



Ministry of Public Works and Transport

Integrated Urban Environmental Management in the Tonle Sap Basin Project

QUARTERLY PROGRESS REPORT NO. 3

01 July to 30 September 2017



October 2017

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IN JOINT VENTURE WITH_



IN ASSOCIATION WITH_



Consulting Services for Project Management and Implementation Support (PMIS, Package 1)

Integrated Urban Environmental Management in the Tonle Sap Basin Project (IUEMTSBP)

ADB LoanNo.3311-CAM (SF) / 8295-CAM (SCF) / Grant 0454-CAM--Contract No. PMU/MPWT/IUEMTSP/QCBS/16/001

INTEGRATED URBAN ENVIRONMENTAL MANAGEMENT IN THE TONLE SAP BASIN PROJECT

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TABLE OF CONTENTS

TABLE OF CONTENTS	I
LIST OF TABLES	II
LIST OF ANNEXES.....	II
ABBREVIATIONS.....	III
1 EXECUTIVE SUMMARY.....	1
1.1 BACKGROUND	1
1.2 OVERALL PROJECT PROGRESS.....	1
1.2.1 <i>Kampong Chhnang Flood Protection Embankment.....</i>	<i>1</i>
1.2.2 <i>Pursat Town Drainage Improvement.....</i>	<i>1</i>
1.2.3 <i>Solid Waste Management, construction of new sanitary landfill sites and closure of existing dump sites</i>	<i>2</i>
1.2.4 <i>River Bank Protection for the Pursat River</i>	<i>3</i>
1.3 FUND UTILIZATION	3
1.4 SAFEGUARDS	3
1.4.1 <i>Resettlement</i>	<i>3</i>
1.4.2 <i>Environment.....</i>	<i>3</i>
1.5 TARGETS FOR THE NEXT QUARTER.....	3
2 PROJECT BACKGROUND.....	4
2.1 BACKGROUND	4
2.2 PROJECT BASIC DATA	4
2.3 DOCUMENT.....	4
2.4 ADB REVIEW MISSIONS	4
2.4 COMPLIANCE WITH ACTIONS AGREED DURING THE SPECIAL PROJECT ADMINISTRATION MISSION.....	5
3.2 FUND UTILIZATION	7
3.3 S CURVES FOR CONTRACT AWARDS AND DISBURSEMENTS.....	10
3.4 PROCUREMENT PLAN	11
4 IMPLEMENTATION PROGRESS	12
4.1 STATUS OF PROJECT IMPLEMENTATION AND REVISED PROJECT IMPLEMENTATION SCHEDULE	12
4.2 VALIDATION OF THE PPTA PROPOSALS.....	13
4.2.1 <i>Kampong Chhnang Flood Protection Embankment.....</i>	<i>13</i>
4.2.2 <i>Pursat Town Drainage Improvement.....</i>	<i>13</i>
4.2.3 <i>Solid Waste Management, construction of new sanitary landfill sites and closure of existing dump sites</i>	<i>14</i>
4.2.4 <i>River Bank Protection for the Pursat River.....</i>	<i>14</i>
5 PROJECT MANAGEMENT ARRANGEMENTS	18
5.1 PROJECT IMPLEMENTATION AND MANAGEMENT SUPPORT (PMIS) CONSULTANT.....	18
5.1.1 <i>Utilization Consultants' Inputs.....</i>	<i>18</i>
6 SAFEGUARDS.....	20
6.1 ENVIRONMENT	20
6.1.1 <i>Staffing:.....</i>	<i>20</i>
6.1.2 <i>Key Issues:.....</i>	<i>20</i>
6.1.3 <i>Legislation & Policy context.....</i>	<i>20</i>
6.1.4 <i>Domestic EIA Approval.....</i>	<i>20</i>
6.1.5 <i>Site Selection and Design for Landfills.....</i>	<i>20</i>
6.1.6 <i>Embankment design for Kampong Chhnang.....</i>	<i>21</i>
6.1.7 <i>Next Steps:.....</i>	<i>21</i>
6.2 RESETTLEMENT	22
6.2.1 <i>Progress on resettlement.....</i>	<i>22</i>

6.2.2	Resettlement in Pursat	22
6.2.3	Resettlement for Kampong Chhnang.....	24
6.3	THE INDIGENOUS PEOPLES	26
6.4	GRIEVANCE REDRESS MECHANISM (GRM).	27
6.5	GENDER ACTION PLAN	27
7	PROJECT PERFORMANCE	32
8	LOAN COVENANTS.....	34
8.1	LOAN COVENANTS AND OTHER CONDITIONS.....	34
9	ASSESSMENT OF VALIDITY OF KEY ASSUMPTIONS AND RISKS	35
10	TARGETS FOR THE NEXT QUARTER.....	37

LIST OF TABLES

Table 2-1	: Details of ADB Missions	5
Table 2-2	: Follow-up Actions and the Status of their Compliance.....	5
Table 2-5	: Consolidated Status of Loan and Grant Proceeds.....	8
Table 2-6	: Consolidated Loan Utilization	9
Figure 2-1	: L3311/L8295/G0454-CAM: Project to Date (PTD) Contract Award	10
Figure 2-2	: L3311/L8295/G0454-CAM: Project to Date (PTD) Disbursement.....	10
Table 2-7	: Procurement Plan.....	11
Figure 4-1	: Revised Implementation Schedule	12
Table 4-1	: Status of planned activities with milestones as presented in the PAM	15
Table 6-1	: Selection of Landfill Sites (2016) Guidance Requirements	20
Table 6-2	: Gender Action Plan	27

LIST OF ANNEXES

Annex 1	: Revised Implementation Schedule
Annex 2	: Revised Personnel Schedule
Annex 3	: Fund Utilization
Annex 4	: Contract Award and Disbursement Projections
Annex 5	: Overview of the input by Key International and National Specialists
Annex 6	: Compliance with Loan Covenants
Annex 7	: Design Issues
Annex 8	: Environmental Issues
Annex 9	: List of PMU and PIU staff and their TOR

ABBREVIATIONS

ADB	Asian Development Bank
AH	Affected household
AM	Aide Memoire
ASEAN	Association of Southeast Asian Nations
CMEI	Community Mobilization and Environmental Improvements
CSEC	Cambodia Socio-Economic Consensus
DMF	Design and monitoring framework
EA	Executing Agency
EMP	Environmental management plan
GMS	Greater Mekong Subregion
ICB	International competitive bidding
IDPoor	Identification of Poor Households Programme
IEC	Information, education and communication
IEE	Initial environmental examination
JICA	Japan International Cooperation Agency
MEF	Ministry of Economy and Finance
MOE	Ministry of Environment
MOWRAM	Ministry of Water Resources and Meteorology
MPWT	Ministry of Public Works and Transport
NCB	national competitive bidding
NGOs	Nongovernment organizations
OJT	On-the-job training
O&M	Operation and maintenance
PAM	Project administration manual
PDPWT	Provincial departments of public works and transport
PIU	Project implementation unit
PMIS	Project management and implementation support
PMU	Project management unit
PPCR	Pilot program for climate resilience
PPMS	Project Performance Management System
PPTA	Project preparation for technical assistance
PSC	Project Steering Committee
QCBS	Quality- and cost based selection
RP	Resettlement plans
SWM	Solid waste management
TOR	Terms of reference
TSA	Tonle Sap Authority
TSUADF	Tonle Sap Urban Areas Development Framework
USUs	Urban Service Units

1 EXECUTIVE SUMMARY

1.1 Background

1. The project was approved on 10 November 2015 and declared effective on 2 March 2016. The impact of the project will be increased economic activities and environmental protection in the two towns in the Tonle Sap Basin. The outcome will be improved urban services and enhanced climate change resilience in Kampong Chhnang and Pursat municipalities. The project has five outputs: (i) Kampong Chhnang Urban Area Improvements; (ii) Pursat Urban Area Improvements; (iii) Community Mobilization and Environmental Improvements, (iv) Strengthened Sector Coordination and Operations and (v) Strengthened Capacity for Project Implementation and operations and maintenance (O&M). The key infrastructure financed under the project includes flood protection infrastructure (embankment), construction of a new landfill facility and improvement of solid waste management and community-driven environmental improvements in Kampong Chhnang; and improvement of the storm water drainage, river embankment erosion control, construction of a new landfill facility improvement of solid waste management and community-driven environmental improvements in Pursat.

1.2 Overall Project Progress

2. The overall progress of project implementation is estimated to be 6.3% against and elapsed time from the date of project effectiveness of 16.4%. Implementation progress is far behind the schedule agreed in the PAM. The delay is mainly due to a weak PPTA, that was mainly prepared with the aim to meet ADB project preparation requirements but in doing so side-stepped mayor design and social (resettlement) issues, and an inception report, prepared under a different management of the PMIS, that took the findings and proposals of the PPTA at face value and did therefore not provide sufficient basis to proceed with the detailed designs of the proposed subprojects. During the reporting period the proposals as presented in the PPTA have been validated with the following outcome:

1.2.1 Kampong Chhnang Flood Protection Embankment

3. The flood protection embankment in Kampong Chhnang, with an estimated investment cost of USD 21M is the core investment component under the project. According to the PPTA the investment in the proposed embankment has an economic return of 19% which principally will accrue from the protection of the Kampong Chhnang Urban area from catastrophic flooding and, oddly enough for an urban development project, from the increase of agriculture production in the low lands behind the embankment. Both these assumptions could not be substantiated; (i) more than 90% of the Kampong Chhnang urban area is located at a level higher than the design level of the embankment and over the last 37 years on in two occasions some minor flooding occurred in in a small section of the urban area which is located below the 12m level; (ii) The inflow of drainage water from the Kampong Chhnang Urban and peri-urban area into the lowland behind the proposed embankment will prevent a significant increase in agriculture production in these areas. Moreover while the proposed embankment focused on protection of agriculture land south-east of the Kampong Chhnang, the urban area is presently being extended to the north. To increase the economic impact of the proposed embankment the following changes are proposed:

- The southern section of the proposed embankment will be realigned along existing road embankment with the principal objective to protect urban areas and substantially reduce the cost of this section of the embankment.
- The central section of the proposed embankment north and south of the existing tourist port will be designed as a river/water front development with a wider embankment and selective backfill to enhance the market, recreational and tourist potential around the present tourist port area and the commercial potential in the area where the new port is constructed and a future bridge is planned. This section of the embankment proposed for river front development will link the tourist port area with the new commercial development around the new port facility.
- In the south the embankment will be extended to protect the ongoing commercial development and the creation of resettlement areas for household affected by the construction of the embankment.

4. Since most of the proposed alignment is flooding since the start of the rainy season, the topographic survey of the proposed alignment can only be completed after the river level in the Tonle Sap recedes. The detailed design can only be prepared after the topographic survey details have been made available at the end of January 2018.

1.2.2 Pursat Town Drainage Improvement

5. Drone imagery with a resolution of 5 cm and detailed topography of the Pursat Town drainage area has been prepared, and an initial assessment of the condition of the existing combined storm water/waste water drainage system has been made. Also, the condition of the irrigation canal in which the storm water and effluent from waste water treatment is proposed to be discharged was evaluated. Based on this assessment and evaluation

the proposal for drainage improvement presented in the PPTA which consisted of the installation of a new main drainage systems at a greater depth than the existing system, with pipe sizes varying from 600 mm to 1.750 mm and an average slope of 1:500 had be completely discarded because of the following reasons:

- The Pursat Town drainage area only covers 2.6 km² and assuming one of the highest recording rainfall intensities of 30 mm in 15 minutes the total runoff of this area would only amount to 86 l/s. The existing drainage system has sufficient capacity to carry this discharge.
- The hydraulic design of the proposed new system results in outfall depths at the WWTP site and along the existing irrigation canal of 5 to 6 m below ground level, which makes the proposed overflow of storm water into the irrigation canal very difficult to achieve and requires very expensive structural solutions and will result in high O&M cost as pumping solutions will be needed.
- The existing irrigation canal is defunct and has no water flow. At present a pool of stagnant sewage is formed between the outfall point of the existing system. Simple discharging storm water and effluent form a WWTP into the defunct canal is not possible.

6. An initial assessment of the existing drainage system has shown that both outfall points of this system as well as most of the junction boxes, manholes and pipelines are partially or fully blocked with soil/sand and garbage. The blockage of the drainage system seems to be the main cause for the flooding of large sections of the town area during high intensity rainfall.

7. An initial measurement of inverted pipe levels has shown that pipe slope is not uniform with sometimes negative slopes. This might affect the flow of sewage during the dry season but for drainage of storm water there is sufficient driving head to overcome these minor inconsistencies in the slope of the existing pipelines.

8. In addition to the topographical survey a detailed survey of the inverted pipe levels in the existing systems will have to be carried out as well as a more detailed assessment of the level of blockage of the pipelines. This is time consuming as special equipment is required to lift the concrete man hole and junction box covers. The inverted pipe levels are required to build a drainage system simulation model for the evaluation of the hydraulic performance of the existing system and identify locations where modification or extension of the pipelines area required.

9. Waste water treatment and the save and permanent disposal of storm water and effluent from a WWTP are the principal issues for the design of the improvement of the town area drainage. The available area of 2.8 ha. for the construction of a WWTP is not sufficient for a conventional lagoon system, but would allow the construction of an anaerobic treatment (settler, anaerobic baffled reactor, anaerobic filter, planted/root gravel filter). The permanent disposal of storm water and WWTP effluent is only possible through the existing but now defunct irrigation left bank canal of the Kbal Hong barrage. However, from consultation with the MOWRAM it transpired that there is the intention to restore at least half the capacity of this canal by converting the present gravity system in to a lift irrigation system. Alternatives for the permanent disposal of storm water and effluent will have to be further investigated.

1.2.3 Solid Waste Management, construction of new sanitary landfill sites and closure of existing dump sites

10. Drone imagery, detailed topographic surveys and geotechnical investigation for the new sanitary landfill sites in Kampong Chhnang and Pursat have been completed. The site selected for the Kampong Chhnang sanitary landfill does not pose significant engineering constraints apart from the encroachment into the area reserved for the landfill of spoil banks from a nearby quarry. The area selected for the Pursat sanitary landfill and its access is flooded during the rainy season and will require costly filling to raise the ground level of the site above the level of flooding. An alternative site suggested by the local authorities is also partly flooded during the rainy season and would require considerable investment for creating year-round access. The detailed design for the originally selected site in Pursat and the Kampong Chhnang site have been started.

11. During the reporting period a model was developed for the calculation of service fees that would guarantee the financial viability for of municipal SWM including the O&M of local sanitary landfills and collection/management equipment. Although the model needs refinement the initial outcome indicates that the low elevl of waste generation in combination with the high fixed O&M cost of the infrastructure and equipment will make the financial viability of SWM will be critical. Therefore, the designs and equipment as proposed in the PPTA are being substantially revised to avoid to the extent possible under-utilization of infrastructure and equipment and O&M cost of this infrastructure and equipment.

12. The list of equipment for waste collection and landfill management will have to be critically reviewed considering the future operation modalities for waste management – directly by the to be crated USUs or with the participation of private sector contractors – and the initial low level of waste collection which can easily lead to under-utilization of equipment and therefore high operation and maintenance cost.

1.2.4 River Bank Protection for the Pursat River

13. Local authorities are not in favor of the protection work proposed in the PPTA (erosion protection of the river bank in 2 river bends upstream of Pursat Town), but would prefer to construct 2 km of river embankment along a low section of the river left bank through which flood water enter into the agriculture area west of Pursat Town and even enter parts of lower urban areas, especially around the proposed WWTP. This proposed alternative will have to be further investigated during the next reporting period.

1.3 Fund Utilization

14. As result of the delays in project implementation the fund utilization is low with only a total amount of contracts awarded of 2.7% as a percentage of the total loan amount. The total amount allocation is USD 47,133,413, Contracts Awarded USD 4,799,031, Uncontracted Loan Balance USD 42,334,382, Contracts Disbursed USD 1,269,670, and the Undisbursed Loan Balance is USD 3,529,361.

1.4 Safeguards

1.4.1 Resettlement

15. Ministry of Economy and Finance (MEF) General Department of Resettlement (RD-MEF) have set up Provincial Resettlement Sub-Committees Working Groups (PRSC-WG) in October 2017 for Kampong Chhnang and Pursat. RD-MEF has also provided guidance to the Provincial Resettlement Sub-Committees (PRSC) to operationalize Grievance Redress Mechanism (GRM) for the project in mid-October 2017.

16. RD-MEF are planning for the public consultations in November 2017 to take place before Detailed Measurement Survey (DMS) and Socio-Economic Survey (SES). RD-MEF will also update and dissemination the Public Information Booklets (PIB) to all the affected households (AH). DMS and SES will cover 100% of the AHs to provide accurate and comprehensive data, which also will be gender disaggregated. DMS was planned to be undertaken from beginning of October 2017, but currently key sections of the embankment right-of-way (ROW) in Kampong Chhnang are flooded, making DMS currently impossible, especially as the majority of AHs whom are fishermen are going to be very busy with the peak fishing season. Hence, initially the concentration will be on identification in Kampong Chhnang of AHs already relocated to resettlement site and the ones self-relocated, while DMS/SES can be done with AHs on sections not flooded (such as tourist port), and waste pickers in both Kampong Chhnang and Pursat.

17. RD-MEF has also already started the process in October 2017 for recruitment of the External Monitoring Organisation (EMO) and consultant for the Replacement Cost Survey (RCS). Update of the Resettlement Plan (RP) will also include Livelihood and Income Restoration Plan (LIRP) for vulnerable and severely Ahs.

1.4.2 Environment

18. During the reporting period any potential issues associated with the IEE, EMPs and overall design for the Project's sub-projects were identified. Following a brief examination of the project and a selection of the available documents, the following issues are highlighted and will require attention or further investigation by the environmental safeguards and solid waste management teams;

- Legislation & Policy context.
- Domestic EIA Approval
- Site Selection and Design for Landfills
- Embankment design for Kampong Chhnang

1.5 Targets for the next quarter

19. The targets for the next quarter can be summarized as follows:

- To bring the ongoing resettlement program implemented by the local authorities in line with the ADB SPS (2009) through preparation of a comprehensive resettlement plan that will also include households already resettled by the local government.
- Finalize the detailed designs and cost estimates for the construction of the Kampong Chhnang and Pursat sanitary landfill facilities.
- Further detail the revised concepts for the Kampong Chhnang Flood Embankment and the improvement of the Pursat Drainage System, Waste Water Treatment and final disposal of storm water runoff and effluent from the proposed WWTP.

ABBREVIATIONS

ADB	Asian Development Bank
AH	Affected household
AM	Aide Memoire
ASEAN	Association of Southeast Asian Nations
CMEI	Community Mobilization and Environmental Improvements
CSEC	Cambodia Socio-Economic Consensus
DMF	Design and monitoring framework
EA	Executing Agency
EMP	Environmental management plan
GMS	Greater Mekong Subregion
ICB	International competitive bidding
IDPoor	Identification of Poor Households Programme
IEC	Information, education and communication
IEE	Initial environmental examination
JICA	Japan International Cooperation Agency
MEF	Ministry of Economy and Finance
MOE	Ministry of Environment
MOWRAM	Ministry of Water Resources and Meteorology
MPWT	Ministry of Public Works and Transport
NCB	national competitive bidding
NGOs	Nongovernment organizations
OJT	On-the-job training
O&M	Operation and maintenance
PAM	Project administration manual
PDPWT	Provincial departments of public works and transport
PIU	Project implementation unit
PMIS	Project management and implementation support
PMU	Project management unit
PPCR	Pilot program for climate resilience
PPMS	Project Performance Management System
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1.4.1 Resettlement

15. Ministry of Economy and Finance (MEF) General Department of Resettlement (RD-MEF) have set up Provincial Resettlement Sub-Committees Working Groups (PRSC-WG) in October 2017 for Kampong Chhnang and Pursat. RD-MEF has also provided guidance to the Provincial Resettlement Sub-Committees (PRSC) to operationalize Grievance Redress Mechanism (GRM) for the project in mid-October 2017.

16. RD-MEF are planning for the public consultations in November 2017 to take place before Detailed Measurement Survey (DMS) and Socio-Economic Survey (SES). RD-MEF will also update and dissemination the Public Information Booklets (PIB) to all the affected households (AH). DMS and SES will cover 100% of the AHs to provide accurate and comprehensive data, which also will be gender disaggregated. DMS was planned to be undertaken from beginning of October 2017, but currently key sections of the embankment right-of-way (ROW) in Kampong Chhnang are flooded, making DMS currently impossible, especially as the majority of AHs whom are fishermen are going to be very busy with the peak fishing season. Hence, initially the concentration will be on identification in Kampong Chhnang of AHs already relocated to resettlement site and the ones self-relocated, while DMS/SES can be done with AHs on sections not flooded (such as tourist port), and waste pickers in both Kampong Chhnang and Pursat.

17. RD-MEF has also already started the process in October 2017 for recruitment of the External Monitoring Organisation (EMO) and consultant for the Replacement Cost Survey (RCS). Update of the Resettlement Plan (RP) will also include Livelihood and Income Restoration Plan (LIRP) for vulnerable and severely Ahs.

1.4.2 Environment

18. During the reporting period any potential issues associated with the IEE, EMPs and overall design for the Project's sub-projects were identified. Following a brief examination of the project and a selection of the available documents, the following issues are highlighted and will require attention or further investigation by the environmental safeguards and solid waste management teams;

- Legislation & Policy context.
- Domestic EIA Approval
- Site Selection and Design for Landfills
- Embankment design for Kampong Chhnang

1.5 Targets for the next quarter

19. The targets for the next quarter can be summarized as follows:

- To bring the ongoing resettlement program implemented by the local authorities in line with the ADB SPS (2009) through preparation of a comprehensive resettlement plan that will also include households already resettled by the local government.
- Finalize the detailed designs and cost estimates for the construction of the Kampong Chhnang and Pursat sanitary landfill facilities.
- Further detail the revised concepts for the Kampong Chhnang Flood Embankment and the improvement of the Pursat Drainage System, Waste Water Treatment and final disposal of storm water runoff and effluent from the proposed WWTP.

2 PROJECT BACKGROUND

2.1 Background

20. The project was approved on 10 November 2015 and declared effective on 2 March 2016. The impact of the project will be increased economic activities and environmental protection in the two towns in the Tonle Sap Basin. The outcome will be improved urban services and enhanced climate change resilience in Kampong Chhnang and Pursat municipalities. The project has five outputs:

- (i) Kampong Chhnang Urban Area Improvements which comprises the improvement of a 15 km long flood protection embankment, and the improvement of solid waste management through the proper closure of existing dumpsite and the construction of a new solid water landfill together with the provision of the required equipment, institutional strengthening and community awareness creation.
- (ii) Pursat Urban Area Improvements through the improvement of storm water drainage in the urban area, the closure of the existing solid waste dump site, the construction of a new solid waste landfill site, selective erosion control of the Pursat river, and the assessment of flood hazards from the Pursat river with the formulation of mitigating measures
- (iii) Community Mobilization and Environmental Improvements, to support the Kampong Chhnang, and Pursat urban area developments through community driven environmental improvements
- (iv) Strengthened Sector Coordination and Operations and
- (v) Strengthened Capacity for Project Implementation and operation and maintenance (O&M) of urban infrastructure in general and the created infrastructure in particular.

2.2 Project Basic Data

Project Title	Integrated Urban Environmental Management in the Tonle Sap Basin Project		
Project Acronym	IUEMTBP		
Project Financing	Asian Development Bank ADF Loan	SDR 26,4M (USD 37M equivalent)	3311-CAM (SF)
	ADB Strategic Climate Fund loan	USD 5M	8295-CAM (SCF)
	ADB Strategic Climate Fund grant	USD 5M	0454-CAM (SCF)
Borrower	Kingdom of Cambodia		
Project Approval	10 November 2015	Signing of Loan	22 December 2015
Date of Effectiveness	02 March 2016	Closing Date	30 April 2023
Project Completion Date	October 2022	Overall project implementation progress	6.3%
Elapsed Period	23.4%	Revised Loan Closing Date	N/A
Project Executive Agency	Ministry of Public Works and Transport (MPWT)		
Project Director	H.E. Vong Pisith, Deputy Director General MPWT		
Consultant ISPMC	KECC in JV with NIRAS and associated with KCC		
Team Leader	Mr. Louis Rijk,		
Dep .Team Leader	Mr. Srey Socheat		
ADB Task Manager	Mr Sameer A. Kamal		

2.3 Document

Document Title	Quarterly Progress Report No. 01
Reporting Period	01 JULY TO 30 SEPTEMBER 2017
Author(s) & project role	Louis Rijk Team Leader/Municipal Engineer PIMS, Ms. Rachel Wildblood Environmental Specialist, Mr. Teemu Jantunen, Resettlement Specialists

2.4 ADB Review Missions

21. Altogether ADB has fielded 4 Missions; Loan Inception Mission, Review Mission, Follow up meeting, Implementation Review Mission. Details of the ADB Missions are given in the following table. 2-1

Table 2-1 : Details of ADB Missions

S. No.	Nature of Mission	Duration	Name and Designation of Participants from ADB	Total Nos. of Participants from ADB
2016				
1	Loan Inception Mission	7 to 14 December 2017	Sameer A. Kamal, Urban Development Specialist, SEUW/SERD (Mission Leader); Januar Hakim, Senior Portfolio Management Specialist, CARM; Genevieve O'Farrell, Environment Specialist, CARM; Melody F. Ovenden, Social Development (Resettlement) Specialist, SEUW/SERD; Tadeo R. Culla, Associate Social Development Officer, SEUW; Ludovina R. Balicanot, Associate Project Officer, SEUW and Sophy Ea, National Social Safeguards Specialist, Consultant.	7
2017				
1	Review Mission	15 to 27 March 2017	Sameer A. Kamal, Urban Development Specialist, SEUW/SERD (Mission Leader). Jan Hansen, Senior Country Economist, CARM (wrap-up meeting)	2
2	Follow up meeting	15 June 2017	Sameer A. Kamal, Urban Development Specialist, SEUW/SERD (Mission Leader).	1
3	Implementation Review Mission	August 25-29, 2017	Sameer A. Kamal, Urban Development Specialist / Mission Leader, Urban Development and Water Division (SEUW); Melody Ovenden, Social Development Specialist (Resettlement), Lao PDR Resident Mission (LRM); Genevieve O'Farrell, Environment Specialist (Safeguards), Cambodia Resident Mission (CARM); Chansouk Insouvanh, Social Safeguards Consultant, Lao PDR Resident Mission (LRM); and Sophy Ea, Social Safeguards Consultant, Urban Development and Water Division (SEUW). Januar Hakim, Senior Portfolio Management Specialist, CARM joined selected discussions. Linda Adams, Senior Social Development Specialist, SEUW and Ludovina Balicanot, Associate Project Officer, SEUW provided remote support	8

2.4 Compliance with actions agreed during the Special Project Administration Mission

22. The recent Implementation Review Mission of ADB (25 to 29 August) and the EA have agreed to comply with the following key follow-up actions. The current status of the follow-up actions as agreed and included in the Missions' Aide-Memoire is given in the table below.

Table 2-2 : Follow-up Actions and the Status of their Compliance

#	Actions	Lead	Agreed Due Date	Status
A. Overall actions and net steps				
1	Submission of contract variation request for PIMS	PMU, PIMS	October 15, 2017	Delayed because the contract requires a comprehensive variation which need agreement by all the partners.

2	Commence detailed measurement survey (DMS)	GDR	October 1, 2017.	Public consultations and initial data collection has started. The DMS for the flood embankment can only be started after the flood waters recede in December
3	Submission of Q3 quarterly report including appendices on (i) summary of loan covenants, (ii) summary safeguards updates, (iii) Gender Action Plan Progress, (iv) environmental monitoring report and (v) resettlement monitoring report	PMU with PIMS	30 October 2017	Was submitted with delay since it was necessary to include major issues that have come up in the preparation of detailed designs for the Kampong Chhnang Flood Embankment and the Pursat Drainage system
5	Social impact assessment and consultations commence	GDR with PIMS, PMU	As soon as possible	Affected waste picker households have been identified. Responsibility and modalities for meaningful consultations to be established
6	Operationalize the Grievance Redress Mechanism	GDR and PMU	As soon as possible	GDR has informed that the GDR mechanism for the Kampong Chhnang Flood Protection Embankment has been activated
7	Submission of revised IEE/EMP for ADB review - Pursat landfill - Kampong Chhnang landfill - Pursat River Embankment Protection - Pursat drainage - Kampong Chhnang embankment	PMU with PIMS	October 15, 2017 October 22, 2017 December 15, 2017 January 15, 2018 February 14, 2018	IEEs and EPs can only be updated after the completion of the detailed designs in December 2017 IEEs and EMPs for the Pursat Drainage and river bank protection will be updated after the completion of the detailed design in February 2018 The IEE and EMP for the Kampong Chhnang flood protection embankment will be updated after the completion of the detailed design in March 2018

3 FINANCING AND FUND UTILIZATION

3.1 Financing

The project was approved on 10 November 2015 and declared effective on 2 March 2016. Financing for the \$52.6 million project includes a SDR 26,4M (USD 37M equivalent) loan from ADB (Asian Development Fund) and \$10 million (\$5 million loan and \$5 million grant) from the Strategic Climate Fund

The following table 2-1 summarizes project financing by financier

Table 2-3: Financing by financier

Financing		
Modality and Sources	Amount (\$ million)	
ADB		37
Sovereign Project loan: Asian Development Fund		37
Cofinancing		10
Strategic Climate Fund - PPCR		5
Strategic Climate Fund		5
Counterpart		5.6
Government		5.4
Others		0.2
Total		52.6

Table 2-2 presents the project investment plan for the 4 components of the project.

Table 2-4 : Project Investment Plan (\$ million)

Item	Amount
A. Base Cost a	
1.Output 1: Kampong Chhnang Urban Area Improvements	22.9
2.Output 2: Pursat Urban Area Improvements	11.2
3.Output 3: Community Mobilization and Environmental Improvements	4.3
4.Output 4: Strengthened Sector Coordination and Operations	0.4
5.Output 5: Strengthened Capacity for Project Implementation, O&M	5.5
Subtotal (A)	44.3
B. Contingencies	6.9
C. Financing Charges During Implementation	1.4
Total (A+B+C)	52.6

ADB = Asian Development Bank, SCF = Strategic Climate Fund

Includes taxes and duties of \$4.55 million to be financed by the government through exemptions, ADB and ADB SCF grant.

In September 2015 prices.

Physical contingencies computed at 10% for civil works, equipment and consulting services. Price contingencies computed at 1.8% to 2.2% on foreign exchange costs and 3.5% on local currency costs; includes provision for potential exchange rate fluctuations under the assumption of a purchasing power parity exchange rate.

Includes interest estimated at \$1.40 million during implementation for the ADB loan and \$0.02 million in service charge for the ADB Strategic Climate Fund loan, which will both be capitalized as part of the loans.

Source: Asian Development Bank estimates

3.2 Fund utilization

23. The following table 2.5 presents the consolidated status of loan and grant proceeds. The details of the fund utilization are presented in annex 2. The total amount of contracts awarded as a percentage of the total loan amount is 2.7%. The total disbursement as percentage of the total amount of contracts awarded is 26.5%.

Table 2-5: Consolidated Status of Loan and Grant Proceeds

As of 30 Sep 2017						
Loan/Grant No.	US Dollars					
	Allocation	Contracts Awarded	Uncontracted Loan Balance	Contracts Disbursed	Undisbursed Loan Balance	Undisbursed Contract Balance
	A	B	C = A - B	D	E = A - D	F = B - D
Loan 3311	37,133,413	4,423,235	32,710,178	1,075,670	36,057,743	3,347,565
Loan 8295	5,000,000	-	5,000,000	-	5,000,000	-
Grant 0454	5,000,000	375,796	4,624,204	194,000	4,806,000	181,796
Total	47,133,413	4,799,031	42,334,382	1,269,670	45,863,743	3,529,361

The overall status of physical and financial progress of the project can be summarized as follows

Elapsed Time	23.40%
Physical Progress	6.29%
CA - Lag	12.78%
Overall lag in disbursement	20.89%
Overall lag in project implementation	17.11%

Details of fund utilization and the Contract Award and Disbursement Projections are presented in Annex 3 and 4.

Table 2-6: Consolidated Loan Utilization

Cat. Ref.	Category Name	US Dollars					
		Allocation	Contracts Awarded	Uncontracted Loan Balance	Contracts Disbursed	Undisbursed Loan Balance	Undisbursed Contract Balance
		A	B	C = A - B	D	E = A - D	F = B - D
01A	CW - KC Flood Treatment	19,200,837	-	19,200,837	-	19,200,837	-
01B	CW - KC Solid Waste Mgt.	434,163	-	434,163	-	434,163	-
01C	CW - PS Drainage	604,727	-	604,727	-	604,727	-
01D	CW - PS Flood Protection	4,898,430	-	4,898,430	-	4,898,430	-
01E	CW - PS Solid Waste Mgt.	1,029,023	-	1,029,023	-	1,029,023	-
01F	CW - KC Small-scale Inf. Dev.	740,051	-	740,051	-	740,051	-
01G	CW - PS Small-scale Inf. Dev.	740,051	-	740,051	-	740,051	-
01A	CW - PS Drainage	2,460,000	-	2,460,000	-	2,460,000	-
01B	CW - KC Sanitation Improvement	510,000	-	510,000	-	510,000	-
01C	CW - PS Sanitation Improvement	510,000	-	510,000	-	510,000	-
02A	GD - KC Solid Waste Mgt.	737,231	-	737,231	-	737,231	-
02B	GD - PS Solid Waste Mgt	821,808	-	821,808	-	821,808	-
02C	GD - KC Embank. Manual Equipment	36,650	-	36,650	-	36,650	-
02D	GD - PS Flood Manual Equipment	36,650	-	36,650	-	36,650	-
02E	GD - PS Drainage Manual Equipment	36,650	-	36,650	-	36,650	-
03A	WS - Project Mgt & Implement Supp.	580,757	534,000	46,757	82,035	498,722	451,965
03B	WS - SSCD	9,867	-	9,867	-	9,867	-
02A	WS - NGO SCEI	200,000	-	200,000	-	200,000	-
02B	WS - CCAUD	10,000	10,000	-	-	10,000	10,000
04A	CS - SSCD	97,264	-	97,264	-	97,264	-
04B	CS - PMIS	3,407,553	3,577,913	(170,360)	536,381	2,871,172	3,041,532
04C	Survey and Investigation	67,010	85,000	(17,990)	12,621	54,389	72,379
03A	CS - CCAUD	200,000	200,000	-	-	200,000	200,000
03B	CS - NGO SCEI	810,000	-	810,000	-	810,000	-
03C	CS - Survey and Investigation	100,000	165,796	(65,796)	-	100,000	165,796
	Salary Supplement	-	-	-	-	-	-
05A	IA - Office and Travel Expense	401,742	40,369	361,373	48,337	353,405	(7,968)
05B	IA - Vehicles	152,239	134,500	17,739	134,500	17,739	-
05C	IA - Equipment	15,506	51,453	(35,947)	41,453	(25,947)	10,000
	Interest During Implementation	1,402,476	-	1,402,476	8,633	1,393,843	(8,633)
	Service During Implementation	18,000	-	18,000	-	18,000	-
	Unallocatd	6,887,237	-	6,887,237	-	6,887,237	-
99	Imprest Account	(22,509)	-	(22,509)	358,551	(381,060)	(358,551)
				-		-	-
	Total	47,133,413	4,799,031	42,334,382	1,222,511	45,910,902	3,576,520
		37,133,413	4,423,235	32,710,178	1,070,027	36,063,386	3,353,208

3.3 S curves for contract awards and disbursements

Based on the revised contract awards and disbursement schedule based on the updated work plan, the resulting s curves are presented in the following figures

Figure 2-1: L3311/L8295/G0454-CAM: Project to Date (PTD) Contract Award

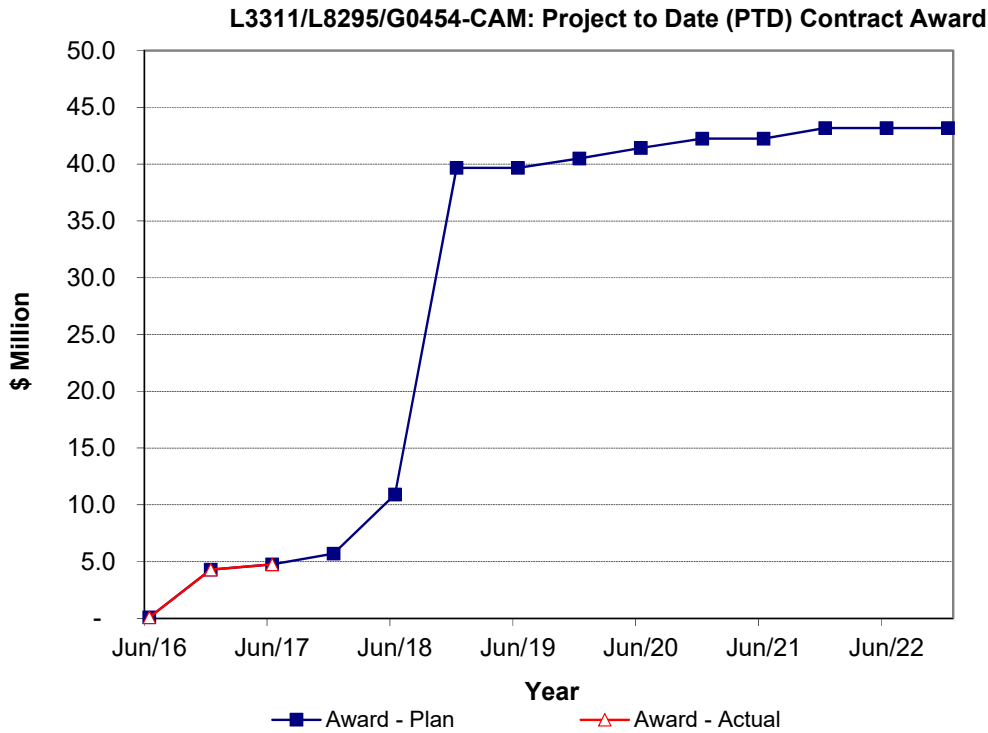
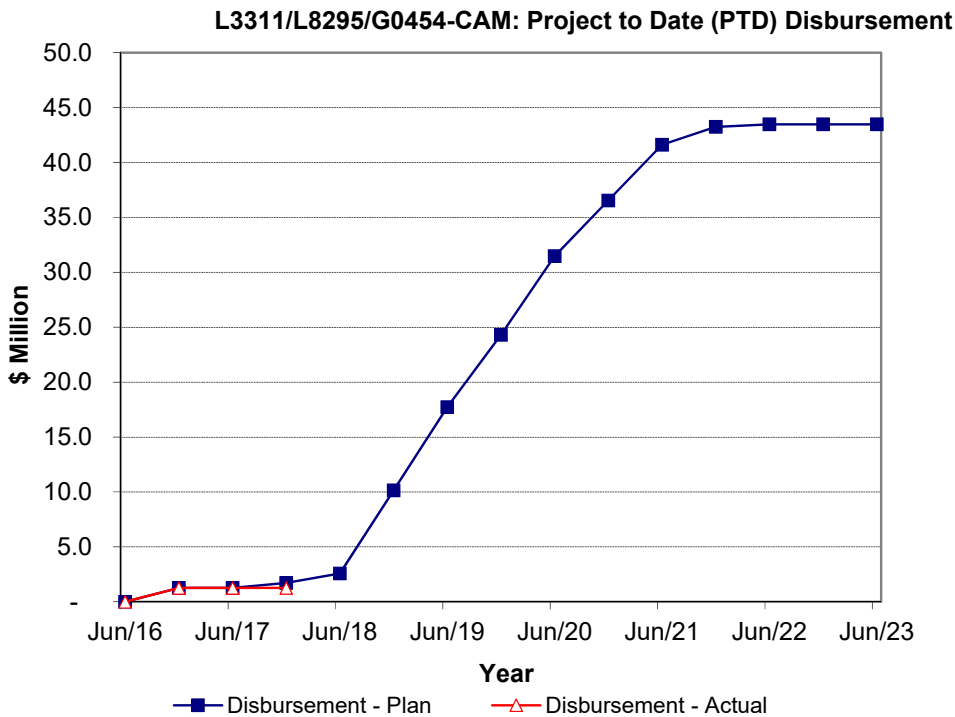


Figure 2-2: L3311/L8295/G0454-CAM: Project to Date (PTD) Disbursement



3.4 Procurement Plan

24. The following table presents the procurement plan as updated 1 September 2017. The table reflects the planning as presented in the revised implementation schedule presented in chapter 4 and Annex 1. The figures in red colour represent historic data of completed procurement

Table 2-7: Procurement Plan

#	Contract Packages	Proc. Method	Advert. Date	Award Date*
Civil Works				
G07	Supply of KC Solid Waste Management Equipment	NCB	Q3 2019	Q4 2019
G08	Supply of Pursat Solid Waste Management Equipmen	NCB	Q3 2019	Q4 2019
CW04	Construction of KC Embankment	ICB	Q2 2018	Q4 2018
CW05 (a)	Construction of Pursat Drainage (a)	ICB	Q2 2018	Q3 2018
CW05 (b)	Construction of Pursat Drainage (b)	ICB	Q4 2018	Q1 2019
CW06	Construction of Pursat Landfill Site	NCB	Q4 2017	Q2 2018
CW07	Construction of Pursat River Embankment Protection	NCB	Q1 2018	Q2 2018
CW08	Construction of KC Landfill Site	NCB	Q2 2018	Q3 2018
CW09	KC and Pursat Community-driven Env. Improvements	NCB	Q2 2018	Q4 2018
Consulting Services				
CS01	Project Management and Implementation Support	QCBS	Q4 2015	Q4 2016
CS02	Climate Change Adaptation in Urban Development	CQS		Q3 2017
CS03	Strengthening Sector Development	CQS	Merged with PMIS	
CS04	NGO Support for Output 3 (CMEI)	QBS	Q1 2017	Q4 2017
Goods and Works Under \$100K				
G01	Supply of 5 units 4WD double cabin pick-up trucks	NCB	Q1 2017	Q2 2017
G02	Supply of 8 motorcycles	Shopping		Q2 2017
G03	Office furniture for PMU and PIUs (KC and Pursat)	Shopping		Q3 2017
G04	Office equipment for PMU and PIUs (KC and Pursat)	Shopping		Q3 2017
G05	Equipment for Pursat Drainage and Flood Protection	Shopping		Q1 2019
G06	Manual Equipment for KC Embankment	Shopping		Q1 2019
CW01	Office Repairs (PMU)	Shopping		Q2 2017
CW02	Office Repairs (PIU KC)	Shopping		Q2 2017
CW03	Office Repairs (PIU Pursat)	Shopping		Q2 2017

4.2 Validation of the PPTA proposals

27. During the reporting period the proposals as presented in the PPTA have been validated with the following outcome:

4.2.1 Kampong Chhnang Flood Protection Embankment

28. The flood protection embankment in Kampong Chhnang, with an estimated investment cost of USD 21M is the core investment component under the project. According to the PPTA the investment in the proposed embankment has an economic return of 19% which principally will accrue from the protection of the Kampong Chhnang Urban area from catastrophic flooding and, oddly enough for an urban development project, from the increase of agriculture production in the low lands behind the embankment. Both these assumptions could not be substantiated;

29. More than 90% of the Kampong Chhnang urban area is located at a level higher than the design level of the embankment and over the last 37 years on in two occasions some minor flooding occurred in in a small section of the urban area which is located below the 12m level. Higher elevations of the urban area is affected by flooding, but this flooding is caused by drainage/storm water runoff and the lack of an effective drainage system in most of the urban area

30. The inflow of drainage water from the Kampong Chhnang Urban and peri-urban area into the lowlands behind the proposed embankment will prevent a significant increase in agriculture production in these areas. Even after the construction of the proposed embankment these lowlands, which in the PPTA were targeted for agriculture development will remain waterlogged. It should be noted this this was already recognized in the PPTA report. While the economic analysis assigned a significant benefit to the lowlands behind the embankment resulting from an increase in cropping intensity from 1 to 3 crops and an unexplained introduction of large scale vegetable farming in these areas, the technical sections of the PPTA report assigned the same lowland areas as retention areas for drainage water runoff.

31. Moreover while the proposed embankment focused on protection of agriculture land south-east of the Kampong Chhnang, the urban area is presently being extended to the north. (see mapping in Annex 7)

32. To increase the economic impact of the proposed embankment the following changes are proposed:

- The southern section of the proposed embankment will be realigned along existing road embankment with the principal objective to protect urban areas and substantially reduce the cost of this section of the embankment. The cost of the proposed flood embankment in this section amounts to approximately USD 7.000.000 and would protect about 540 ha. of agriculture land. This would come to an investment of about USD 13.000 per ha. while in general in Cambodia the rehabilitation of irrigated areas is only economically viable at a maximum cost of USD 2.000 per ha.
- The central section of the proposed embankment north and south of the existing tourist port will be designed as a river/water front development with a wider embankment and selective land reclamation to enhance the market, recreational and tourist potential around the present tourist port area and the commercial potential in the area where the new port is constructed and a future bridge is planned. This section of the embankment proposed for river front development will link the tourist port area with the new commercial development around the new port facility. An attractive river front development could attract further investment for development of the low lands behind this river front development The river front development would include drainage infrastructure that would lead runoff from the higher urban and peri-urban areas away from the low lands behind the river front.
- In the north the embankment will be extended to protect the ongoing commercial development and the creation of resettlement areas for household affected by the construction of the embankment.

33. Since most of the proposed alignment is flooding since the start of the rainy season, the topographic survey of the proposed alignment can only be completed after the river level in the Tonle Sap recedes. The detailed design can only be prepared after the topographic survey details have been made available at the end of January 2018.

4.2.2 Pursat Town Drainage Improvement

34. Drone imagery with a resolution of 5 cm and detailed topography of the Pursat Town drainage area has been prepared, and an initial assessment of the condition of the existing combined storm water/waste water drainage system has been made. Also, the condition of the irrigation canal in which the storm water and effluent from waste water treatment is proposed to be discharged was evaluated. Based on this assessment and evaluation the proposal for drainage improvement presented in the PPTA which consisted of the installation of a new main drainage systems at a greater depth than the existing system, with pipe sizes varying from 600 mm to 1.750 mm and an average slope of 1:500 had be completely discarded because of the following reasons:

- The Pursat Town drainage area only covers 2.6 km² and assuming one of the highest recording rainfall intensities of 30 mm in 15 minutes the total runoff of this area would only amount to 86 l/s. The existing drainage system has sufficient capacity to carry this discharge.
- The hydraulic design of the proposed new system results in outfall depths at the WWTP site and along the existing irrigation canal of 5 to 6 m below ground level, which makes the proposed overflow of storm water into the irrigation canal very difficult to achieve and requires very expensive structural solutions and will result in high O&M cost as pumping solutions will be needed.
- The existing irrigation canal is defunct and has no water flow. At present a pool of stagnant sewage is formed between the outfall points of the existing system. Simple discharging storm water and effluent from a WWTP into the defunct canal is not possible.

35. An initial assessment of the existing drainage system has shown that both outfall points of this system as well as most of the junction boxes, manholes and pipelines are partially or fully blocked with soil/sand and garbage. The blockage of the drainage system seems to be the main cause for the flooding of large sections of the town area during high intensity rainfall.

36. An initial measurement of inverted pipe levels has shown that pipe slope is not uniform with sometimes negative slopes. This might affect the flow of sewage during the dry season but for drainage of storm water there is sufficient driving head to overcome these minor inconsistencies in the slope of the existing pipelines.

37. In addition to the topographical survey a detailed survey of the inverted pipe levels in the existing systems will have to be carried out as well as a more detailed assessment of the level of blockage of the pipelines. This is time consuming as special equipment is required to lift the concrete man hole and junction box covers. The inverted pipe levels are required to build a drainage system simulation model for the evaluation of the hydraulic performance of the existing system and identify locations where modification or extension of the pipelines area required.

38. Waste water treatment and the save and permanent disposal of storm water and effluent from a WWTP are the principal issues for the design of the improvement of the town area drainage. The available area of 2.8 ha. for the construction of a WWTP is not sufficient for a conventional lagoon system, but would allow the construction of an anaerobic treatment (settler, anaerobic baffled reactor, anaerobic filter, planted/root gravel filter). The permanent disposal of storm water and WWTP effluent is only possible through the existing but now defunct irrigation left bank canal of the Kbal Hong barrage. However, from consultation with the MOWRAM it transpired that there is the intention to restore at least half the capacity of this canal by converting the present gravity system in to a lift irrigation system. Alternatives for the permanent disposal of storm water and effluent will have to be further investigated.

4.2.3 Solid Waste Management, construction of new sanitary landfill sites and closure of existing dump sites

39. Drone imagery, detailed topographic surveys and geotechnical investigation for the new sanitary landfill sites in Kampong Chhnang and Pursat have been completed. The site selected for the Kampong Chhnang sanitary landfill does not pose significant engineering constraints apart from the encroachment into the area reserved for the landfill of spoil banks from a nearby quarry. The area selected for the Pursat sanitary landfill and its access is flooded during the rainy season and will require costly filling to raise the ground level of the site above the level of flooding. An alternative site suggested by the local authorities is also partly flooded during the rainy season and would require considerable investment for creating year-round access. The detailed design for the originally selected site in Pursat and the Kampong Chhnang site have been started.

40. During the reporting period a model was developed for the calculation of service fees that would guarantee the financial viability for of municipal SWM including the O&M of local sanitary landfills and collection/management equipment. Although the model needs refinement the initial outcome indicates that the low elevl of waste generation in combination with the high fixed O&M cost of the infrastructure and equipment will make the financial viability of SWM will be critical. Therefore, the designs and equipment as proposed in the PPTA are being substantially revised to avoid to the extent possible under-utilization of infrastructure and equipment and O&M cost of this infrastructure and equipment.

41. The list of equipment for waste collection and landfill management will have to be critically reviewed considering the future operation modalities for waste management – directly by the to be crated USUs or with the participation of private sector contractors – and the initial low level of waste collection which can easily lead to under-utilization of equipment and therefore high operation and maintenance cost. For example, the proposed dozer for landfill management would, with a daily collection of 10 tonnes of waste only have 15 to 20 minutes work if used efficiently. This level of under-utilization of equipment would financially not be sustainable.

4.2.4 River Bank Protection for the Pursat River

42. Local authorities are not in favor of the protection work proposed in the PPTA (erosion protection of the river bank in 2 river bends upstream of Pursat Town), but would prefer to construct 2 km of river embankment along

a low section of the river left bank through which flood water enter into the agriculture area west of Pursat Town and even enter parts of lower urban areas, especially around the proposed WWTP. This proposed alternative will have to be further investigated during the next reporting period.

Table 4-1: Status of planned activities with milestones as presented in the PAM

As Planned in the PBME	Present status
1. Kampong Chhnang urban area environmental improvements	
a) Conduct topographical and soil surveys (Q1, 2017)	Topographical surveys and geotechnical investigations completed for the new landfill site. The topographical survey work for the flood embankment had to be suspended because of flooding of the embankment alignment
b) Update feasibility study and appraisal report for ADB and government approval (Q1–Q3, 2017).	At the start of the detailed designs several serious issues were identified that would require a modification of designs as proposed in the PPTA (see annex 3) Design for the landfill site is scheduled to be completed by December 2017 and the design for the flood embankment by the end of March 2018
c) Issue bids, evaluate bids, and submit to ADB for no objection (Q4, 2017–Q3, 2018).	
d) Transfer O&M and tariff collection for SWM to USU (Q4, 2017–Q2, 2018)	
e) Award landfill civil works contract, procure landfill equipment and construct landfill (Q2, 2018–Q3, 2019)	On track
f) Transfer O&M responsibilities for drainage and flood control systems to USU (Q3, 2018)	On track
g) Remediate old open dumpsites and construct controlled landfill (Q4, 2018–Q2, 2019)	On track
h) Award civil works contract and construct embankment (Q2, 2018–Q4, 2019)	On track
i) Dry season 1, Construct embankment segments A to C (Q1–Q3, 2019)	On track
j)	
k) Procure solid waste collection equipment (Q4, 2019)	Planning of detailed design and construction will be guided by the implementation of the required resettlements
l) Hand over works of landfill site and defects liability period (Q4, 2019–Q4, 2020)	On track
m) Dry season 2, Construct embankment segments D to I (Q1–Q3, 2019 and Q1–Q3, 2020)	On track
n) Construct embankment segments I to M during higher lake levels (Q1, 2019–Q4, 2020)	Detailed planning of construction works is yet to be prepared but overall target can be achieved
o) Road surfacing and supervision intermittent (Q1–Q2, 2020 and Q1–Q2, 2021)	See above
p) Handover embankment works and defects liability period (Q3,2021–Q3, 2022)	Will depend on the progress in construction of the flood embankment
q) Internal and external monitoring of safeguard documents (2017–2022, quarterly)	Target can be achieved
	In QPRs and specials reports if required
2. Pursat urban area environmental improvements	
a) Conduct topographical and soil surveys (Q1, 2017)	IFQs published, bid received, evaluation ongoing. Surveys will start in the next quarter
b) Update feasibility study and appraisal report for ADB and government approval (Q1–Q3, 2017)	Initial analysis of the FS has been presented in the inception report. Detailed designs will be started during the next quarter
c) Transfer O&M and tariff collection for SWM to USU (Q4, 2017–Q2, 2018)	On track
d) Issue bids, evaluate bids, and submit to ADB for no objection (Q4, 2017–Q2, 2018)	On track
e) Award contract for drainage and embankment works (Q3, 2018)	For the design of the drainage system a hydraulic model will have to be built to evaluate possible scenarios to come to the most cost effective solution
f) Procure landfill equipment (Q2–Q3, 2018)	For the Pursat river a
g) Award contract for landfill construction (Q4, 2018)	

As Planned in the PBME	Present status
<ul style="list-style-type: none"> h) Remediate old open dumpsites and construct controlled landfill (Q4, 2018–Q3, 2019) i) Construction of riverbank protection (Q3, 2018–Q2, 2019) j) Transfer O&M responsibilities for drainage and flood control systems to USU (Q3, 2018) k) Procure solid waste collection equipment (Q4, 2019) l) Hand over works for landfill and defects liability period (Q4, 2019–Q4, 2020) m) Construct drainage system starting at foot of system, construct pumping stations and WWTP with road rehabilitation as required (Q4, 2018–Q2, 2020) Update feasibility study b and appraisal report for ADB and government approval (Q1–Q3, 2017) n) Supervise start-up and commissioning of WWTP (Q3–Q4, 2020) o) Handover of drainage and embankment works and defects liability period (Q3, 2019–Q1, 2022) p) Internal and external monitoring of safeguard documents (2017–2022, quarterly) q) Supervise start-up and commissioning of WWTP (Q3–Q4, 2020) r) Handover of drainage and embankment works and defects liability period (Q3, 2019–Q1, 2022) s) Internal and external monitoring of safeguard documents (2017–2022, quarterly) 	<p>Could be done earlier, equipment can be used for closing existing landfill sites On track</p> <p>It is proposed to undertake the closure of existing landfill sites on force account basis On track</p> <p>On track</p> <p>On Track</p> <p>Depends on the development of a hydraulic model and the most cost effective solution. Construction items and schedule will depend on the outcome of the model analysis, but can be done within the allotted time frame On track</p> <p>On track</p> <p>Will be done in QPRs and special reports. semi-annual and annual Project Safeguard Monitoring Reports will be to the ADB during construction in accordance with the EARF On track</p> <p>This will include involuntary Resettlement monitoring ethnic minorities related issues and the implementation of the GESI action plan</p>
3. Community mobilization and environmental improvements	
<ul style="list-style-type: none"> a) Recruit International NGO (Q2–Q4, 2016) b) Train village development committee units for project briefing and output training (Q2–Q3, 2017) c) Climate change adaptation and sanitation needs assessments (Q1–Q2, 2017) d) Undertake community awareness programs (Q3, 2017–Q3, 2018 and intermittent) e) Needs assessments for small-scale infrastructure works on climate change adaptation and sanitation (Q1–Q3, 2017) f) Assist in planning, implementing, and supervising community environmental improvements (Q3, 2017–Q4, 2021) g) Prepare report on community environmental improvements and lessons (Q4, 2021) h) Internal and external monitoring of safeguard documents (2017–2022, quarterly) 	<p>Planned for the second quarter</p> <p>Depends on the mobilization of the NGO</p> <p>See above</p> <p>See above</p> <p>See above</p> <p>See above</p> <p>See above</p> <p>See above</p> <p>See above</p> <p>NGO will contribute to the safeguard monitoring, coordination between the NGO and the PIMS for safeguard monitoring will have to be developed.</p>
4. Strengthened sector coordination and operations	
<ul style="list-style-type: none"> a) Recruit and mobilize climate change resilience consultants (Q3–Q4, 2016) b) Recruit and mobilize institutional development consultants (Q1–Q2, 2016) c) Prepare, approve, establish, and strengthen USU institutions (Q2, 2016–Q3, 2022) d) Review climate change and urban development documents, and sanitation standards in building codes (Q1, 2017) e) Implement TSUADF, including revising building codes and developing the plan for climate change adaptation in urban areas (Q2, 2017–Q1, 2019) 	<p>Planned for the second quarter</p> <p>See above</p> <p>Depends on the mobilization of the institutional development consultants</p> <p>Depends on the mobilization of the climate resilience consultants</p> <p>See above</p> <p>See above</p>

As Planned in the PBME	Present status
f) Plan for climate change adaptation in urban areas is endorsed, including revised building codes in Tonle Sap provinces (Q4, 2018–Q1, 2019) g) National task force for urban development meetings (Q1, 2017–Q1, 2022)	To be established
5. Strengthened capacity for project implementation, and O&M	
a) Appoint and update PMU and PIU members, including grievance focal points (Q1, 2016 and Q4, 2016)	Ongoing
b) Recruit and mobilize project management and implementation support consultants (Q4, 2015–Q4, 2016)	Completed
c) Recruit external resettlement monitor (Q3–Q4, 2016)	Not done To be initiated
d) Develop project performance management system and capacity development plan (sex-disaggregated) (Q2, 2017)	To be initiated
e) Undertake training programs in project and financial management, procurement, safeguards, gender mainstreaming, and others (Q1, 2017–Q1, 2022)	To be initiated
f) Submit quarterly project progress reports (1 month after each quarter, starting in Q1, 2017)	Submission of QPR 1 was delayed because of the replacement of the PIMS team leader Not yet due
g) Prepare annual PPME reports (31 January, 1 month after close of calendar year)	
h) Submit Government completion and post-evaluation reports on resettlement activities (Q2, 2019 and Q1, 2020)	No yet Due
i) Submit government project completion report and resettlement report (Q3, 2022)	Not yet due

43. Based on an updated implementation schedule presented in the inception report with the estimated duration of each of the major activities for project Implementation the following break downs of activities have been proposed in the inception report. This breakdown is based on the continuity of services of the PIMS and the availability of international and national specialists as offered in the consultant's proposal.

5 PROJECT MANAGEMENT ARRANGEMENTS

44. MPWT is the executing agency (EA). The implementing agencies (IAs) are the Provincial Department of Public Works and Transport (PDPWT) and Municipal Governments in Kampong Chhnang and Pursat. A Project Steering Committee (PSC) has been established by MPWT although there is no report available on any meeting of the PSC. The PSC is responsible for: (i) overseeing implementation in conformity with the Project's development objectives and scope; (ii) assisting in coordination among government agencies involved in Project implementation and policy reforms (in consultation with the PCU in Phnom Penh); (iii) ensuring coordinated and efficient implementation of Project activities; (iv) monitoring the progress of achieving all outputs, in particular, measuring the development impact and outcome envisaged under the Project; and (v) provide guidance and direction towards the accomplishment of the Project's impact and outputs. The PSC is chaired by MPWT and members include representatives from Ministry of Economy and Finance (MEF), Tonle Sap Authority (TSA), MPWT, and Ministry of Land Management Urban Planning and Construction (MLMUPC).

45. A Provincial Coordinating Committee (PCC) has been established in each town to oversee the work of the PIUs. The PCC includes Provincial Governor (chair), deputy governors or municipality governors (deputy chair), select members of the provincial technical coordinating committee, and PMU project director (members), PIU manager (secretariat). There will be at least one woman in each committee.

46. A project management unit (PMU) has been established with full time staff from MPWT. The PMU includes a Project Director, Project Manager, two Supervisory Engineers, Social and Resettlement Officer, Environment Officer, Office Manager, Procurement Officer, Accounting Officer, Assistant Accountant and Secretary/Office Assistant. It is aimed that at least 30% of the PMU staff are women. This target has not yet been achieved.

47. The project management and implementation support (PMIS) consultants is based in Phnom Penh and works directly with the PMU. The consultant team leader and PMU Procurement Officer will verify all procurement and consulting service documents.

48. The PMU is responsible for coordinating detailed preparation and implementation of project activities. More specifically it is (i) promoting the Project to the targeted beneficiaries; (ii) assisting in subproject development and implementation; (iii) evaluating the technical, financial and economic, social, and environmental viability of proposed subprojects; (iv) undertaking Project supervision and monitoring; (v) establishing and implementing the Project Performance Management System (PPMS); (vi) preparing community action plans, bidding arrangements, and bid documents; (vii) evaluating bids; (viii) awarding and supervising construction contracts; (ix) exercising quality control; and (xi) recruiting, managing and supervising project consultants. The PMU reports directly to the General Department of Public Works (GDPW) regarding project-related matters.

49. Project Implementation Units (PIUs) will be set up in Kampong Chhnang and Pursat. The PIU's will be staffed jointly by the Municipal government. Table 4 below shows the agreed

5.1 Project Implementation and Management Support (PMIS) Consultant

50. The contract with the PMIS consultants, Korea Engineering Consultants Corp. (KECC) in joint venture with NIRAS A/Sand in association with Key Consultants (Cambodia) Ltd., was signed on 20 October 2016. A contract variation, to remove the procurement and financial management support from the consultancy is pending (as this expertise is now covered by the contractual staff recruited to the PMU). The PMU will submit this contract variation once the bids for the topographic surveys and geotechnical estimates are received and finalized.

5.1.1 Utilization Consultants' Inputs

51. Up to the end of this reporting period, 30 September 2017, the total person months used by the International Specialists is 9.11 person month out of a total provision of 78 person month, leaving a balance of 68.89 person month., the total person months used by the National Specialists is 16.54 person month out of a total provision of 428 person month, leaving a balance of 411.46 person month. The overview of the consultant's input is presented in Annex -3.

52. The originally proposed specialists had informed that they could not guarantee their availability as per the requirements of the project. Therefore the replacement of the following International and National Staff has been agreed at the same rates of remuneration

International Specialists			
International Team leader/Municipal Engineer	Mr. Christopher Konecki	replaced by	Mr Louis Rijk
River Engineering Specialist	Mr. Ricky Kwan	replaced by	Mr. Prashant Malla
Environment Specialist	Mr. Cliff Massey	replaced by	Ms. Rachel Wildblood
Social Development and Resettlement Specialist	Mr. Paul van Strijp	replaced by	Mr. Teemu Jantunen

National Specialists			
Mr. Ty Sopheak,	Geotechnical Engineer	replaced by	Mr. Chea Ketia
Mr. Phung Katry	Civil Engineer -River Hydrology	replaced by	Mr. Mam Sanoun

53. Furthermore it was agreed in the Aide Memoire of the ADB implementation review mission of August 25-29, 2017, to include a provision for home office input for the international specialists which would increase the flexibility for the specialists to provide their services as it would open the possibility that the specialists provide special short time support and advise as and when required when not available in Cambodia. The proposed home office input is reflected in the proposed revised personnel schedule presented in Annex 2.

54. With regard to the Consultant TOR, in the Aide Memoire of the ADB implementation review mission of August 25-29, 2017 it was noted that there were some overlaps (particularly on the sanitation fee components) in the TOR of the Strengthening Sector Development (CS03) consultancy package with the task already being done by the International Municipal Finance and Accounting Specialist and/or the International Institutional Development Specialist working under the PMIS and that it was proposed to review if CS03 TOR could be merged with the TOR of the PMIS consultant services.

55. In the revised personnel schedule it is also proposed to consolidate some positions for national specialists. The positions of DTL, Resident Engineer and Site Engineer should be permanent for respectively for the duration of the Project and the construction period of the proposed works. Since resettlement requirements in the Pursat subprojects are minimal and do not warrant a 6 person month input for a resettlement specialists, it is also proposed to consolidate the 2 positions for resettlement specialist in to 1 position.

56. In the Aide Memoire of the ADB Review Mission, paragraph 24 it has been agreed to remove the procurement (24 p/m) and financial management support (60 p/m) from the consultancy (as this expertise is now covered by the contractual staff recruited to the PMU).

57. The above changes result in a surplus of 98 p/m. It is proposed to assign this surplus to unallocated p/m. The above changes if acceptable would have to be formalized in a Contract variation

6 SAFEGUARDS

6.1 Environment

6.1.1 Staffing:

58. The international environmental specialist was mobilised on 16th October and is currently working with the national environmental specialist. This initial input is for three weeks and in line with the consultant's terms of reference, the output of this mission will include:

59. Site visits to make observations on the environmental conditions for each sub-project site in Pursat and K. Chhnang.

60. Review of IEE and EMPs in accordance with observations from the field and understanding of available design. Includes identification of outstanding environmental risks and opportunities.

61. Review of detailed designs to date and discussion with relevant specialists on any specific areas of concern.

6.1.2 Key Issues:

62. Following a brief examination of the project and a selection of the available documents, the following issues are highlighted and will require attention or further investigation by the environmental safeguards and solid waste management teams. Note that the focus so far for the environmental specialist has been on the solid waste management facilities.

6.1.3 Legislation & Policy context.

63. ADB's Aide Memoire for Review Mission 25-29th August noted that compliance with the MoE Guidelines for the Selection of Landfill Sites (2016) is required. The guidance sets out criteria which on initial examination, both selected landfill sites do not meet. The specific requirements and application to the project sites are presented in Table **.

Table 6-1: Selection of Landfill Sites (2016) Guidance Requirements

MoE (2016) Requirements	Project Sites
1 km from any residential property	Both sites are non-compliant
3 km from any school/health centre/natural resources/ water source	To be checked in the field, but both sites likely to be non-compliant, e.g.K. Chhnang has 1 school within 3 km
5 km from any place of worship and resort	Both sites are non-compliant e.g. Pursat has 4 pagodas and K. Chhnang 3 pagodas, one resort in K. Chhnang within 5 km
15 km from any heritage site	To be checked in the field, but sites likely to be compliant
8 km from an airport	K. Chhnang airport is currently out of use but is within approximately 5km of the site
Not in a flooded area	Both sites are in areas liable to flood and the team has seen the sites underwater to varying degrees on previous site visits, in particular Pursat landfill site is in an area which floods every rainy season, currently estimated at 0.5 m depth of water.

64. The guidance also sets out design requirements. Critically, the depth to groundwater under a landfill site must exceed 3m. and landfill gas collection pipes must be installed; if there is insufficient gas to treat, it must be flared

6.1.4 Domestic EIA Approval.

65. There is no progress to date on obtaining the required Initial Environmental Impact Assessment (IEIA) which is to be conducted by a registered Cambodian firm.

6.1.5 Site Selection and Design for Landfills.

66. In addition to the potential compliance issues above, the site selection for both landfills pose potential environmental risks due to their likelihood of flooding. The design of the landfill does not currently include a geomembrane; the landfill is to be lined with clay only. Alone, if allowed to dry out during the hot season, the clay

liner may crack and become permeable. A geomembrane would provide an additional more reliable long term protection from leachate as the sites are in an area of at times, high groundwater and also flooding.

67. The landfill designs are currently unclear as to the extent to which the leachate will be managed. The PPTA suggested recirculation of leachate which the design team consider to be inappropriate given the relatively slow rate of fill. Therefore a solution is required to protect the environment and people from leachate pollution; leachate ponds may be a potential solution but the issue of filling with rainwater is a concern, as is the topography because the leachate would need to be in ponds lower than the landfill in order for the landfill to drain by gravity. Also these sites appear to have limited (if any) available local materials for daily cover.

68. The Pursat landfill boundary includes significant spoil heaps from a neighbouring quarry. The spoil is on government land and will need to be removed before the landfill can be constructed. No timelines are provided by the PMU for this.

69. The existing dump sites in both provinces to be closed by this project are on private land, operated by private companies. This is likely to mean that the opportunity to close these sites in an environmentally beneficial way cannot be realised through this project.

6.1.6 Embankment design for Kampong Chhnang.

70. Initial concerns regarding the potential for long term water retention of the embankment and the impact this may have on agricultural productivity inside the curved embankment as well as access to farmland which may be impeded. The drainage of this area may be critical to ensuring it is not semi-permanently water logged; it is understood that the land floods naturally due to a combination of overland flow from the river and rising groundwater.

71. Also the natural flow of flood water and associated sediments may be altered to the extent that livelihoods (agriculture) and health (mosquito breeding grounds) are affected.

6.1.7 Next Steps:

Legislation & Policy context.

72. Confirmation with MoE on the 2016 guidance requirements. The team will confirm to what extent the requirements are a practical guide, to be used with mitigation measures, or if they are to be followed directly. They key risk from an environmental perspective is the flooded nature of the sites and therefore the extent to which leachate can be managed without being pumped to higher ground for example and to ensure it does not come into contact with the water table.

Domestic EIA Approval.

73. The Project Team will discuss this with the PMU and will require a timeline to be developed for tendering for an EIA company, completion of the study and MoE approval.

Site Selection and Design for Landfills.

74. Continue working with the waste specialists in order to find an acceptable solution to the management of leachate and explore liner issues.

75. Regarding site selection and flood risk, other options may be explored however the Environmental Specialist understands that this has been raised several times before and no alternatives are being considered by the PMU. Land raising to 1m is proposed for Pursat and this would require considerable fill materials. The source of fill will need to be established as the design progresses.

76. The team will also discuss the leachate issue with ADB and potentially learn from other solutions which may be operating effectively in the GMS area in sensitive environments funded under previous ADB projects.

Embankment design for Kampong Chhnang.

77. Further analysis of this is required and assurances given from the design team on drainage of the water when the river recedes,

Field Work.

78. A joint field visit for data collection with the social and environmental safeguards teams will be conducted in w/c October 23rd. During this visit, potential receptors for each sub-project will be clarified and all sub-project sites seen. Meetings with stakeholders and local authorities will be held. The Environmental Safeguards team will visit the resettlement site to which a number of households have already been moved.

Complete IEE / EMP review.

79. The review of gaps within the IEE and EMP will be completed. This will then allow the EMPs to be finalized. It is proposed that instead of updating both the IEE and EMP documents as submitted during the PPTA, the team will concentrate on the EMP for each sub-project, and ensure that it includes:

- An outline of the sub-project based on detailed design and final site choice
- Updates to legislation since the PPTA if appropriate
- Environmental Receptors
- Updated table of mitigation measures and costs
- Implementation arrangements as per PPTA unless updates are required.

80. By focusing on the EMP, which is the most critical document to guide the construction process and to be included in the procurement process, the team will ensure effective use of time. The IEE document completed at the PPTA stage will therefore remain unchanged if this approach is acceptable.

81. It is noted that the Aide Memoire observes that climate change risks are to be integrated into the design. The environmental team, in collaboration with the climate change specialist, will ensure that the risks are included in mitigation measures where appropriate, or into the design.

6.2 Resettlement

6.2.1 Progress on resettlement

82. During a meeting between RD-MEF and PMIS in the work plan and process for land acquisition and resettlement (LAR) was discussed and an agreement on improving communications and coordination between the PMIS, PMU, PIUs and GDR on LAR was made.

83. RD-MEF are planning for the public consultations in November 2017 to take place before Detailed Measurement Survey (DMS) and Socio-Economic Survey (SES). RD-MEF will also update and dissemination the Public Information Booklets (PIB) to all the affected households (AH). DMS and SES will cover 100% of the AHs to provide accurate and comprehensive data, which also will be gender disaggregated. DMS was planned to be undertaken from beginning of October 2017, but currently key sections of the embankment right-of-way (ROW) in Kampong Chhnang are flooded, making DMS currently impossible, especially as the majority of AHs whom are fishermen are going to be very busy with the peak fishing season. Hence, initially the concentration will be on identification in Kampong Chhnang of AHs already relocated to resettlement site and the ones self-relocated, while DMS/SES can be done with AHs on sections not flooded (such as tourist port), and waste pickers in both Kampong Chhnang and Pursat.

84. RD-MEF has also already started the process in October 2017 for recruitment of the External Monitoring Organisation (EMO) and consultant for the Replacement Cost Survey (RCS). Update of the Resettlement Plan (RP) will also include Livelihood and Income Restoration Plan (LIRP) for vulnerable and severely AHs.

6.2.2 Resettlement in Pursat

Drainage sub-project

85. Drainage sub-project alignment is not completed, hence exact impact is not possible to estimate. Based on the PPTA alignment there is one location for LAR in northwest corner of the sub-project, where drainage is to link to the irrigation canal. PPTA also identified some business stalls, land use and secondary structures with potential impact. In addition, some market vendors could be affected. However, the Provincial Authorities have agreed to organize a location for market vendors to continue selling during the construction period, if affected.

86. Main concern is on the households located both sides of the irrigation canal, which is planned to be used for drainage, or perhaps natural wastewater treatment. The houses are built on the canal embankment, wholly or partially overhanging on top of the canal. If the canal is not rehabilitated the impact can be limited to only point-impact for pipe access to the canal, in which case LAR impact would be only on the structures, as it is assumed the houses in this location on the canal Right-of-Way (ROW) are part of an informal settlement. However, with the possible need to rehabilitate the actual canal for active or different use, the LAR impact would be high. Estimate based on satellite imagery interpretation is that over 90-140 AHs would be affected if the canal were to be rehabilitated from the Pursat River to the edge of the drainage system.

87. Any impact on eaves and shops along the drainage lines is not clear yet, but can be minimized by ensuring the construction company will notify the AHs well in advance. Also, some structures owned by AHs might require compensation.

River embankment sub-project

88. During field visit the PMIS team on 12th October 2017 was notified by the Provincial Authorities that there is no need for the river embankment project as they have already constructed a road on the side of the river. The sites South of the railway bridge were visited and found to have quite high water levels, but with no embankment protection structures. The initial review done during the field visit showed that there is no LAR in case the sub-project does go ahead, except potential minor impact on livelihoods (e.g. farming on the river bank during dry season). Also, there is one house on the riverbank which could be impacted by the construction works, depending on the detailed design.

Landfill sub-project

89. The selected landfill site in Pursat is situated on public land, and total of 8 AHs were identified by PPTA for LAR impact along the access road to the landfill site. However, there are several permanently occupied residential households within 1km distance of the perimeter of the landfill (as per Ministry of Environment guideline for the selection of landfill sites, 2016). This would trigger the need for LAR for any AHs within the minimum distance. Based on visual interpretation of satellite imagery approximately 15-49 AHs would be affected by the landfill 1km zone, depending on the size and shape of the landfill. with some the same AHs by the access road to the landfill. There is also a school within the 3km zone but there are four (4) pagodas are within the 5 km zone.

90. The access road to the landfill site is currently 4m wide, planned to be widened to 8m. This will have immediate LAR impact on both sides of the road on actively farmed land plots, some fruit and other trees, and private property like fences and electricity line. The access road should be placed so that the impact is mainly on ROW of the existing road, the width of which is being checked by the Provincial cadastral officers, or on public land.

91. The location of the landfill is not very far from the existing one along Road No. 5, with shorter distance from Road No 5 than the current fairly remote landfill location. One of the two existing landfill sites have informal waste pickers working on it. The estimate is that anything between 15-50 AP are involved in waste collecting. The number of waste pickers is depending on the day and time of the day, in what appears to be part-time employment for many of the waste pickers. A list of all AP involved has been requested from the Provincial Authorities, especially to identify vulnerable HH.

92. The new landfill site will be initially operated by the municipality. Waste collection from the town is done by both private company and municipality. It is not clear whether informal waste pickers are allowed access to the site. One option for informal waste pickers wanting to continue waste collecting is to organize as part of the livelihood and income restoration program (LIRP) health and safety training, and provide proper safety equipment for them. Further entitlements would need to be provided for any vulnerable AHs working as waste pickers. Also, it is suggested to have water point for washing facilities, separate toilets for men and women, and sanitary facilities for women at the new landfill site provided for by the project. For vocational training as part of the LIRP alternative livelihoods a list of available courses from the Provincial vocational training center will be presented in public consultation. Information about available courses was requested from Provincial Authorities.

Resettlement site

93. Apparently, the provincial resettlement site is located 3km from National Road No. 5, and currently un-used forested area with no infrastructure or facilities.

Follow up steps in Pursat

- Consultation with farmers using irrigation canal water for farming at the drainage sub-project
- Estimation of LAR impact in case irrigation canal, or parts of it, is rehabilitated
- Due Diligence Review of LAR on river flood protection embankment, in case sub-project moved ahead
- Data collection on existing waste pickers, including SES and assessment of vulnerability. Review alternative livelihood options, and possibility to continue working on the new landfill site following health & safety standards
- Review extent of impact on residential and other land uses of the MoE Environment guideline for the selection of landfill sites (2016) around the landfill sub-project. DMS/SES of all AH once detailed design for landfill extent is agreed upon
- Review location and suitability of provincial resettlement site

6.2.3 Resettlement for Kampong Chhnang

Flood Embankment sub-project

94. The draft resettlement plan lists 123 affected households (AHs) with 515 Affected Persons (APs) in Kampong Chhnang sub-projects were identified, with none identified for the landfill sub-project. However, there is some confusion about the figures as 118 AHs have been listed in the tables and 111AH in the IOL data from the PPTA (PPTA figures shown in Table 1). Moreover, these figures are very different to the latest received from the Provincial Authorities, which list 210AH for one section of the embankment only. The reason for the low numbers of AH in the PPTA is that for sections of the embankment to be constructed in populated areas, special design solutions were adopted that minimized AH. However these design solutions were very expensive, constructively very difficult and would not allow to developed the commercial potential of the proposed embankment

Table 1: Affected Households identified during PPTA

Province	City	Sangkat/Commune	Village	No. of AHs
Kampong Chhnang	Kg. Chhnang	Phsar Chhnang	ChongKoh	16
			Phsar Chhnang	31
			Samrong	16
		Kg.Chhnang	Kandal	3
			DamnakPopoul	20
			Srae Pring	14
		Chrey Bak	Thmey	11
		TOTAL:		

Northern section (11+000 and 13+000)

95. The affected households (AHs) are located on the eastern side of the access road along the existing embankment and dry-season river edge. Generally, the houses on the western side of the access road are more than 50 m distance from the dry-season river edge, which by Cambodian Land Law would entitle them for land titles in case the occupation has started before 2001. The latest estimate for impact is 210 AHs between embankment positions 11+000 and 13+000. None of the AHs have land titles, and according to Cambodian Land Law they are illegally occupying the land on the river bank. Majority of the households seem to be Cham Muslim. The main land use during the dry season for the riverbank area is rice and home gardens, small stalls and shops for daily products as well as firewood and bamboo, and various trade activities on the river. The exact number of AHs is not confirmed as there can be several families living in each of the houses. Also, it is not confirmed whether all of the 210 AHs are AHs of the embankment sub-project.

96. As of mid-October 2017, 47 out of 210 AHs have agreed and already receive funds from the Provincial Authorities for self-relocation. Each AH received between 400 and 1000 USD / AH between the beginning of July and the end of August 2017. Out of the 47 AHs a total of 37 AHs have been identified and contacted for verification and contact details by PRSC/RD-MEF. It appears that most of the self-relocating HH remain in the area as the peak season for fishing is beginning in October.

97. A further 158 out of 210 AHs have agreed to move to the resettlement site. These AHs will receive a plot of land (5m x 20m) from the resettlement site for free, but for the backfilling of the low-lying land they are required to pay 1000 USD with two years' repayment plan. All of the AHs will receive official land title once the loan for backfilling has been paid. The land titles are being prepared by the Land Department.

98. A final 5 out of 210 AHs have refused both options provided by the Province, either to move to resettlement site or self-relocate.

Tourist port section (10+750 to 10+950)

99. There are an additional 52 AHs along embankment from position 10+750 to 10+950, out of which four (4) AHs have land titles. The remainder of the houses seem to be located less than 50 m from the dry season river edge, meaning they are illegally occupying the area as per Cambodian Land Law (2001). All of these AHs have so far refused to move to the resettlement site, or self-relocate. Most of the AHs in the area have shops and

businesses. Majority of the AHs are Khmer. The LAR impact in this area can be significantly reduced in case the height of the embankment can be lowered, as the area with the 52 AH is not usually flooded at all.

100. here is a need to take into account in the detailed design a dry-season access road from the road to the island located South of the tourism port. This is the only access road to the island during the dry-season, but also with an appropriate design can serve the island as access route an extended period during the flood-season. Hence, it is recommended to extent the embankment to the road network on the island to improve access for the village located there.

Southern section (0+000 to 10+750)

101. A substantial rerouting of the flood embankment compared to PPTA preliminary design has been proposed for the section between chainage 0+000 and 7+200. It is proposed to strengthen the existing road embankment in this area instead of following the old embankment alignment. With this change there is no major impact on HH in this section.

102. The main potential AHs and their livelihoods along the Southern part of the embankment need to be checked once floods recede against the latest alignment. The main impact on livelihoods of households located along the embankment is related to fisheries, via access to the river for fishing boats. At the moment, the land ownership is not clear, neither is their current land use. The locations include (based on drone survey and 2017 dry season GoogleEarth imagery) the following:

- 0_000 to 7+200, alignment will follow existing road embankments, only 300m land acquisition required in the connection of the road embankment and the existing flood embankment
- 7+100 business
- 8+100 - 8+500 - paddy fields
- 8+750 - structure
- 9+150 - 9+500 paddy fields
- 9+200 - 10+750 access to river for boats
- 10+750 - dry season access to island settlement

Resettlement site

103. Resettlement site for the embankment project has been recently established northwest of 13+000 position of the embankment. The size of the resettlement site is 6 ha, and it is connected to town center via all-weather road from its northern edge, which also works as a flood embankment. The resettlement site is situated on public-private land (land use zone 2), which has been given as a concession to a private company to develop into market and resettlement area. The AHs agreed to move have signed contracts with the private company instead of the Provincial Authorities to receive the land (and later - land titles) and pay the 1000 USD for backfilling costs of the land plot. Land is provided for free for the AHs. Public services and infrastructure has been paid by the Province. The land plots are available for purchase by anyone for 3400 USD for land and 1000 USD for backfilling with two-year repayment period, and hence not only designated to the relocated AHs. It is not clear what will happen if AHs default on the 1000 USD payment after the two years.

104. Currently, the resettlement site is equipped with water supply, drainage, electricity, health station and school. However, health center and school are not operational yet. For the Cham, the nearest mosque is about 1km and Masjid Kampong Chhnang about 2.2km away from the resettlement site. Both are situated along the riverbank floodplain, but the embankment alignment does not affect the Mosques directly. It is however essential to ensure proper access to both during and after embankment construction. The resettlement site is connected by road to the new fishing port (approximately 500m distance from the resettlement site), but it is unclear if all boats can fit into it. However, the port will allow fisherman families to continue with their livelihoods fairly uninterrupted. The distance from the houses will probably require the AHs to find a solution for boat security, especially at night time. The new fishing port is of concrete construction and can withstand high floods.

105. The resettlement site is also lacking waste water treatment and sanitation services and facilities. Under the current plan the wastewater is to be released to near-by pond, with limited flow to the river. This can cause potential health and environmental hazard, and immediate threat to the AHs at the resettlement site. At the same time, the backfill of the resettlement site was completed about five (5) months ago by using soil nearby from the floodplain. There is a potential problem with structural damage as the soil settles, and risk of surface erosion.

Consultations

106. Following identification of the AHs along the embankment the PMIS consultant has recommended to begin consultations with the AHs, especially waste pickers and the 52 AHs near tourist port first, followed by the 210 AHs along the northern end of the embankment.

107. Public consultations have started with the AHs relocated to the resettlement site and consultation event has been planned for November - December for the embankment AHs, which are currently flooded. DMS is planned to start after the floods recede as the AHs still in the original location between 11+000 and 13+000 as well as on the Southern section are currently difficult to access as the entire area is totally flooded, and also peak season for fishing is starting soon meaning majority of the AHs are going to be occupied. Public consultations, and subsequent DMS, with the AHs between 10+750 to 10+950 is expected to start soon.

108. In addition, all severely affected and vulnerable households should be consulted separately for preparation of LIRP. PMIS would also recommend having a separate consultation meeting with women and/or women groups, and Vietnamese host community North of the resettlement site.

Landfill sub-project

109. The selected landfill site in Kampong Chhnang is situated partially on public and partially on private land. The private land has been acquired through negotiated land acquisition between the private owners, and RD-MEF and PRSC. The negotiated land acquisition has been completed, but 3rd party validation has not been done. RD-MEF can provide the documentation of the negotiated resettlement for ADB for 3rd party verification.

110. A 1km safety distance from the landfill site border as set by Ministry of Environment (MoE) guideline for the selection of landfill sites (2016) for residential housing will mean considerable number of AHs is affected by the project. Estimation from satellite imagery include two housing clusters with approximately 30-40 AHs, in addition to a Pagodas, schools and health center within the radius of 3km to 5km safety zone (MoE, 2016) from the landfill. For example, the following Pagodas and Churches are within the safety zone: HaeMoon Church (2.5km), Wat Sovann Kirivann (2.7km), unnamed Pagoda (3km) and Wat Santuch (3.5km).

111. One of existing landfill sites, owned and operated by a private company, have informal waste pickers working on it. The current estimate is that about 17-20 AP are involved in waste collecting. One option for informal waste pickers wanting to continue waste collecting is to organize as part of the livelihood and income restoration program (LIRP) health and safety training, and provide proper safety equipment for them. Further entitlements would need to be provided for any vulnerable AHs working as waste pickers. Also, it is suggested to have water point for washing facilities, and separate toilets for men and women at the new landfill site provided for by the project. For vocational training as part of the LIRP alternative livelihoods a list of available courses from the Provincial vocational training center will be presented in public consultation. Information about available courses was requested from Provincial Authorities. However, the new landfill site will be initially operated by the municipality, but municipality is trying to secure an investor for the landfill to operate a MRF waste sorting and recycling operations on the site. Waste collection from the town is done by both private company and municipality. It is not clear whether informal waste pickers are allowed access to the site as it is supposed to be controlled landfill, or whether with appropriate safety gear they can gain access.

Follow up steps in Kampong Chhnang

- Conduct consultations with AHs near tourist port and other embankment areas not flooded, to be followed by remaining AHs both in the northern and southern sections currently flooded
- Conduct DMS/SES starting with sections not flooded, and followed by the flooded ones once the flooding has receded
- Conduct consultations with women organizations and groups and host communities for resettlement site (Vietnamese)
- Review the resettlement site ownership, loan arrangements with relocated AHs, site infrastructure suitability, cost of services and relocation, and alternative livelihoods
- Data collection on existing waste pickers, including SES and assessment of vulnerability. Review alternative livelihood options, and possibility to continue working on the new landfill site following health & safety standards
- Review extent of impact on residential and other land uses of the MoE Environment guideline for the selection of landfill sites (2016) around the landfill sub-project
- 3rd party verification of negotiated land acquisition

6.3 The indigenous peoples

112. The indigenous peoples safeguard category for the project is B. Ethnic Cham and Vietnamese were identified and meaningfully consulted in Kampong Chhnang villages during the PPTA. They live alongside the Khmer majority and are well integrated the larger community. Design features are included to ensure the ethnic

Cham and Vietnamese are beneficiaries and are meaningfully consulted during the detailed design of the subprojects especially with regard to the required relocation of houses for the construction of the kampong Chhnang flood protection embankment.

6.4 Grievance Redress Mechanism (GRM).

113. Ministry of Economy and Finance (MEF) General Department of Resettlement (RD-MEF) have set up Provincial Resettlement Sub-Committees Working Groups (PRSC-WG) in October 2017 for Kampong Chhnang and Pursat. RD-MEF has also provided guidance to the Provincial Resettlement Sub-Committees (PRSC) to operationalize Grievance Redress Mechanism (GRM) for the project in mid-October 2017.

6.5 Gender Action Plan

114. The Project is classified as 'Effective Gender Mainstreaming' (EGM) under the Asian Development Bank's (ADB) guidelines (March 2010). The Project impact is increased economic activities and environmental protection in towns in the Tonle Sap Basin and the outcome of the project will be improved urban services and enhanced climate change resilience in Kampong Chhnang and Pursat municipalities. A Gender Action Plan (GAP) has been prepared in accordance with ADB's Policy on Gender and Development (1998), ADB Operations Manual Section C2/BP (2010) Gender and Development in ADB Operations, and the Government's goal to strengthen the role and social status of women through capacity building for women in all sectors, changing discriminatory social attitudes, and safeguarding women's rights to actively and equally participate in nation building.³⁷ The gender action Plan includes specific gender actions to help ensure men and women actively participate in project activities, receive project information, and have access to opportunities during project implementation. In this report the performance indicators/targets of the plan as presented in the PAM have been reformulated based on the SMART¹ criteria to be able to more accurately measure the level of achievement

Table 6-2: Gender Action Plan

GENDER ACTIVITIES/ ACTIONS	PERFORMANCE INDICATORS/ TARGETS	RESPONSIBLE AGENCIES	STATUS
Output 1: Kampong Chhnang Urban Environmental Improvements			
1.1 Ensure social and gender inclusion in community participation, including women directly consulted during the project implementation. <i>- Record women participation in terms of numbers, percentage, and how their suggestions and concerns have been addressed.</i>	1.1.1 Number of local people who participate in consultations on project design and implementation disaggregated by sex. Target: at least 40% women for each sub-project. 1.1.2 Relevant clauses on core labor standards (including gender-specific ones such as equal pay for equal work, equal opportunities for employment) are included in all bidding and contract documents	PMU, PIU, PMIS consultants, PDOWA, contractors, IRC/MEF and WCCC	Consultations with local people on project design have been started, no disaggregated data are yet available
1.2 Ensure improved access to and affordable cost for women to public services, health and safety, and cultural / religious facilities.	1.2.1 Improved and better all-year-round access to health and school services, and cultural / religious facilities for relocated AHs. 1.2.2 Cost of public services not increasing for relocated AHs. 1.2.3 Improved access, not impeded by flooding, to urban citizens.	PMU, PIU, PMIS consultants, contractors, IRC/MEF and WCCC	Not yet started
1.3 Incorporate health and safety (including menstrual hygiene) management	1.3.1 Provide separate toilet and washing facilities for women and men waste pickers	PMU, PIU, PMIS consultants,	Not yet started

¹ Specific Measurable, Achievable, Realistic and Timebound.

features in communities for improved solid waste management.	(if allowed) at the new landfill site. 1.3.2 Health and safety training and equipment provided as part of Livelihood and Income Restoration Program (LIRP). Target: all women and men continuing to work on landfill site (if allowed).	PDOWA, contractors, IRC/MEF and WCCC	
1.4 Generate unskilled jobs in embankment construction /maintenance for women.	1.4.1 Contractors' cumulative unskilled labor days will be for at least 20% women, for embankment sub-project, by 2020.	Contractors, with oversight from PMU	Not yet started
1.5 Equal pay for men and women for work of equal type. <i>- Keep accurate records of number or percent of men and women labor days and salary for skilled and unskilled labor for embankment sub-project.</i> <i>- Monitor core labor standards (CLS) enforcement on a monthly basis.</i>	1.5.1 Average daily wage paid for unskilled labor to women and to men per major types of work. Target: no gender difference.	Contractors, with oversight from PMU	Not yet started
1.6 Facilitate safe and conducive environment for women's employment in embankment works.	1.6.1 Safe and conducive women's employment environment ensured through creation of women's groups if appropriate; skills enhancement; on-site clean toilet facilities separately to men and women. Target: at least 1 women's group created, 100% of women workers participate in skills enhancement provided by contractor, and separate toilet facilities for workers.	Contractors, with oversight from PMU	Not yet started
1.7 Households irrespective of income, ethnicity or sex of household head receives equal compensation and payment for any land acquisition or resettlement losses.	1.7.1 Equal compensation for similar losses. Target: no gender difference.	PMU, PIU, PMIS consultants, PDOWA, IRC/MEF and WCCC	Not yet started
1.8 Mitigate HIV/AIDS and human trafficking risks during embankment works	1.8.1 Ensure contractors and labor force participate in training on HIV/AIDS. Target: 100% of contractors' labor force participate in HIV/AIDS training by 2020.	Contractors, with oversight from PMU	Not yet started
Output 2: Pursat Urban Environmental Improvements			
2.1 Ensure social and gender inclusion in community participation, including women directly consulted during the project implementation.	2.1.1 Number of local people who participate in consultations on project design and implementation disaggregated by sex. Target: at least 40% women for each sub-project.	PMU, PIU, PMIS consultants, PDOWA, contractors, IRC/MEF and WCCC	Consultations with local people on project design have been started, no disaggregated data are yet available

<p>- Record women participation in terms of numbers, percentage, and how their suggestions and concerns have been addressed.</p>	<p>2.1.2 Relevant clauses on core labor standards (including gender-specific ones such as equal pay for equal work, equal opportunities for employment) are included in all bidding and contract documents</p>		
<p>2.2 Ensure improved access for women to public services, health and safety, market stalls and cultural / religious facilities.</p>	<p>2.2.1 Improved access, not impeded by flooding, to public services and facilities. 2.2.2 Reduced hardship for women street sellers from street flooding near the market.</p>	<p>PMU, PIU, PMIS consultants, contractors, IRC/MEF and WCCC</p>	<p>Not yet started</p>
<p>2.3 Incorporate health and safety (including menstrual hygiene) management features in communities for improved solid waste management.</p>	<p>2.3.1 Provide separate toilet and washing facilities for women and men waste pickers (if allowed) at the new landfill site. 2.3.2 Health and safety training and equipment provided as part of Livelihood and Income Restoration Program (LIRP). Target: all women and men continuing to work on landfill site (if allowed).</p>	<p>PMU, PIU, PMIS consultants, PDOWA, contractors, IRC/MEF and WCCC</p>	<p>Not yet started</p>
<p>2.4 Generate unskilled jobs in drainage construction /maintenance for women.</p>	<p>2.4.1 Contractors' cumulative unskilled labor days will be for at least 20% women, for drainage sub-project, by 2020.</p>	<p>Contractors, with oversight from PMU</p>	<p>Not yet started</p>
<p>2.5 Equal pay for men and women for work of equal type. - Keep accurate records of number or percent of men and women labor days and salary for skilled and unskilled labor for drainage sub-project. - Monitor core labor standards (CLS) enforcement on a monthly basis.</p>	<p>2.5.1 Average daily wage paid for unskilled labor to women and to men per major types of work. Target: no gender difference.</p>	<p>Contractors, with oversight from PMU</p>	<p>Not yet started</p>
<p>2.6 Facilitate safe and conducive environment for women's employment in drainage works.</p>	<p>2.6.1 Safe and conducive women's employment environment ensured through creation of women's groups if appropriate; skills enhancement; on-site clean toilet facilities separately to men and women. Target: at least 1 women's group created, 100% of women workers participate in skills enhancement provided by contractor, and separate toilet facilities for workers.</p>	<p>Contractors, with oversight from PMU</p>	<p>Not yet started</p>
<p>2.7 Households irrespective of income, ethnicity or sex of household head receives equal compensation and payment for any land</p>	<p>2.7.1 Equal compensation for similar losses. Target: no gender difference.</p>	<p>PMU, PIU, PMIS consultants, PDOWA, IRC/MEF and WCCC</p>	<p>Not yet started</p>

acquisition or resettlement losses.			
2.8 Mitigate HIV/AIDS and human trafficking risks during drainage works	2.8.1 Ensure contractors and labor force participate in training on HIV/AIDS. Target: 100% of contractors' labor force participate in HIV/AIDS training by 2020.	Contractors, with oversight from PMU	Not yet started
Output 3: Community Mobilization and Environmental Improvements (CMEI)			
3.1 Sanitation grants to IDPoor 1 and 2, including female-headed households, if categorized as IDPoor 1 or IDPoor 2.	3.1.1 Household sanitation grants benefit at least 40% women-headed households.	PMU, PIU, PMIS consultants, PDOWA, NGO, and WCCC	Not yet started
3.2 Meaningfully consultations with women in Kampong Chhnang and Pursat on priority small scale infrastructure improvements and design (e.g., gender-specific requirements for public infrastructure, such as separate latrines for women with trash bins, if appropriate).	3.2.1 Consultations with women groups on identification of infrastructure needs and their location. Target: 40% of participants in consultations are women. 100% of women groups in selected localities consulted.	PMU, PIU, PMIS consultants, PDOWA, NGO, and WCCC	Not yet started
3.3 Capacity development and IEC materials will be gender-sensitive.	3.3.1 At least 40% of participants in CMEI activities and training are women. 3.3.2 IEC materials are checked by MPWT gender working group and PDOWA. 3.3.3 Hygiene IEC campaigns cover topics that are important for women (e.g., at least 30% of hygiene campaigns focus on menstrual hygiene and solid waste management).	PMU, PIU, PMIS consultants, PDOWA, NGO, and WCCC	Not yet started
Output 4: Strengthened sector coordination and operations			
4.1 Women's sanitation issues are incorporated in updated building code applications for six provincial towns around Tonle Sap (e.g., space in public bathrooms and separate toilets).	4.1.1 Updated building code applications have been designed with women's sanitation issues incorporated.	PMU, PIU, PMIS consultants, PDOWA and WCCC	No data available
4.2 Tonle Sap Urban Areas Development Framework and individual urban development strategies for Kampong Chhnang and Pursat are explained to women's groups.	4.2.1 100% of women's groups consulted are explained on Tonle Sap Urban Areas Development Framework. 4.2.2 At least 1 sector coordination meeting, chaired by MPWT, will include a discussion related to women's needs in integrated urban environmental management over project implementation.	PMU, PIU, PMIS consultants, PDOWA and WCCC	Not yet started
4.3 Semi-autonomous urban service units in Kampong	4.3.1 At least 20% of staff in each unit are women.	PMU, PIU, PMIS	Not yet started

Chhnang and Pursat municipality are established, become operational and have women represented.		consultants, PDOWA and WCCC	
Output 5: Strengthened Capacity for Project Implementation, and Operations and Maintenance			
5.1 At least 1 member of the Project Steering Committee is a woman.		PMU	Complied
5.2 At least 30% of PMU and 30% of staff in both PIUs are women (2014 Baseline: PMU=1 woman; PIUs have not been established).		PMU, PIUs	PMU, 13 members, 2 women PIU Kampong Chhnang, 11 members, 1 women PIU Pursat 11 members, 2 women
5.3 Project management and implementation consultants include an international social development /resettlement specialist (6 person-months) and national gender specialist (6-person months).		PMU, PMIS	Inputs of the international social development specialist has been started. The national gender specialist has not yet been mobilized
5.4 A resettlement/social development officer is appointed in the PMU		PMU	No yet done
5.5 The NGO appoints at least 30% women as part of their team for each town in Kampong Chhnang and Pursat.		PMU, NGO	NGO recruitment is ongoing
5.6 A government community coordinator is appointed in Pursat PIU and two government community coordinators are in Kampong Chhnang PIU.		PMU, PIUs	Not yet appointed
5.7 A representative from the PDOWA is appointed to the provincial coordination committee in Pursat and Kampong Chhnang.		PMU, PIUs, PDOWA	No data available
5.8 Project performance monitoring system includes sex-disaggregated data.		PMU, PMIS	PPMS to be set up
5.9 The annual project performance monitoring and evaluation reports will include progress against sex-disaggregated indicators. Routine monitoring will be done, and indicators and risks added to logical framework.		PMU, PMIS	To be started
5.10 Progress reports (e.g., quarterly, safeguards, annual project performance monitoring and evaluation, and PPCR reports) include information on gender activities. The GAP monitoring table is updated and attached to the project progress report (twice a year).		PMU, PMIS	Ongoing
5.11 GAP performance included in mid-term and final project reviews.		PMU, PMIS	No due
5.12 At least 20% of technical training participants are professional staff women of PMU and PIUs.		PMU, PIUs	Not yet started

7 PROJECT PERFORMANCE

115. The following provides a summary assessment of the likelihood of reaching the targets set out in the DMF, and areas where the DMF needs to be changed.

Design Summary	Performance Targets and Indicators with Baselines	Assessment of the Project Implementation
<p>Outcome Improved urban services and enhanced climate change resilience in Kampong Chhnang and Pursat municipalities.</p>	<p>By 2023: a. At least 100,000 residents benefit from the project in Kampong Chhnang and Pursat municipalities (2013: 42,500 residents in Kampong Chhnang and 51,400 residents in Pursat). b. Households affected by floods in Kampong Chhnang reduced by 80% (2013: 5,400 households).</p>	<p>Too early to assess</p>
<p>Outputs Outputs 1 Kampong Chhnang urban area environmental improvements</p>	<p>By 2022: (Baseline: not applicable, if not otherwise stated) 1a. At least 15.1 km of embankment and road improved and constructed to a once in 50 years frequency flood level or 1:50 year flood levels (2013: range 1:1–1:20) 1b. 365 ha of urban land in 14 villages, and 950 ha of agricultural land in 14 villages are free from flooding from Tonle Sap. 1c. About 10 ha is converted into a controlled landfill. 1d. Two open dumpsites are closed and capped. 1e. Household collection increases to at least 60% in the municipality of Kampong Chhnang (2013: 4% or 400 households)</p>	<p>Validation of the PPTA proposals revealed that the targets of the proposed embankment were overstated. The proposed embankment will only protect a small portion of the urban area (about 30 to 40 ha.) from flooding and the low lying agriculture land behind the embankment will remain flooded or water logged during the rainy season. Changes are proposed in the design of the flood embankment to enhance its urban development potential Cumulative waste collection after 10 years is estimated to be between 60.000 to 80.000 tonnes, which can be accommodated in one or two landfill cells with a total area of 1 ha. The open dumpsites are located on private land. The legal implications for closing these dumpsites which would require public investment on private property, will have to be assessed</p>
<p>Output 2 Pursat urban area environmental improvements</p>	<p>By 2022: (Baseline: not applicable, if not otherwise stated) 2a. At least 9.89 km of drains are improved and extended (2013: 5.64 km of drains) controlled landfill.</p>	<p>During the validation of the PPTA it was found that there are 24 km of existing drains. Deferred maintenance which has resulted a partial blockage of pipes and outfalls seems to be the main problem. The proposed new drains in the PPTA do not match the existing system.</p>

Design Summary	Performance Targets and Indicators with Baselines	Assessment of the Project Implementation
	<p>2f. Two open dumpsites are closed and capped (2013: 1 of 2 landfill sites is closed)</p> <p>2g. Household collection increases to at least 60% in Pursat municipality (2013: 11%)</p>	<p>Moreover installing new pipelines next to existing blocked lines is no solution for deferred maintenance problems</p> <p>The open dumpsites are located on private land. The legal implications for closing these dumpsites which would require public investment on private property, will have to be assessed</p> <p>After completion of new sanitary landfills</p>
<p>Output 3</p> <p>Community mobilization and environmental improvements</p>	<p>By 2022: (Baseline: 0)</p> <p>3a. At least 40% of participants in output activities and training are women.</p>	<p>NGO under package IV has not yet been mobilized. B</p>
<p>Output 4</p> <p>Strengthened sector coordination and operations</p>	<p>By 2022: (Baseline: not applicable)</p> <p>4a. A plan for climate change adaptation in urban areas around the Tonle Sap is adopted by Tonle Sap provinces</p> <p>4b. Building codes with refined latrine standards are adopted by Tonle Sap provinces.</p> <p>4c. MPWT chairs at least two coordination meetings per year</p> <p>4d. Semi-autonomous USUs in Kampong Chhnang and Pursat municipalities are established and become operational (20% of staff are women).</p>	<p>The consultants for packages II and III have not yet been mobilized</p>
<p>Output 4</p> <p>5. Strengthened capacity for project implementation, and operations and maintenance</p>	<p>By 2022:</p> <p>5a. At least 20% of training participants are qualified women (2013: 5%-10%)</p> <p>5b. A capacity development program is adopted by each municipality (baseline: not applicable).</p>	<p>Training will be started during construction of the planned infrastructure</p>

8 LOAN COVENANTS

8.1 Loan covenants and other conditions.

116. 42 households located along the embankment alignment in Kampong Chhnang have been moved to a new resettlement site. This was done as part of an ongoing provincial initiative with no direct relation to the Project. However as a large number of HHs under the provincial resettlement programme are residing within or close to the proposed alignment of the flood protection embankment and that this alignment was known before the provincial authorities embarked on their resettlement initiative, the ADB is of the opinion that the required steps as per ADB SPS (2009) should have been followed and that therefore the project is currently not in compliance with Schedule 5, Paragraph 10 (Land Acquisition and Involuntary Resettlement) and Schedule 5, Paragraph 14 (Safeguards Monitoring and Reporting) of the loan agreement.

117. During an ADB Implementation Review Mission from August 25-29, 2017 it was agreed with the GDR that GDR will conduct a DMS from the 1st of October with households still in their current abode along the embankment and meet with households that have been moved to collect data. It was agreed that the Khmer version of the entitlement matrix would be provided to AHs identified along the embankment alignment to ensure that households are aware of their entitlements, even though they have already moved.

118. The compliance with loan covenants is presented in Annex 6.

9 ASSESSMENT OF VALIDITY OF KEY ASSUMPTIONS AND RISKS

119. In the Project Design and Monitoring Framework the following risks that could adversely affect effective implementation and sustainable benefits had been identified. The present validity of those risks can be summarized as follows:

Assumptions and Risks	Validity
Outcome Improved urban services and enhanced climate change resilience in Kampong Chhnang and Pursat municipalities.	
Economic activities are adversely affected by natural disasters and lack of climate change impact mitigation. Municipalities are not prepared to collect revenues for O&M of urban infrastructure.	Some design parameters, especially with regard to maximum water levels in the Tonle Sap, and flood hazards in the Pursat river will have to be carefully evaluated. The capacity for resource mobilization by Municipalities will have to be studied in more detail. Detailed designs will take into account the initial investment cost versus O&M cost of the infrastructures.
Output 1. Kampong Chhnang urban area environmental improvements	
Project start-up delays increase the number of affected people along the embankment alignment CSOs and/or NGOs raise concerns during project implementation.	Comparing Google Earth imagery from 2013/14 with imagery from 3/2/207 does not show a notable increase in the number of houses along the embankment
Output 2. Pursat urban area environmental improvements	
NGOs raise concerns during project implementation	The INGO under package 4 will close cooperate with local NGOs and timely address the concerns of affected people. Beneficiary population and the general population. The implementation of the stakeholder communication plan should timely address and mitigate these concerns
Output 3. Community mobilization and environmental improvements	
CSOs and/or NGOs raise concerns during project implementation.	See above
Output 4. Strengthened sector coordination and operations	
A plan for climate change adaption will be difficult to formulate as short and midterm environmental impacts will mainly result from the flow alterations in the Mekong River, due to development activities in the upstream countries. These will cause negative effects for ecosystem productivity, and thus also for livelihoods of the inhabitants of Tonle Sap floodplain, who directly depend on the lake's natural resources. The projected changes in the dry-season water levels, estimated to increase the water level in Tonle Sap Lake by 0.15– 0.60 m, would, in particular, be harmful to the present ecosystem of the lake.	Climate change may play an important role from the latter part of the century onwards. In the medium term climate change might affect tributaries to Tonle Sap Lake that contribute about 30%, of the inflow and precipitation directly into the lake that contributes some 13% Changes in flow regimes of these tributaries might also affect the population located along these tributaries.
Output 5. Strengthened capacity for project implementation, and operations and maintenance	
Participants might not be fully receptive to the training and capacity building	Careful design of training and capacity building programmes with properly targeted audiences and with the emphasis on "hands on" in service training
Financial Management Arrangements	
Municipalities are not prepared to collect revenues for O&M of urban infrastructure.	Problems in revenue collection should be timely identified by the municipal financing specialists and addressed under output 5. It is proposed to establish a special municipal office for collection of user fees from private and institutional users. The municipal financing specialists will support these units to introduce business plans to recover O&M costs for the services provided.
The project implementation units (PIUs) in Kampong Chhnang and Pursat are new entities and may have difficulty in managing project sub-	The PIUs will draw management staff from PDPWTs and municipalities. A PMU in the MPWT will support the PIUs in project implementation. The PMU will use a project financial management system developed under previous ADB

<p>accounts and adhering to accounting policies and procedures.</p>	<p>projects, and will be responsible for all procurement. It will support the PIUs, with assistance from the PMIS consultants. A provincial coordination committee will guide the project in each town. Each PIU sub-account will have a ceiling of \$5,000. To ensure strict financial controls, each PIU will be required to liquidate every month. A late submission of liquidation (more than 10 days from the end of the month) will be grounds for suspension of the sub-account—</p>
<p>Fund mismanagement</p>	<p>The implementation arrangements are outlined in the project administration manual. All procurement will be done from within the PMU; a representative from each PIU will be invited to participate on the procurement committee. An imprest account will be established in the PMU. A sub-account will be established in each PIU, with a ceiling of \$5,000 and requirement for monthly liquidations. The proposed fund allocation also helps minimize fund mismanagement—reducing the risk to low.</p>
<p>Inadequate internal audit</p>	<p>Each government ministry has a Department of Inspectorate, whose role is to carry out the functions of an internal auditor within the ministry, and ensure that government rules and regulations are observed at all times. The MPWT has extensive experience in undertaking audits for externally financed projects. The Standard Operating Procedures for all Externally Financed Projects/Programs in Cambodia (May 2012) outline the requirements for internal audit</p>
<p>Inadequate external audit</p>	<p>The MEF will recruit an independent auditor to carry out external audits of all externally financed projects, including ADB-supported projects. The Standard Operating Procedures for all Externally Financed Projects/Programs in Cambodia (May 2012) outline the requirements for external audit</p>

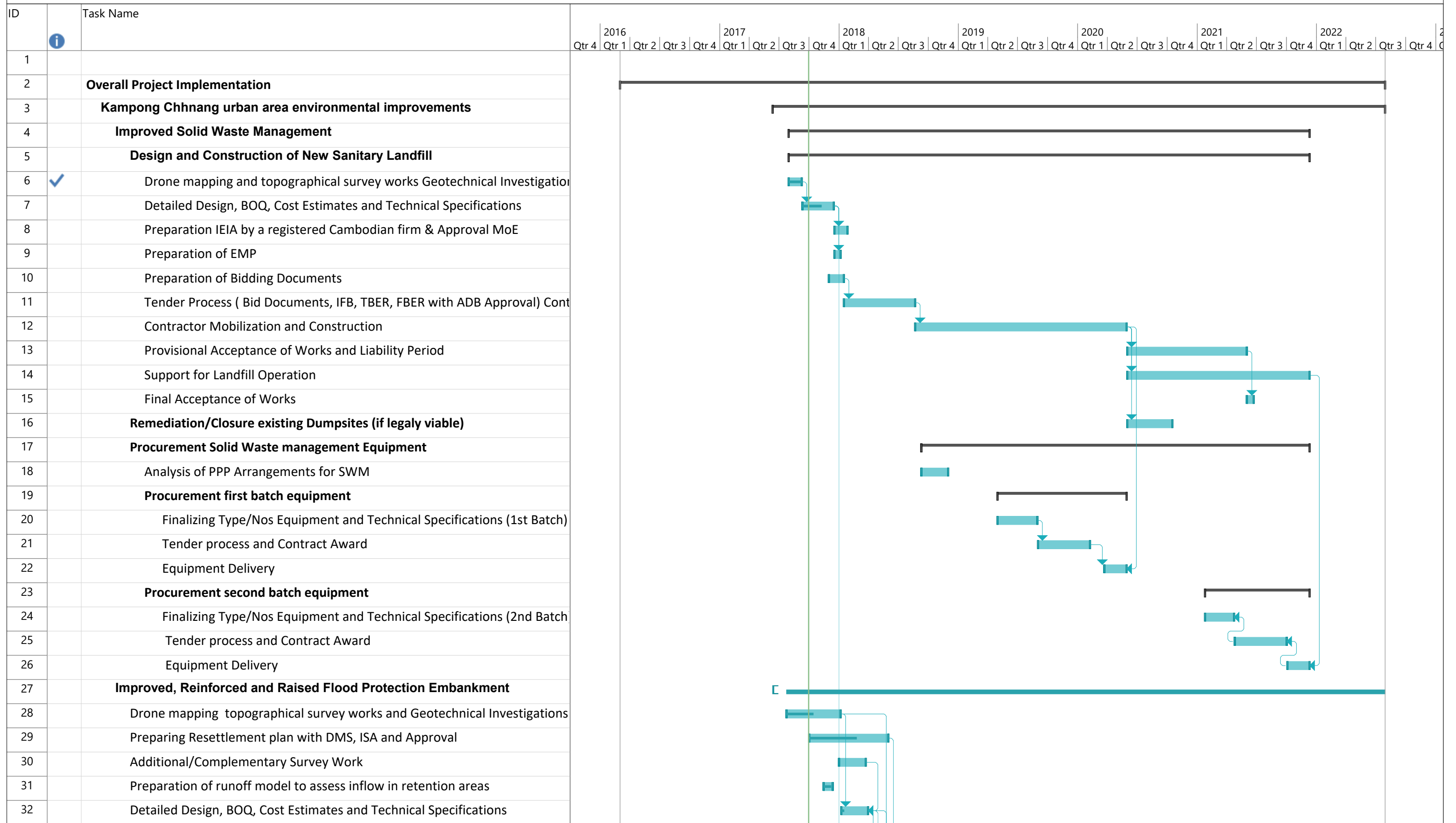
10 TARGETS FOR THE NEXT QUARTER

1. The targets for the next quarter can be summarized as follows:
 - To bring the ongoing resettlement program implemented by the local authorities in line with the ADB requirements through preparation of a comprehensive resettlement plan that will also include households already resettled by the local government. It was agreed the GDR would start a DMS of AH by the beginning of October. However since at data date most of the alignment will still be flooded it is expected that a comprehensive DMS can only be started when the alignment is again accessible.
 - Finalize the detailed designs and cost estimates for the construction of the Kampong Chhnang and Pursat sanitary landfill facilities. Priority will be given to finalizing the design for the Kampong Chhnang sanitary land fill site. The design for the Pursat Sanitary Landfill has the complication that the site made available by the local authorities is completely flooding during the rainy season and will require expensive land filling to raise the level of the site above the level of seasonal flooding.
 - Further detail the revised concepts for the Kampong Chhnang Flood Embankment and the improvement of the Pursat Drainage System, Waste Water Treatment and final disposal of storm water runoff and effluent from the proposed WWTP. The issues related to the designs of this infrastructure and proposed revised concept designs are presented in Annex 7.

Annexes

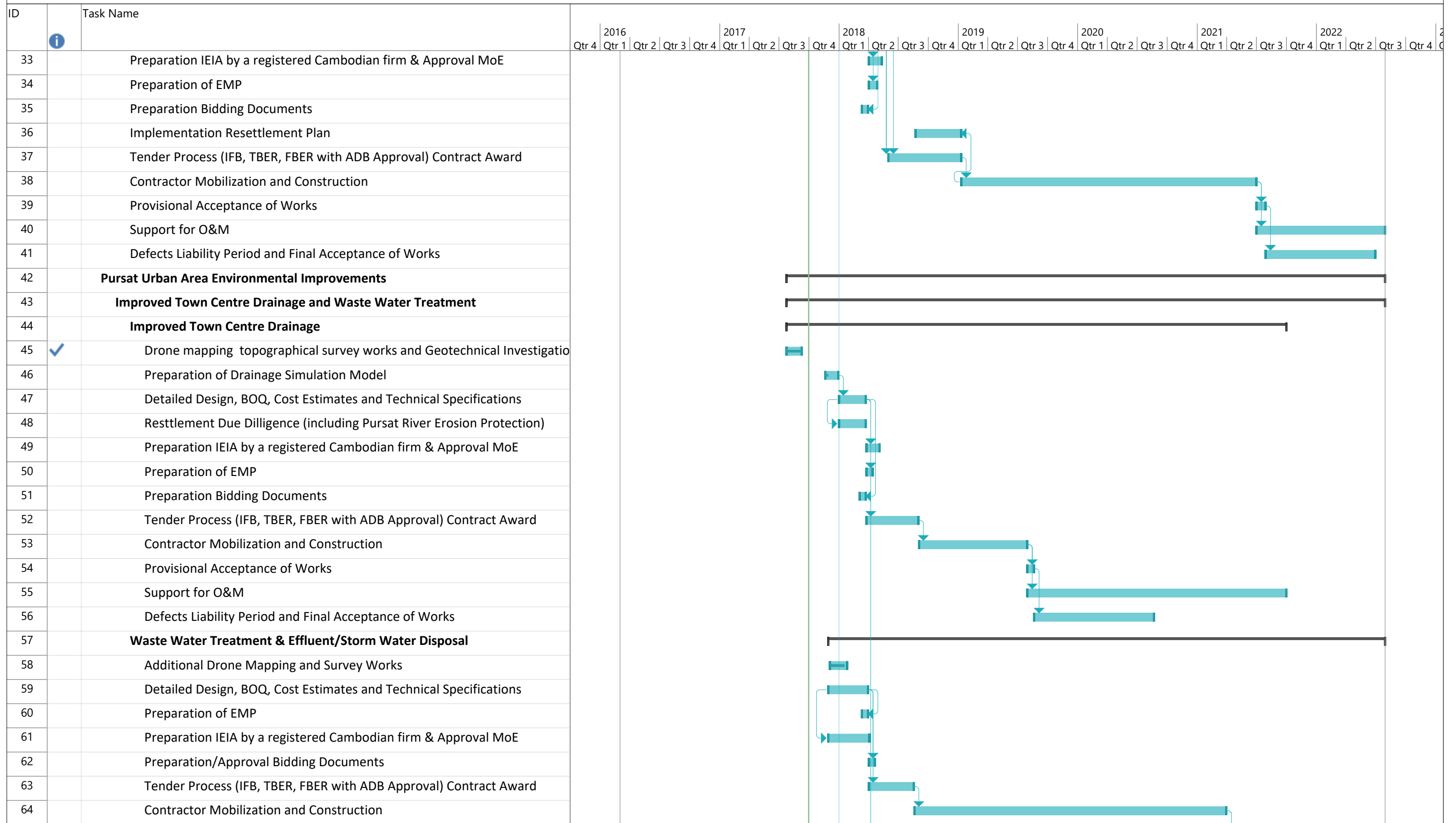
Annex 1 : Revised Implementation Schedule

Revised Implementation Schedule



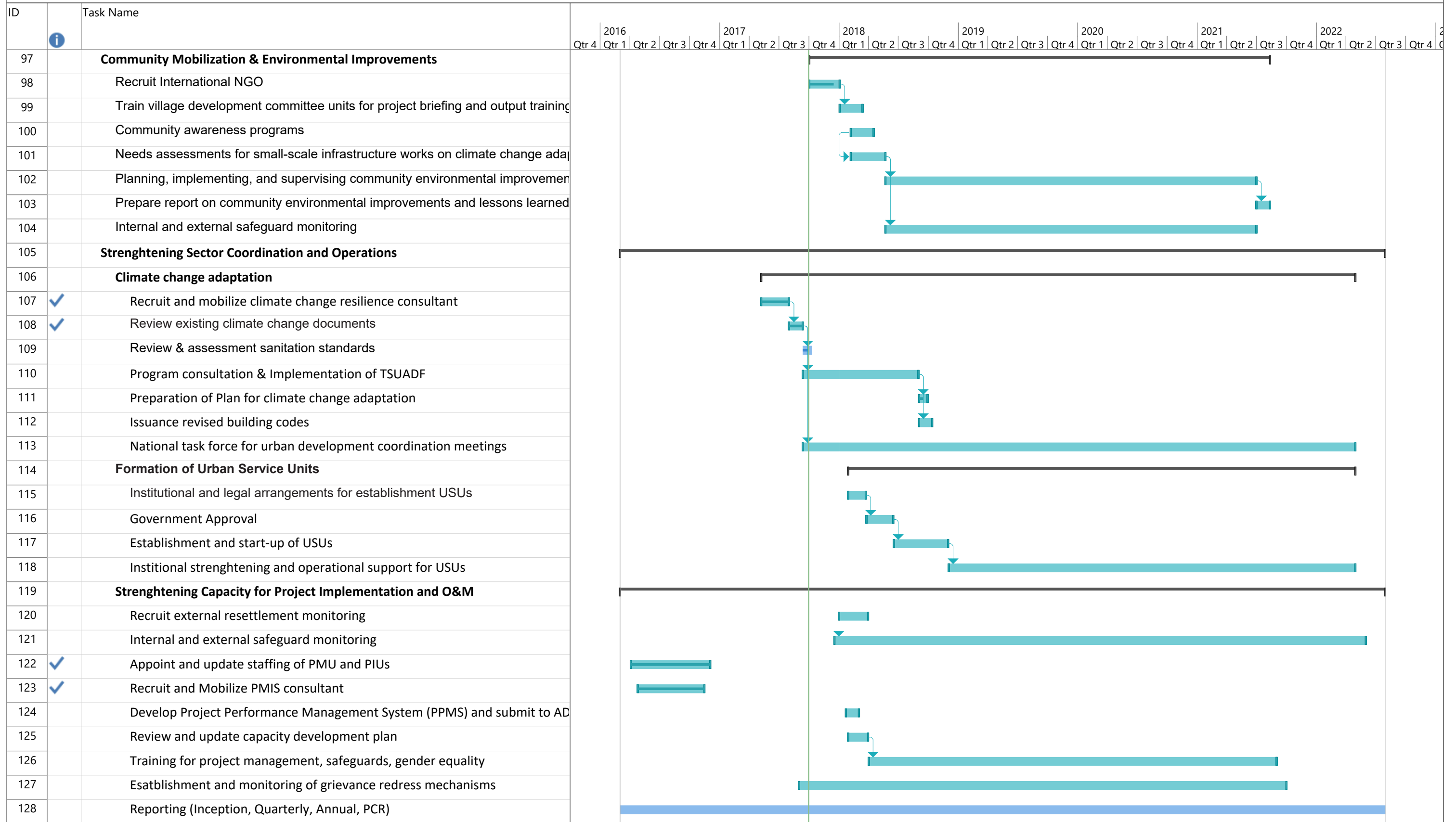
Project: Implementation schedu Date: Thu 1/11/18	Task		Project Summary		Manual Task		Start-only		Deadline	
	Split		Inactive Task		Duration-only		Finish-only		Progress	
	Milestone		Inactive Milestone		Manual Summary Rollup		External Tasks		Manual Progress	
	Summary		Inactive Summary		Manual Summary		External Milestone			

Revised Implementation Schedule



Project: Implementation schedu Date: Thu 1/11/18	Task		Project Summary		Manual Task		Start-only		Deadline	
	Split		Inactive Task		Duration-only		Finish-only		Progress	
	Milestone		Inactive Milestone		Manual Summary Rollup		External Tasks		Manual Progress	
	Summary		Inactive Summary		Manual Summary		External Milestone			

Revised Implementation Schedule



Project: Implementation schedule Date: Thu 1/11/18	Task	[Solid Blue Bar]	Project Summary	[Grey Bar]	Manual Task	[Teal Bar]	Start-only	[C-Shape]	Deadline	[Down Arrow]
	Split	[Dotted Blue Bar]	Inactive Task	[White Bar]	Duration-only	[Teal Bar with Gradient]	Finish-only	[J-Shape]	Progress	[Blue Line]
	Milestone	[Diamond]	Inactive Milestone	[Grey Diamond]	Manual Summary Rollup	[Teal Bar with Gradient]	External Tasks	[Grey Bar]	Manual Progress	[Blue Line]
	Summary	[Black Bar]	Inactive Summary	[Grey Bar]	Manual Summary	[Black Bar]	External Milestone	[Diamond]		

Annex 2 : Revised Personnel Schedule

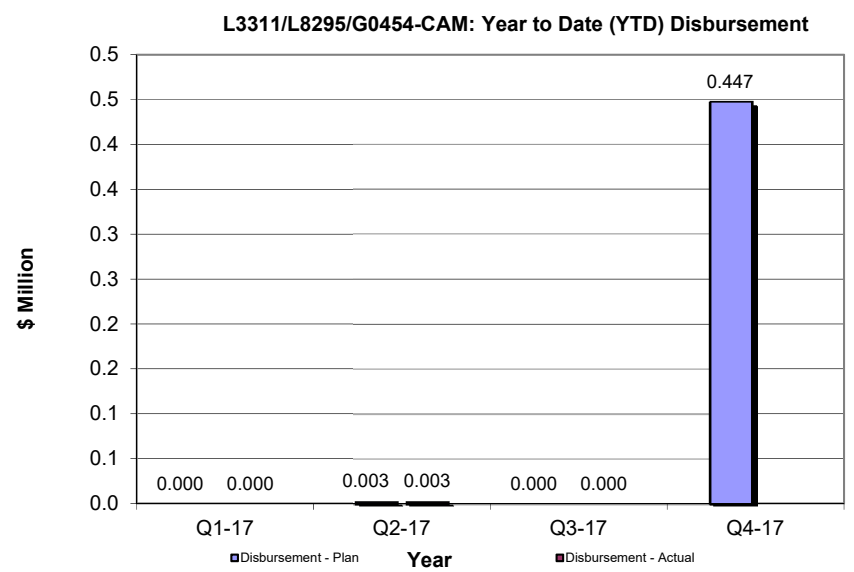
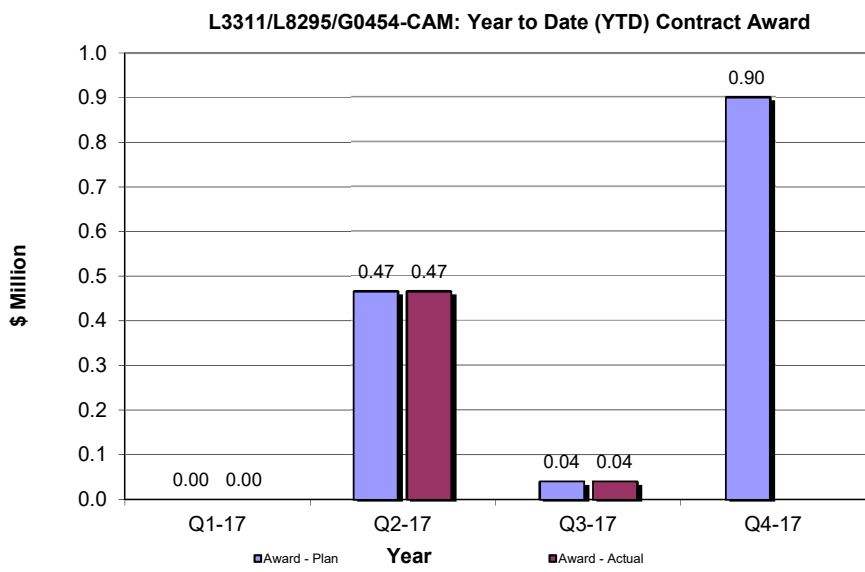
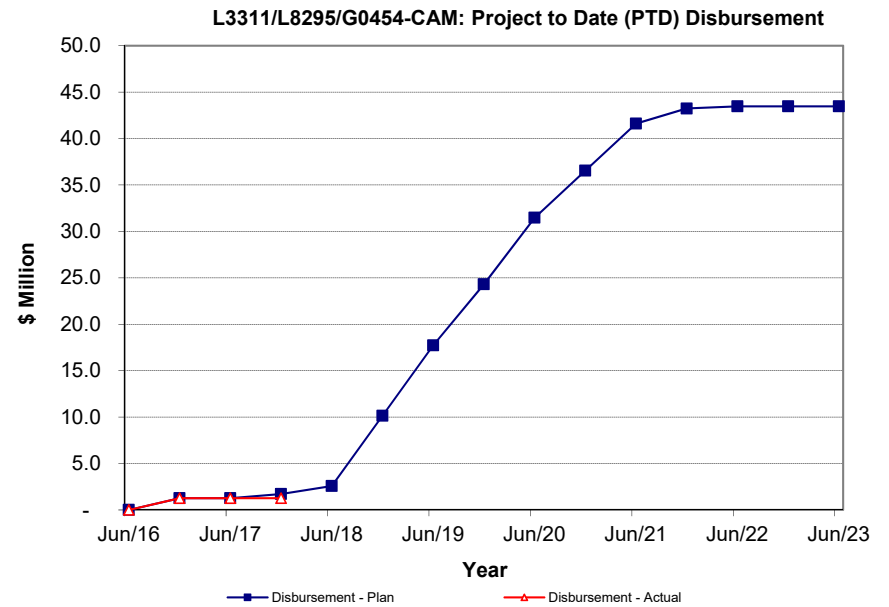
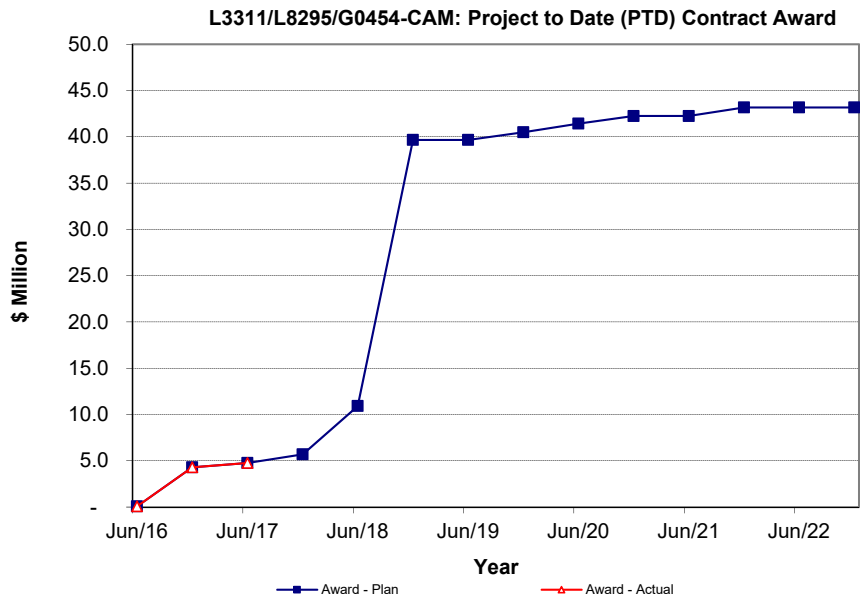
Annex 3 : Fund Utilization

Status of Loan Utilization (Loan 3311)							
Cat. Ref.	Category Name	US Dollars					
		Allocation	Contracts Awarded	Uncontracted Loan Balance	Contracts Disbursed	Undisbursed Loan Balance	Undisbursed Contract Balance
		A	B	C = A - B	D	E = A - D	F = B - D
01A	CW - KC Flood Protection	14,218,837	-	14,218,837	-	14,218,837	-
01B	CW - KC Solid Waste Mgt.	434,163	-	434,163	-	434,163	-
01C	CW - Pursat Flood Protection	604,727	-	604,727	-	604,727	-
01D	CW - Pursat Drainage	4,898,430	-	4,898,430	-	4,898,430	-
01E	CW - PS Solid Waste Mgt	1,029,023	-	1,029,023	-	1,029,023	-
01F	CW - KC Small-scale Inf. Dev.	740,051	-	740,051	-	740,051	-
01G	CW - PS Small-scale Inf. Dev.	740,051	-	740,051	-	740,051	-
02A	GD - KC Solid Waste Mgt.	737,231	-	737,231	-	737,231	-
02B	GD - PS Solid Waste Mgt	821,808	-	821,808	-	821,808	-
02C	GD - KC Embank. Manual Equipment	36,650	-	36,650	-	36,650	-
02D	GD - PS Flood Manual Equipment	36,650	-	36,650	-	36,650	-
02E	GD - PS Drainage Manual Equipment	36,650	-	36,650	-	36,650	-
03A	WS - Project Mgt & Implement Supp.	580,757	534,000	46,757	82,035	498,722	451,965
03B	WS - SSCD	9,867	-	9,867	-	9,867	-
04A	CS - PM & IS	3,407,553	3,577,913	(170,360)	536,381	2,871,172	3,041,532
04B	CS - SSCD	97,264	-	97,264	-	97,264	-
04C	CS - Survey & Investigations	67,010	85,000	(17,990)	12,621	54,389	72,379
05A	IA - Office and Travel Expense	401,742	40,369	361,373	48,337	353,405	(7,968)
05B	IA - Vehicles	152,239	134,500	17,739	134,500	17,739	-
05C	IA - Equipment	15,506	51,453	(35,947)	41,453	(25,947)	10,000
06	Interest During Implementation	1,402,476	-	1,402,476	8,633	1,393,843	(8,633)
07	Unallocatd	6,687,237	-	6,687,237	-	6,687,237	-
	Imprest Account	(22,509)	-	(22,509)	211,710	(234,219)	(211,710)
	Total	37,133,413	4,423,235	32,710,178	1,075,670	36,057,743	3,347,565

Status of Loan Utilization (Loan 8295)							
							As of 30 Sep 2017
Cat. Ref.	Category Name	US Dollars					
		Allocation	Contracts Awarded	Uncontracted Loan Balance	Contracts Disbursed	Undisbursed Loan Balance	Undisbursed Contract Balance
		A	B	C = A - B	D	E = A - D	F = B - D
1	CW - KC Flood Protection	4,982,000	-	4,982,000	-	4,982,000	-
2	Service During Implementaton	18,000	-	18,000	-	18,000	-
	Imprest Account			-	-	-	-
	Total	5,000,000	-	5,000,000	-	5,000,000	-

Status of Grant Utilization (Grant 0454)							
							As of 30 Sep 2017
Cat. Ref.	Category Name	US Dollars					
		Allocation	Contracts Awarded	Uncontracted Loan Balance	Contracts Disbursed	Undisbursed Loan Balance	Undisbursed Contract Balance
		A	B	C = A - B	D	E = A - D	F = B - D
01A	CW - PS Drainage	2,460,000	-	2,460,000	-	2,460,000	-
01B	CW - KC Sanitation Improvement	510,000	-	510,000	-	510,000	-
01C	CW - PS Sanitation Improvement	510,000	-	510,000	-	510,000	-
02A	WS - NGO SCEI	200,000	-	200,000	-	200,000	-
02B	WS - CCAUD	10,000	10,000	-	-	10,000	10,000
03A	CS - CCAUD	200,000	200,000	-	47,159	152,841	152,841
03B	CS - NGO SCEI	810,000	-	810,000	-	810,000	-
03C	CS - Survey and Investigation	100,000	165,796	(65,796)	-	100,000	165,796
04	Unallocated	200,000	-	200,000	-	200,000	-
	Imprest Account	-	-	-	146,841	-	-
	Total	5,000,000	375,796	4,624,204	194,000	4,952,841	328,637

Annex 4 : Contract Award and Disbursement Projections



CAMBODIA: INTEGRATED URBAN ENVIRONMENTAL MANAGEMENT IN THE TONLE SAP BASIN PROJECT 1

1 Approval Date	22-Dec-15	L3311/L829 \$ 43.10	L3311/L82 \$ 43.10	Elapsed	23.82%
2 Signing		Contract \$ 43.10	Contract \$ 43.10	Physical	6.29%
3 Effective	2-Mar-16	CA \$ 5.70	CA \$ 5.70	CA - Lag	10.60%
4 Closing	30-Apr-23	Disb. \$ 1.26	Disb. \$ 1.26	Disb. - Lag	20.89%
5 Current Run	15-Nov-17	CA \$ 4.80	CA 13.22%	Project - Lag	17.54%
		Disb. \$ -	Disb. 2.93%		

L3311/L8295/G0454-CAM

Project to Date	Jun-16	Dec-16	Jun-17	Dec-17	Jun-18	Dec-18	Jun-19	Dec-19	Jun-20	Dec-20	Jun-21	Dec-21	Jun-22	Dec-22	Jun-23
Award - Plan	0.085	4.292	4.758	5.699	10.913	39.668	39.668	40.495	41.419	42.246	42.246	43.170	43.170	43.170	43.170
Award - Actual	0.085	4.292	4.758	4.799	4.799	4.799	4.799	4.799	4.799	4.799	4.799	4.799	4.799	4.799	4.799
Disbursement - Plan	-	1.261	1.264	1.711	2.575	10.144	17.716	24.303	31.479	36.543	41.606	43.234	43.473	43.473	43.473
Disbursement - Actual	-	1.261	1.264	1.264	1.264	1.264	1.264	1.264	1.264	1.264	1.264	1.264	1.264	1.264	1.264
Year to Date		Q1-16	Q2-16	Q3-16	Q4-16	Q1-17	Q2-17	Q3-17	Q4-17	Q1-18	Q2-18	Q3-18	Q4-18		
Award - Plan		0.085	0.000	4.207	0.000	0.000	0.466	0.041	0.900	0.695	4.519	24.062	4.693		
Award - Actual		0.085	0.000	0.000	4.207	0.000	0.466	0.041							
Disbursement - Plan		0.000	0.000	0.000	1.261	0.000	0.003	0.000	0.447	0.432	0.432	1.142	6.427		
Disbursement - Actual		0.000	0.000	0.000	1.261	0.000	0.003	0.000							
Year to Date		Q1-19	Q2-19	Q3-19	Q4-19	Q1-20	Q2-20	Q3-20	Q4-20	Q1-21	Q2-21	Q3-21	Q4-21		
Award - Plan		0.000	0.000	0.827	0.000	0.924	0.000	0.827	0.000	0.000	0.000	0.924	0.000		
Award - Actual															
Disbursement - Plan		4.187	3.385	3.385	3.202	3.172	4.004	2.532	2.532	2.532	2.532	0.540	1.089		
Disbursement - Actual															
Year to Date		Q1-22	Q2-22	Q3-22	Q4-22	Q1-23	Q2-23								
Award - Plan		0.000	0.000	0.000	0.000	-	-								
Award - Actual															
Disbursement - Plan		0.119	0.119	0.000	0.000										
Disbursement - Actual															

Annex 5 : Overview of the input by Key International and National Specialists

PERSON-MONTH USED AND BALANCE AVAILABLE								
KEY EXPERT (INTERNATIONAL)								
No.	Expert / Position	Original Contract			Person-Month Used		Balance	
		Inputs (Person-Months)		Total Inputs	Total Inputs (Person-Months)		Total Inputs (Person-Months)	
		Home	Field		Home	Field	Home	Field
A. Remuneration								
Key Expert (International)								
K-1	Christopher Konecki/Louis RJK <i>Team Leader / Municipal Engineer</i>		35.00	35.00		5.10	29.90	
K-2	KIM, Dong Min <i>Geotechnical Engineer</i>		4.00	4.00		1.57	2.43	
K-3	Ricky Kwan <i>River Engineering Specialist</i>		8.00	8.00		-	8.00	
K-4	Herkko Kristian Torssonen <i>Solid Waste Management Specialist</i>		6.00	6.00		1.43	4.57	
K-5	Cliff Massey <i>Environment Specialist</i>		4.00	4.00		-	4.00	
K-6	Paul van Strijp <i>Social Development and Resettlement Specialist</i>		6.00	6.00		-	6.00	
K-7	Kerry Maxwell Blanch <i>Municipal Finance Specialist/Economist</i>		6.00	6.00		1.00	5.00	
K-8	Eric Baye <i>Private Sector Specialist</i>		3.00	3.00		-	3.00	
K-9	Claes Clifford <i>Institutional Specialist</i>		6.00	6.00		-	6.00	
	Subtotal Key Expert (International)			78.00		9.11	68.89	
KEY EXPERT (NATIONAL)								
No.	Expert / Position	Original Contract			Person-Month Used		Balance	
		Inputs (Person-Months)		Total Inputs	Total Inputs (Person-Months)		Total Inputs (Person-Months)	
		Home	Field		Home	Field	Home	Field
Key Expert (National)								
KN1	Phai Sokheng <i>Deputy Team Leader/Civil Engineer 1</i>	33.00		33.00		2.11	30.89	
KN2	Srey Socheat <i>Deputy Team Leader/Civil Engineer 2</i>	33.00		33.00		7.00	26.00	
KN3	Ty Sopheak/Chea Ketia <i>National Geotechnical Engineer</i>	12.00		12.00		0.20	11.80	
KN4	Som Kosal <i>Senior Civil Engineer 1</i>	12.00		12.00		-	12.00	
KN5	Sim Sen <i>Senior Civil Engineer 2</i>	12.00		12.00		-	12.00	
KN6	Phung Katry <i>Civil Engineer-River Hydrology</i>	12.00		12.00		-	12.00	
KN7	Yim Mong Toeun <i>Civil Engineer-Solid Waste Management</i>	10.00		10.00		1.83	8.17	
KN8	Chhoeum Ravann <i>Resident Engineer 1</i>	12.00		12.00		-	12.00	
KN9	So Saran <i>Resident Engineer 2</i>	12.00		12.00		-	12.00	
KN10	Chhor Ratha <i>Site Engineer 1</i>	20.00		20.00		-	20.00	
KN11	Ro Rosbunnat <i>Site Engineer 2</i>	20.00		20.00		-	20.00	
KN12	Pong Veasna <i>Site Engineer 3</i>	20.00		20.00		-	20.00	
KN13	Vuth Ratha <i>Site Engineer 4</i>	20.00		20.00		-	20.00	
KN14	Chhay Theara <i>AutoCAD Operator-Solid Waste Management</i>	10.00		10.00		-	10.00	
KN15	Norm Mara <i>AutoCAD Operator-Drainage and River Bank Protection</i>	8.00		8.00		-	8.00	
KN16	Pen Titdara <i>AutoCAD Operator-Flood Control</i>	8.00		8.00		2.00	6.00	
KN17	Hep Srey Leak <i>Gender and Development Specialist</i>	6.00		6.00		-	6.00	
KN18	Chap Samoeun <i>Resettlement Specialist 1- Pursat</i>	6.00		6.00		1.80	4.20	
KN19	Mel Sophanna <i>Resettlement Specialist 2- Kampon Chhnang</i>	18.00		18.00		-	18.00	
KN20	Chea Mong <i>Environment Specialist</i>	12.00		12.00		-	12.00	
KN21	Ouk Monyroath <i>Financial Management/Accounting Specialist</i>	60.00		60.00		-	60.00	
KN22	Bun Sangvar <i>Procurement Specialist</i>	24.00		24.00		-	24.00	
KN23	Chan Vannak <i>Municipal Finance/Tariff/Economic Specialist</i>	24.00		24.00		1.60	22.40	
KN24	Houth Ratanak <i>Human Resource/Training Coordinator</i>	24.00		24.00		-	24.00	
	Subtotal Key Expert (National)			428.00		16.54	411.46	
	Total International + National			506.00			480.35	

Annex 6 : Compliance with Loan Covenants

Ref	COVENANT	STATUS	ACTION TO BE TAKEN	TIMELINE/FOLLOW UP ACTIONS
Covenants in the Loan Agreement				
Sched 5, para 2	Tonle Sap Urban Areas Development Framework. Within 18 months of the Effective Date, the Borrower shall ensure the adoption of the Tonle Sap Urban Areas Development Framework, an urban planning document that guides sustainable and climate resilient infrastructure development and growth of urban areas in the Tonle Sap basin.	Due in September 2017. Under review by Under Secretary of State.	Prakas to be adopted following further review by Secretary of State, Minister MPWT.	Adoption is pending.
Sched 5, para 3	Roadmap for Establishing Urban Service Units: Within 12 months of the Effective Date, the Borrower shall ensure, and cause the Project Executing Agency to ensure, that the plans for establishing semi-autonomous USUs within the municipalities of Kampong Chhnang and Pursat are in place, including relevant draft ministerial <u>prakas (or ministerial decisions)</u> to be signed by MPWT for the establishment of USUs, its board of directors (or its equivalent), staffing requirements, human resource recruitment plan, office location, reporting responsibilities, financial management and audit requirements, good governance actions, assets transfer, and <u>timeline and process of conversion from a PIU to a USU.</u>	Complete as of 29 March 2017.	Ministerial Prakas (103 PRK/SK for Pursat and 104 PRK/SK for Kampong Chhnang), issued on 29 March 2017, establishes the Ministry's commitment for formally establishing a self-financed "wastewater and solid waste management unit in each of the municipalities.	The request for proposals for the Strengthening Sector Development (CS03) consultancy package tasked with the establishment of the USUs was not successful. It was agreed that the possibility to merge the TOT of the CS)# package with the TOR of the PMIS consultants.
Sched 5, para 4	Environmental Sanitation Fees. Within 18 months of the Effective Date, the Borrower shall ensure, and cause the Project Executing Agency to ensure, that each USU conducts a review of existing Environmental Sanitation Fees levied in the municipalities of Kampong Chhnang and Pursat and completes a feasibility study on levying Environmental Sanitation Fees that recovers operations and maintenance costs and gradual depreciation of solid waste management, flood control and drainage, taking into account affordability for the poor.	Due in September 2017.	Review ongoing under PMIS.	Studies on environmental sanitation fees that would ensure O&M cost recovery and gradual depreciation cost will be completed in the 1 st quarter of 2018. However initial assessments have revealed that self-financing of wastewater and SWM will be very difficult
Sched 5, para 5	Project Performance Monitoring and Evaluation. Within 18 months of the Effective Date, the Borrower shall ensure, and cause the Project Executing Agency to ensure, that a project performance monitoring and evaluation is established, acceptable to ADB, to monitor and evaluate the Project performance during implementation.	Due in September 2017	ADB to share template for use in future reporting.	Since multiple consultant teams are involved in the implementation of the project responsibilities for and coordination of data collection will need proper coordination. And possibly the development of an online data collection system

<p>Sched 5, para 6</p>	<p>Environmental Decommissioning of Open Dumpsites. The Borrower shall ensure and cause the Project Executing Agency to ensure that the open dumpsites in Kampong Chhnang and Pursat relating to the Project shall be closed and properly decommissioned according to the plans set forth in the IEEs and finally in the IEEs updated during detailed design.</p>	<p>Not yet due</p>	<p>The existing open dumpsites are mainly located on private land owned or leased by the SWM contractors. The legal implications of closing these private dumpsites with public funds still have to be explored</p>	<p>It is proposed to add a national legal specialist to the PIMS team for assessment of legal issues with regard to closing private dumpsites</p>
<p>Sched 5, para 7</p>	<p>Plan for Climate Change Adaptation. Within 36 months of the Effective Date, the Borrower shall ensure that the Project Executing Agency has adopted the plan for climate change adaptation in urban areas around the Tonle Sap and revised building codes.</p>	<p>Not yet due.</p>		
<p>Sched 5, para 8</p>	<p>Counterpart Funds. The Borrower shall ensure that all counterpart funds necessary for the Project is provided on a timely basis.</p>	<p>Ongoing.</p>		
<p>Sched 5, para 9</p>	<p>Environment. The Borrower shall ensure, and cause the Project Executing Agency to ensure, that the preparation, design, construction, implementation, operation and decommissioning of the Project and all Project facilities comply with (a) all applicable laws and regulations of the Borrower relating to environment, health and safety; (b) the Environmental Safeguards; and (c) all measures and requirements set forth in the EARF, IEEs, the EMPs, and any corrective or preventative actions set forth in a Safeguards Monitoring Report. The Borrower shall ensure, and cause the Project Executing Agency to ensure, that the foregoing is applied and implemented for all outputs of the Project described in Schedule 1, regardless of the financing source.</p>	<p>Ongoing.</p>	<p>Preparatory activities are ongoing for updating the subproject IEEs and the preparation of the EMPs, as well as for the preparation of the government mandates IEAEs to be prepared by an independent licensed firm.</p>	<p>Updating of IEEs and preparation of EMP can only be done after the detailed designs have been substantially completed. It is expected that the detailed designs for the sanitary landfills will be completed by the end of the next quarter</p>
<p>Sched 5, para 10</p>	<p>Land Acquisition and Involuntary Resettlement. The Borrower shall ensure, and cause the Project Executing Agency to ensure, that all land and all rights-of-way required for the Project are made available to the Works contractor in accordance with the schedule agreed under the related Works contract and all land acquisition and resettlement activities are implemented in compliance with the RPs based on (a) all applicable laws and regulations of the Borrower relating to land acquisition and involuntary resettlement; (b) the applicable principles and requirements set forth in the SPS; and (c) any necessary corrective or preventative actions as agreed by the IRC set forth in a Safeguards Monitoring Report.</p>	<p>Non-compliant. The local government had embarked on a broad resettlement of HH residing on the Tonle Sap river bank and in the tourist port area. This</p>	<p>Recruitment of external monitoring organization to monitor implementation of the RPs to be undertaken by the IRC.</p>	

	<p>Without limiting the application of the SPS or the RPs, the Borrower shall ensure or cause the Project Executing Agency to ensure that no physical or economic displacement takes place in connection with the Project until:</p> <p>(a) prior to the award of any Works contract which involves involuntary resettlement impacts, the Borrower has (i) updated the agreed RPs following completion of detailed design; and (ii) prepared, disclosed to affected persons and submitted to ADB the final RPs based on the Project's detailed design and obtained ADB's concurrence with such RPs;</p> <p>(b) compensation and other entitlements have been provided to affected people in accordance with the RPs; and</p> <p>(c) a comprehensive income and livelihood improvement program has been put in place in accordance with the RPs.</p>	<p>resettlement initiative was independent from the proposed flood embankment. However since some of the HH were located in the alignment of the proposed embankment ADB found that this the ongoing resettlement was an integral part of the project and that therefore the project was not in compliance with the resettlement covenants.</p>	<p>GDR has committed to conducting the required steps to collect information regarding the households that area already resettled and those that are currently being resettled along 11+000 to 13+000 of the Kampong Chnnang embankment. This includes conducting meaningful consultations with AH and colleting the DMS and socio-economic profile of the AHs and develop a plan to compensate them retroactively in accordance with ADB SPS (2009). GDR has committed to coordinating with the ADB Specialist to provide monthly updates until the non-compliance is rectified.</p>	<p>GDR will start the DMS by the beginning of October</p>
<p>Sched 5, para 11</p>	<p>Indigenous Peoples. The Project, including Output 3 described in Schedule 1 hereto, shall benefit Ethnic Minorities. The Borrower shall ensure and cause the Project Executing Agency to ensure, that it adheres to applicable laws and regulations of the Borrower relating to indigenous peoples, and the Indigenous Peoples Safeguards and any corrective or preventative actions set forth in a Safeguard Monitoring Report.</p>	<p>Not yet due</p>		
<p>Sched 5, para 12</p>	<p>Human and Financial Resources to Implement Safeguards Requirements. The Borrower shall ensure, and cause the Project Executing Agency to ensure, to make available the necessary budgetary and human resources to fully implement the EARF, EMPs and the RPs.</p>	<p>Not yet due</p>		
<p>Sched 5, para 13</p>	<p>Safeguards – Related Provisions in Bidding Documents and Works Contracts. The Borrower shall ensure, and cause the Project Executing Agency to ensure, that all bidding documents and contracts for Works contain provisions that require contractors to:</p>	<p>Not yet due</p>		

	(a) comply with the measures relevant to the contractor set forth in the EARF, IEEs, the EMPs and the RPs (to the extent they concern impacts on affected people during construction), and any corrective or preventative actions set forth in a Safeguards Monitoring Report;			
	(b) make available a budget for all such environmental and social measures; and			
	(c) provide the Borrower with a written notice of any unanticipated environmental, resettlement or indigenous peoples risks or impacts that arise during construction, implementation or operation of the Project that were not considered in the EARF, IEEs, the EMPs and the RPs.			
Sched 5, para 15	Safeguards Monitoring and Reporting. The Borrower shall ensure, and cause the Project Executing Agency to do the following:	Noncompliant with Para 15(a). Land acquisition and resettlement of HH along the Tonle Sap river bank was started as part of a broad resettlement initiative by the provincial Government not directly related to the project. The ADB however found that the resettled HH should be considered project affected people, and that therefore the loan covenants applied	External monitoring organization to be recruited by GDR	To be recruited
	(a) no later than the commencement of land acquisition and resettlement activities, engage qualified and experienced external monitoring organization(s) (EMO), under the terms of reference(s) acceptable to the Borrower and ADB to verify information produced through the Project monitoring process and facilitate the carrying out of any verification activities;			
	(b) submit quarterly Safeguards Monitoring Reports relating to implementation of and compliance with the RPs and submit semi-annual Safeguards Monitoring Reports relating to the implementation of and compliance with the EARF, EMPs, and any IPP (if it becomes applicable), in each case to ADB and disclose relevant information from such reports to affected persons promptly upon submission;			
	(c) if any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the EARF, IEEs, the EMPs and the RPs, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; and			
	(d) report any actual or potential breach of compliance with the measures and requirements set forth in the EARF, EMPs or the RPs promptly after becoming aware of the breach.			

<p>Sched 5, para 16</p>	<p>Gender and Development. The Borrower shall ensure, and cause the Project Executing Agency to ensure, that (a) the GAP is implemented in accordance with its terms; (b) the bidding documents and contracts include relevant provisions for contractors to comply with the measures set forth in the GAP; (c) adequate resources are allocated for implementation of the GAP; (d) progress on implementation of the GAP, including progress toward achieving key gender outcome and output targets, are regularly monitored and reported to ADB; and (e) key gender outcome and output targets including, but not limited to, 30% of staff in the PMU and PIUs and 20% of staff of USUs shall be composed of women.</p>	<p>Ongoing.</p>	<p>This quarterly report for 2017 by 31 October 2017, includes section of GAP progress.</p>	
<p>Sched 5, para 17</p>	<p>Labor. The Borrower shall ensure, and cause the Project Executing Agency to ensure (i) compliance with all applicable labor laws of the Borrower on the prohibition of child and forced labor; (ii) giving of equal pay for equal work regardless of gender, ethnicity or social group; and (iii) dissemination of information on sexually transmitted diseases (including HIV/AIDS) and human trafficking to sub-contractors/employees and local communities surrounding the Project construction sites.</p>	<p>Ongoing</p>		
<p>Sched 5, para 18</p>	<p>Governance and Anticorruption. The Borrower, the Project Executing Agency and the Project Implementing Agencies shall (a) comply with ADB's Anticorruption Policy (1998, as amended to date) and acknowledge that ADB reserves the right to investigate directly, or through its agents, any alleged corrupt, fraudulent, collusive or coercive practice relating to the Project; and (b) cooperate with any such investigation and extend all necessary assistance for satisfactory completion of such investigation.</p>	<p>Ongoing</p>		
	<p>The Borrower, the Project Executing Agency and the Project Implementing Agencies shall ensure that the anticorruption provisions acceptable to ADB are included in all bidding documents and contracts, including provisions specifying the right of ADB to audit and examine the records and accounts of the executing and implementing agencies and all contractors, suppliers, consultants, and other service providers as they relate to the Project.</p>	<p>Ongoing</p>		
<p>Sched 5, para 19</p>	<p>Prohibited List of Investments. The Borrower shall ensure that no proceeds of the Loan are used to finance any activity included in the list of prohibited investment activities provided in Appendix 5 of the SPS.</p>	<p>Ongoing</p>		

Annex 7 : Design Issues

DESIGN ISSUES

Kampong Chhnang Flood Embankment and Pursat Drainage System

The following is a presentation of issues that have transpired in the preparation for the detailed designs of the Kampong Chhnang Flood Embankment and the Pursat Drainage system. These issues should have come up during the inception phase but unfortunately no thorough review was done of the PPTA proposal during that time. Nevertheless it is important that these issues be addressed before finalizing the detailed designs.

A. Kampong Chhnang Flood Protection Embankment

The flood protection embankment as proposed in the PPTA follows the alignment of an old embankment that was built during the Khmer Rouge period. The embankment encircles a floodplain area located at the East of Kampong Chhnang town on the bank of the Thonle Sap River. This floodplain area is dissected by an access road and adjacent urban development to a simple boat landing facility (known as the tourist port) constructed near the river low water level at an elevation of 11.6 m. This access road divides the floodplain area in two sections; a small north eastern section covering 2.2 km² up to the 10m contour and a larger south eastern section covering 6.1 km² up to the 10 m contour. The north eastern section is poorly drained and large parts remain waterlogged during the dry season. Some small areas are used for agriculture. About 80% of the south eastern flood plain section is used for dry season agriculture. This area benefits from the seasonal flooding by the Thonle Sap River which brings deposits of nutrient rich sediments. For dry season paddy cultivation in this area there is a lift (pumped) irrigation systems. It is not known if this system is still operational.

To assess the inflow of drainage water in to the lowland/floodplain area a flow a GIS flow accumulation analysis was done based on the SRTM 30m Digital Elevation Model was used. The analysis shows (see figure 1) that more than 90% of the Kampong Chhnang urban area is located above the 13m contour, which is the design level proposed in the PPTA for the flood protection embankment.

With regard to the design level it should be noted that this level was fixed at 13m based on a flood frequency analysis that gave a maximum water level of 12.434 meters above mean sea level for a return period of 50 years, adding freeboard of 56 cm. For the flood frequency analysis the Gumbel probability distribution was used (of the generalized extreme value family). The accuracy of the analysis depends on how well the probability distribution of the selected method fits the sample data. In this cause the distribution of the Gumbel method gives a very poor fit with the sample data. The Dagum and the Weibull methods (both EV methods) provide better fits and much lower maximum water levels for a 50 year return period (11.75m and 11.68 respectively). Considering a freeboard of 50 cm the embankment height would be 12.30m. Expanding the data series on maximum water levels from 2011 to 2016 and assuming a future reduction in maximum water levels by an average of 50 cm would justify lowering the embankment design level to 13 m. This would also be a better fit with the completed embankment works north of the proposed embankment.

Moreover, the analysis in the PPTA is based on historic water level data does not take into consideration the effect of manmade intervention in the Mekong River on the future water levels in the Tonle Sap Water-balance calculations for Tonle Sap Lake have shown that most of the inflow into the lake (57%) originates from the Mekong main stem, either by discharge through the Tonle Sap River (52%) or by overland flooding (5%) (21). Tributaries to Tonle Sap Lake contribute about 30%, and precipitation directly into the lake contributes some 13% of inflow. The flow in the Mekong River is the principal factor determining the flood pulse of Tonle Sap Lake. Several studies have been made to estimate the flow alteration in the Mekong River due to upstream development and its impacts on the Tonle Sap flood pulse The ADB conducted a basin wide cumulative impact assessment within the Nam Thuon 2 EIA study. In 20 year scenario developed in this study, the ADB assessment predicts that the average annual maximum level of Tonle Sap Lake will be lowered in average by 0.54 m and the dry season water levels increased by about 0.60 m. Hydropower dam regulation will probably be the main cause of flow alterations in the near foreseen future.

With regard to runoff flow into the floodplain area behind the proposed embankment, the flow accumulation analysis shows (see figure 2) that about 26.4 km² of the Kampong Chhnang urban and peri-urban area drain directly in to the small north eastern floodplain section. Assuming an average annual rainfall of 1.400mm and a conservative runoff factor of .03, the runoff volume which enters this

area would be about 10M m³. The retention capacity of this floodplain section is about 1.2M m³ up to the 8m contour and about 3.1M m³ up to the 10m contour. The excess inflow can only be drained off up to the water level in the river. The water level in the floodplain area behind the proposed embankment will therefore mirror the water level in the river.

The analysis also shows that 14.3 of the Kampong Chhnang urban and peri-urban area drains directly into the south eastern flood plain area behind the proposed embankment. As about 40% of this area is fully urbanized a slightly higher runoff factor of 0.4 has been assumed and this gives an annual runoff volume of 6.8M m³. As most of the area between the elevations of 7.5 to 10 m is leveled for paddy cultivation the retention capacity of this area is limited. Up to the 8m contour the retention capacity is about 1.4M m³ and up to the 10m contour the capacity is 4.8m m³. After construction of the proposed embankment the area would remain flooded up to the 8m contour and could experience periodic flooding up to the 10 m contour after periods of high rainfall.(see figure 3.)

The PPTA summarizes an analysis that: “the annual hydrological cycle of the Tonle Sap is the main cause of flooding in Kampong Chhnang. While minor flooding can also be caused by run-off from the adjacent hills, this is much less of an issue and is being addressed by the current JICA interventions” As conclusion the PPTA states that: “The strategy for flood protection in Kampong Chhnang is to prevent flooding from the Tonle Sap by raising and strengthening the existing embankment to: (i) Prevent flooding in the main town; (ii) Provide improved access to services for those living adjacent to, or on, the Tonle Sap; (iii) Complement the ongoing drainage works in the town; (iv) Minimize flooding of agriculture land; and (v) Improve the overall environment and aesthetics of the town”

Achieving the above outcomes or objectives for the construction of the proposed flood protection embankment are not supported by our GIS analysis and field level observations:

- More than 90% of the Kampong Chhnang urban area is located above the maximum flood level in the Thonle Sap River, therefore the proposed embankment would not have any significant influence on possible flooding of the urban area. Flooding in this area would be caused by backed up runoff/drainage water.
- The impact on improvement of access for those living adjacent to the Thonle Sap would be limited to the few households located along the northern section of the embankment. With the construction of a new port facility north of the proposed embankment and to improvement of road access from the town to this area has already this outcome has already largely been achieved
- In its present design the embankment will trap all drainage/runoff flow from the urban and peri-urban areas and will therefore not contribute in complementing or improving the drainage of the town area. The drainage lines improved under JICA assistance will reduce flooding in the urban areas but discharge directly in the floodplain/lowland areas behind the proposed embankment.
- The embankment will not significantly reduce flooding of agriculture land. Blockage of free drainage outflow to the river might even increase flooding in the north eastern section of the low laying area behind the embankment. There might even be a negative impact as the embankment will prevent the seasonal inflow of Thonle Sap water which carries nutrient rich sediments.
- As the embankment will cutoff the free flow of drainage/runoff to the Thonle Sap but trap all drainage water in the low areas behind the embankment, this can hardly be qualified as an environmental improvement.

The proposed embankment in its present design will not produce the above listed outcomes of objectives. However the embankment would open the opportunity for land reclamation especially the north eastern floodplain section as well as in certain sections of the south eastern flood plain section. This could also be achieved with a much more cost effective embankment alignment and design but would need substantial additional investment for drainage improvement and land reclamation (mainly by filling).

Because of the issues outlined above the investment of an estimated USD 21M in the construction/rehabilitation of an embankment that by itself would contribute very little to flood protection of the Kampong Chhnang urban areas and would also not significantly reduce flooding of the low lands behind the embankment seems to be excessive. Therefore the following design

changes are proposed that would significantly reduce the construction cost of the embankment and increase its efficiency (see figure 4.):

- Reduce the design level of the embankment from 13 m to 12 m (subject to a more detailed flood frequency analysis and the influence of the changes in the flow regime in the Mekong River on water levels in the Thonle Sap lake), to bring the design criteria more in line with the criteria used by the Government in the design of other sections of the river embankment. With this design level not costly embankment works and the associated resettlement of houses and shops would be required in the tourist port area.
- The southern section of the proposed embankment aligned around low lying agriculture land contributes very little to the protection of this land. Large sections will remain flooded as at a minimum waterlogged by drainage/runoff flows that will be intercepted by the embankment and cannot be discharged in the river because of high water levels in the river. Draining the low lying areas by pumping would require additional expensive infrastructure (drainage canals, pumping stations and ancillary works) which would not be economically viable nor financially sustainable because of high O&M cost. It is therefore proposed to realign part of the proposed southern embankment along the existing road embankments. This would protect areas above the 10m contour from flooding and would allow for land reclamation of some low lying areas along the embankment. This realignment would reduce the embankment length by 4 km and the embankment volume with about 80%.
- As mentioned in earlier reports the reinforced concrete embankment proposed in the PPTA for the northern section of the embankment along the Tonle Sap River bank would be replaced with an earthen embankment. This section of the embankment together with the proposed embankment south of the existing tourist port will be designed as a river/water front development with a wider top surface and selective land reclamation to enhance the market, recreational and tourist potential around the present tourist port area and the commercial potential in the area where the new port is constructed and a future bridge is planned. This section of the embankment proposed for river front development will link the tourist port area with the new commercial development around the new port facility.
- In the north the embankment will be extended to protect the ongoing commercial development and the creation of resettlement areas for households affected by the construction of the embankment.

With the proposed changes the cost of the embankment reconstruction would be reduced from USD 21M estimated in the PPTA to about USD 16M. The savings could be used for the essential improvement of drainage of the remaining low lying areas behind the embankment and selective land reclamation.

To avoid the complete flooding of the northern section of the floodplain area behind the embankment it will be necessary to canalize the drainage/runoff water from the inflow point in the low lying areas at the crossing of the main drainage stream with the highway, to the flood embankment. For this purpose it is proposed to construct a drainage channel from the above indicated drainage inflow point to the northern edge of the proposed embankment near the new port facility. The level difference between these two points, 15 m at the highway crossing and an average high flood level of 10m, would allow for gravity flow of the drainage/runoff water. At the outflow point in the flood embankment a gated outflow structure will have to be constructed. The gates could be closed in the event of extreme high flood levels and are required to close inflow from the river during maintenance of the canal in the dry season. This would only be the first step in the reclamation of these low lands. Most of this area is waterlogged and can only be reclaimed by raising the ground level through filling. It should be noted that any other solution for land reclamation that involves pumping would not be financially sustainable.

For the southern section of the embankment drainage of small low lying areas behind the embankment will be needed, possibly through the construction of a drainage channel at the toe of the inner slope of the embankment. It might also be necessary to undertake selective land reclamation by filling low lying areas to eliminate stagnant water pools of drainage water.

B. Pursat drainage and waste water treatment.

A detailed topographical survey has been completed for the Pursat Town drainage area. From the detailed survey a Digital Elevation Model was derived and this model show that the drainage problem is not as complex as presented in the PPTA (see figure 5). The drainage area is sloping with relative uniformity toward to outfall point at the proposed site for the waste water treatment plant with an average slope of 1:500. There are minor depressions that can be easily overcome. It will not be necessary to discard the complete existing drainage system (24 km pipeline) and there is no need for deep excavation for installation of pipelines. Sewage and storm water can be conveyed to the site of the treatment plant by gravity flow with an outfall at grade level. This will considerably reduce the cost of rehabilitation/improvement of the existing system.

A complication is that under a consultancy for the Thonel Sap 2 Project it was concluded that the area designated for the waste water treatment plant was insufficient and therefore instead it was proposed to construct a septage treatment plant. One of the justifications for this change was that at present there are very few direct sewerage connection to the storm water drainage system.

This assertion is not supported by the presence of a large pool of stagnant sewage between the two outfall points of the present drainage system. Between these two outfall points pools of sewage have formed in the defunct irrigation canal and on both sides of the irrigation canal covering an area of about 1,5 ha, with an accumulated volume of sewage of about 10.000 m³. Overflow from these pools of sewage is drained off through an old branch canal of the now defunct irrigation system. During the rainy season the sewage is diluted by the inflow of storm water and outflow from the sewage pool increases significantly and is drained off through the old irrigation system main canal and a second branch canal to the west. A main sanitation issues is that household located along these canals have no access to water from wells or piped drinking water and use the water from these canals for domestic purposes. (see figure 6).



Photo 1: Pools of stagnant sewage between the two outfall points of the Pursat Drainage system

Safe disposal of the outflow from the drainage system is difficult. The SRTM 30m DEM of the area show that the outfall points and the site for the waste water treatment plant are located at one of the

lowest elevations in the area. There are no viable drainage lines from these points to any direction. At present the outflow from the drainage systems accumulates in the above mentioned pool of sewage and with high inflow volumes the pool overflows in all directions mainly through the badly deteriorated main and branch canals of the defunct irrigation system, causing localized flooding.

To prevent the outflow and accumulation of raw sewage from the drainage system as described above, treatment of waste water would be the highest priority in the improvement of the drainage system. This could be done either by installing septic tanks in all the direct present and future connections to the drainage system or the construction of a waste water treatment facility on the available 3 ha. site. Installing septic tanks and the densely urbanized sections of the town will be difficult because of space limitation, but it will also be difficult to fit a viable treatment plant on the 3 ha. site. A compact mechanized treatment plant would fit but would be too expensive to operate. Converting a section of the old irrigation canal would be an option but it is understood that the Ministry of Water Resources still has plan to rehabilitate part of the system (although the barrage in the Pursat River is badly damaged and would have to be completely reconstructed).

There seems to be no point in rehabilitating the drainage system without a solution for the treatment of sewage collected by this system and the final safe disposal of storm water runoff and effluent from a treatment plant. From an initial assessment of the condition of the existing drainage system it seems that the major constraint preventing the proper operation of the system is due to deferred maintenance; blockage of the outflow points and obstruction of most of the pipelines with sand and garbage. A first step in assuring the proper operation of the system would be cleaning of the existing pipelines and improvement of the outflow points. For cleaning of the pipelines and man holes specialized equipment (such as jet/vac equipment) will be required.

Figure 1

Maximum Flooding up to the 13 m



0 500 1,000 2,000 Meters

Legend

- Flood Protection Embankment
- Flooded Area 8m
- Flooded Area 10m
- Flooded Area 11.6m
- Flow Accumulation

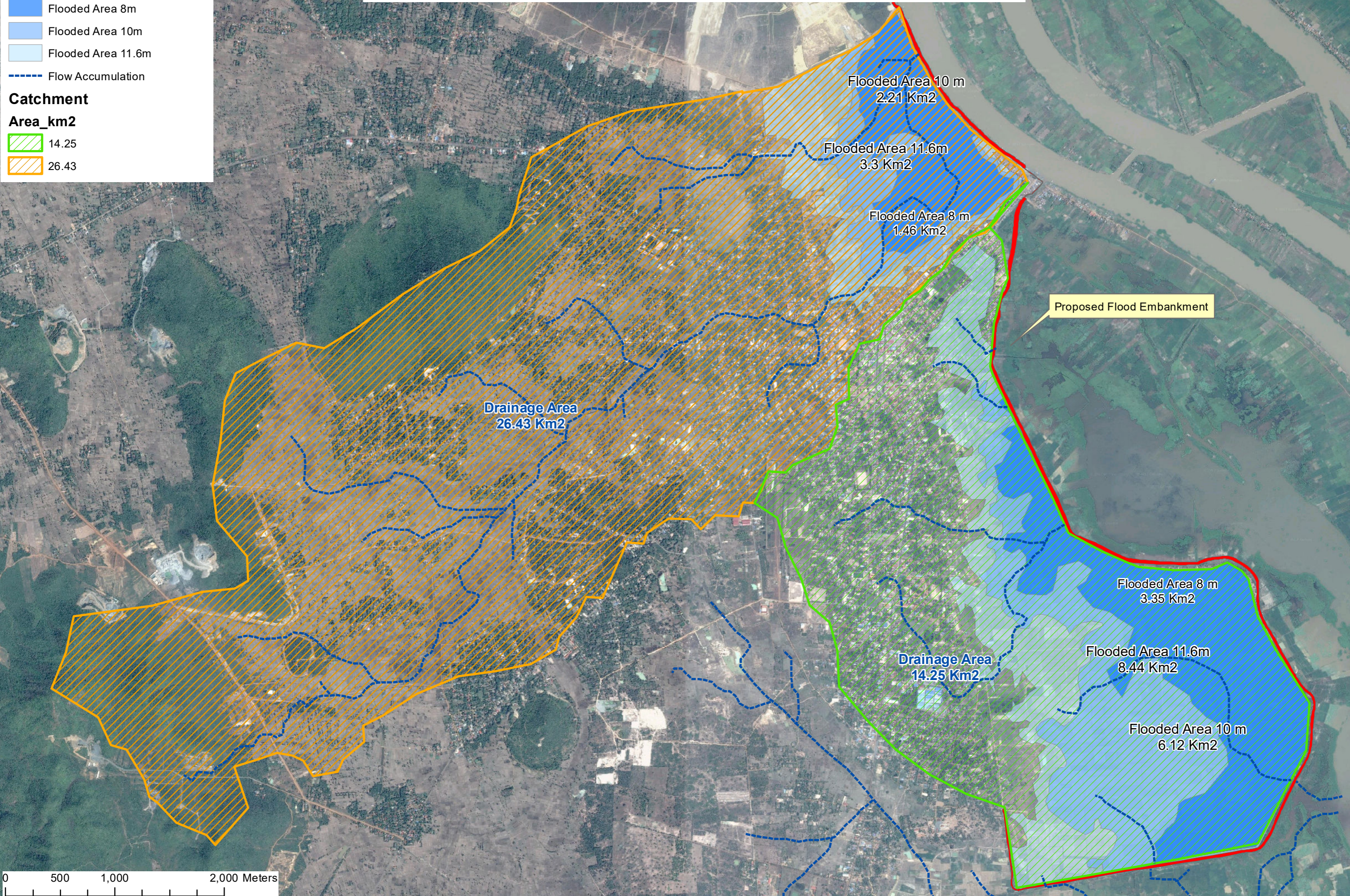
Catchment

Area_km2

- 14.25
- 26.43

Figure 2

**Drainage Areas and Flow Accumulation of Runoff
Conveyed to the Lowlands behind the Flood Protection Embankment**



**Drainage Area
26.43 Km2**

**Drainage Area
14.25 Km2**

Flooded Area 10 m
2.21 Km2

Flooded Area 11.6m
3.3 Km2

Flooded Area 8 m
1.46 Km2

Proposed Flood Embankment

Flooded Area 8 m
3.35 Km2

Flooded Area 11.6m
8.44 Km2

Flooded Area 10 m
6.12 Km2

0 500 1,000 2,000 Meters

Figure 3

Drainage Water Accumulation



Flooded Area 10 m
2.21 Km²

Flooded Area 11.6m
3.3 Km²

Flooded Area 8 m
1.46 Km²

Proposed Flood Embankment

Flooded Area 11.6m
8.44 Km²

Flooded Area 10 m
6.12 Km²

Flooded Area 8 m
3.35 Km²

Legend

-  Flood Protection Embankment
-  Flooded Area 8m
-  Flooded Area 10m
-  Flooded Area 11.6m

0 500 1,000 2,000 Meters



Fig. 4: Alternative Proposal for Flood Protection



Area reserved for future Urban and Commercial Development

Proposed embankment extension

River Front Development

Alternative Alignment proposed Drainage Canal

Land Reclamation for Commercial and Recreational Development

Proposed Drainage Canal to divert water from Lowlands behind the Embankment

Reconstruction Existing Embankment

Drainage of Waterlogged Area

Strengthening Existing Road Embankment

0 750 1,500 3,000 Meters

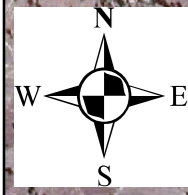


Figure 6

Accumulation and Outflow of Raw Sewage from Pursat Drainage System

Secondary overflow of storm water and sewage into main canal of defunct irrigation system. Water is used for domestic purposes by HH along the canal.

Secondary overflow of storm water and sewage into branch canal of defunct irrigation system. Water is used for domestic purposes by HH along the canal.

Primary overflow of raw sewage during dry season and storm water and sewage during rainy season into branch canal of defunct irrigation system. Water is used for domestic purposes by HH along the canal.

0 250 500 1,000 Meters

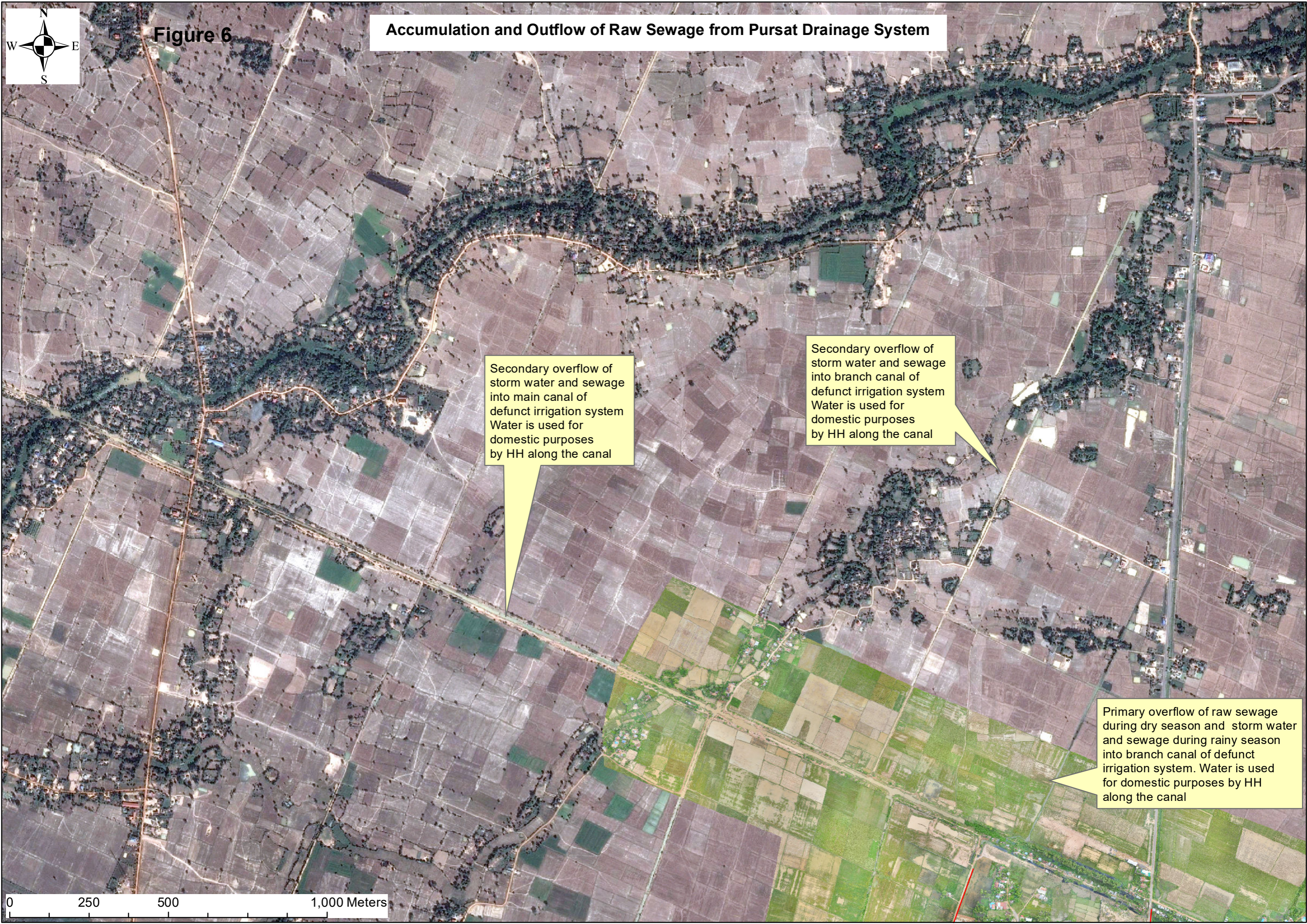
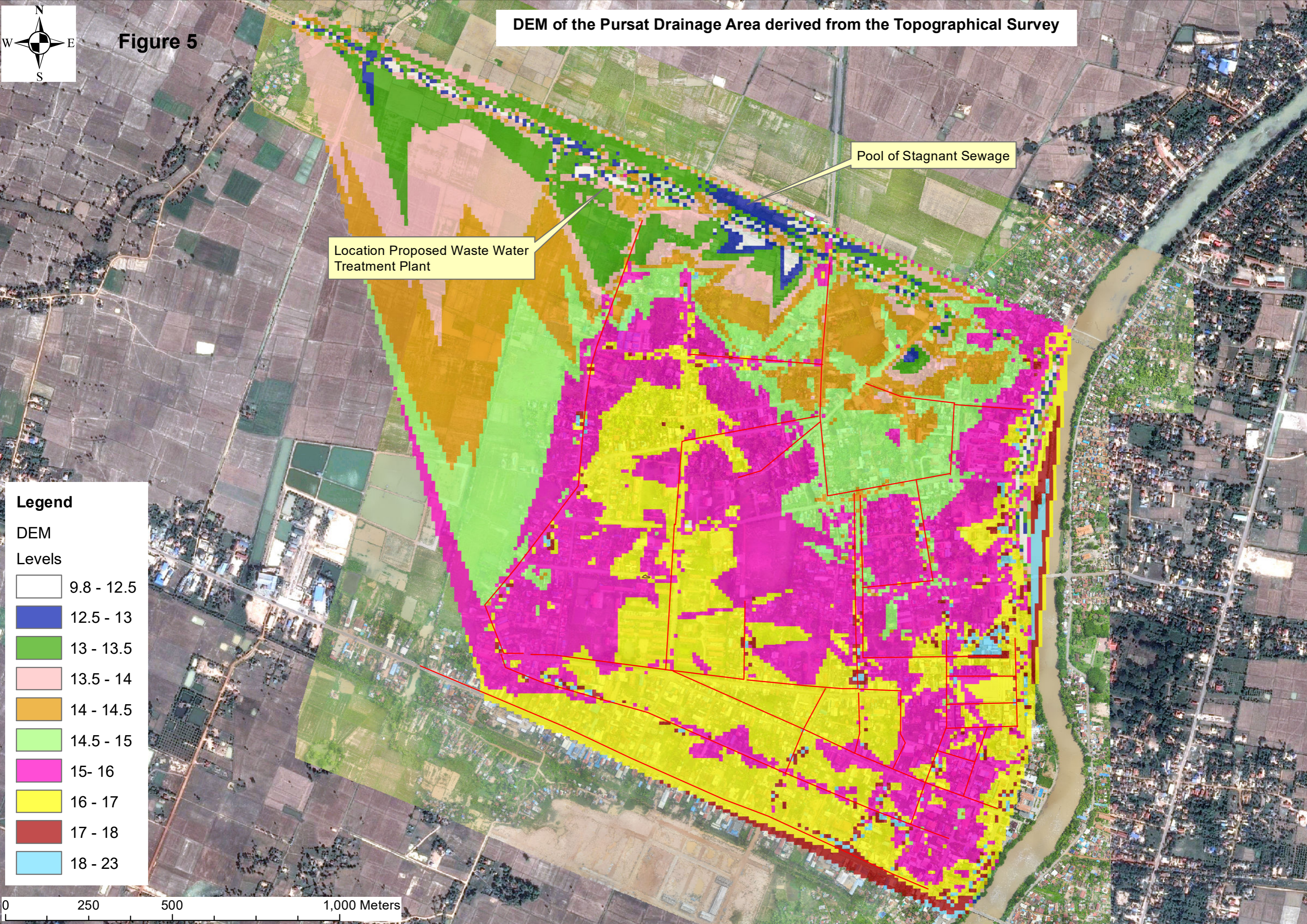




Figure 5

DEM of the Pursat Drainage Area derived from the Topographical Survey



Location Proposed Waste Water Treatment Plant

Pool of Stagnant Sewage

Legend

DEM Levels

White	9.8 - 12.5
Blue	12.5 - 13
Green	13 - 13.5
Pink	13.5 - 14
Orange	14 - 14.5
Light Green	14.5 - 15
Magenta	15 - 16
Yellow	16 - 17
Red	17 - 18
Cyan	18 - 23

0 250 500 1,000 Meters

Annex 8 : Environmental Issues

1. INTRODUCTION & PURPOSE

1. This report identifies any potential issues associated with the IEE, EMPs and overall design for the Project's sub-projects. This is following an initial review in light of additional design information and site visit observations. This report can be updated during the project implementation and serve as record of the recommendations and progress made in terms of environmental safeguards.
2. The IEE and EMP documents reviewed were those that were provided to the Environmental Consultant labeled September 2013 DRAFT.

IEE REVIEW

Key Issues – IEE for Pursat and Kampong Chhnang

Legal and Policy Framework

3. Since the PPTA was written there have been changes to the legislative and policy context for the sub-projects. This includes:
 - **MoE: Selection of Landfill Sites (2016) Guidance Requirements.** The guidance sets out criteria which on initial examination, both selected landfill sites do not meet. The specific requirements and application to the project sites are presented in Table 10-1

Table 10-1 Selection of Landfill Sites (2016) Guidance Requirements

MoE (2016) Requirements	Project Sites
1 km from any residential property	Both sites are non-compliant
3 km from any school/health centre/natural resources/ water source	To be checked in the field, but both sites likely to be non-compliant, e.g. K. Chhnang has 1 school within 3 km
5 km from any place of worship and resort	Both sites are non-compliant e.g. Pursat has 4 pagodas and K. Chhnang 3 pagodas, one resort in K. Chhnang within 5 km
15 km from any heritage site	To be checked in the field, but sites likely to be compliant
8 km from an airport	K. Chhnang airport is currently out of use but is within approximately 5km of the site
Not in a flooded area	Both sites are in areas liable to flood and the team has seen the sites underwater to varying degrees on previous site visits, in particular Pursat landfill site is in an area which floods every rainy season, currently estimated at 0.5 m depth of water.

4. ADB's Aide Memoire (August 2017) also notes that these MoE guidelines need to be followed.

Meeting with MoE – Landfill Site Guidelines, 31-10-17.

5. On 31st October a meeting was held to discuss the application of the MoE guidelines for this project and future ADB projects. The meeting was attended by MoE, MPWT, ADB and PMIS. During the meeting it was agreed that where possible, the guidelines are to be followed, but the MoE recognize that it may not always be possible so the control of impacts through EMP Mitigation measures is essential.
6. There is a risk that due to the relaxing of these guidelines, the impacts on people and groundwater may increase. It was noted by MoE during the meeting that the groundwater beneath the Phnom Penh landfill site is already polluted to a depth of 40 m. This site is not adequately lined and leachate management is poor.
7. Minutes of the meeting and the agreements were drafted by the PMIS team and will be circulated for amendment and then approval to MPWT, MoE and ADB.

Administrative Framework - IEIA

8. The IEE states that an IEIA is required under domestic Cambodia EIA law for each sub-project and that the ADB IEE and EMP will suffice. However given the changes to regulations with regards to landfill site location requirements, these sites do now not appear to comply with Cambodian law and therefore are likely to require further assessment. The exact requirements for this project and the likely timescales and budget need to be clarified noting that even the translation of ADB safeguard submission documents would require considerable resources.
9. Protected Areas Law (Royal Decree No. NS/RKM/0208/007) – States that Article 41 provides for the protection of each protected area against destructive/harmful practices, such as destroying water quality in all forms, poisoning, using of chemical substances, disposing of solid and liquid wastes into water or on land. Kampong Chhnang river is in Zone 2 Tonle Sap Authority, which means it is designated for sustainable community use. Field visits to K. Chhnang confirm that this means that permission is required before anything other than agriculture can be undertaken in Zone 2. It is clear that given the in-filling (resettlement site) and general construction in the Zone 2 area, that this zone designation does not appear to have a significant influence over current and future land use.

SUBPROJECT SITES – KEY ISSUES

10. This section briefly outlines the headline key issues as of the end of October 2017. It should be noted that at this time, the detailed engineering designs for the sub-projects are not well developed and no designs were therefore available for input or review during the Environmental Specialists initial input during October. Therefore the notes below are based on discussions within the team, existing reports and field visits.

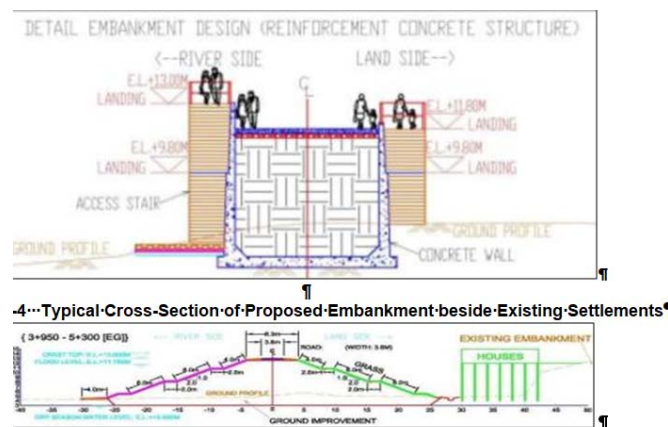
Kampong Chhnang Embankment

11. The environmental safeguards team is aware that many of the issues raised in this report have already been discussed with project stakeholders. However it seems that a number of concerns remain and therefore for due diligence, are presented here
12. **Tonle Sap Biosphere Reserve.** Kampong town sits on the west bank of one of the main channels in the Tonle Sap river. The part of the town between Road No. 5 and the river is situated in Zone 2 as defined by the Tonle Sap Authority. This means permission is required before any works can be undertaken. This appears to have been granted for a number of roads within the area which are now interrupting natural flood flow e.g. the area used for borrow sites for the resettlement site would naturally flood annually, but this is now prevented because of a new road. Therefore this shows that in general the area is already disturbed and regardless of this project, the new development on which affected households are being resettled will be developed anyway as part of the City's plans for general expansion.
13. **Hydrology.** The PPTA states that the preliminary design for the embankment has: "carefully studied and incorporated Tonle Sap system's hydrology and climate change-induced flood levels, applied a 50-year return period". It is not clear how the design incorporates this hydrology assessment – it may be the inclusion of sluice gates in 6 sections of the embankment.
14. There are serious concerns that the embankment will serve to retain water within it and will not offer the required protection for the town. A calculation undertaken by the PMIS team suggests that an area of 26 km² to the north and 14 km² to the south will drain within the embankment. This will lead to an estimated 10 million m³ and 6 million m³ of water draining into areas to the west of the embankment, onto agricultural area, using conservative run off factors. The level of the water within the embankment will naturally mirror that on the outside. See for more details annex 5, design issues
15. The purpose of the embankment is to prevent catastrophic flooding of the city. The PMIS team note that the embankment is 13m but already 95-97% of the town is already over 13m height. This means that without the embankment, a max of 7% of the town would experience flooding. The benefits of the embankment should therefore be reexamined given the resource inputs needed for it and the potential impacts on agricultural land.
16. Note. Climate Change Adaptation consultant will be mobilized and will be able to contribute to this discussion.

17. **Accessibility.** Figure 10-1 shows the embankment includes sections of concrete which have 9m high access stairs on either side. This would require householders who use the lake and are living on the town side of it, to climb up and down the stairs potentially with their fishing gear. This would lead to exclusion from the lake by any person who is not capable of managing both flights of stairs. This may impact on people with a disability or the elderly. In addition, the fisher's boats would be moored on the other side of the embankment which would mean that they are not visible from the houses.

18. **Health and Waste Management.** Figure 10-1 also suggests the design may give rise to an area behind the embankment and under the houses which will be prone to retaining water and waste, which is likely to be disposed of by the householders. Also if these households do not have sanitation, it is likely that human waste may also collect at the base of the embankment. This may give rise to health impacts including an increase in mosquito breeding habitats and a source of flies and odor. Although this type of waste disposal happens elsewhere above stilted houses, the potential for longer term retention of water behind the embankment may increase the impact this may have on health.

Figure 10-1 PPTA Design for Embankment, Kampong Chhnang



Kampong Chhnang Existing Dumpsite Site

19. The site is in a poor condition with no management of waste. The site when visited had approximately 15 waste pickers on it, mostly women, several of whom had young children with them. The PMIS team is aware that the site is located on private land. The extent to which an ADB project can improve this site therefore needs to be clarified.

Kampong Chhnang Landfill Site

20. As noted already by the PMIS team, this site is adjacent to a quarry and has mountains to one side which can form a suitable buffer. The access roads close to the site are good quality laterite roads because of the transport of materials from the quarry. The site is already disturbed and the ponding on the surface is known to be water from run-off, as groundwater is said to be 200m deep, however no geotechnical survey results are currently available

21. The key issues are the design of the landfill which needs to ensure protection from the flow of surface water. Also there should be adequate protection for groundwater and the management of leachate.

22. Also the operation of the landfill site will be key to ensuring long term environmental protection. However, during a meeting on 31/10/17 with MoE and MPWT, it was acknowledged that operational budget for the regular compaction of waste and use of daily cover is not available. Therefore the sustainability of the controlled landfill should be questioned. If, as anticipated, the site management will be limited, this means that the distance to receptors should be increased, in particular the distance to householders. Note that the World Bank EHS guidelines for waste management state that

“Residential development should be typically further than 250 meters from the perimeter of the proposed landfill cell development to minimize the potential for migration of underground gaseous emission”. There is no mention of dust or odor because it is for a sanitary landfill only and therefore this guidance could be considered not particularly relevant for a controlled landfill where compaction and daily cover will be limited.

23. The MoE guidelines for landfill sites, as discussed with MoE state that waste should be hand sorted by registered waste pickers in a dedicated area outside the landfill cell. Once picked, it should then be moved into the cell. This has considerable health risks as it will further encourage people to scavenge from unsegregated waste and does not encourage source segregation. Also the operational sustainability of effectively double handling the waste is questionable as the private contractor will be required to return to the waste once it has been picked and then move it to the final disposal cell.

Pursat Urban Drainage Improvements

24. The drainage improvements to the city will help to improve the quality of life for residents who currently suffer flooding during periods of heavy rainfall. In the absence of a clear design the impacts on the environment of the outfall are yet to be determined. It was noted that the provincial authorities are interested in treatment for septage but the validity of this would need to be explored if it was progressed as this would incur a fee for disposal which people may not be prepared to pay.

25. There is a canal which drains into Pursat river and water in its branches to the north is used for agriculture and household use by residents of Anglong Hat village. Therefore the final design of any drainage improvements should ensure that the quality of water in this canal is at worst maintained as it is; there is currently some question as to the quantity of households which have soakaways connected to this drainage system. This needs further investigation; residents within the vicinity of this canal complain of a sewage smell during dry season.

26. Nuisance impacts during construction maybe considerable without sound mitigation, as the town is densely populated and in particular the market area which needs drainage improvements is crowded with food sellers and others businesses. An old sewage treatment site is located adjacent to this canal approximately 150 x 50 m. This site is currently not used.

27. During a meeting with the provincial authorities it was noted that a section of drainage along Road No. 202 is not currently within the design of this project is not functioning well and the authority wish this to also be upgraded to a main drain width of 1m as it is currently a 60 cm dia. drain.

Pursat Landfill Sites

28. The project has identified a potential landfill site approximately 7 km southeast of the city, but the local authorities suggested to the PMIS team that another site is considered, and is preferable for the authorities, which is 11 km south east of the city.

29. As for Kampong Chhnang, the same operational concerns exist which may affect the environmental sustainability of the controlled landfill. However for Pursat the site selection and therefore landfill design needs considerable review as the groundwater in the project preferred site appears to be high, noting that both potential sites were too flooded to access during a site visit. In particular they both had considerable surface water streams in the area, which are observed to be used for fishing.

30. Looking at Google Earth, both the sites appear to be on heavily vegetated land but this is anticipated to be small trees and shrubs and not forest however may offer habitats to birds. This may require further investigation when the sites become accessible as the water recedes.

Pursat Existing Dumpsite

31. The site is an uncontrolled dump site which is has two main areas for dumping waste; both were observed to have waste pickers on during a site visit. The site includes standing water and is clearly a risk to surface and ground water as well as the direct health impacts for the workers and pickers associated with the site. The Provincial Authorities confirm that only 1ha of the site is on Government owned land. This means that this project needs to confirm the extent to which it can improve the site.

Field Visit Photographs from 24-26th October

<p>PURSAT DRAINAGE</p>	<p>PURSAT DRAINAGE</p>
	
<p>Shop Owner Consultation – User of water from canal (photo) for domestic use</p>	<p>Branch of canal running along road</p>
<p>12°34'16.92"N, 103°54'36.86"E</p>	<p>12°33'45.95"N, 103°54'58.31"E</p>
<p>PURSAT DRAINAGE</p>	<p>PURSAT EXISTING DUMPSITE</p>
	
<p>Market area requires drainage upgrade – crowded and access needs to be retained</p>	<p>Some water ponding</p>
<p>12°32'20.03"N, 103°55'7.05"E</p>	<p>12°32'11.93"N, 103°58'44.58"E</p>
<p>PURSAT LANDFILL 1 – (Project site)</p>	<p>PURSAT LANDFILL 2 (Provincial preferred Site)</p>
	
<p>Access road to new potential site flooded. Could not visit landfill site identified. Photo adjacent to house.</p>	<p>Flooded – no access to actual proposed site. Surface water from mountain run off. Streams used for fishing – at least 1.5 m deep.</p>
<p>12°31'25.31"N, 103°58'49.04"E</p>	<p>12°29'40.28"N, 104° 0'1.12"E</p>
<p>EXISTING DUMP SITE KAMPONG CHHNANG</p>	<p>LANDFILL SITE KAMPONG CHHNANG</p>

 <p>800m from household consulted, with odor/flies/dust impacts, to current dumpsite</p> <p>12°13'9.80"N, 104°38'47.81"E</p>	 <p>Adjacent to quarry. Disturbed land. Surface water ponding from mountain run off. Mountains offer buffer to north.</p> <p>12°13'59.21"N, 104°36'38.77"E</p>
RESETTLEMENT SITE KAMPONG CHHNANG	
 <p>Large scale in-fill for resettlement and city expansion. Cement tubes for drainage not in place before people move in.</p> <p>12°16'45.63"N, 104°39'50.31"E</p>	 <p>Borrow site – now fish pond on private land. Previous landuse appears to be agri/scrub. Thicker vegetation to north - small trees and shrubs</p> <p>12°16'38.70"N, 104°38'58.13"E</p>
EMBANKMENT KAMPONG CHHNANG	
 <p>Start of embankment.</p> <p>12°12'58.29"N, 104°40'43.07"E</p>	 <p>Market area where embankment to be increased to 13m</p> <p>12°16'12.34"N, 104°40'43.78"E</p>

Annex 9 : List of PMU and PIU staff and their TOR

1. List of PMU Staff and TOR

No.	Name / Position in (PAM)	Terms of Reference (TOR)
1	<u>H.E. Vong Pisith</u> Project Director	<p><i>Directing management of project implementation-with overall responsibilities as described below;</i></p> <ul style="list-style-type: none"> • Conducts meeting of Project Steering Committee (PSC) on the overall supervision and implementation of the project and ensures that the NPSC, Sub-regional Project Steering Committee (SPSC) and ADB are kept informed of project developments, issues and progress. • Oversees the work of PCU and PIU staff, and the recruitment and performance of international and national consultants, ensuring budgets and work plans are approved and executed on time and on target.
2	<u>H.E. Vong Pisith</u> Project Manager	<p><i>Directed co-management supporting Project Director in project implementation with responsibilities assigned and deputed as described below</i></p> <ul style="list-style-type: none"> • Manages PMU/PIU staff and work activities during implementing the project. • Reports to the Project Director, ensuring effective coordination and implementation of the project and assist the PIU's prepare and implement detailed annual work plans and budgets, including project implementation plan and rolling annual action plans. • Oversee consultant recruitment and procurement, and implementation of the Project Performance Monitoring System (PPMS), including monitoring of environmental and involuntary resettlement, implementation of the poverty reduction and social strategy, and gender action plans. • Responsible for ensuring that the day-to-day management and administration of the project implementation is in line with Updated Standard Operating Procedures for All Externally Financed Projects/ Programs in Cambodia.
3	<u>Mr. Vong Rada</u> Supervisory Engineer (1)	<ul style="list-style-type: none"> • Manages and administers the technical aspects of the project implementation process. • Establishes and maintains project implementation schedules. • Manages and administers the implementation of contracts. • Monitors and evaluates progress and performances of technical staff, consultants, and contractors. Certifies progress for payments. • Prepares and distributes technical reports to the different stakeholder groups. • Carries out any other technical functions and responsibilities considered necessary by the project manager. • Receives instructions from and reports directly to the Project Manager /Project Director.
4	<u>Mr. Prok Novinda</u> Supervisory Engineer (2)	
5	<u>Mr. Eap Visoth</u> Social & Resettlement Officer	<ul style="list-style-type: none"> • Review and update the resettlement plans as with Consultant team per the detailed design based on the results of the DMS and the replacement cost survey. • Provide necessary support and capacity building to concerned agencies for RP implementation, including orientation and training on the RP activities and implementation mechanisms to PMU staff. • Work closely with the local authorities and concerned agencies at all levels on resettlement related activities and assist PIU in obtaining local and national clearances and approvals for the RP • Work with the Consultant team to ensure that the small-scale infrastructure improvements in CMEI do not entail resettlement or indigenous people's impact. • Coordinate with the Consultant team in the monitoring of land acquisition and resettlement, in accordance with the approved resettlement plans and ADB's Safeguard Policy Statement. • Establish and implement liaison mechanisms to ensure proper technical and logistical support between the Project to the PMU, local administrative authorities, resettlement committees and concerned government departments.

		<ul style="list-style-type: none"> • Assist in updating the public information booklets as necessary; • Ensure compliance with relevant Royal Government of Cambodia laws and regulations and ADB for all project components.
6	Mr. No Kilarith Environment Officer	<ul style="list-style-type: none"> • Coordination and liaison with counterparts in the consultants' team; • Coordination with the environment consultants on the implementation of the EMP and the application of environment safeguards in both towns; • Assisting the environment consultants in the design and conduct of environmental monitoring, including water quality testing and air pollution; • Advising on relevant government policies and guidelines relevant to the environment sector; • Coordination and liaison with key stakeholders, including government agencies, private sector companies and project affected communities; and • Attending training seminars and workshops as part of the capacity building program.
7	<u>Mr. Pou Manith</u> Office Manager	<ul style="list-style-type: none"> • Responsible for personnel management and administration. • Manages and administers project assets and facilities and ensures that they are only used for approved project purpose by authorized personnel and are properly secured and maintained • Prepares and coordinates regular scheduled and non-scheduled meetings related to administration of the project. • Coordinates reporting and information exchange. • Undertakes any other duties and responsibilities assigned by the Project Manager/ Deputy and Project Director. • Receives instructions from, and reports directly to Project Manager/Deputy and Project Director. • Responsible for ensuring project documents are properly maintained and retained for project activities.
8	<u>Mr. Pheang Pheourn</u> Procurement Officer	<ul style="list-style-type: none"> • Incorporate and coordinate with Consultants to establish capacity to accomplish all procurement in accordance with RCG and ADB policies and procedures, including the identification of responsibilities, requirements for approvals, oversight, documentation and reporting for all outputs, including CMEI. • To procure civil works, equipment purchase and installation, consulting services, and other contracts to implement the project for all outputs, including CMEI • To prepare the necessary bid documents required for local and international competitive bidding. The bid documents will include instruction to bidders; general and special conditions of contract, technical specifications, bills of quantities, tender drawings, and forms of contract. The specification will be detailed and use locally applicable standards as well as follow ADB procedures. The bill of quantities will be based on detailed calculations of quantities and costs estimates will be based on market prices. This shall be for all outputs, including CMEI. • TO prepare bid documents for design and contracts including input data and status, output requirements, technical specifications, bills of quantities, tender drawings for all outputs including CMEI. • To evaluate th bid proposals and prepare bid evaluation report, contract negotiations with the successful bidders and preparing contract documents for all outputs, including CMEI. • To provide inputs for training and capacity development; coordinate with other team specialists to carry out the training program, and provide support to the capacity development activities for PIU and NGO staff.
9	<u>Mr. Mao Dor</u> Accounting and Financial Management Officer	<ul style="list-style-type: none"> • Responsible for managing and administering the financial and accounting affairs of the project in accordance with the RGC's financial policies, guidelines and procedures, all financial covenants and other obligations in the Financing , Project and TA agreements. • Establishes and maintains the different budgets for the project ensuring the project is included in the Public Investment program (PIP) of the Ministry/Agency leading to financial commitments in the Budget Strategic Plan (BSP) and Annual Budget Plan (BP). • Establishes and maintains project accounts (accounting and financial

		<p>management systems and records) in compliance with the procedures and guidelines outlined in the Financial Management Manual.</p> <ul style="list-style-type: none"> • Maintains proper internal controls within the financial operations of the project, particularly for bank accounts and cash advances • Supervises the management and administration of all financial transactions under the project. • Approves expenditure within delegated authority. • Generates and distributes the different financial reports and information necessary for effective and responsible financial management and decision-making. • Carries out any other financial and accounting duties and responsibilities assigned by the project manager. • Receives instructions from, and reports directly to, the project manager. • Prepares financial statements and reports for audit and facilitates the conduct of audits of the project. • Coordination and liaison with counterparts in the consultants' team; • Coordination with the financial and administration specialists on all the financial, accounting and auditing aspects of the project in both towns; • Assisting in the implementation and operation of the financial management systems and for financial accounting, reporting and loan disbursements, financial projections and budgeting; • Advising on government policies and guidelines relevant to the project's financial management and accounting; and • Attending training seminars and workshops for capacity development.
10	<p><u>Ms. Thab Solini</u> Accounting Officer</p>	<ul style="list-style-type: none"> • Responsible for managing and administering the financial affairs of the project in accordance with the RGC's financial policies, guidelines and procedures, all financial covenants and other obligations in the Financing, Project and TA agreements. • Establishes and maintains the different budgets for the project ensuring the project is included in the Public Investment program (PIP) of the Ministry/Agency leading to financial commitments in the Budget Strategic Plan (BSP) and Annual Budget Plan (BP). • Establishes and maintains project accounts (accounting and financial management systems and records) in compliance with the procedures and guidelines outlined in the Financial Management Manual. • Maintains proper internal controls within the financial operations of the project, particularly for bank accounts and cash advances • Supervises the management and administration of all financial transactions under the project. • Approves expenditure within delegated authority. • Generates and distributes the different financial reports and information necessary for effective and responsible financial management and decision-making. • Carries out any other financial and accounting duties and responsibilities assigned by the project manager. • Receives instructions from, and reports directly to, the project manager. • Prepares financial statements and reports for audit and facilitates the conduct of audits of the project. • Coordination and liaison with counterparts in the consultants' team; • Coordination with the financial and administration specialists on all the financial, accounting and auditing aspects of the project in both towns; • Assisting in the implementation and operation of the financial management systems and for financial accounting, reporting and loan disbursements, financial projections and budgeting; • Advising on government policies and guidelines relevant to the project's financial management and accounting; and • Attending training seminars and workshops for capacity development.

11	<u>To be named</u> Assistant Accounting	<ul style="list-style-type: none"> • Assist to accounting officer.
12	<u>Mr. Ngan Kosal</u> Secretary/Office Assistant	<ul style="list-style-type: none"> • Assists to office manager; • Responsible for personnel management and administration; • Manages and administers project assets and facilities and ensures that they are only used for approved project purpose by authorized personnel and are properly secured and maintained. • Prepare and coordinates regular schedule and non-scheduled meeting related to administration of the project; • Coordinates reporting and information exchange; • Undertakes any other duties and responsibilities assigned by the Project Manager/ Project Director; • Receive instructions form, and reports directly to, the Project Manager/ Project Director; • Responsible for ensuring project documents are properly maintained and retained for project activities.
13	<u>Mr. Khim Sothea</u> Driver	<ul style="list-style-type: none"> • Drive and maintain the project vehicle; • Perform other tasks as may be assigned.

2. List of Kampong Chhnang PIU Staff and TOR

No.	Name / Position in PAM	Terms of Reference (TOR)
1	<u>Mr. Chay Leaphea</u> Project Manager	<ul style="list-style-type: none"> • Ensuring design and implementation of the sub-project in a time manner and to a high quality; • Advising on relevant government policies and guidelines relevant to the design and implementation of the subproject; • Advising on relevant government policies and guidelines relevant to the design and implementation of the subprojects; • Providing overall support to the consultant selection process; and • Establishing the consultant services office and facilities.
2	<u>Mr. Yin Borin</u> Deputy Project Manager	<ul style="list-style-type: none"> • Supports the PIU manager in; • Coordination and liaison with central government agencies, PPC, water and communes and other stakeholders; • Management of the PMU staff and the Consultants; • Oversight of Contract Management, construction, works, monitoring and operation and maintenance; • Ensuring design and implementation of the sub-project in the timely manner and to the high quality. • Advising on relevant government policies and guideline relevant to the design and implementation of the sub-project, • Advising on relevant government policies and guidelines relevant to the design and implementation of the subprojects; • Providing overall support to the consultant selection process; and • Establishing the consultant services office and facilities.

3	<p><u>Mr. Keo Vith</u> Construction Engineer</p>	<ul style="list-style-type: none"> • Manages and administers the technical aspects of the project implementation process. • Establishes and maintains project implementation schedules. • Manages and administers the implementation of contracts. • Monitors and evaluates progress and performances of technical staff, consultants, and contractors. Certifies progress for payments. • Prepares and distributes technical reports to the different stakeholder groups. • Carries out any other technical functions and responsibilities considered necessary by the project manager. • Receives instructions from and reports directly to the Project Manager/ Project Director
4	<p><u>Mr. Eang Hour</u> Construction Engineer</p>	<ul style="list-style-type: none"> • Manages and administers the technical aspects of the project implementation process. • Establishes and maintains project implementation schedules. • Manages and administers the implementation of contracts. • Monitors and evaluates progress and performances of technical staff, consultants, and contractors. Certifies progress for payments. • Prepares and distributes technical reports to the different stakeholder groups. • Carries out any other technical functions and responsibilities considered necessary by the project manager. • Receives instructions from and reports directly to the Project Manager/ Project Director
5	<p><u>To be named</u> Water Resources Engineer</p>	<ul style="list-style-type: none"> • Supervises the surveys and investigations; • Incorporates climate change projections in the design of civil works based on the information provided by surveys completed and information from consultants; • Undertakes periodic inspections during construction to ensure that the river works comply with the design intent; • Contribute to all necessary reporting under the Project, as determined by consultants and stakeholders; • Assist in any other related works as deemed necessary by the Consultant team.
6	<p><u>Mr. Meas Yuthinavann</u> Community Coordinator</p>	<ul style="list-style-type: none"> • Coordinate and liaises with counterparts in the consultant's team; • Coordinates with the other consultants in and in the particular the consultants concerned with Enabling Strategic Local Economic Development Plan (SLEDP) Implementation;
7	<p>Mr. Mak Salim Community Coordinator</p>	<ul style="list-style-type: none"> • Provides assistance in ensuring that design and implementation of the subproject component are done in a timely manner and to a high quality; • Coordination and liaison with key stakeholders, including government agencies, private sectors, companies and the project affected communities; • Assists the social, gender and livelihood consultants in coordination and liaison with key stakeholders, including the project affected communities • Assists the social, gender and livelihood consultants in working closely with the Department of Women's Affairs and communities on the environmental awareness and livelihood related initiatives proposed in both towns; • Provides advice on relevant government policies and guidelines relevant to the social development and gender sectors; and • Attending training seminars and workshops as part of the capacity building program
8	<p><u>Mr. Prum Chansophea</u> Resettlement Officer</p>	<ul style="list-style-type: none"> • Preparation and updating the RAPs, and conduct of Community Development activities; • Coordination with counterparts in the PMU, consultant's team local

		<p>authorities on involuntary resettlement safeguards matters;</p> <ul style="list-style-type: none"> • Assist the PMU and PIU to ensure that ADB's involuntary resettlement safeguard categorization remains B; • Assist in the preparation of updated RPs; • Assist in monitoring that the grievances are addressed promptly and properly and that the grievance redress mechanism is functioning well; • Assist in the training on grievance if needed; • Assist PMU and PIU with ongoing internal monitoring for resettlement based on the approved updated resettlement plan and affected households database, including contributing towards quarterly internal monitoring report for involuntary resettlement as an attachment to the quarterly project progress reports; • Assist the PIU in updating the public information booklets and translating them into Khmer.
9	<p><u>Mr. Sok Chanveasna</u> Project Accountant</p>	<ul style="list-style-type: none"> • Coordination and liaison with counterparts in the Consultant's team; • Coordination with the financial and administration specialists on all the financial, accounting, and auditing aspects of the project in both towns; • Assisting in the implementation and operation of the Financial management systems and for Financial Accounting, reporting and loan disbursements, Financial projections and budgeting; • Advising on government policies and guidelines relevant to the project's Financial Management and Accounting; and • Attending training seminars and workshops as part of the capacity building program.
10	<p><u>Ms. Rum Sreyroth</u> Office Manager</p>	<ul style="list-style-type: none"> • Responsible for personnel management and administration; • Manages and administers project assets and facilities and ensures that they are only used for approved project purpose by authorized personnel and are properly secured and maintained • Prepares and coordinates regular scheduled and non-scheduled meetings related to administration of the project. • Coordinates reporting and information exchange. • Undertakes any other duties and responsibilities assigned by the Project Manager/Project Director. • Receives instructions from, and reports directly to, the Project Manager/Project Director; and • Responsible for ensuring project documents are properly maintained and retained for project activities.
11	<p><u>Mr. Touch Virak</u> Driver</p>	<ul style="list-style-type: none"> • Drive and maintain the project vehicle; • Perform other tasks as may be assigned.

3. List of Pursat PIU Staff and TOR

No.	Name / Position in PAM	Terms of Reference (TOR)
1	<p><u>Mr. Sy Vuth</u> Project Manager</p>	<ul style="list-style-type: none"> • Ensuring design and implementation of the sub-project in a time manner and to a high quality; • Advising on relevant government policies and guidelines relevant to the design and implementation of the subproject; • Advising on relevant government policies and guidelines relevant to the design and implementation of the subprojects; • Providing overall support to the consultant selection process; and • Establishing the consultant services office and facilities.
2	<p><u>Mr. Yom Ya</u> Deputy Project Manager</p>	<ul style="list-style-type: none"> • Supports the PIU manager in; • Coordination and liaison with central government agencies, PPC, water and communes and other stakeholders; • Management of the PMU staff and the Consultants; • Oversight of Contract Management, construction, works, monitoring and

		<p>operation and maintenance;</p> <ul style="list-style-type: none"> • Ensuring design and implementation of the sub-project in the timely manner and to the high quality. • Advising on relevant government policies and guideline relevant to the design and implementation of the sub-project, • Advising on relevant government policies and guidelines relevant to the design and implementation of the subprojects; and • Providing overall support to the consultant selection process; and Establishing the consultant services office and facilities
3	<p><u>Mr. Kaing Kimchhun</u> Construction Engineer</p>	<ul style="list-style-type: none"> • Manages and administers the technical aspects of the project implementation process. • Establishes and maintains project implementation schedules. • Manages and administers the implementation of contracts. • Monitors and evaluates progress and performances of technical staff, consultants, and contractors. Certifies progress for payments. • Prepares and distributes technical reports to the different stakeholder groups. • Carries out any other technical functions and responsibilities considered necessary by the project manager. • Receives instructions from and reports directly to the Project Manager/ Project Director
4	<p>Mr. Chak Say Community Coordinator</p>	<ul style="list-style-type: none"> • Coordinate and liaises with counterparts in the consultant's team; • Coordinates with the other consultants in and in the particular the consultants concerned with Enabling Strategic Local Economic Development Plan (SLEDP) Implementation; • Provides assistance in ensuring that design and implementation of the subproject component are done in a timely manner and to a high quality; • Coordination and liaison with key stakeholders, including government agencies, private sectors, companies and the project affected communities; • Assists the social, gender and livelihood consultants in coordination and liaison with key stakeholders, including the project affected communities • Assists the social, gender and livelihood consultants in working closely with the Department of Women's Affairs and communities on the environmental awareness and livelihood related initiatives proposed in both towns; • Provides advice on relevant government policies and guidelines relevant to the social development and gender sectors; and • Attending training seminars and workshops as part of the capacity building program.
5	<p>Mr. Phin Narin Procurement Officer</p>	<ul style="list-style-type: none"> • Incorporates and coordinates with Consultants to establish capacity to accomplish all procurement in accordance with RCG and ADB policies and procedures, including the identification of responsibilities, requirements for approvals, oversight, documentation and reporting for all outputs, including CMEI. • To procure civil works, equipment purchase and installation, consulting services, and other contracts to implement the project for all outputs, including CMEI • To prepare the necessary bid documents required for local and international competitive bidding. The bid documents will include instruction to bidders; general and special conditions of contract, technical specifications, bills of quantities, tender drawings, and forms of contract. The specification will be detailed and use locally applicable standards as well as follow ADB procedures. The bill of quantities will be based on detailed calculations of quantities and costs estimates will be based on market prices. This shall be for all outputs, including CMEI. • TO prepare bid documents for design and contracts including input data and status, output requirements, technical specifications, bills of quantities, tender drawings for all outputs including CMEI.

		<ul style="list-style-type: none"> • To evaluate the bid proposals and prepare bid evaluation report, contract negotiations with the successful bidders and preparing contract documents for all outputs, including CMEI. • To provide inputs for training and capacity development; coordinate with other team specialists to carry out the training program, and provide support to the capacity development activities for PIU and NGO staff.
6	Mr. Than Sophearoun Resettlement Officer	<ul style="list-style-type: none"> • Preparation and updating the RAPs, and conduct of Community Development activities; • Coordination with counterparts in the PMU, consultant's team local authorities on involuntary resettlement safeguards matters; • Assist the PMU and PIU to ensure that ADB's involuntary resettlement safeguard categorization remains B; • Assist in the preparation of updated RPs; • Assist in monitoring that the grievances are addressed promptly and properly and that the grievance redress mechanism is functioning well; • Assist in the training on grievance if needed; • Assist PMU and PIU with ongoing internal monitoring for resettlement based on the approved updated resettlement plan and affected households database, including contributing towards quarterly internal monitoring report for involuntary resettlement as an attachment to the quarterly project progress reports; • Assist the PIU in updating the public information booklets and translating them into Khmer.
7	Miss. Svay Chanchakriya Project Accountant	<ul style="list-style-type: none"> • Coordination and liaison with counterparts in the Consultant's team; • Coordination with the financial and administration specialists on all the financial, accounting, and auditing aspects of the project in both towns; • Assisting in the implementation and operation of the Financial management systems and for Financial Accounting, reporting and loan disbursements, Financial projections and budgeting; • Advising on government policies and guidelines relevant to the project's Financial Management and Accounting; and • Attending training seminars and workshops as part of the capacity building program.
8	Miss. Kim Chakriya Office Manager	<ul style="list-style-type: none"> • Responsible for personnel management and administration; • Manages and administers project assets and facilities and ensures that they are only used for approved project purpose by authorized personnel and are properly secured and maintained • Prepares and coordinates regular scheduled and non-scheduled meetings related to administration of the project. • Coordinates reporting and information exchange. • Undertakes any other duties and responsibilities assigned by the Project Manager/Project Director. • Receives instructions from, and reports directly to, the Project Manager/Project Director; and • Responsible for ensuring project documents are properly maintained and retained for project activities.
9	Mr. Tan Sophal Driver	<ul style="list-style-type: none"> • Drive and maintain the project vehicle; • Perform other tasks as may be assigned.