

Environmental Monitoring Report

Semestral Report (July – December 2021)
March 2022

Cambodia: Provincial Water Supply and Sanitation Project

Prepared by the Ministry of Public Works and Transport for the Asian Development Bank.

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Semi-Annual Environmental Monitoring Report

COUNTRY Cambodia

Ministry of Public Works and Transport

**CAM: Provincial Water Supply and Sanitation Project –
Sanitation Component**

Project No. 48158-002

Loan: ADB 3630-CAM, AFD CKH 1188 01V; Grant: EU-AIF 1236 01N

Reporting Period: July to December 2021

Date: 10 March 2022

SMR-E Report Number: 5

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Abbreviations

ADB	Asian Development Bank
AFD	Agence Française de Développement (French Development Agency)
BTB	Battambang
CEMP	Construction environmental management plan
CW	Civil works (subproject package)
DMS	Detailed measurement survey
EIA	Environmental impact assessment
EMP	Environmental management plan
GDR	General Department of Resettlement
GRC	Grievance Redress Committee
GRM	Grievance redress mechanism
HH	Household
H&S	Health and safety
IEE	Initial environmental examination
IESIA	Initial environmental and social impact assessment
MoE	Ministry of Environment
MoH	Ministry of Health
MPWT	Ministry of Public Works and Transport
PDPWT	Provincial Department of Public Works and Transport
PIAC	Project Implementation Assistance Consultant
PIB	Public information booklet
PIU	Project Implementation Unit
PMU	Project Management Unit
PPE	Personal protective equipment
PWSSP	Provincial Water Supply and Sanitation Project (this project)
SES	Socio-economic survey
SRP	Siem Reap
SMR –E	Semi-annual safeguards monitoring report on the environment
WWTP	Wastewater treatment plant

1 ENVIRONMENTAL SAFEGUARDS SUMMARY

1.1 Introduction

1. The fifth Semi-annual Monitoring Report on the Environment (SMR-E) covers the period of January – June (H1) 2021 for the Provincial Water Supply and Sanitation Project – Sanitation Component (PWSSP). The SMR-E has been prepared to fulfil the safeguard policy requirement of ADB.
2. The SMR-E is prepared by the Project Implementation Assistance Consultant (PIAC) (Rambøll Danmark A/S in association with TANCONS (Cambodia) Co., Ltd) and checked by the Project Management Unit (PMU) of the Ministry of Public Works and Transport (MPWT).

1.2 Summary of Project Progress

3. A brief summary of the project progress for contract award, construction and key activities in this reporting period are presented in Table 1:

Table 1 Project Progress Summary

Safeguards Category	Environment	B	
Reporting Period:	July-December/2021	Date Last Report Published:	September 2021
Contracts Awarded to Date:	<ul style="list-style-type: none"> • PWSSP/MPWT-01: Siem Reap Trunk Sewer Replacement awarded to Beijing Urban Construction Group Co., Ltd., 12 November 2018 • MPWT-CW-2: West Battambang Wastewater Treatment and Collection System awarded to Kiri Dangrek Construction Co., Ltd. and No. 203 Research Institute of Nuclear Industry (JV), 29 December 2020 		
Construction Progress to Date:	<ul style="list-style-type: none"> • PWSSP/MPWT-01 Siem Reap Trunk Sewer Replacement: Original scope 100% completed and DLP lapsed. For added scope of trench stabilization and road rehabilitation 70% overall completion. • MPWT-CW-2 West Battambang Wastewater Treatment and Collection System: 8 % construction completed. 		
Key Sub-project Activities in this Reporting Period:	<p>Construction Activities</p> <p>PWSSP/MPWT-01 Siem Reap Trunk Sewer Replacement:</p> <ul style="list-style-type: none"> • Additional works construction activities commenced in September 2021 • Re-survey and setup new TBM for road works • Trench and foundation stabilization, kerb, and gutter for Sivutha Blvd. • Laying of new asphalt wearing surface 90% completed for Sivutha Blvd. • Sivutha footpath construction (foundation, granite paving works) in progress <p>MPWT-CW-2 West Battambang Wastewater Treatment and Collection System:</p> <ul style="list-style-type: none"> • Procurement and storage of pipes, material, and equipment at camp site, • Production (but not installation) of concrete piles, • Clearing and formation of access road to WWTP, • Foundation excavation at terminal pump station (TPS) • Fill material hauling and platform build up at WWTP. <p>Permits or Consents Issued:</p> <p>PWSSP/MPWT-01 Siem Reap Trunk Sewer Replacement:</p> <ul style="list-style-type: none"> • EMP addendum covering the trench stabilization and road rehabilitation disclosed 1 September 2021 <p>MPWT-CW-2 West Battambang Wastewater Treatment and Collection System:</p> <ul style="list-style-type: none"> • Commencement date: 05 August 2021 • Updated IEE and EMP disclosed 2 September 2021 		

PWSSP – Provincial Water Supply and Sanitation Project; MPWT – Ministry of Public works and Transport; WWTP – Wastewater treatment plant

1.3 Summary of Environmental Management Plan Implementation

1.3.1 Siem Reap Trunk Sewer Replacement

4. Construction of additional work has commenced in the reporting period. An EMP addendum was prepared August 2021 covering the trench stabilization and road rehabilitation scope, disclosed, and the cleared version was shared with the contractor for updating their CEMP. Progress on construction activities is summarized below:
5. The implementation of the environmental management plan (EMP) in the reporting period is summarized below:
 - Re-survey and setup new TBM for road works
 - Trench excavation and foundation stabilization and reinstatement for Sivutha Blvd.
 - Sivutha footpath construction incl. foundation, kerb, gutter, and granite paving works
 - Work accelerated in December to meet construction targets, which required nighttime work but had the environmental benefit of reduced traffic and pedestrian inconvenience impact
 - Dust control activities are regularly conducted by the contractor
 - Traffic management activities are being implemented, but it has been difficult to find suitable alternative routes due to the ongoing city-wide construction activities under the 38 roads project.
6. Progress with the monitoring of the EMP implementation during the reporting period is summarized below:
 - Number of monitoring visits to construction site and wider area:
 - weekly monitoring visits by PMU/PIU
 - 1 visit by the PIAC's international and national environmental and social safeguards experts in November 2021, 2 visits by team leader in November and December
 - Ongoing monitoring by the site engineer
 - Number of environmental samples tested:
 - [Nil] water quality samples tested in the reporting period, planned for by contractor in next reporting period.
 - [Nil] air quality samples tested in the reporting period, required in response to complaints.
 - [Nil] groundwater quality samples tested in the reporting period. Not required in EMP.

1.3.2 West Battambang Wastewater Treatment and Collection System

7. Construction and environmental management plan (EMP) implementation have commenced during the reporting period. The IEE and EMP for BTB have been disclosed upon approval of the PMU and clearance by ADB. Progress on pre-construction and construction activities is summarized below:
 - Contractor's construction environmental management plan (CEMP) has been given a conditional approval by the PIAC in August 2021 with the remaining minor items to be addressed promptly by the contractor during the reporting period.
 - Health and safety plan has been submitted and reviewed with comments by PIAC
 - An environmental officer has been appointed and is in contact with the Department of Environmental (DOE) and DOWRAM.
 - Construction activities included:
 - Procurement and storage of pipes, material, and equipment at its camp site;
 - Production, but not as yet installation, of concrete piles
 - Clearing and formation of access road to the wastewater treatment plant (WWTP),
 - Site clearance and grubbing, and haulage of fill material for the construction of the platform at the WWTP
 - Excavation for foundation at the terminal pumping station 9TPSS)

- Decommissioning and dewatering one of two anaerobic ponds (only one in use at the time). Water pumped was to the other pond.
- Topographical survey for the alignment of force main pipeline route from the TPS to the WWTP
- Preparation of shop drawings and method statements.
- 8. Progress with the monitoring of the EMP implementation during the reporting period is summarized below:
 - Safeguards training with participation of contractor, PIU, and PIAC was conducted in November 2021.
 - Access road construction along the irrigation canal coordinated with DOE, DOWRAM, and PIU. Verbal permission was given by MOE that work can be carried out alongside the canal during dry season and when it is not interrupting flows. As of early December 2021, there is no flow in the canal.
 - No monitoring of environmental parameters has started. River water quality monitoring has not commenced as yet and is scheduled for the next period.
 - Street cleaning has been started on a regular basis in the vicinity of the TPS as excavated material is carted offsite.
 - Number of Monitoring visits to construction site and wider area included:
 - #1 monitoring visit by PMU/PIU
 - 2 visits by the PIAC's international and national environmental and social safeguards experts in November 2021 and December 2021
 - Ongoing daily monitoring and reporting by the site engineer
 - 1 visit by the DOE to the access road and WWTP site verbally advising that the canal can be used by Contractor; no visits by other parties (e.g., independent monitoring organization, Ministry of Environment (MOE))
 - Number of environmental samples tested:
 - [Nil] water quality samples tested in the reporting period, extended wet season into December, deferred to next year
 - [Nil] air quality samples tested in the reporting period; plan requested from Contractor for next reporting period
 - [Nil] groundwater quality samples tested in the reporting period

1.4 Summary of Complaints, Issues and Corrective Action

1.4.1 Siem Reap Trunk Sewer Replacement

- 9. Complaints, issues, and corrective actions that have been identified or implemented in Siem Reap (SRP) during this reporting period are summarized below:
 - *Issues Raised:* Some residents raised issues with the entire city being undergoing construction work but added that the work has improved since the start of the subproject and welcomed the traffic management under the subproject.
 - *Grievances Raised with the Grievance Redress Committee (GRC):* No grievances have been raised in the reporting period.
 - *Corrective Action Issued to the Contractor:*
 - While there is pressure to get the job moving the contractor has been advised to concentrate on one section at the time and complete the works section-wise to minimize the disruption duration for local residents.

1.4.2 West Battambang Wastewater Treatment and Collection System

10. Any complaints, issues and corrective action that have been identified or implemented in Battambang (BTB) are summarized in the following points, for this reporting period:

- *Issues Raised:* Comments have been raised by residents over odour from the inlet canal to the existing WWTP.
- *Grievances Raised with GRC:* No grievances have been raised in the reporting period.
- *Corrective Action Issued to the Contractor:*
 - Contractor has been requested to limit impact to the canal adjacent to the access road and reminded to clean up the roads after haulage of spoils from the TPS.

2 SAFEGUARDS STAFF, TRAINING AND DOCUMENTATION

2.1 Implementation Arrangements

11. The environmental safeguards roles and responsibilities are defined in the EMP. The roles are required to be filled in order to meet the EMP requirements. The status of the key roles for EMP implementation are presented in Table 2.

Table 2. Status of Environmental Safeguard Roles

Safeguards Role	Status and Comments			
Social and Environmental Specialist (MPWT)	Date Started:	May 2020	Full Time/ Part Time	PT (on multiple projects)
	Comment	MPWT established Social – Environmental Office (SEO) and appointed Mr. Penh Soheat as Environmental Officer responsible for the project. Tel: 087 431 777		
Social and Environmental Specialist (SES) (PDPWT- Battambang)	Date Started:	22 August 2018	Full Time/ Part Time	PT
	Comment	Mr. Teng Kemsean, Social and Environmental Officer. Tel: 012 864 861		
Social and Environmental Specialist (SES) (PDPWT Siem Reap)	Date Started:	2019	Full Time/ Part Time	PT
	Comment	Mr. Thern Soveat, Social and Environmental Officer. Tel: 017 529 979		
International Environment Specialist	Date Started:	19 May 2019/14 May 2020	Full Time/ Part Time	PT
	Comment	Replaced Dr Hoan, Trung Thanh by Mr. Alexander Timmermann. Tel: +45 51 61 28 44		
National Environment Specialist	Date Started:	27 May 2019	Full Time/ Part Time	PT
	Comment	Mr. Yim Chamnan, Tel: 012 945 546		

Safeguards Role	Status and Comments			
Contractor Social, Environmental and Safety Specialist – Siem Reap	Date Started:	2019	Full Time/ Part Time	FT
	Comment	A Contractor Focal: Ms. Laing Lenghieng 098 213 575 hired in 2019 was demobilized following completion of construction of the initial phase		
Contractor Social, Environmental and Safety Specialist – Siem Reap	Date Started:	September 2021	Full Time/ Part Time	FT
	Comment	Mr. Dok Oudom, Environmental Officer		
Contractor Social, Environmental and Safety Specialist – Battambang	Date Started:	September 2021	Full Time/ Part Time	FT
	Comment	Environmental: Mr. Song Kim Chhuon (012 916-545) Health and Safety Engineer: Mr. Srin Veasna (096 674 9328)		
Contractor GRM Focal - Battambang	Date Started:	September 2021	Full Time/ Part Time	FT
	Comment	GRM Focal Point: Mr. Ret Rin (092 496 242)		

12. It was concluded that the environmental safeguards roles are adequate considering the activities in the reporting period.

2.2 Training and Capacity Building

13. The environmental safeguards training courses that have been completed during this reporting period and the planned training courses for the next six months are shown in Table 3. The expected training dates were adjusted in accordance with the Contractor's program.

Table 3. Environmental Safeguards Training Provided and Planned

Training Course Title	Training Date	Participants	Training Provider
BTB – key impacts and mitigation measures, COVID-19 health and safety measures, EMP implementation	12 November 2021	PMU, PIU, contractor	PIAC
BTB - GRC – roles and responsibilities	12 November 2021	PMU, PIU, contractor	PIAC

Training Course Title	Training Date	Participants	Training Provider
BTB - Environmental protection - Pollution control on construction sites (air, noise, wastewater, solid waste, traffic safety, community safety)	12 November 2021	PMU, PIU, contractor	PIAC
BTB - Environmental monitoring - Schedule, activities, reporting	12 November 2021	PMU, PIU, contractor	PIAC

2.3 ADB Clearances

14. Information on the status of the safeguard documents is summarized in Table 4.

Table 4. Status of Environmental Safeguard Documents

Safeguards Documents	Update Issued (Latest Version)	Submitted to MOE	Submitted to ADB	Comment
SRP – EMP for Siem Reap Trunk Sewer Replacement Subproject	June 2019 (7 May 2020)	Not Applicable (subproject scale and scope below thresholds that would require MoE approval and MPWT has confirmed, in consultation with MoE and in line with the Prakas on EIA Classification for Development Projects (2020), that there is no requirement for domestic environmental compliance for the subproject (existing works (Siem Reap Trunk Sewer) and additional trench stabilization and road repaving works (CW01)).	07 May 2020, cleared and disclosed	-

<p>SRP – EMP addendum for Siem Reap Replacement Interceptor Sewer Subproject - BBU Road trench stabilization and road rehabilitation, Sivutha Boulevard rehabilitation and footpath improvements</p>	<p>August 2021</p>	<p>Not applicable (subproject scale and scope below thresholds that would require MOE approval and MPWT has confirmed, in consultation with MOE and in line with the Prakas on EIA Classification for Development Projects (2020), that there is no requirement for domestic environmental compliance for the subproject (existing works (Siem Reap Trunk Sewer) and additional trench stabilization and road repaving works (CW01)).</p>	<p>26 August 2021, cleared and disclosed on 1 September 2021</p>	<p>-</p>
<p>BTB – IEE for West Battambang Wastewater Treatment and Collection System</p>	<p>August 2021</p>	<p>Not applicable (The MOE requires IESIA submission in line with the national regulation and is not receiver or reviewer of the IEE)</p>	<p>27 August 2021, cleared and disclosed on 2 September 2021</p>	<p>Major update to the original IEE reflecting changed design, and ADB additional information requests.</p>
<p>BTB – EMP for West Battambang Wastewater Treatment and Collection System</p>	<p>August 2021</p>	<p>Not Applicable (The MOE requires IESIA submission which includes EMP in line with the national regulation and is not receiver or reviewer of the standalone EMP)</p>	<p>27 August 2021, cleared and disclosed on 2 September 2021</p>	<p>EMP cleared for inclusion in the bid document (Sep 2020). Minor updates were made to ensure consistency with the cleared IEE.</p>

2.4 National Approvals

15. An update on the necessary national approvals required for the project to proceed are presented in Table 5.

Table 5. Status of National Approvals for Environmental Documents

Documents	Submitted to MOE	Approved By MOE:	Status – if not approved	Comment
BTB - IESIA for West Battambang Subproject	22 September 2020 (initial), 27 October 2020 final	01 December 2020	Approved	IEIA includes EMP. Refer IEE Annex 1: Permits and Approvals
SRP – IESIA for Siem Reap Subproject	Not Applicable	Not Applicable	Not Applicable	Subproject scale and scope below thresholds that would require MOE approval and MPWT has confirmed, in consultation with MOE and in line with the Prakas on EIA Classification for Development Projects (2020), that there is no requirement for domestic environmental compliance for the subproject (existing works (Siem Reap Trunk Sewer) and additional trench stabilization and road repaving works (CW01)). Refer EMP Addendum Annex 2

2.5 Construction Environmental Management Plan Approvals

16. The status of the construction environmental management plan (CEMP) for each civil works package is shown in Table 6.

Table 6. Status of CEMP Approvals

Civil Works Package/ Subproject	CEMP submitted	Approved:	Comment:
PWSSP/MPWT-01 Siem Reap Subproject	April 2019 (original, sewer works)	Original was approved on 8 June 2019 (sewer main)	The original document was substantially complete and so was given conditional clearance. Final revisions were accepted 8 June 2019.

	14 September 2021 updated for road rehabilitation works	Update was approved on 23 September 2021 (road rehab)	The CEMP was updated to cover the trench stabilization and road rehabilitation works. The original Health and Safety Plan submitted under separate cover in April 2019 was updated in September 2021 for the road rehabilitation works and to include COVID-19 protocols.
MPWT-CW-2 West Battambang Subproject	April 2021, comments issued; Resubmitted August 2021	Conditionally approved on 28 September 2021	Updated/revised following comments. The Health and Safety Plan was submitted under separate cover. HSP and CEMP contains COVID-19 prevention and mitigation measures and commitment to comply with MOH instructions.

3 ENVIRONMENTAL MANAGEMENT PLAN IMPLEMENTATION

3.1 Environmental Performance

3.1.1 Siem Reap Trunk Sewer

17. Table 7 gives the environmental impact mitigation measures in the Project EMP including its addendum and the corresponding CEMP, as well as how the project is progressing with implementing the mitigation measures, for the Siem Reap Trunk Sewer Replacement subproject.

18. Review activities in the reporting period included:

- Site visit to assess ongoing construction subproject work current situation and prepare for implementation of the remaining subproject works (site visit conducted November 2021)
- Consultation with affected people along the roads (consultations conducted during site visit in November 2021).

Table 7. Status of EMP Compliance Siem Reap Subproject

Item	EMP Requirement (Mitigation Measure)	Compliance and Description (Yes, No, Partial)	Comment or Further Explanation if Needed	Reasons for Not Full Compliance
Air quality and dust control	- Apply dust management measures	Partial	- Dust control activities are regularly conducted by the Contractor. - Provide additional watering on construction sites, during dusty work.	- Additional watering/dust suppression required at times.

Item	EMP Requirement (Mitigation Measure)	Compliance and Description (Yes, No, Partial)	Comment or Further Explanation if Needed	Reasons for Not Full Compliance
Noise	- Apply noise reduction measures	Yes	- All construction equipment is checked and certified by MPWT/PDPWT. - Contractor inspects and maintains the construction equipment according to plan to ensure compliance.	
Waste	- Waste management measures – arrangement for separation, storage, and disposal	Yes	- Separate hazardous and non-hazardous wastes are separated, collected and stored in safety containers and provided to local waste company who collects and deposits at the public dump site.	
Spills	- Adequate fuel storage, availability of spill clean-up material	Yes		
Water pollution	- Apply mitigation measures - Water quality monitoring	Yes	- Nearest water body is the Siem Reap River. The contractor manages wastewater and solid wastes with no storage or discharge near or to the river.	
Traffic management and accessibility	- Traffic management and control - Keep one lane open - Provide proper safety signs and traffic signs on construction sites - Allow access to buildings and properties	Partial	- The contractor has been advised to concentrate on one section at the time and complete the works section-wise to minimise downtime. - Materials and spoils not to be stored in front of houses and shops. - Speed up construction activities in market and urban areas to reduce potential impact to locals. - Cordon off construction site and provide detour roads.	- Materials and spoils not to be stored in front of houses and shops and cordoned off. - Construction areas to be cordoned off and detours provided.
Human health and safety	- Implement HSP - Conduct H&S training - Provide first aid kits - Adequate sanitary and welfare facilities for workers - Use safety signage	Partial	- Although workers are provided with PPE, the use is not adequately enforced among workers. Advised to conduct safety briefing prior to start of work in section. - The construction schedule should be provided to local agencies and authorities in advance of activities. - Although safety signs and traffic signs on construction sites are provided, the construction sites should be cordoned off and detours provided.	- Enforce use of PPE, conduct safety briefing. - Provide construction schedule in advance of activities. - Cordon off construction sites and provide detours.
Ecosystem	- Avoid clearing of natural vegetation	Yes	- The subproject area is located in the Siem Reap town, so the ecosystem is not sensitive.	-

19. For all 'Partial' or 'No' compliance issues in Table 7, the actions needed to solve the compliance issues are in Table 8 below:

Table 8. EMP– Actions Needed for Compliance Siem Reap Subproject

Item	EMP Requirement	Further Action to be taken	Date for Action	Who will Implement Action
Air quality and dust control	- Apply dust management measures	- Apply additional watering/dust suppression at construction sites	Q1 2022	Contractor
Traffic management and accessibility	- Keep one lane open and minimize; Contractor to open works equivalent to one-day's work at the time to minimize disturbance	- Concentrate on one section at the time and complete the works section-wise to minimise downtime. - Materials and spoils not to be stored in front of houses and shops and cordoned off. - Construction areas to be cordoned off and detours provided.	Q1 2022	Contractor
Human health and safety	- Implement HSP - Conduct H&S training - Provide first aid kits - Adequate sanitary and welfare facilities for workers - Use safety signage	- Enforce use of PPE, conduct safety briefing. - Provide construction schedule in advance of activities. - Cordon off construction sites and provide detours.	Q1 2022	Contractor

20. Information on environmental performance issues from previous environmental monitoring reports are shown in Table 9. Whether the action was completed, or it is outstanding can be seen in Table 9.

Table 9. EMP Compliance Outstanding Issues – Siem Reap Subproject

EMP Requirement / Issue	Further Action to be Taken	Responsibility and Timing	Resolution	Required Action
Stabilization of the old trench, rehabilitation of the full width of the road along the entire length (included in scope of the variation)	Finalize concept design for the trench stabilization and road rehabilitation	PIAC, PMU, Q3 2021	Resolved, design completed and construction under way	
Reinstatements to be verified and confirmed as acceptable	Reinstatement to be completed along with road resealing. To be verified and confirmed acceptable through consultations	Contractor, Q1 2022		

3.1.2 West Battambang Wastewater Treatment and Collection System

21. Table 10 gives the environmental impact mitigation measures in the West Battambang subproject EMP and the corresponding CEMP, as well as how the project is progressing with implementing the mitigation measures.

22. Review activities in the reporting period included:

- Site visit conducted November 2021 by safeguards team. Contractor's camp site visited.

Table 10. Status of EMP Compliance Battambang Subproject

Item	EMP Requirement (Mitigation Measure)	Compliance and Description (Yes, No, Partial)	Comment or Further Explanation if Needed	Reasons for Not Full Compliance
Traffic management, accessibility	- Traffic management and control - Keep one lane open, cover trenches when needed for access - Provide proper safety signs and traffic signs on construction sites (road and WWTP).	Yes	- The contractor installs traffic signs and safety signs on the road and construction sites. - Limited driving speed observed in the villages and sensitive areas	
Air quality and dust control	- Apply dust management measures - Conduct air quality monitoring.	Partly	- Water of roads conducted, e.g. the access road to the WWTP - Air quality monitoring has not commenced yet	No air quality monitoring conducted yet
Noise	- Apply noise reduction measures - Conduct noise monitoring	Partly	- Construction conducted during daytime. Equipment and machinery in good working condition. Noise monitoring has not commenced.	Noise monitoring has not commenced.
Flora – trees and vegetation	- Agree cutting of trees above 3m with PDPWT	Yes	- There are no big trees/forest resources at the WWTP site, which is surrounded by rice fields. - Clearing started after harvesting.	
Water quality	- Apply mitigation measures - Ensure that irrigation water is unaffected - Conduct water quality monitoring	Partly	- Access road construction along the irrigation canal coordinated with DoE and DOWRAM. Verbal agreement that the contract can work in the canal during dry season and when it is not interrupting flows. There is no flow in the canal. Water quality monitoring has not commenced.	No water quality monitoring conducted yet
Soil and land resources	- Materials and spoil management measures - Map of borrow sites and top soil piles	Yes	- Map provided	
Waste management,	- Waste management measures – arrangement for separation and	Yes	- Separate waste bins including at campsite, waste storage is away from water bodies, licensed	

resource use and natural resource contamination	storage		contractor used for collecting and end-disposal.	
Human health and safety	<ul style="list-style-type: none"> - Provide ES Safeguards and health-Covid-19 training and awareness - Establish H&S management and response plan - Community H&S measures 	Yes	<ul style="list-style-type: none"> - ES Safeguards training include public safety management on construction sites and in community areas. - Training included COVID-19 protection measures. The contractor provides COVID-19 and sanitation protection materials and protection - Daily, before going to the construction sites, Contractor provides orientation on safety management and protection in work plans and provide safety equipment. - Contractor has nominated Contractor's focal point for GRM 	
Construction camp	<ul style="list-style-type: none"> - Provide adequate sanitary facilities - Provide adequate waste management facilities 	Yes	<ul style="list-style-type: none"> - Facilities provided 	

23. For all 'Partial' or 'No' compliance issues in Table 10 above, the actions needed to solve the compliance issues are in Table 11 below:

Table 11. EMP– Actions Needed for Compliance Battambang Subproject

Item	EMP Requirement	Further Action to be taken	Date for Action	Who will Implement Action
Air quality and dust control	<ul style="list-style-type: none"> - Air quality monitoring in nearest residential receptors (2 locations) - Visual assessment 	<ul style="list-style-type: none"> - Conduct air quality monitoring - Conduct visual assessment and document situation 	Q1/Q2 - 20222	Contractor
Noise	<ul style="list-style-type: none"> - Monitor on construction sites and nearest sensitive receptor - Inspection visits 	<ul style="list-style-type: none"> - Conduct noise monitoring - Conduct inspections and document situation 	Q1/Q2 - 20222	Contractor
Water quality	<ul style="list-style-type: none"> - Monitor upstream and downstream at nearest water body (canal or river) to construction sites – two samples per site. (parameters: pH, BOD5, COD, TSS, oil and grease, turbidity (NTU)). 	<ul style="list-style-type: none"> - Conduct water quality monitoring 	Q1/Q2 - 20222	Contractor

24. Information on environmental performance issues from previous environmental monitoring reports are shown in Table 12. Whether the action was completed, or it is outstanding can be seen in Table 12.

Table 12. EMP Compliance Outstanding Issues – Battambang Subproject

EMP Requirement / Issue	Further Action to be Taken	Responsibility and Timing	Resolution	Required Action

3.2 Health and Safety Performance

25. The health and safety impact mitigation measures in the Project EMP and how the project is progressing with implementing the mitigation measures, for all subprojects are presented in Table 13.

Table 13. Status of Health and Safety Compliance - All subprojects

Item	Health and Safety Requirement	Compliance and Description (Yes, No, Partial)	Comment or Further Explanation if Needed	Reasons for Not Full Compliance
BTB	- H&S Plan developed	Partial	<ul style="list-style-type: none"> - Provide public information on the construction plan and schedule in advance of construction activities. - Conduct safety and HIV trainings for all construction staff and workers and provide orientation to local community representatives. 	<ul style="list-style-type: none"> - Public information on construction plan and schedule should be provided in advance of construction - Safety and HIV trainings by contractor to be delivered
SRP	<ul style="list-style-type: none"> - H&S Plan developed and under implementation - Conduct H&S training - Provide first aid kits - Adequate sanitary and welfare facilities for workers - Use safety signage 	Partial	<ul style="list-style-type: none"> - Although workers are provided with PPE, the use is not adequately enforced among workers. Advised to conduct safety briefing prior to start of work in section. - The construction schedule should be provided to local agencies and authorities in advance of activities. - Although safety signs and traffic signs on construction sites are provided, the construction sites should be cordoned off and detours provided. 	<ul style="list-style-type: none"> - All workers not using appropriate PPE including safety shoes and helmets – the use needs to be enforced, e.g. through safety briefings - Public information on construction plan and schedule should be provided in advance of construction - Construction sites should be cordoned off and detours provided

26. For all 'Partial' or 'No' compliance issues in Table 13, the actions needed to solve the compliance issues are shown in Table 14:

Table 14. Status of Health and Safety Actions Needed for Compliance - All subprojects

Item	Health and Safety Requirement	Further Action to be Taken	Date for Action	Who will Implement Action
BTB	Public information on construction plan and schedule Conduct safety and HIV trainings	<ul style="list-style-type: none"> - Provide public information on the construction plan and schedule in advance of construction activities. - Conduct safety and HIV trainings for all construction staff and workers and provide orientation to local community representatives. 	Q1 2022	Contractor
SRP	Use adequate PPE Public information on construction plan and schedule Accessibility and public safety	<ul style="list-style-type: none"> - Enforce use of PPE and provide safety briefings - Provide public information on construction plan and schedule prior to start of construction - Cordon off construction sites and provide detours 	Q1 2022	Contractor

27. Health and safety performance issues from previous environmental monitoring reports for this subproject along with their respective status off execution are summarized in Table 15.

Table 15. Health and Safety Compliance Actions Outstanding Issues - All subprojects

Health and Safety Compliance Action Outstanding	Further Action to Take	Responsibility and Timing	Resolution	Required Action
No issues outstanding				

4 ENVIRONMENTAL MANAGEMENT PLAN MONITORING

4.1 Environmental Quality Monitoring

28. Environmental quality monitoring requirements are defined in the Monitoring Plan section of the EMP. Table 16 gives a summary of the environmental quality monitoring requirements for each subproject.

Table 16. EMP Environmental Quality Monitoring Requirements

Subproject	Environmental Issue Monitored	Location	Parameters	Responsible Organization	Frequency
MPWT-CW-2 Battambang Wastewater Treatment Plant and sewerage network	Water quality	Upstream and downstream of construction sites at nearest water body (canal or river)– two samples per site (Monitor when construction active)	pH, BOD ₅ , COD, TSS, oil and grease, turbidity (NTU)	Contractor	Quarterly
MPWT-CW-2 Battambang Wastewater Treatment Plant and sewerage network	Air quality	Nearest residential receptors (2 locations)	TSP, PM ₁₀ , CO, NO ₂ , SO _x	Contractor	Quarterly
MPWT-CW-2 Battambang Wastewater Treatment Plant and sewerage network	Noise	Nearest residential receptors (2 locations)	dBA	Contractor	Quarterly
MPWT-01: Siem Reap Trunk Sewer Replacement	Water quality	Upstream and downstream of construction site at nearest water body (canal)	TSS, heavy metals (As, Cd, Pb,) total & fecal coliform, pH, DO, COD, BOD ₅ , temperature, NH ₃ , and other nutrient forms of N & P	Contractor	In response to complaints or discharges
MPWT-01: Siem Reap Trunk Sewer Replacement	Air quality	Work area	Total suspended particulate/dust	Contractor	In response to complaints
MPWT-01: Siem Reap Trunk Sewer Replacement	Noise	Work area	dBA	Contractor	In response to complaints

Legend: BOD₅ – Five-day biochemical oxygen demand; CO – carbon monoxide; COD – (total) chemical oxygen demand; dBA – A-weighted decibel NO₂ – nitrogen dioxide; NTU – nephelometric turbidity units; pH – unit of acidity; PM₁₀ – particle matter (10 micrometer size); SO_x – sulfur oxides, TSP – total suspended particles, TSS – total suspended solids

29. Table 17 gives information on the environmental quality monitoring implemented, during this reporting period. In Battambang environmental monitoring has not commenced in the reporting period. For the Siem Reap subproject there were no complaints that necessitated environmental quality monitoring.

Table 17. EMP Environmental Quality Monitoring Implementation

Subproject	Environmental Issue Monitored	Location	Monitoring Date
N/A – no environmental quality monitoring in the reporting period			

30. **Summary of Results – Noise.** For the Siem Reap subproject there were no complaints that required monitoring. For the Battambang subproject, construction commenced in the reporting period, but monitoring is yet to commence.
31. **Summary of Results – Surface Water quality.** For the Siem Reap subproject there were no complaints that required monitoring. For the Battambang subproject, construction commenced in the reporting period, but monitoring is yet to commence.
32. **Summary of Results – Groundwater quality.** For the Siem Reap subproject there were no complaints that required monitoring. For the Battambang subproject, construction commenced in the reporting period, but monitoring is yet to commence.
33. **Summary of Results – Air quality.** For the Siem Reap subproject there were no complaints that required monitoring. For the Battambang subproject, construction commenced in the reporting period, but monitoring is yet to commence.

4.2 Consultation of Construction Phase Affected People Consultation

34. Information on the consultations that were undertaken during the period in order to understand the impact of the project on affected people and how effective the EMP mitigation measures are for residents, businesses and others around the construction sites are summarized in Table 18.

Table 18. Construction Phase Affected People Consultation

Subproject	Consultation Date	Person Consulted / Location	Outcome / Issues	Corrective Action Needed	Action Implemented by (person/date)
PWSSP/MPWT-01 Siem Reap Trunk Sewer Replacement	12 November 2021	28 (10 M /18 F)	• Materials and spoils not to be	Contractor to move materials and spoils storage from in front of	Q1 2022, Contractor Q1 2022, Contractor

			<ul style="list-style-type: none"> stored in front of houses and shops • Speed up construction activities in market and urban areas to reduce potential impact to locals 	houses and shops and cordon off. Section-wise completion by Contractor to reduce impact.	
MPWT-CW-2 west Battambang Wastewater Treatment and Collection System	13 November 2021	29 (17 M / 12 F)	<ul style="list-style-type: none"> • No specific construction related issues raised 		

5 COMPLAINTS, ISSUES, CORRECTIVE ACTION

5.1 Information Disclosure

35. Details of information disclosure activities undertaken during the period are given in Table 19:

Table 19. Information Disclosure (including public meetings and information dissemination)

Topic / Reason for Information	Disclosure Date	Method of Disclosure	Outcome / Results
BTB – awareness assessment of local residents at the TPS to investigate odour issues with existing system and understand concerns before start of construction	October 2021	Information on upcoming activities provided verbally during interview-based survey.	Local residents provided with information on construction schedule and activities at the TPS.

Legend: TPS – terminal pump station

5.2 Grievance Redress Mechanism

36. Information on complaints about the project (which the PIAC is aware of) during this reporting period is presented in Table 20. The table includes:

- Details of complaints or issues raised during the reporting period either through GRM entry points; in consultation sessions; and any other way that the project team is aware of
- Details of the person making the complaint
- Action needed and by when
- Status of the complaint/issue resolution at the end of the reporting period

37. Generally, where possible attempt is made to solve all issues as quickly as possible through informal discussions between the affected people and the contractor.

Table 20. Project Complaints or Issues

Details of Complaint / Issue Raised	Detail of Person (Date, Name, Contact Details)	Action Needed and Date	Comment / Resolved?
SRP – no complaints raised in the reporting period			
BTB – no complaints raised in the reporting period			

38. Table 21 gives information on all issues raised in previous periods which are not yet resolved. All issues raised in previous SMR-E have been resolved.

Table 21. Project Complaints or Issues – Unresolved from Previous Periods

Details of Complaint	Detail of Person (Date, Name, Contact Details)	Action Needed & Date	Reason this is still not resolved
No complaints pending resolution			

5.3 Corrective Action

39. The adopted approach to monitoring and responding to environmental management incidents is to take one of three types of actions as follows:

- **Routine site instructions** - Non-compliance with the CEMP at the operation level is dealt with through site instructions. These are documented through daily reports by the supervision team and summarized in the SMR-E in the period in which the instructions were issued and/or implemented.
- **Corrective actions plan** - if an incident requires corrective action (remedial works) then a correction action plan is issued to address the situation. This is documented in an annex of the CEMP and EMP (if need be) and summarized in the SMR-E in the period in which the plan was issued.
- **Review of environmental factors** – for variations which result in a change in scope a review is made of the environmental factors. These are documented in the appropriate annex of the EMP, IEE and CEMP. A summary of the review is listed in the SMR-E in the period in which the review was made.

40. Information on any formal corrective measures that has been issued to the contractor in order to improve environmental performance are summarized in Table 22.

Table 22. Corrective Action Issued

Reason for Corrective Action	Date Issued	Outcome	Comment / Follow Up
Site Instructions			
SRP – contractor has been advised to concentrate on one section at the time and complete the works section-wise to minimize downtime.	11 November 2021	Contractor reviewed construction schedule to reduce impact	Follow up in Q1 2022 planned
BTB – Contractor has been requested to limit impact to the canal adjacent to the access road	1 December 2021	Work on access road next to canal is expedited and cleaned up and coordinated with DoE and DOWRAM	Follow up in Q1 2022 planned
BTB – Contractor has been reminded to clean up the roads after haulage of spoils from the TPS.	1 December 2021	Road cleaning improved and conducted regularly	Follow up in Q1 2022 planned
Corrective Action Plans			
None issued during the period			
Review of Environmental Factors			
None issued during the period			

6 CONCLUSIONS AND RECOMMENDATIONS

Conclusion:

41. The SRP EMP addendum covering the trench stabilization and road rehabilitation scope was cleared and disclosed in August 2021. Construction commenced in September 2021. The Contractor has appointed the Environmental Officer. Work accelerated in December to meet construction targets, which required night-time work and thus minimized traffic impact. Dust control activities are regularly conducted by the Contractor, though the Contractor has been advised to provide additional watering/dust suppression in the reporting period. Traffic management activities are implemented, but it has been difficult to find suitable alternative routes due to the ongoing construction activities under the 38 roads project. Some residents raised issues with the entire city being undergoing construction work but added that the work has improved since the start of the subproject and welcomed the traffic management under the subproject. Recommendations are listed below.
42. The BTB commencement date was 05 August 2021, the Contractor submitted revised CEMP and HSP. The Environmentalist been appointed and is in contact with DoE and DOWRAM. The H&S Engineer and GRM Focal Point have been appointed. Safeguards training was conducted in November 2021. Physical construction commenced in November 2021 on the access road to the WWTP site, haulage of platform material to the WWTP, and excavation for foundation for the pumping station. Access road construction along the irrigation canal coordinated with DoE and DOWRAM. Verbal agreement that the contract can work in the canal during dry season and when it is not interrupting flows. There is currently no flow in the canal. No monitoring of environmental parameters has started. Street cleaning has started on a regular basis. Recommendations are listed below.

Recommendations:

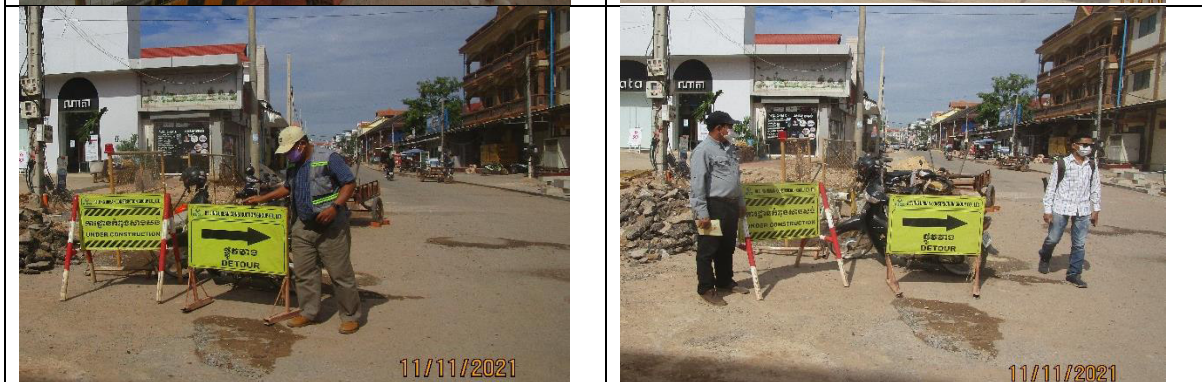
43. With respect to Siem Reap subproject, the following recommendations are provided for action in the next reporting period resulting from the monitoring activities:
 - a. Contractor has been advised to concentrate on one section at the time and complete the works section-wise to minimize downtime.
 - b. Contractor to enforce use of PPE and conduct safety briefing prior to start of work packages.
 - c. Contractor to provide public information on construction plan and schedule prior to start of construction.
 - d. Contractor to ensure that construction site and material storage is cordoned off and detours provided.
44. With respect to Battambang subproject, the following recommendations are provided resulting from the monitoring activities:
 - a. Contractor is recommended to plan for and commence environmental quality monitoring.
 - b. Contractor has been requested to limit impact to the canal adjacent to the access road.
 - c. Contractor is reminded to clean up the roads after haulage of spoils from the TPS.
 - d. Contractor to provide public information on construction plan and schedule prior to start of construction.
 - e. Contractor to conduct safety and HIV trainings for all construction staff and workers and provide orientation to local community representatives.

Annex 1 Environmental Quality Monitoring Results

No environmental quality monitoring conducted in the reporting period in Siem Reap or Battambang.

Annex 2 Photo Record – Site Visits, Monitoring, Consultation

Site Visit and Field Monitoring, Siem Reap, 11 November 2021



The safety signs are installed on construction site (Sivutha Road)



The present of road construction activities in November 2021



Discussed with site engineer and construction worker

Site Visit and Field Monitoring, Battambang, 12 November 2021



Site monitoring/site visiting team



Fencing construction campsite with safety sign boards



The staying rooms in the construction campsite and separate (man and woman) toilets





Some construction activities and construction materials and equipment in campsite on November 2021

Photographs of Environmental Quality Monitoring

No environmental quality monitoring conducted in the reporting period in Siem Reap and Battambang.