

Environmental Monitoring Report

Semestral Report (January – June 2021)
August 2021

Cambodia: Second Urban Environmental Management in the Tonle Sap Basin Project

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

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Semi-Annual Environment Monitoring Report (Draft)

CAMBODIA

Ministry of Public Works and Transport (MPWT)

SECOND INTEGRATED URBAN ENVIRONMENTAL MANAGEMENT IN THE TONLE SAP BASIN PROJECT

(TS2 Project)

(ADB L3686/G0592/G0593 CAM)

Reporting Period: *January – June 2021*

Date: *20 August 2021*

SEMR Report Number: 3

CURRENCY EQUIVALENTS

(as of October 2020)

Currency unit	–	riel (KR)
KR 1.00	=	\$ 0.000250
\$1.00	=	KR 4,000

ABBREVIATIONS

ADB	–	Asian Development Bank
COI	–	Corridor of Impact
DED	–	Detailed Engineering Design
EMC	–	Environmental Monitoring Consultant
EMP	–	Environmental Management Plan
FGD	–	Focus Group Discussion
FT	–	Full Time
GDR	–	General Department of Resettlement
GRM	–	Grievance Redress Mechanism
IEE	–	Initial Environmental Examination
IESIA	–	Initial Environmental and Social Impact Assessment
IRP	–	Income Restoration Plan
MoE	–	Ministry of Environment
MPWT	–	Ministry of Public Works and Transport
NR	–	National Road
PT	–	Part Time
PIU	–	Project Implementation Unit
PMC	–	Project Management Consultants
PMU	–	Project Management Unit
SEMR	–	Semi-annual Environment Monitoring Report
TL	–	Team Leader
TS2 Project	–	Second Integrated Urban Environmental Management in The Tonle Sap Basin Project
WW	–	Wastewater
WWTP	–	Wastewater Treatment Plant

Contents

1	ENVIRONMENTAL SAFEGUARDS SUMMARY	1
1.1	Introduction	1
1.2	Summary of Project Progress	2
1.3	Summary of EMP Implementation Jan-Jun 2021	3
1.3.1	Stueng Saen Wastewater and Drainage (CW01 Lot 1)	3
1.3.2	Battambang Wastewater (CW01 Lot 2).....	3
1.3.3	Serei Saophoan Wastewater and Drainage (CW02)	3
1.3.4	Serei Saophoan Solid Waste Management (CW03a).....	4
1.3.5	Stueng Saen Solid Waste Management (CW03b)	4
1.3.6	Battambang Solid Waste Management (CW03c).....	4
1.4	Summary of EMP Monitoring	4
1.5	Summary of Issues, Grievances and Corrective Actions	5
2	SAFEGUARDS STAFF, TRAINING AND DOCUMENTATION.....	1
2.1	Implementation Arrangements	1
2.2	Training & Capacity Building	3
2.3	ADB Clearances	5
2.4	National Approvals.....	7
2.5	Contractors' Environmental Management Plans (CEMPs)	7
3	EMP IMPLEMENTATION	1
3.1	Environmental Performance	1
3.2	Health and Safety Performance	2
4	EMP MONITORING.....	4
4.1	Environmental Quality Monitoring	4
4.2	Construction Phase Consultations with Affected People	5
5	INFORMATION DISCLOSURE COMPLAINTS ISSUES	6
5.1	Information Disclosure	6
5.2	Grievance Redress Mechanism	6
6	CONCLUSIONS & RECOMMENDATIONS.....	7
6.1	Conclusions	7
6.2	Recommendations.....	7

Tables

Table 1: Project Basic Data.....	2
Table 2 Project Progress Summary.....	2
Table 3: Summary of Environmental Quality Monitoring January – June 2021	4
Table 4 Summary of PMC Monitoring Missions during the Reporting Period.....	4
Table 5: Summary of Issues, Grievances and Corrective Actions	5
Table 6. Status of Environmental Safeguard Positions.....	1
Table 7. Overview of Environmental Safeguards Training Delivered and Planned	3
Table 8 Training Details	4
Table 9. Status of Environmental Safeguard Documents	5
Table 10. Status of Initial Environmental and Social Impact Assessment (IESIA).....	7
Table 11. Status of CEMP Approvals	8
Table 12. CW01 Lot 1 Stueng Saen Wastewater and Drainage - Status of EMP Compliance.....	1
Table 13. CW01 Lot 2 Battambang Wastewater - Status of EMP Compliance	1
Table 14. CW03c Battambang Solid Waste Management - Status of EMP Compliance.....	2
Table 15. CW01 Lot 1 Stueng Saen Wastewater and Drainage - Status of Health and Safety Compliance	2
Table 16. CW01 Lot 2 Battambang Wastewater and Drainage - Status of Health and Safety Compliance	3
Table 17. CW03c Battambang Solid Waste Management - Status of Health and Safety Compliance	3
Table 18. CW01 Lot 1 Steung Saen Wastewater and Drainage - EMP Environmental Quality Monitoring Requirements	4
Table 19 CW01 Lot 2 Battambang Wastewater - EMP Environmental Quality Monitoring Requirements	4
Table 20. CW03c Battambang Solid Waste Management - EMP Environmental Quality Monitoring Requirements	5
Table 21. Construction Phase Consultations with Affected People.....	6
Table 22. Information Disclosure.....	6
Table 23. Project Complaints or Issues	7

Annexes

Annex 1 Environmental Quality Monitoring Results	a
Annex 2 Photo Record – Visits, Monitoring, Training	b
Annex 3 Grievance Redress Mechanism.....	a
Annex 4 Corrective Action Plans	a

1 ENVIRONMENTAL SAFEGUARDS SUMMARY

1.1 Introduction

1. The Royal Government of Cambodia has obtained a loan and grant from the Asian Development Bank (ADB) towards the cost of the Second Integrated Urban Environmental Management in the Tonle Sap Basin Project (hereinafter referred to as TS2). The location of the project towns is shown in **Figure 1**. The TS2 project will improve urban environmental services in Battambang, Serei Saophoan and Stueng Saen, three of Cambodia's provincial cities located around the Tonle Sap Lake. The project will also improve institutional effectiveness to provide sustainable services and support an improved policy and planning environment for wastewater and solid waste management.
2. The TS2 project has three outputs:
 - Output 1: Urban environmental infrastructure improved
 - Output 2: Institutional effectiveness improved
 - Output 3: Policy and planning environment improved

Figure 1: Location of Project Towns



3. The 3rd Semi-Annual Environment Monitoring Report (SEMR) covers the period from 01 January to 30 June 2021 for the Second Integrated Urban Environmental Management in The Tonle Sap Basin Project (TS2 Project).
4. The SEMR presents the status of project implementation, details of compliance with environmental regulations of the Government and policies of ADB, details of compliance with environmental loan covenants, details of complaints received and their redressal and the status of compliance with various aspects of Environmental Management Plans (EMPs). The SEMR has been prepared to fulfil the safeguard policy requirement of ADB.
5. The SEMR is prepared by the Project Management Consultants (PMC) team (Ramboll Danmark A/S in Joint Venture with Oriental Consultant Global Co., Ltd. and SCE in association with Tancons (Cambodia) Co., Ltd) for the TS2 Project.

6. The Ministry of Public Works and Transport (MPWT) is the Project's Executing Agency and the Ministry manages the implementation of the Project's outputs through a Project Management Unit (PMU) based in MPWT's main office in Phnom Penh (**Table 1**).
7. Project Implementation Units (PIUs) have been established in each of the Project towns. These are embedded within the provincial Departments of Public Works and Transport (DPWT) for the relevant provinces.

Table 1: Project Basic Data

ADB Grant/Loan number:	ADB Loan 3684-CAM, and ADB Grant 0591-CAM (Grant funded by Asian Development Fund)
Project Title:	Second Urban Environmental Management in the Tonle Sap Basin Project
Beneficiary:	Royal Government of Cambodia
Executing Agency:	Ministry of Public Works and Transport
Implementing Agency:	(i) Battambang Provincial Government and Battambang Provincial Project Implementation Unit
	(ii) Serei Saophoan Provincial Government and Serei Saophoan Provincial Project Implementation Unit
	(iii) Stueng Saen Provincial Government and Stueng Saen Provincial Project Implementation Unit
Date of Effectiveness:	14 December 2018
Closing Date:	30 June 2024

8. The TS2 Project includes 6 subprojects. No construction activities have started within the reporting period. Therefore, there are few activities to be included in the Semi-Annual Environmental Monitoring Report. When no activities can be reported in the below sections, the term not applicable (n/a) will be used.

1.2 Summary of Project Progress

9. **Table 2** gives a brief summary of the project progress in terms of contract awards, construction works and other key activities in this reporting period.

Table 2 Project Progress Summary

Safeguards Category	Environment	B	
Reporting Period:	January – June 2021	Date Last Report Issued:	[21-Apr-2021]
Contracts Awarded to Date:	- CW01 Lot 1, Steung Saen Wastewater and Drainage awarded on 16 July 2020 - CW01 Lot 2, Battambang Wastewater awarded on 14 August 2020 - CW02, Serei Saophoan Wastewater and Drainage awarded on 19 April 2021 - CW03b, Stueng Saen Solid Waste Management awarded on 14 June 2021 - CW03c, Battambang Solid Waste Management awarded on 15 March 2021		

Key Subproject Activities in this Reporting Period (See photos in <i>Annex 2</i>)	Stueng Saen Wastewater and Drainage (CW01 Lot 1) - The contractor is China First Metallurgical Group Co., Ltd. - Construction start date: 27-Jul-2020 - Construction progress includes site clearance, excavation of wastewater treatment ponds, and installation culvert/pipes in zones where compensation has been completed. Battambang Wastewater (CW01 Lot 2) - The contractor is M.T.A Construction Co., Ltd JV with Research Institute of Nuclear Industry. - Construction start date: 01-Oct-2020 - The construction progress includes site clearing and excavation of the wastewater treatment ponds, excavation and installation of pipes, excavation for pump stations where compensation has been completed, concrete placement for the access road and construction of office building at the wastewater treatment plant Serei Saophoan Wastewater and Drainage (CW02) - Due to Covid-19 restrictions in Serei Saophoan, the mobilization of the contractor has been delayed. Start of construction work is expected in August 2021. Serei Saophoan Solid Waste Management (CW03a) - All options for use of additional land or the old dumpsite have been ruled out. The detailed engineering design is being revised due to concerns over stability of the quarry walls, and groundwater and stormwater complications. Stueng Saen Solid Waste Management (CW03b) - The contractor is Heng Sambat Co., Ltd. Import Export Transportation and Construction. - The contractor will mobilize in July 2021. - The campsite is being established. Battambang Solid Waste Management (CW03c) - The contractor is Heng Sambat Co., Ltd. Import Export Transportation and Construction. - Construction start date: 12-Apr-2021 - The construction progress includes site clearing, earthworks, soil backfilling and compaction, access road construction and construction of landfill facility building. -
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1.3 Summary of EMP Implementation Jan-Jun 2021

1.3.1 Stueng Saen Wastewater and Drainage (CW01 Lot 1)

- The IEE and EMP have been updated in conjunction with the final detailed engineering design and cleared by ADB (see **Table 9**).
- The contractor has revised the CEMP aimed at bringing the CEMP in accordance with the updated EMP as required under the Corrective Action Plan issued by PMU/PMC on 19-Mar-2021. The status of the CEMP is indicated in **Table 11**.
- The contractor has completed an inventory of trees over 3 m high within the construction sites and reached agreement with the relevant authorities on protection of big trees.
- Fuel tank installed at the contractor's camp in accordance with safety requirements.
- The status of EMP implementation is summarised in **Table 12**.

1.3.2 Battambang Wastewater (CW01 Lot 2)

- The IEE and EMP have been updated in conjunction with the final detailed engineering design and cleared by ADB (see **Table 9**).
- The contractor has revised the CEMP aimed at bringing the CEMP in accordance with the updated EMP as required under the Corrective Action Plan issued by PMU/PMC on 19-Mar-2021. The status of the CEMP is indicated in **Table 11**.
- The status of EMP implementation is summarised in **Table 13**.

1.3.3 Serei Saophoan Wastewater and Drainage (CW02)

- The IEE and EMP have been updated in conjunction with the final detailed engineering design and cleared by ADB (see **Table 9**).

- The contractor has submitted a CEMP for review and approval. The status of the CEMP is indicated in **Table 11**.
- Due to Covid-19 restrictions in Serei Saophaon, the mobilization of the contractor is likely to be delayed until August 2021.

1.3.4 Serei Saophaon Solid Waste Management (CW03a)

- The detailed engineering design is being revised due to concerns over stability of the quarry walls, risk of groundwater pollution, uplift complications and stormwater management.

1.3.5 Stueng Saen Solid Waste Management (CW03b)

- The IEE and EMP have been updated in conjunction with the final detailed engineering design and cleared by ADB (see **Table 9**).
- The contractor has submitted a CEMP for review and approval. The status of the CEMP is indicated in **Table 11**.
- The contractor's camp site is being established including installation of fuel tank in accordance with safety requirements.

1.3.6 Battambang Solid Waste Management (CW03c)

- The IEE and EMP have been updated in conjunction with the final detailed engineering design and cleared by ADB (see **Table 9**).
- The contractor has submitted a CEMP for review and approval. The status of the CEMP is indicated in **Table 11**.
- The status of EMP implementation is summarised in **Table 14**.

1.4 Summary of EMP Monitoring

10. Environmental quality monitoring for this period is summarized in **Table 3**. Note that the "EMP" columns indicate the number of monitoring rounds that are required to be carried out during this reporting period in accordance with the EMP. This table only applies to subprojects where construction contracts have been awarded and where the work has started.

Table 3: Summary of Environmental Quality Monitoring January – June 2021

	Stueng Saen Wastewater and Drainage (CW01 Lot 1)		Battambang Wastewater (CW01 Lot 2)		Battambang Solid Waste Management (CW03c)	
	EMP	Actual Jan-Jun 2021	EMP	Actual Jan-Jun 2021	EMP	Actual Jan-Jun 2021
Noise	2 stations, quarterly	none	2 stations, quarterly	none	2 stations once	none
Air Quality	2 stations, quarterly	none	2 stations, quarterly	none	2 stations once	none
Surface Water	2 stations, quarterly	none	2 stations, quarterly	none	2 stations once	none
Groundwater	n/a	n/a	n/a	n/a	5 wells once	none

11. The PMC monitoring missions to the construction sites during the reporting period are summarised in **Table 4**.

Table 4 Summary of PMC Monitoring Missions during the Reporting Period

Subproject	Time	Mission Content
Battambang Wastewater (CW01 Lot 2)	03-Feb-2021	- The contractor has started mobilizing and established campsite and clearing the WWTP site. The sewer works had not started. - Inspected the campsite, WWTP site, and O Mony Stream
Stueng Saen Wastewater and Drainage (CW01 Lot 1)	04-Feb-2021	- The contractor had started mobilizing and was preparing campsite, clearing and grubbing the

Subproject	Time	Mission Content
		WWTP site. The drainage and sewage works had not started. - Inspected the campsite and the WWTP site

1.5 Summary of Issues, Grievances and Corrective Actions

12. The issues, and grievances raised, and the corrective actions required during the reporting period are summarised in **Table 5** for each subproject.

Table 5: Summary of Issues, Grievances and Corrective Actions

Subproject	Issues	Grievances	Corrective Actions
Stueng Saen Wastewater and Drainage	None	None	Revising the CEMP to be consistent with the updated EMP, and implementing “new” measures (Annex 4)
Battambang Wastewater	None	None	Revising the CEMP to be consistent with the updated EMP, and implementing “new” measures (Annex 4)
Serei Saophoan Wastewater and Drainage	None	None	None
Serei Saophoan Solid Waste Management	None	None	None
Stueng Saen Solid Waste Management	None	None	None
Battambang Solid Waste Management	None	None	None

2 SAFEGUARDS STAFF, TRAINING AND DOCUMENTATION

2.1 Implementation Arrangements

13. The EMP defines the institutional arrangements including division and allocation roles and responsibilities for ensuring compliance with the Environmental Safeguards. **Table 6** provides a status of the relevant appointments at the PMU, PIU and the contractor for each subproject. The Table indicates that all currently required positions have been filled.

Table 6. Status of Environmental Safeguard Positions

Safeguards Role	Status & Comment			
Project Management Consultant: International Environmental Specialist	Date:	March 2020	Full Time / Part Time	Part Time
	Comment	Dr Jamlong Suthin (March 2020 – October 2020) Dr Pau Prat Busquets (October 2020 – December 2020) Mr Peter Gammelgaard Jensen (January 2021)		
Project Management Consultant: National Environmental Specialist	Date:	July 2019	Full Time / Part Time	Part Time
	Comment	Mr. Chamnan Yin		
PMU - Environmental Control Officer	Date Started:	May 2020	Full Time / Part Time	Part Time
	Comment	Mr. Socheat Penh		

CW01 Lot 1 – Steung Saen – Kampong Thom Province				
Safeguards Role	Status & Comment			
PIU Environmental and Social Safeguards Staff	Date Started:	September 2019	Full Time / Part Time	Full Time
	Comment	Mr. Soan Pisey		

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

PIU GRM Focal Point	Date:	September 2019	Full Time / Part Time	Full Time
	Comment	Mr. Keo Ratana		
Contractor Environment Health & Safety Staff	Date:	December 2020	Full Time / Part Time	
	Comment	Mr. Orng Leang Meang		
Contractor GRM Person	Date Started:	December 2020	Full Time / Part Time	
	Comment	Mis. Laing Leng Hieng		

CW01 Lot 2 – Battambang – Battambang Province				
Safeguards Role	Status & Comment			
PIU Environmental and Social Safeguards Staff	Date Started:	September 2019	Full Time / Part Time	Full Time
	Comment	Mrs. Kao Chhoun Nara		
PIU GRM Focal Point	Date:	September 2019	Full Time / Part Time	Full Time
	Comment	Mr. Nou Chamroeun		
Contractor Environment Health & Safety Staff	Date:	December 2020	Full Time / Part Time	Full Time
	Comment	Mr. Orng Leang Meang		
Contractor GRM Person	Date Started:	December 2020	Full Time / Part Time	Full Time
	Comment	Mr. Orng Leang Meang		

Serei Saophoan – Banteay Mean Chey Province				
Safeguards Role	Status & Comment			
PIU Environmental and Social Safeguards Staff	Date Started:	September 2019	Full Time / Part Time	Full Time
	Comment	Mr. Mouk Lay		
PIU GRM Focal Point	Date:	September 2019	Full Time / Part Time	Full Time
	Comment	Mr. Kun Sokun		
Contractor Environment Health & Safety Staff	Date:	September 2021	Full Time / Part Time	TBA
	Comment	Mr. Kim Socheat		
Contractor GRM Person	Date Started:	September 2021	Full Time / Part Time	TBA
	Comment	Mr. Kim Socheat		

2.2 Training & Capacity Building

14. **Table 7** summarises the environmental safeguards training events that PMC has completed during this reporting period and the planned training events for the next six months. Environmental and social safeguards training will be implemented as soon as practicable after a construction contract has been awarded. The trainees include members of the relevant PIU, PMC site engineers, the contractor's environment, health and safety officer(s) and site engineers.
15. **Table 8** provides further information about the training delivered by PMC during the reporting period.

Table 7. Overview of Environmental Safeguards Training Delivered and Planned

Subproject	Training Subject	Delivered Jan-Jun 2021	Planned for Jul-Dec 2021
CW01 Lot 1 Stueng Saen Wastewater and Drainage	1. EMP Implementation Overview 2. Grievance Redress Mechanism 3. Mitigation Measures and Pollution Control	1. Feb 2021 2. Feb 2021	1. Sep 2021 2. Sep 2021

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Subproject	Training Subject	Delivered Jan-Jun 2021	Planned for Jul-Dec 2021
	4. Environmental Monitoring	3. - 4. -	3. - 4. -
CW01 Lot 2 Battambang Wastewater	1. EMP Implementation Overview 2. Grievance Redress Mechanism 3. Mitigation Measures and Pollution Control 4. Environmental Monitoring	1. Feb 2021 2. Feb 2021 3. - 4. -	1. Sep 2021 2. Sep 2021 3. - 4. -
CW02 Serei Saophoan Wastewater and Drainage	1. EMP Implementation Overview 2. Grievance Redress Mechanism 3. Mitigation Measures and Pollution Control 4. Environmental Monitoring	1. - 2. - 3. - 4. -	1. Sep 2021 2. Sep 2021 3. - 4. -
CW03a Serei Saophoan Solid Waste Management	1. EMP Implementation Overview 2. Grievance Redress Mechanism 3. Mitigation Measures and Pollution Control 4. Environmental Monitoring	1. - 2. - 3. - 4. -	1. - 2. - 3. - 4. -
CW03b Stueng Saen Solid Waste Management	1. EMP Implementation Overview 2. Grievance Redress Mechanism 3. Mitigation Measures and Pollution Control 4. Environmental Monitoring	1. - 2. - 3. - 4. -	1. Sep 2021 2. Sep 2021 3. - 4. -
CW03c Battambang Solid Waste Management	1. EMP Implementation Overview 2. Grievance Redress Mechanism 3. Mitigation Measures and Pollution Control 4. Environmental Monitoring	1. - 2. - 3. - 4. -	1. Sep 2021 2. Sep 2021 3. - 4. -

Table 8 Training Details

Subproject	Training Content	Date and Place	Participants
Stueng Saen Wastewater and Drainage (CW01 Lot 1)	- ADB environmental safeguards policies. - National environmental laws and regulations.	04-Feb-2021 Meeting room of the PIU/DPWT	24 (male: 21, female: 3) - PMU - PIU

Subproject	Training Content	Date and Place	Participants
	- Key environmental and social impacts of the subproject, pre-construction and during construction. - GRM process - Environmental and social monitoring during the construction.		- Site engineers - PMU Safeguard - Contractor
Battambang Wastewater (CW01 Lot 2)	- ADB environmental safeguards policies. - National environmental laws and regulations. - Key environmental and social impacts of the subproject pre-construction and during construction. - GRM process - Environmental and social monitoring during the construction.	03-Feb-2021 Meeting room of PMC Site Engineering Office	21 (male: 18, female: 3) - PMU - PIU - Site engineers - PMU Safeguard - Contractor

2.3 ADB Clearances

16. **Table 9** summarises the status of the safeguard documents. The table shows that the safeguard documents are in place as required for all subprojects for which construction contracts have been awarded.

Table 9. Status of Environmental Safeguard Documents

Safeguards Documents	Update Issued (Latest Version)	Submitted to MPWT	Submitted to ADB	Comment
IEE CW01 Lot 1 Steung Saen Wastewater and Drainage	February 2021	18-Feb-2021	23-Feb-2021	ADB has cleared the updated DED stage IEE and uploaded the report to the ADB website for disclosure on behalf of the borrower, https://www.adb.org/projects/50102-002/main#project-documents
EMP CW01 Lot 1 Steung Saen Wastewater and Drainage	February 2021	18-Feb-2021	23-Feb-2021	ADB has cleared the updated DED stage EMP and uploaded the report to the ADB website for disclosure on behalf of the borrower, https://www.adb.org/projects/50102-002/main#project-documents
IEE CW01 Lot 2 Battambang Wastewater	February 2021	18-Feb-2021	23-Feb-2021	ADB has cleared the updated DED stage IEE and uploaded the report to the ADB website for disclosure on behalf of the borrower,

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Safeguards Documents	Update Issued (Latest Version)	Submitted to MPWT	Submitted to ADB	Comment
				https://www.adb.org/projects/50102-002/main#project-documents
EMP CW01 Lot 2 Battambang Wastewater	February 2021	18-Feb-2021	23-Feb-2021	ADB has cleared the updated DED stage EMP and uploaded the report to the ADB website for disclosure on behalf of the borrower, https://www.adb.org/projects/50102-002/main#project-documents
IEE CW02 Serei Saophoan Wastewater and Drainage	March 2021	26-Feb-2021	18-Mar-2021	ADB has cleared the updated DED stage IEE and uploaded the report to the ADB website for disclosure on behalf of the borrower, https://www.adb.org/projects/50102-002/main#project-documents
EMP CW02 Serei Saophoan Wastewater and drainage	March 2021	26-Feb-2021	18-Mar-2021	ADB has cleared the updated DED stage EMP and uploaded the report to the ADB website for disclosure on behalf of the borrower, https://www.adb.org/projects/50102-002/main#project-documents
IEE CW03a Serei Saophoan Solid Waste Management	25-05-2020	-	-	PMC is revising the engineering design due to concerns over quarry wall stability, risk of groundwater pollution and management of stormwater
EMP CW03a Serei Saophoan Solid waste management	25-05-2020	-	-	As above
IEE CW03b Steung Saen Solid Waste Management	April 2021	01-Apr-2021	07-Apr-2021	ADB has cleared the updated DED stage IEE and uploaded the report to the ADB website for disclosure on behalf of the borrower, https://www.adb.org/projects/50102-002/main#project-documents
EMP CW03b Steung Saen Solid Waste Management	April 2021	01-Apr-2021	07-Apr-2021	ADB has cleared the updated DED stage EMP and uploaded the report to the ADB website for disclosure on behalf of the borrower, https://www.adb.org/projects/50102-002/main#project-documents
IEE CW03c Battambang Solid Waste Management	March 2021	10-Mar-2021	11-Mar-2021	ADB has cleared the updated DED stage IEE and uploaded the report to the ADB website for disclosure on behalf of the borrower,

Safeguards Documents	Update Issued (Latest Version)	Submitted to MPWT	Submitted to ADB	Comment
				https://www.adb.org/projects/50102-002/main#project-documents
EMP CW03c Battambang Solid Waste Management	March 2021	10-Mar-2021	11-Mar-2021	ADB has cleared the updated DED stage EMP and uploaded the report to the ADB website for disclosure on behalf of the borrower, https://www.adb.org/projects/50102-002/main#project-documents

2.4 National Approvals

17. **Table 10** summarises the status of the Initial Environmental and Social Impact Assessments for each subproject.

Table 10. Status of Initial Environmental and Social Impact Assessment (IESIA)

Documents	Submitted to MoE	Approved By MoE	Comments
IESIA CW01 Lot 1 – Steung Saen: Wastewater and Drainage	March 2020	May 2020	
IESIA CW01 Lot 2 – Battambang: Wastewater	March 2020	May 2020	
IESIA CW02 - Serei Saophoan: Wastewater and Drainage	Final draft 31-Dec-2020	16-Feb-2021	
IESIA CW03a – Serei Saophoan: Solid Waste Management	Final draft 31-Dec-2020	02-Mar-2021	
IESIA CW03b – Steung Saen: Solid Waste Management	Final draft May 2021	-	Minutes of inter-ministerial meeting approving the report, 28-Jun-2021. Official letter of approval expected in July 2021
IESIA CW03c – Battambang: Solid Waste Management	Final draft 31-Dec-2020	10-Feb-2021	

2.5 Contractors' Environmental Management Plans (CEMPs)

18. **Table 11** provides an overview of the status of the Contractors' Environmental Management Plans (CEMPs).

Table 11. Status of CEMP Approvals

Civil Works Package/ Subproject	Number of Submissions	Date of Latest Submission to PMU	Status of PMU/PMC Review and Approval	Date of PMU Response
CW01 Lot 1 – Steung Saen: Wastewater and Drainage	3	06-Jun-2021	Approved subject to conditions: - Improve spoil and borrow site management - Add trench excavation safety measures	28-Jun-2021
CW01 Lot 2 – Battambang: Wastewater	3	16-Jun-2021	Approved subject to conditions: - Include tree survey and inventory of trees over 3 m high - Improve spoil and borrow site management - Add trench excavation safety measures	28-Jun-2021
CW02 - Serei Saophoan: Wastewater and Drainage	2	15-Jun-2021	Under review	
CW03a – Serei Saophoan: Solid Waste Management		n/a	n/a	
CW03b – Steung Saen: Solid Waste Management		n/a	n/a	
CW03c – Battambang: Solid Waste Management	2	12-Apr-2021	Approved	17-May-2021

3 EMP IMPLEMENTATION

3.1 Environmental Performance

19. The environmental performance of the subprojects evaluated against the environmental requirements stipulated in the respective EMPs is summarized in **Table 12**, **Table 13** and **Table 14**. The performance evaluation concerns the subprojects for which construction contracts have been awarded and work has started.
20. The evaluation of compliance is based on a combination of document reviews, analyses of environmental monitoring data, site visit observations, and consultations with affected people and local authorities. However, it should be noted that during this reporting period, the assessment of compliance with environmental requirements has been hampered by COVID-19 restrictions periodically not allowing in-person meetings or travelling to the project sites. Furthermore, the implementation of environmental quality monitoring by the contractors has also been delayed. These delays have also to some degree been due to the COVID-19 lockdown during which the Environment Laboratory of the Ministry of Environment has been closed. Due to the constraints on conducting site inspections by the PMC, the evaluation of compliance has relied on site inspections undertaken by the Site Engineers. These inspections focus on engineering aspects and may not have fully captured environmental issues, but are, however, likely to have identified any critical environmental concerns. PMC is aware of this situation and the constraints and have initiated efforts to ensure effective compliance assurance.

Table 12. CW01 Lot 1 Stueng Saen Wastewater and Drainage - Status of EMP Compliance

Environmental Requirements	Compliance (Yes, No, Partial)	Description of Non-compliance	Corrective Actions
Air quality control	Yes		
Noise mitigation	Yes		
Flora, land clearance	Yes		
Water quality management	Yes		
Spoil and borrow site management and rehabilitation	Partial	The spoil and borrow site management subplan in the CEMP is incomplete	The contractor instructed to incorporate the required measures in the spoil and borrow site management subplan (see Annex 4)
Waste management	Yes		

Table 13. CW01 Lot 2 Battambang Wastewater - Status of EMP Compliance

Environmental Requirements	Compliance (Yes, No, Partial)	Description of Non-compliance	Corrective Actions
Air quality control	Yes		
Noise mitigation	Yes		
Flora, land clearance	Yes	Survey and inventory of trees higher than 3 m not carried out	The contractor instructed to undertake

			the required survey (see Annex 4)
Water quality management	Yes		
Spoil and borrow site management and rehabilitation	Partial	The spoil and borrow site management subplan in the CEMP is incomplete	The contractor instructed to incorporate the required measures in the spoil and borrow site management subplan (see Annex 4)
Waste management	Yes		

Table 14. CW03c Battambang Solid Waste Management - Status of EMP Compliance

Environmental Requirements	Compliance (Yes, No, Partial)	Description of Non-compliance	Corrective Actions
Air quality control	Yes		
Noise mitigation	Yes		
Flora, land clearance	Yes		
Water quality management	Yes		
Spoil and borrow site management and rehabilitation	Yes		
Waste management	Yes		

3.2 Health and Safety Performance

21. The health and safety performance of the subprojects evaluated against the applicable requirements stipulated in the respective EMPs is summarized in **Table 15**, **Table 16** and **Table 17**. The performance evaluation concerns the subprojects for which construction contracts have been awarded and work has started.
22. The evaluation of compliance is based on a combination of document reviews, analyses of environmental monitoring data, site visit observations, and consultations with affected people and local authorities. As noted in **Para 20**, during this reporting period, the assessment of compliance has been hampered by COVID-19 restrictions periodically not allowing in-person meetings or travelling to the project sites. Due to the constraints on conducting site inspections by the PMC, the evaluation of compliance has relied on site inspections undertaken by the Site Engineers. These inspections focus on engineering aspects and may not have fully captured occupational health and safety issues, but are, however, likely to have identified any critical concerns. PMC is aware of this situation and the constraints and have initiated efforts to ensure effective compliance assurance.

Table 15. CW01 Lot 1 Stueng Saen Wastewater and Drainage - Status of Health and Safety Compliance

Health and Safety Requirement	Compliance (Yes, No, Partial)	Description of Non-compliance	Corrective Actions
COVID-19 Protection	Yes		

Health and Safety Requirement	Compliance (Yes, No, Partial)	Description of Non-compliance	Corrective Actions
Safe working conditions	No	Insufficient trench excavation safety measures in the CEMP	The contractor instructed to incorporate the required trench excavation measures in the CEMP (see Annex 4)
Labour welfare management	Yes		
Traffic management	Yes		
Community safety and nuisance mitigation	Yes		

Table 16. CW01 Lot 2 Battambang Wastewater and Drainage - Status of Health and Safety Compliance

Health and Safety Requirement	Compliance (Yes, No, Partial)	Description of Non-compliance	Corrective Actions
COVID-19 Protection	Yes		
Safe working conditions	No	- Insufficient trench excavation safety measures in the CEMP - Workers not wearing the prescribed personal protective equipment	- The contractor instructed to incorporate the required trench excavation measures in the CEMP - The contractor instructed to ensure that the workers wear the prescribed personal protective equipment (see Annex 4)
Labour welfare management	Yes		
Traffic management	Yes		
Community safety and nuisance mitigation	Yes		

Table 17. CW03c Battambang Solid Waste Management - Status of Health and Safety Compliance

Health and Safety Requirement	Compliance (Yes, No, Partial)	Description of Non-compliance	Corrective Actions
COVID-19 Protection	Yes		
Safe working conditions	Yes		

Health and Safety Requirement	Compliance (Yes, No, Partial)	Description of Non-compliance	Corrective Actions
Labour welfare management	Yes		
Traffic management	Yes		
Community safety and nuisance mitigation	Yes		

4 EMP MONITORING

4.1 Environmental Quality Monitoring

23. The environmental quality monitoring requirements during the construction period as defined in the respective EMPs compared with the contractors' actual implementation of these monitoring requirements are summarized in **Table 18**, **Table 19** and **Table 20** for the subprojects for which construction contracts have been awarded and work has started.
24. As presented in **Table 18**, **Table 19** and **Table 20**, none of the subproject contractors have undertaken any of the required environmental quality monitoring. To some extent, this is due to the COVID-19 restrictions with periodic lockdowns affecting laboratories and restricting site access for environmental monitoring technicians.

Table 18. CW01 Lot 1 Steung Saen Wastewater and Drainage - EMP Environmental Quality Monitoring Requirements

Parameters	Location	Frequency	Summary of Results
Air Quality PM10, CO ₂ , NO ₂ , SO _x	Nearest residential receptor (2 locations) WWTP site (x:485052; Y: 2403283)	1 day every 3 months	None
Noise	Nearest residential receptor (2 locations) WWTP site (x:485052; Y: 2403283)	1 day (daytime only) every 3 months	None
Water Quality	Upstream and downstream SWQ1: (X: 488413, Y: 1405335) SWQ2: (X:487079, Y:1405387)	Every 3 months	None

Table 19 CW01 Lot 2 Battambang Wastewater - EMP Environmental Quality Monitoring Requirements

Parameters	Location	Frequency	Summary of Results
Air Quality PM10, CO ₂ , NO ₂ , SO _x	Nearest residential receptor (2 locations) WWTP site (x:485052; Y: 2403283)	1 day every 3 months	None
Noise	Nearest residential receptor (2 locations)	1 day (daytime only) every 3 months	None

Parameters	Location	Frequency	Summary of Results
	WWTP site (x:485052; Y: 2403283)		
Water Quality	Upstream and downstream SWQ1: (X: 488413, Y: 1405335) SWQ2: (X:487079, Y:1405387)	Every 3 months	None

Table 20. CW03c Battambang Solid Waste Management - EMP Environmental Quality Monitoring Requirements

Parameters	Location	Frequency	Summary of Results
Air Quality PM10, CO2, NO2, SOx	Nearest residential receptors (landfill and nearest residential house2 locations)	1 day every 3 months	None
Noise	Landfill and nearest residential receptor (2 locations)	1 day (daytime only) every 3 months	None
Water Quality pH, BOD, COD, TSS, NH4-N, Total Nitrogen, Total Phosphorus, Oil and grease, Coliform	The effluent recipient, upstream and downstream the point of discharge	Every month during the rainy season Every 3 months in the dry season	None
Groundwater Temp, pH, DO, TDS, hardness, chloride, sulphate, Total Organic Carbon, BOD5, ammonia, total nitrogen, total phosphorus, total petroleum hydrocarbons, monoaromatic hydrocarbons, iron, aluminium, arsenic, cadmium, chromium, cobalt, copper, lead, manganese, mercury, zinc, <i>E.coli</i>	All monitoring wells (minimum one up-gradient, two down-gradient).	Every 6 months	None Monitoring wells have not yet been installed. Work specifications will be prepared and the wells are expected to be installed in Q3 2021

4.2 Construction Phase Consultations with Affected People

25. As indicated in **Table 21**, there have not been any consultations on environmental issues with affected people during the reporting period.

Table 21. Construction Phase Consultations with Affected People

Subproject	Consultation Date	Person Consulted / Location	Outcome / Issues	Corrective Action Needed	Action Implemented by (person/date)

5 INFORMATION DISCLOSURE COMPLAINTS ISSUES

5.1 Information Disclosure

26. As indicated in **Table 22**, ADB has disclosed the cleared DED stage updated IEEs and EMPs. No other information disclosure activities have been carried out during the reporting period.

Table 22. Information Disclosure

Subproject	Content	Disclosure Date	Method of Disclosure
CW01 Lot 1 Steung Saen Wastewater and Drainage	Updated IEE and EMP	February 2021	ADB Website
CW01 Lot 2 Battambang Wastewater	Updated IEE and EMP	February 2021	ADB Website
CW02 Serei Saophoan Wastewater and Drainage	Updated IEE and EMP	March 2021	ADB Website
CW03b Steung Saen Solid Waste Management	Updated IEE and EMP	April 2021	ADB Website
CW03c Battambang Solid Waste Management	Updated IEE and EMP	March 2021	ADB Website

5.2 Grievance Redress Mechanism

27. The Grievance Redress Mechanism (GRM) is designed to receive, evaluate and facilitate the resolution of residents' concerns, complaints and grievances during project implementation. A Provincial Grievance Redress Committees (PGRC) has been established in each of the three cities and are operational. The GRM contact details for each subproject are listed in **Annex 3**. GRC establishment was done with the following reference letters:

- **Battambang:** PGRC with reference letter 037/19 SSR and PRSC with reference letter 036/1E SSR dated on **13 March 2019**.
- **Serei Saophoan:** PGRC with reference letter 112/19 SSR and PRSC with reference letter 113/19 SSR dated on **25 February 2019**.
- **Steung Saen:** PGRC with reference letter 1051/19 SSR and PRSC with reference letter 070/19 SSR dated on **28 February 2019**.

28. **Table 23** summarises information on complaints raised about the project during this reporting period as well as unresolved issues from previous reporting periods. The table includes complaints made thorough GRM entry points, issues raised in consultations and Issues raised any other way that the PMC is aware of.

Table 23. Project Complaints or Issues

Details of Complaint / Issue Raised	Detail of Person (Date, Name, Contact Details)	Action Needed & Date	Comment / Resolved?

6 CONCLUSIONS & RECOMMENDATIONS

6.1 Conclusions

29. The corrective actions that PMU/PMC instructed the respective contractors of CW01 Lot 1 Stueng Saen Wastewater and Drainage and CW01 Lot 2 Battambang Wastewater to implement in March 2021 have still not been fully complied with. These corrective actions were required based on the updated EMPs for the two projects. The PMU/PMC has emphasised the importance of compliance with these requirements and informed the contractors that approval of work plans and drawings have been put on hold
30. There is a significant backlog with implementation of environmental quality monitoring for all construction contractors, which to a certain extent is due to COVID-19 restrictions with periodic lockdowns affecting laboratories and restricting site access for environmental monitoring technicians.
31. The quality of the CEMPs submitted for review and approval has been rather poor and the PMC has put substantial time and resources into reviewing and commenting on these plans. So far, only one CEMP has been approved without conditions.
32. The environmental site inspection and supervision by PMC has not been carried out with the required frequency. To a certain extent, this can be attributed to COVID-19 restrictions periodically not allowing in-person meetings or travelling to the project sites. However, the PMC also recognises that substantial additional efforts are needed to build the capacity of the environmental officers/consultants/site engineers of the PMU, PMC and PIUs, and to introduce standard procedures and scheduling of missions.
33. Going forward, community and occupational health and safety, especially for the construction of drainage lines, sewers and pump stations, require special attention to ensure that the contractors diligently and effectively implement all necessary safety precautions and that they carry out their own inspections by qualified geotechnical engineers.

6.2 Recommendations

34. It is recommended to put additional efforts into building the capacity of the PMU/PMC/PIU in undertaking effective compliance assurance. The capacity building should include:
 - On-the-job training of designated environmental officers, consultants and site engineers of the PMU, PMC and PIUs.
 - Development of project specific inspection guidelines and checklists.
 - Development and application of compliance assurance procedures (non-compliance reporting, imposing sanctions).
35. The PMC will strengthen the implementation of environmental inspections (in addition to the above-mentioned capacity building) by:
 - Including environment and health and safety issues in the weekly inspections and reporting of the site engineers.
 - Introduce standard procedures for environmental inspections.
 - Develop inspection and monitoring plans.

36. The PMC will strengthen the efforts to inspect community and occupational health and safety issues, in particular with respect to trench excavations for sewers, drainpipes and pump stations.
37. To improve the quality of the CEMPs, the PMC will develop a project specific CEMP template which will be included in the tender documents.
38. PMC will improve the tender documents and ensure that environmental quality monitoring budget lines are included in the Bill of Quantities and priced in the financial proposals.

Annex 1 Environmental Quality Monitoring Results

None

Annex 2 Photo Record – Visits, Monitoring, Training

Training Pictures



03-Feb-2021 Training activities for Battambnag subproject, TS2



04-Feb-2021 Training activities for Stueng Saen subproject, TS2

Site Visits, February 2021



03-Feb-2021 Existing access road to WWTP site, BTB subproject



03-Feb-2021 Preparing campsite on WWTP site, BTB subproject



03-Feb-2021 Visited WWTP site and discussed with contractor's manager, BTB subproject



04-Feb-2021 Installation/set-up the culvert and drainage working materials, Stung Sen Subproject



04-Feb-2021 Inspection of UXO clearance on subproject sites by CMAC, Stung Sen Subproject.

Source: Site Engineers, PMC, February 2021

Annex 3 Grievance Redress Mechanism

GRIEVANCE REDRESS MECHANISM

GRM Objective

A grievance redress mechanism (GRM), consistent with the requirements of the ADB Safeguard Policy Statement (2009) will be established to prevent and address community concerns, reduce risks, and assist the project to maximize environmental and social benefits. In addition to serving as a platform to resolve grievances, the GRM has been designed to help achieve the following objectives: (i) open channels for effective communication, including the identification of new environmental issues of concern arising from the project; (ii) demonstrate concerns about community members and their environmental well-being; and (iii) prevent and mitigate any adverse environmental impacts on communities caused by project implementation and operations. The GRM is accessible to all members of the community.

The GRM contact details for each Subproject are listed in table below.

Contact Details for GRM (to be updated as contacts are decided)

Province	Subproject	Contact person for GRM			
		Commune	Province	PIU	Contractor
BTB	SWM	-Mr. Im Bunyou, Commune Chief, Ta Kream commune, Tel: 097 200 4679, 012 609 956 -Mr. Boe Sarane, Poy Svay Village Chief, Ta Kream commune, Tel: 097 214 5666 -Mr. Yeut Yeang, Commune Council of Ta Kream commune, Tel: 068 421 575	-Lieutenant Tes Bunthoeun, Police Post Ta Kream- Call in Emergency: 097 910 6625	Kem Sokuntheary, PIU Chief (PDPWT) 092 818 017 Mr. Nou Chamroeun, Resettlement Officer (PDPWT) : 017 339 986	•Mr. Rim Phearun Project Manager Tel: 010 425 225 •Mr. Chea Chamroeun Environmental Tel: 081 430 059 •Mr. Khem KhanHealth and Safety Manager Tel: 012 556 380 •Mr. Chhan Dona Health and Safety Officer Tel: 068 455 557
BTB	WWTP	Ratanak Mr. Yuos Yern Tel: 092 330181 Preak Prah Sdac Mr. Tao Horn Tel: 012 365279	Battambang city Peng Sithy Sang Kae District Lum Sorm Ek Phnom District Mel Sophal Kim Vannak City Tep Horn	Keum Sokuntheary Tel: 092 818 017	Tith Tikea Project manager Tel: 077 258 224
SPH	SWM				
SPH	WWTP	Sangkat Kampong Roteh Leang Chuon Tel: 017 366 028 Sangkat Dmorei Choan Khla Heng Sochenda Tel: 011 889 222 Sangkat Kampong Thom Trork Luem Tel: 092 907 355 Sangkat Oukunthou	Excellency, Sok Lou Provincial Governor Tel: 012 658 668	Chou Kulla Director of KTH DPWT Tel: 012 971317	Kim Socheat Environmental Specialist Tel: 061 860 001

		Chiv Kem Un Tel: 012 214 628 Sangkat Trapaeng Russey Uk Vannary Tel: 092 911 664			
STS	SWM	Sangkat Dmorei Choan Khla Heng Sochenda Tel: 011 889 222	Excellency, Sok Lou Provincial Governor Tel: 012 658 668	Sourn Pisey, Social and Environmental Officer Tel: 070 730 198	Pov Rathana Safety Engineer for Environmental and Health and Safety Tel: 096 980 0532
STS	WWTP	Sangkat Oukunthou Chiv Kem Un Tel: 012 214 628	Excellency, Sok Lou Provincial Governor Tel: 012 658 668	Sourn Pisey, Social and Environmental Officer Tel: 070 730 198	Laing Leng Hieng Social Specialist Tel: 098 213575 Mr. Heng Thamean Tel: 069 994 405

Proposed GRM System

In Cambodia, there is currently no existing legally established system to resolve environmental concerns and complaints. The MPWT, as the EA of the Tonle Sap II will establish the GRM. The setup shall be made before commencement of site works and have members from the PMU, district authority and commune councils. Grievances can be filed in writing or verbally with any entry point of the GRM. The committee will have 15 days to respond with a resolution. The PMU's Environment Safeguards Officer (PMU-ESO) will oversee the implementation/observance of the mechanism and will be responsible for keeping the PMU informed. The PIU Safeguards Focal Point (PIU-SFP) will be responsible for ensuring GRM implementation at the subproject level.

The GRM will accommodate both informally and formally lodged eligible, grievances. Informally lodged grievances are those received by the contractor during construction. Formally lodged grievances are those received at District and Commune Council offices or direct to the PIU. Commune Councils evaluate complaints for eligibility and then report to PDPWT. The PDPWT and PMU maintain record of all grievances, informally and formally lodged, eligible and ineligible. The PMU will inform the MPWT, as necessary, and report on the observance/implementation of the GRM in the monthly progress reports and in the periodic Environmental Monitoring Report that will be submitted to the MPWT.

Access to the Mechanism

Any person who has environmental issues pertaining to the subproject during detailed design, construction and operation phases will have access to the mechanism free of charge. The PMU, through its Environment Safeguards Officer (PMU-ESO) and staff in the MPWT, will ensure that:

- (i) The public and all stakeholders are aware of their rights to access, and will have access to, the GRM free of administrative and legal charges; and
- (ii) The GRM is fully disclosed prior to construction: (a) in public consultations, (b) through posters displayed in the commune office (posters to include names and contact details of the PIU-SFP)

The Access Points to the GRM are critical for ensuring it is useable for affected people (APs). The GRM Access points for this project, as set out in this GRM Mechanism will be:

- ▶ The Contractors
- ▶ District and Commune Councils
- ▶ The PIU office
- ▶ The Provincial Department of Public Works and Transport (PDWT).

GRM Steps and Timeframe

Grievances raised on environmental impacts are critical to the health and safety of APs. Hence, the proposed mechanism intends to be easily accessible and promptly responsive to APs' complaints.

Informal Approach

Informally, APs can lodge complaints directly to the contractor during construction. PMU to provide contractor with GRM contact details which the contractor will use to print 'GRM Contact Cards' for its staff to hand to complainants and will keep cards with all vehicles, machinery and site managers/foremen.

Contractor to raise awareness of all workers on how to respond when an AP or member of the public has a complaint i.e. direct the person to the most senior site manager present at the time and/or Contractor GRM focal point and prepare a 'GRM Contact Card'.

The contractor shall document and assess the complaint immediately. If assessment validates the complaint as within the scope of the GRM/eligible, the contractor shall act on the complaint within three days from receipt of complaint. MPWT shall obtain a written confirmation of satisfaction from the AP after 7 days from completion of resolution by the contractor

If assessment invalidates the complaint (i.e., reveals the complaint as ineligible or not associated with the project's environmental performance), the contractor shall direct the AP to the Commune Council and shall report the complaint to MPWT within 2 days from receipt of complaint, stating reasons for ineligibility.

Formal Approach

If complaint is eligible but is not acted on within three days from receipt of complaint, or if AP is not satisfied with the resolution undertaken by the contractor, he/she can access the formal mechanism, as shown in **Error! Reference source not found.**:

GRM Steps

Step	Action
Step 1: Lodging a Complaint (Day 1)	AP lodges complaint, by him/herself or with assistance from the village chief or district council, at the access point with the Commune Council. The complaint may also be lodged with the PIU or PDPWT,
Step 2: Documentation & Registration of Complaint (Day 1)	Commune Council, PIU/PMU or PDPWT documents/registers lodged complaint, makes sure these are referenced and provides AP with a copy of referenced complaint. The commune forwards complaint document to the MPWT. A copy of a proposed GRM Complaint Form is in Annex 3.
Step 3: Assessment and Discussion (Day 1 to 3)	AP shall be informed if the grievance is eligible or ineligible. If it is ineligible, AP shall be directed to the district. If complaint is eligible, AP shall be informed of the expected action timelines as set out in the established mechanism If both of the AP and contractor/operator are available, the complaint shall be immediately reviewed, investigated and discussed. If not, both parties should agree to undertake the review, investigation and discussion within 3 days. The discussion will centre on the cause and action/measure to implement and will engage the PIU/PMU. After review and investigation, agreement on actions and measures and time involved shall be made with the AP. Agreement shall be properly documented and filed; MPWT, PIU/PMU, Commune Council and AP shall have copies
Step 4: Implementing the Agreed Resolution	(Day 3 to Day 4) If complaint is minor, i.e., not requiring further investigation and would be easy to resolve, the contractor/operator shall immediately implement agreed on action/resolution. (To be implemented by Day 8) If further investigation and/or procurement of supplies/parts would be necessary, the contractor/operator shall: (i) immediately provide the most suitable interim measure to reduce the magnitude of the impact; and (ii) start work on the final measure within 15 days from the day the complaint is lodged.
Step 5: Acceptance of Resolution (1 week after)	If, according to the AP, the impact has been resolved satisfactorily, MPWT shall obtain a written confirmation of satisfaction from the AP. This confirmation will signify closure of grievance and will form part of the

Step	Action
completion of action/measure taken)	grievance documentation. The PIU, Commune Council and AP shall retain their copies of the confirmation.
Step 6: Monitoring and Evaluation (for 1 week after closure of grievance)	The MPWT shall monitor the effectiveness of the resolution for at least a week after closure of grievance (that is, when action implemented has been satisfactorily confirmed in writing by the complainant). Monitoring and evaluation shall be properly documented and included in the Environmental Monitoring Report.
Step 7: Appeal for Dissatisfied AP	When dissatisfied (or, in the event the issue/impact persists despite actions undertaken), AP can appeal for assistance from the district in the elevation of his/her complaint to the provincial authority. The provincial authority shall call all parties concerned to review the history of the grievance and resolution process taken and assess the validity of the appeal.

Appeals. If appeal is found not valid, the provincial authority shall write the AP and declare the grievance closed. In the event of an appeal, the MPWT shall immediately report to the PMU. The PMU shall ensure that the ADB is immediately informed.

If appeal is assessed to be valid, provincial authority and the parties discuss and agree on the quick resolution of the issue. The PMU requires the contractor and operator to implement the agreed resolution. Should the issue continue to persist despite the second action, or the AP remain dissatisfied, the following steps will be taken:

Special Mission or Judicial System. If the complainant is still unsatisfied, the PMU/EA will inform ADB to convene a special mission to attempt a resolution prior to use of the Cambodian judicial system.

Accountability Mechanism of the ADB. In addition, affected people may always contact the Complaints Receiving Officer of the ADB via the following addresses which will be included in the subproject signboard:

Complaints Receiving Officer, Accountability Mechanism
Asian Development Bank
ADB Headquarters, 6 ADB Avenue, Mandaluyong City 1550, Metro Manila, Philippines
(+632) 632-4444 loc. 70309
(+632) 636 2086
amcro@adb.org

1. Instructions available here: <http://www.adb.org/site/accountability-mechanism/how-file-complaint>.

Sufficient communication on the GRM including signs containing contact details of the GRM access points will be displayed at strategic locations to sustain the effective implementation of the mechanism.

Annex 4 Corrective Action Plans

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Second Urban Environmental Management in the Tonle Sap Basin Project

ADB Loan 3684 CAM, Grant 0591 CAM

CWO1 Lot 1, Stueng Saen Wastewater and Drainage, EMP Corrective Action Plan (Showing only the sections and clauses with revisions)

Subproject Activity	Environmental Impact / Issue	Revised Mitigation measures	Change from Previous Version and Corrective Action Arising from Revisions (Note: All changes require contractor to be informed and CEMP to be updated)	Target Date for Corrective Action	Status Update 11 August 2021
Pre-construction Phase					
Flora survey for protection or cutting	Impacts to flora and fauna habitat	7. Survey for trees higher than 3 m within the construction area for protection or removal. Ensure DWPT and local authority have been informed and obtain the permit for tree cutting. Addition replantation shall be sought upon completion of the work	New clause. Action required: Contractor to undertake necessary surveys and submit proposal for replanting.	9th April 2021	Corrective Actions Completed 2. Tree survey and proposal for replanting included in attachments I and II to the CEMP
Construction Phase					
Civil works	Air quality	1. Asphalt and concrete batching facilities will be located at least 500 m downwind from the nearest dwellings in order to reduce the impact of fumes on humans and to be fitted with necessary equipment such as bag house filters to reduce fugitive dust emissions. 2. Water will be sprayed for construction sites, material handling areas, and borrow pits where fugitive dust is generated. 3. Trucks carrying dry and loose construction materials such as earth will be covered with tarpaulins or other suitable cover.	New clause added (no.5). Action required: Contractor to be informed of need to notify communities in advance.	25th March 2021	Corrective Actions Completed 3. Requirement to inform residents about upcoming work added in the CEMP (Para 22)

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Subproject Activity	Environmental Impact / Issue	Revised Mitigation measures	Change from Previous Version and Corrective Action Arising from Revisions (Note: All changes require contractor to be informed and CEMP to be updated)	Target Date for Corrective Action	Status Update 11 August 2021
		4. Construction vehicles and machinery will be maintained to a high standard to minimize emissions. 5. Areas in which road excavations are required for sewage and drainage pipe works will be notified adequately 1 month in advance of works starting.			
Civil Works	Flora or vegetation	13. All trees over 3 m in construction sites to be protected from construction activities if they are not required to be removed. The cutting trees shall inform and get permit from DPWT and local authority. 14. An inventory shall be held of trees to be cut and addition replantation shall be sought upon completion of the work. 15. Where possible, material from existing licensed borrow and quarry sites will be used. If new sites are needed, they will be subject to due diligence and approval by ADB and the relevant PDoE to ensure that sensitive habitats are avoided and that an appropriate restoration plan using native species is agreed following re-contouring	Additional clause (no.14). Action required: Contractor to undertake and maintain inventories of trees to be cut during constructions works. Action required: Contractor to be reminded of the need to get approval for new borrow areas.	Monthly	Corrective Actions Completed 4. Tree inventory activity added in the CEMP (Para 32) 5. Tree inventory has been carried out and the results included in Attachments I and II to the CEMP 6. Agreement with PIU, and the Municipal Authorities on protection of big trees added in Attachment II
Implementation of Materials Spoil and	Soil and land resources	28. Site specific materials, spoil and borrow site management plan will be developed	Clauses rewritten but with largely same provisions, except nos. 30 and 34 are new to revised version.	April 30th	Required Corrective Actions (expected next compliance)

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Subproject Activity	Environmental Impact / Issue	Revised Mitigation measures	Change from Previous Version and Corrective Action Arising from Revisions (Note: All changes require contractor to be informed and CEMP to be updated)	Target Date for Corrective Action	Status Update 11 August 2021
Borrow Site Management		and approved by the relevant Municipal authority; 29. A map of all borrow sites will be developed and maintained with copies held by the Contractor and PIU; 30. Safety measures, if required, will be implemented to prevent access by members of the public and livestock. 31. Measures to rehabilitate the borrow sites include contouring of the slopes within each site and replanting sites with native species. 32. Topsoil present on construction sites will be removed and stockpiled in a labelled area for use on rehabilitation of the site post-construction or rehabilitation of borrow sites 33. No disposal of spoil or dredged material on agriculturally productive land or within 50 m of a water course. 34. Construction working areas will be clearly demarcated and encroachment onto adjacent areas avoided.	Actions required: Contractor to submit management plan (some extraction has already commenced). Safety measures and demarcations to be implemented at all borrow sites.		check by end of August 2021): 7. The Borrow Pit / Spoil Disposal Site Measures listed here below shall be added in the relevant Attachments to the CEMP. 8. The site selection assessment table (Proposed Site Conditions") for the proposed spoil disposal sites and borrow shall be filled-in correctly. 9. The Contractor shall obtain approval of the proposed borrow pits and spoil disposal sites from the local authorities and the PIU. 10. Results of geotechnical soil test are not relevant for this

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Subproject Activity	Environmental Impact / Issue	Revised Mitigation measures	Change from Previous Version and Corrective Action Arising from Revisions (Note: All changes require contractor to be informed and CEMP to be updated)	Target Date for Corrective Action	Status Update 11 August 2021
					environmental management plan and should be removed.
Implementation of Solid and Liquid Waste Management	Resource use and natural resource contamination	35. Preparation of a Waste Management Plan before construction which applies the waste hierarchy to ensure efficient use and management of resources with a priority to prevent waste at source as much as possible; 36. Effective management of materials on site through good housekeeping and work planning. 37. Clear arrangements for storage and transportation of all hazardous and non-hazardous waste to an authorised and approved disposal point as set out in the Waste Management Plan. 38. The wastes, especially hazardous waste shall be collected and stored in safety tanks and provide to license sub-contractor to dispose in local license dumping site. 39. Prohibit burning of waste (anytime and anywhere). 40. Provide all vehicles/drivers with plastic bags for waste collection and prevent any unauthorized waste disposal with particular attention paid to prevention of waste entering water ways including irrigation canals.	Section rewritten but no significant change in effect. Action required: None	NA	

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Subproject Activity	Environmental Impact / Issue	Revised Mitigation measures	Change from Previous Version and Corrective Action Arising from Revisions (Note: All changes require contractor to be informed and CEMP to be updated)	Target Date for Corrective Action	Status Update 11 August 2021
Implementation of Community and Occupational Health and Safety and Emergency Response	Human health and safety	41. Appropriate fencing, protective barriers, and buffer zones will be provided around all construction sites including barriers where needed on access roads and populated. 42. The construction campsites should be located outside and distance from residential area and fencing campsites with safety barriers and safety zones. 43. Sufficient signage giving health and safety warnings and information disclosure at all sites 44. Worker education and awareness seminars for construction hazards will be given. A construction site safety program will be developed and distributed to workers. 45. Conduct daily toolbox meetings (safety briefings) 46. An accident record book will be maintained where all major or minor accidents and incidents are recorded with actions taken. 47. Ensure that all workers are equipped with and use Personal Protective Equipment (PEE). 48. Develop Traffic Management Plan together with provision of safety signs, traffic safety control and regular monitoring the public safety or traffic	This section completely revised, and several new clauses added. Actions required: Clause 42 – Map of workers' camp locations to be submitted Clause 52 – Carry out and submit details of HIV/Aids training Clauses 54 to 70 (Covid) – Contractor to submit evidence of Covid precautions in place in workers' camp(s) and works sites.	March 31st 2021	Corrective Actions Completed 11. Map of worker's camp III and the contractor's offices included in Attachment V and VI of the CEMP 12. Clause 52: HIV/AIDS training programme included in the CEMP 13. Clauses 54 to 70: COVID-19 prevention plan included in the CEMP with pictures of posters and monitoring activities

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Subproject Activity	Environmental Impact / Issue	Revised Mitigation measures	Change from Previous Version and Corrective Action Arising from Revisions (Note: All changes require contractor to be informed and CEMP to be updated)	Target Date for Corrective Action	Status Update 11 August 2021
		safety management on construction sites on the streets in urban area. 49. Limited the driving speed in village/urban areas and other sensitive areas. Provide watering to reduce dust pollution in village and urban areas, when and where is dusty. 50. Each Contractor shall appoint an Environment, Health and Safety Officer who is qualified engineer. Adequate first aid equipment will be made available on site 51. Provision will be made for safety precautions when using 220 to 240 V Electric Power tools if the workers are likely to be working within wet or flooded environments. 52. Provide the training or awareness on safety management and HIV-AIDs to construction staffs, workers and local people. 53. Warning signs will be set up if mud is likely on public roads. Mud will be removed at the end of each day. Other spillages on public roads will be removed immediately. 54. COVID-19 prevention measures: 55. Dissemination about COVID-19 prevention and mitigation measures to staff and workers through orientation or distributing leaflet/poster at			

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Subproject Activity	Environmental Impact / Issue	Revised Mitigation measures	Change from Previous Version and Corrective Action Arising from Revisions (Note: All changes require contractor to be informed and CEMP to be updated)	Target Date for Corrective Action	Status Update 11 August 2021
		information/safety board at each construction and camp site; 56. Daily checking temperature of staff and workers prior starting the works; 57. Staff and workers have to wear masks all the time and properly; 58. Do not share personal items or supplies such as phones, pens, notebooks, tools, etc.; 59. Avoid common physical greetings, such as handshakes; 60. Maintain a minimum physical distance of one metre from others if possible; 61. Wash hands often with soap and water for at least 20 seconds after using the washroom, before handling food, after blowing nose, coughing, or sneezing, and before smoking. If hands are not visibly soiled, and soap and water are unavailable, alcohol-based hand sanitizer can be used; 62. All offices and jobsites implement additional cleaning measures of common areas. All door handles, railings, ladders, switches, controls, eating surfaces, shared tools and equipment, taps, toilets, and personal workstation areas are wiped down at least twice a day with a disinfectant, such as disinfectant wipes. Individuals are responsible for cleaning and disinfecting their workstations;			

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Subproject Activity	Environmental Impact / Issue	Revised Mitigation measures	Change from Previous Version and Corrective Action Arising from Revisions (Note: All changes require contractor to be informed and CEMP to be updated)	Target Date for Corrective Action	Status Update 11 August 2021
		63. Commonly touched surfaces on vehicles and equipment are thoroughly cleaned and disinfected at the end of shifts and between users; 64. Coughing or sneezing into a tissue or the bend of your arm, not your hand; And dispose of any tissues you have used as soon as possible in a lined waste basket and wash your hands afterwards; 65. Complying with any instructions announced by Ministry of Health accordingly; 66. Responding measures if there is a COVID-19 case: 67. Individuals who have been potentially exposed to the virus, or who are exhibiting flu-like symptoms such as fever, tiredness, coughing, or congestion are instructed to: Not come to work; Contact their supervisor and/or human resources department; Stay at home and self-isolate; and Contact local health authorities for further direction. 68. Such individuals are required to follow the directions of the local health authority and may not return to work until given approval by the proper health authorities; 69. Individual who begin to display flu-like symptoms on site are instructed to			

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Subproject Activity	Environmental Impact / Issue	Revised Mitigation measures	Change from Previous Version and Corrective Action Arising from Revisions (Note: All changes require contractor to be informed and CEMP to be updated)	Target Date for Corrective Action	Status Update 11 August 2021
		avoid touching anything, take extra care to contain coughs and sneezes, and return home immediately to undergo self-isolation as directed by the local health authority; 70. All areas on site potentially infected by a confirmed or probable case are barricaded to keep individuals two meters away until the area is properly cleaned and disinfected; 71. The Emergency Response Plan will set out detailed Preventative Measures for all types of incidents covered in the Emergency Plan. This will include: 72. Prevention of Injury and Accidents – to include Personal Protective Equipment requirements for construction workers, training requirements 73. Prevention of Spillage - All construction fluids such as oils, and fuels will be stored on hard standing with sealed drainage with a capacity of 110% of the largest fuel container, will include procedures on refuelling and maintaining vehicles. 74. Prevention of Fire – to include measures for Ignition Sources including prevention of smoking on construction site, management of flammable materials and liquid.			

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Subproject Activity	Environmental Impact / Issue	Revised Mitigation measures	Change from Previous Version and Corrective Action Arising from Revisions (Note: All changes require contractor to be informed and CEMP to be updated)	Target Date for Corrective Action	Status Update 11 August 2021
		75. Other Incidents – prevention measures relevant to other issues considered relevant by the contractor 76. The Contractor will develop Emergency Response Procedures prior to construction. The procedures will cover actions to be taken in case of: 77. Worker injury (e.g. construction or traffic accident) 78. Spillage (e.g. fuel spillage) 79. Fire (e.g. fuel or chemicals storage area); and 80. Any other incidents anticipated by the contractor.			
Implementation of Construction Workers Camp Management	Contamination of water, soil, waste production and social issues	81. If a camp for construction workers is required the contractor will set out a management plan which includes a map showing camp lay out, adequate accommodation and sanitation for male and female workers, relevant training and a plan of how camp areas will be restored to original condition after construction completed. 82. If a construction camp is not required, the contractor will set out a management plan which includes: Provision of adequate waste disposal facilities, welfare facilities, and sanitation for both male and female workers	Section rewritten. Actions required: Contractor to submit all documentation regarding existing and proposed workers' camp(s)	March 31st 2021	Corrective Actions Completed 14. Camp management plan added in the CEMP

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Subproject Activity	Environmental Impact / Issue	Revised Mitigation measures	Change from Previous Version and Corrective Action Arising from Revisions (Note: All changes require contractor to be informed and CEMP to be updated)	Target Date for Corrective Action	Status Update 11 August 2021
		83. Priority will be given to employ local labor and retain evidence of how local labor recruitment efforts were undertaken.			
Pipe Network Installation	Socio-Economic (Accessibility)	84. Warning given to residents 4 weeks in advance of any excavations 85. Implement traffic management procedures to ensure smooth traffic. Provide traffic signs, control vehicle speeds and be able to warn drivers in advance for any changes to road surface or traffic direction 86. Provide adequate and safe pedestrian and vehicular (motorbike) access to enter and exit buildings across any open trenches 87. Temporary restoring/rebuilding the impacted assets or relocation of shops and stalls through cooperation, between construction contractor, HHs and PIU 88. Define and adjust suitable working hours in urban areas or at sensitive sites. Open access road for entry and exit for business sites. Remove the unsuitable soil and materials (spoils) from construction sites which are in front of houses and shops 89. Restoration or compensation of any damage to properties at an expense of the contractor	Section rewritten with some new clauses, in particular nos. 88 to 91. Required action: Contractor to submit methodology for trenching including specific safety measures and measures to minimise impacts on nearby households	April 30th 2021	Required Corrective Actions (expected next compliance check by end of August 2021): 15. The Contractor shall add the measures for trench excavations or deep excavations indicated here below

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Subproject Activity	Environmental Impact / Issue	Revised Mitigation measures	Change from Previous Version and Corrective Action Arising from Revisions (Note: All changes require contractor to be informed and CEMP to be updated)	Target Date for Corrective Action	Status Update 11 August 2021
		90. Consideration and management of potential localized flood impacts.			

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Second Urban Environmental Management in the Tonle Sap Basin Project

ADB Loan 3684 CAM, Grant 0591 CAM

CWO1 Lot 2, Battambang Wastewater, EMP Corrective Action Plan (Showing only the sections and clauses with revisions)

Subproject Activity	Environmental Impact / Issue	Mitigation measures – Revised Clauses in Disclosed EMP	Change from Previous Version and Corrective Action Arising from Revisions (Note: All changes require contractor to be informed and CEMP to be updated)	Target Date for Corrective Action	Status and Updated Corrective Actions 27 June 2021
Pre-construction Phase					
Flora survey for protection or cutting	Impacts to flora and fauna habitat	6. Survey for trees higher than 3 m within the construction area for protection or removal. Ensure DWPT and local authority have been informed and obtain the permit for tree cutting. Addition replantation shall be sought upon completion of the work	New clause. Action required: Contractor to undertake necessary surveys and submit proposal for replanting.	9 th April 2021	16. The contractor asserts that because they will use horizontal drilling method there will be no need to remove any trees. Corrective Actions (expected next compliance check by end of August 2021): 17. The contractor is required to provide proper field survey documentation to verify which trees will be removed – if any. And based on the results submit a plan for

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Subproject Activity	Environmental Impact / Issue	Mitigation measures – Revised Clauses in Disclosed EMP	Change from Previous Version and Corrective Action Arising from Revisions (Note: All changes require contractor to be informed and CEMP to be updated)	Target Date for Corrective Action	Status and Updated Corrective Actions 27 June 2021
					compensatory replanting. 18. The contractor shall obtain approval of any necessary tree removal
Construction Phase					
Civil Works	Flora or vegetation	13. All trees over 3m in construction sites to be protected from construction activities if they are not required to be removed. The cutting trees shall inform and get permit from DPWT and local authority. 14. An inventory shall be held of trees to be cut and addition replantation shall be sought upon completion of the work. 15. Where possible, material from existing licensed borrow and quarry sites will be used. If new sites are needed, they will be subject to due diligence and approval by ADB and the relevant PDoE to ensure that sensitive habitats are avoided and that an appropriate restoration plan using native species is agreed following re-contouring	Additional clause (no.2). Action required: Contractor to undertake and maintain inventories of trees to be cut during constructions works.		Corrective Actions (expected next compliance check by end of August 2021): 19. CEMP, Para 27: The measures shall include to maintain an inventory of trees that have been removed and plans for compensatory replanting.

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Subproject Activity	Environmental Impact / Issue	Mitigation measures – Revised Clauses in Disclosed EMP	Change from Previous Version and Corrective Action Arising from Revisions (Note: All changes require contractor to be informed and CEMP to be updated)	Target Date for Corrective Action	Status and Updated Corrective Actions 27 June 2021
Implementation of Materials Spoil and Borrow Site Management	Soil and land resources	Site specific materials, spoil and borrow site management plan will be developed and approved by the relevant Municipal authority; 39. . 27. A map of all borrow sites will be developed and maintained with copies held by the Contractor and PIU; 28. Safety measures, if required, will be implemented to prevent access by members of the public and livestock. 29. Measures to rehabilitate the borrow sites include contouring of the slopes within each site and replanting sites with native species. 30. Topsoil present on construction sites will be removed and stockpiled in a labelled area for use on rehabilitation of the site post-construction or rehabilitation of borrow sites 31. No disposal of spoil or dredged material on agriculturally productive land or within 50 m of a water course. 32. Construction working areas will be clearly demarcated and encroachment onto adjacent areas avoided.	Clauses rewritten but with largely same provisions, except nos. 28 and 32 are new to revised version. Actions required: Contractor to submit management plan (some extraction has already commenced). Safety measures and demarcations to be implemented at all borrow sites.	April 30, 2021	20. The revised CEMP includes a borrow site and disposal site subplan (Para 28 and 29). Corrective Actions (expected next compliance check by end of August 2021): 21. The Contractor shall fill-in the site selection assessment table (Proposed Site Conditions”) and add that to the CEMP, Para 28. 22. CEMP, Appendix 3 must be translated into English and the Contractor shall make sure to include both an agreement with the landowner and an approval by the relevant authorities.

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Subproject Activity	Environmental Impact / Issue	Mitigation measures – Revised Clauses in Disclosed EMP	Change from Previous Version and Corrective Action Arising from Revisions (Note: All changes require contractor to be informed and CEMP to be updated)	Target Date for Corrective Action	Status and Updated Corrective Actions 27 June 2021
Implementation of Community and Occupational Health and Safety and Emergency Response	Human health and safety	39. Appropriate fencing, protective barriers, and buffer zones will be provided around all construction sites including barriers where needed on access roads and populated. 40. The construction campsites should be located outside and distance from residential area and fencing campsites with safety barriers and safety zones. 41. Sufficient signage giving health and safety warnings and information disclosure at all sites. 42. Worker education and awareness seminars for construction hazards will be given. A construction site safety program will be developed and distributed to workers. 43. Conduct daily toolbox meetings (safety briefings) 44. An accident record book will be maintained where all major or minor accidents and incidents are recorded with actions taken. 45. Ensure that all workers are equipped with and use Personal Protective Equipment (PEE). 46. Develop Traffic Management Plan together with provision of safety signs, traffic safety control and	This section completely revised, and several new clauses added. Actions required: Clause 40 – Map of workers' camp locations to be submitted Clause 50 – Carry out and submit details of HIV/Aids training Clauses 52 to 68 (Covid) – Contractor to submit evidence of Covid precautions in place in workers' camp(s) and works sites.	March 31 st 2021	Corrective Actions Completed 23. Clause 40: Maps of workers' camp have been added in Figure No.7 24. Clause 50: HIV/AIDS training programme has been added in Table 4 of the CEMP 25. Clauses 52-68: The CEMP includes documentation on COVID-19 prevention measures

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Subproject Activity	Environmental Impact / Issue	Mitigation measures – Revised Clauses in Disclosed EMP	Change from Previous Version and Corrective Action Arising from Revisions (Note: All changes require contractor to be informed and CEMP to be updated)	Target Date for Corrective Action	Status and Updated Corrective Actions 27 June 2021
		regular monitoring the public safety or traffic safety management on construction sites on the streets in urban area. 47. Limited the driving speed in village/urban areas and other sensitive areas. Provide watering to reduce dust pollution in village and urban areas, when and where is dusty. 48. Each Contractor shall appoint an Environment, Health and Safety Officer who is qualified engineer. Adequate first aid equipment will be made available on site 49. Provision will be made for safety precautions when using 220 to 240V Electric Power tools if the workers are likely to be working within wet or flooded environments. 50. Provide the training or awareness on safety management and HIV-AIDs to construction staffs, workers and local people. 51. Warning signs will be set up if mud is likely on public roads. Mud will be removed at the end of each day. Other spillages on public roads will be removed immediately. 52. COVID-19 prevention measures: 53. Dissemination about COVID-19 prevention and mitigation measures			

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Subproject Activity	Environmental Impact / Issue	Mitigation measures – Revised Clauses in Disclosed EMP	Change from Previous Version and Corrective Action Arising from Revisions (Note: All changes require contractor to be informed and CEMP to be updated)	Target Date for Corrective Action	Status and Updated Corrective Actions 27 June 2021
		to staff and workers through orientation or distributing leaflet/poster at information/safety board at each construction and camp site; 54. Daily checking temperature of staff and workers prior starting the works; 55. Staff and workers have to wear masks all the time and properly; 56. Do not share personal items or supplies such as phones, pens, notebooks, tools, etc.; 57. Avoid common physical greetings, such as handshakes; 58. Maintain a minimum physical distance of one metre from others if possible; 59. Wash hands often with soap and water for at least 20 seconds after using the washroom, before handling food, after blowing nose, coughing, or sneezing, and before smoking. If hands are not visibly soiled, and soap and water are unavailable, alcohol-based hand sanitizer can be used; 60. All offices and jobsites implement additional cleaning measures of common areas. All door handles, railings, ladders, switches, controls, eating surfaces, shared tools and equipment, taps, toilets, and			

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

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		personal workstation areas are wiped down at least twice a day with a disinfectant, such as disinfectant wipes. Individuals are responsible for cleaning and disinfecting their workstations; 61. Commonly touched surfaces on vehicles and equipment are thoroughly cleaned and disinfected at the end of shifts and between users; 62. Coughing or sneezing into a tissue or the bend of your arm, not your hand; And dispose of any tissues you have used as soon as possible in a lined waste basket and wash your hands afterwards; 63. Complying with any instructions announced by Ministry of Health accordingly; 64. Responding measures if there is a COVID-19 case: 65. Individuals who have been potentially exposed to the virus, or who are exhibiting flu-like symptoms such as fever, tiredness, coughing, or congestion are instructed to: Not come to work; Contact their supervisor and/or human resources department; Stay at home and self-			

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

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		isolate; and Contact local health authorities for further direction. 66. Such individuals are required to follow the directions of the local health authority and may not return to work until given approval by the proper health authorities; 67. Individual who begin to display flu-like symptoms on site are instructed to avoid touching anything, take extra care to contain coughs and sneezes, and return home immediately to undergo self-isolation as directed by the local health authority; 68. All areas on site potentially infected by a confirmed or probable case are barricaded to keep individuals two meters away until the area is properly cleaned and disinfected 69. The Emergency Response Plan will set out detailed Preventative Measures for all types of incidents covered in the Emergency Plan. This will include: 70. Prevention of Injury and Accidents – to include Personal Protective Equipment requirements for construction workers, training requirements			

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

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		71. Prevention of Spillage - All construction fluids such as oils, and fuels will be stored on hard standing with sealed drainage with a capacity of 110% of the largest fuel container, will include procedures on refueling and maintaining vehicles. 72. Prevention of Fire – to include measures for Ignition Sources including prevention of smoking on construction site, management of flammable materials and liquid. 73. Other Incidents – prevention measures relevant to other issues considered relevant by the contractor 74. The Contractor will develop Emergency Response Procedures prior to construction. The procedures will cover actions to be taken in case of: 75. Worker injury (e.g. construction or traffic accident) 76. Spillage (e.g. fuel spillage) 77. Fire (e.g. fuel or chemicals storage area); and Any other incidents anticipated by the contractor.			
Pipe Network Installation	Socio-Economic (Accessibility)	82. Warning given to residents 4 weeks in advance of any excavations 83. Implement traffic management procedures to ensure smooth traffic.	Section rewritten with some new clauses, in particular nos. 86 to 89.	April 30 th 2021	26. CEMP, Para 31 and Para 32: The added measures on health and

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Subproject Activity	Environmental Impact / Issue	Mitigation measures – Revised Clauses in Disclosed EMP	Change from Previous Version and Corrective Action Arising from Revisions (Note: All changes require contractor to be informed and CEMP to be updated)	Target Date for Corrective Action	Status and Updated Corrective Actions 27 June 2021
		Provide traffic signs, control vehicle speeds and be able to warn drivers in advance for any changes to road surface or traffic direction 84. Provide adequate and safe pedestrian and vehicular (motorbike) access to enter and exit buildings across any open trenches. 85. Complete work on a segment according to a progressive sequence of activity. Provide access by bridging trenches. 86. Avoid trenching in locations where damage might occur. If needed, provide shoring to assure no subsidence occurs. 87. Excavations should be barricaded and marked. Workers should not be allowed to enter deep trenches unless they are properly shored. 88. Temporary restoring/rebuilding the impacted assets or relocation of shops and stalls through cooperation, between construction contractor, HHs and PIU 89. Define and adjust suitable working hours in urban areas or at sensitive sites. Open access road for entry and exit for business sites. Remove the unsuitable soil and materials (spoils) from construction	Required action: Contractor to submit methodology for trenching including specific safety measures and measures to minimise impacts on nearby households.		safety for trenching are insufficient and do not incorporate the measures that PMC advised in the previous document check. Corrective Actions (expected next compliance check by end of August 2021): 27. The Contractor is required to make the necessary corrections and make sure to incorporate the advised measures.

TS2 - 3rd Semi-Annual Environment Monitoring Report, January - June 2021

Subproject Activity	Environmental Impact / Issue	Mitigation measures – Revised Clauses in Disclosed EMP	Change from Previous Version and Corrective Action Arising from Revisions (Note: All changes require contractor to be informed and CEMP to be updated)	Target Date for Corrective Action	Status and Updated Corrective Actions 27 June 2021
		sites which are in front of houses and shops 90. Restoration or compensation of any damage to properties at an expense of the contractor 78. Consideration and management of potential localized flood impacts.			