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

Water Environment and Wastewater Management in Cambodia

Participants:
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2. Mr. CHAO Sopheak Phibal Director, Sewerage Management and Construction Dept_MPWT
3. Mr. LIM Say Deputy Director, Water Quality Management Dept_MOE

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

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

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Cambodia 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:
- Laos: 555 km
- Thailand: 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 km²

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_of_Cambodia

I. COUNTRY & MINISTRY INFORMATION

a) Mission and Function of MPWT

The Ministry of Public Works and Transport, MPWT is decreed by the Royal 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.
Country Presentation: Part 3: Establishment of the Asia Wastewater Management Partnership, AWaP

I. COUNTRY & MINISTRY INFORMATION

c) Sewerage Management and Construction Department, SMCD Organizational Structure

- Manage, monitor, control & evaluate wastewater treatment infrastructure/facilities
- Prepare regulation, policies, strategies and development plan for wastewater treatment system
- Develop annual plan for wastewater treatment system, rehabilitation, construction, repair and maintenance and connection etc
- Drainage and Sewerage Design and Planning for Sewerage Budgeting
- Cross-provincial wastewater development
- Public Private Partnership, PPP
II. Current Issues

- Decades-old drainage system combined and most of open drains are seriously clogged.
- 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.

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).
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

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

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 Sap 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 ecosystems promoting solutions to reconcile the 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 programme in 1997. The designation reflects the importance of the Tonle Sap Lake ecosystem for its ecological function and for supporting socio-economic development and the maintenance of associated cultural values.
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.

*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
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<th>Title</th>
<th>Objectives</th>
<th>Provisions</th>
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<tr>
<td>1993 Royal Decree on Creation and Designation of Protected Areas</td>
<td>Protect the environment, manage natural resources, conserve biological diversity and ensure sustainable development in the national system of protected areas.</td>
<td>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.</td>
</tr>
<tr>
<td>1996 Law on Environmental Protection and Natural Resource Management</td>
<td>Protect, manage and enhance the environment, and to promote socioeconomic development in a sustainable way.</td>
<td>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.</td>
</tr>
<tr>
<td>1997 Sub-Decree No. 57 on the Organization and Functioning of the Ministry of Environment</td>
<td>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.</td>
<td>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.</td>
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<tr>
<td>1999 Sub-Decree No. 27 on Water Pollution Control</td>
<td>Determine water pollution in order to prevent and mitigate water pollution in public waters, and thus ensures human health and conservation of biodiversity.</td>
<td>Prescribe disposal of waste and hazardous substances, permit of effluent, pollution control, and procedures of inspection; the standards of discharge/disposal of waste.</td>
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### Relevant Environmental Laws and Regulations in Cambodia

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<tr>
<td>1999 Sub-Decree No. 72 on Environmental Impact Assessment</td>
<td>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.</td>
<td>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.</td>
</tr>
<tr>
<td>1999 Sub-Decree on Solid Waste Management</td>
<td>Regulate solid waste management to ensure the protection of human health and the conservation of biodiversity.</td>
<td>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.</td>
</tr>
<tr>
<td>2007, 29 June Water Resources Management Law in Kingdom of Cambodia</td>
<td>For managing and monitor the use of Water Resources on Land, under ground and in the Climate.</td>
<td>Applies to all activities relating with water resources in Cambodia.</td>
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### Key Ministries

**Ministry of Economic and Finance**
- Allocating budgets

**Ministry of Environment**
- Environmental planning: monitoring of effluent discharged to waterways/water drains
- Involved in Master plans

**Ministry of Public Works and Transport**
- Developing scientific national policy concerning all public works construction
- Master plan
- Involved in Master plans.
- Operation and maintenance wastewater treatment system

**Ministry of Interior and municipalities**

### Key Schemes

- Allocating budgets

### Multilaterals involved in Sanitation, Wastewater in Cambodia

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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
IV. Opinion on Draft Action Items of A WaP
- 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 A WaP
- 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 Concept of the Asia Wastewater Management Partnership (AWaP)

Background (Why?)

GOALS

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

Gap between the Target and the Status of Wastewater Management

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

Approach (How?)

1. Information Sharing and Networking through meetings
   - Holding conferences among partner countries
   - Discuss about the themes necessary for mainstreaming wastewater management with a focus on raising awareness, legislation, organization, technology and finance

2. 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, AEMC projects

3. Conduct Co-Projects to Tackle with Common Issues
   - To tackle with common technical/legislative challenges at partner countries, establish collaborative project to discuss and prepare guidelines and manuals

Draft Activity Plan of AWaP

Preparation

Preparation WS in Yangon 13th Dec
- 1st Regular Conference in Japan
- 2nd Regular Conference

Building Web-based Information Platform
- Knowledge Sharing through Information Platform
- Identification of common issues and Formulation of Co-Projects

Preparation WS of AWaP on 13th Dec 2017 in Yangon
- Target Programme of the "Preparation Workshop on the Asia Wastewater Management Partnership (AWaP)"
- Time 13th December, 2017 9:00 - 15:00
- Venue: Function Room 1st Floor, Osaka, Japan
- Chairman: Dr. Tatsuro Hasebe, Professor, Kyoto University
- Moderator: Pierre Fradette, Manager, International Affairs, Japan Sanitation Consortium (JSC)

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

Proposed Session on "Improving Sanitation & Wastewater Management" during the Asia Pacific Water Summit

Supporting of the Japanese Government
- 2 working sessions
  - 1. Working session 1: (Building to 10:30)
  - 2. Working session 2: (10:30 - 12:00)

Preparation WS and Action Plan for the Partnership
- Ministry of Land, Infrastructure, Transportation and Tourism (MLIT), Japan
- Ministry of Agriculture, Forestry and Fisheries (MAFF), Japan
- Ministry of Environment (MOEJ), Japan
- Ministry of Health, Labour and Welfare (MHLW), Japan

Joint Research and Studies
- Knowledge & Technology Transfer
- Provide Practical Knowledge and Know How Through Information Platform
THANK YOU SO MUCH FOR YOUR KIND ATTENTION!

Welcome to <<One of the World Heritage in Cambodia>>, the Angkor Wat Temple.

- Gateway for Tourists’ Destination & Homestay
- International Event Spots
- WWTP
- Fresh air
- Plenty of Water sources
- Relax, Holidays
- Architectural Modernity
- Historical Sites
- World Heritage
- …