











Part 3: Establishment of the Asia Wastewater Management Partnership, AWaP

Government of Japan





# Water Environment and Wastewater Management in Cambodia

## **Participants:**

1. H.E HENG Rathpiseth Director General of Public Works MPWT

2. Mr. CHAO Sopheak Phibal Director, Sewerage Management and Construction Dept MPWT

Deputy Director, Water Quality Management Dept MOE 3. Mr. LIM Say

Venue: Function Room5: (1st Floor, Melia Yangoon, Myanmar) Chairperson: Dr. Taku Fujiwara, Prof. Kochi University

Dec 13,2017 @ Yangoon, Myanmar

Part 3: Establishment of the Asia Wastewater Management Partnership, AWaP

- I. Country & Ministry Information
- II. Current Issues
- III. Future Challenges & Actions
- IV. Opinion on Draft Action Items of AWaP
- V. Other Ideas & Expectations for the Actions of AWaP



H.E Senior Minister SUN Chanthol

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## I. COUNTRY & MINISTRY INFORMATION

<u>Cambodia</u> is a constitutional monarchy. The present King, His Majesty NORODOM SIHAMONI,

acceded to the throne on 29th October 2004.

**Coordinates** : 13°00′N 105°00′E **Area** Ranked 90th

■ Total : 181,035 km²

■ Land : 97.50%

■ Water : 2.50% Coastline : 443 km

**Borders** : 2,530 km

Laos : 555 kmThailand : 817 km

■ Vietnam : 1,158 km

**Highest point Phnom Aural:** 1,810 m **Lowest point Gulf of Thailand:** 0 m

**Longest river Mekong river :** 486 km **Largest lake Tonlé Sap** : 16,000 km<sup>2</sup>

Largest lake Tonlé Sap : 16,000 km<sup>2</sup>
Capital City (01) : Phnom Penh

(Population: 1.9 millions)

**Total Provinces** : 24

**Total Districts** : 165

**Total Communes** : 1,646

**Annual Growth Rate** : 7.0% (2011-2016)

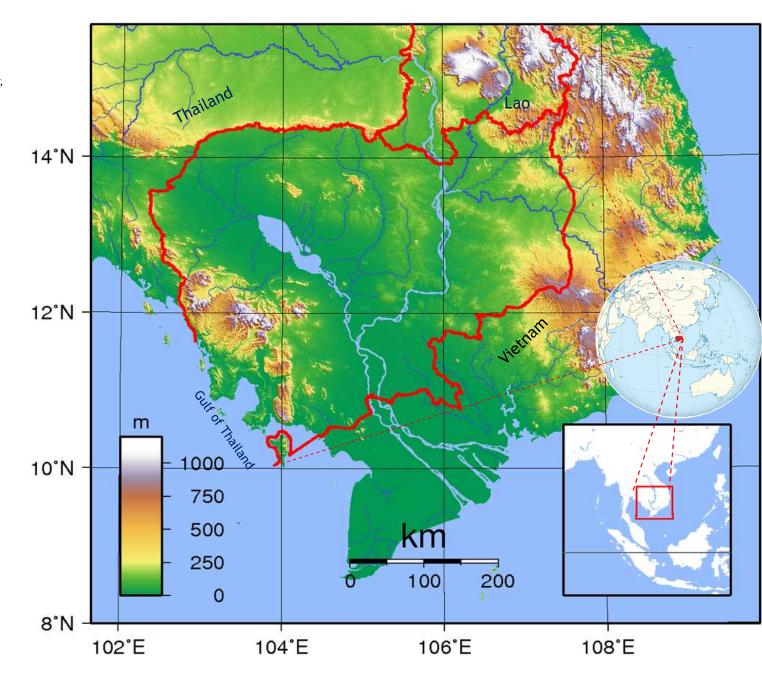
**GDP per capita** (2015) : 1,215 USD

**Nominal GDP** (2015) : 18,078 Mil.USD

Source:

https://en.wikipedia.org/wiki/Geography\_o

<u>f\_Cambodia</u>



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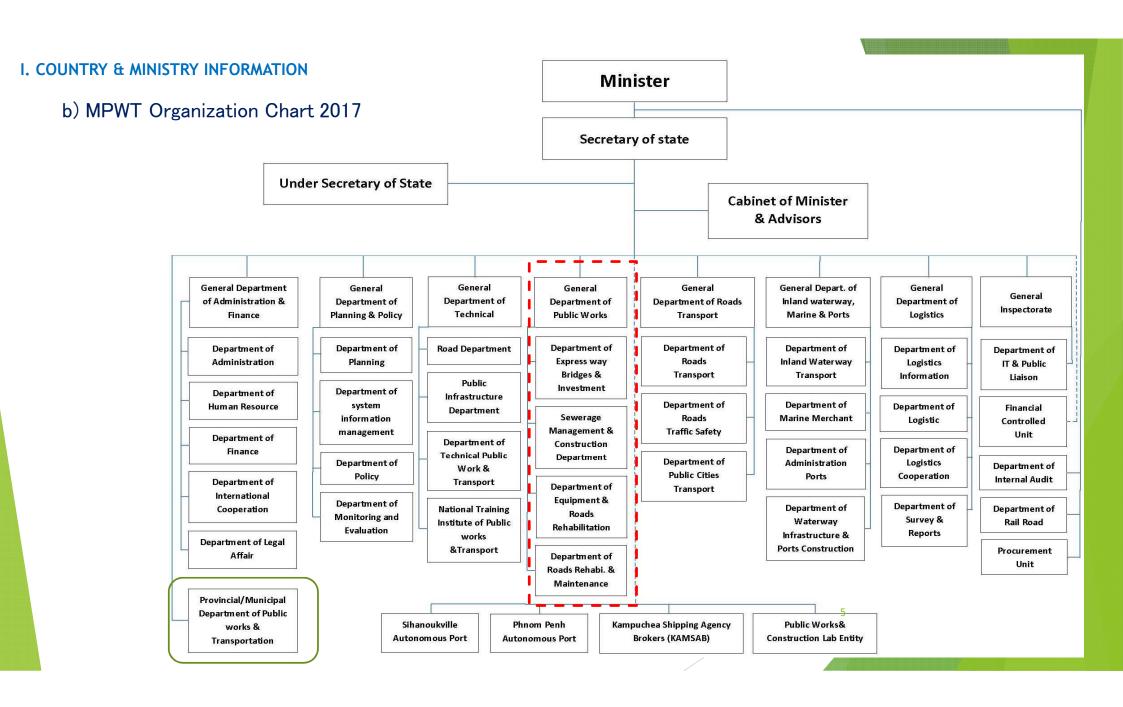


## I. COUNTRY & MINISTRY INFORMATION

# a) Mission and Function of MPWT

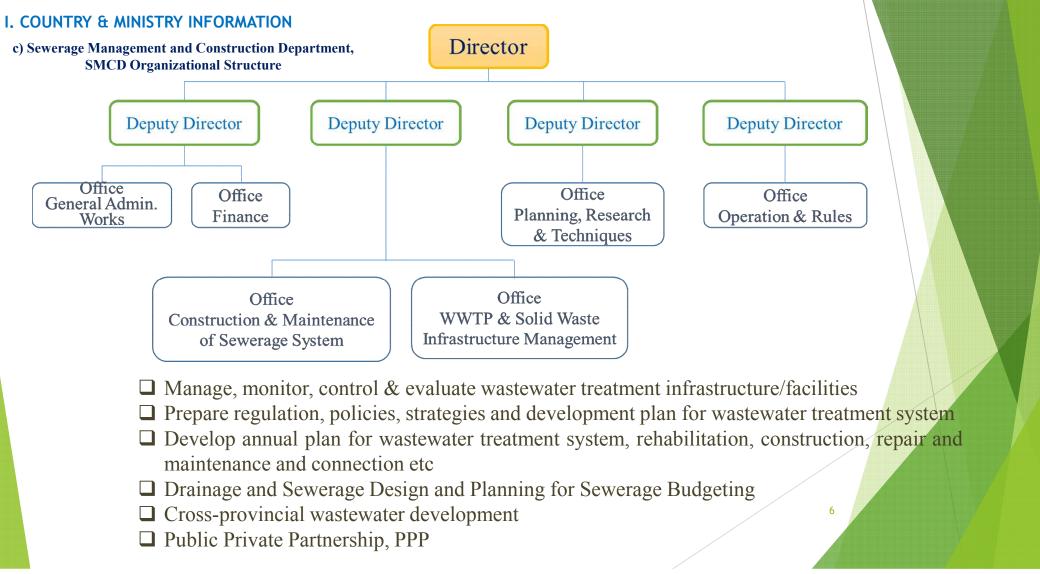
The Ministry of Public Works and Transport, MPWT is decreed by the Government of Cambodia to Lead and Manage the Public Works and Transport Sector in The Kingdom of Cambodia.

- ☐ Manage the Implementation of National Policy Concerning all Public Works Construction by Establishing the Principles of Laws and Cooperate with Various Organizations to Develop the Country.
- □ Build, maintain manage all the transportation infrastructure such as roads, bridges, ports.
- Establish the regulations for the development of the roads, ports, railways and waterway infrastructure. Establish the regulations and control the transport by road, railway and waterway.
- □ Participate and cooperate to establish laws, regulations, standard concerning the construction of Transport infrastructure.
- □ Realize the other constructions that the Royal Government entrusts to it,
- Cooperate with the Secretariat of Civil Aviation concerning all airport construction works. *Please access to this LINK http://www.mpwt.gov.kh for more info.*







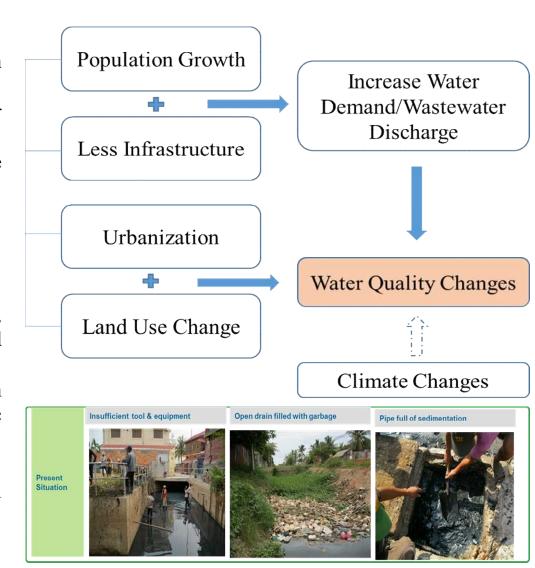


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# **II. Current Issues**

- ➤ Decades-old drainage system combined and most of open drains are seriously clog
- ➤ No sewerage and drainage sector master plan for the towns or country,
- ➤ No WWTP/STP, Majority of wastewater is managed by on-site system, Septic Tank
- ➤ Limited land availability in urban area
- Low awareness of hygiene and sanitation in community
- > Polluted water sources from wastewater/waste
- ➤ Low efficient quality from on-site system
- The present situation of sewerage and drainage is alarming, flooding during the raining season, climate resilience and requires urgent intervention to address the issues
- A further deterioration is expected through rapid town development, land use & zoning development and the basic infrastructures (flood protection, water flow regulation system, town center drain, diver channel...)
- ➤ Not adequate human resources, empowerment and financial resources for O&M and management of the sewer system.



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# II. Current Issues, Con't

- ☐ Technical Aspects
  - Deterioration of water quality (Influent BOD $_5$ , Max.200-300mg/L, Effluent COD $_{Min}$  Max. 18mg/L), Standard COD $_{Min}$  8mg/L
  - Lack of Septage Management (No Septage Disposal Site Yet)
- ☐ Organizational and Institutional Aspects
  - Strengthening of implementation bodies responsible for sewage management
  - Determination of scope of works for central and provincial government
  - Securing technical level and human resources for sewage management
  - Insufficient managing and monitoring of industrial wastewater
  - Lack of Guideline for Sewage Management in Large Scale Development Area
- ☐ Financial Aspects
  - Insufficient fund
  - · Establishment of autonomous sewerage authority
  - Collaboration with PPWSA (Water Supply Authorities)











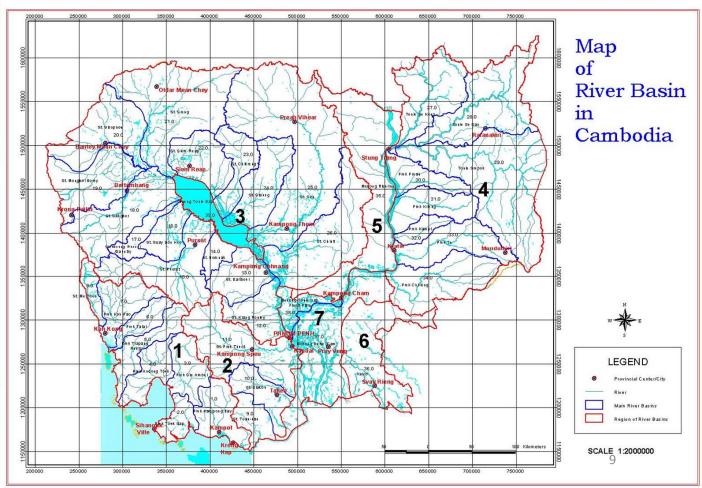


# Coast of Cambodia Chickey to how That Law Mong Should Find Charles Sey Antel Sey Antel Sey Antel Sey Antel Sey Antel Sey Antel Sumpting Find Charles Sinanouk Vile Sinanouk Vile



# Concepts of Wastewater Management in Cambodia

- 1) Geographical Relief
- 2) Treats to Wetland in Cambodia
- 3) The Tonle Sap Biosphere Reserve
- 4) The Coastal Zone
- 5) Development Plan
- 6) Target Plan



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# **Concept Sewerage Management (Reuse-Recycle-Treatment-Discharge)**

# Geographical Relief

- The water network in Cambodia is divided into three systems: The Mekong River system, the Tonle Sap Lake system and the Coastal Zone. The hydrological systems are central to life in Cambodia and Phnom Penh itself is located on the confluence of three important rivers; the Mekong, the Tonle Sab and the Bassac.
- The Tonle Sap System includes the Tonle Sap Lake, the Tonle Sap River and their Tributaries. The Tonle Sap Lake is the greatest source of fish in Cambodia and as a result experiences the greatest population density as many people rely on the lake as a form of income.

## ☐ Treats to Wetlands in Cambodia

Point source of pollution to wetlands comes from industry and urban sewerage. Regardless of the relatively small amount of raw sewerage, its direct discharge into the environment without primary treatment raises concerns over pollution loads in associated waters.

# ☐ The Tonle Sap Biosphere Reserve

Biosphere Reserves (BR) are areas of terrestrial coastal solutions promoting reconcile the ecosystems to conservation of biodiversity which it's sustainable use. They are intended to fulfill three basic functions including conservation, development and logistic function. The Tonle Sap Lake was designated a Biosphere Reserve upon approval for its inclusion in the World Network of Biosphere Reserves by the International Coordinating Council for UNESCO's Man and Biosphere (MAB) reserve programmed in 1997. The designation reflects the importance of the Tonle Sap Lake ecosystem for its ecological function and for development supporting socio-economic maintenance of associated cultural values.

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# **Concept Sewerage Management (Centralized vs Decentralized)**

## ☐ The Coastal Zone

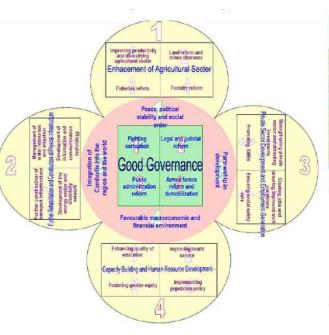
The coastal zone (CZ) of Cambodia extends for 435km and consists of estuaries, bays and 64 islands of various sizes. Most of the coastal population is concentrated in Sihanoukville where urban services and employment opportunities are available and in Kampot, where good soil conditions and access to water enables rice culture. Cambodia does not yet a complement of coastal and marine environmental policies. As development pressures are rapidly mounting there is an urgent need for safeguards to be put in place that will allow economic development while ensuring the sustained quality of coastal and marine environments and the resources they provide.

# Development Plan

- 1. Development strategy which contributes to the regional development and poverty reduction. The long term plan to develop the Multiple Economic Development Zones.
- 2. The priority wastewater management plan: Short term plan: Sihanoukville and Siem Reap Town; Medium term plan: Kampot, Kep, Poipet, Battambang, Bavet, Pursat, Serei Sophon and Stueng Saen Town; Long term plan: Phnom Penh City, Takhmao Town and some other towns along the Mekong River and around the Tonle Sap Lake.

## **■** Target Plan

1. The National Program outlines priorities and projects for each sector of the economy. Regarding the physical infrastructure, one main priority is said to be linking of the three designated growth poles Phnom Penh, Coastal Zone and Siem Reap. The CZ is a priority not only tourism and also for industrial development, while the areas around *Kampot* and *Sihanoukville* Town will be target for the wastewater management as a priority.





## **DELIVERABLE N°1:** INTERMEDIARY REPORT (DRAFT VERSION)

Consulting services for Advocacy for sanitation in Phnom Penh



## **DELIVERABLE N°2:** FINAL REPORT

Consulting services for Advocacy for sanitation in Phnom Penh

June 2017



## **DELIVERABLE N°3: DEBRIEFING REPORT**

Consulting services for Advocacy for sanitation in Phnom Penh

June 2017

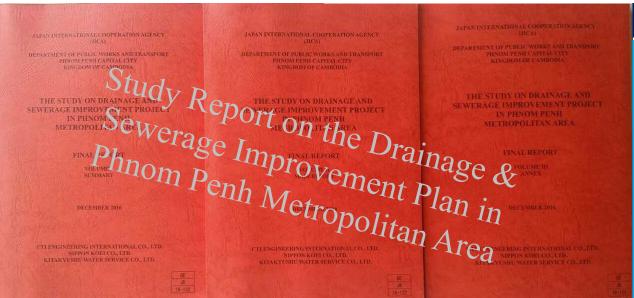






# \*TOOLS to Achieve the Wastewater Management\*

- 1) National Strategic Development Plan, NSDP 2014-2018
  - 2) City Development Strategy, CDS
- 3) Rectangular Strategy Phase-III, the 5th Mandate of Govt, 2013-2018
  - 4) Encourage PPP Scheme
- 5) Sub-decree on Sewerage System and Wastewater Treatment Plant Management 6) Work Programs with DPs
  - 7) Master Plan and Guidelines



# Relevant Environmental Laws and Regulations in Cambodia

Title	Objectives	Provisions
1993 Royal Decree on Creation and Designation of Protected Areas	Protect the environment, manage natural resources, conserve biological diversity and ensure sustainable development in the national system of protected areas.	Prescribes the responsibility for the national protected areas system, which includes planning, development, and management; designation of national parks, wildlife sanctuaries, protected landscape, and multiple use areas; amendment and application.
1996 Law on Environmental Protection and Natural Resource Management	Protect, manage and enhance the environment, and to promote socioeconomic development in a sustainable way.	National and regional environmental plans; environmental impact assessment; natural resources management; environmental protection; monitoring, record-keeping and inspection; public participation and access to information; environmental endowment fund; and penalties.
1997 Sub-Decree No. 57 on the Organization and Functioning of the Ministry of Environment	Supervise and manage the environment throughout the Kingdom of Cambodia. In particular: protect and promote environmental quality and public health through the prevention, reduction and control of pollution; assess the environmental impact of all proposed projects prior to the issuance of a decision by the Royal Government; ensure the rational and sustainable conservation, development, management and use of the natural resources of the Kingdom of Cambodia; encourage and enable the public to participate in environmental protection and natural resources management; suppress acts that cause harm to the environment.	A National Environmental Plan and Regional Environmental Plans are required to be decided by the Royal Government and reviewed and revised once every five years. Planning and management of protected areas, supervision and coordination of protection and conservation of the environment are the responsibility of the Dept. of Nature Conservation and Protection. Provincial department of environment is under the direct control of the Ministry of Environment, responsible for the supervision and management of environment in its province/municipality.
1999 Sub-Decree No. 27 on Water Pollution Control	Determine water pollution in order to prevent and mitigate water pollution in public waters, and thus ensures human health and conservation of biodiversity.	Prescribe disposal of waste and hazardous substance, permit of effluent, pollution control, and procedures of inspection; the standards of discharge/disposal of waste.

# Relevant Environmental Laws and Regulations in Cambodia

1999 Sub- Decree No. 72 on Environme ntal Impact Assessment	Determine environmental impact assessment on private and public projects and activities, which are reviewed and assessed by the Ministry of Environment before the Royal Government's approval; determine type and size of proposed, existing projects and activities of both private and public sectors which are subjected to EIA; promote public participation in EIA process and public hearings in the process of project approval.	Prescribes institutions' responsibility; EIA requirements for proposed project, procedures for the process of review and assessment of proposed projects, and existing activities, and terms of project approval. Note subsequent 2000 Prakas on Guidelines for Conducting EIA Report.
1999 Sub- Decree on Solid Waste Manageme nt	Regulate solid waste management to ensure the protection of human health and the conservation of biodiversity.	Applies to all activities relating to the disposal, storage, collection, transport, recycling, dumping of garbage and hazardous waste, and includes household waste management, hazardous waste management and monitoring and inspection of hazardous waste management.
2007,29 June Water Resources Management Law in Kingdom of Cambodia	For managing and monitor the use of Water Resources on Land, under ground and in the Climate.	Applies to all activities relating with water resources in Cambodia.

# ROLE AND FINANCIAL RESPONSIBILITIES OF PLANNING DEVELOPMENT AND MANAGEMENT OF MUNICIPAL WASTEWATER TREATMENT

# Key Ministries

Ministry of Economic and Finance

Ministry of Environment

Ministry of Pubic Works and Transport

Ministry of Interior and municipalities

Multilaterals involved in Sanitation, Wastewater in Cambodia **Key Schemes** 

- Allocating budgets
- Environmental planning ; monitoring of effluent discharged to waterways / water drains
- Involve in Master plans
- Developing scientific national policy concerning all public works construction
- Master plan.
- Involve in Master plans.
- Operation and maintenance wastewater treatment system















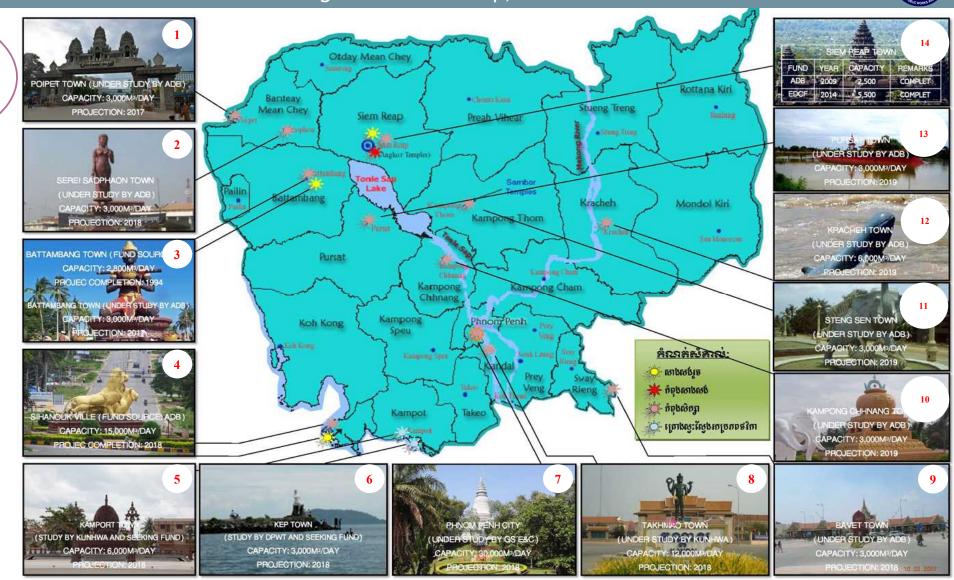


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# Potential STP Built in these Priority Towns

- 1.Poipet
- 2. Serei Sophorn
- 3.Battambang town
- 4.Sihanoukville
- 5.Kampot
- 6.Kep town
- 7.Phnom Penh
- 8.Takmao
- 9.Bavet
- 10.Kampong Chhnang
- 11.Stung Sen
- 12.Kratie
- 13.Pursat
- 14.Siem Reap

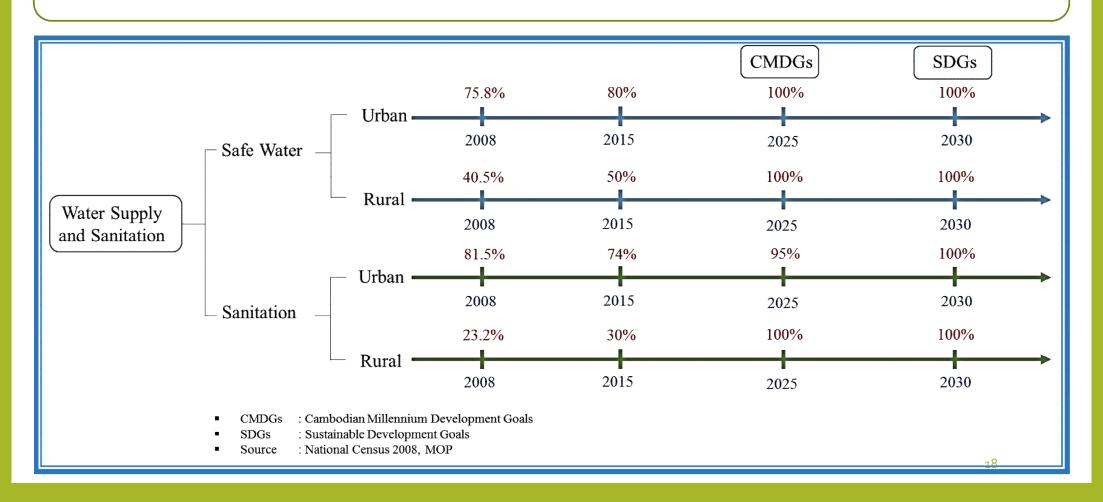




# III. Future Challenges & Actions

- Establishment of legislation laws, policies, standards, specification, guidelines and drawings for wastewater and sewerage system management institutions for the empowerment/enforcement, capacity building and resources mobilization
- Develop master plan for the wastewater management & related basic infrastructure of each urban area and towns throughout the country is urgently required
- Raising Public Awareness and Educate People about wastewater and sewer system
- ➤ Institutional Capacity Building and Strengthening Collaboration
- > Promote wastewater treatments to achieve the CMDGs by 2025 & SDGs by 2030
- > Challenge for financial supports
- ➤ Encouragement of Private Sector Participation
- Achieve the Work Programs and Implement the MOC & MOU with Partners
- > Develop wastewater management system

# Cambodian Strategy and Goals (Water Supply & Sanitation) by 2025 & 2030





- **□** Support the Actions
- ☐ Fill the Gap and Achieve the SDGs Target by 2030
- **□** Mainstreaming Wastewater Management
- **□** E-Governance
- **☐** Collaborative Projects
- Other Ideas & **Expectations for the Actions of AWaP**
- **Information Sharing & Networking Through** Meetings, Seminars, **Conference & Workshop**
- **Expand and Strengthen Networking**
- **Opportunities**
- Joint Research and **Studies**
- Knowledge & **Technology Transfer**
- **Provide Practical Knowledge and Know How Through Information Platform**

## **Discussion Paper Draft Structure of AWaP**

Organizational Structure of Asia Wastewater Management Partnership (AWaP)



**Partner Organizations** (under discussion)

#### **Development and Financial Organizations** JICA (Japan International

Cooperation Agency) ADB (Asian Development Bank)

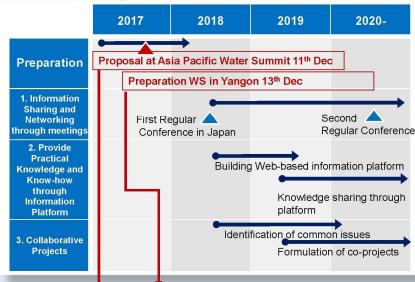
#### **Technical and Institutional** Advisors

JSC(Japan Sanitation Consortium) GCUS (Global Center for Urban Sanitation)

#### **Partner Network**

WEPA(Water Environment Partnership in Asia)

# **Draft Activity Plan of AWaP**





Japanese Government will Propose the establishment of AWaP at the parallel session on "Improving Sanitation & Wastewater Management" during the Asia Pacific Water Summit

#### IMPROVING SANITATION & WASTEWATER MANAGEMENT

- Preparatory Event for the 8th World Water Forum

Session organized by: Japan Sanitation Consortium (JSC) Co-organized by:

Ministry of Land, Infrastructure, Transport and Tourism (MLIT), Jap Ministry of the Environment (MOE), Japan

MONDAY 11 DECEMBER 2017 • 15.30 - 17.00

9 Chair's Summary Prof. Dr. Satochi Takizawa: The University of To

## Preparation WS of AWaP on 13th Dec 2017 in Yangon

Tentative Programme of the "Preparation Workshop on the Asia Wastewater Management Partnership" (AWAP)

- Time:13th December 2017, 9:00 -15:00
- Venue: Function Room5 (1st Floor, Meliá Yangon)
- Chairperson: Dr. Taku Fujiwara, Professor, Kochi University
- Moderator: Pierre Flamand, Manager, International Affairs, Japan Sanitation Consortium(JSC)

#### Opening of the Workshop(9:00-9:10)

1. Welcome statement, 2. Group photo

#### Part1: Necessary Efforts for the Achievement of SDGs by 2030 in Asia(9:10-9:50)

International Organization (TBC)
How to Mainstream Wastewater Management in Asia- Practical Examples

Ms. Azusa Miyazaki, "Water for Life" in the Miss Japan Contest in 2017

Part2: Overview of the Water Environment in Asia(9:50-10:10)

Insights from WEPA Activities WEPA Secretariat

Part3: Establishment of the AwaP (Tentative title) (10:30-12:00)

Suggested Objectives and Activities Plan for the Partnership Secretariat (Ministry of Land, Infrastructure, Transport and Tourism(MLIT), Japan) Challenges in Each Country and Expectations for AWaP: Presentation and Discussion

Vietnam: Ministry of Construction, Ministry of Natural Resources and Environment,

Indonesia: Ministry of Public Works, Ministry of Environment and Forestry

Cambodia: Ministry of Public Works and Transport, Ministry of Environment

Networking Lunch(12:00-13:30)

#### Part3: Establishment of the AwaP (Tentative title) (13:30-14:40)

Challenges in Each Country and Expectations for AWaP: Presentation and Discussion

Philippines: Department of Public Works and Highways, Department of Environment and Natural Resources

Myanmar: Ministry of Construction, Ministry of Agriculture and Irrigation, Yangon City Development Committee

Japan: Ministry of Land, Infrastructure, Transport, and Tourism, Ministry of the Environment

Chair's Summary of the Workshop(14:40-15:00)

Closing(15:00)

# **Discussion Paper**

**Draft** Concept of the Asia Wastewater Management Partnership (AWaP)

# Background (Why?)







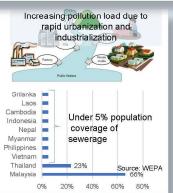
By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations
 By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and

substantially increasing recycling and safe reuse globally

By 2030, 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

# Status Quo of the Water Environment and Wastewater Management in (Southeast) Asia

- Water pollution load from municipal wastewater is increasing due to the rapid growth of city population
- Population coverage of municipal wastewater treatment is under 5% in many ASEAN countries including Myanmar
- Awareness on preventing water pollution is still low in the countries



Goal (What?)

Gap between the Target and the Status of Wastewater Management

Gap

To Fill the Gap and Achieve the SDGs Target by 2030, Mainstreaming Wastewater Management and Developing Wastewater Management Capabilities in Asian Countries

## Approach (How?)

Establishment of Asia Wastewater Management Partnership (AWaP)

# Information Sharing and Networking through meetings

- Holding conferences among partner countries regularly
- Discuss about the theme necessary for mainstreaming wastewater management with a focus on raising awareness, legislation, organization, technology and finance

## **Intended Activities of AWaP**

- Provide Practical Knowledge and Know-how through Information Platform
- Building web-based platform to share practical knowledge on wastewater management in Asia
- Utilizing technical and legislative information of JICA/MLIT/MOE projects

# Conduct Co-Projects to Tackle with Common Issues

To tackle with common technical/legislative challenges of partner countries, establish collaborative project to discuss and prepare quidelines and manuals

## IV. Opinion on Draft Action Items of AWaP

- **☐** Support the Actions
- ☐ Fill the Gap and Achieve the SDGs Target by 2030
- ☐ Mainstreaming
  - Wastewater Management
- **□** E-Governance
- ☐ Collaborative Projects
- **...**

# V. Other Ideas & Expectations for the Actions of AWaP

- ☐ Information Sharing & Networking Through Meetings, Seminars, Conference & Workshop
- ☐ Expand and Strengthen

  Networking
  - **Opportunities**
- ☐ Joint Research and Studies
- ☐ Knowledge & Technology Transfer
- Provide Practical
  Knowledge and Know
  How Through
  Information Platform

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# Part 3: Establishment of the Asia Wastewater Management Partnership, AWaP



# THANK YOU SO MUCH FOR YOUR KIND ATTENTION!

- ☐ Gateway for Tourists'
  Destination & Homestay
- ☐ International Event Spots
- □ WWTP
- ☐ Fresh air
- ☐ *Plenty of Water sources*
- ☐ *Relax, Holidays*
- ☐ *Architectural Modernity*
- ☐ *Historical Sites*
- ☐ World Heritage
- ┙...



