

Review and Reflection of WEPA Database on Technology

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Researcher

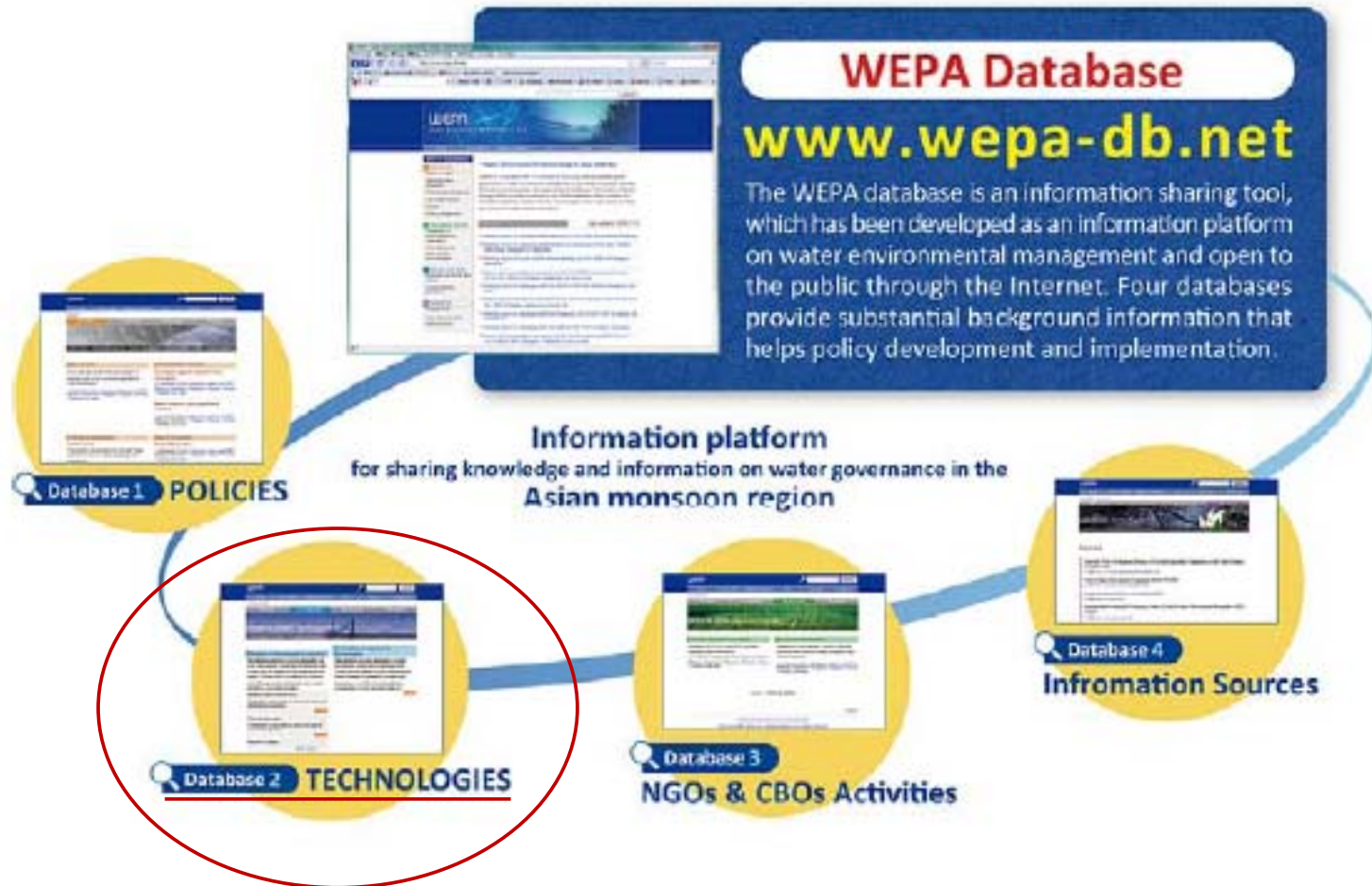
Institute for Global Environmental Strategies (IGES)

WEPA Secretariat

Today's Topic

- (1) Review and Reflection of WEPA Database on Technology**
- (2) Background of Thematic Session1 *“Urbanization and Water Quality Control for the Source of Water in Asian City”***

Structure of the WEPA Database



Purpose of WEPA Database on Technology

<Purpose>

To provide substantial background information on wastewater treatment technology that helps planning and implementation of development of wastewater management system

<Supposed Users>

Officials in WEPA partner countries who are engaging in policy development and implementation

Methodology of Data Collection

Data and information collection based on the partnership of partner countries: The focal point person of each WEPA country (governmental official) collected information based on questionnaires prepared by WEPA secretariat.

Targeted Technology: On-going Wastewater Treatment Facility Operating for more than 3 years



WEPA Database on Technology

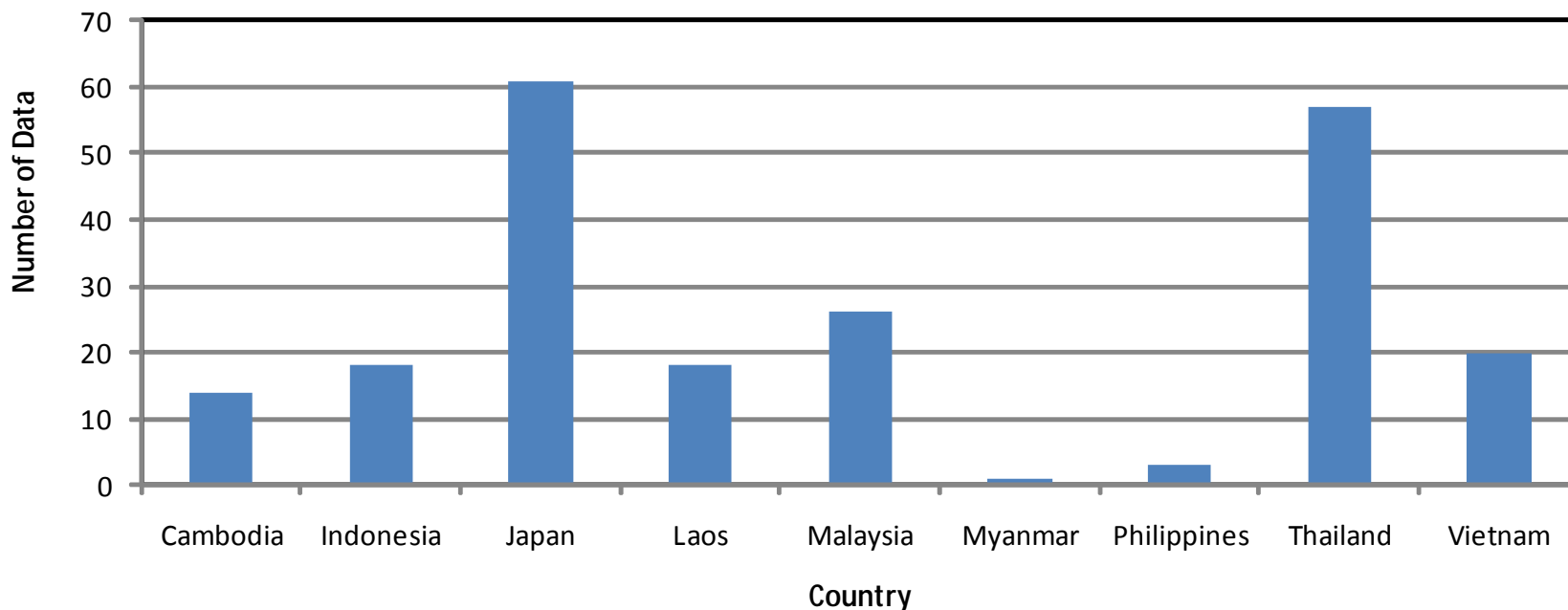
WEPA Water Environment Partnership in Asia

Nongkhaen Wastewater Treatment Plant

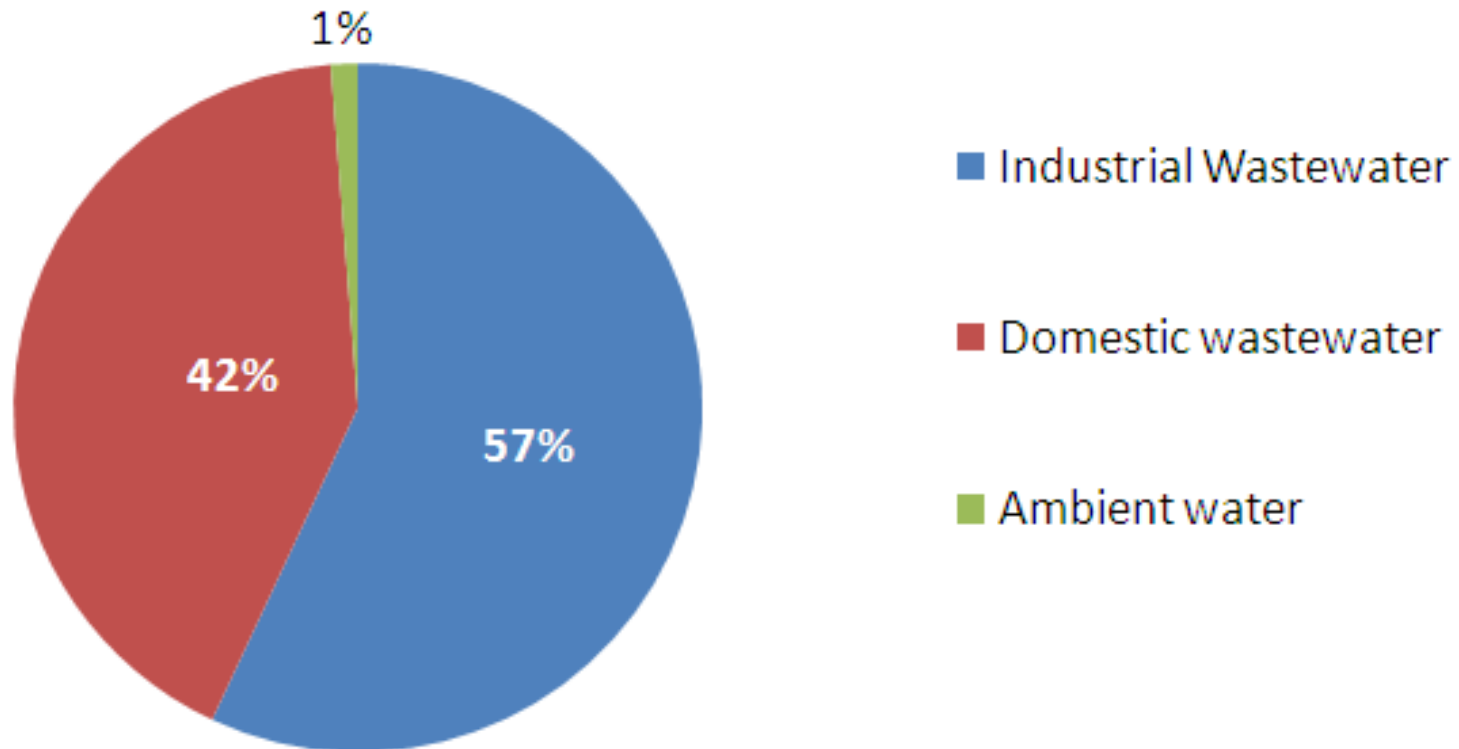
Wastewater treatment facility identification	Facility name	Nongkhaen Wastewater Treatment Plant			
	Facility location	Bangkok			
Facility overview	Operating period	since 1999 ~			
	Wastewater characteristics	Domestic wastewater			
	Treatment process	Pump sludge → Fine screen → Grit chamber → Activated sludge → Sedimentation tank → Effluent			
	Process flow diagram	Rectangular aeration reactors 4 set Each basin 9.15 m x 40.00 m x 9.50 m Clarifiers diameter 51 m x 4.6 m side water depth			
	Specification of reactor & principal equipment	Activated sludge process using Tapered vertical Loop reactor			
Facility Operation status	Daily amount of treated wastewater	Actual	157,000 m ³ /day	Design	157,000 m ³ /day
	Annual electric consumption	Actual	27,000 kWh	Design	54,000 kWh
	Annual amount of sludge generation	Actual	D5t	Design	D5t
Process performance (Influent & effluent water quality)	Design		Influent quality	Effluent quality	Performance
		SS	mg/L	mg/L	
		BOD	mg/L	mg/L	
		COD (Cr, Mn)	mg/L	mg/L	
		T-N	mg/L	mg/L	
		T-P	mg/L	mg/L	
	Coliform group				
	Fecal coliform				
	E. coli bacteria				
	Other				
			Influent quality	Effluent quality	Performance
	SS	mg/L	mg/L		
	BOD	mg/L	mg/L	> 80%	

Number of Data on Technology in WEPA Database

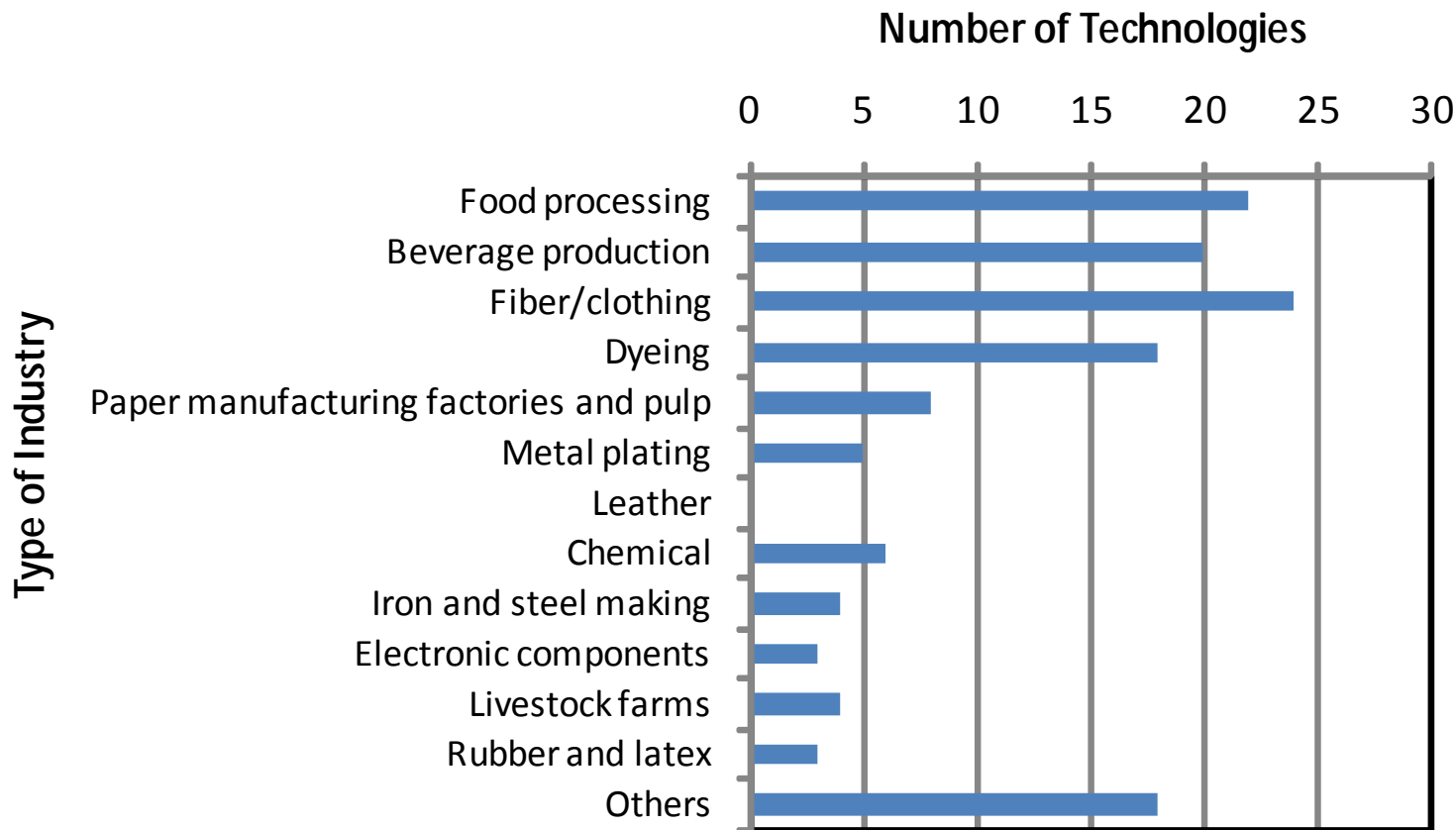
218 Data from **9** countries



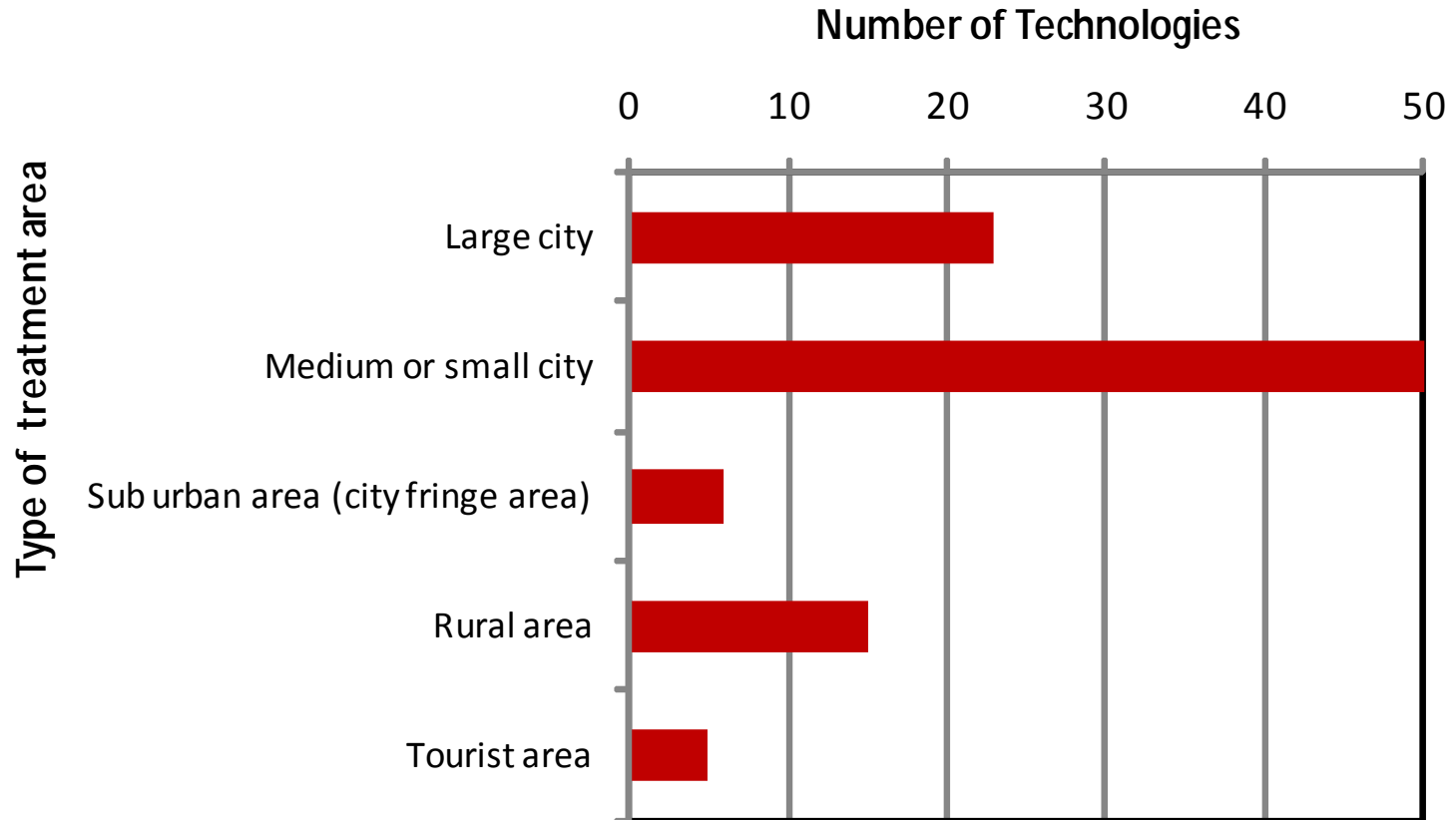
Target Wastewater



Type of Factory for Industrial Wastewater Treatment Technology



Type of Treatment Area for Domestic Wastewater Treatment Technology



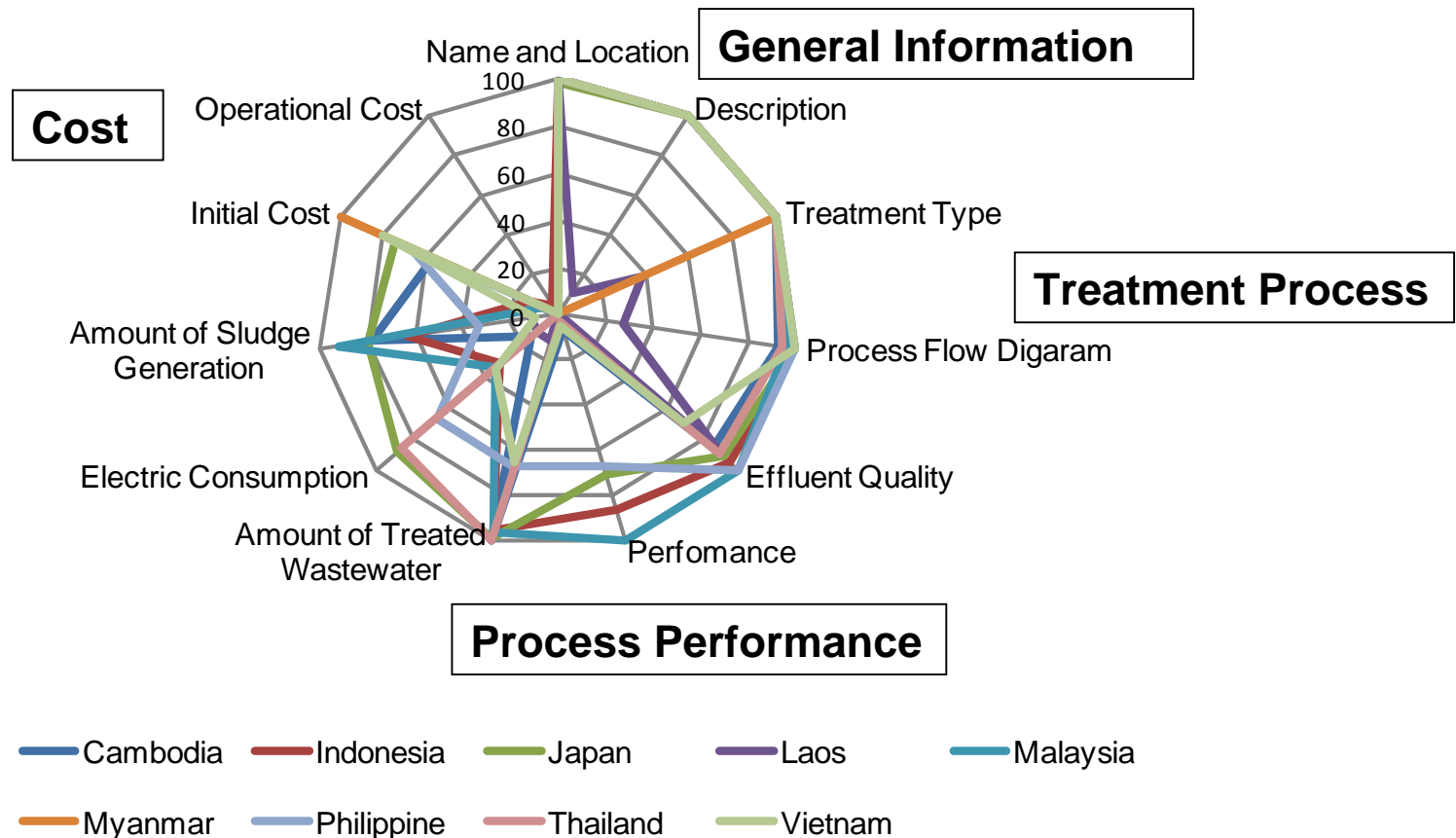
Information in WEPA Database on Technology (1)

**Details of Information of existing wastewater treatment facilities
presented in the WEPA technology database**

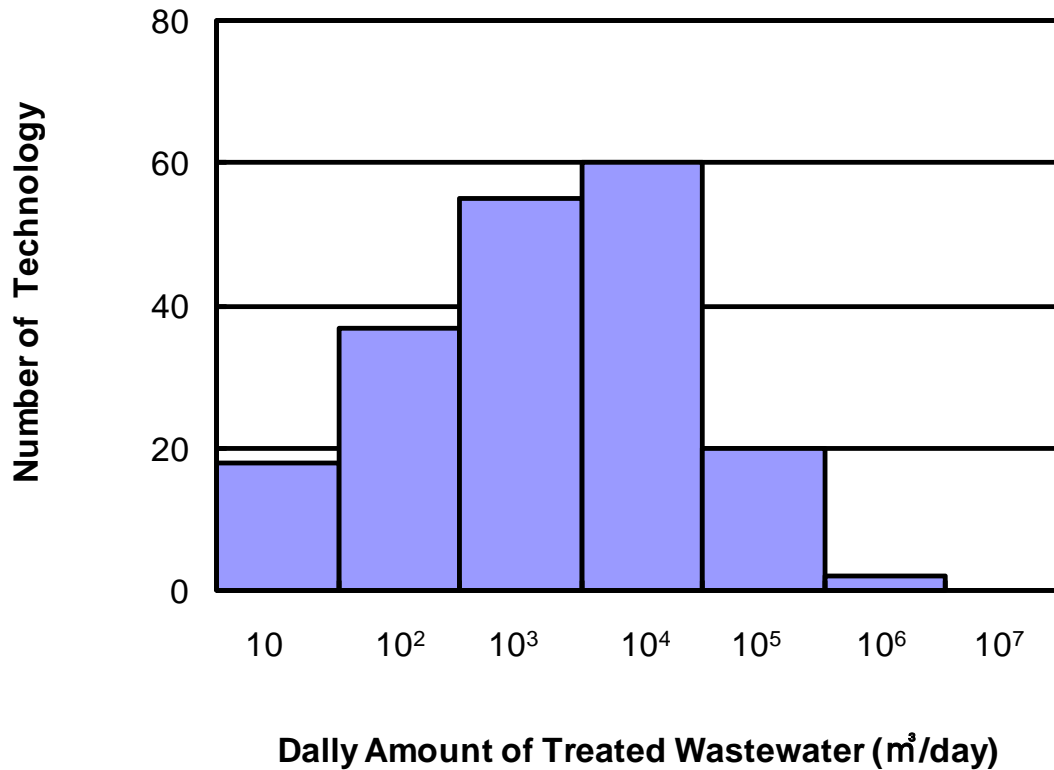
Items	Data
General Information	Name and Location, Description
Treatment Process	Treatment Type, Process Flow Diagram
Process Performance (Design)	Effluent Quality, Performance, Amount of Treated Wastewater, Electric Consumption, Amount of Sludge Generation
Process Performance (Actual)	Effluent Quality, Performance, Amount of Treated Wastewater, Electric Consumption, Amount of Sludge Generation
Cost	Initial Cost, Operational Cost
Others	Contact Address, Picture

Information in WEPA Database on Technology (2)

Percentage of information collected for each item

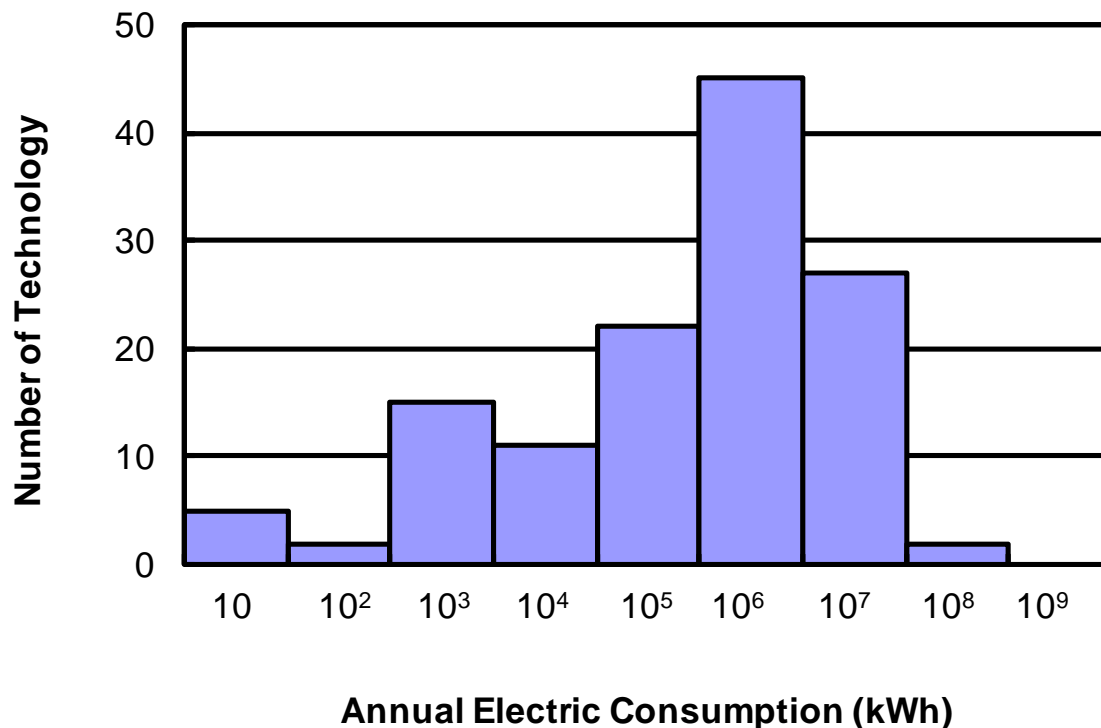


Information in WEPA Database on Technology (Daily Amount)



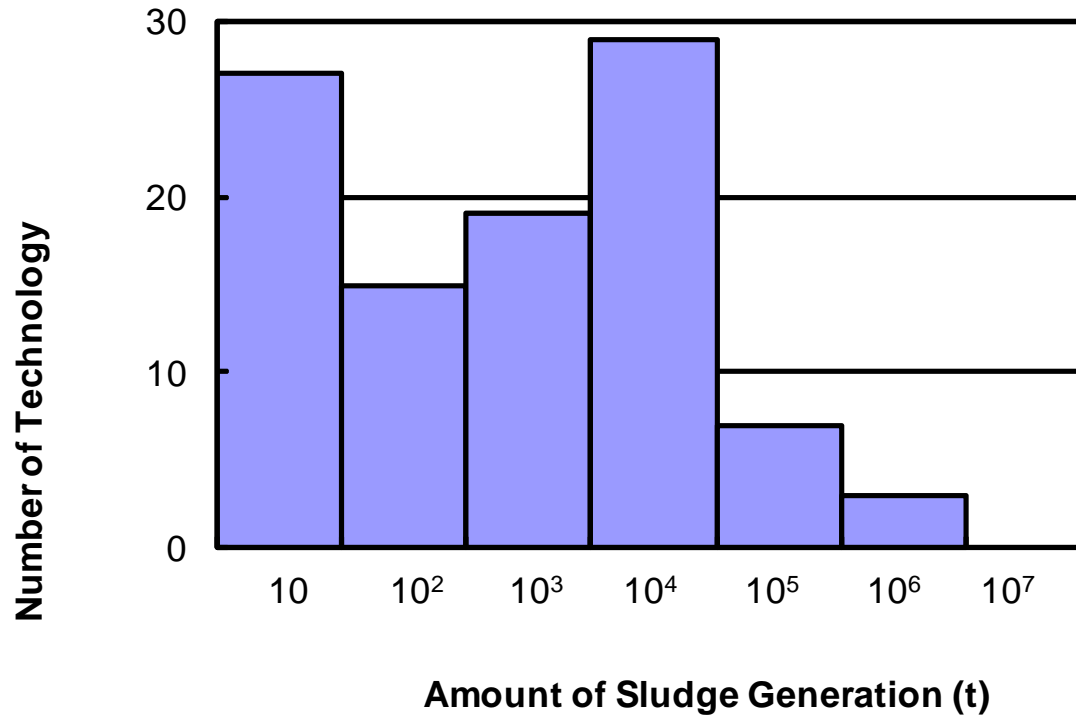
No data :30

Information in WEPA Database on Technology (Electric Consumption)

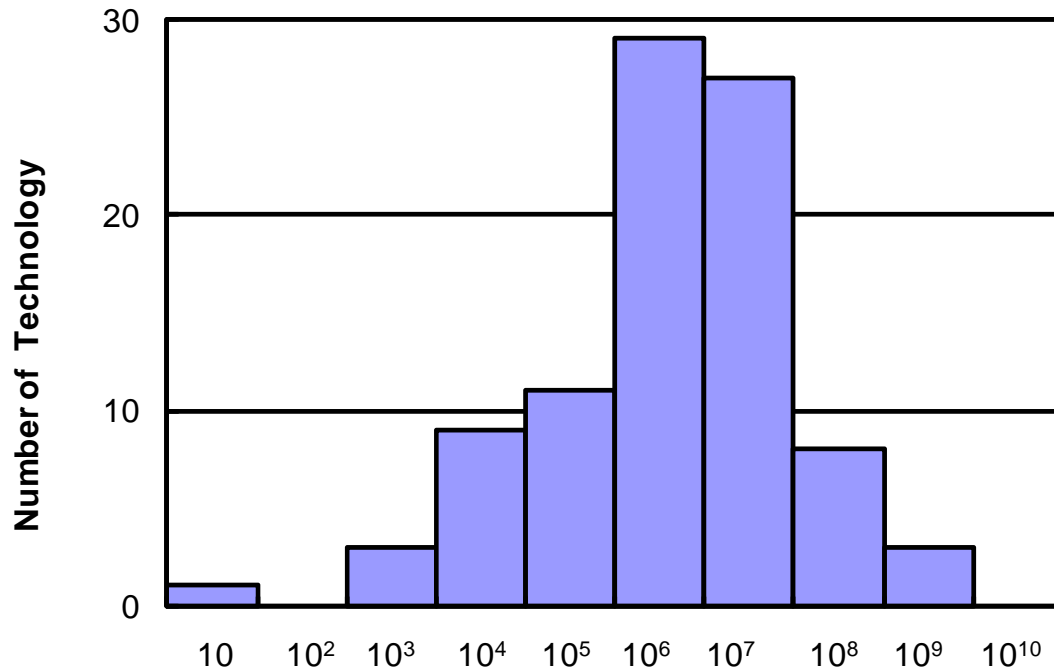


No data 93

Information in WEPA Database on Technology (Sludge Generation)



Information in WEPA Database on Technology (Initial Cost)

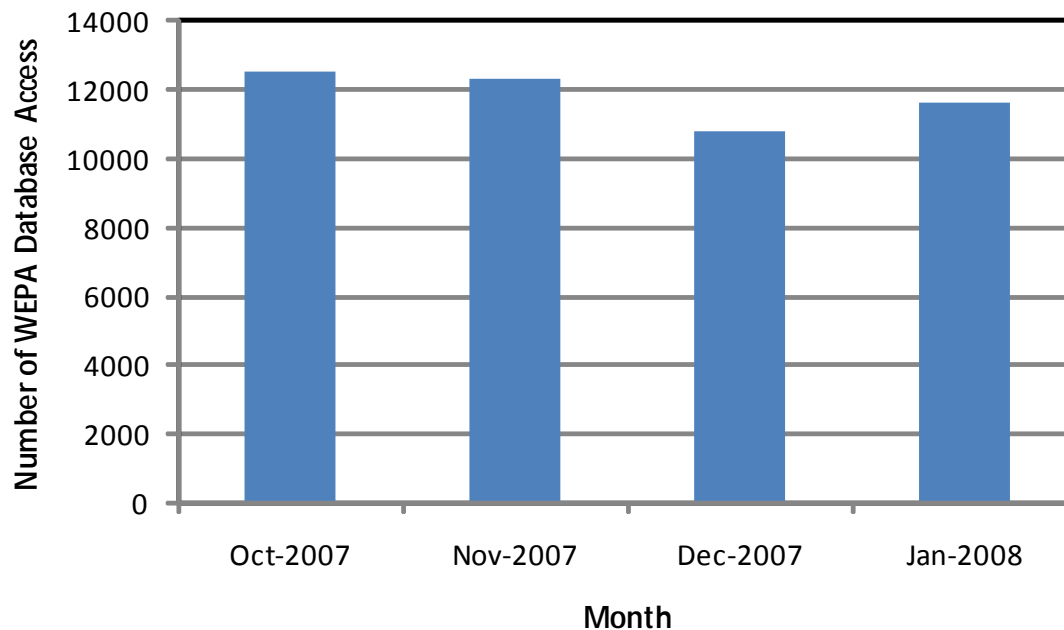


Initial Cost (USD)

No data :131

Number of Access to WEPA Database

11,791 access per month from Oct 2007 to Jan 2008



Reflection of WEPA Database on Technology

- **The WEPA database on contains a variety of wastewater treatment technologies from different area in WEPA partner countries.**
- **Information that may be necessary for policy makers and water experts in policy/project planning and implementation is not sufficient. (e.g. background information of application of the technology, the operational cost of wastewater treatment technologies)**

Next to Establishment of WEPA Database on Technology

1st WEPA

**Database
development**



**Deep discussion among WEPA
partners how to address
emergent issues on water
environment**

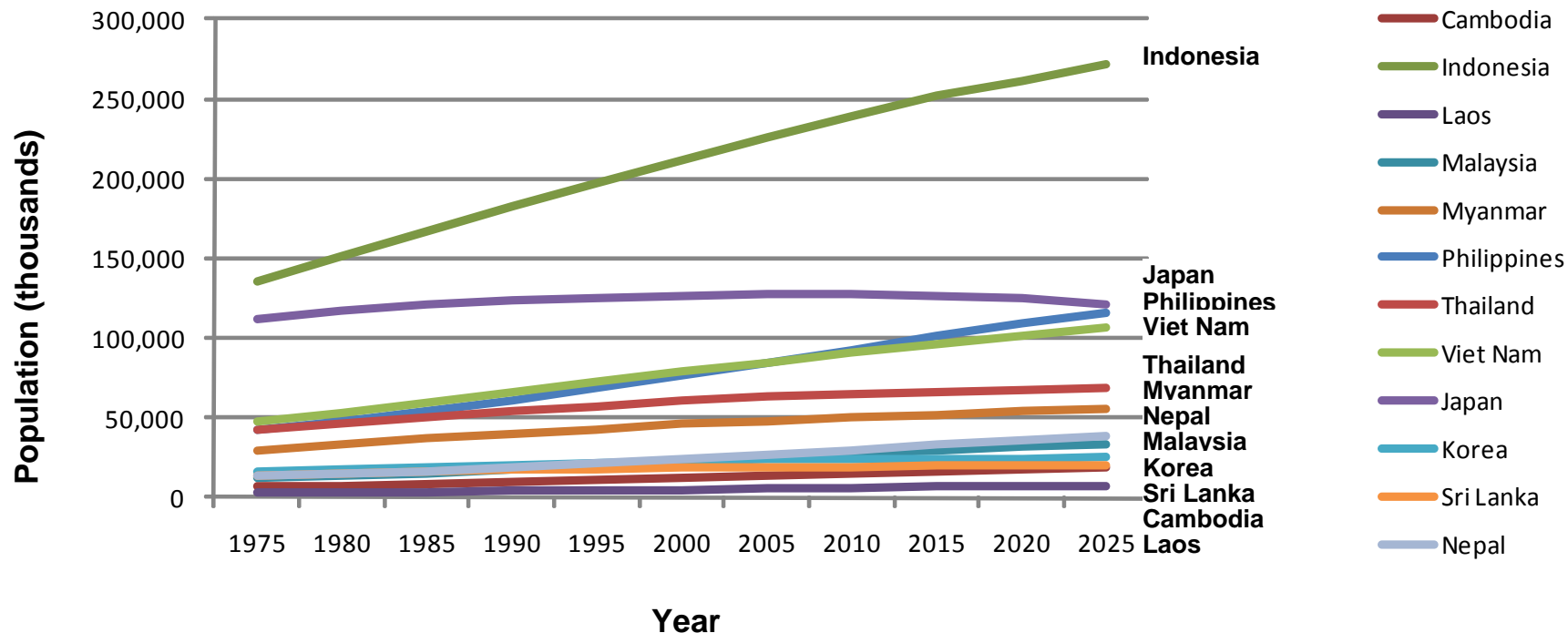
**Wastewater
treatment
technology**



**Wastewater management
system for conservation of
water environment**

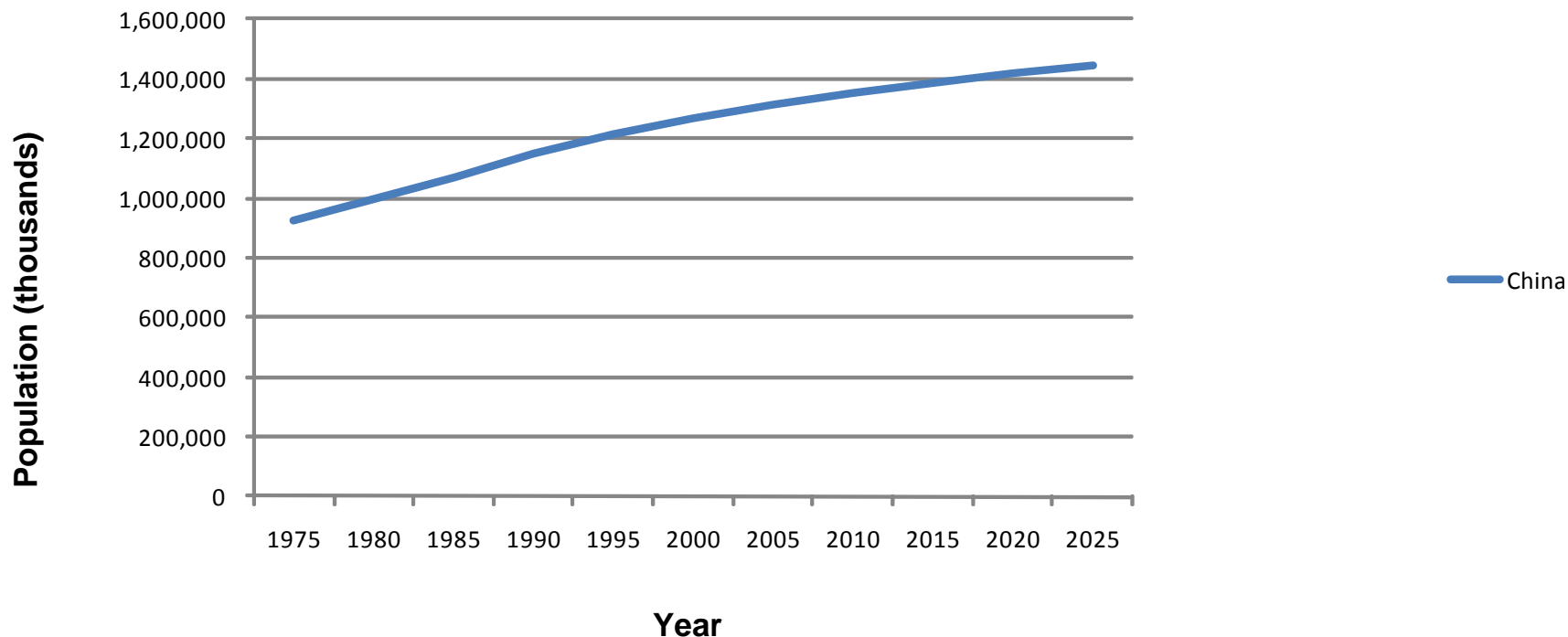
2nd WEPA

Population in WEPA Countries (except China)



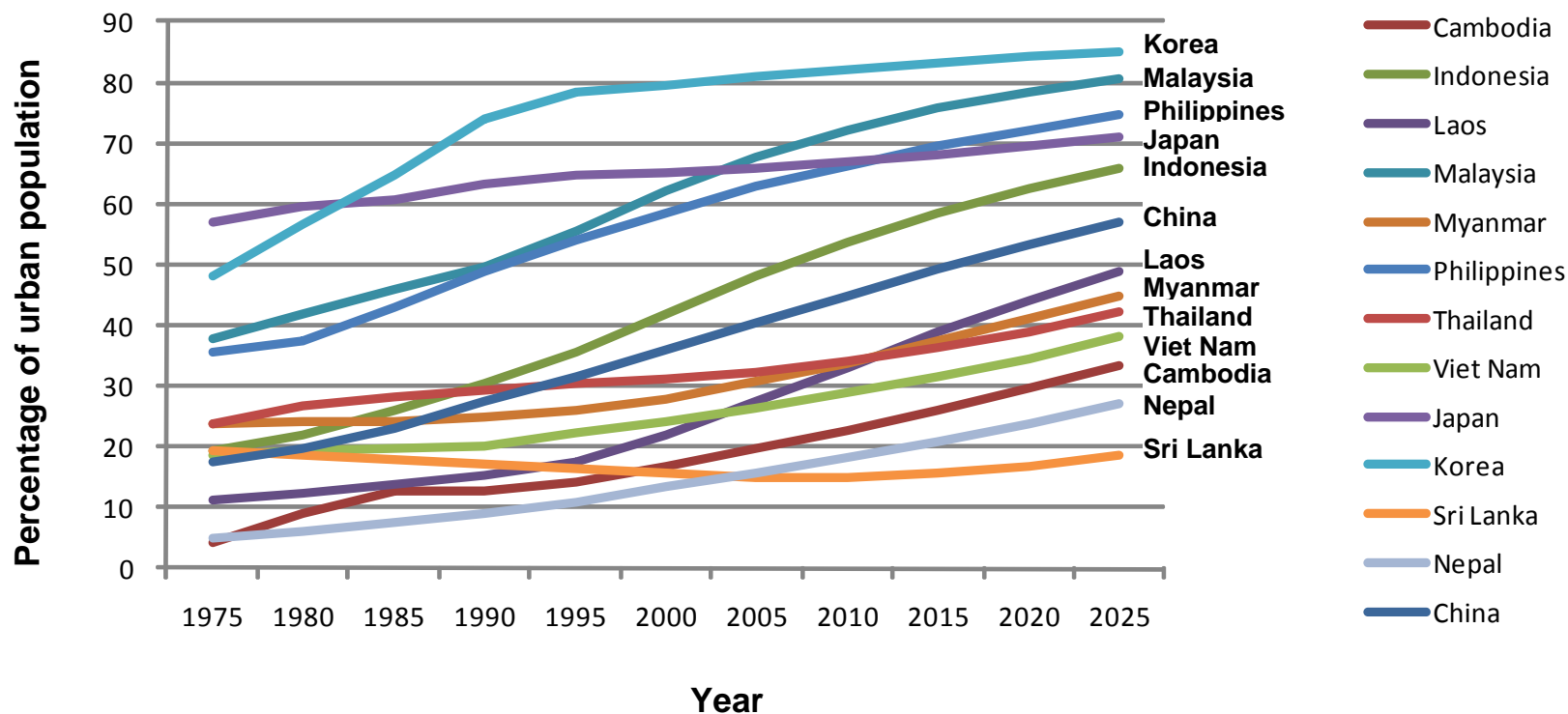
Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2006 Revision and World Urbanization Prospects: The 2007 Revision, <http://esa.un.org/unup>, Thursday, March 12,

Population in WEPA Countries (China)



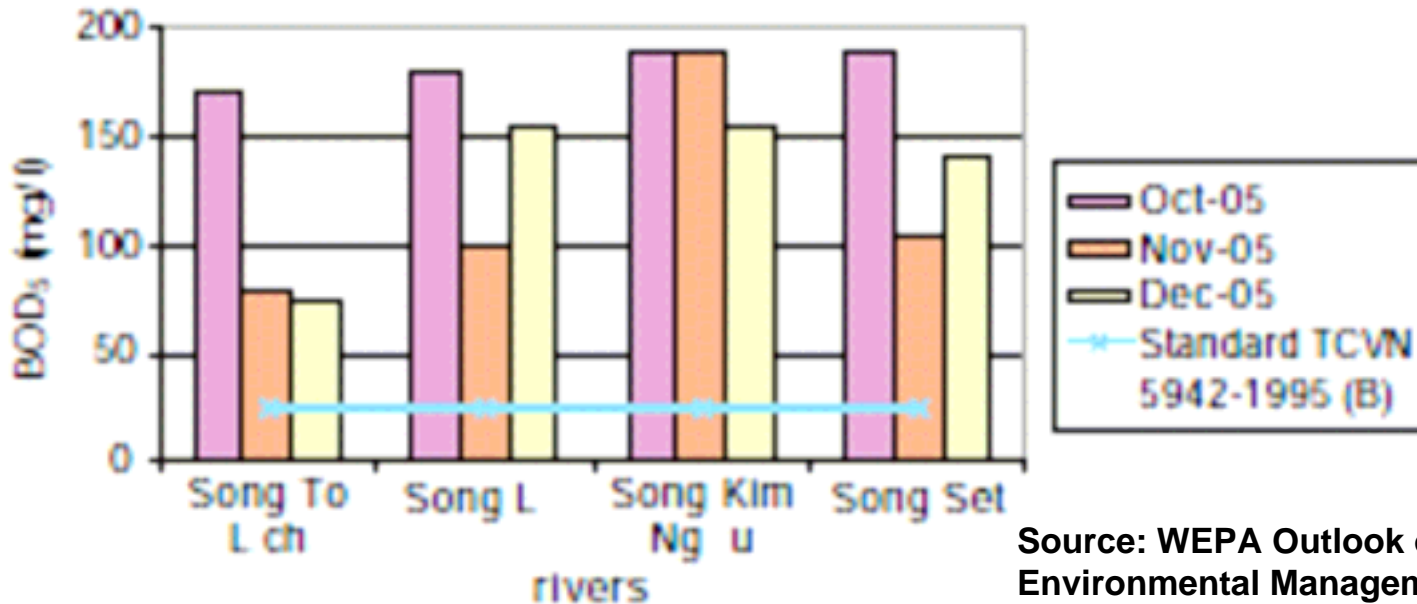
Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2006 Revision and World Urbanization Prospects: The 2007 Revision, <http://esa.un.org/unup>, Thursday, March 12,

Percentage of Urban Population in WEPA Countries



Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat, World Population Prospects: The 2006 Revision and World Urbanization Prospects: The 2007 Revision, <http://esa.un.org/unup>, Thursday, March 12,

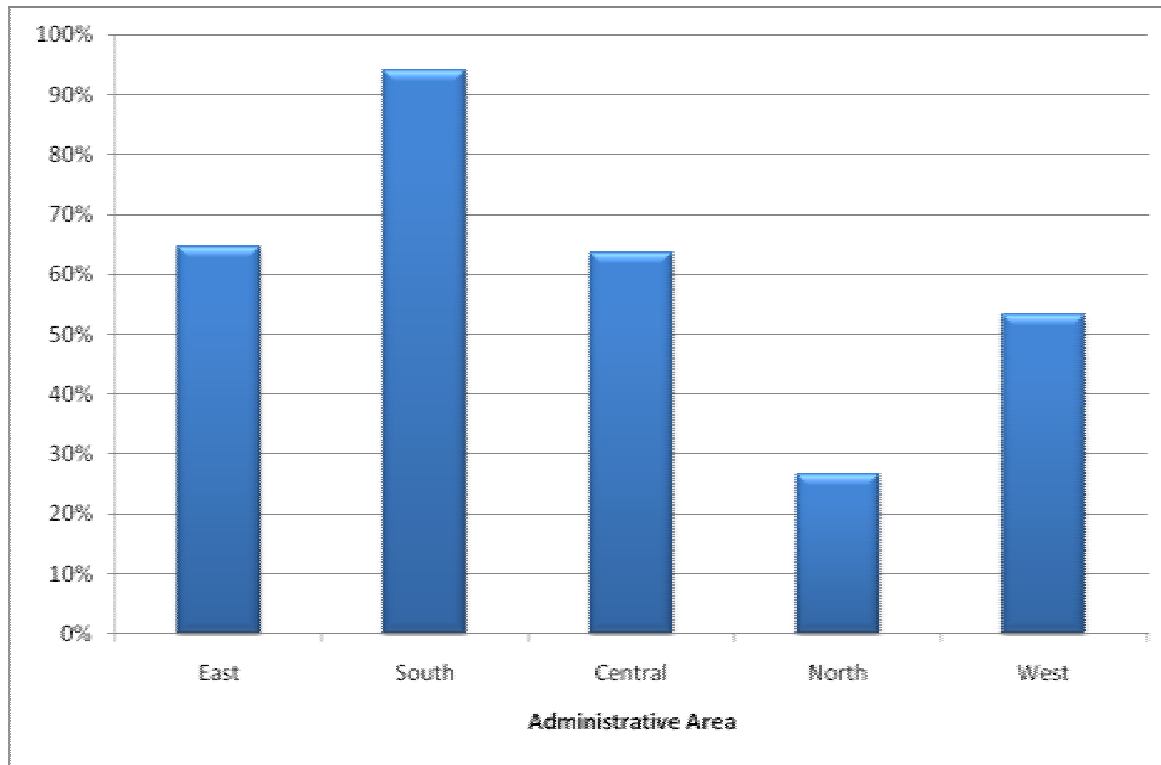
Example of Water Pollution in cities of WEPA countries (River Water)



Source: WEPA Outlook of Water Environmental Management in Asia (2009)

BOD Level of River Waters in Ha Noi

Example of Water Pollution in cities of WEPA countries (Groundwater)



Source: WEPA Outlook of Water Environmental Management in Asia (2009)

Percentage of Monitoring Wells in Jakarta which are Compliant to the Water Quality Standard of Clean Water for E.coli

Background of Thematic Session1

- Asian cities have faced decrease of natural resources or environmental deterioration caused by **rapid urbanization** for decades.
- Because the city has played an important role in economical and political activities of each country, **the water quality control of the source in the city** is one of the most urgent political issues in the country.
- The improvement of water quality of the source in the city requires not only **application of the wastewater treatment technologies** but also **more comprehensive approach**.



<as a first step to the approach>

Current situation of **water quality management of water source in the Asian cities** and its issues is to be presented in order to **share their experiences and identify the common issues for the further discussion**

“Thematic Session1: Urbanization and Water Quality Control for the Source of Water in Asian City”

Thank you!