

# Overview of wastewater management in the Asia-Pacific and its related problems

Regional Process/Asia Pacific region/Theme "People"

"Integrated Sanitation for All"

8<sup>TH</sup> WORLD WATER FORUM, 19TH MARCH 2018

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# Purpose of Wastewater Treatment

## Sanitation ⇒ Water Environmental Conservation

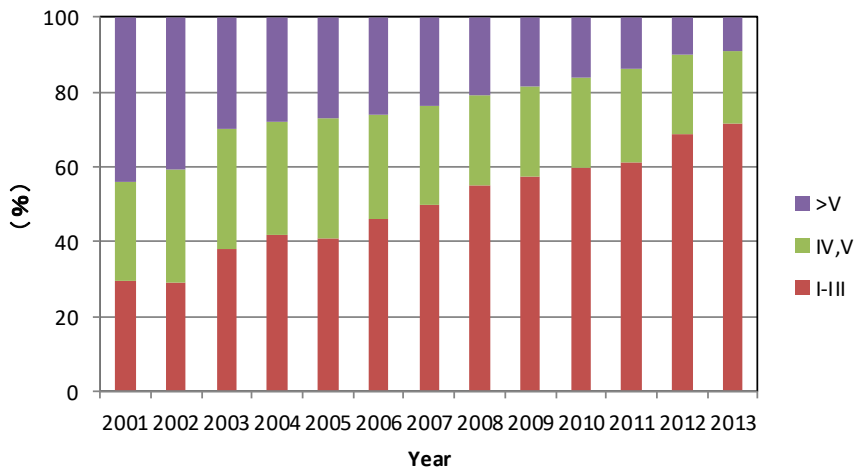
Sustainable Development Goals (SDGs) Goal 6

Ensure availability (continuously adopted goals since MDGs) and **sustainable management (new goals from SDGs)** of water and sanitation for all

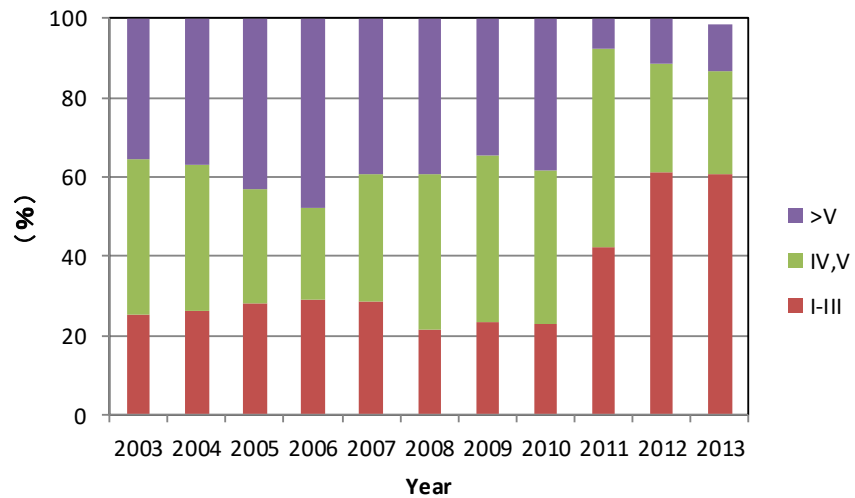
### Target

- By 2030, achieve universal and equitable access to safe and affordable drinking water for all
- 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 and those in vulnerable situations
- **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**
- **By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity**
- **By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate**
- **By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes**
- By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies
- Support and strengthen the participation of local communities in improving water and sanitation management<sup>2</sup>

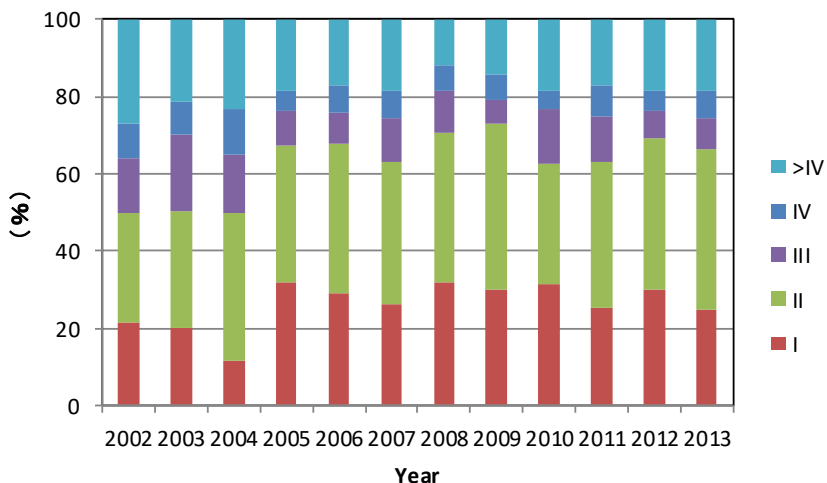
# Result of Water Quality Monitoring



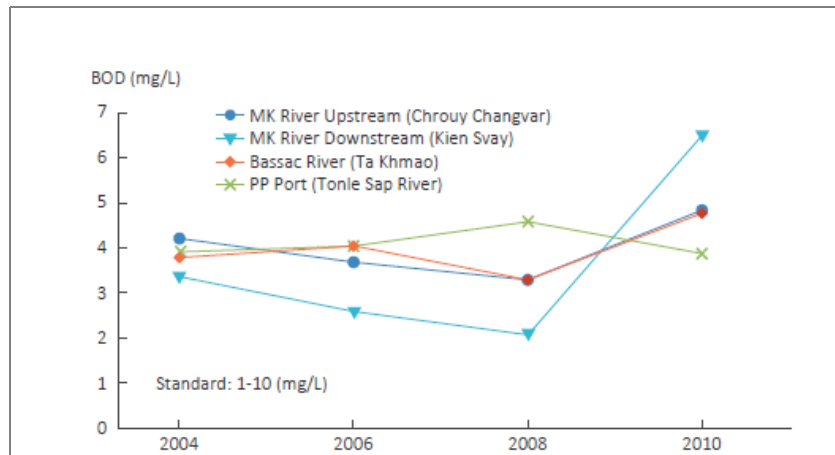
Surface Water



Lake Water



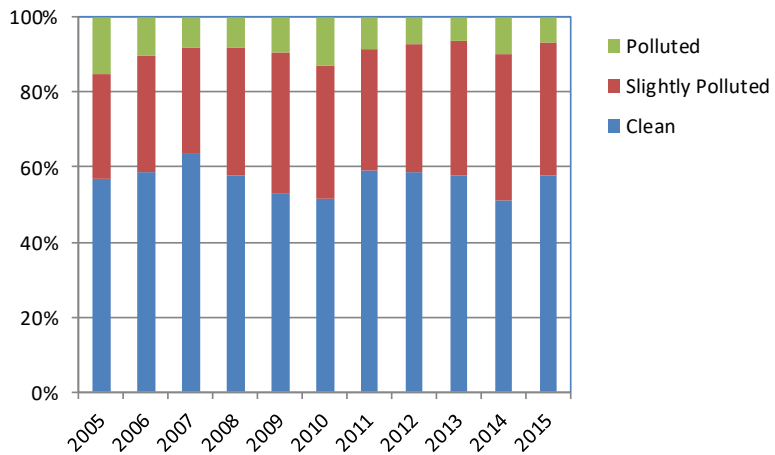
Coastal Water



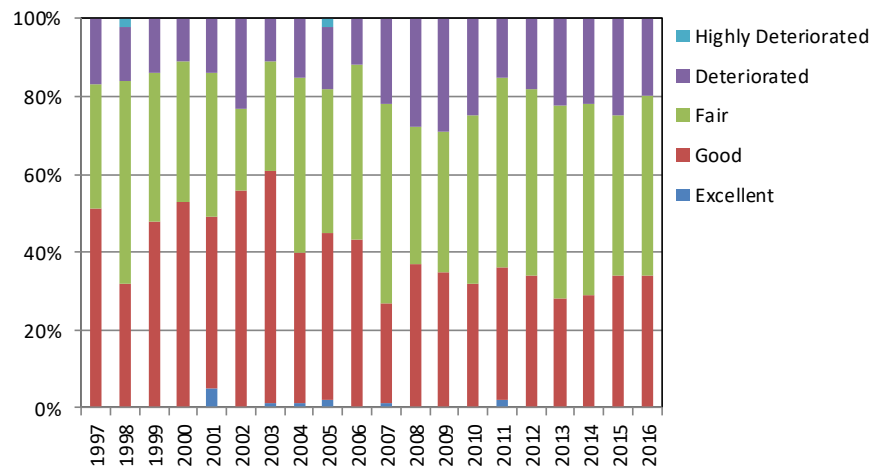
Cambodia

China

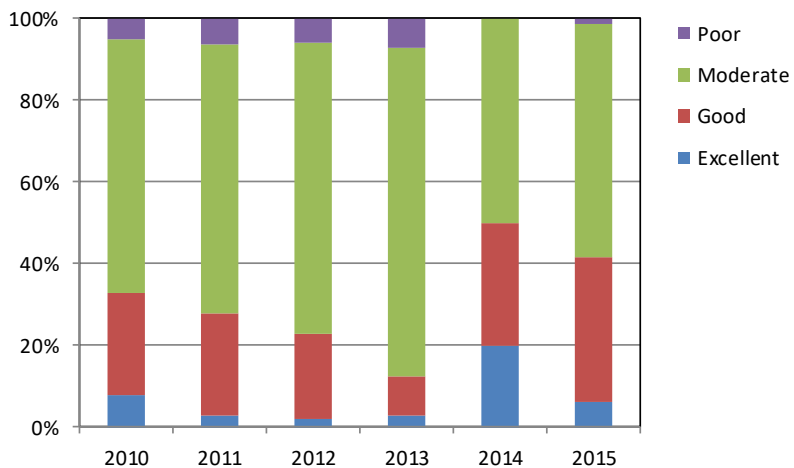
# Result of Water Quality Monitoring



Surface Water

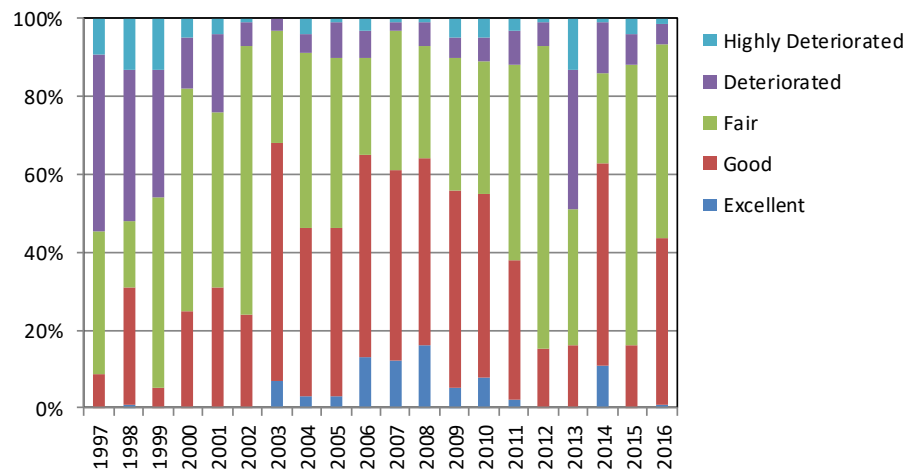


Surface Water



Marine Water

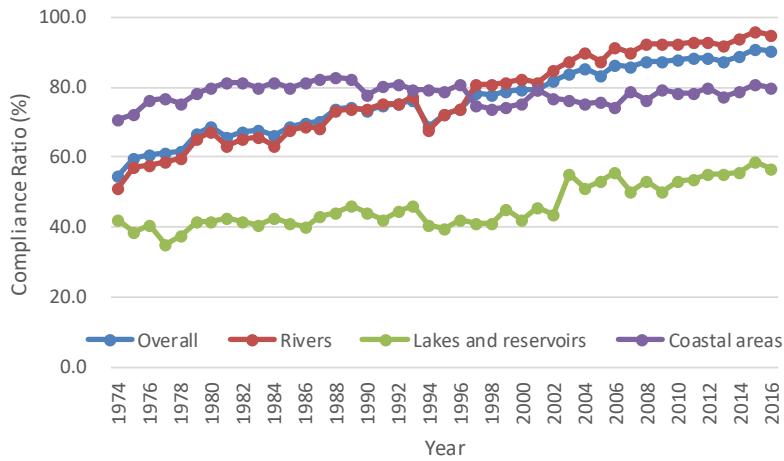
**Malaysia**



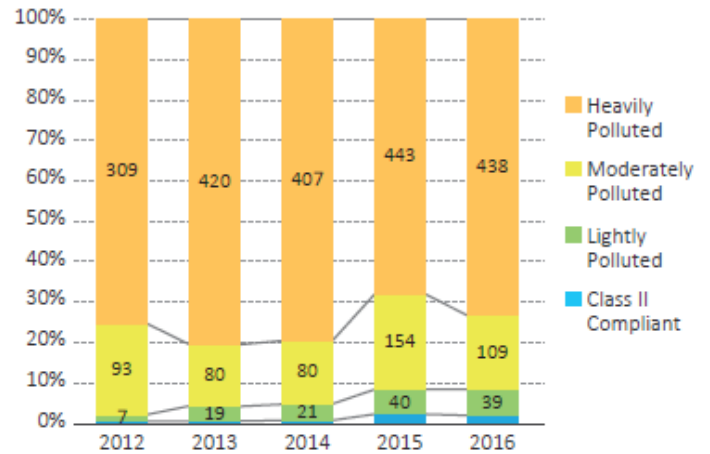
Marine Water

**Thailand**

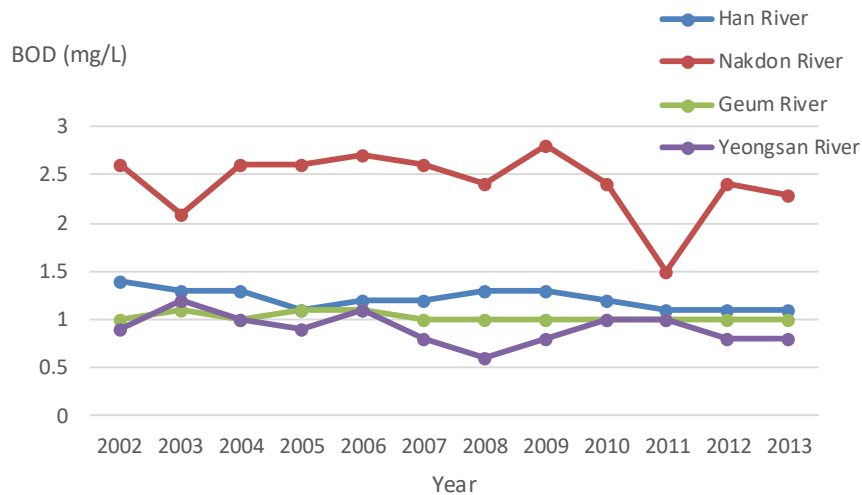
# Result of Water Quality Monitoring



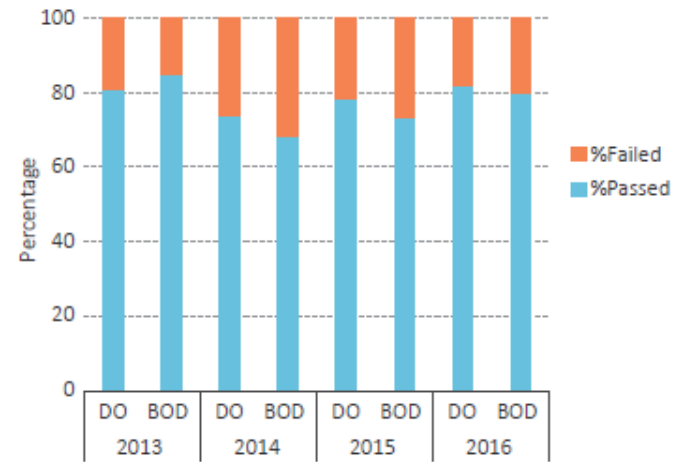
**Japan**



**Indonesia**

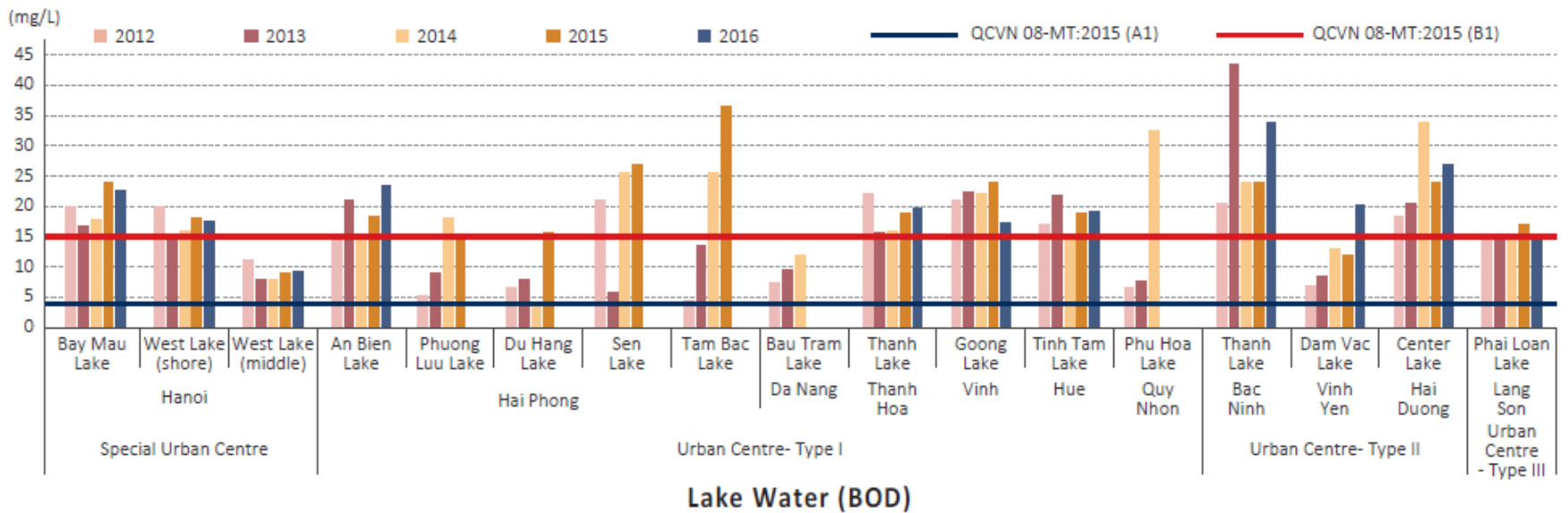
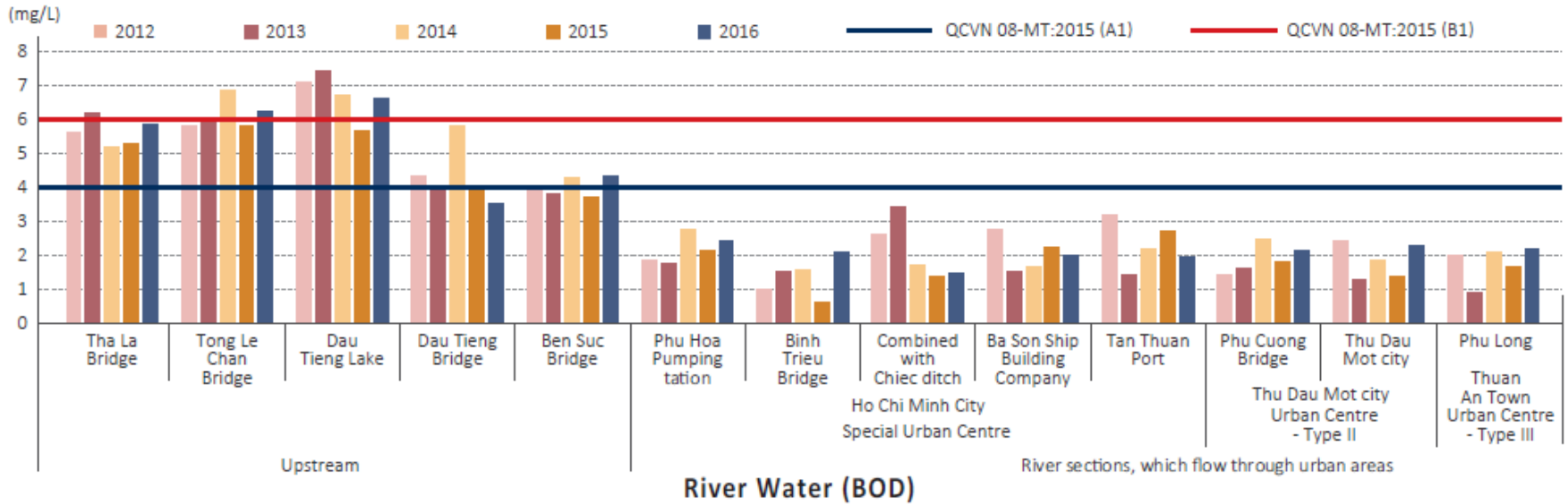


**Republic of Korea**

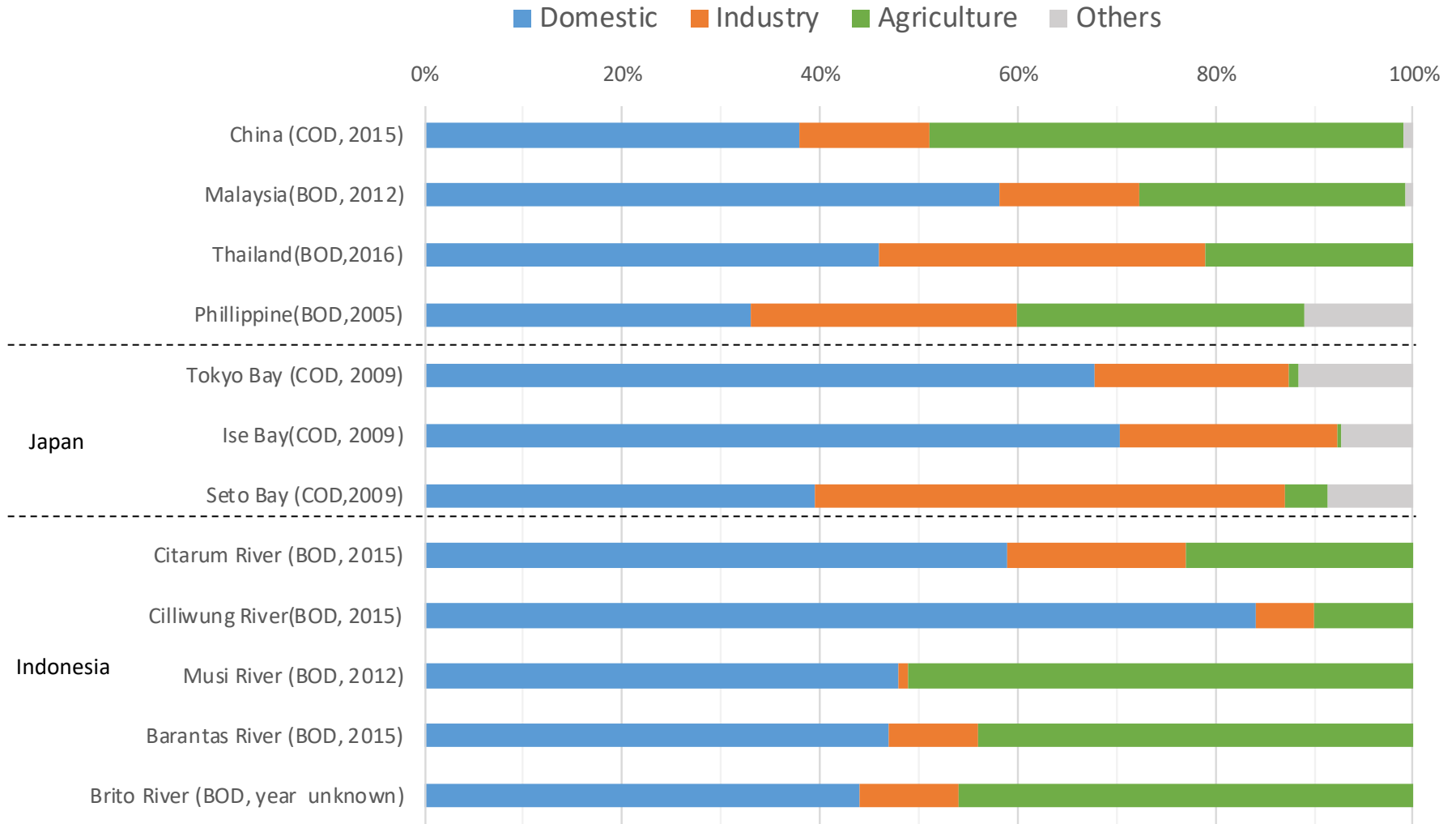


**Philippines**

# Result of Water Quality Monitoring



# Pollution Source by Sector in Selected WEPA countries



# Consideration Points When We Think about Domestic Wastewater Management in Asian Region

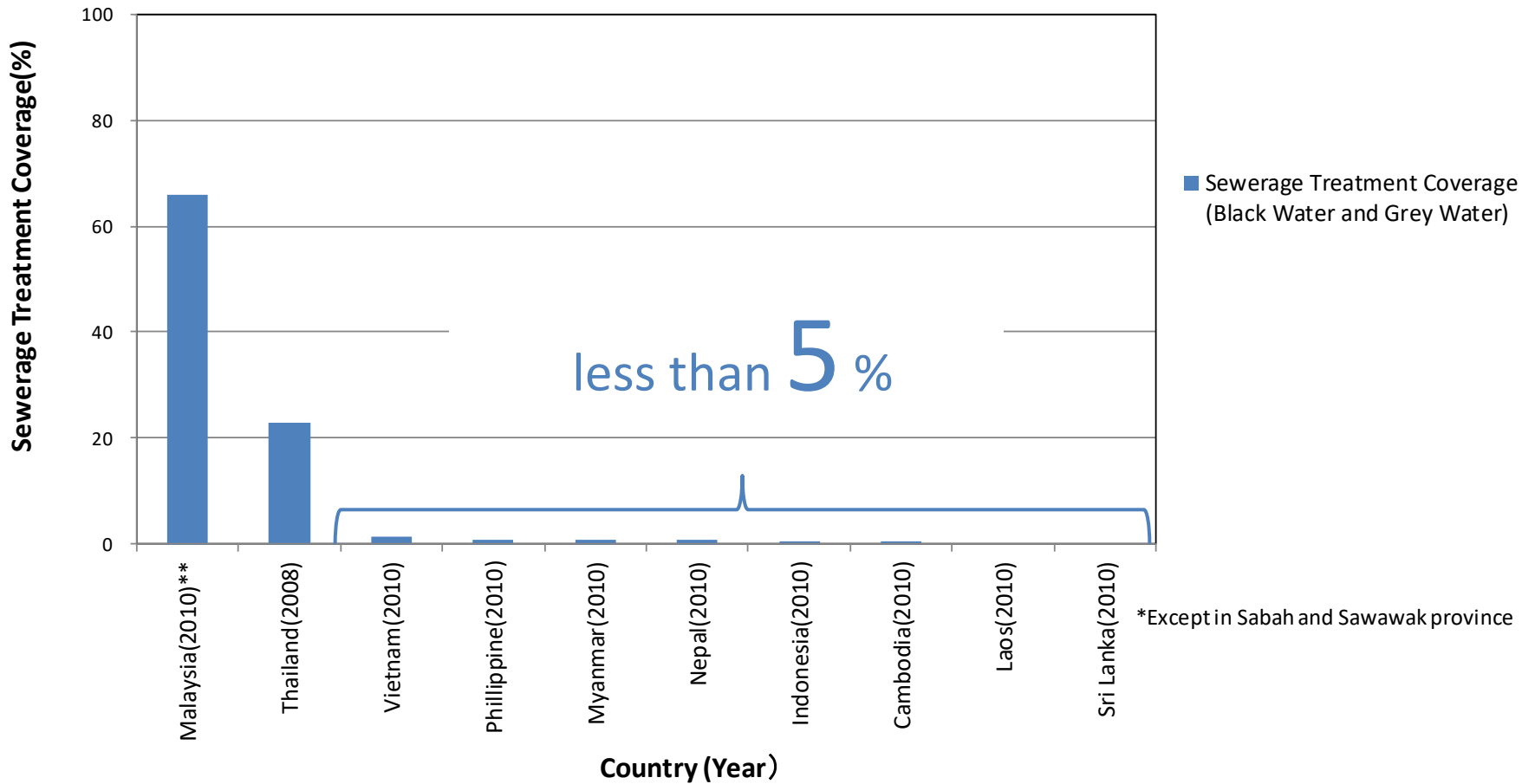
1. Increase of Volume of Domestic Wastewater Discharge from Urban Area due to **Population Increase and Urbanization**
2. **Low Coverage Ratio of Sewerage Treatment System**
3. **Septic Tank**
4. **Economical Condition**



# Change in Population and Urbanization of Asian Countries

Country	1975		2010		Population Growth Rate (1975-2010)
	Population (thousand persons)	Proportion of Urban Population (%)	Population (thousand persons)	Proportion of Urban Population (%)	Average annual rate of population change (%)
Cambodia	7,098	4	14,138	20	2.8
China	915,041	17	1,341,335	47	1.3
Indonesia	134,106	19	239,871	44	2.3
Japan	110,808	57	126,536	67	0.4
Laos	3,042	11	6,201	33	3.0
Malaysia	12,313	38	28,401	72	3.7
Myanmar	29,534	24	47,963	34	1.8
Nepal	13,373	5	29,959	19	3.5
Philippines	40,893	36	93,261	49	3.7
Korea	34,722	48	48,184	83	1.1
Sri Lanka	13,811	22	20,860	14	1.5
Thailand	42,399	24	69,122	34	1.8
Viet Nam	49,896	19	87,848	30	2.2
Total	1,407,034		2,153,680		1.5

# Service Coverage Ratio of Sewerage Treatment in Asia

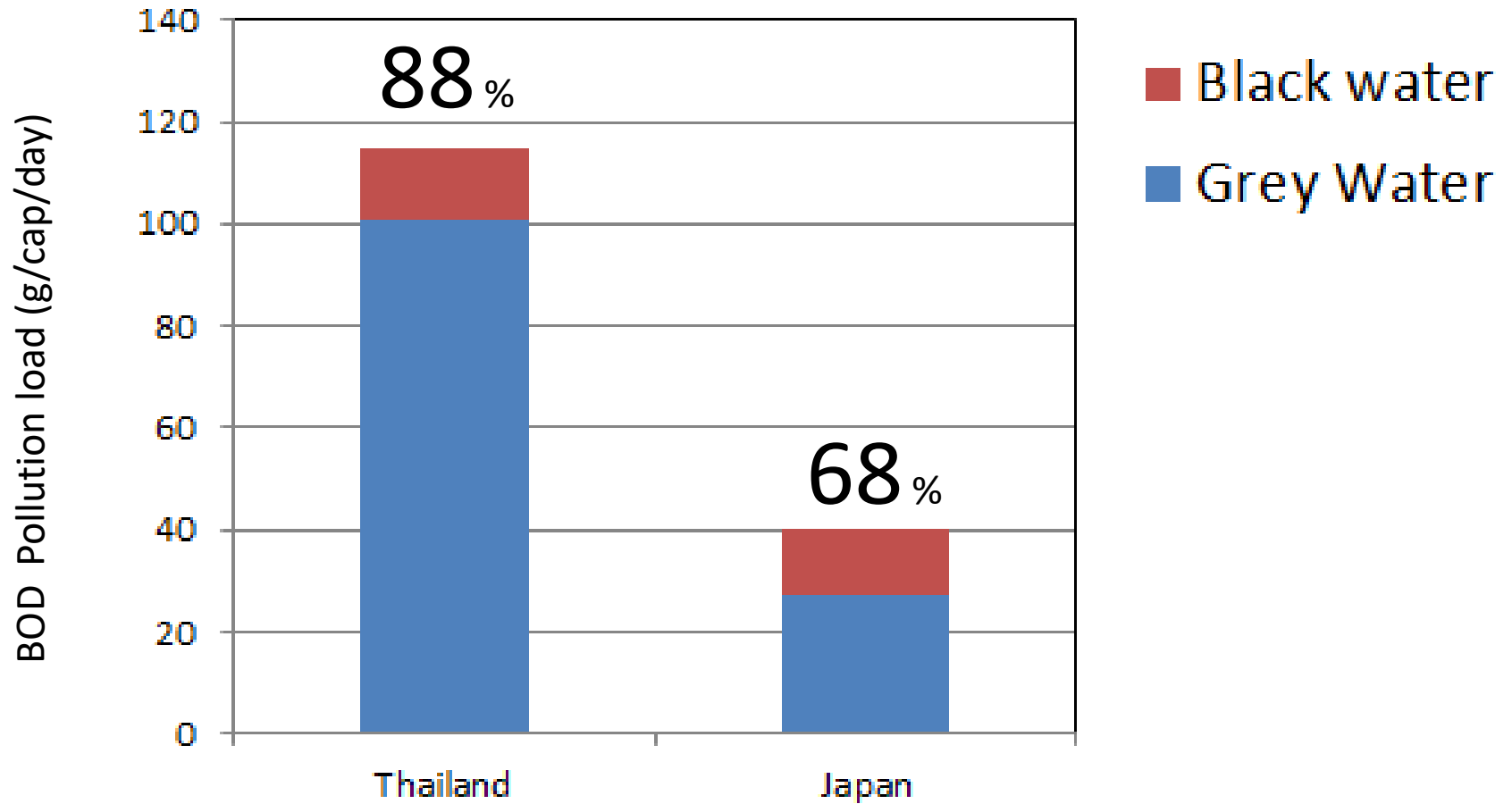


Service Coverage Ratio of Sewerage Treatment in selected WEPA Countries

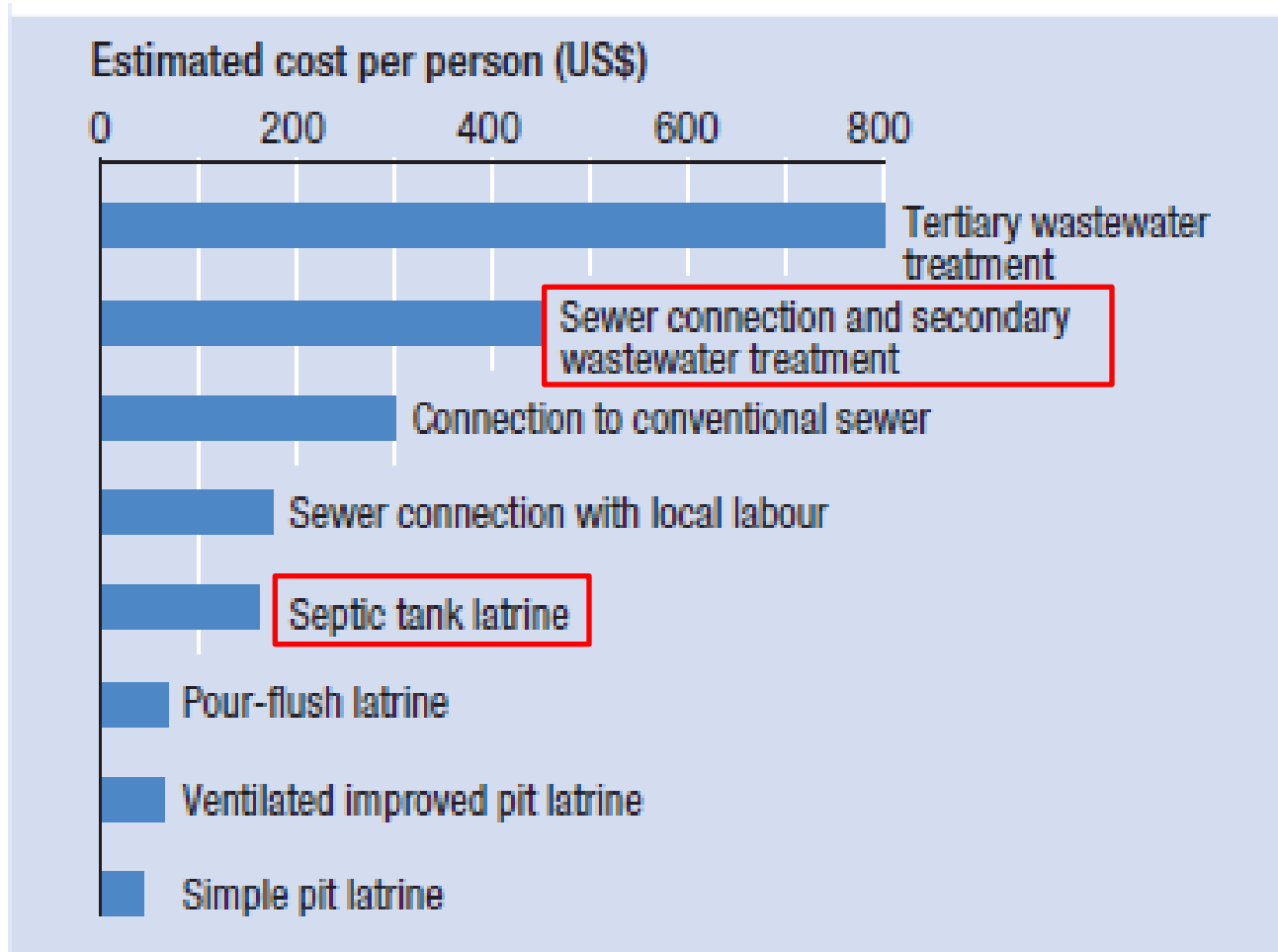
## Percentage of Septic Tank Installation in Selected WEPA Countries

Malaysia (2010)	20%
Vietnam(2008)	41%
Indonesia (2012)	53%
Cambodia (2008)	43%
Manila/Philippines (2010)	71%

# Pollution Load from Grey Water

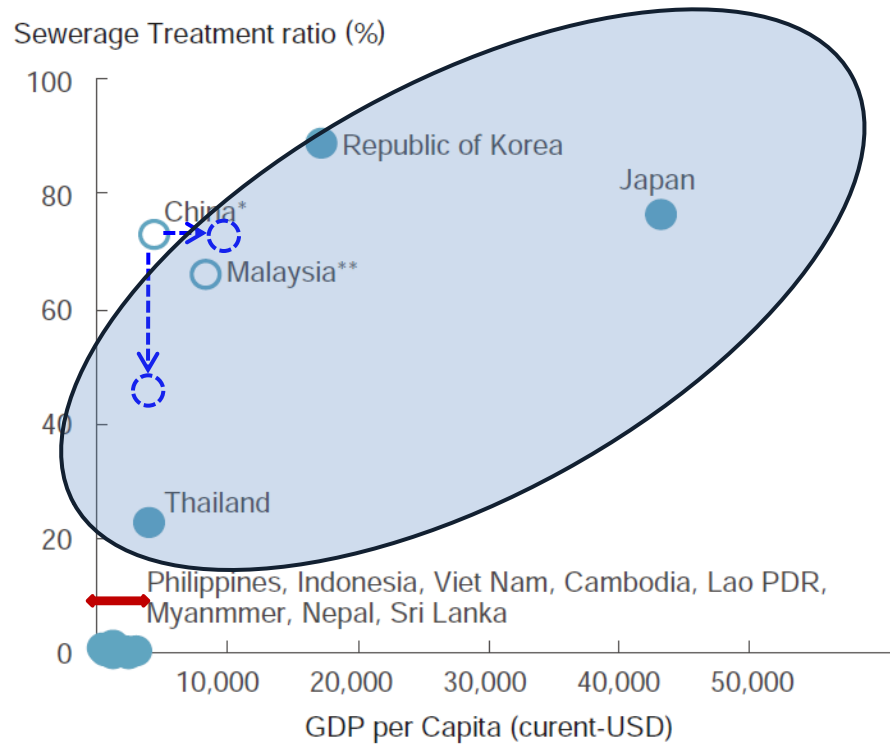


# Cost of Domestic Wastewater Treatment



Source : Human Development Report 2006, UNDP

# Relationship between Sewerage Treatment Coverage Ratio and Economic Situation



← Range of GDP per Capita in other WEPA countries

\*Sewerage treatment ratio of China is only for urban area  
\*\*Sewerage treatment ratio of Malaysia is except for Sabah and Sarawak province

## Relationship between Sewerage Treatment Coverage Ratio and GDP per Capita in WEPA Countries

## Summary

- Domestic wastewater is major **pollution source** to water environment in many Asian countries. In the respect of water environmental conservation, it is important to reduce the pollution load from domestic sector.
- When we plan to develop domestic wastewater treatment in Asian countries, it is essential to consider **social-economical situation** in the region.