

Water Environmental Management in Japan

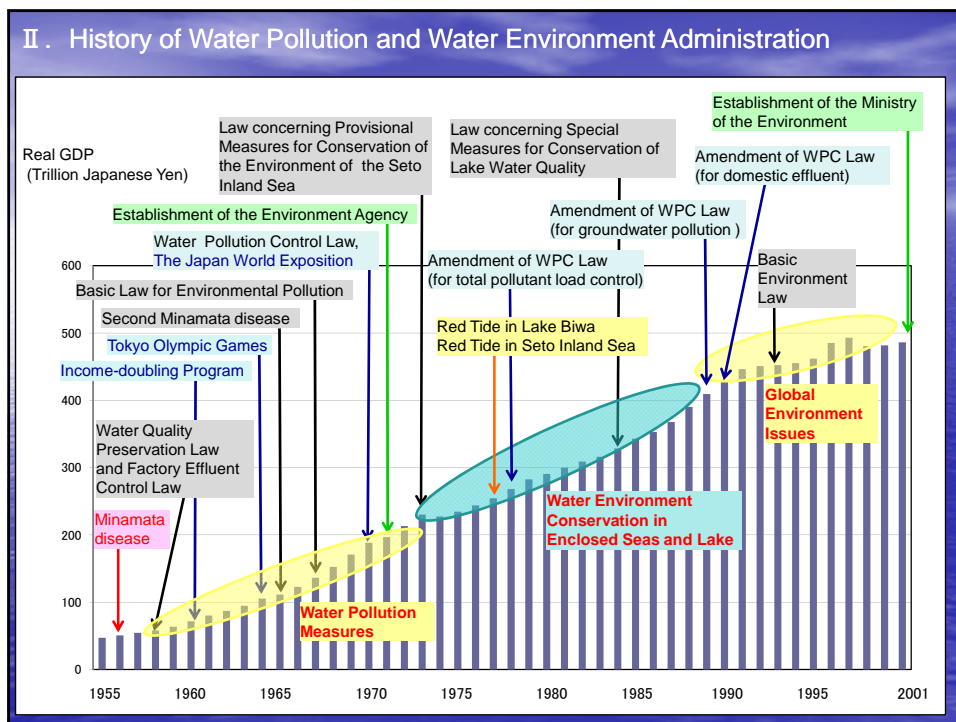
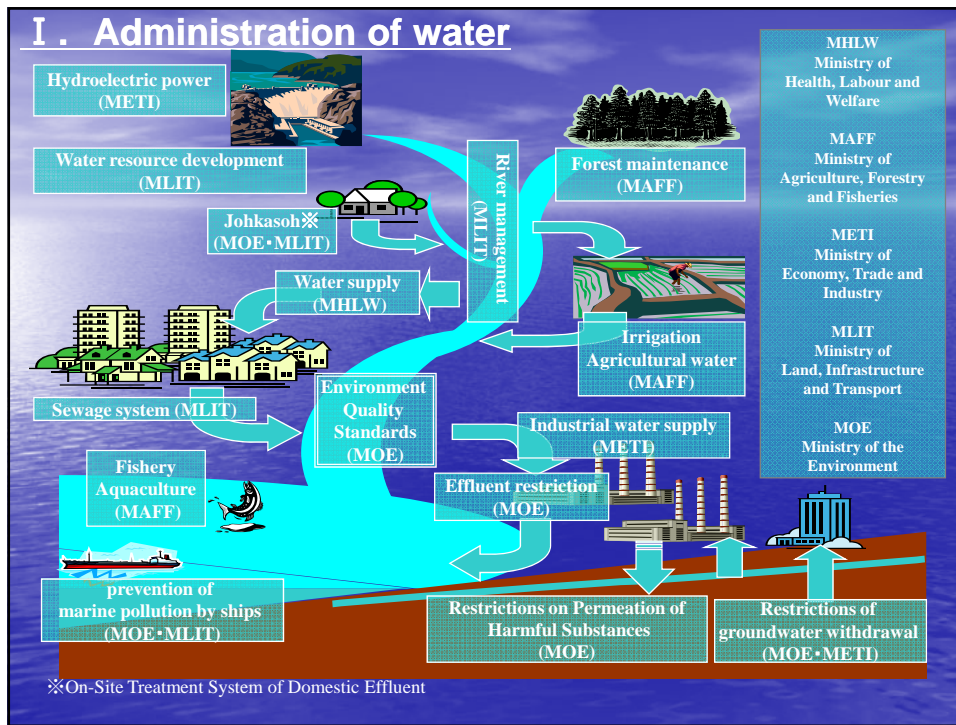
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環境省水・大気環境局水環境課
Water Environment Division,
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III. Outline of the Measures concerning Water Environment Conservation

- Goals of the water environment conservation policy
 - Environmental quality standard for water pollution (health items, living environment items and DXNs)
- Measures concerning water environment conservation
 - Wastewater regulation for factories & establishments (uniform regulation)
 - System to notify specified facilities
 - Water quality monitoring (continuous monitoring, voluntary measurement by enterprises)
 - Measures for domestic effluent
 - Measures for closed water areas

Legal System concerning Water Environment Conservation

Environment Basic Law Establishment of Environmental Quality Standard

[Implementation of concrete measures]

- Measures Common to the Whole Country

Water Pollution Control Law

System to notify specified facilities, wastewater regulation common to the whole country, continuous monitoring of water quality, total pollutant load control for closed sea areas, measures for domestic effluent such as the designation of priority areas for domestic effluent measures

Law concerning Special Measures against Dioxins (only the part relevant to water quality)

Establishment of environmental quality standards for water pollution (sediment), effluent control, system to notify specified facilities, formulation of emission reduction plan, continuous monitoring of water quality (sediment)

- Special Measures for Specified Water Areas

Law concerning Special Measures for the Conservation of Lake Water Quality

Basic Policy for the Conservation of Lake Water Quality, designation of certain lakes (10 lakes such as Lake Biwa), regulation based on the Plan for the Conservation of Lake Water Quality, implementation of projects, etc.

Law concerning Special Measures for the Conservation of the Environment of the Seto Inland Sea

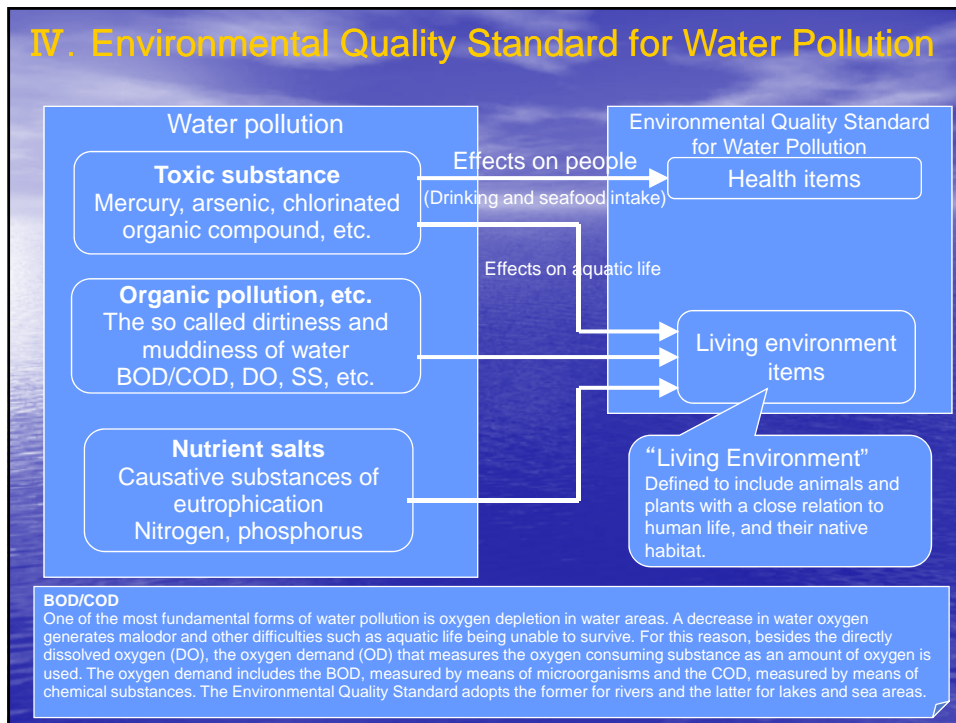
Basic Plan for the Conservation of the Environment of the Seto Inland Sea, license system for the installation of specified facilities, Natural Seashore Conservation Area System (notification of action and recommendation), consideration for environmental conservation in reclamation

Law concerning Special Measures for the Rejuvenation of the Ariake Sea and Yatsushiro Sea

Basic Policy for the Rejuvenation of the Ariake Sea and Yatsushiro Sea, Prefectural Plan for the Rejuvenation of the Ariake Sea and Yatsushiro Sea, establishment of comprehensive survey assessment committee

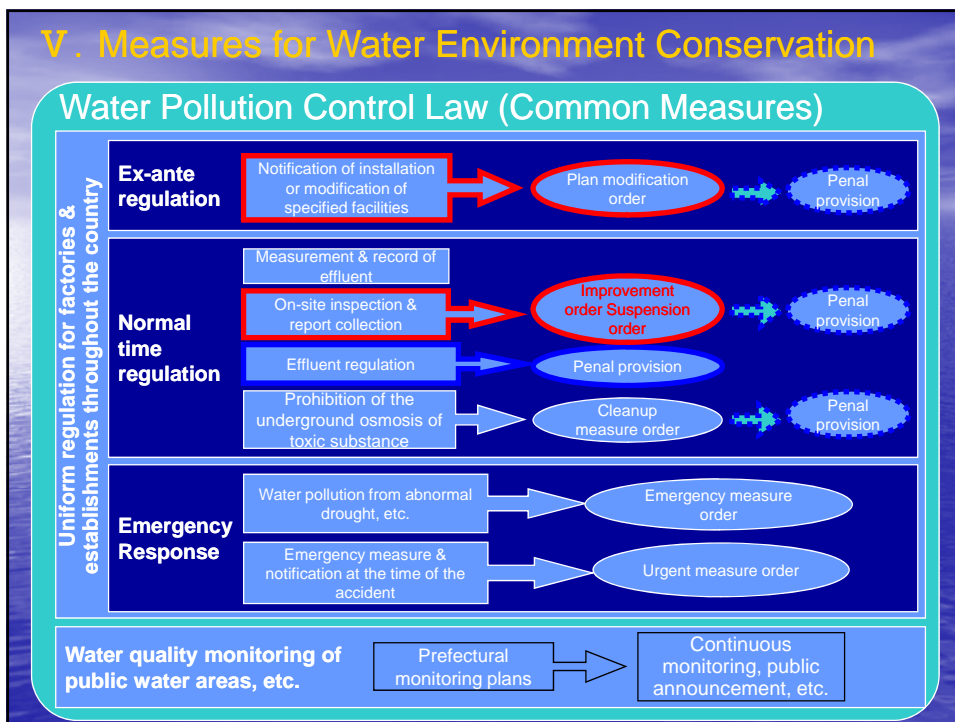
Law concerning Special Measures for Water Quality Conservation at Water Resources Area in Order to Prevent the Specified Difficulties in Water Utilization

This is to regulate the precursors (bio-refractory organic substances) of disinfection by-products in limited areas in order to prevent difficulties arising from disinfection by-products (chloroform, etc.) that are generated in the unavoidable process of chlorine disinfection for water service. Basic policy: continuous monitoring (generative capacity for disinfection by-products (trihalomethane generative capacity)) Designation of specific water areas, land areas and the formulation of a water quality conservation plan (with no designation record).



- ### ➤ Environmental Quality Standard for Water Pollution
- [Environmental Quality Standard for Water Pollution]
- 1 Environmental Quality Standard for the Protection of Human Health
(Health items: 26 items)
 - 2 Environmental Quality Standard for the Conservation of Living Environment
(Living Environment items: 10 items)
- * For concrete items and standard values, refer to the next page.
- [Environmental Quality Standard for Water Pollution by Dioxins]
- Water Quality Standard: 1 pg-TEQ/L or less in annual average value
 - Sediment Standard: 150 pg-TEQ/g or less

Items, Etc. of Environmental Quality Standard for Water Pollution				
Health items	Item	Standard Value		
	Cadmium	0.01 mg/L or less	1,1,1-trichloroethane	
	Total cyanide	Undetected	1,1,2-trichloroethane	
	Lead	0.01 mg/L or less	Trichloroethylene	
	Hexavalent chromium	0.05 mg/L or less	Tetrachloroethylene	
	Arsenic	0.01 mg/L or less	1,3-dichloropropene	
	Total mercury	0.0005 mg/L or less	Thiuram	
	Alkylmercury	Undetected	Simazine	
	PCB	Undetected	Thiobencarb	
	Dichloromethane	0.02 mg/L or less	Benzene	
	Carbon tetrachloride	0.002 mg/L or less	Selenium	
	1,2-dichloroethane	0.004 mg/L or less	Nitrate nitrogen & Nitrite nitrogen	
	1,1-dichloroethylene	0.02 mg/L or less	Fluoride	
	Cis-1,2-dichloroethylene	0.04 mg/L or less	Boron	
			Standard Value	
			1 mg/L or less	
			0.006 mg/L or less	
			0.03 mg/L or less	
			0.01 mg/L or less	
			0.002 mg/L or less	
			0.006 mg/L or less	
			0.003 mg/L or less	
			0.02 mg/L or less	
			0.01 mg/L or less	
			0.01 mg/L or less	
			10 mg/L or less	
			0.8 mg/L or less	
			1 mg/L or less	
Living environment items	Item	River	Lake	Sea Area
	BOD	≤ 1 - 10 mg/L	-	-
	COD-Mn	-	≤ 1 - 8 mg/L	≤ 2 - 8 mg/L
	pH	6.0 - 8.5	6.0 - 8.5	7.0 - 8.3
	SS	≤ 25 - 100 mg/L etc.	≤ 1 - 15 mg/L etc.	-
	DO	2-7.5 mg/L ≤	2-7.5 mg/L ≤	2-7.5 mg/L ≤
	Coliform bacteria count	≤ 50 - 5,000 MPN/100 mL	≤ 50 - 1,000 MPN/100 mL	≤ 1,000 MPN/100 mL
	N-hexane extracts	-	-	Undetected.
	Total nitrogen	-	≤ 0.1 - 1 mg/L	≤ 0.2 - 1 mg/L
	Total phosphorous	-	≤ 0.005 - 0.1 mg/L	≤ 0.02 - 0.09 mg/L
	All zinc	≤ 0.03 mg/L	≤ 0.03 mg/L	≤ 0.01 - 0.02 mg/L



Object Facility of Effluent Control

Any facility that discharges polluted water or wastewater is defined as a specified facility by the Water Pollution Control Law, and all factories or establishments in which specified facilities are installed are stipulated as the control subjects of Water Pollution Control Law.

Example :

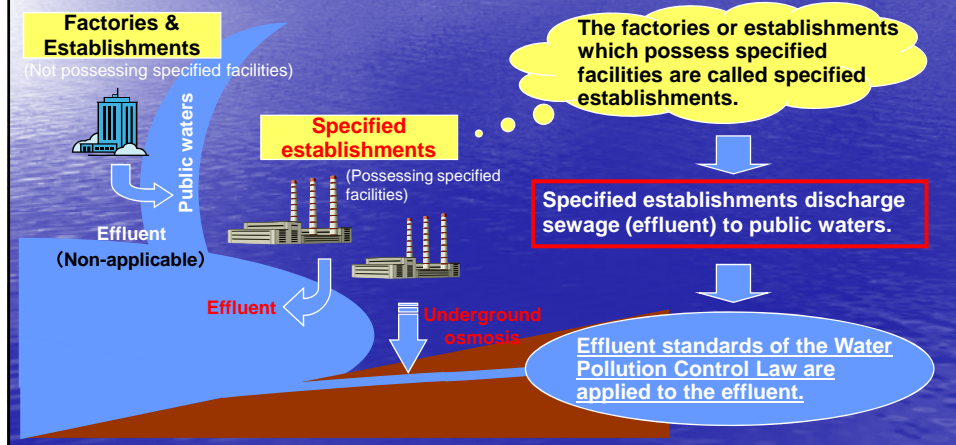
- Facilities to be used for mining, etc.
- Facilities devoted to stock raising, agriculture, etc.
- Facilities to be used for various types of food manufacturing, etc.
- Facilities to be used for forestry, etc.
- Facilities to be used for pulp manufacturing, etc.
- Facilities to be used for medical goods manufacturing, etc.
- Facilities to be used for cement products manufacturing, etc.
- Facilities to be used for steel or nonferrous metals manufacturing and facilities to be used for other types of manufacturing

As of the end of FY2005, approx. 290,000 establishments are control subjects

- Hotel businesses, restaurants, laundry businesses, photograph development businesses, hospitals, scientific and technological research facilities
- Waste disposal sites
- Final sewage treatment facilities, joint waste water treatment plants,
- And so on...

Uniform National Effluent Standards (Concentration Regulation)

The effluent control of the Water Pollution Control Law stipulates effluent standards (Uniform National Effluent Standards) that are uniform across all industries for the specified establishments throughout the country. The control is carried out using the so-called "direct penalty system" by which penalties can be applied simply because of excess concentrations.



Wastewater standards

【Health item】

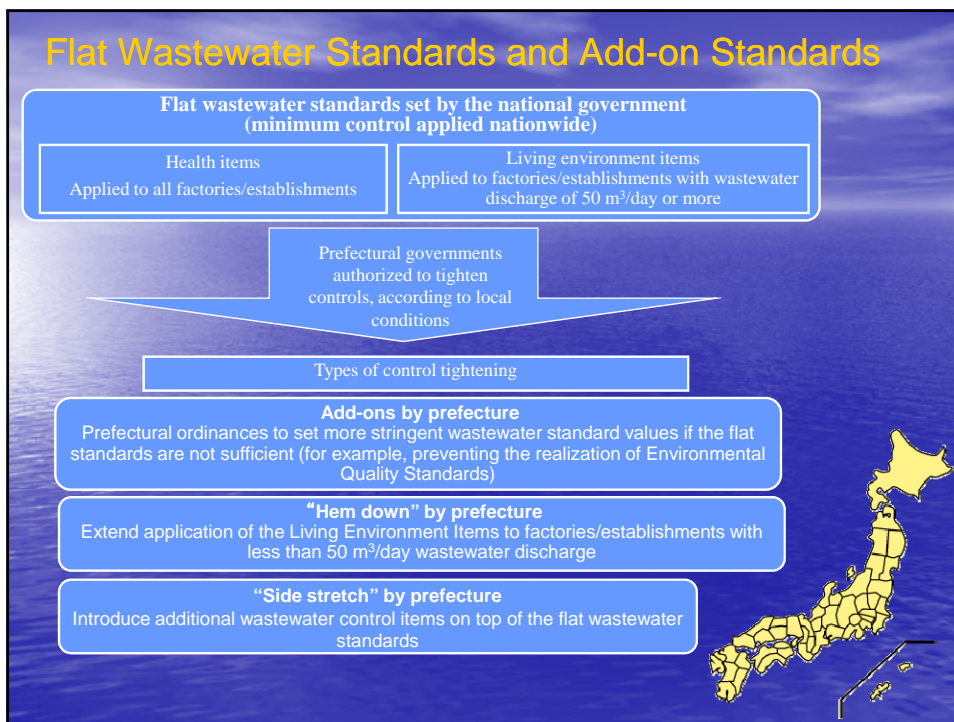
Kinds of harmful substances	Tolerable limit
Cadmium and its compounds	0.1 mg/L
Cyanide compounds	1 mg/L
Organic compound (limited to parathion, methyl parathion, methyl demeton and EPN (ethyl p-nitrophenyl phenylphosphorothioate))	1 mg/L
Lead and its compounds	0.1 mg/L
Hexavalent chromium compounds	0.5 mg/L
Arsenics and its compounds	0.1 mg/L
Mercury and alkyl mercury, and other mercury compounds	0.005 mg/L
Alkyl mercury compounds	Not detected
Polychlorinated biphenyl	0.003 mg/L
Trichloroethylene	0.3 mg/L
Tetrachloroethylene	0.1 mg/L
Dichloromethane	0.2 mg/L
Carbon tetrachloride	0.02 mg/L
1,2-dichloroethane	0.04 mg/L
1,1-dichloroethylene	0.2 mg/L
cis-1,2-dichloroethylene	0.4 mg/L
1,1,1-trichloroethane	3 mg/L
1,1,2-trichloroethane	0.06 mg/L
1,3-dichloropropene	0.02 mg/L
Thiram	0.06 mg/L
Simazine	0.03 mg/L
Thiobencarb	0.2 mg/L
Benzene	0.1 mg/L
Selenium and its compounds	0.1 mg/L
Boron and its compounds	Other than sea area: 10 mg/L Sea area: 230 mg/L
Fluorine and its compounds	Other than sea area: 8 mg/L Sea area: 1 mg/L
Ammonia, ammonium compounds, nitrite compounds and nitrate compounds	(*) 100 mg/L

(*) 0.4 times the ammonia nitrogen compound, and the total of nitrite nitrogen and nitrate nitrogen

【Living environment item】

Kinds of harmful substances	Tolerable limit
Hydrogen ion concentration (pH)	Other than sea area: 5.8 – 8.6 Sea area: 5.0 – 9.0.
Biochemical oxygen demand (BOD)	160 mg/L (Daily mean value: 120 mg/L)
Chemical oxygen demand (COD)	160 mg/L (Daily mean value: 120 mg/L)
Suspended solids (SS)	200 mg/L (Daily mean value: 150 mg/L)
Normal-hexane extracts content (mineral oils content)	5 mg/L
Normal-hexane extracts content (animal and plant fats content)	30 mg/L
Phenols content	5 mg/L
Copper content	3 mg/L
Zinc content	2 mg/L
Soluble iron content	10 mg/L
Soluble manganese content	10 mg/L
Chromium content	2 mg/L
Coliform group number	Daily mean value: 3,000/cm ³
Nitrogen content	120 mg/L (Daily mean value: 60 mg/L)
Phosphorus content	16 mg/L (Daily mean value: 8 mg/L)

Note
The effluent standard shown in this table is applicable to the effluent water discharged by a plant, factory, or business establishment which discharges 50m³/day or more of effluent water on daily average.



Control System at Establishments ①

Pollution Control Manager System

At the time of the establishment of laws relating to pollution control such as the Water Pollution Control Law, etc., many factories were not sufficiently equipped with a pollution control system (human organization). Therefore, they were obliged to install human organizations that possessed expertise about pollution control.

[Purpose]

It aims at developing a pollution control structure at specified factories by installing a pollution control manager system, etc., thereby contributing to pollution control.

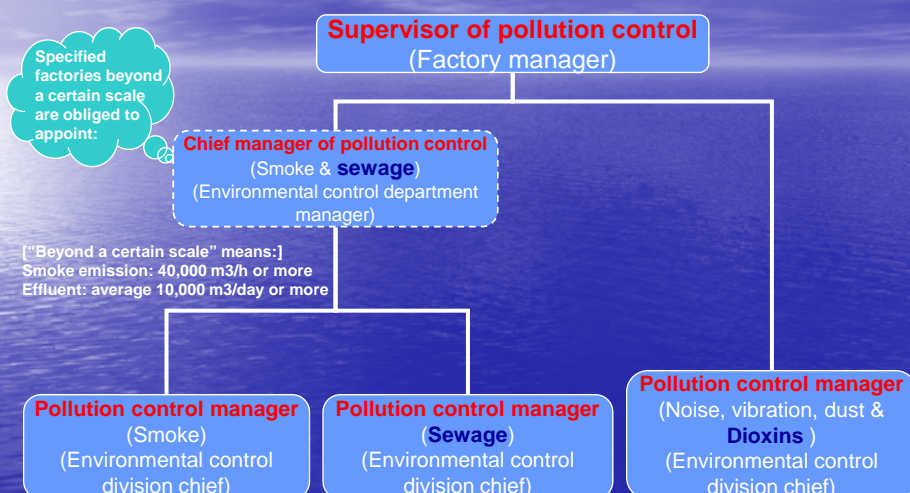
[Specified Factory]

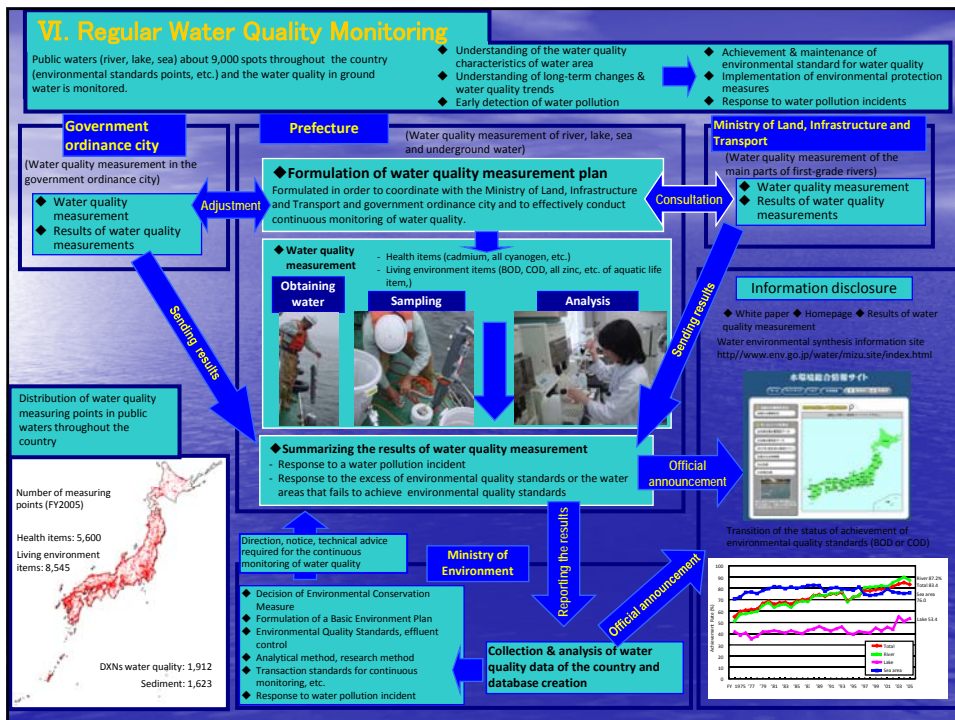
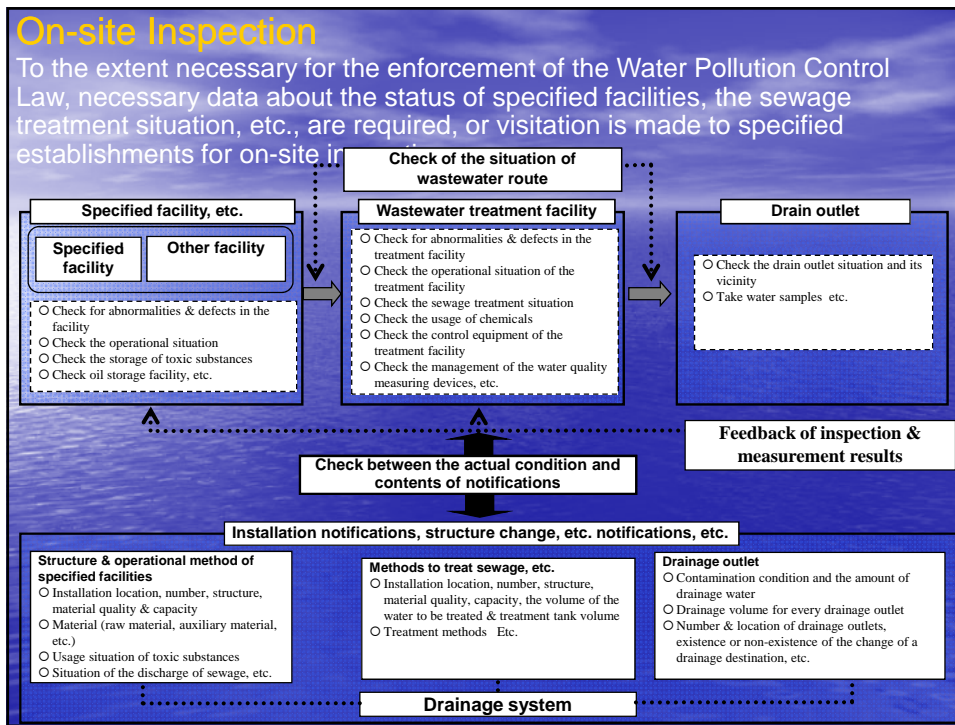
Smoke, sewage or wastewater, excessive noise, specified dust or general dust, excessive vibration and dioxins.

Among the factories that discharge or generate the above items, certain ones are designated as specified factories.

Control System at Establishments ②

Basic Concept of the Pollution Control Manager System

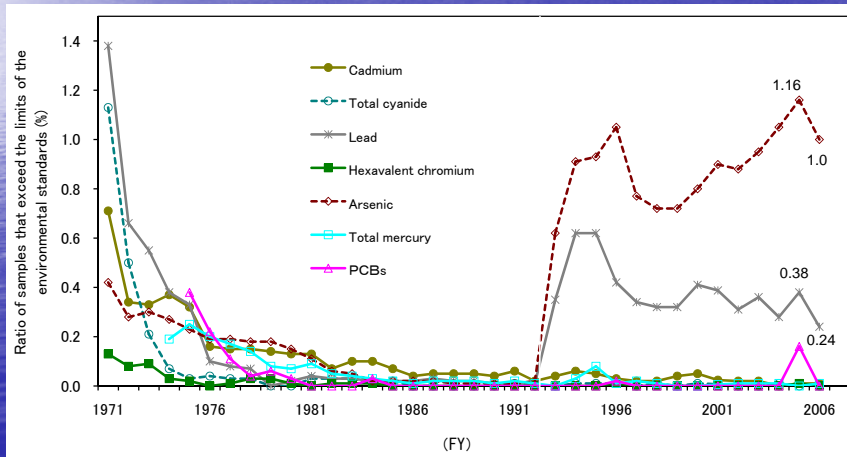




VII. Status of the Achievement of Environmental Quality Standards

Status of the Achievement of Environmental Quality Standards (Health Items)

Currently, environmental standards have been achieved almost all over the country.



Status of the Achievement of Environmental Quality Standards (Living Environment Items)

Although there is a trend of gradual improvement overall, achievement rates in closed water areas such as lakes, bays and inland seas are still low.

