 Environmental conservation and creation shall be carried out by and enhancing the natural environment, while giving due consideration to ecological diversity, for the purpose of realizing a city in touch with nature. 4 Global environmental conservation must be actively promoted by the city, businesses, and citizens in their respective business activities and daily lives, recognizing that it is their own task.

(City Responsibilities)

The City shall be responsible for formulating and implementing comprehensive and systematic measures for environmental conservation and creation in accordance with the natural and social conditions of the city area.

2 The City shall strive to reduce the environmental impact of the implementation of its own measures.

3 With regard to measures that require wide-area efforts for environmental conservation and creation, the city shall cooperate with the national government and other local governments to promote such measures.

(Responsibilities of the operator)

Article 5 Business operators shall be responsible for preventing pollution, properly disposing of waste, and appropriately preserving the natural environment in the course of their business activities.

2 Business operators are responsible for taking necessary measures to ensure that products and other materials related to their business activities are properly disposed of when they become waste in the course of manufacturing, processing, selling, or otherwise conducting their business activities.

(3) In addition to what is provided for in the preceding two paragraphs, a business operator shall, in manufacturing, processing, or selling products or conducting other business activities, endeavor to contribute to reducing the burden on the environment caused by the use or disposal of products and other materials pertaining to the business activities, and shall endeavor to reduce the generation of waste and to (2) Business operators shall endeavor to use recyclable resources and other raw materials, services, etc. that contribute to reducing the burden on the environment.

4 In addition to the provisions of the preceding three paragraphs, business operators are responsible for actively striving to reduce the environmental impact of their business activities and for other environmental conservation and creation activities, and for cooperating with the measures implemented by the City for environmental conservation and creation.

(Civic Duty)

Article 6 Citizens shall endeavor to reduce the burden on the environment caused by waste emissions, noise generation, and automobile use associated with their daily lives.

(2) In addition to what is provided for in the preceding paragraph, citizens shall be responsible for actively striving to preserve and create the environment on their own initiative, and for cooperating with measures implemented by the city for environmental preservation and creation.

Chapter 2 Basic Measures

(Prevention of pollution, etc.)

Article 7 The city shall take necessary measures for the prevention of pollution in order to protect the health of citizens and preserve their living environment.

(2) In addition to what is provided for in the preceding paragraph, the city shall take necessary measures to prevent obstacles to the preservation of the environment due to waste emissions, noise generation, air pollution by chemical substances, etc., water pollution, or soil contamination, which may damage the health or living environment of citizens.

(Establishment of a system for monitoring, etc.)

Article 8 The city shall endeavor to establish a system for necessary monitoring and measurement to ascertain the status of pollution and other disturbances to the preservation of the environment.

(Protection of health victims of pollution, etc.)

Article 9 The city shall take necessary measures for the protection of health victims and prevention of health hazards related to pollution.

(2) The City shall endeavor to smoothly handle complaints concerning pollution and other disturbances to the preservation of the environment.

(Conservation and creation of the natural environment)

Article 10 The City shall endeavor to properly preserve and create diverse natural environments in woodlands, agricultural lands, rivers, oceans, etc.

(2) In preserving and creating the natural environment, the city shall endeavor to ensure the diversity of ecosystems by giving consideration to the growing environment of animals and plants.

(Ensuring a comfortable environment)

Article 11 The city shall endeavor to ensure a pleasant, comfortable environment with plenty of greenery, waterfront development, a pleasant sound environment or good landscape, and the preservation of historical and cultural heritage in a systematic manner.

(Promotion of rational and efficient use of energy, etc.)

Article 12 In order to reduce the burden on the environment, the City shall take necessary measures to promote the rational and efficient use of energy and the recycling of resources, and to reduce the generation of waste.

(Promotion of the use of products, etc. that contribute to reducing the burden on the environment)

Article 13 The City shall take necessary measures to promote the use of raw materials, products, and services that contribute to reducing the burden on the environment.

(Maintenance of facilities related to preservation of the environment, etc.)

Article 14 The City shall promote projects to prevent or contribute to the prevention of environmental disturbances, such as the construction of waste disposal facilities, public sewage systems, transportation facilities that contribute to reducing the burden on the environment, and dredging of sludge.

(Promotion of global environmental preservation, etc.)

Article 15 In order to contribute to the preservation of the global environment, the City shall endeavor to promote measures related to the prevention of global warming and the protection of the ozone layer, as well as international cooperation on environmental conservation and creation.

(Enhancement of environmental education and promotion of environmental learning)

Article 16 The city shall take necessary measures such as promotion of enlightenment activities such as dissemination of knowledge on environmental conservation and creation, development of human resources, and expansion of opportunities for mutual exchanges among citizens, in order to enhance education and promote learning concerning environmental conservation and creation.

(Surveys, research, etc.)

Article 17 The City shall endeavor to collect information on environmental conservation and creation, and to conduct scientific surveys and research and disseminate the results thereof.

Chapter 3: Measures for Comprehensive Promotion

(Development of environmental management plans, etc.)

Article 18 The Mayor shall formulate the Yokohama City Environmental Management Plan (hereinafter referred to as the "Environmental Management Plan") in order to promote measures for environmental conservation and creation in a comprehensive and systematic manner. Article 18.

2 The environmental management plan shall establish goals for environmental conservation and creation, measures to achieve the goals, guidelines for consideration, and other necessary matters.

3 When formulating an environmental management plan, the mayor shall take necessary measures to reflect the opinions of citizens and business operators, and shall obtain the opinions of the Yokohama City Environmental Creation Council based on the Yokohama City Environmental Creation Council Ordinance (Yokohama City Ordinance No. 19, June 1994).

(4) When the Mayor has developed an environmental management plan, he/she shall promptly make it publicly available.

5 The provisions of the preceding two paragraphs shall apply mutatis mutandis to changes in the environmental management plan.

(Ordinance 75, Heisei 18, partially amended)

(e.g., consistency of policy formulation, etc., with environmental management plans)

Article 19 In formulating or implementing its own measures, the City shall endeavor to ensure consistency with the Environmental Management Plan.

2 In implementing the environmental management plan, the city shall take necessary measures for its effective promotion and comprehensive coordination.

(Preparation and publication of annual reports, etc.)

Article 20 The Mayor shall prepare and publish an annual report on the state of the environment and the status of measures implemented in accordance with the Environmental Management Plan.

(Promotion of environmental considerations in planning development projects, etc.)

Article 21. Any change in the shape of land, new construction of structures, or other similar activities that may have a significant impact on the environment (hereinafter referred to as "opening of land") shall be subject to the approval of the City Planning Commission.

(referred to as "Development Project, etc.") A person who intends to plan a project (hereinafter referred to as "development project, etc.") shall, in planning the project, give appropriate consideration to the environmental impact of the project and shall endeavor to conserve the environment.

(2) The city shall provide information, advice, and other necessary measures concerning the environment necessary to give proper consideration under the preceding paragraph.

(Promotion of environmental impact assessment for finalization of plans for development projects, etc.)

Article 22 Any person who intends to implement a Large-Scale Development Project, etc. shall, in finalizing the plan for the Development Project, etc., properly investigate, forecast and evaluate the environmental impact of the Development Project, etc., and shall endeavor to preserve the environment based on the results of such investigation, forecast and evaluation.

(2) The city shall take necessary measures such as establishing the procedures and standards required to conduct surveys, forecasts and evaluations under the preceding paragraph.

Chapter 4 Measures for Effective Promotion

(Provision of information and reflection of opinions of citizens, etc.)

Article 2 3 The city shall endeavor to provide appropriate information on the state of the environment and other information on environmental conservation and creation, and shall endeavor to take necessary measures to reflect the opinions of citizens and business operators in its policies on environmental conservation and creation.

(Cooperation with citizens and businesses)

Article 24 In order to effectively promote measures for environmental conservation and creation, the city shall endeavor to cooperate with citizens and businesses by seeking their participation and cooperation.

(Promotion of voluntary activities by citizens and businesses)

Article 25 In order to promote local greening activities, activities to recover recyclable resources, and other activities related to environmental conservation and creation voluntarily conducted by citizens and businesses, the City shall provide subsidies, commendations, and other necessary measures for these activities.

(Economic Measures)

Article 26 The City shall endeavor to provide subsidies and other measures when particularly necessary to promote the improvement of facilities, research and development, and other similar activities conducted by citizens and businesses to reduce their environmental impact.

2 In order to reduce the burden on the environment, the city shall conduct surveys and studies on measures that require citizens or businesses to bear an appropriate economic burden, and if particularly necessary, shall endeavor to take such measures.

(Promoting the introduction of systems related to environmental management by businesses)

Article 27 The City shall take necessary measures to promote the introduction of systems related to environmental management by business operators as a system to reduce the environmental impact of their business activities.

Supplementary Provisions

This ordinance shall go into effect on April 1, 1995.

Supplementary Provisions (Ordinance No. 75 of December 2006) (Extract)

(Effective date)

1 This ordinance shall go into effect on April 1, 2007.

9 Key Environmental Guidelines

Item item	Name Name	Provider
Global Warming Counter measures	Guidelines for the control of greenhouse gas emissions ≪ H22.3 ≫	Environmental Management Division, Bureau of Environment and Creation
	The following activities will be carried out: (1) identification of greenhouse gas emissions from business activities, (2) measures to be taken by business operators to reduce greenhouse gas emissions, (3) preparation of a global warming action plan, and (4) establishment of a regional (2) Methods of reporting on the status of implementation of measures to prevent global warming	
	Yokohama City District Heating and Cooling Promotion Guidelines << April 2008 ≫	Environment and Creation Bureau Environment and Energy Division
	In order to promote district heating and cooling, the district heating and cooling promotion areas and notification procedures are defined. Both request consideration for introduction, if necessary.	
	Yokohama City Climate Change Adaptation Policy ≪ H29.6 ≫	Global Warming Prevention and Response Headquarters, Coordination Division
	Cross-sectional compilation of global warming countermeasures being taken in various fields from the viewpoint of adaptation. other people's things	
	Guideline for heat control in town areas ≪ H28.5 ≫	Ministry of the Environment
	To promote measures against global warming, heat island effect, and heat stroke prevention, the project aims t promote measures against heat in urban areas, and to provide easy-to-understand scientific information abou the heat that people feel, as well as effective measures to prevent heat stroke. The report presents the concept of the method and introduces related technical information, etc.	
	Yokohama City Heat Island Countermeasures Policy << March 2006 ≫	Policy Division, Bureau of Environment and Creation
	This document presents the direction of Yokohama City's heat island countermeasures, with a target period of around 2025. In addition to setting targets for the city as a whole, it also sets targets for 15 priority promotion areas and the overlapping areas of the city and the surrounding area. Set targets in the point promotion areas	
	Yokohama City Guide to Heat Island Countermeasures ≪ H19.2 ≫	Policy Division, Bureau of Environment and Creation
	A compilation of ideas that citizens can readily engage in	
biodiversity	Guidelines for Private Sector Engagement in Biodiversity (Version 2)≪ H29.12 ≫	Ministry of the Environment
	Based on the recognition that corporate activities play an important role in promoting the conservation and sustainable use of biodiversity, we will provide basic information and concepts for business operators. The following is a summary of the results of the study.	
	How to proceed with raptor conservation (revised)≪ H24.12 ≫	Ministry of the Environment
	The project will focus on the three species of golden eagle, bear hawk, and goshawk, for which there are still concerns about friction with development projects, and for which information on habitat conditions and ecology is accumulating. (2) To clarify the concept for the consideration of conservation measures in the event of an initiating action.	
	Kanagawa Prefecture Bird and Wildlife Sanctuaries, etc. Location Map ≪ H29.11 ≫	Kanagawa prefecture (Kantou area)
	Prefectural map showing protected areas for birds and beasts and areas where the use of specified hunting equipment is prohibited in Kanagawa Prefecture (10) (1/10,000,000)	

Item item	Name name	Source.
unprotec ted (i.e. not wearing a condom) activity (matter) env iro nm ent (di	Guidelines for Reducing Environmental Impact (Items to be considered by business offices) ≪ H24.9 ≫	Environmental Management Division, Bureau of Environment and Creation
	To support the efforts of business operators to reduce the burden on the environment, as stipulated in Article 39 of the Yokohama City Ordinance Concerning Preservation of the Living Environment, etc., the following guidelines are provided to assist business operators in their efforts to reduce the burden on the environment. that sets forth the matters to be addressed	
	Guidelines for Reducing Environmental Impact (Matters that restaurants and other establishments should consider regarding odors)≪ H15.3 ≫	Environmental Management Division, Bureau of Environment and Creation
	To support efforts to reduce the burden on the environment by businesses operating restaurants, etc., as stipulated in Article 39 of the Yokohama City Ordinance on the Preservation of the Living Environment, etc., the Yokohama City Government has established the Yokohama City Environmental Management Committee (YMC). (2) A statement setting forth the matters to be taken into consideration by the person	
	Guidelines for the Prevention of External Noise from Nighttime Businesses ≪ H24.9 ≫	Environmental Management Division, Bureau of Environment and Creation
	The ordinance stipulates the matters to be considered by business operators to support their efforts to conduct nighttime business, as stipulated in Article 58 of the Yokohama City Ordinance Concerning Preservation of Living Environment, etc. other (opposite of what one was used to)	
	Guidelines for the Prevention of Noise from Daily Life ≪ H15.4 ≫	Environmental Management Division, Bureau of Environment and Creation
	The following are the rules and regulations that citizens should consider in order to support the prevention of noise generated in daily life, as stipulated in Article 147 of the Yokohama City Ordinance Concerning Preservation of the Living Environment. that sets forth the matters to be	
	Guidelines for the Proper Management of Chemical Substances ≪ Apr. 2006 ≫	Environmental Management Division, Bureau of Environment and Creation
	The following are the regulations for the business operator's activities as stipulated in Article 41 of the Yokohama City Ordinance on the Preservation of the Living Environment. Guidelines to Support Efforts for Proper Management of Chemical Substances	
sce ner y	Urban landscape consultation district	Landscape Coordination Division, Urban Development Bureau
	Based on the Yokohama City Ordinance on the Creation of Attractive Urban Landscapes, policies for creating zones and attractive urban landscapes, design guidelines for actions (action guidelines), etc. prescribed article	
	Outline of the Yamate District Landscape and Natural Environment Preservation Outline ≪ July 7, 1995 ≫	Urban Development Bureau Urban Renewal Promotion Division
	In order to maintain and preserve the charm of the area, and to secure views and landscapes in the Yamanote district, building Outline for strengthening design coordination of the form and use of objects.	
to wn pla nni ng "	District planning/building agreements	Urban Development Bureau Community Development Division
	Summary of district plans, building plan locations, policies, etc.	
	Urban development consultation district system	Urban Development Bureau Community Development Division
	Commercial and business districts around stations, planned development districts, and other areas of urban policy importance, Designate "development consultation districts" and stipulate town development consultation guidelines for each district.	
	harbour district	Port and Harbor Authority

	Four sub-divisions were established: Commercial Port, Industrial Port, Marina Port, and Shukei Port. Prohibit the construction or change of use of structures that are not compatible with the purpose of the respective subdivisions	Administrative Management Section I
a building	Yokohama City Building Environmental Consideration System (CASBEE Yokohama)	Building Department Building Planning Division
	The architect prepares a "Building Environmental Consideration Plan" for his/her building, which includes a total Promotion of integrated environmentally friendly initiatives	

10 Terminology

A - Z

AI (Artificial Intelligence)

Intelligent Machine. A computer system that possesses human capabilities such as reasoning and learning.

BOD (Biochemical Oxygen Demand)

One of the indicators of the degree of pollution in a river.

The amount of oxygen used by microorganisms to break down organic matter (dirt) in water. A higher value indicates greater contamination.

COD (Chemical Oxygen Demand)

One of the indicators of the degree of pollution in oceans and lakes.

The amount of oxygen used to break down organic matter (dirt) in water with chemicals. Higher values indicate greater contamination.

I C T (Information and Communication Technology)

In various fields related to information processing and telecommunications

The term is used to refer to technologies, industries, facilities, services, etc.

Internet of Things (IoT)

A wide variety of "things" other than IT-related devices such as PCs and servers, including buildings, electrical appliances, automobiles, and medical equipment, are connected to the Internet and exchange information with each other. This is called the "Internet of Things.

ISO 14001

An international environmental standard defined by the International Organization for Standardization (ISO). It defines a system for companies and municipalities to continuously implement activities to reduce their impact on the environment.

NGO (Non-governmental Organization)

Means all private organizations other than governments. Environment NGOs range from international organizations such as the International Union for Conservation of Nature (IUCN) and the World Wide Fund for Nature (WWF) to voluntary organizations located throughout Japan. Outside of Japan, NGOs may also include industry associations that operate for-profit businesses.

NPO (P r i v a t e Non-profit Organization)

Refers to civic organizations that can engage in non-profit activities.

In March 1998, the Law for the Promotion of Specified Nonprofit Activities (NPO Law) was enacted, allowing organizations that conduct activities in 17 fields, including activities for environmental conservation, and meet the requirements of the Law, to acquire corporate status as specified nonprofit corporations.

PCB waste PCB (polychlorinated biphenyls) and electrical equipment and materials coated with PCBs that have become waste.

○Highly concentrated PCB waste

Transformers, capacitors, etc.	March 31, 2022
and ballasts, contaminants, etc.	March 31, 2023
○Low-concentration PCB waste	March 31, 2027

PM 2.5 (fine particulate matter)

Particulate matter suspended in the air with a particle size of PM2.5 refers to particulate matter smaller than 2.5 micrometers. There is concern about the health effects of PM2.5 because of its ability to penetrate deep into the respiratory tract, etc. After deliberations by the Central Environmental Council, environmental standards for PM2.5 were announced in September 2009.

ZEH (Net Zero Energy House): A house that achieves significant energy savings while maintaining the quality of the indoor environment by significantly improving the insulation performance of the outer skin (outer walls, floors, etc.) and introducing high-efficiency equipment systems, as well as by introducing renewable energy, thereby achieving a zero annual primary energy consumption balance. The goal is to achieve an annual primary energy consumption balance of zero by introducing renewable energy sources.

that (something mentioned before which is distant psychologically or in terms of time)

Patronage Association, etc.

Volunteer groups organized in many facilities such as parks, roads, woodlands, rivers and waterfront facilities. They are engaged in activities related to the environment, including maintenance and management activities such as cleanups.

red tide

A phenomenon in which seawater becomes discolored when a large amount of specific plankton occurs in a sea area and accumulates near the water surface. It is believed to be caused by interrelated factors such as the concentration of nutrients such as nitrogen and phosphorus in seawater and natural conditions. In Tokyo Bay, plankton proliferate and red tides tend to occur when the water temperature rises from spring to summer and the hours of sunlight become longer.

asbestos

A naturally occurring fibrous silicate mineral called asbestos. In the past, asbestos was sprayed on buildings for the purpose of thermal insulation, but this practice was banned in principle in 1975. Since then, asbestos has been used in slate materials and heat insulating materials, but its manufacture is now prohibited. Asbestos is known to cause malignant mesothelioma and lung cancer when scattered and inhaled, and measures to prevent scattering and exposure to asbestos have been taken under the Air Pollution Control Law and other laws.

Welcome Center

This facility was constructed by utilizing existing facilities in the city in accordance with the Yokohama Green Up Plan, and is designed to provide information on forests and their attractions. It provides "forest information" such as information on safe walks in the forest and information on living creatures, and "public awareness and environmental education" such as lectures to learn about and enjoy the forest. There are five welcome centers in the city (Yokohama Nature Park Nature Observation Center, Niiharu Satoyama Park Niiharu Satoyama Exchange Center, Maioka Furusato Village Niji-no-ie, Teraya Furusato Village Shiki no Ie, and Environmental Activity Support Center Exchange Space)

stormwater infiltration chamber

Holes are drilled in the bottom of the rainwater trough and filled with gravel around the holes to allow rainwater to soak into the ground.

nutritive salts

Substances found in seawater and land water that are necessary as nutrients for phytoplankton, seaweed, and other organisms.

Excite Yokohama 22

Yokohama Station Area Comprehensive Redevelopment Plan. The plan serves as a guideline for promoting "urban development suitable as the gateway to an international city" by addressing internationalization, environmental issues, improving the attractiveness of the station, and ensuring safety in the event of a disaster.

ecotourism

A way of tourism that targets local natural tourism resources, experiencing and learning about them, and taking responsibility for the preservation of the natural environment and historical and cultural heritage.

eco-renovation

Improvements that lead to energy-efficient and healthier homes, including improvements in the thermal insulation and energy efficiency of existing homes.

energy management system

(EMS: Energy Management System) Visualization of electricity consumption using sensors and IT technology leads to energy savings, and efficient energy management and control through the control of renewable energy, storage batteries, and other equipment.
A system to Depending on the target, they are called HEMS (home) BEMS (building) FEMS (factory) CEMS (community) so on.

open data

A data format suitable for machine decipherability in order to effectively use data used only by an organization in society. Data published with usage rules that allow for secondary use.

greenhouse gas

A gas that has the effect of maintaining the earth's average temperature by absorbing heat radiated from the earth's surface. Since the Industrial Revolution, the concentration of greenhouse gases has been increasing due to human activities, causing global warming and accompanying climate change and abnormal weather, which has become a problem. The Law Concerning the Promotion of Measures to Cope with Global Warming currently covers "carbon dioxide (CO_2)," "methane (CH_4)," "dinitrogen monoxide ($N_{(2)}O$)," "hydrofluorocarbons (HFCs)," "perfluorocarbons (PFCs),"

Seven substances are designated as "sulfur hexafluoride (SF_6), hydrofluorocarbons (HFC_s), perfluorocarbons (PFC_s), nitrogen trifluoride (NF_3).

-ist (used after a noun indicating someone's occupation, pursuits, disposition, etc.)

carbon offset

The concept is to offset unavoidable greenhouse gas emissions in daily life and economic activities by investing in greenhouse gas reduction activities (afforestation, use of natural energy, etc.) commensurate with the amount of greenhouse gas emissions.

introduced (non-native) species

An organism introduced as a result of human activities into an area or ecosystem outside its natural distribution range. It includes not only those introduced from outside the country but also those introduced from other parts of the country.

environmental standard

Standards that should be maintained for the protection of human health and the preservation of the living environment are defined in terms of numerical values, such as the concentration of substances and the loudness of sound. Environmental standards are set for air pollution, water pollution, groundwater and soil pollution, noise, and dioxins. Environmental standards are set as administrative goals for the national and local governments to promote anti-pollution measures, and are different from standards to directly regulate the sources of pollution (so-called regulatory standards).

environmental burden

The burden that people place on the environment. It includes those that do not have an adverse effect on the environment by themselves, but have an adverse effect when aggregated. The Basic Environment Law defines environmental burden as "any impact on the environment caused by human activities that is likely to cause a hindrance to environmental conservation." The Basic Environment Law defines "environmental impact" as

Environmental Conservation Agreement

An agreement between the City of Yokohama and business operators on voluntary efforts to reduce the environmental impact of their business activities, such as efforts related to environmental preservation. By promoting cooperation with business operators, the City ensures the effectiveness of measures related to environmental conservation.

Environmental Management System

(EMS: Environmental Management) Environmental management is the process by which organizations and businesses set their own environmental policies and targets and work toward achieving them in order to voluntarily promote environmental conservation efforts in their operations and management.

The term "environmental management" refers to the system of systems, procedures, etc. within a factory or office for this purpose, and the term "environmental management system" refers to the system of environmental management.

environmental risk

The threat that loads added to the environment by human activities may cause disturbances to environmental conservation through pathways in the environment (i.e., the potential to affect human health and ecosystems).

fish ladder

A detour channel is an artificial route established to allow fish to migrate upstream or downstream past weirs, dams, and other river crossing structures that impede fish migration.

Healthy water circulation

The water cycle in which the function of water in human activities and environmental protection is properly maintained.

pollution

Air pollution, water pollution, noise and odors generated by people's business and daily life, etc. that cause damage to human health and living environment. In the Basic Environment Law,

The seven types of pollution are defined as "pollution of the air, water, soil, noise, vibration, ground subsidence, and odors that are caused by business and other human activities to a considerable extent and that cause damage to human health or the living environment. These seven types of pollution are usually referred to as the "typical seven pollutants.

photochemical oxidant

An indicator of photochemical smog, it is a secondary pollutant produced by photochemical reactions between nitrogen oxides and highly photochemically reactive volatile organic compounds (VOCs) and other substances emitted from factories and automobiles when exposed to solar energy, and causes damage to the human body, animals and plants when its concentration increases.

photochemical smog

Photochemical smog, which is common during the summer season, occurs when the sky becomes hazy and a white blur appears as a result of photochemical oxidants that remain in the atmosphere on days with strong sunlight and light winds. The effects are far-reaching, affecting the mucous membranes of the eyes and throat, causing plant damage and visual impairment.

advanced processing

In sewage treatment, a treatment method used to obtain water quality higher than that obtained by secondary treatment, which mainly removes organic matter. The substances to be removed include suspended solids, organic matter, nutrients, etc. Various treatment methods are available for each of the substances to be removed.

come

area zoned for urbanization (urbanisation)

A zone designated by the "City Planning Law" to prevent uncontrolled urbanization and to promote systematic urbanization. The area to be actively developed and improved as an urban area, which has already formed an urban area, and the area to be systematically and preferentially urbanized within approximately 10 years.

area zoned for urbanization (urbanisation)

An area designated by the "City Planning Law" to prevent uncontrolled urbanization and to promote planned urbanization. In principle, development is prohibited in these zones.

sustainable

To engage in activities that satisfy the needs of future generations while also satisfying the needs of the present generation on a sustained and permanent basis.

Civic Forest

This is a system for preserving Yokohama City's own green spaces that are open to the public with the cooperation of forest owners.

recycling-oriented society

The urban structure will be designed with consideration for water circulation, such as underground irrigation of rainwater and gray water use, mechanisms and facilities for resource circulation, such as composting of food waste and recycling of used paper and cans, and wind paths and green spaces that promote atmospheric circulation.

The term "society" refers to a society that has

independent and decentralized energy

A generic term for energy supplied by relatively small-scale power generation facilities dispersed and located near energy-consuming areas, relative to conventional large-scale, centralized energy. Specifically, it includes renewable energy sources such as solar power generation, cogeneration systems such as fuel cells, and energy storage devices such as storage batteries.

hydrogen energy

Hydrogen is used as a fuel for energy. When hydrogen is combusted, it gives off heat and turns into water, so no air pollutants are produced. High power generation efficiency can be expected by using hydrogen to generate electricity in fuel cells.

3R

It is a term coined from the initial letters of words that express priorities in waste disposal and recycling. The three priorities are (1) waste reduction (Reduce) (2) reuse of resources and products (Reuse), and (3) reclamation (Recycle).
(To the 3Rs, the Refuse (Refuse) and Repair (Repair) are added to the 4Rs, and the 4Rs and the 4Rs are also added to the 3Rs (Recycle), and Reduce is given priority over Recycle.

Sometimes referred to as 5R.

Habitat ex situ conservation

A way to protect endangered species by sheltering them in safe facilities and increasing their numbers to avoid extinction.

ecosystem

All species in nature do not exist independently of each other, but are integrated into the food chain as eaters and receivers, interacting with each other to maintain the balance of the natural world. In addition to these species, the environment that governs them, such as weather, soil, and topography, is also called an ecosystem.

Ecosystem Services

The benefits that people derive from ecosystems: "provisioning services" such as food, water, timber, fiber, and fuel, and "regulating services" such as climate stability and water purification,

There are "cultural services" for recreation and spiritual benefits, and "infrastructure services" such as nutrient cycling, soil formation, and photosynthesis.

Biological symbiosis type revetment

One of the structures that are expected to improve the marine environment by adding functions as a place for organisms to grow and inhabit while constructing new port structures or repairing aging port structures.

biological index

It evaluates the state of the environment based on the appearance of indicator organisms. Yokohama City conducts biological surveys (fish, benthic animals, algae, etc.) of rivers and sea areas every three to four years to evaluate water quality.

Local Government Network for Biodiversity

A network of local governments mutually disseminating information on their efforts and achievements in biodiversity conservation and sustainable use, as well as working in partnership and collaboration with other sectors as members of the Japan Committee for the United Nations Decade of Biodiversity.

shallow-sea area

The area between the coastline and the outer edge of the continental shelf that occupies the majority of the area on the continental shelf.

total nitrogen

The total amount of inorganic nitrogen, such as ammoniacal nitrogen, and organic nitrogen contained in proteins and other substances. It is an indicator of eutrophication of water quality and is closely related to the occurrence of red tide.

whole forest

The total amount of phosphorus contained in phosphoric acid and its compounds. It is an indicator of eutrophication of water quality and is closely related to the occurrence of red tide.

distance between outstretched thumb and middle finger

(approx. 18 cm)

dioxins

A type of organic chemical substance containing chlorine, three substance groups are defined by the "Law Concerning Special Measures against Dioxins" (enacted in January 2000) (since it is not a single substance, it is referred to as a "substance group") Currently, the main sources of dioxins are combustion by waste incineration, manufacturing

Various sources have been cited, including electric furnaces for steel, cigarette smoke, and automobile emissions. It is insoluble in water and soluble in oil and solvents. It is also stable at room temperature, but decomposes almost completely at high temperatures (800°C or higher).

Creating a multi-natural river

River management should be carried out to preserve and create the habitat, growth, and breeding environment of living organisms and diverse river landscapes that rivers inherently possess, taking into consideration the natural life of the river as a whole and harmony with local lifestyles, history, and culture.

district planning

Urban planning at the level of a specific district or town block, established in accordance with the City Planning Law. It sets out detailed restrictions on community development policies and goals, public facilities such as roads and squares (district facilities) and the use, scale, and form of buildings, etc. In Yokohama City, the greening ratio of buildings in district planning is stipulated in an ordinance (Ordinance on Restrictions on Buildings, etc. in District Planning Areas) based on the Building Standards Law and Urban Green Space Law.

Electric Vehicles (EV)

An electric vehicle is a vehicle that does not have a gasoline engine but is powered by an electric motor. Because they do not emit carbon dioxide or exhaust gases while driving, they help prevent global warming and air pollution, and they also have the advantage of being less noisy while driving. There is a worldwide movement to shift from gasoline and diesel vehicles to electric vehicles, known as the "EV shift.

introduced species (esp. invasive species as defined by law)

Invasive alien species are defined by the Invasive Alien Species Act (Act on the Prevention of Harm to Ecosystems, etc. by Specified Invasive Alien Species) as those that cause or are likely to cause damage to ecosystems, etc. It is limited to living organisms, and includes eggs, seeds, organs, etc.

Invasive alien species" as defined by the Act refers to organisms that are introduced into Japan from overseas and thus inhabit or grow outside their original habitats or habitats.

(used with suffix -san or -sama) endearing term for unrelated older man or woman

Fuel Cell Vehicles (FCV)

A vehicle powered by electricity generated through a chemical reaction between hydrogen and oxygen in a fuel cell and driven by an electric motor. Since fuel cells do not emit carbon dioxide or exhaust gases while driving, they help prevent global warming and air pollution, and they also have the advantage of making little noise while driving.

school (e.g. of ikebana)

virtual power plant

(VVPP: Virtual Power Plant)

Energy resources possessed by buildings, homes, etc.

(A VPP is an initiative to adjust the supply and demand of electric power by remotely and integrated control of power generation facilities (storage batteries, power generation equipment, demand response, etc.) using advanced energy management technology, and to function as if it were a single power plant (virtual power plant). VPP is expected to reduce carbon dioxide emissions, power generation costs, and grid stabilization costs, as well as improve energy self-sufficiency (reduce dependence on fossil fuels).

biofuel

A fuel made from biomass (organic resources of renewable biological origin). Although carbon dioxide is emitted during combustion, it is offset by the amount of carbon dioxide absorbed during the growth of the raw crop, resulting in zero emissions.

heat island

In cities, high-density energy consumption and the fact that most of the ground is covered with concrete, asphalt, etc., prevent the temperature from decreasing due to evaporation of moisture, resulting in higher temperatures than in suburban areas. This phenomenon is called a heat island because it looks like an "island" centered in the city center when isotherms are drawn.

biotope

It is a German compound of the words "biot" meaning organism and "taupe" meaning place, and means a habitat space for wildlife. In regional planning, it is used to mean habitat space for organisms of planning importance. Ecosystem Conservation

From the viewpoint of the "Biotope Network," it is important to form a biotope network that ensures the movement of organisms, rather than to develop (secure) individual biotopes.

blue carbon

Carbon absorbed and captured by organisms living in the ocean (e.g., plankton, seaweed/seaweeds, salt marsh plants); named in a 2009 UNEP report.

Conservation Management Plan

A forest development management plan formulated for each individual forest area. Using the forest development guidelines, people from various positions involved in forest development, such as citizen groups and government officials, work together to define the future vision of the forest, zoning, work content, and division of roles, while taking advantage of the characteristics of each forest area, such as living creatures, local culture and traditions, etc.

just (e.g. "just wait here")

water reclamation center

Sewerage facilities that convert domestic wastewater and other wastewater into clean water. In Yokohama City, there are 11 water reclamation centers in operation as of November 2018.

Ten major green bases

A group of greenery in the city, as defined in the Yokohama City Water and Greenery Basic Plan.

unused energy

This refers to energy that has not been utilized up to now, such as temperature difference energy from river water, sewage water, etc., and exhaust heat from factories, etc. The use of unused energy through heat pump technology and other means leads to effective utilization of energy.

seaweed bed

It is one of the shallow-water ecosystems centered on communities of large benthic plants (seaweeds and seagrasses), which play an important role as spawning and feeding grounds for marine animals.

Mobility Management

While targeting the movement of each individual, they change spontaneously in socially and individually desirable directions.

The measures are expected to gradually change the situation from one of excessive car use to one of appropriate use of public transportation and bicycles.

Forest Growing Guideline

This is a technical guideline for forest development in Yokohama that organizes methods for maintaining and managing forests. It explains the origins of Yokohama's forests, how to formulate conservation and management plans, management tasks for each type of forest, and indicator organisms.

and ... and

valley door

A landform formed by the erosion of rainwater and spring water on a hilly plateau, with hilly plateau areas and forested areas on three sides (both sides and behind), wetlands, springs, waterways, agricultural land such as rice paddies, and reservoirs.

Yokohama Furusato Village

The purpose of this project is to conserve farmland and forests in agricultural areas that still have good rural landscapes for the future, and to promote agriculture. In the city, two villages, "Teraya Furusato Village" and "Maioka Furusato Village," have been established to provide citizens with opportunities to interact with farmers and become familiar with nature, agriculture, and rural culture.

and others

(river) basin

An area where rainwater (including ice and snow water) that flows into a river collects. Also called catchment area or drainage area.

Greening Area System

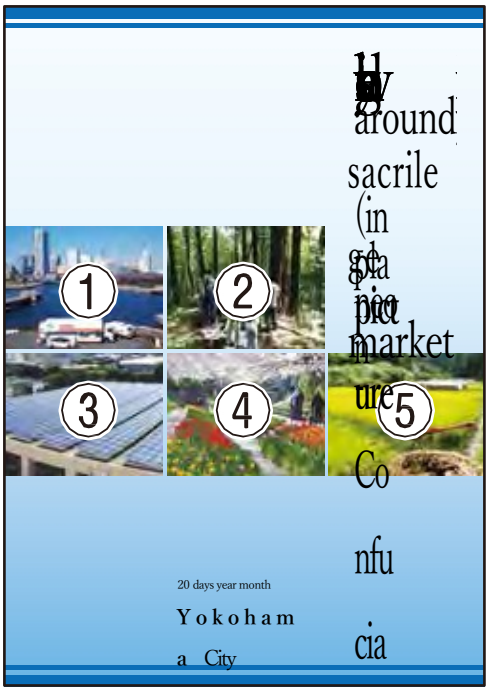
A system based on the Urban Planning Law and the Urban Green Space Law that requires new construction or expansion of buildings above a certain size in urban areas where greenery is in short supply to green at least a certain percentage of the site area.

system for preserving green space

The system is designed to preserve green spaces, mainly woodlands, and includes special green space preservation districts based on laws, citizen forests based on ordinances, and green space preservation districts.

green cover

One of the quantitative indicators of the current status of greenery. It is a method of capturing the amount of greenery from the sky using aerial photographs, which enables us to determine the approximate amount of greenery.



Cover Image

1) Mobile Hydrogen Station and Fuel Cell Vehicle (PCV) (Naka-ku, Tokyo)

(2) Creating opportunities to get involved in forests "Yokohama Forest School of Music (Midori-ku, Yokohama)

(3) Solar power generation facility at Kanagawa Water Reclamation Center Evening 1 (Kanagawa Ward, Kanagawa Prefecture)

4) Egawa Seseragi Greenway using treated sewage water (Tsuzuki Ward)

5) Niiharu Shimin-no Mori (Midori Ward)

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