



ASIA INFRASTRUCTURE FORUM

SUSTAINABLE INFRASTRUCTURE: TRANSFORMING ASIA'S JOURNEY

📅 4 - 5 JUNE 2024

📍 SUNTEC SINGAPORE
CONVENTION & EXHIBITION CENTRE

CHAO Sopheak Phibal
Director General of GDSWM/MPWT
General Directorate of Sewerage and Wastewater Management
Ministry of Public Works and Transport



Waste to Energy Project

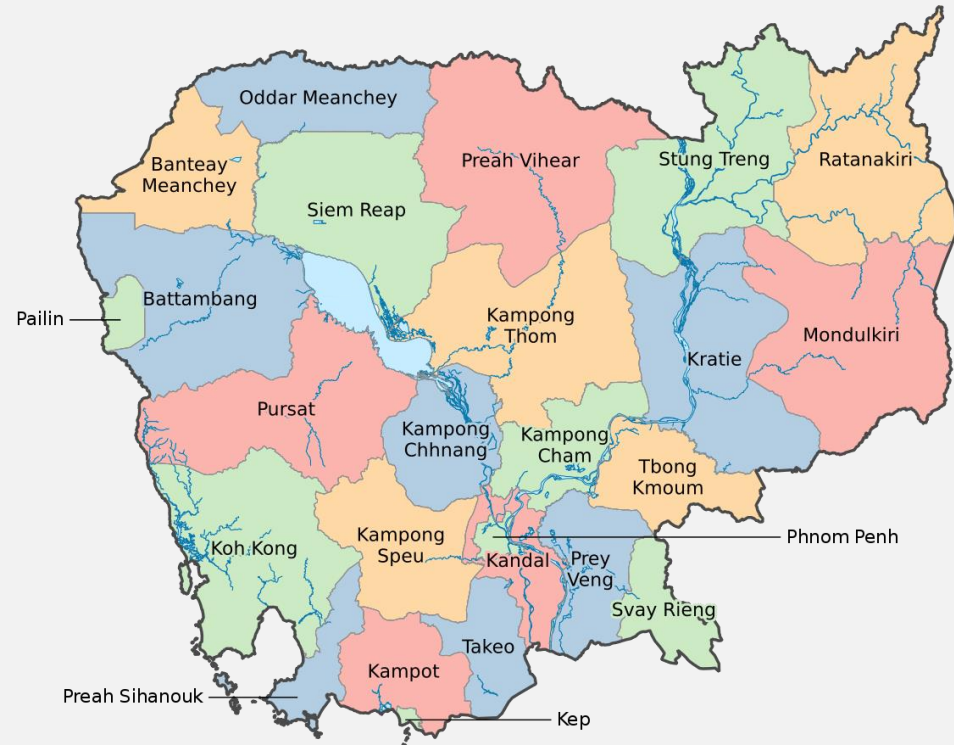
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- 3 Solid Waste & Plastic Management Improvement Project (SWPMIP)
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1. General Overview

*Wastewater generated **3.0 – 3.5** mil.cu.m per day
(Excluded wastewater from Industry and Handcraft)



REGION	MALE	FEMALE	TOTAL
Central Plain	4,608,448	3,868,996	7,477,444
Tonle Sap	2,326,375	2,474,885	4,801,260
Coastal	516,711	544,437	1,061,148
High Land & Montain	967,043	881,594	1,948,637
Total	7,418,577	7,869,912	15,288,489

Ref. Population Statistic Census 2019

- ❑ More than 2mil. tons of wastewater are discharged daily into rivers, streams, lakes and seas, causing disease and destroying biodiversity and the environment (Ref.UN)†
- ❑ 4.78 mil. ton of solid waste are generated per day by year 2020.



* The Cambodian economy loses about \$448mil./year due to poor sanitation and wastewater management systems, which hinder socio-economic development. (WB-2008)

* According to NSDP-2019, about 25.4% of Cambodian population lives in Urban Area, and this number tends to be double by 2030.



a. Wastewater Treatment Plants (WWTPs) in Cambodia

No.	Subproject Name	Capacity(m ³ /d)	Technological Choices	Project Location	Project Status	Household Connection	Investment Fund(\$)	Remarks
I Project Pipeline								
1	The Sewerage System Development in Ta Khmau Town	12,000	-	Ta Khmau Town	2027	10,000		EDCF
2	Bavet Wastewater Treatment and Collection System	5,400	-	Bavet Town	2027			ADB
3	Kratie Wastewater and Drainage Subproject	2,400	-	Kratie Town	2028			ADB
4	Poipet Wastewater Treatment and Collection System	9,500	-	Poipet Town	2028			ADB
II Ongoing Projects								
1	Battambang Wastewater Management	8,500	Lagoon System	East Battambang Town	2024	4,560	26,432,616	ADB
2	Kampong Chhnang Sewerage, Flood Protection and Wastewater Treatment	5,400	Moving Bed Biofilm Reactor (MBBR) system	Kampong Chhnang Town	2025	500(1,800)	18,055,090	ADB
3	Battambang Wastewater Treatment and Collection System	12,000	Trickling Filter system (TF)	West Battambang Town	2025	4,200	29,462,841	ADB+AFD+EU
4	Serei Saophoan Wastewater and Drainage	3,500	Lagoon System	Serei Saophoan Town	2025	6,102		ADB
5	Stung Treng Wastewater and Drainage Subproject	2,900	Lagoon System	Stung Treng Town	2026	2,351	16,361,607	ADB
6	Kampong Cham Wastewater and Drainage Subproject	5,000	Lagoon System	Kampong Cham Town	2026	3,951	22,042,781	ADB
III Completed Projects								
1	Sihanoukville Sewerage Collection and Treatment	6,900	Lagoon System	Sihanoukville	2006	3,368	11,190,000	ADB
2	Siem Reap Wastewater Management	8,000	Lagoon System	Siem Reap Town	2009-2014-2025	6,703	62,000,000	ADB+EDCF+WB (14M+30M+18M)
3	Wastewater Treatment Plant	5,200	Membrane Aerated Biofilm Reactors (MABR)	Sihanoukville	2021	Combine Systems	20,000,000	RGF
4	Wastewater Treatment Plant	7,200			2021			
5	Wastewater Treatment Plant	20,000			2022			
6	Kampot Wastewater Collection and Treatment, and Drainage and Sewerage	3,300	Lagoon System	Kampot Town	2023		20,080,557	ADB
7	Pursat Drainage Sewerage and Treatment Plant Project	2,400	Lagoon System	Pursat Town	2023		13,623,123	ADB
8	Stueng Saen Wastewater and Drainage	3,500	Lagoon System	Stueng Saen Town	2023	2,026	16,021,183	ADB
9	Wastewater Treatment Plant	5,000	Pre-treated Trickling Filter system (PTF)	Cheung Aek, Ppenh	2023		25,000,000	JICA



SHV



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K. Thom

- សំគាល់៖
1. ផ្លូវចូល ចូលទៅកាន់ស្ថានីយ
 2. ប្រភពទឹក មេឡូ និងទឹក
 3. ទីក្រុង
 4. ផលិតផលស្នូល
 5. អគារបរិក្ខារស្នូល
 6. អគារប្រតិបត្តិការស្នូល
 7. មាត់ចង
 8. បង្គោលស្នូល
 9. ផ្លូវចូលស្នូល
 10. ប្រព័ន្ធបណ្តាញស្នូល
 11. ប្រព័ន្ធបណ្តាញ
 12. ប្រព័ន្ធបណ្តាញ
 13. ប្រព័ន្ធបណ្តាញ
 14. ប្រព័ន្ធបណ្តាញស្នូល
 15. ប្រព័ន្ធបណ្តាញស្នូល



b. Solid Waste Landfills in Cambodia

No.	Subproject Name	Capacity(m³)	Project Location	Project Status	Remarks
I Project Pipeline					
1	Bavet Solid Waste Management	350,000	Bavet Town	2026	ADB
2	Poipet Solid Waste Management	633,000	Poipet Town	2026	ADB
3	Siem Reap Solid Waste Management	2,350,000	Siem Reap	2027	WB
4	Kompong Speu Solid Waste Management	1,720,000	Kompong Speu	2027	WB
5	Kandal Solid Waste Management	1,570,000	Kandal	2027	WB
II Ongoing Projects					
1	Kampong Cham Solid Waste Management	130,000	Kampong Cham Town	2025	ADB
2	Serei Saophoan Solid Waste Management	152,000	Serei Saophoan Town	2025	ADB
9	Stung Treng Solid Waste Management	291,000	Stung Treng Town	2024	ADB
III Completed Projects					
1	Sihanoukville Solid Waste Management	884,000	Sihanoukville	2021	RGF
2	Kampot Solid Waste Management	303,000	Kampot Town	2022	ADB
3	Kampong Chhnang Solid Waste Management	120,000	Kampong Chhnang Town	2022	ADB
4	Pursat Solid Waste Management	140,000	Pursat Town	2022	ADB
5	Kep Solid Waste Management	680,000	Kep Town	2023	ADB
6	Battambang Solid Waste Management	314,000	Battambang Town	2023	ADB
7	Stueng Saen Solid Waste Management	98,000	Stueng Saen Town	2023	ADB
8	Construction of Kratie Solid Waste	433,000	Kratie Town	2023	ADB
9	Stung Treng Solid Waste Management	291,000	Stung Treng Town	2024	ADB




ពិធីប្រគល់-ទទួល និងសម្ពោធជាតំឡីប្រើប្រាស់

**គម្រោងកែលម្អគ្រប់គ្រងបរិស្ថានក្រុងប៉ូប៉ែត
 បឹងទន្លេសាប ជំហាន២**

ទីលានទុកជាក់សំរាមខេត្តបាត់ដំបង

ក្រោមការអ្នកគណនា បណ្តាញអភិវឌ្ឍន៍រ៉េស៊ី

ខេត្តបាត់ដំបង ថ្ងៃទី២០ ខែមីនា ឆ្នាំ២០២៣

INAUGURATION CEREMONY
 OF THE BATTAMBANG CONTROLLED LANDFILL
 UNDER THE LOAN FROM THE ASIAN DEVELOPMENT BANK
 BATTAMBANG PROVINCE, MARCH 20TH, 2023

កម្មវិធីលាភ្នាក់ **បណ្តាញអភិវឌ្ឍន៍រ៉េស៊ី**
 LOAN / GRANT No.: **3684-CAM (COL) / 0591-CAM**

អង្គការគ្រប់គ្រងគម្រោង PROJECT MANAGEMENT UNIT	ក្រសួងសាធារណការ និង ដឹកជញ្ជូន MINISTRY OF PUBLIC WORKS AND TRANSPORT
ទីប្រឹក្សាបច្ចេកទេស	ក្រុមហ៊ុន RAMBOLL DANMARK A/S សហការជាមួយក្រុមហ៊ុន Oriental Consultant Global Co., Ltd. ក្រុមហ៊ុន SCE និងក្រុមហ៊ុន Tancors (Cambodia) Co., Ltd.
CONSULTANT	RAMBOLL DANMARK A/S IN JOINT VENTURE WITH ORIENTAL CONSULTANT GLOBAL Co., LTD. AND SCE IN ASSOCIATION WITH TANCONS (CAMBODIA) Co., LTD.
ក្រុមហ៊ុនម៉ៅការ CONTRACTOR	ក្រុមហ៊ុនហេង សម្បត្តិរថវិកា និង ដឹកជញ្ជូន និងសំណង់ HENG SAMBAT Co., LTD. IMPORT EXPORT TRANSPORTATION AND CONSTRUCTION.



2. Water Supply and Sanitation Acceleration Project, WaSSAC IDA Credit No. 7427 and No. 7428



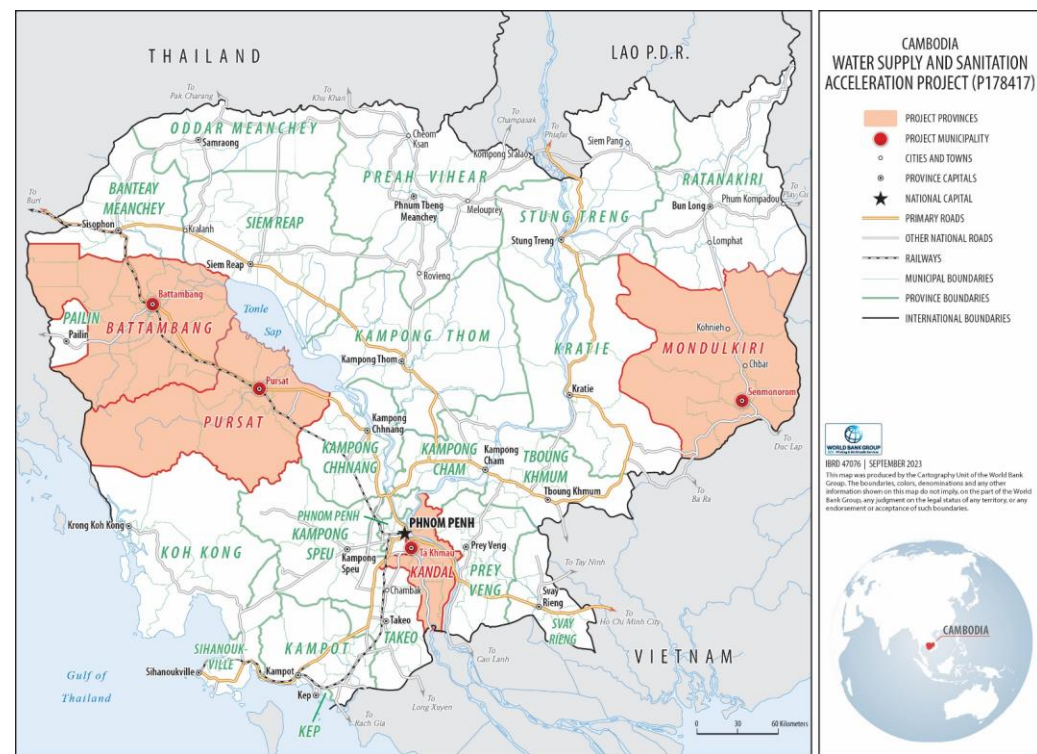
2. Water Supply and Sanitation Acceleration Project

IDA Credit No. 7427 and No. 7428

Project Development Objective, PDO

- To increase access to safely managed water supply and sanitation services in selected areas, strengthen institutions for water supply and sanitation service delivery, and in case of an eligible crisis or emergency, respond promptly and effectively to it.

Project Components	Project Cost	IDA PBA Financing	IDA SUW-SML	Counterpart Financing ^a	Private Capital Mobilized
Component 1	124.47	71.62	33.00	2.25	17.60
Sub-component 1.1	85.41	52.41	33.00	—	—
Sub-component 1.2	34.01	16.41	—	—	17.60
Investment Support Grant	32.60	15.00	—	—	17.60
Sub-component 1.3	5.05	2.80	—	2.25	—
Component 2	60.43	58.38	—	2.05	—
Sub-component 2.1	56.55	56.55	—	—	—
Sub-component 2.2	3.88	1.83	—	2.05	—
Total	184.90	130.0	33.00	4.30	17.60





2. Water Supply and Sanitation Acceleration Project

IDA Credit No. 7427 and No. 7428

Project Development Objective, PDO

I. Sanitation System Development in the Battambang, Pursat, and Ta Khmau Municipalities

- i. Sanitation Planning: City-wide sanitation plan*
- ii. Wastewater Infrastructure Development: Extend sewerage network, pumping stations, increase house connections and develop wastewater treatment plants and fecal sludge treatment plants*
- iii. Institutional Development and Capacity for Operational Management of Sanitation Systems.*
- iv. Establish and develop capacity for Sanitation Operational Unit: O&M, asset management, FSM*
- v. Support province in tariff setting for sanitation*
- vi. Support sewerage connection program and uptake of fecal sludge service*
- vii. Strengthening social accountability of sanitation operational unit*

II. Sanitation Institutional Strengthening and Project Management

- i. **CWIS framework:** clarify the institutional roles and responsibilities throughout the sanitation service delivery value chain; (b) establish funding and financing arrangements; and (c) define regulatory arrangements*
- ii. **Project management***



2. Water Supply and Sanitation Acceleration Project

IDA Credit No. 7427 and No. 7428

Project Implementation - Sanitation

I. Consulting Services

Consultancy Services for Preparation of

- (1) *City-wide Inclusive Sanitation (CWIS) Plan and Feasibility Study for Battambang and Pursat Municipality ;*
- (2) *Detailed Engineering Design and Construction Supervision for Improvement in Wastewater Management and Sanitation for Ta Khmau, Battambang and Pursat Municipalities; and*
- (3) *Communication for Uptake of Sewer Connections and Uptake of Fecal Sludge Management Services*





2. Water Supply and Sanitation Acceleration Project

IDA Credit No. 7427 and No. 7428
Project Implementation - Sanitation

I. Consulting Services

Consultancy Services for Institutional Development for Operational Management of Sanitation System





Project Implementation - Sanitation

II. Civil Works

a) Construction Wastewater Treatment Plant and Network Collection Development in Ta Khmau



b) Construction Wastewater Treatment Plant and Network Collection Development in Pursat and Battambang

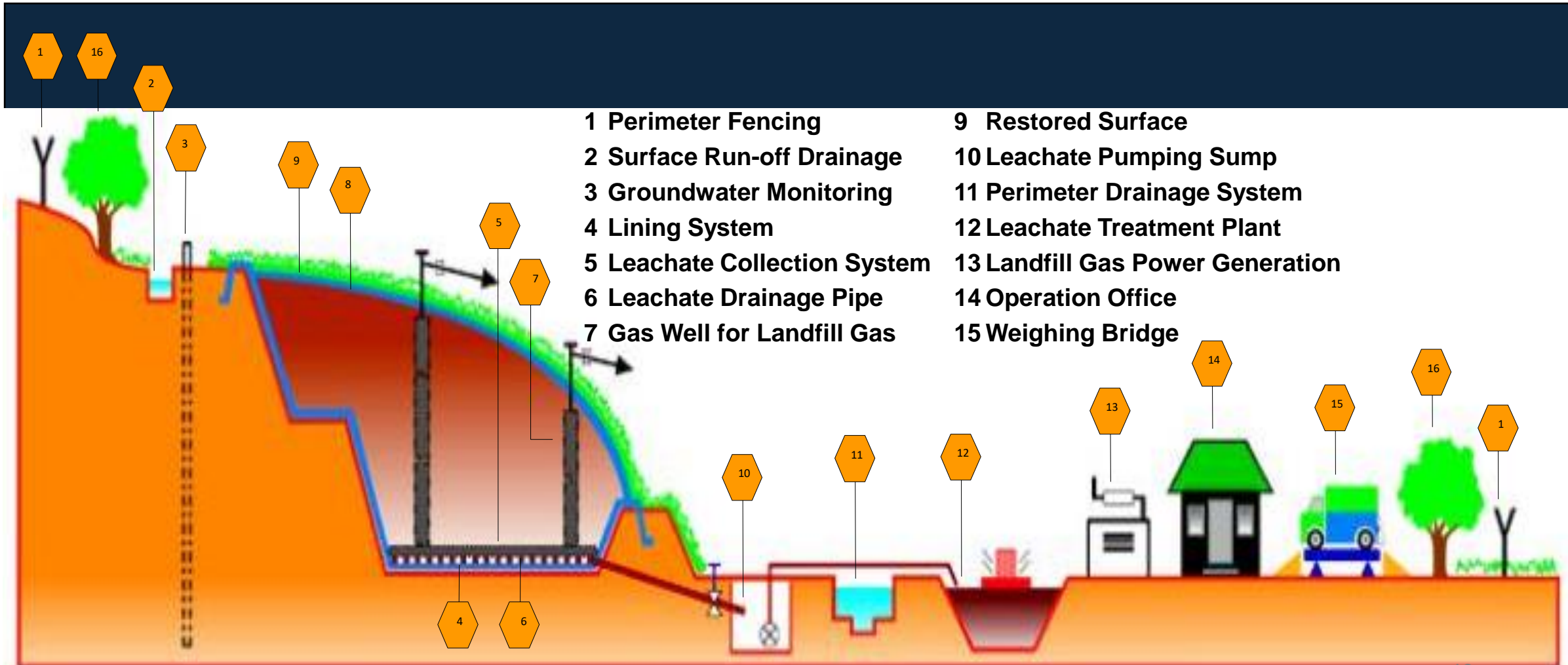




3. Solid Waste and Plastic Management Improvement Project (P170976) IDA Credit No. 7292

3. Solid Waste and Plastic Management Improvement Project (P170976)

IDA Credit No. 7292



- 1 Perimeter Fencing
- 2 Surface Run-off Drainage
- 3 Groundwater Monitoring
- 4 Lining System
- 5 Leachate Collection System
- 6 Leachate Drainage Pipe
- 7 Gas Well for Landfill Gas
- 9 Restored Surface
- 10 Leachate Pumping Sump
- 11 Perimeter Drainage System
- 12 Leachate Treatment Plant
- 13 Landfill Gas Power Generation
- 14 Operation Office
- 15 Weighing Bridge



3. Solid Waste and Plastic Management Improvement Project (P170976)

IDA Credit No. 7292

Project Development Objective, PDO

- To improve solid waste and plastic management in selected areas, and in case of an eligible crisis or emergency, respond promptly and effectively to it.

Budget Breakdown by Component

COMPONENT	PROBLUE Trust Fund	IDA	RCG	TOTAL	
Component 1- Institutional Strengthening for Solid Waste and Plastic Management	\$2.1	\$1.42	\$0.8	\$4.32	implemented by the Ministry of Environment
Component 2 - Integrated Solid Waste and Plastic Management, Planning, Monitoring, and Capacity Building for Participating Provinces and Municipalities	\$0.9	\$5.52	\$2.0	\$8.42	implemented by the Ministry of Interior
Component 3 - Solid Waste and Plastics Management Infrastructure		\$53.06	\$1.5	\$54.56	implemented by the Ministry of Public Works and Transport
Component 4 – Contingent Emergency Response				\$0.00	
TOTAL	\$3.00	\$60.00	\$4.30	\$67.30	



3. Solid Waste and Plastic Management Improvement Project (P170976)

IDA Credit No. 7292

Project Implementation – PIU-MPWT

I. Consulting Services

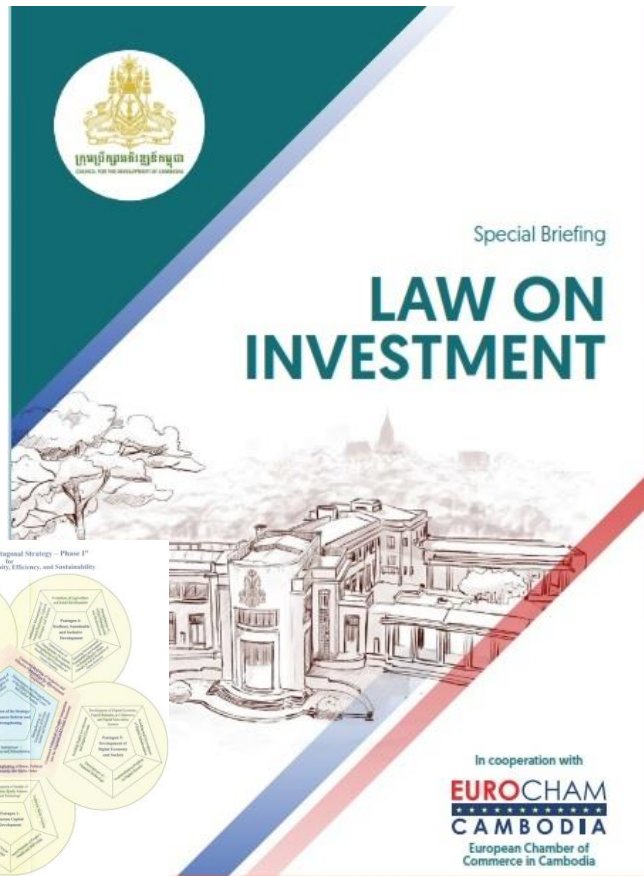
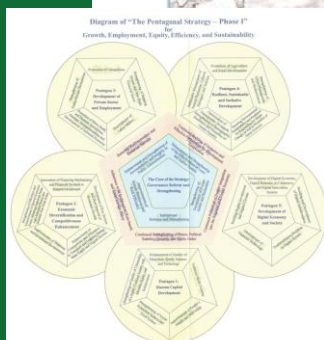
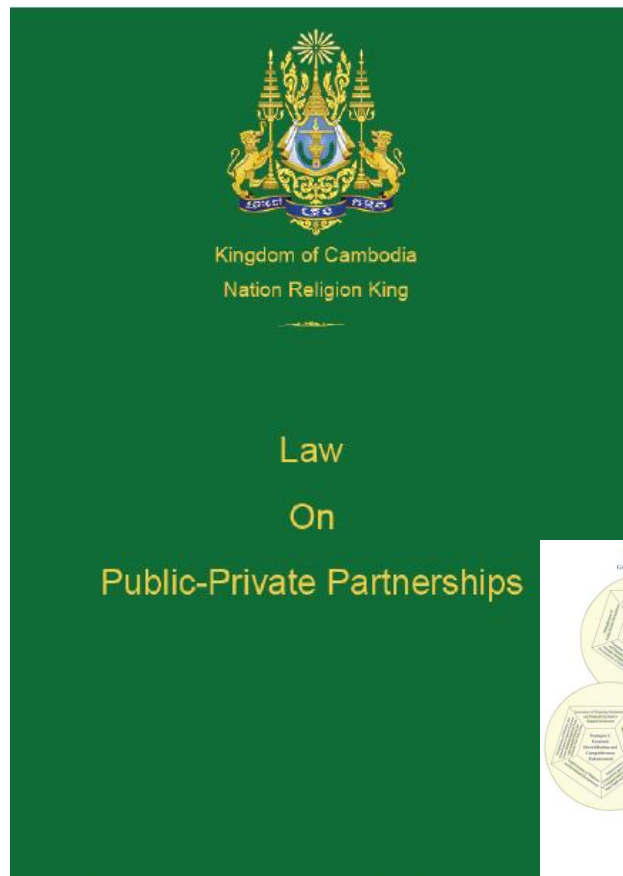
- Development of Three Environmental and Social Impact Assessments (ESIA), and three Environmental and Social Management Plans (ESMP) for Landfill and Waste treatment Infrastructure in Siem Reap, Kampong Speu, Kandal (MPWT-CS-02)



- Way Forward
- ✓ To confirm the acquisition and availability of the proposed areas for landfill construction.
 - ✓ To confirm the ROW and draft design of the access road to landfill areas.
 - ✓ To have the Consultant for DD & CS as planned.
 - ✓ To have the Consultant for ESIA and ESMP as planned.



4. Opportunities and Investment Needs



Article 8 .-

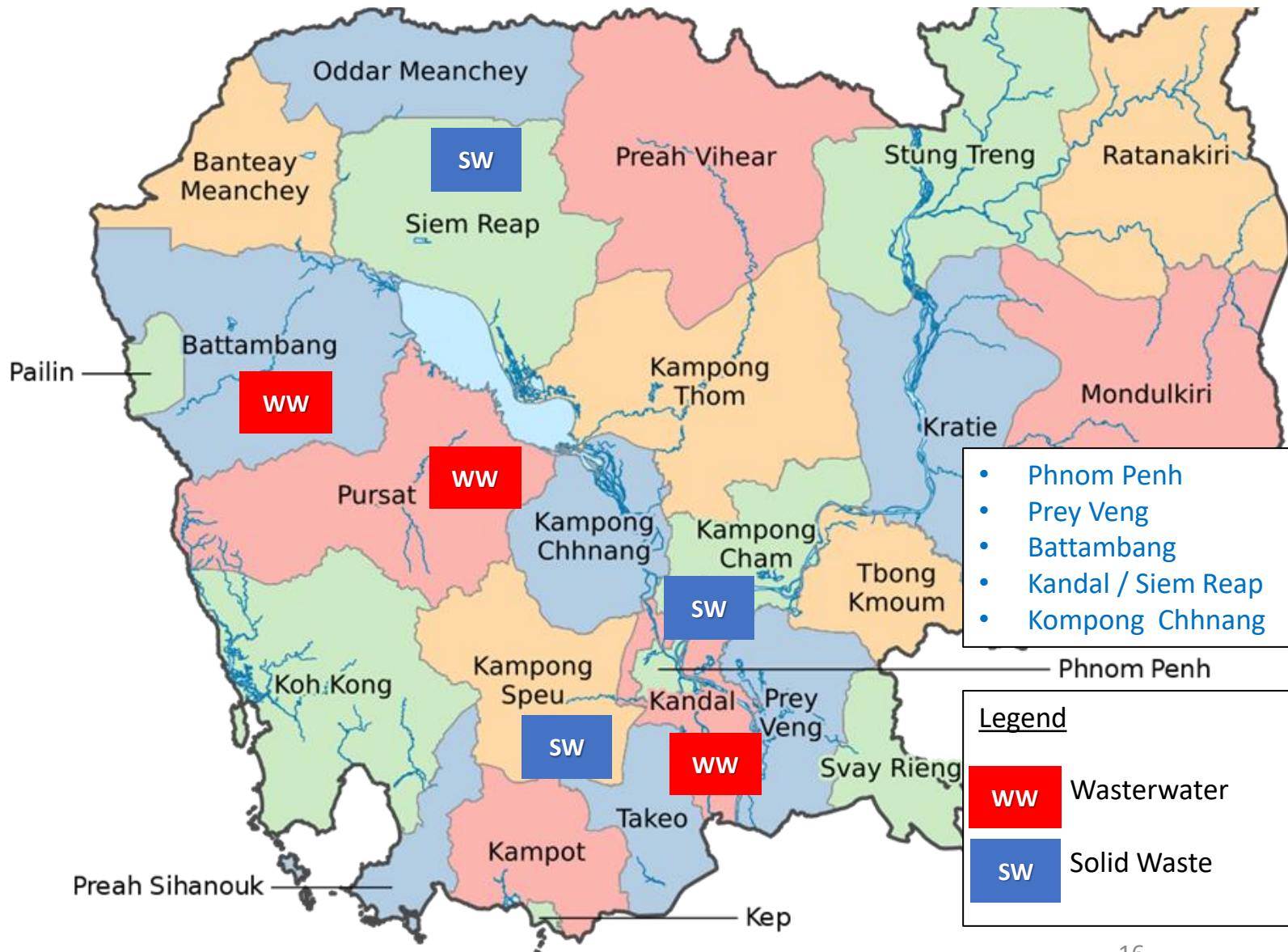
Eligible sectors that are related to the construction and/or services for PPP projects include as follows:

- Public infrastructure and public services for the transport and logistics sector such as roads, bridges, rails, airports, ports, public parking and canals;
- Public infrastructure related to telecom, posts, information and communication technology (ICT), and digital technology;
- Production, transmission and distribution of electricity, oil and gas pipelines, and other public services in mines and energy sector;
- Clean water supply and sanitation infrastructure, sewage system, drainage system, restoration system, wastewater treatment, waste management and other public services for the environmental protection;
- Public infrastructure and public services related to the health sector, education sector, labor and vocational training sector, tourism sector, culture and arts sector, sport sector and social housing;
- Public infrastructure related to the industry, science, technology and innovation sector such as special economic zones (SEZs), small- and medium-sized enterprises (SMEs) clusters, and technology and innovation parks;
- Public infrastructure related laboratories, processing, product storage, and trade promotion;
- Public infrastructure and public services related to the agriculture sector and irrigation system;
- Other public infrastructure and public services as permitted by separate laws.



List of Cities and Towns been the Pre-F/S and Feasibilities Studied on Sewerage System Development

- | | |
|------------------------|------------------|
| 1. Kompong Cham City | 2024 (CRBC) |
| 2. Koh Kong Town | 2024 (CRBC) |
| 3. *Prey Nop Town, SHV | 2023 (GDSWM) |
| 4. Mondul Seyma Town | 2023 (GDSWM) |
| 5. Takeo Town | 2022 (GDSWM) |
| 6. Prey Veng Town | 2022 (GDSWM) |
| 7. Tboung Khmum Town | 2022 (GDSWM) |
| 8. Char Mon Town | 2018/2021 (BUCG) |
| 9. Oddarmeanchey Town | 2021 (GDSWM) |
| 10. Sereisophorn Town | 2021 (GDSWM) |
| 11. Pailin Town | 2021 (GDSWM) |
| 12. Sen Monorom Town | 2020 (GDSWM) |
| 13. Stung Treng Town | 2020 (GDSWM) |
| 14. Kratie Town | 2020 (GDSWM) |
| 15. Banloung Town | 2019 (GDSWM) |
| 16. Stung Sen Town | 2019 (GDSWM) |
| 17. Pursat Town | 2019 (GDSWM) |
| 18. Kampot City | 2019 (Shanghai) |
| 19. Kep Town | 2019 (Shanghai) |
| 20. Preah Vihear Town | 2018 (GDSWM) |
| 21. Svay Rieng Town | 2018 (GDSWM) |





សូមអរគុណ!
THANK YOU!

ស្ថានីយប្រព្រឹត្តកម្មទឹកកខ្វក់ក្រុងព្រះសីហនុ ខេត្តព្រះសីហនុ
WASTEWATER TREATMENT PLANTS IN SIHANOUKVILLE



Sihanoukville, Cambodia

