Ministry of the Environment
Government of Japan

Water Environment Management in Japan

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WEPA Dialogue in Sri Lanka

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Japanese rapid economic growth

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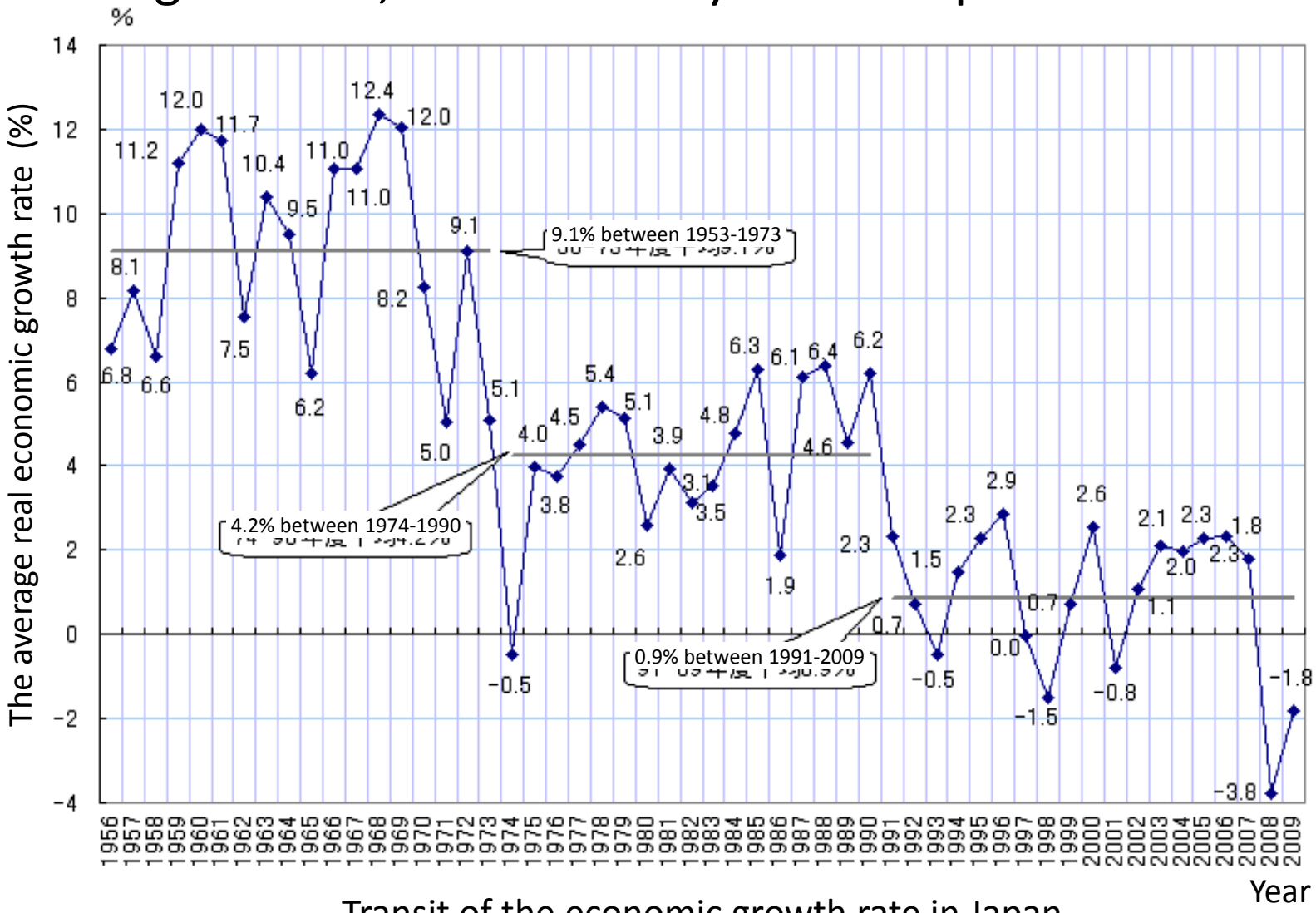
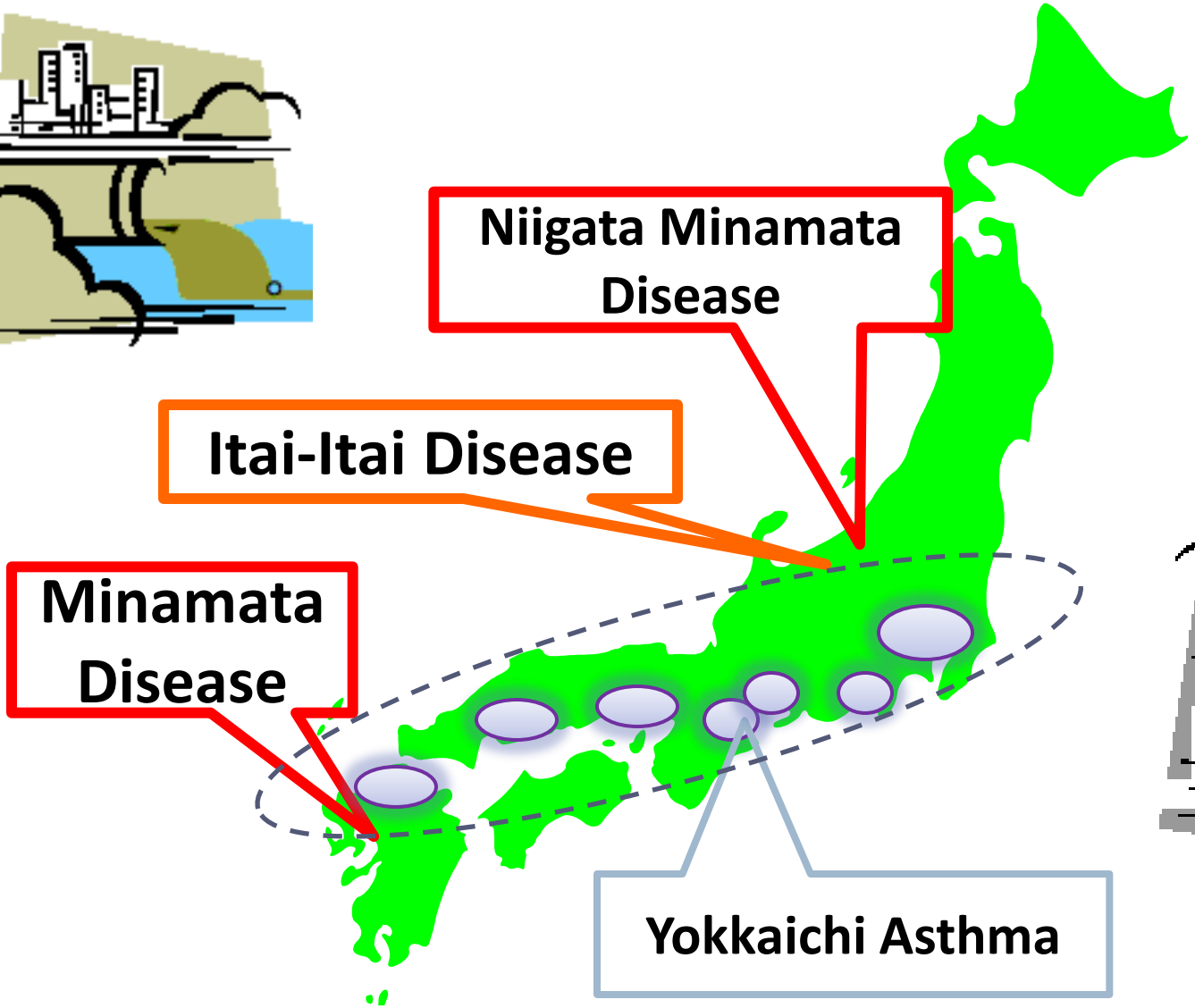
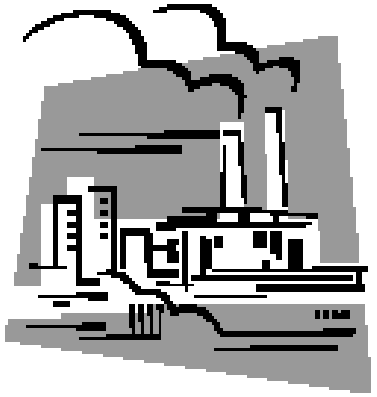
- The average real economic growth rate marked 9.1% through 1950's, 60's and early 70's in Japan



Transit of the economic growth rate in Japan

Four Major Pollution Issues





Serious Damage by toxic substance

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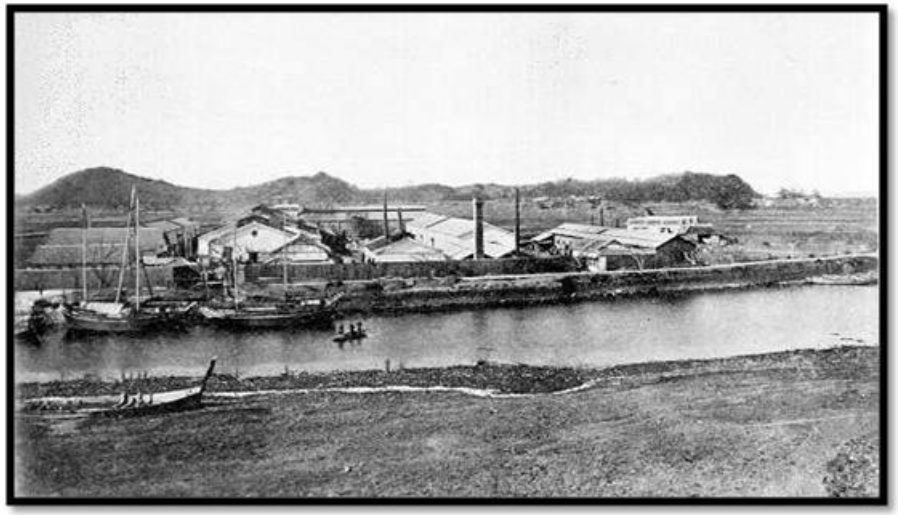
- Minamata Disease
  - Found in Minamata city, Kumamoto in 1956
  - Causality:
    "Methyl Mercury" contained in effluent from chemical factories
  - Main symptoms:
    Paresthesia of limbs, ataxio, narrowed visual field, auditory disorder, disorder of equilibrium, language disorder
  - Victims certified in law: about 3,000 person
  - Estimated Damege
    (Health, Fishery etc)
    $4,510 million (estimated)



- Same damage founded in Niigata

※ $1 = 84 Japanese yen

Source: Website of Minamata City

Serious Damage by toxic substance

Ministry of the Environment

- Itai-Itai Disease
  - Found in Jintsugawa river basin in Toyama Prefecture in 1955
  - Causality:
    "Cadmium" contained in untreated effluent from Mines
  - Main symptoms:
    Kidney damages and softening of bone caused by consumption of food contaminated by Cadmium
  - Victims certified in law: about 200 person
  - Estimated Damage
    (Health, Agriculture etc)
    : $ 603 million (estimated)

Source: Yomiuri Newspaper

※ $1 = 84 Japanese yen

Deterioration of water in public water body

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Sumida river in early 70's (Tokyo)

Dokai bay in '60s (Kitakyushu city)

Tama River in '70's (Tokyo)

Enactment of Water Pollution Control Law

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Basic law for environmental pollution control (1967)

※Replaced by the basic environment law in 1993

- **Establishment of Environmental Quality Standard (EQS)**
  - EQS for the protection of human health （Health Item）
  - EQS for the conservation of the living environment (Living Environment Item)

Water Pollution Control Law (1970)

- **Overcoming “Follow-up” approach**
  - From designation of regulation area to national uniform regulation
  - Unified national effluent standards ＋ more at local level, if needed
- **Tightening of regulations for compliance**
  - Direct penalty for non-compliance of effluent standards
- **Unification of law system in principle**
  - Unification of effluent standards for all business (with some exceptions)

Water Environment Quality Standards (EQS)

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Water Pollution

Toxic substance

Mercury, Arsenic,
Chlorinated organic compound,
etc

Organic Pollution etc

Dirtiness and muddiness of water
BOD/COD, DO, SS etc

Nutrient salts

Causality of eutrophication
Nitrogen, Phosphorus

Effect on people
(Drinking/seafood intake)

Effect on aquatic life

Water Environment Quality Standards

Health Item

- Nationally uniform
- 27 substances designated
- Monitored substances
  (No standards for them, but needed to collect scientific data)

Living Environment Item

- Designed to conserve the properties as well as the fauna and flora closely related to the living of people
- Set targets by categorizing into classes in accordance with water bodies

How the Water Pollution Control Law Works

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Nationwide regulations o factories or commercial facilities

Pre-regulation	Report installation or change of specified facility	Order to Change Plans
Regular Regulation	Measure and log pollution status of effluent	
	On-site inspections & Reports collected	Order remedy Order suspension
	Effluent regulations	Penalty
	Prohibition of water containing substances classified as toxins infiltrating into groundwater	Order to take measures related to purification
Emergency Measures	Water Pollution due to abnormal water shortage, etc	Order to take emergency measures
	Emergency measures & report of accidents	Order to take emergency measures

Water Quality Monitoring At Public Water Area	Measurement Program by prefectural government	Implementation of regular monitoring Announcement of monitoring results
Domestic Water Control	Designation of important areas by prefectural government	Establishment of plan for promotion of implementation of domestic wastewater measures by municipalities
Total pollutant load contro in enclosed coastal seas	The government's "Fundamental Policy for Reduction of Total Pollution Load	Establishment of "Plan for Reduction of Total Pollution Load" by prefectural governments and regulations

WATER QUALITY MONITORING

Water Quality Monitoring

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Purpose

- Getting a full understanding of the status of water pollution in public waters and underground water, and implementing control measures for the prevention of water pollution in appropriate ways.

Monitoring System

Continuous Monitoring of Water Quality (Prefectures, etc.)

- Monitoring the pollution of water in the environment plays a very important role in getting the basic data for the planning of water environment administration.
- It should be carried out throughout the country uniformly and with accuracy. The national government is required to implement this task with responsibility.
- However, the continuous monitoring of water quality is delegated to prefectural governors, as it is appropriate to conduct it based on the understanding of the local conditions and with mobility.
- It is conducted on the basis of the uniform idea shown by the nation

Monitoring of Effluent

- (to be Implemented by Specified Establishments on their own)

Monitoring System

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Public waters (river, lake, sea) about 9,000 spots throughout the country (environmental standards points, etc.) and the water quality in ground water is monitored.

- Understanding of the water quality characteristics of water area
- Understanding of long-term changes & water quality trends
- Early detection of water pollution

→

- Achievement & maintenance of environmental standard for water quality
- Implementation of environmental protection measures
- Response to water pollution incidents

Government ordinance city

(Water quality measurement in the government ordinance city)

- Water quality measurement
- Results of water quality measurements

Adjustment

Prefecture

(Water quality measurement of river, lake, sea and underground water)

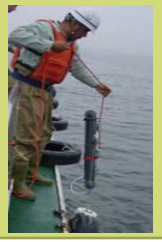
Formulation of water quality measurement plan

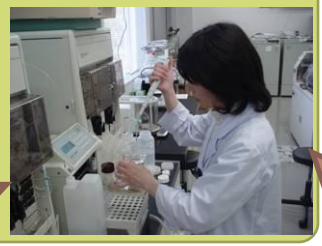
Formulated in order to coordinate with the Ministry of Land, Infrastructure, Transport and Tourism and government ordinance city and to effectively conduct continuous monitoring of water quality.

Water quality measurement

- Health items (cadmium, all cyanogen, etc.)
- Living environment items (BOD, COD, all zinc, etc.)

Water Sampling → Analysis





Summarizing the results of water quality measurement

- Response to a water pollution incident
- Response to the excess of environmental quality standards or the water areas that fails to achieve environmental quality standards

Sending Result

Consultation

Ministry of Land, Infrastructure Transport and Tourism

(Water quality measurement of the main parts of first-grade rivers)

- Water quality measurement
- Results of water quality measurements

Sending Result

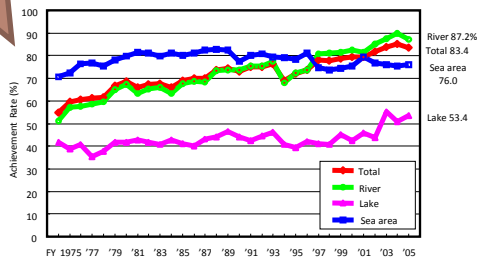
Information disclosure

◆ White paper ◆ Websites ◆ Results of water quality measurement

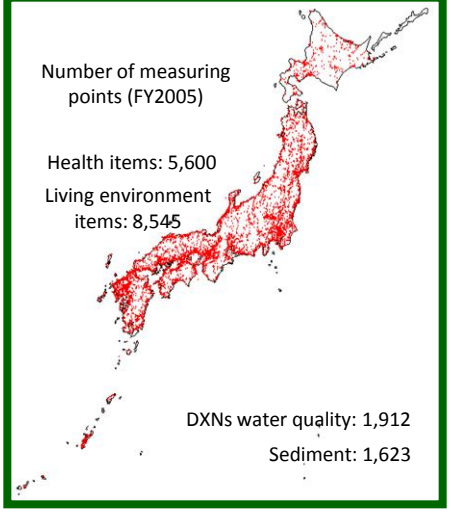
Water environmental synthesis information site
http//www.env.go.jp/water/mizu.site/index.html

Official announcement

Transition of the status of achievement of environmental quality standards (BOD or COD)



Monitoring Points in public water area



Direction, notice, technical advice required for the continuous monitoring of water quality

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- Decision of Environmental Conservation Measure
- Formulation of a Basic Environment Plan
- Environmental Quality Standards, effluent control
- Analytical method, research method
- Transaction standards for continuous monitoring, etc.
- Response to water pollution incident

Reporting the results

Official announcement

Collection & analysis of water quality data of the country and database creation

[Reference] Examples of Officially Disclosed Data

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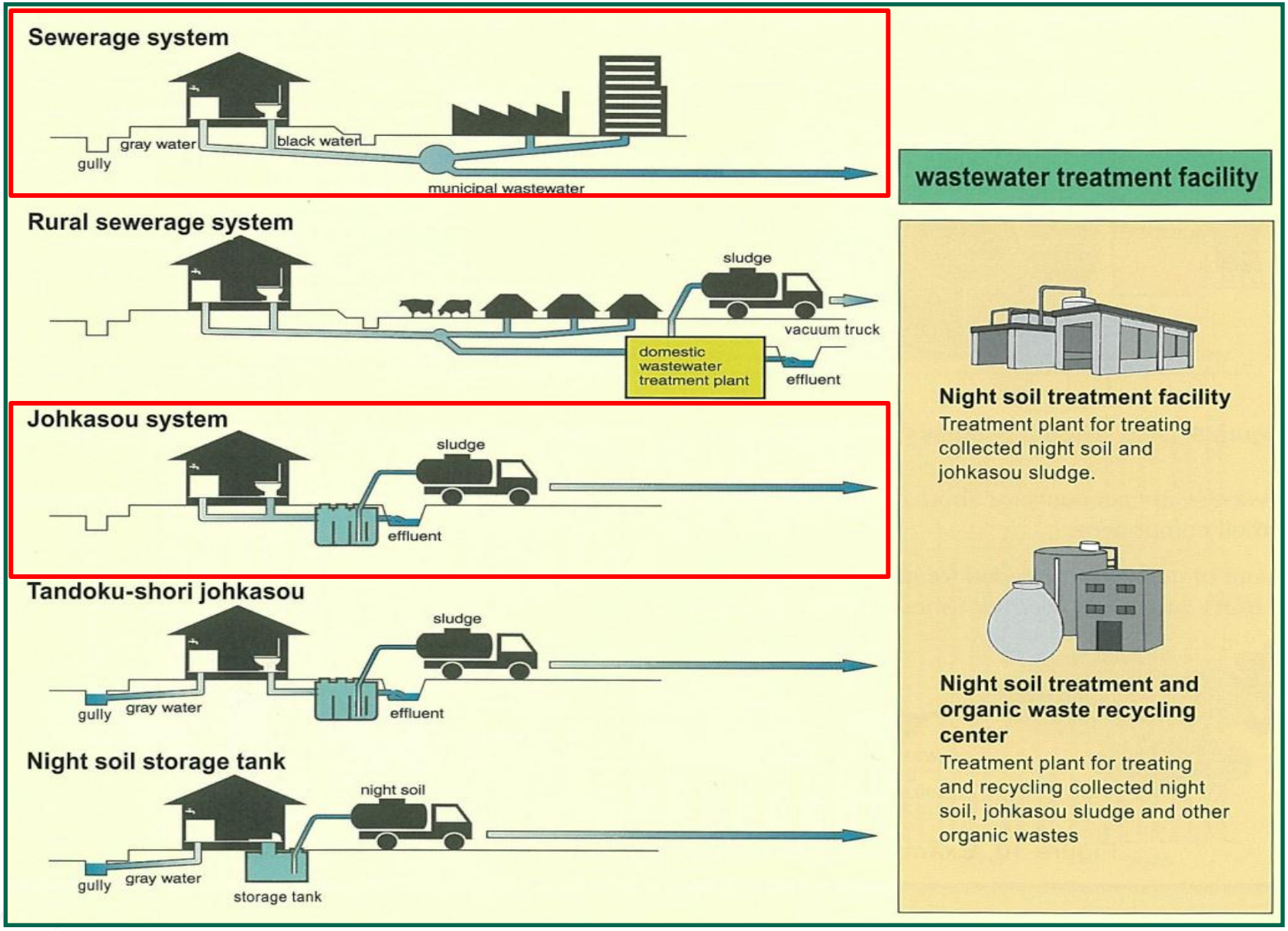
DOMESTIC WASTEWATER CONTROL

Night Soil Treatment and Domestic Wastewater Treatment Systems in Japan

Ministry of the Environment



Plans of Prefectural Governments

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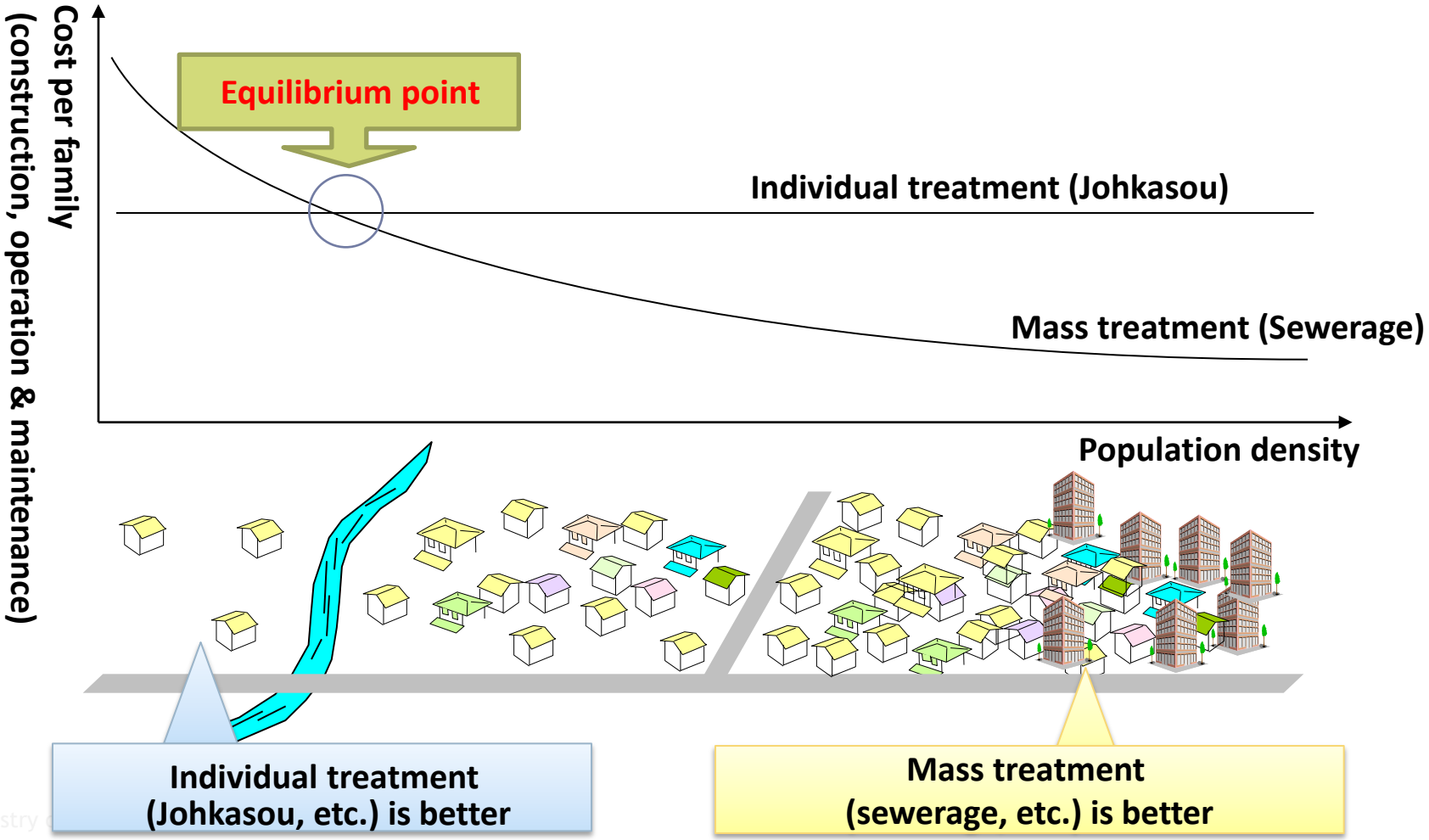
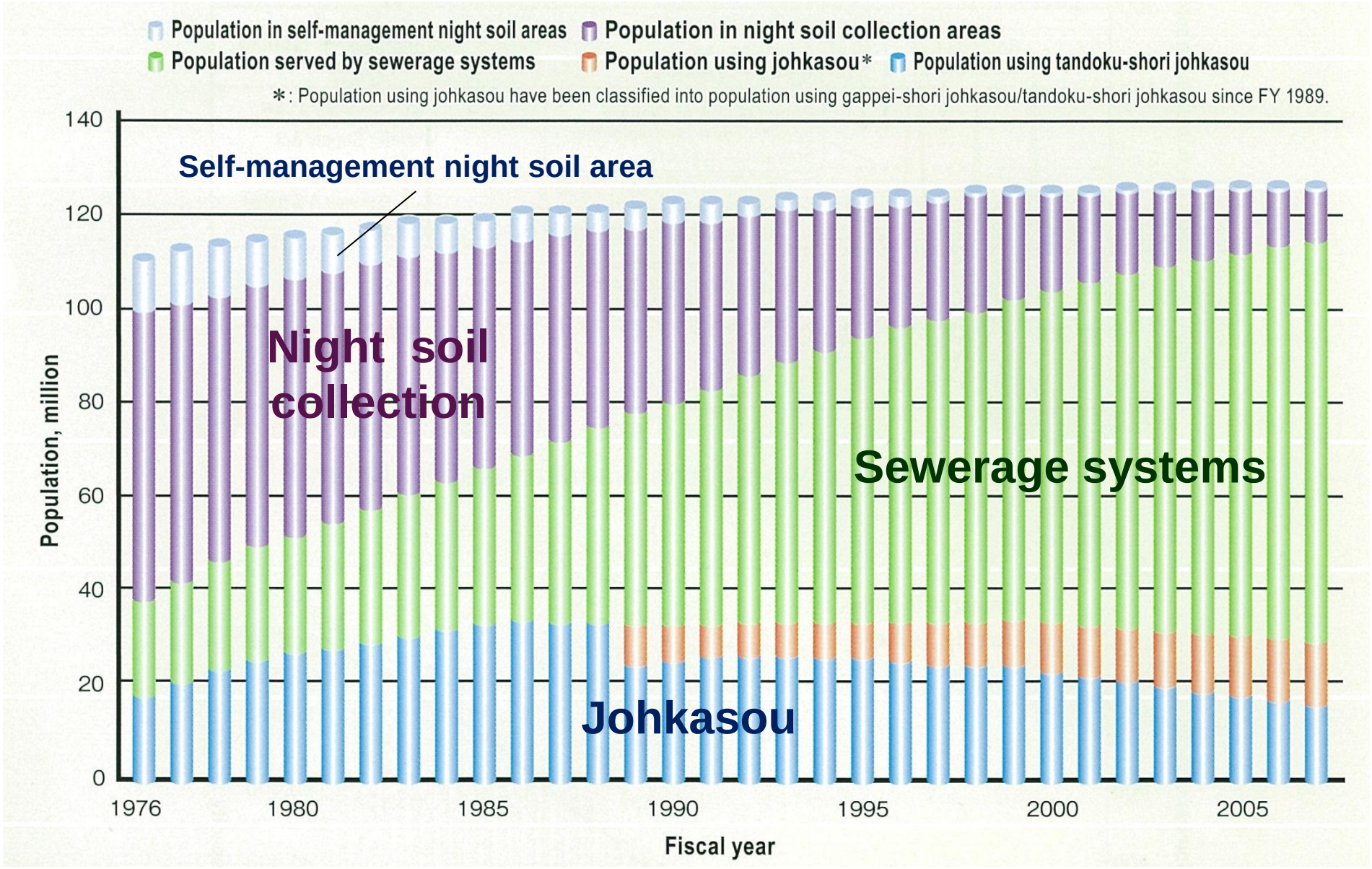
- For efficient construction of wastewater treatment facilities in each region, a construction plan for wastewater treatment facilities has been formulated based on comparison of economic efficiency, etc., considering the characteristics of each wastewater treatment facility.



Population Trends for domestic wastewater treatment



Population Trends for night soil treatment and domestic wastewater treatment

MEASURES FOR CLOSED WATER AREAS

Measures for Environmental Conservation for Closed Water Areas

Total Pollutant Load Control System

Objective:
To reduce the total amount of the pollution load that flows into sea areas in order to improve the water quality of closed sea areas (Tokyo Bay, Ise Bay & Seto Inland Sea) for a set period (5 years)

Object sea areas: Tokyo Bay, Ise Bay & Seto Inland Sea

Object item: COD (1st -), nitrogen, phosphorus (5th -)

The 6th Total Pollutant Load Control (with Y2011 as the target year) has been completed, and the 7th Total Pollutant Load Control is currently under consideration.

Basic Policy for Total Load Reduction

The Minister of the Environment determines the five year reduction goal for each target area

Plan for Total Load Reduction

Prefectural governor formulates the plan for the target amount of reduction according to source categories and for measures for reduction, etc., and acquires the agreement of the Minister of the Environment

Measurement and Control of the Pollutant Load by the Standards for the Total Load Reduction
(Factories and Establishments with 50m3/day or more)
Responsibility to measure & record the pollutant load, order to improve measures against the possibility of exceeding the pollutant load

Guidance, Advice & Recommendation for the Reduction of the Pollutant Load
(Small-scale establishments, livestock raising, aqua-farming, agriculture, ordinary households, etc.)

Implementation of Projects such as Construction & Upgrading of Sewerage, Septic Tanks, Etc.

Measures for Environmental Conservation for Lakes

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System of the Law concerning Special Measures for the Conservation of Lake Water Quality

This system takes special measures for designated lakes in addition to the regulation by the Water Pollution Control Law

Basic Policy for the Conservation of Lake Water Quality by Cabinet Decision
(Covering Lakes in General)

The Cabinet decides designated lakes at the request of the prefectural governor
(10 lakes such as the Lake Biwa and Kasumigaura have been designated as designated lakes)

"Plan for the Conservation of Lake Water Quality" for each Lake

Prefecture formulates, but the agreement of the Minister of the Environment is required through the Conference on Environmental Pollution Control.

Pollutant Load Control
Controlling the daily load in addition to the concentration control based on the Water Pollution Control Law

Implementation of Projects
Construction of sewerage & septic tanks, dredging, etc.

Designation of Lakeside Protection Areas
Protection of lakeside plants with purification function
(System to notify action in lakeside area)

(When still needed) **Total Load Control**

Structural & Usage Control for Small-Scale Livestock Raising and Aqua-Farming within the Lake

Designation of the Area for Effluent Measures
Implementation of measures for plane sources

Guidance, advice & recommendation to persons of facilities that are not control objects

Water Quality Improvement in Sumida River, Tokyo

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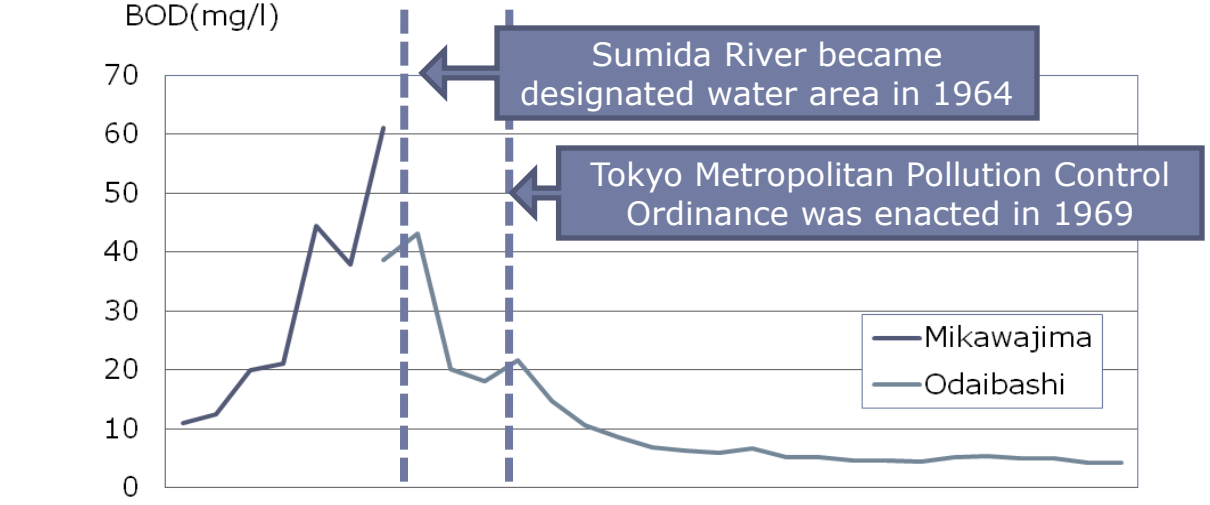
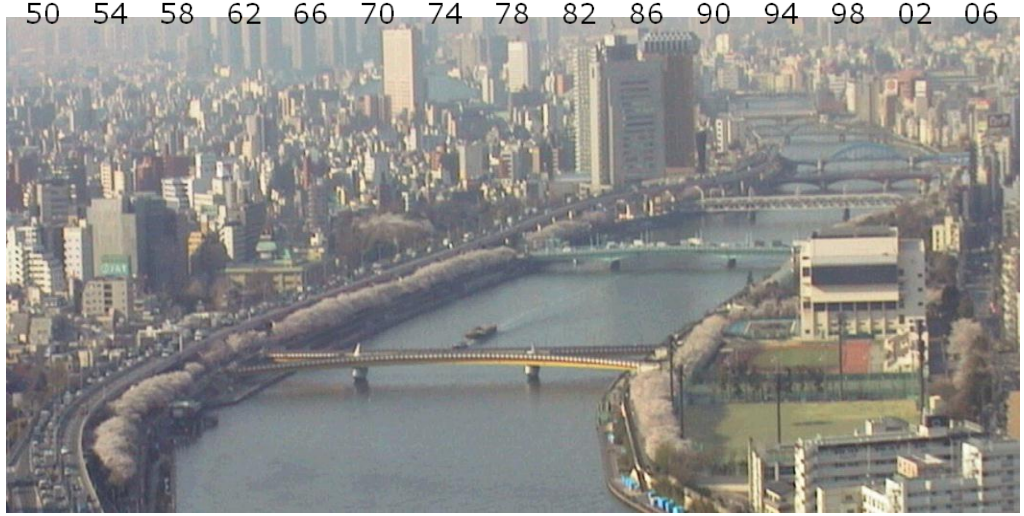
- Sumida river has relived as Tokyo's representative landscape by effluent regulations, sewerage construction, dredging of contaminated sediment, and diversion of water for purification

1971





Today

Water Quality Improvement in Dokai Bay, Kitakyushu

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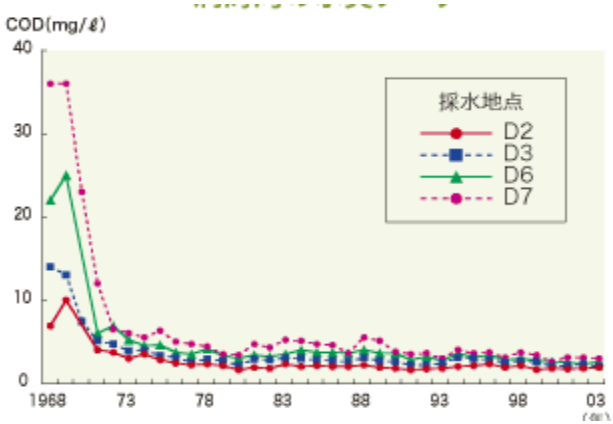
- A miracle city recovering from the “Dead Sea”

“Dead Sea” where fish cannot live

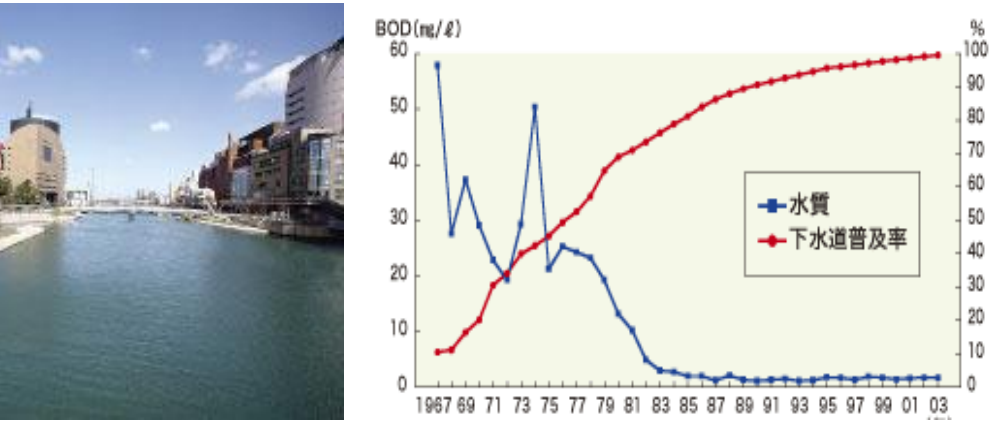
Dokai Bay has recovered



Monitoring data in Dokai bay

Illegal construction along a river

A river as a symbol of the city with water-attracting space



Water quality in Murasaki River and Sewerage coverage ratio

Source: Web site of Kitakyushu city

Water Quality Improvement in Tama River, Tokyo

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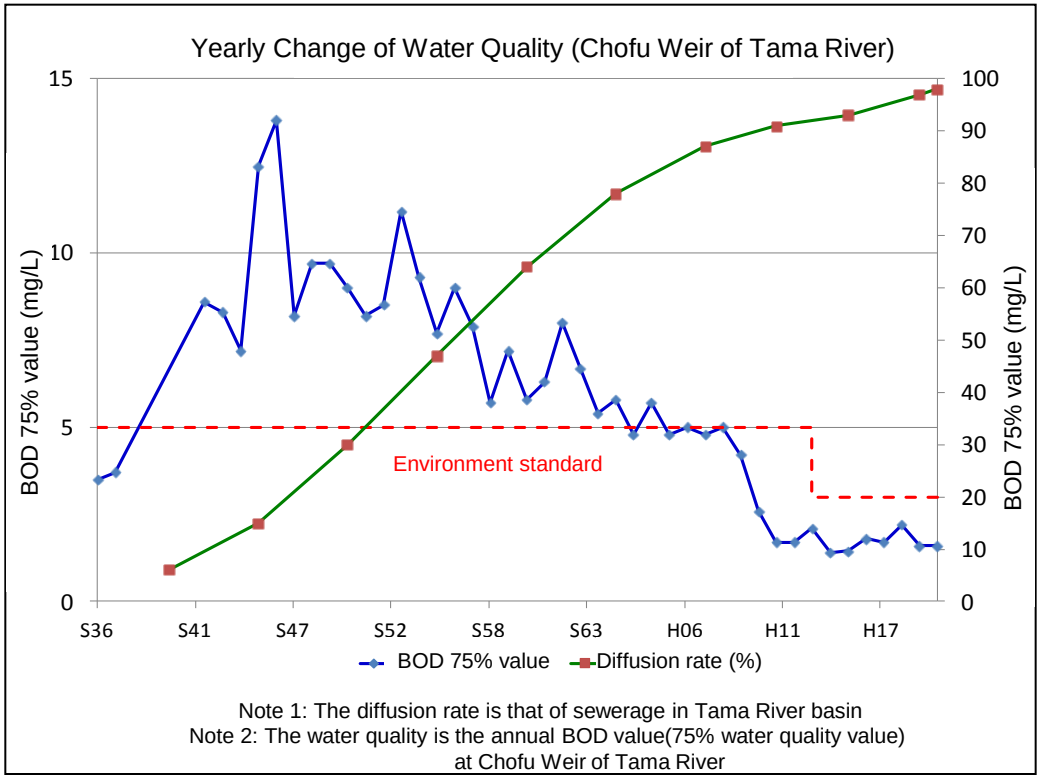
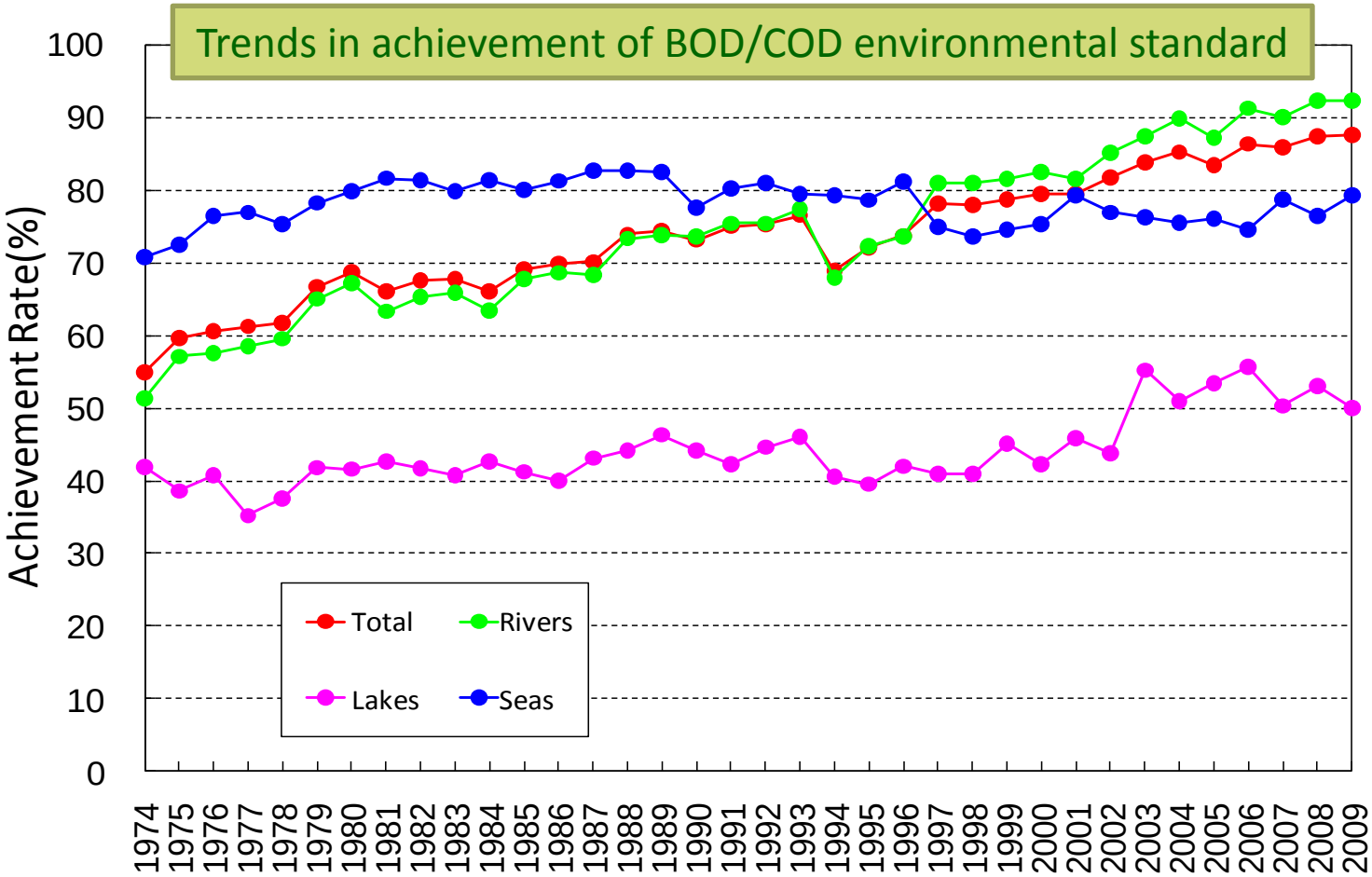
- Water quality in Tama river has been improved by the progress of sewage construction, resulting in creation of good water environment



Note 1: The diffusion rate is that of sewerage in Tama River basin
Note 2: The water quality is the annual BOD value(75% water quality value) at Chofu Weir of Tama River

State of Achievement of Environmental Standard

- **Health Items** :
  Achieved Environmental standard almost over the country
- **Living Environment Items:**
  Improvement tendency as a whole, but still low achievement rate in enclosed water area such as lakes and inland seas



Economic loss without Consideration of the Environment

Case of pollution	Economic loss ($ / year)	Expenditure for pollution control ($ / year)
Minamata Disease	150 million	1.2 million
Itai-Itai Disease	30 million	7.1 million
Yokkaichi Asthma	15.5 million without any countermeasures taken 250 million	175 million

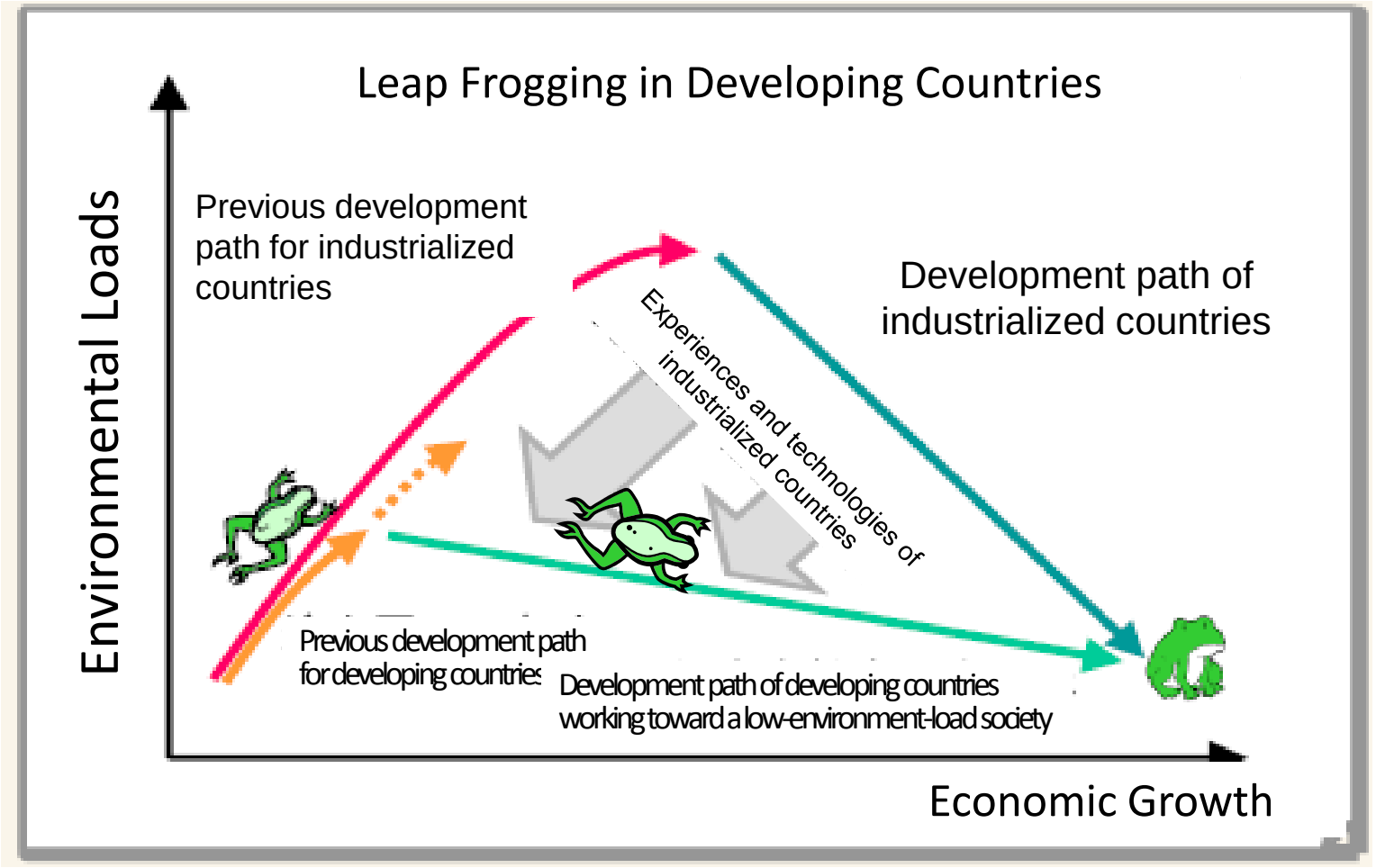
※The above values are 1989 price of equalized values of economic loss and actual pollution control expenditure with assumption that maturity period is 15 to 30 years.

Source: Japan's experience

※ $1 = 84 Japanese yen

Toward “Green Growth”

- Low Carbon & Sound Material-cycle Model for Asia
- Develop economically while living in harmony with the environment to build a sustainable society



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