

# SDGs and JICA activities related to wastewater management

*Preparation Workshop on  
the Asia Wastewater Management Partnership(AWaP)*

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# I. MDG to SDG

## SDGs: Sustainable Development Goals

Following the Millennium Development Goals (MDGs), the new SDGs guide development policy and funding for the next 15 years



# I. MDGs to SDGs

## SDGs: Sustainable Development Goals

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**SDG 6.2** By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls

**Indicator 6.2.1** Proportion of population using safely managed sanitation services, including a hand-washing facility with soap and water

# I. MDG to SDG

## SDGs: Sustainable Development Goals

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the new SDGs guide development policy and funding for the next 15 years



**SDG 6.3** By 2030, improve water quality  
by reducing pollution,  
eliminating dumping and minimizing release of  
hazardous chemicals and materials,  
**halving the proportion of untreated wastewater** and  
substantially increasing recycling and safe reuse globally

**Indicator 6.3.1** **Proportion of wastewater safety treated**

**Indicator 6.3.2** **Proportion of bodies of water  
with good ambient water quality**

## Three pillars of JICA's cooperation

1

JICA will realize “human security” and “quality growth” to contribute to the peace, stability and prosperity of the international community. The SDGs accelerates and promotes this cooperation philosophy so that JICA will proactively contribute to achieving the goals with leadership.

2

JICA will play a pivotal role in achieving the ten goals of the SDGs making use of Japan's own experience in socio-economic development as well as in development cooperation.  
[Ten goals: zero hunger, health, education, water/sanitation, energy, economic growth, industry/infrastructure, sustainable cities, climate actions, forests/biodiversity]

3

JICA will work to secure impact of cooperation on the SDGs through utilizing Japan's own knowledge, introducing innovations and collaborating with local and international partners in order to accelerate the achievement of the SDGs.



# JICA's Strategy for SDGs

## Japan's Development Cooperation Charter

World Peace, Stability and Prosperity

Human Security, Quality Growth

Basic concept of Japan's ODA policy and SDGs are consistent

Human Security > No one left behind / People Centered

Inclusiveness/Sustainability/Resilience > No one left behind, Sustainability

Ownership/Capacity Development > Supporting setting National target

Drive/Accelerate

1

## JICA's Position on SDGs

Ultimate Goals



2

Challenges  
innovation and  
further participation

3

Utilizing  
Japan's  
Experience



7

## II. SDGs and JICA activities **SDG 6.2**

SERVICE LEVEL	DEFINITION
<b>SAFELY MANAGED</b>	Use of improved facilities that are not shared with other households and where excreta are safely disposed of in situ or transported and treated offsite
<b>BASIC</b>	Use of improved facilities that are not shared with other households
<b>LIMITED</b>	Use of improved facilities shared between two or more households
<b>UNIMPROVED</b>	Use of pit latrines without a slab or platform, hanging latrines or bucket latrines
<b>OPEN DEFECAATION</b>	Disposal of human faeces in fields, forests, bushes, open bodies of water, beaches or other open spaces, or with solid waste
<p><i>Note: improved facilities include flush/pour flush to piped sewer systems, septic tanks or pit latrines; ventilated improved pit latrines, composting toilets or pit latrines with slabs.</i></p>	

Source : Progress on Drinking Water, Sanitation and Hygiene Update and SDG Baselines 2017, WHO UNICEF JMP

**Relating JICA Project: Cebu and Davao in Philippines,  
Hai Phong in Vietnam**



## II. SDGs and JICA activities **SDG 6.3.1**

### SDGs Indicator 6.3.1 (Safety Treated Wastewater) for Good Ambient Water Quality

Pollution Source	Domestic Wastewater	Industrial Wastewater
<b>Generated Wastewater</b>	Population multiplied by <b>Daily water consumption per capita</b> (m <sup>3</sup> /day/person)	Calculation using Inventory
Generated Pollution Load	Population multiplied by <b>Unit Pollution load</b> (g/day/person) BOD, SS, COD, T-N, T-P	
Counter Measures	On-site Treatment Joukasou, Septic Tank, etc. Off-site Treatment Sewerage Systems	On-site Treatment  Pre-Treatment & Sewerage System
<b>Discharged Wastewater</b>	Safety Treated Wastewater to meet <b>Effluent Water Quality Standard</b>	
Discharged Load	Generated Pollution Load multiplied by (1 - <b>Removal rate of pollutants</b> : BOD, SS, COD, T-N, T-P)	Calculation using Inventory
<u><b>Fundamental Information</b></u> for <u>Pollution Load Analysis</u>	<b>Daily water consumption per capita</b> (m <sup>3</sup> /day/person) <b>Unit Pollution load</b> (g/day/person) BOD, SS, COD, T-N, T-P <b>Removal rate of Pollutants (Treatment Performance of Joukasou, Septic Tank, Sewerage Systems)</b>	Inventory(Type of Industry, <u>Pollution Load</u> , <u>Treatment Method &amp; Performance</u> , etc.)

**Relating JICA Project:** **Pilot Study with related Ministries in Vietnam in cooperation with WHO**

# JICA's Major Projects for Wastewater Treatment from 2000 (2000-2017)

## EUROPE

### TURKEY

- ▲ Municipal Sewerage and Wastewater Treatment Improvement Project (2011)

### UKRAINE

- ▲ Dobrychi Sewage Treatment Plant Modernization Project (2010)



## MIDDLE EAST

### IRAQ

- ▲ Baghdad Sewerage Facilities Improvement Project (Engineering Service (E/S)) (2009)
- ▲ Sewerage Construction Project in Kurdistan Region (I) (2010)



### PALESTINE

- ▲ Jericho Wastewater Collection, Treatment System and Reuse Project (2011)

## LATIN AMERICA

### BRAZIL

- ▲ Project for Improvement of Operation and Maintenance of Water Supply and Sewerage Systems in Paraná states (2012-2015)
- ▲ Project of Training in Operation and Maintenance of Sewerage System (2014-2017)
- ▲ Sanitation Improvement Project for Grande São Paulo Metrop. RCG, (I), (II) (2004,2010)
- ▲ Sanitation Improvement Project for Santa Catarina Coastal Region (2010)
- ▲ Environmental Improvement Project in the Basin Lake Itaipu (2010)

### PANAMA

- ▲ Panama Metropolitan Area Wastewater Management Improvement Project (2010-2018)
- ▲ Panama City and Panama Bay Sanitation Project (2007)

## OCEANIA

### PAPUA NEW GUINEA

- ▲ The Project for Improvement of Management Capacity for Port Moresby Sewerage System (2017-2020)
- ▲ Port Moresby Sewerage System Upgrading Project (2010)



- Grant
- Technical Cooperation
- ▲ Loan

## AFRICA

### MAURITIUS

- ▲ Grand Dale Sewerage Project (2010)

### SENEGAL

- ▲ Project for Treatment of Sewage, Rainwater and Wastes in Kaolack City (2011-2014)



## SOUTH ASIA

### INDIA

- ▲ The Study for Formulation and Revision of Manuals of Sewerage and Sewage Treatment (2010-2014)
- ▲ Yamuna Action Plan Project (I), (II) (2008, 2011)
- ▲ Ganga Action Plan Project (various) (2005)
- ▲ Bangalore Water Supply and Sewerage Project (B-1), (B-2) (2005, 2006)
- ▲ Chennai Integrated Sanitation Improvement Project (I), (II) (2007, 2016)
- ▲ Guwahati Sewerage Project (2010)

### PAKISTAN

- ▲ The Project for Upgrading of Mechanical System for Sewerage and Drainage Services in Gujranwala (2014)

### SRI LANKA

- ▲ The Project for the Strategic Master Plan under Sewerage Sector (2015-2017)
- ▲ Kandy City Wastewater Management Project (2010)

## SOUTHEAST ASIA

### CAMBODIA

- ▲ The Study on Drainage and Sewerage Improvement Project in Phnom Penh Metropolitan Area (2014-2016)

### INDONESIA

- ▲ Advisor for Sewerage Management (2012-)
- ▲ Project for Improving Planning Capacity for Sewerage System in DKI Jakarta (2015-2017)
- ▲ Denpasar Sewerage Development Project (I) (2008)
- ▲ Metropolitan Sanitation Management Investment Program: Engineering Service (E/S) for Sewerage System Development in DKI Jakarta (2014)

### VIETNAM

- ▲ The Project for Water Quality Improvement for Japanese Bridge Area in Hoi An City (2010)
- ▲ Project for Capacity Development on Sewerage Management in Ho Chi Minh City Phase1 and Phase2 (2009-2014)
- ▲ Advisor for Urban Environment (Sewerage) Policy (2010-2013, 2015-2019)
- ▲ Technical Assistance Project for Enhancing Management Capacity of Sewerage Works (2016-2019)
- ▲ Ho Chi Minh City Water Environment Improvement Project (I-II) (2001, 2008, 2010)
- ▲ Hai Phong City Environment Improvement Project (2005)
- ▲ 2nd Hanoi Drainage Project for Environmental Improvement: (I) (2006)
- ▲ 2nd Ho Chi Minh City Water Environment Improvement Project (I-II) (2006, 2008, 2016)
- ▲ Southern Binh Duong Province Water Environment Improvement Project: (I), (II) (2007, 2012)
- ▲ Hanoi City Yen Xe Sewerage System Project (I) (2013)

## II. SDGs and JICA activities **SDG 6.3.2**

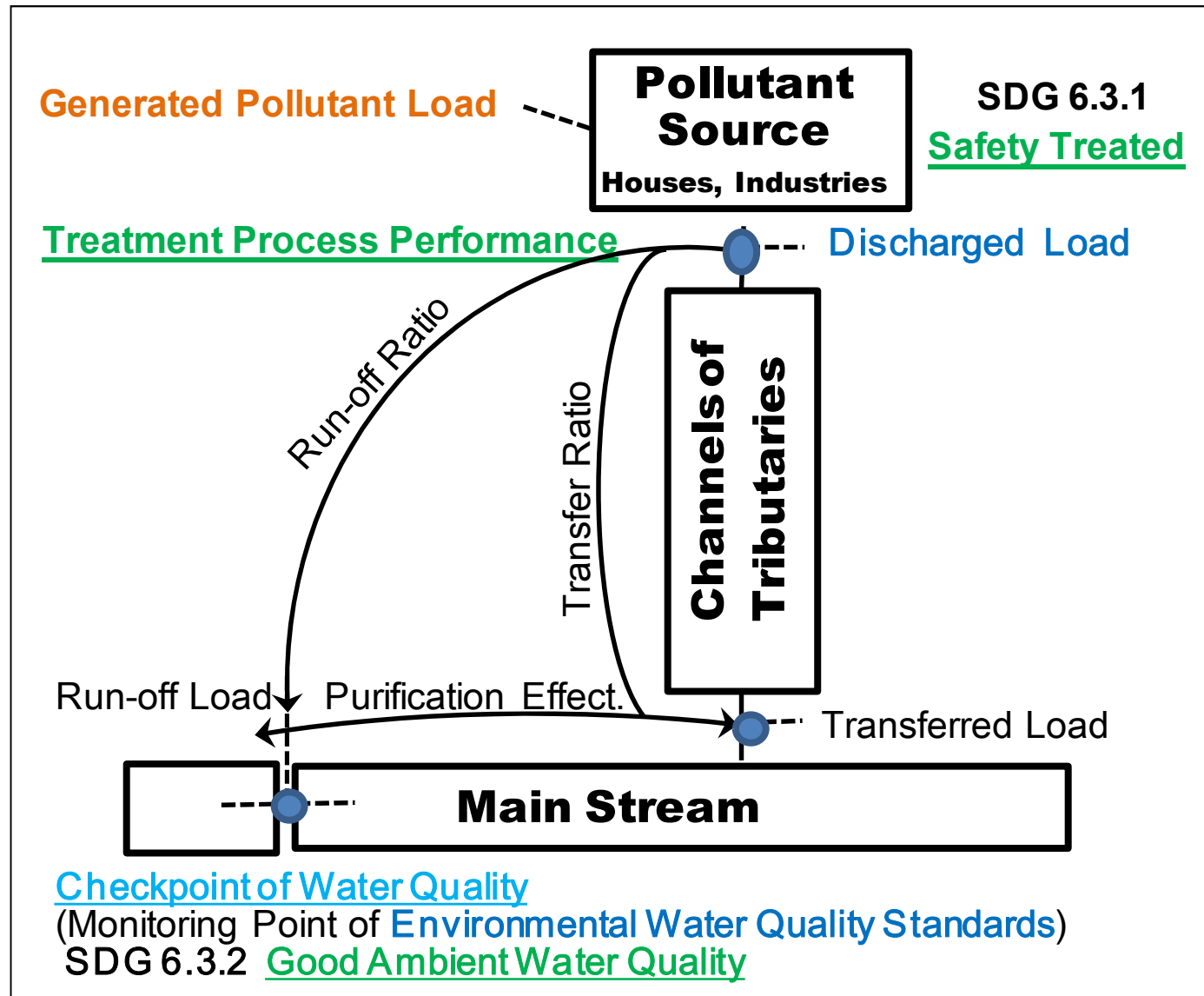
### Ambient water quality standards in WEPA countries

Country	Surface Water	Groundwater	Marine Water
Cambodia	Water Quality Standards in Public Water Areas	Water Quality Standards in Public Water Areas	Water Quality Standards in Public Water Areas
China	Environmental Quality Standards for Surface Water	Quality Standard for Ground Water	Sea Water Quality Standard
Indonesia	Water Quality Criteria	Water Quality Criteria	Standard Quality of Seawater
Japan	Environmental Quality Standards for Water Pollution	Environmental Water Quality Standards of Groundwater	Environmental Quality Standards for Water Pollution
Republic of Korea	Environmental Standards for Water Quality and Aquatic Ecosystem	Environmental Standards for Water Quality and Aquatic Ecosystem*	Environmental Standards for Water Quality and Aquatic Ecosystem
Lao PDR	Surface Water Quality Standard	Groundwater Quality Standard*	

Source : WEPA Outlook on Water Environmental Management in Asia 2015

**Relating JICA Project: Sri Lanka, Vietnam**

## Relationship between [SDG 6.3.1](#) and [6.3.2](#)

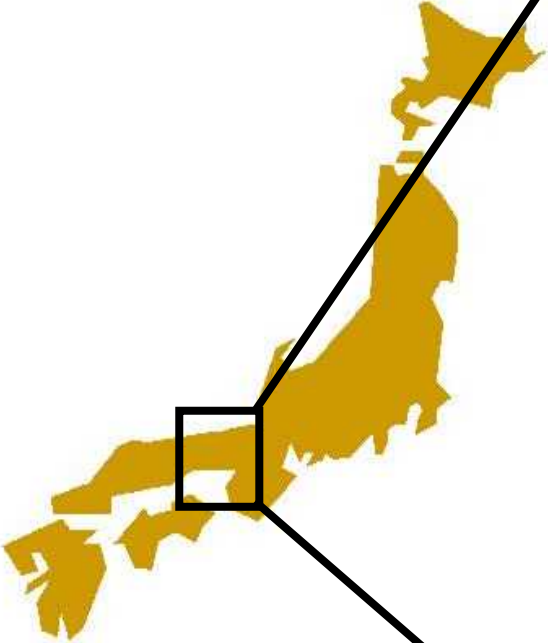


Source : MLIT 2015, Design Manual "Comprehensive Basin -wide Planning of Sewerage Systems" (in Japanese)



# Comprehensive Basin-wide Planning

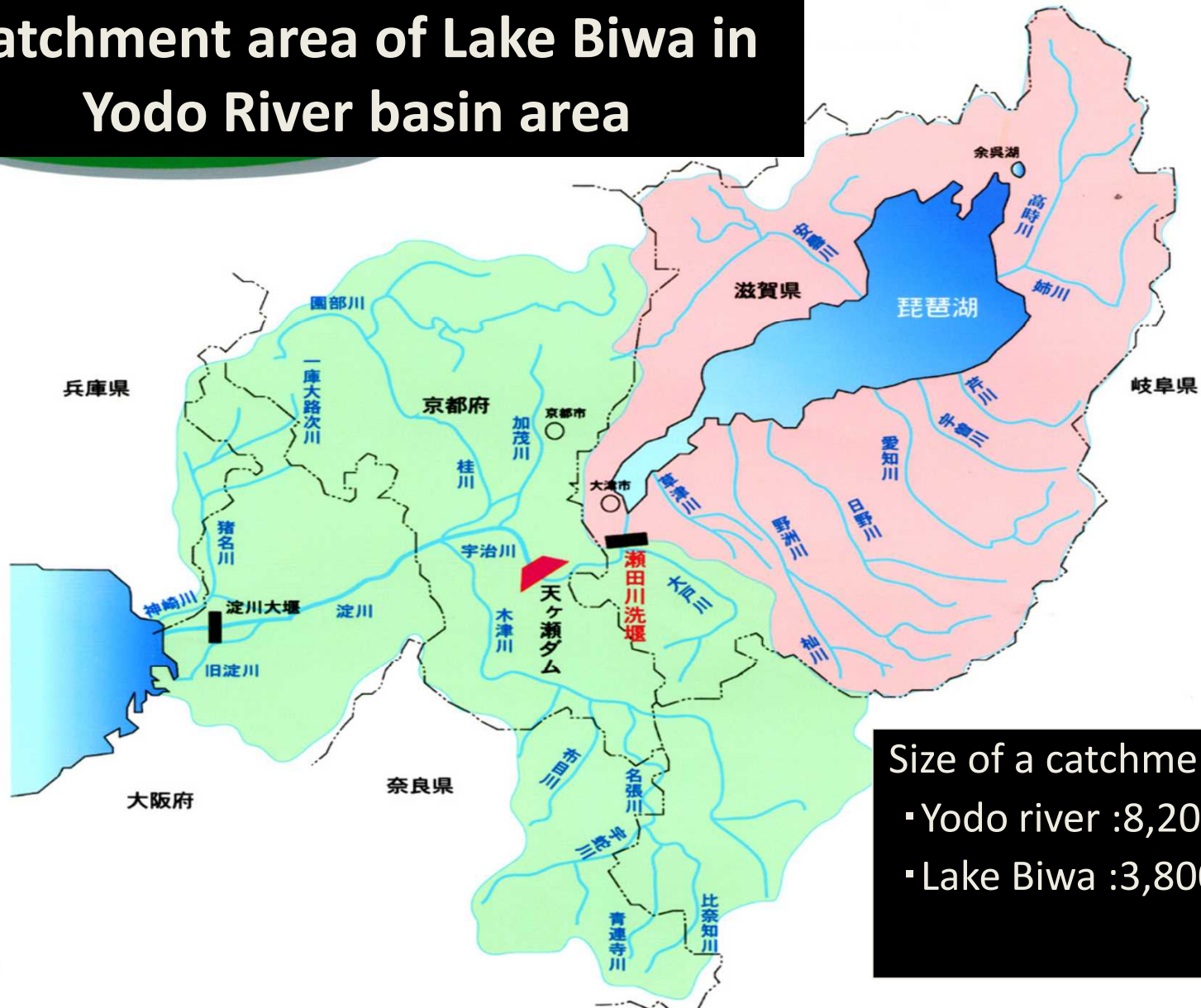
Location of Lake Biwa and Yodo River basin area





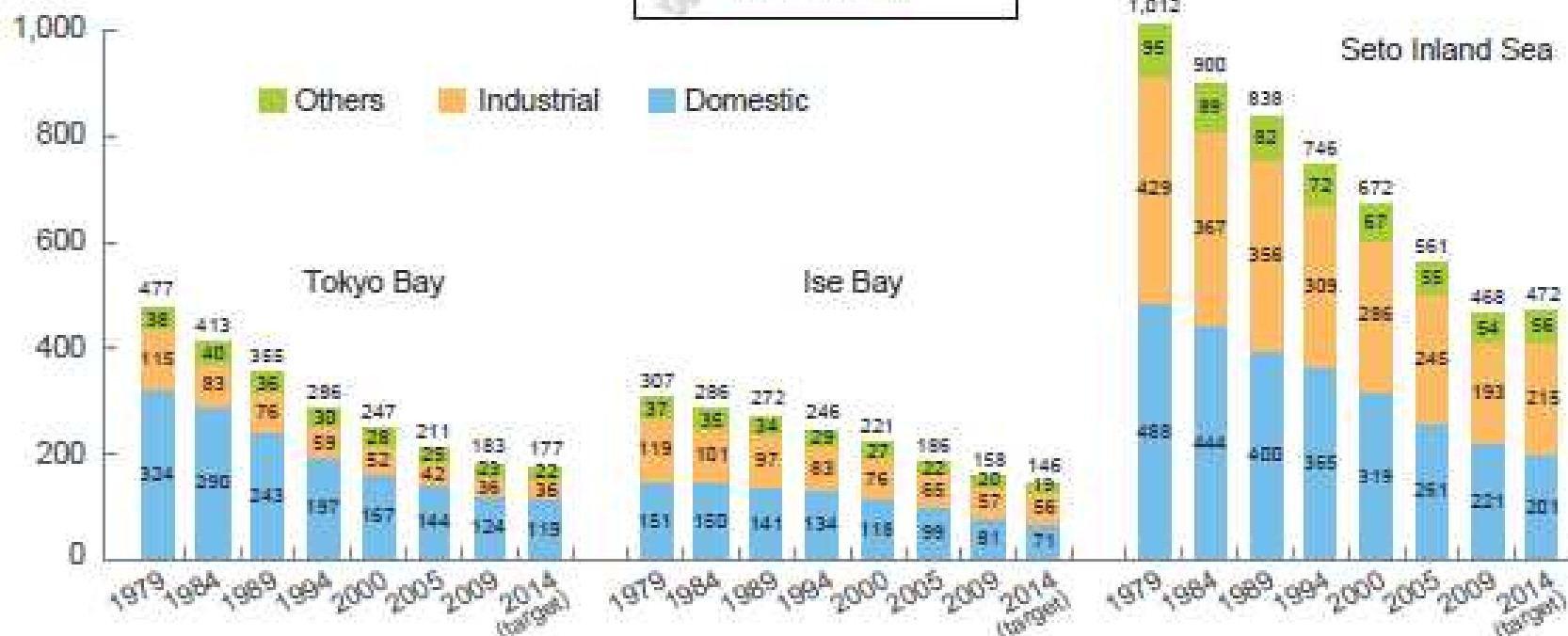
# Comprehensive Basin-wide Planning

## Catchment area of Lake Biwa in Yodo River basin area





COD generated loads (tons/day)



Note: Figures for 1979-2009 are actual. Figures for 2014 is the reduction target.

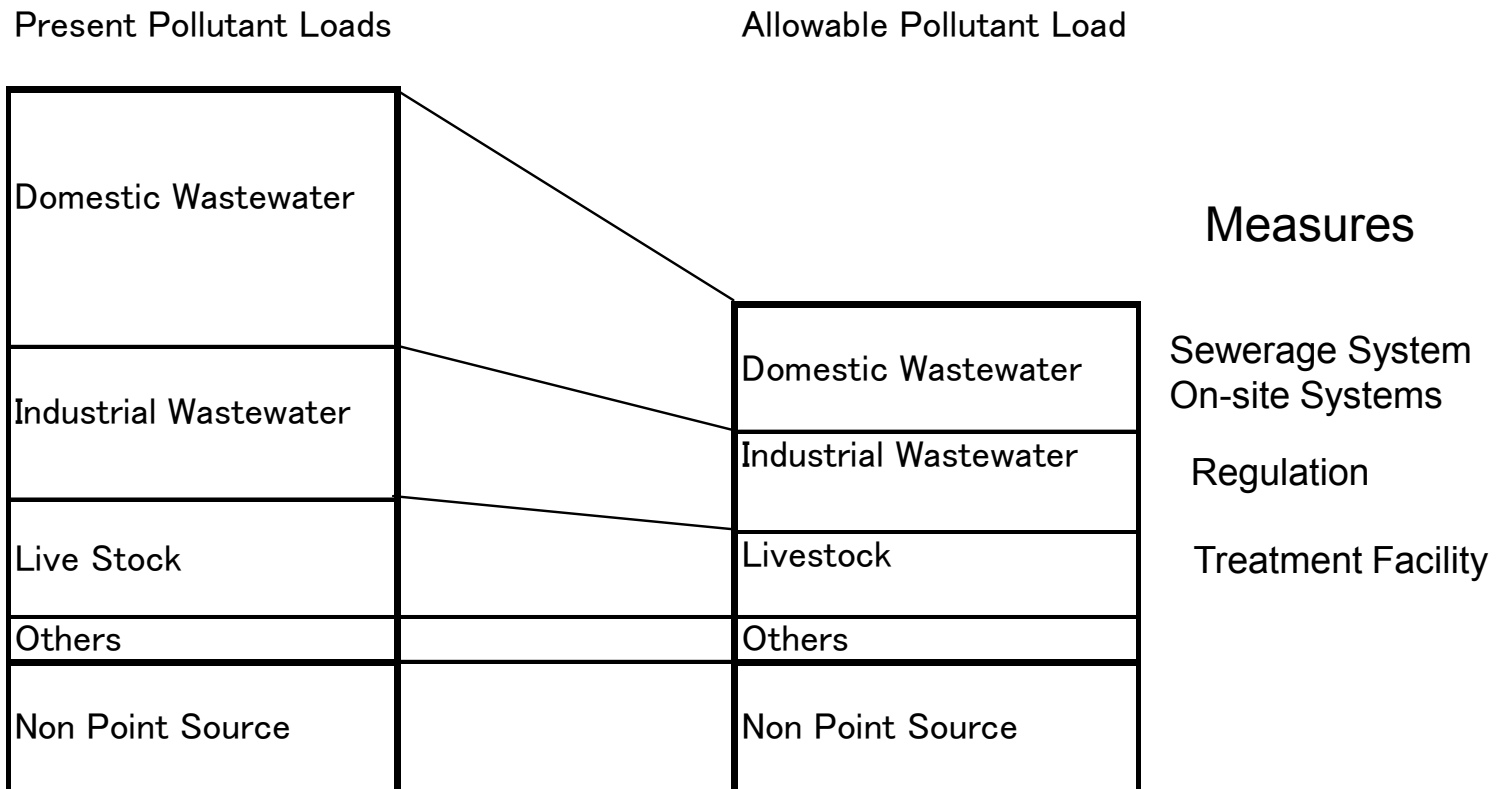
Figure 2.4.6. Challenges in pollution load and target value (in terms of COD)

(Source: provided by MoEJ)

# Comprehensive Basin-wide Planning

**To meet the Environment Standards, allocation of required pollution load reduction in accordance with Pollution Source is necessary**

## Calculation and Allocation of Pollution Load in the River Basin

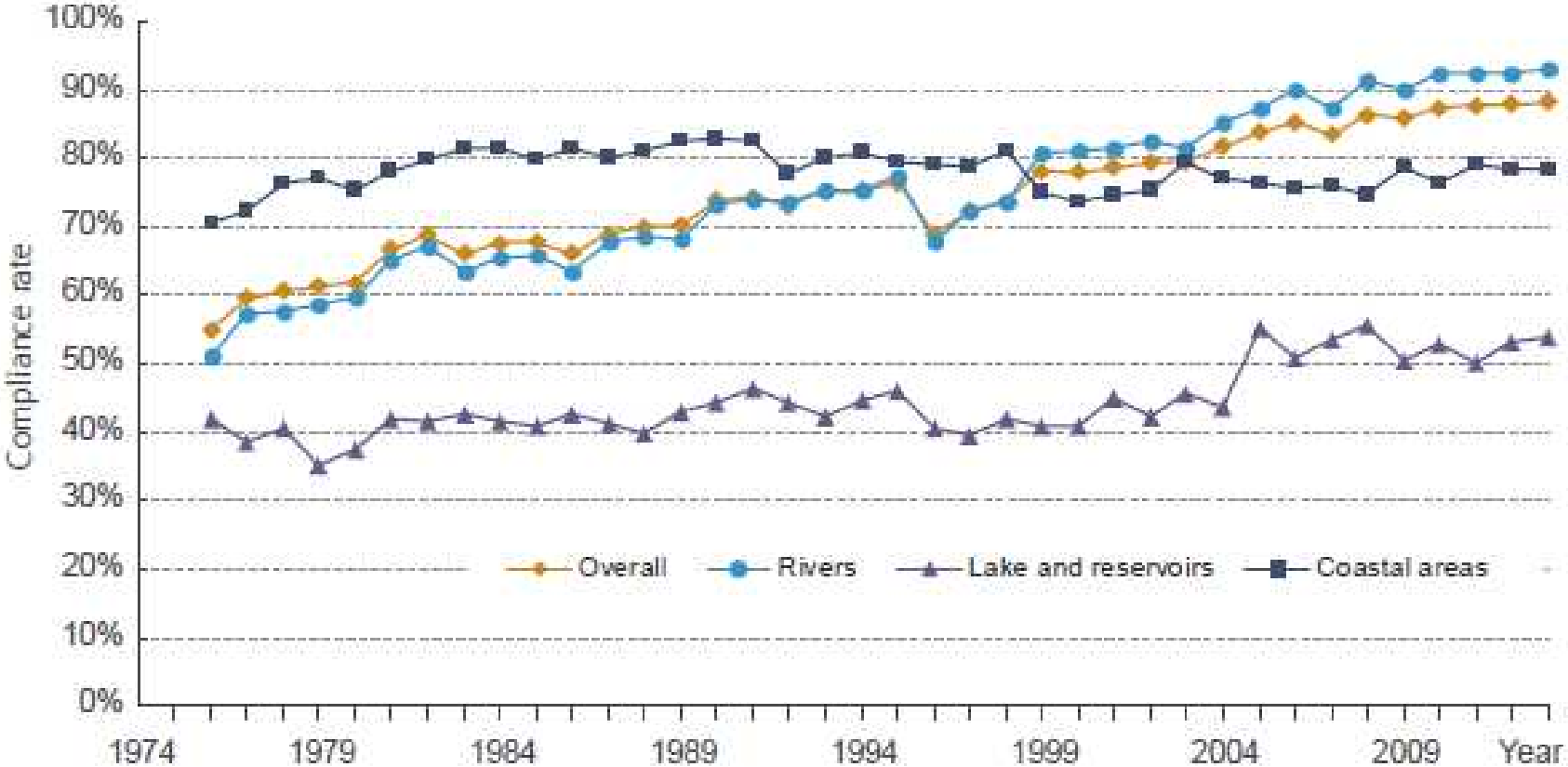


**Pollutant Load = (Number) X (Unit Pollutant Load) or Measured Value**

Example of unit pollutant load: 55g-BOD/capita

# Achievement rate of environmental standard (6.3.2) for water in public water zones

## Disclosure of Ambient Water Quality Monitoring Results



**River, Lakes and Marine Water**

## Status of ambient water quality monitoring for public water bodies in Japan

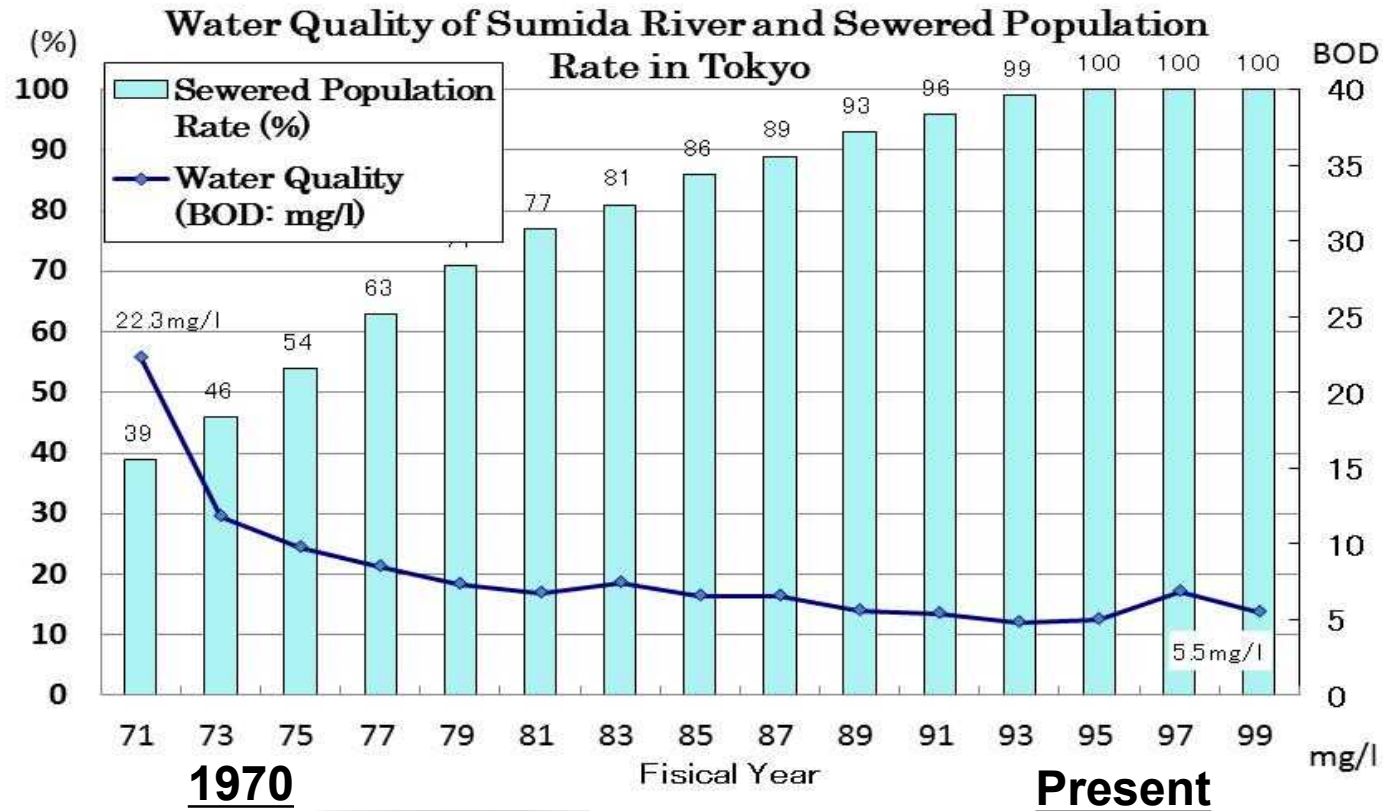
No. of Monitoring Stations	Frequency	Indicator	Responsible Institution	Year
Indicators for <b>human health</b> protection: 3,947 (rivers), 405 (lakes and reservoirs), 1,057 (sea)	Monthly	Indicators stipulated in Environmental Standards	Local government (Ministry of the Environment)	2013
Indicators for the <b>living environment</b> : 4,550 (rivers), 475 (lakes and reservoirs), 2,044 (sea)				
Indicators for <b>aquatic biodiversity</b> : 1,447 (rivers), 150 (lakes and reservoirs), 125 (sea)				
Groundwater: 3,680 (outline survey)				

### Evaluation methodology for water quality monitoring in Japan

**Achievement rate of environmental standard** for water in public water zones  
(Surface water, marine water and groundwater)

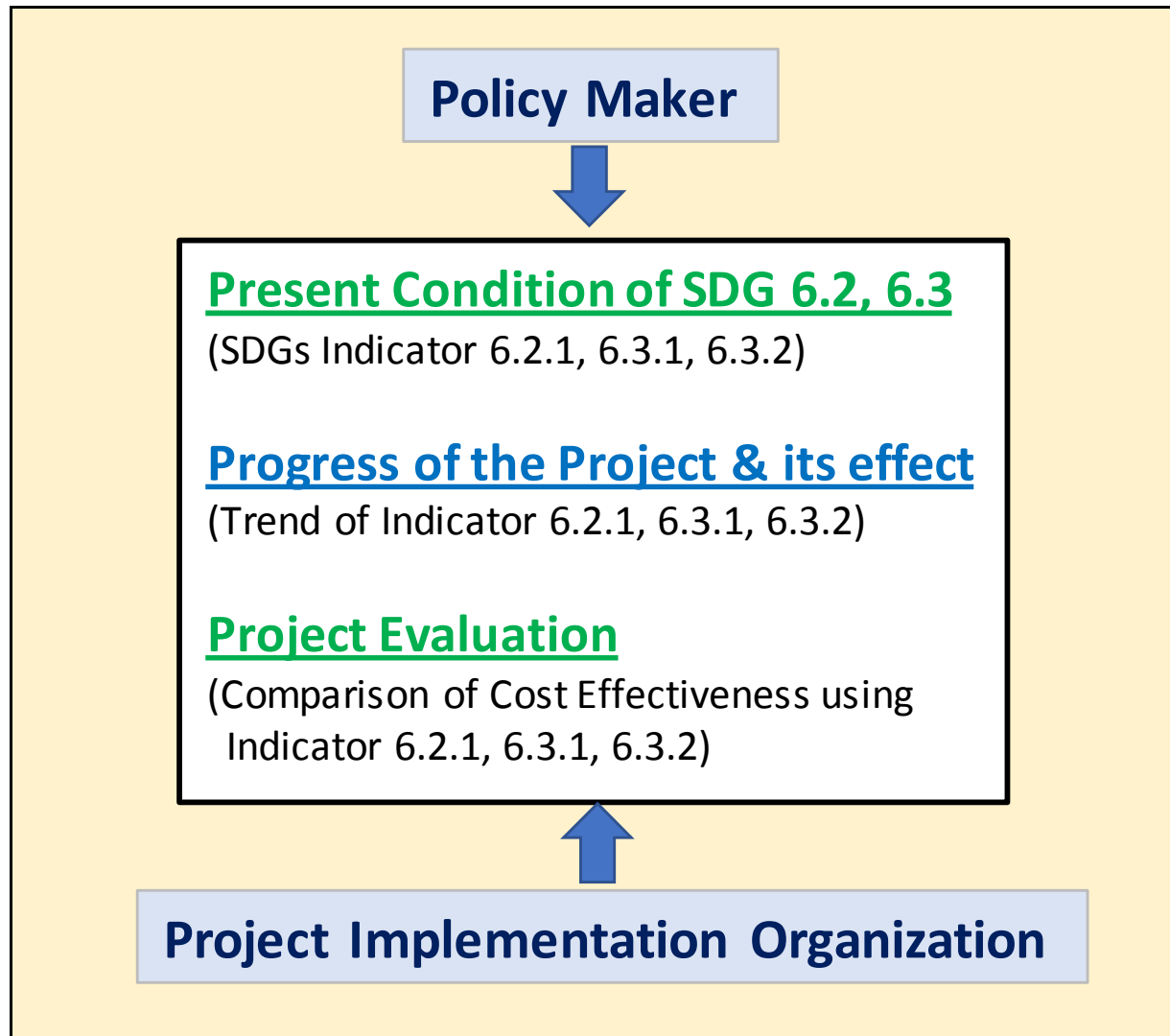


# Sewered Population Rate (6.3.1) and Improvement of Water Quality



Source : Environmental Bureau of  
Tokyo Metropolitan Government

# Indicators for Policy Maker, Project Implementation Organization (Public and Private Sector) and Citizen



### III. POLICY RECOMMENDATION TO ACHIEVE SDG 6.2, 6.3

#### 1. Establishment of Legal System:

Sewerage Law, as well as Basic Law for Environmental Protection, Water Quality Control Law

#### 2. Institutional and Management Arrangements

Role of Central Government and Municipalities,

Monitoring and Project Implementation Organization,

Human Resource Development, Research and Technology Development,

Public Private Partnership

#### 3. Technology Options

Off-site Treatment and On-site Treatment,

Technology Evaluation and Establishment of Design and O&M Manuals

#### 4. Public Relation and Citizen's Participation

Citizen's Recognition to Water Environment Preservation

Increase of the Awareness and Understanding of citizens as tax payers and users

#### 5. Planning

Necessity of Effective Planning

#### 6. Financial System for Sanitation and Wastewater Management

Establishment of Construction and O&M Cost Sharing Principles

**Construction Cost:** Subsidy, Local Bond, User Charges, **O&M Cost :** User Charges, Public Burden

# IV. JICA's Comprehensive Approach

## Loan Projects

Construction

- Sewage Treatment Plants
- Pipe Works

(Trunk Sewer, Branch Sewer, House Connection )

Consulting Services

Detailed Design

Tender Assistance

Supervising Construction

## Preparatory Studies

- Feasibility Study
- Project Plan, Basic Design, Cost Estimation

## Technical Cooperation Projects

Expert dispatch

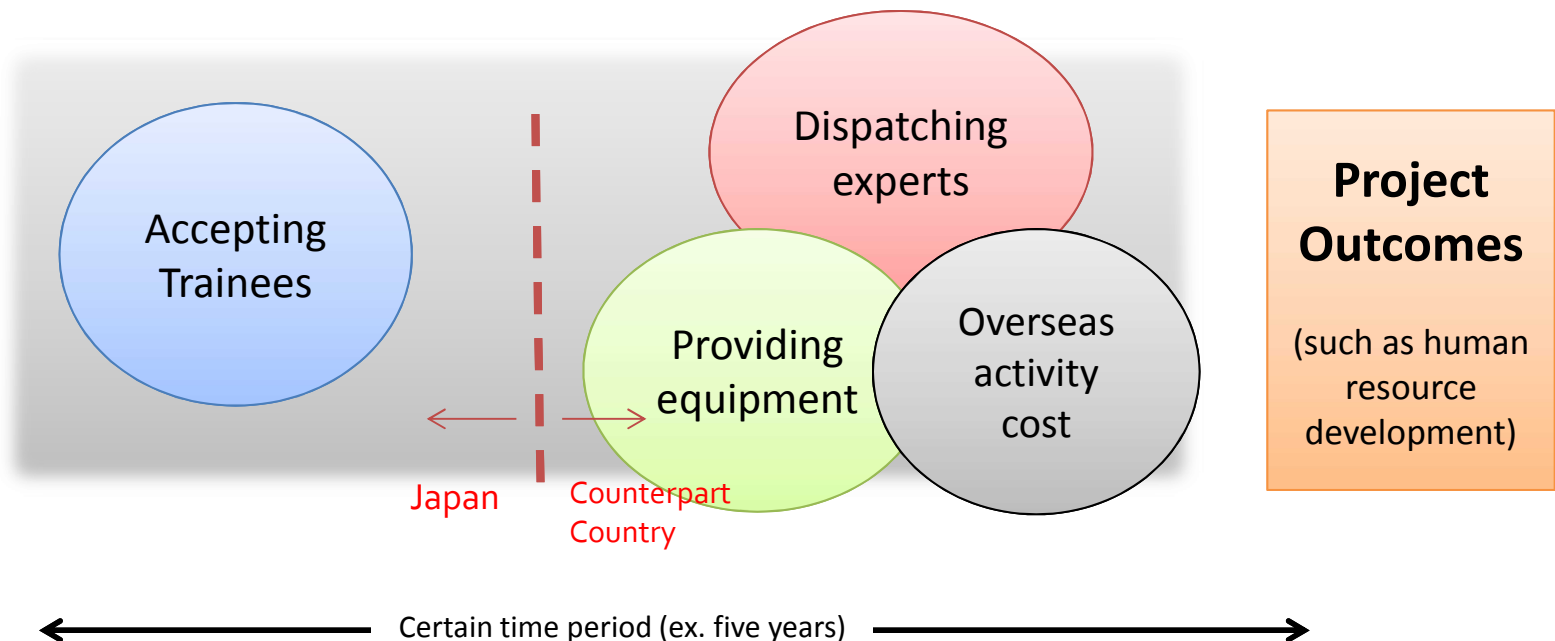
- O&M Capacity Building
- Training Center for Sewerage works
- Rehabilitation and Improvement Programs

# What is Technical Cooperation Project ?

Technical Cooperation Project is to combine various operational menu, such as dispatching experts and providing equipment, in accordance with agreed plan for the cooperation to attain certain outcomes within certain time period



Counterpart  
Government





# **CONCLUSION**

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## **II. SDGs and JICA activities**

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- Grant
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Thank you for your attention.