

# Environmental and Social Monitoring Report

---

Semi-Annual Report  
April 2021

## Lao PDR: Greater Mekong Subregion East-West Economic Corridor Towns Development Project July–December 2020

Prepared by the Project Management Unit of the Department of Public Works and Transport  
Savannakhet Province, for the Ministry of Public Works and Transport, Lao PDR and the Asian  
Development Bank.

#### **NOTE**

In this report, "\$" refers to United States dollars.

This environmental and social monitoring report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.



LAO PEOPLE'S DEMOCRATIC REPUBLIC  
Peace Independence Democracy Unity Prosperity



# LAO PDR: GMS EAST-WEST ECONOMIC CORRIDOR TOWNS DEVELOPMENT PROJECT

ADB LOAN No.2931 – LAO(SF) AND GRANT No. 0313 – LAO(SF) AND No. 0314 – LAO(UEIF)

## SEMIANNUAL ENVIRONMENTAL & SOCIAL SAFEGUARDS MONITORING REPORT



JULY-DECEMBER, 2020

Prepared by the Project Management Unit of Department of Public Works and Transports Savannakhet Province, for the Ministry of Public Works and Transports and the Asian Development Bank and Provincial of Natural Resource and Environment.

**NOTE:**

In this report, "\$" refers to US dollars.

This safeguard monitoring report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.

## **ABBREVIATION**

ADB	Asian Development Bank
AH	Affected Household
AIDS	Acquired immunodeficiency syndrome
AP	Affected Person
COD	Chemical Oxygen Demand
CEMP	Contractor's EMP
CSC	Construction Supervision Consulting
CC	Carbon Copy
DBST	Double Bituminous Surface Treatment
DDR	Due Diligence Report
DO	Dissolve Oxygen
DEWATS	Decentralized Waste Water Treatment System
EA	Executing Agency
EMC	Environment Compliance Audit
ECC	Environment Compliance Certificate
EHSO	Environment, Health and Safety Officer
EMP	Environmental Management Plan
ESS	Environmental Safeguard Specialist
EWEC	East-West Economic Corridor
FM	Female
GMS	Greater Mekong Sub-region
GRM	grievance redress mechanism
HIV	Human Immunodeficiency Virus
HLK/HLKS	Houay Long Kong subproject
IA	implementing agency
ICB	International Competition Bidding
IEE	Initial Environmental Examination
IFC	International Financial Cooperation
JV	Joint Venture

KPRS	Kaysone Phomvihane Road Construction Subproject
Lao PDR	Lao People's Democratic Republic
LACP	Land Acquisition and Compensation Plans
MRE	Mekong River Embankment
MEMR.	Monthly Environment Monitoring Report
MPWT	Ministry of Public Works and Transports
MRES	Mekong River Embankment Subproject
NA	Not Applicable
NCB-	National Competition Bidding
NES	National Environment Specialist
NTU	Nephelometric Turbidity Unit
OHSP	Occupational Health and Safety Plan
PCU	Project Coordination Unit
PDPWT	The Provincial Department of Public Works and Transport
PIT	Project Implementation Team
PIU	Project Implementation Unit
PMU	Project Management Unit
PIC	Project Implementation Constancy
PPE	Personal Protective Equipment
QC	Quality Control
QESMR	Quarterly Environment Safeguard Monitoring Report
RP	Resettlement Plan
SLEDP	Strategic Local Economic Development Plan
SEMR	Semiannual Environment Safeguard Monitoring Report
SES	Social and Environment Survey
SPS	Safeguards Policy Statement
STD	Sexual Transmission Diseases
SWMS	Solid Waste Management Subproject
TDP	Town Development Project
TSC	Tay Truong Son Construction Company
TSS	Total Suspended Solid
UDAA	Urban Development Administration Authority

VSP	VSP Construction Company
VO	Variation Order
WWM	Waste Water Management

## TABLE OF CONTENTS

Abbreviation .....	i
Table of contents .....	iv
<b>I. Executive Summary .....</b>	<b>7</b>
<b>A. Implementation Highlights .....</b>	<b>7</b>
<b>B. Planned Action for Succeeding Monitoring Period .....</b>	<b>8</b>
<b>II. Project and General safeguards Overview .....</b>	<b>8</b>
<b>A. Project Background .....</b>	<b>8</b>
<b>B. Project Progress .....</b>	<b>15</b>
<b>C. Environmental Safeguard Implementation Arrangements .....</b>	<b>26</b>
<b>D. Status of Environmental Safeguards Documents .....</b>	<b>27</b>
<b>III. Environmental Performance Monitoring .....</b>	<b>28</b>
<b>A. Status of EMP Implementation (Mitigation Measures) .....</b>	<b>28</b>
<b>B. Environment Quality Monitoring .....</b>	<b>32</b>
<b>C. Other Monitoring Activities .....</b>	<b>34</b>
<b>IV. RESETTLEMENT PERFORMANCE MONITORING .....</b>	<b>34</b>
<b>A. Kaysone Phomvihane Road .....</b>	<b>35</b>
<b>B. Fa Ngum Road .....</b>	<b>35</b>
<b>C. Dansavanh Urban Roads .....</b>	<b>35</b>
<b>D. Phine Urban Roads .....</b>	<b>36</b>
<b>E. Houay Longkong Drainage Improvement .....</b>	<b>36</b>
<b>F. Mekong River Embankment Protection .....</b>	<b>37</b>
Relocated vendors .....	37
Restaurant structure .....	37
River bank gardens .....	37
Boundary wall .....	37
<b>G. Sanitary Landfill and Waste Recovery Facility .....</b>	<b>38</b>
<b>H. Status of Actions from External Monitoring Missions .....</b>	<b>40</b>
<b>I. RP Compliance Checklist .....</b>	<b>41</b>
<b>J. Issues for action and follow-up .....</b>	<b>42</b>
<b>V. Public consultation, Information Disclosure, and capacity building .....</b>	<b>43</b>
<b>A. Capacity Building .....</b>	<b>43</b>
<b>B. Information Disclosure/public consultation .....</b>	<b>43</b>
<b>VI. GRIEVANCES .....</b>	<b>44</b>

<b>VII.</b>	<b>APPENDICES .....</b>	<b>46</b>
<b>A.</b>	<b>Capacity Building/Awareness Raising Events .....</b>	<b>46</b>
<b>B.</b>	<b>Provincial Steering Committee Workshop .....</b>	<b>47</b>
<b>C.</b>	<b>Hand Over Ceremony of Mekong Embankment &amp; HLK-DEWATS.....</b>	<b>48</b>
<b>D.</b>	<b>Hand Over Ceremony of Kaysone , Fa Ngum Road &amp; SWM subproject.....</b>	<b>49</b>
<b>E.</b>	<b>Photos of STD, HIV Awareness Raising .....</b>	<b>50</b>
<b>F.</b>	<b>Photos of Road Component Training in Dansavan .....</b>	<b>51</b>
<b>G.</b>	<b>Photos of Road Component Training in Phine .....</b>	<b>52</b>
<b>H.</b>	<b>PoNRE, DoNRE Joint Environment Inspection .....</b>	<b>53</b>
<b>I.</b>	<b>Environment Compliant Certificate for IEE extension .....</b>	<b>55</b>
<b>J.</b>	<b>Result of Surface Water Quality Monitoring .....</b>	<b>57</b>
<b>K.</b>	<b>Site Restoration of Phine Urban Road Subproject .....</b>	<b>60</b>
<b>L.</b>	<b>Site Restoration of Kaysone Phomvihane Urban Road .....</b>	<b>61</b>
<b>M.</b>	<b>Memo resolving Grievance of Houay Longkong Landowner .....</b>	<b>62</b>
<b>N.</b>	<b>Provincial Governor Decision to Give Priority to 35 Vendors for new Market Stalls and Priority Employment for 10 Waste Pickers .....</b>	<b>70</b>
<b>O.</b>	<b>Memo Confirming Employment Offer for AP at Houay Longkong DEWATS.....</b>	<b>71</b>

## LIST OF TABLES

Table 1: SUB-PROJECTS AND ADDITIONAL WORKS Description.....	10
Table 2. ACTUAL ACCOMPLISHMENT OF SUB-PROJECTS, Sep 30, 2020.....	15
Table 3. REPORT REQUIREMENT FOR EMP MONITORING.....	27
Table 4. STATUS OF ENVIRONMENTAL SAFEGUARDS DOCUMENTS (EMPS AND IEES).27	
Table 5. COMPLIANCE WITH EMP REQUIREMENTS (ENVIRONMENTAL PERFORMANCE) .....	28
Table 6. OCCUPATIONAL HEALTH AND SAFETY PERFORMANCE.....	30
Table 7. ISSUES FOR FURTHER ACTION .....	32
Table 8. RESULT OF SURFACE WATER MONITORING .....	33
Table 9: Implementation of Resettlement Plans .....	34
Table 10 - Livelihood Restoration Monitoring .....	36
Table 11: Compliance with RP Requirements .....	41
Table 12: Issues for Further Action .....	42
Table 13. STATUS OF GRIEVANCES .....	44

## LIST OF FIGURES

Figure 1. TARGET DISTRICTS OF TOWNS DEVELOPMENT PROJECT .....	9
Figure 2. CONSTRUCTION IN KAYSONE PHOMVIHAN URBAN TOWN.....	13
Figure 3. PHINE URBAN ROAD CONSTRUCTION.....	13
Figure 4. DANSAVAN URBAN ROAD CONSTRUCTION .....	14
Figure 5. KAYSONEPHOMVIHANE LANDFILL IN PERIPHERUL .....	14
Figure 6. Status of HLK-DEWATS Completion.....	16
Figure 7. Status of Mekong River Embankment Completion .....	17
Figure 8. Mekong River Embankment Comparison .....	18
Figure 9. BEFORE & AFTER OF FA NGUM ROAD & PARK CONSTRUCTION.....	19
Figure 10. KAYSONEPHOMVIHAN ROAD BEFORE-AFTER CONSTRUCTION AT ASEAN ROUNDAABOUT .....	20
Figure 11. KAYSONEPHOMVIHAN ROAD BEFORE AND AFTER CONSTRUCTION AT KM2+120 .....	21
Figure 12. THE SAVANNAKHET AIRPORT ACCESS ROAD BEFORE & AFTER CONSTRUCTION .....	22
Figure 13. Solid Waste Management Subproject .....	23
Figure 14. PHINE URBAN ROAD & BAN NAPHO ROAD BEFORE & AFTER CONSTRUCTION .....	24
Figure 15. ALONE ACCESS ROAD BEFORE AND AFTER CONSTRUCTION .....	25
Figure 16. ORGANIZATIONAL CHART FOR EMP IMPLEMENTATION .....	26
Figure 17 –Fa Ngum Road 2 (Proposed Additional Works).....	35
Figure 18 Boundary wall compensated on Mekong Embankment Road .....	38
Figure 19 – Landfill Closure - Proposed Additional Works .....	39

## **I. EXECUTIVE SUMMARY**

### **A. IMPLEMENTATION HIGHLIGHTS**

1. On July 1, 2020, 3 subprojects in Kaysone Phomvihane municipality were handed over to project executing agency: Kaysone Phomvihane Road, Fa Ngum Road, Solid Waste Management Subproject. On December 18, 2020, the remaining two subprojects (HLK Channel, Pumping Gate with DEWATS and Mekong River Embankment subproject with Soukhavadi and Thahae road) were handed over to client.
2. IEE compliant certificate expired in May 2020, PMU has requested for an extension for another 3 years, it was already approved by Savannakhet Department of Natural Resources and Environment, attached in the APPENDIX A.
3. The CSCS-NES with PMU-ESS has regularly conducted monthly environmental monitoring of the sub-projects, given advice and provided corrective actions for noncompliant issues. EHSO of contractor has implemented daily environment, health and safety monitoring in the field and associated construction activities.
4. PoNRE, DoNRE with NES and PMU conducted joint inspection on environment, health and safety in two remaining subprojects on 1-5 Sep 2020.
5. Lao UAE was hired by JV R8CE & TSC to conduct environment quality monitoring in HLK-DEWATS Subproject on July 6, 2020. The environment monitoring items included parameters for surface water quality.
6. The contractor for HLK-DWATS subproject has received training on communicable disease prevention (sexually transmitted disease, HIV, AIDS) for their workers to understand (i) knowledge about AIDs, (ii) symptom of infected person (iii) treatment (iv) prevention (v) use of condoms and (vi) Safety precaution and prevention for worker.
7. In August 2020, the LACP for the Solid Waste Management Facility was submitted to ADB and disclosed. Implementation will commence as soon as the new facility is ready to begin operating.
8. Confirmation in writing has been obtained from local government authorities that the 35 vendors displaced from the old Mekong embankment will be given priority to return to the new embankment.
9. Confirmation in writing has been obtained from local government authorities that the 10 waste picker households active at the old landfill will be offered employment at the new solid waste management facility to avoid economic displacement.
10. Socio-economic monitoring of the one (1) household economically displaced by the Houay Longkong DEWATS construction was conducted in September and December, with results confirming that the household's livelihood has been fully restored to pre-project levels.
11. Compensation completion reports for all Subprojects have been prepared in order to verify that compensation and other entitlements have been provided as agreed in resettlement plans.
12. A refresher training was organized for PMU on the e-filing system (OneDrive shared folders) used for resettlement team data and documentation.
13. Two (2) minor grievances were received during reporting period and have been resolved (the grievances concern late-payment for electricity usage by road contractors). The two (2)

grievances reported in the previous semi-annual report have also been resolved. There are no outstanding grievances.

14. COVID19 preventive actions are being strictly implemented i.e. hygiene and wearing mask for numerous participants. Two remaining contractors, Mekong River Embankment and HLK-DWATS had submitted their COVID-19 Supplemental guidelines to CEMP which was subsequently approved on July 2020.

## **B. PLANNED ACTION FOR SUCCEEDING MONITORING PERIOD**

15. The following priority activities are planned for the next monitoring period from January-June 2021:

- Continue regular environmental monitoring for remaining issues on Mekong River Embankment, HLK and DEWATS restoration.
- Finalize environment, health and safety content in the Operations Manual for the new solid waste management facility and provide training to project staff and operators, including waste pickers.
- Implement the Resettlement Plan for the solid waste management facility, including consultations with waste-pickers at the old landfill facility 1 month prior to commencement of the new facility to allow ample time for waste pickers at the old facility to transition to new jobs at the new facility.
- Submit a due diligence report for two proposed additional works (Fa Ngum Road 2 and Landfill Closure) confirming no resettlement impacts. Provided technical advice on environmental, social, health and safety issues during project implementation of the additional works.
- Report on environmental and social safeguards performance quarterly and semi-annually in line with project reporting requirements.
- Submit outstanding compensation completion reports to ADB for review and concurrence.

## **II. PROJECT AND GENERAL SAFEGUARDS OVERVIEW**

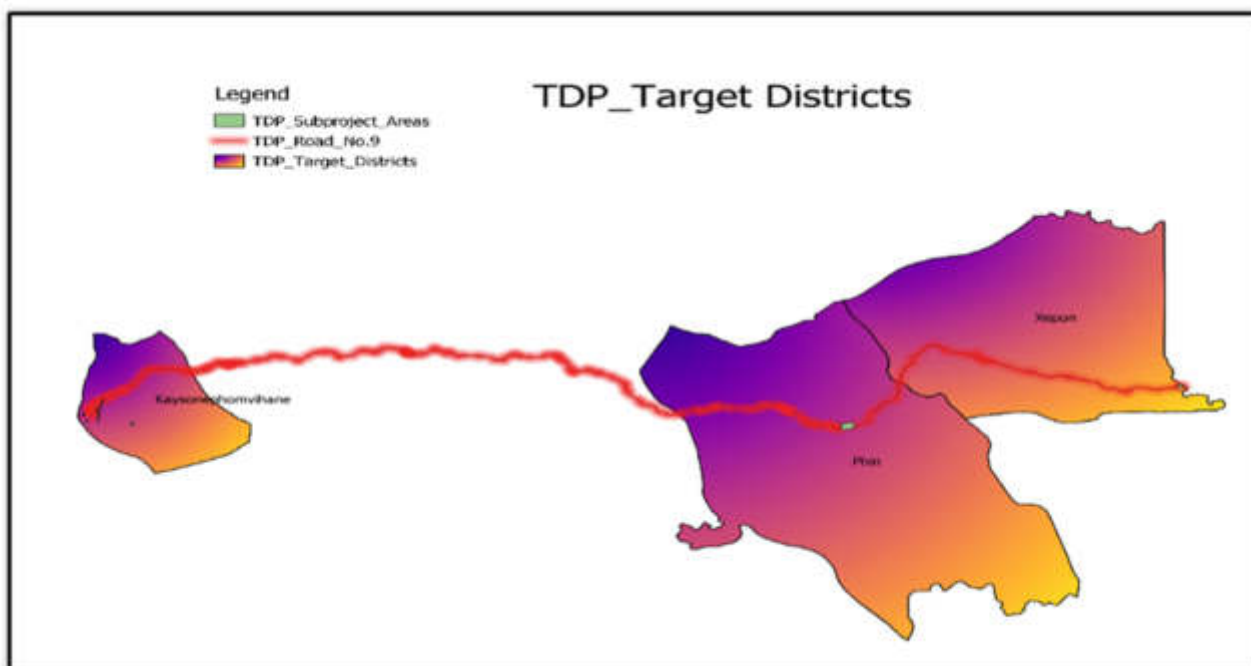
### **A. PROJECT BACKGROUND**

16. The participating corridor towns of Kaysone Phomvihane, Phine, and Dansavanh in the Lao PDR face the pressing task of coping with the demands of rapidly growing and expanding urban areas. Local authorities want planned and managed urban growth using an integrated approach to operate and maintain urban environmental and economic infrastructure, and efficiently deliver municipal services. Despite policy reforms to promote decentralization, local institutional capacity has not kept pace with urban sector development and economic growth. With increasing trade and traffic flows, the capacity of the corridor towns to manage local economic development in an environmentally sustainable manner urgently needs to be strengthened.
17. The expected positive impact of the project is for the towns of Kaysone Phomvihane, Phine, and Dansavanh to become local centres of trade and investment, thereby contributing to the transformation of GMS transport corridors to economic corridors. The expected outcome is adequate provision of essential urban infrastructure and services in the project towns. The

drainage, septage management, and river embankment protection subprojects will contribute to increased climate resilience of the participating towns.

18. The key outputs of the project are as follows: (i) adoption and implementation of Strategic Local Economic Development Plans (SLEDPs)<sup>1</sup> in the project towns, (ii) implementation of priority urban infrastructure investments, and (iii) strengthened institutional capacities for urban development. The priority subprojects for infrastructure investments were identified based on (i) consistency with project's overall goals and objectives, (ii) potential impact in contributing to economic growth and level of competitiveness, and (iii) the expressed interest and commitment of the executing agency to provide necessary resources, criteria that were discussed during the national workshops with project stakeholders.
19. The Project consists of seven (7) sub-projects which are identified and prioritized small infrastructure development works in three (3) target districts of Savannakhet Province (see Figure 1). Two subprojects are under construction progress and other five subprojects were completely constructed and have been implementing environment safeguard according to EMPs requirement and their CEMPs that submitted to CSCS.
20. The details of additional works and related to subproject and locations (see Table 1: Sub-projects and additional works) are presented in the succeeding sections.

Figure 1. TARGET DISTRICTS OF TOWNS DEVELOPMENT PROJECT



<sup>1</sup> The SLEDP represent a new form of planning document developed for the purpose of combining economic development planning with urban infrastructure investments. The SLEDPs identify economic drivers and provide justification for infrastructure investments under the project, and by other sources.

Table 1: SUB-PROJECTS AND ADDITIONAL WORKS Description

Contract No. Additional work	Detail of Description subproject and additional work	Location
ICB-4.1A Kaysone Phomvihane Road	<p><b>Contractor:</b> Road No. 8 Construction Enterprise with PK and TSC JV</p> <p><b>Cost:</b> USD 7,546,207.00</p> <p><b>Construction Description:</b> (i) 7 meters width per lane for two lanes of asphalt concrete pavement 6,182 meters length, (ii) with both side drainage and sidewalks with tree planting, (iii) 2.4 meters median with vegetation decoration and streetlight, (iv) two roundabouts, (v) District public work and transport office building and laboratory building with equipment</p> <p><b>Contract period:</b> 11 November 2017-10 Nov 2019</p> <p><b>Completion and Handover Date:</b> 1 July, 2020</p>	Kaysone Phomvihane Municipality
ICB-4.1A-VO.01 Savannakhet Airport Access Road	<p><b>Contractor:</b> Road No. 8 Construction Enterprise with PK and TSC JV</p> <p><b>Cost:</b> USD 356,954.37</p> <p><b>Construction Description:</b> 730 meters length with 2 lanes, 5 meters width each lane of asphalt concrete pavement; Median 1-meter width; 1-meter drainage for each side; Streetlight installation; Sidewalk both sides and; Tree planting both on sides.</p> <p><b>Contract period:</b> Jan-April 2020</p> <p><b>Completion and Handover Date:</b> 1 July, 2020</p>	
NCB-4.1 B Fa Ngum Road	<p><b>Contractor:</b> Champakham Road and Bridge Construction Co. Ltd (CPK)</p> <p><b>Cost:</b> USD 2,289,611.17</p> <p><b>Construction Description.</b> (i) Widening and pavement strengthening of 2.2 km Fa Ngum Road. The road consists of Fa Ngum Rd 1 (West) and Fa Ngum 2A &amp; 2B (Park) with two by two lanes separated by a park. (ii) Drainage (U-box) and footways. (iii) 2 m sidewalks on either side of the road. (iv) Installation of lighting facilities and planting of trees and ornamentals (v) Roundabout at junction near Provincial Governor's office, (vi) Landscaped park and facilities, including shopping facility (kiosk) and public toilets.)</p> <p><b>Contract period:</b> 14 November 2017- 13 November 2019</p> <p><b>Completion and Handover Date:</b> 1 July, 2020</p>	Kaysone Phomvihane Municipality
NCB-1.1 Wastewater- Management HouyLongkong Channel	<p><b>Contractor:</b> Road No. 8 Construction Enterprise and Tay Truong Son Construction Sole Co. Ltd. JV.</p> <p><b>Cost:</b> USD 1,673,128.31</p> <p><b>Construction Description:</b> (i) Concrete lining of approximately 850 m earth channel; (ii) installed two pumping stations with electricity and engine in case of emergency (iii) Replacement of water gate with new hydraulic flood gate</p> <p><b>Contract period:</b> 22 March 2018-21 March 2020.</p> <p><b>Completion and Handover Date:</b> 18 December 2020</p>	

Contract No. Additional work	Detail of Description subproject and additional work	Location
NCB-1.1-VO.01 Decentralized Wastewater Treatment System (DEWATS)	<p><b>Contractor:</b> Road No. 8 Construction Enterprise and Tay Truong Son Construction Sole Co. Ltd. JV.</p> <p><b>Cost:</b> USD 861,250.76</p> <p><b>Construction Description:</b> 2.7 hectares of recreation ponds (i) Concrete sediment pond and Concrete pond after treatment zone; (ii) 3 Horizontal Flow Gravel Filter (HGF); (iii) Parking Lots; (iv) Walkway; (v) Surrounding road; (vi) 0 Tree planting; (vii) 3 Ditches and; (viii) Fence</p> <p><b>Contract period:</b> Jan-July 2020.</p> <p><b>Completion and Handover Date:</b> 18 December 2020</p>	
NCB-2.1 Solid Waste Management and <b>additional work:</b> Leachate Pipe connection with existing landfill	<p><b>Contractor:</b> VSP construction Company Limited.</p> <p><b>Main Cost:</b> USD 1,659,205.10</p> <p><b>Additional work cost:</b> USD 19,820.76</p> <p><b>Construction Description:</b> 10 hectares of land was designed for landfill facility included (i) fence and gates; (ii), 3 hectares of landfill cell; (iii) access road, reception areas and parking lots (iv) weighbridge (v) administration building and staff facility building; (vi) material recovery/segregation areas; (vii) compost building and recycle building; (viii) Septic Sludge Treatment Plant; (ix) leachate treatment ponds, included wetland and (x) wheels washing station; (xi) electricity and water supply and; (xii) additional work on leachate pipe connection from existing landfill</p> <p><b>Contract period:</b> 22 March 2018-21 March 2020.</p> <p><b>Completion and Handover Date:</b> 1 July 2020</p>	
ICB-5.1 Mekong River Embankment	<p><b>Contractor:</b> Laomixay Construction Co., Ltd.</p> <p><b>Cost:</b> USD 4,506,063.01</p> <p><b>Construction Description:</b> (i) 980 meters length with 50 meters of Mekong River Embankment construction; (ii) 980 meters length of upgrading concrete pavement along the embankment; (iii) Public Park with different zones, commercial stores, public restrooms, exercise areas, green zones, walking street, and other park decoration; (iv) street light installation (v) drainage on the left side and (vi) sidewalk on both sides.</p> <p><b>Contract period:</b> 05 June 2019 to 04 June 2021.</p> <p><b>Completion and Handover Date:</b> 18 December 2020</p>	Kaysone Phomvihane Municipality
ICB-5.1-VO.01-Thahae and Soukhavadi road construction	<p><b>Contractor:</b> Laomixay Construction Co., Ltd.</p> <p><b>Cost:</b> USD 609,989.02</p> <p><b>Construction Description:</b> (i) Soukhavadi road: Concrete pavement of 292 meters length, 7 meters width with U-ditch drainage on both sides, street light, and tree planting on both sides with sidewalk. (ii) Thahae road: concrete pavement of 459.5 meters length and 7 meters width with street light, one drainage on right side and sidewalk on both sides.</p>	

Contract No. Additional work	Detail of Description subproject and additional work	Location
	<b>Contract period:</b> January-April 2020. <b>Completion and Handover Date:</b> 18 December 2020	
ICB-4.3 Phine Urban Road Subproject	<b>Contractor:</b> Road No. 8 Construction Enterprise and Tay Truong Son Construction Sole Co. Ltd. JV. <b>Cost:</b> USD 4,010,613.00 <b>Construction Description:</b> (i) 9.978 kilometers widening, improving 5-7 meters width with Double Bitumen Surface Treatment (DBST) pavement; (ii) U-box drainage on both sides (iii) Sidewalks (iv) Tree planting on both sides; (v) Solar Cell Street Light Electricity Installation and (vi) An office building <b>Contract period:</b> 14 November 2017 to 13 November 2019. <b>Completion and Handover Date:</b> 21 February 2020	
ICB-4.3-VO.01 Napho access road	<b>Contractor:</b> Road No. 8 Construction Enterprise and Tay Truong Son Construction Sole Co. Ltd. JV. <b>Cost:</b> USD 189,225 <b>Construction Description:</b> 619 meters length and 5 meters width of DBST pavement, 0.50-meter U-ditch drainage on both sides and solar cell street light. <b>Contract period:</b> January-March 2020. <b>Completion and Handover Date:</b> May 2020	Phine District
NCB-4.2 Dansavanh Urban Road Subproject	<b>Contractor:</b> Noukham Construction Company limited. <b>Cost:</b> USD 2,312,621.58 <b>Construction Description:</b> (i) 3.884 kilometers widening, improving 5-7 meters width with Double Bitumen Surface Treatment (DBST) pavement; (ii) U-box and V-shape drainage on both sides (iii) Sidewalks (iv) Tree planting on both sides and (v) Solar Cell Street Light. <b>Contract period:</b> 14 November 2017 to 13 November 2019. <b>Completion and Handover:</b> 26 December 2019	
NCB-4.2-VO. 01 Construction of Alone Roads	<b>Contractor:</b> Noukham Construction Company limited. <b>Cost:</b> USD 264,410.72 <b>Construction Description:</b> (i) 637 meters widening, improving 5-7 meters width with Double Bitumen Surface Treatment (DBST) pavement; (ii) pipe and V-shape drainage on both sides (iii) Tree planting on both sides and (iv) Solar Cell Street Light. <b>Contract period:</b> January-March 2020. <b>Completion and Handover:</b> April 2020	Xepon District

Figure 2. CONSTRUCTION IN KAYSONE PHOMVIHAN URBAN TOWN

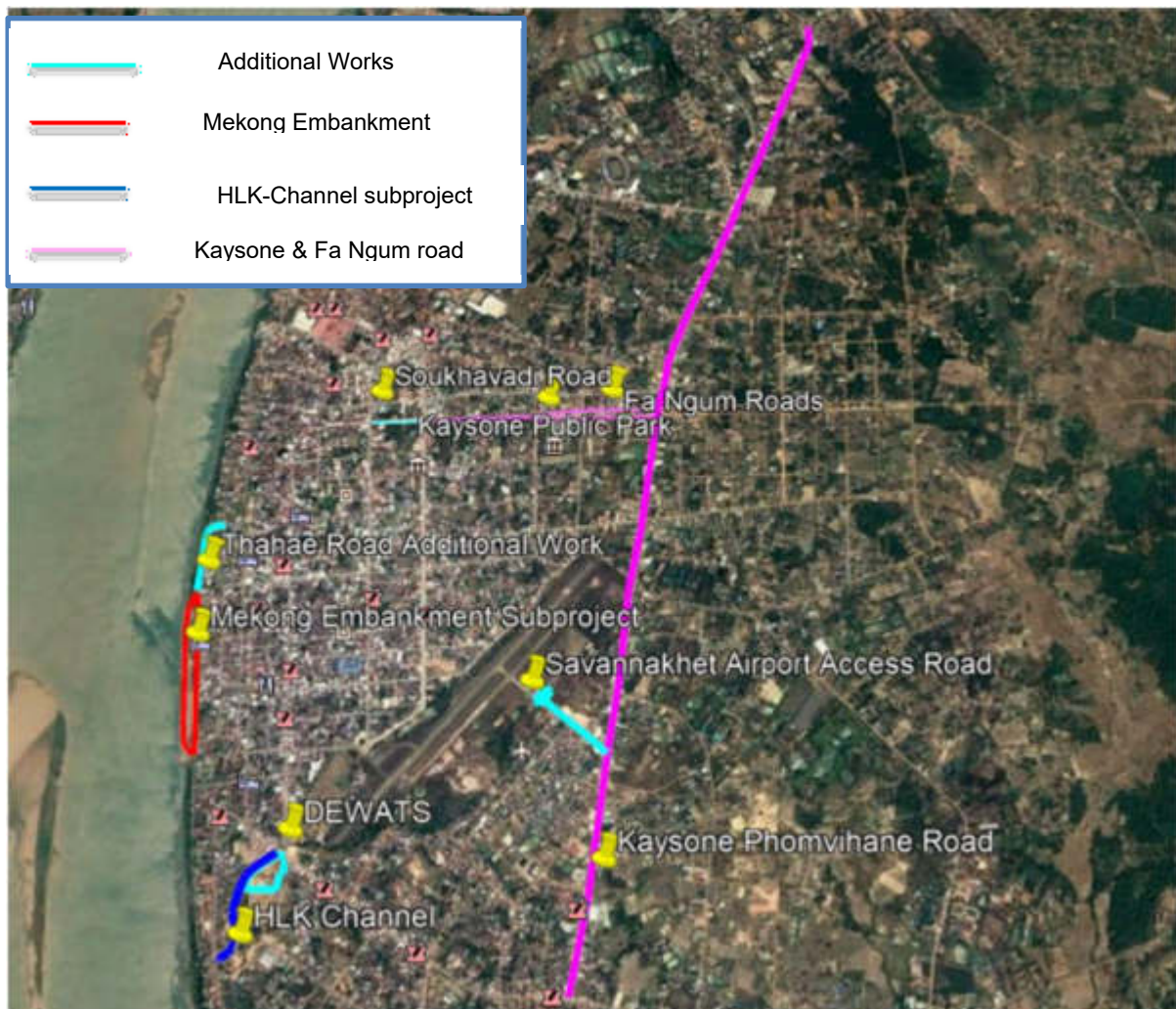


Figure 3. PHINE URBAN ROAD CONSTRUCTION

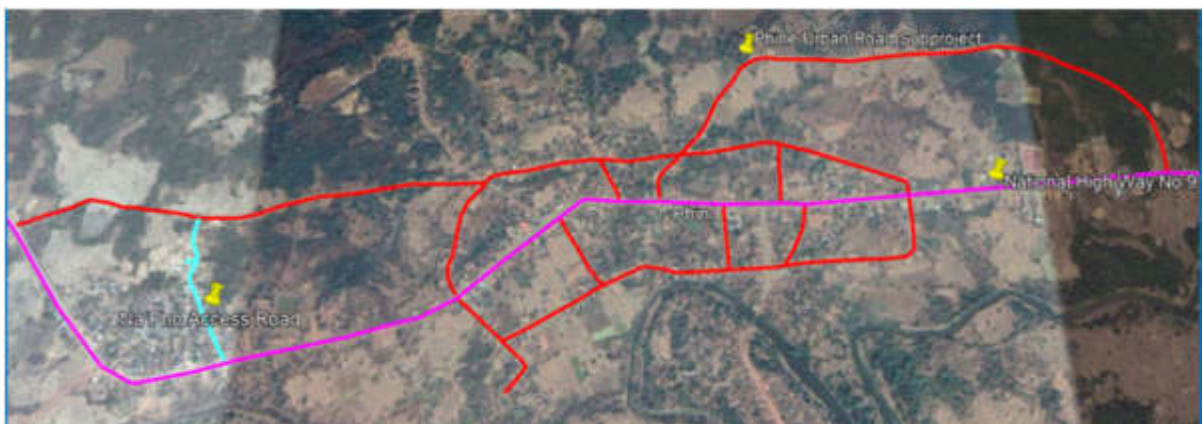


Figure 4. DANSAVAN URBAN ROAD CONSTRUCTION



Figure 5. KAYSONEPHOMVIHANE LANDFILL IN PERIPHERUL



## B. PROJECT PROGRESS

21. The progress of implementation of the sub-projects as of December 31, 2020 is presented in Table 2 below.

Table 2. ACTUAL ACCOMPLISHMENT OF SUB-PROJECTS, Sep 30, 2020

No	SUB-PROJECT	PROGRESS (%)	
		ACTUAL	PLANNED
1	Fa Ngum Road (Kaysone Phomvihane Urban Roads) (NCB-4.1B)	100	100
2	Kaysone Phomvihane Road (Kaysone Phomvihane Urban Roads)	100	100
	Additional work: Savannakhet Airport Access Road Construction	100	100
3	Phine Urban Road (ICB-4.3)	100	100
	Additional work: Napho Access road construction	100	100
4	Dansavan Urban Road (NCB-4.2)	100	100
	Additional work: Alone Access road	100	100
5	Kaysone Phomvihane Solid Waste Management (NCB-2.1)	100	100
	Additional work: Old landfill drainage	100	100
6	Wastewater Management - Houylongkong Channel (NCB-1.1)	100	100
	Additional work: DEWATS	100	100
7	Mekong River Embankment	100	100
	Additional work: Thahae Road and Soukhavadi Construction	100	100

22. HLK-Channel subproject: Continuation of the pumping house, flood gate and main channel with replaced concrete lining and concrete re-enforcement in some sections and street light installation surrounding the pumping house and all works completed in December 2020.

23. DEWATS: the main construction activities included the installation of the Horizontal Flow Planted Gravel Filter (HGF) No.2 & 3, fence and access ladder from access road to ponds, specific grass planting and fully completed in December 2020.

24. Kaysone Phomvihane Mekong River Embankment: Continuing park decoration, finalize business store building, public toilets and street light installation and beautification works, traffic sign, road marking, garbage bin installation which are now fully completed.

25. The Thahae road and Soukhavadi road: continue to finalize embankment wall at the Thahae road, and street light installation, traffic signs and road marking and all construction activities ended in December 2020.

26. Fa Ngum Road, Kaysone Phomvihane road, Solid Waste Management and Phine Urban road subprojects had no construction activity in the report period, but there are final environment inspection and corrective action for these subprojects that included site restoration at the worker's camp and removal of remaining construction material from the construction sites, closing contract with landowner of worker's camp and borrow pit.

Figure 6. Status of HLK-DEWATS Completion



Figure 7. Status of Mekong River Embankment Completion



Figure 8. Mekong River Embankment Comparison



Figure 9. BEFORE & AFTER OF FA NGUM ROAD & PARK CONSTRUCTION

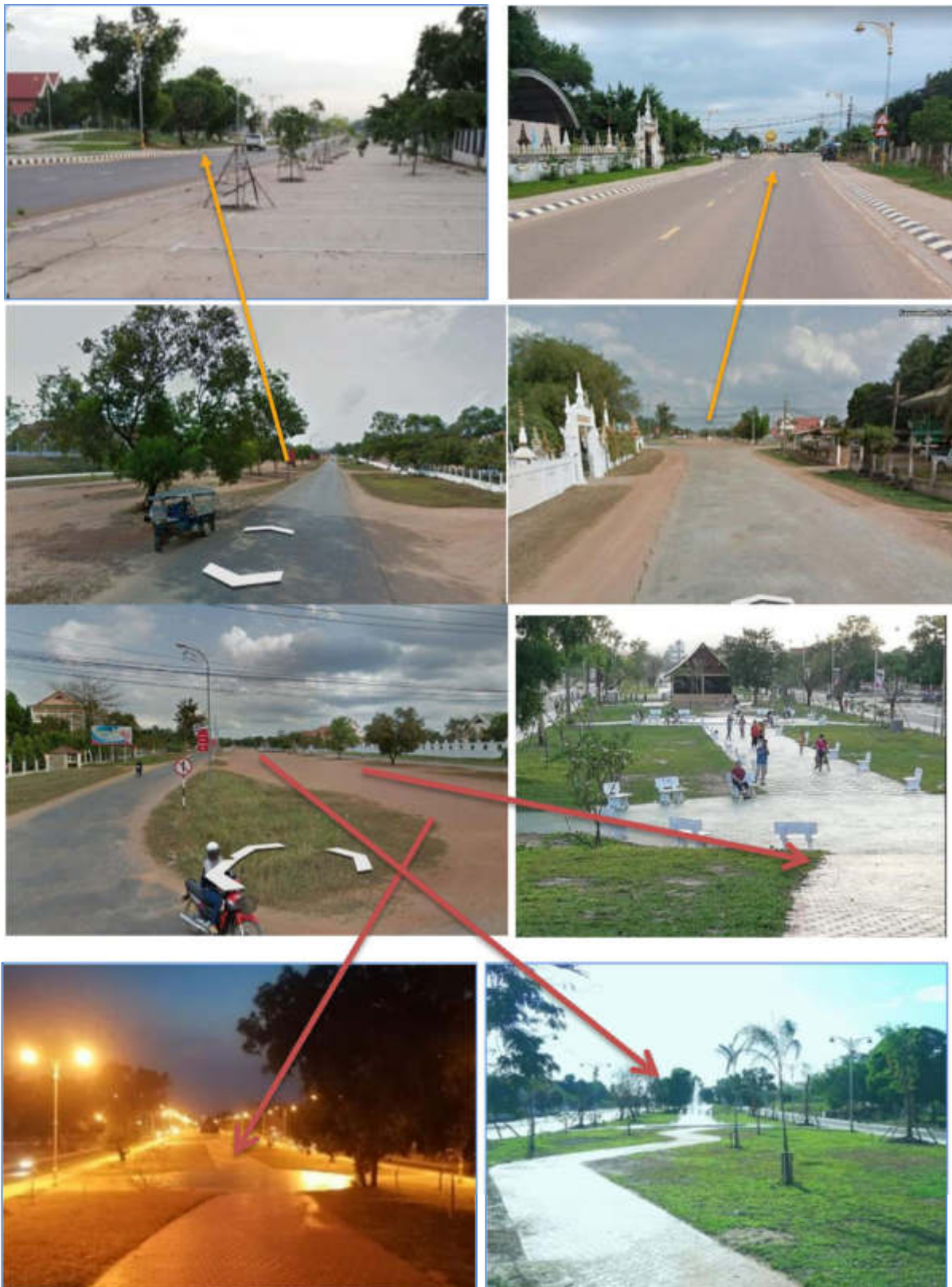
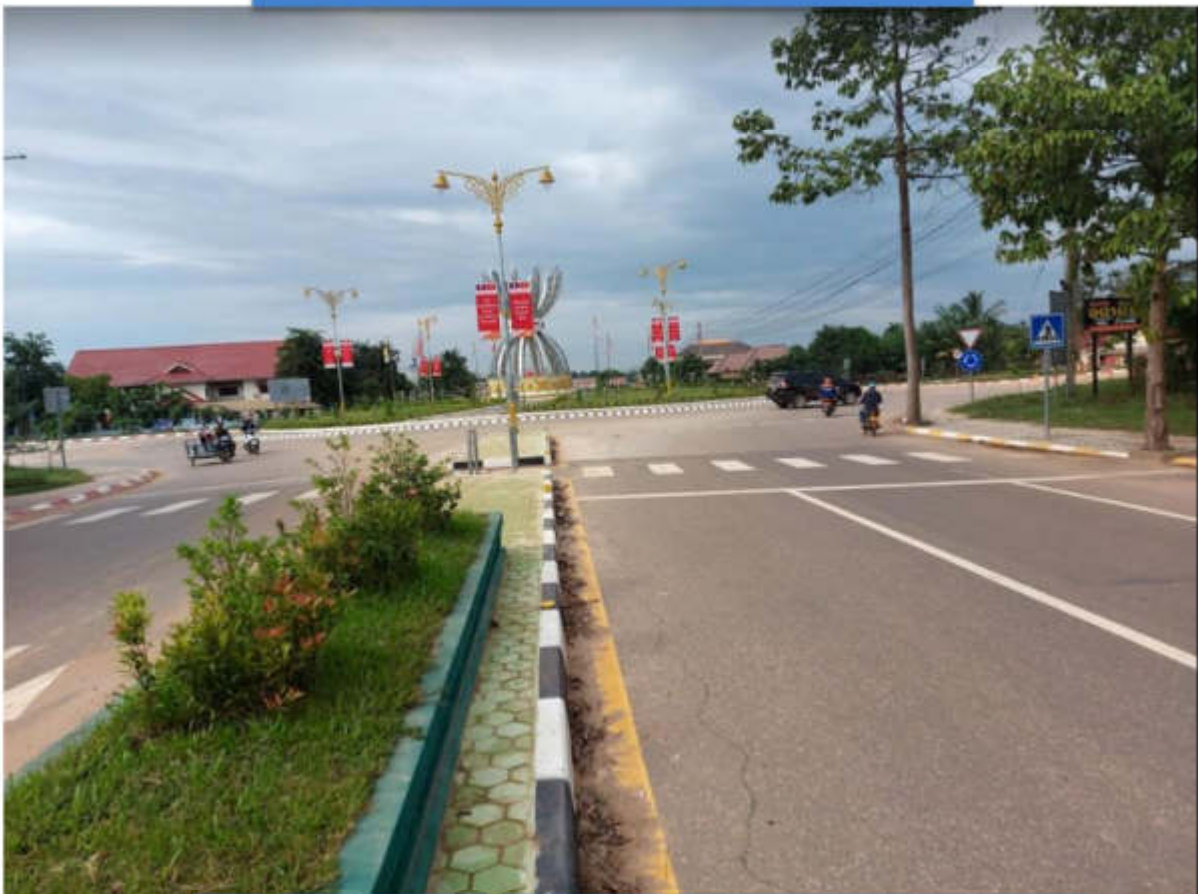


Figure 10. KAYSONEPHOMVIHAN ROAD BEFORE-AFTER CONSTRUCTION AT ASEAN ROUNDABOUT



Source: Google Tri-Dimensions view Jan/2016



Source: GMS-EWEC-Towns Development Project Sep 2020

Figure 11. KAYSONEPHOMVIHAN ROAD BEFORE AND AFTER CONSTRUCTION AT KM2+120



Source: Google Tri-Dimensions view Jan/2016



Source: GMS-EWEC-Towns Development Project Sep 2020

Figure 12. THE SAVANNAKHET AIRPORT ACCESS ROAD BEFORE & AFTER CONSTRUCTION



Figure 13. Solid Waste Management Subproject



Figure 14. PHINE URBAN ROAD & BAN NAPHO ROAD BEFORE & AFTER CONSTRUCTION



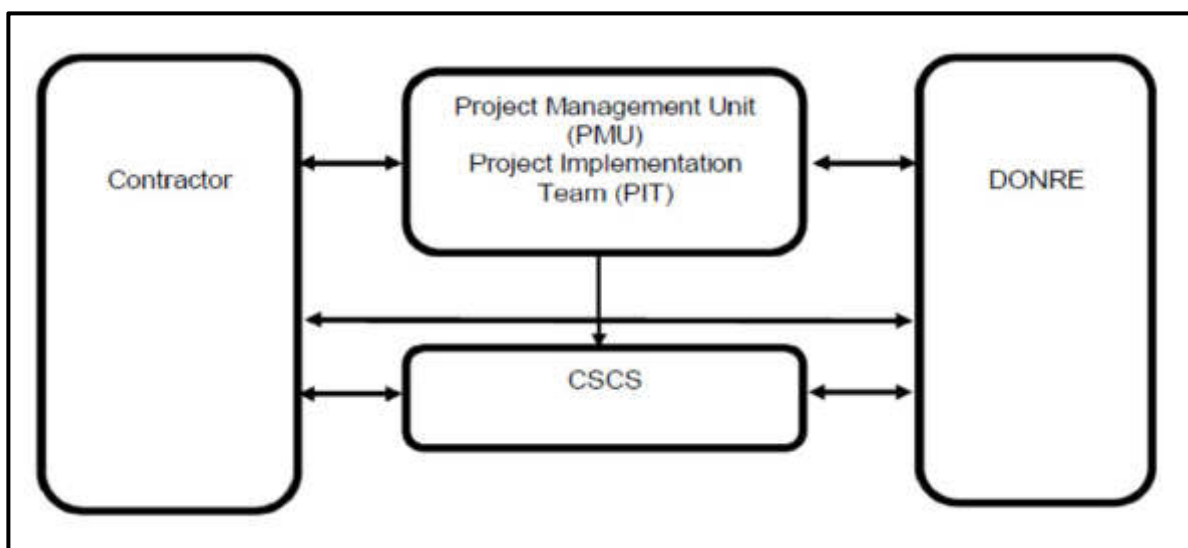
Figure 15. ALONE ACCESS ROAD BEFORE AND AFTER CONSTRUCTION



### C. ENVIRONMENTAL SAFEGUARD IMPLEMENTATION ARRANGEMENTS

27. The primary management framework overseeing the implementation of the environmental management plan (EMP) is shown in Figure 2 and is defined by the following entities:
- a. Ministry of Public Works and Transports (MPWT) is the executing agency (EA) of the project;
  - b. The Provincial Department of Public Works and Transport (PDPWT) Savannakhet Province is the implementing agency (IA) of subproject.
  - c. Project Management Unit (PMU) formed by the IA to oversee the implementation of the project.
  - d. The Project Implementation Team (PIT) established in each district to coordinate subproject activities at the district level.
  - e. The EA/PMU has appointed Environmental Safeguard Specialist (ESS) who is responsible for overall environment and social safeguard of project and representative of PMU for EMP implementation and monitoring.
28. A Construction Supervision Consulting Services (CSCS) Consultant with environmental expertise has been appointed. The CSCS is responsible to ensure that the Contractor implements the EMP during the Contract Period, to establish monitoring program, review the EMP, and supervise its implementation. During the construction phase, the Contractor is generally responsible for implementation of the mitigation measures as specified in the mitigation plan and the CSCS supervises the implementation.
29. The Contractor's Environmental Health and Safety Officer (EHSO) is the contractor's focal point for all environmental matters and is routinely on-site for the duration of the construction works. The EHSO is an appropriately briefed technical officer (often the CC site engineer). The EHSO carries out regular inspections of the construction activities in relation to environmental issues, and provides day-to-day advice to contractor personnel about environmental issues. The EHSO have the authority to instruct any area of the contractor's operations to implement the requirements of the Environmental Management Plan (EMP).

Figure 16. ORGANIZATIONAL CHART FOR EMP IMPLEMENTATION



30. The reporting requirements for the environmental safeguards for the project is described in Table 3 below.

Table 3. REPORT REQUIREMENT FOR EMP MONITORING

REPORT	FREQUENCY	PURPOSE	FROM	TO
Contractor's Environmental Monitoring and Grievance Report	Monthly	Compliance to EMP/CEMP	Contractor	CSCS, PMU
Quarterly Project Progress Report	Quarterly	Confirm EMP Compliance or Issues	CSCS	PMU/PCU
Semi-Annual Environmental Safeguards Monitoring Report	Semi-annually	Adherence to Environmental Covenants	CSCS/PMU	PoNRE/ADB

#### D. STATUS OF ENVIRONMENTAL SAFEGUARDS DOCUMENTS

31. Table 4 presents the status of the requisite environmental safeguards reports and documents as of December 31, 2020.

Table 4. STATUS OF ENVIRONMENTAL SAFEGUARDS DOCUMENTS (EMPS AND IEES)

No	ENVIRONMENTAL SAFEGUARD DOCUMENT	STATUS OF DOCUMENT
1	IEE addendum of additional works	<ul style="list-style-type: none"> <li>Complied accordingly.</li> </ul>
2	7 EMPS for each subproject	<ul style="list-style-type: none"> <li>Complied accordingly.</li> </ul>
3	CEMPs and OHSPs of contractor	<ul style="list-style-type: none"> <li>All CEMPs &amp; OHSPs were approved, and shared with ADB.</li> <li>The latest approval of CEMP and OHSP of contractor from Mekong River Embankment subproject is on October 28, 2019</li> <li>COVID-19 Prevention Supplemental Guidelines to CEMP with regards to the two remaining subprojects were submitted and approved on July 2020.</li> </ul>
4	GMS-EWEC TDP-Semiannual Environment and Social Safeguards Monitoring Report.	<ul style="list-style-type: none"> <li>Required report was submitted on time, the last SEMR January-June 2020 was submitted in early August and supplemental to SEMR was submitted in September 2020. It is already uploaded in the bank's website.</li> </ul>
5	Quarterly Environment Safeguard Monitoring report	<ul style="list-style-type: none"> <li>The fourth quarterly environment monitoring report is combined with semiannual report and submitted on time.</li> </ul>
6	Environment Quality Monitoring Report	<ul style="list-style-type: none"> <li>Results of surface water quality monitoring in HLK-DEWATS are presented in this report.</li> </ul>
7	Monthly Environment Monitoring Report (MEMR)	<ul style="list-style-type: none"> <li>So far, two subprojects are required to submit their MEMR, while contractors regularly submit their reports every month.</li> </ul>

### III. ENVIRONMENTAL PERFORMANCE MONITORING

#### A. STATUS OF EMP IMPLEMENTATION (MITIGATION MEASURES)

32. Table 5 presents the status of each subproject relevant to the implementation of the approved EMPs. Table 6 presents the status of occupational health and safety performance in each subproject from the contractor while Table 7 presents the issues for further action which included both environment and occupational health and safety.

Table 5. COMPLIANCE WITH EMP REQUIREMENTS (ENVIRONMENTAL PERFORMANCE)

EMP Requirements	Status of compliance (Yes, No, Partial)	Comments or reasons for non-compliance	Issues for further action
<b>Pre-construction phase</b>			
CEMP and OHSP development, approval and implement	Yes	All subprojects had submitted and approved, and shared with ADB	
Personnel establishment (EHSO)	Yes	Contractors hired EHSO for daily monitoring and mitigation	
Pre-construction consultation	Yes	All projects had conducted pre-construction consultation	
Environment baseline establishment	Yes	Where it is applicable, contractors had established baseline	
Grievance Redress Mechanism is established	Yes	Person, contact sign board, recording system are in place for all subprojects	
Obtain Environmental Compliance Certificate	Yes	Savannakhet PoNRE already approved ECC for IEE extension	
<b>Construction Phase</b>			
<b>Ambient Air Quality mitigation</b>			
Water unpaved areas to mitigate generation of dust	Yes	2-6 times per day, it depends on subproject and locations	
Require contractor to cover material with tarpaulin while in transit to avoid spillage of material	Yes	All trucks are equipped with cover during transport in the public road	
Impose speed limits on construction vehicles	Yes	Where it is applicable, speed limit signs were installed	
Regular maintenance on construction machineries and vehicles to control air emission during operation	Yes		
<b>Ambient Noise Management</b>			
Limit construction activities, particularly operation of noise generating equipment at night	Yes	no night activities in the field	

Position any stationary equipment that produce high noise level far from sensitive receptor	Yes	Prior to informal consultation conducted no report regarding noise from construction activities was received	
Require drivers to minimize blowing of horn and comply to speed limits	Yes	Cautionary signages are installed	
<b>Surface Water Quality, Soil Erosion and Stagnant Water Management</b>			
All irrigation canals and channels to be protected the same way as rivers, streams, and lakes.	Yes	All water courses are protected	
No washing or repair of machinery near surface waters.	Yes		
Where relevant, e.g. at borrow pits establish protective coffer dams, berms, plastic sheet fencing, or silt curtains should be placed between all earthworks and surface waters.	Yes	Where it is applicable, protection methods are applied	
Earthworks not permitted during the rainy season and should be conducted during dry weather.	Yes	In Principle, earth work was not allowed during rainy days, but some earth works may be implemented during the season.	
Oil and fuels should be stored and handled well away from surface waters.	Yes	Oils and fuels were stored with above ground level, and away from surface water	
Conduct water quality monitoring (ground and surface water) as stated in EMP of each subproject	Partial	HLK-DEWATS resumed surface water quality monitoring as provided in this report	
<b>Solid and Hazardous Waste Management</b>			
Contractor is required to provide garbage bins with labels and categorize solid waste	Yes	Bins were provided at the worker's camp, construction sites	
Disposal sites must be defined with government approval areas	Yes	Authorized landfill only	
All construction sites are required to be tidy after work and cleanliness must be observed	Yes	Daily cleaning is applied to all subprojects	
Contractor is required to provide Hazardous Waste container: for Collection, storage, transport, and disposal of hazardous waste such as asphalt, used oils, gasoline, paint, and other toxics must follow GoL regulations	Yes	Containers for hazardous waste were installed in each subproject	
<b>Tree and Vegetation Management</b>			
Restrict tree and vegetation removal within RoWs and no unnecessary cutting of trees.	Yes	No tree was cut within RoW, instead, trees were planted	
Contractor is required to submit Tree plantation plan for RoWs and tree species	Yes	All contractors submitted tree planting plan	

must be native species			
Keep trees as much as possible in the adjacent and construction areas.	Yes	Trees in the construction sites or adjacent areas were protected	
<b>Public Services and Utilities</b>			
Temporary bridge or access road must be provided during construction	Yes	All household along the road were provided temporary access and restored access after completion	
Informal consultation with local people regarding disruption on construction, power and other utilities	Yes	EHSO has regular informed resident's prior for any disturbing.	
Contractors require to plan with utility companies' removal and re-installation of utilities	Yes	All utilities removed or installed was in cooperation with the relevant companies	
<b>Asphalt/concrete Production, Transport and Utilization</b>			
Locate asphalt/concrete mixer plant at approved sites and well away from all settlements, cultural areas, sensitive (e.g., schools, hospitals), and ecologically important areas.	Yes	ECC for concrete mixing and other material sources are approved by PoNRE	
Contractors must be well trained in handling and application of bitumen/concrete mixer plan	Yes		
Bitumen should only be spread on designated road beds and all spills should be immediately cleaned	Yes		
<b>Cultural Property or Values and Chance Finds Management</b>			
Ensure protection of cultural and religious sites during construction	Yes		
Should relics be found by any chance it should be reported immediately to site supervisors.	Yes	No relics were found during any of the construction	
Should relics be found by any chance all work should immediately cease, and PMU notified?	Yes	Procedure was relayed to all EHSO for each subproject	

Table 6. OCCUPATIONAL HEALTH AND SAFETY PERFORMANCE

EMP REQUIREMENTS	STATUS OF COMPLIANCE (YES, NO, PARTIAL)	COMMENTS OR REASONS FOR NON-COMPLIANCE	ISSUES FOR FURTHER ACTION
<b>WORKER'S HEALTH AND SAFETY</b>			
PPEs requirement for workers such as helmet, boots, vest, mask, gloves.	Yes	Complied	
Worker's facilities with appropriate amenities such as clean drinking water, separate women and men toilets and good accommodations.	Yes		
Regular safety work orientation	Yes		

Health, STD, HIV training or seminar for workers	<b>Yes</b>	The last event, HLK-DEWATS organized in early July 2020.	
<b>CONTINGENCY AND EMERGENCY PREPAREDNESS REQUIREMENTS</b>			
Contact details of nearest emergency services	<b>Yes</b>		
Fire extinguisher available in site office and facilities	<b>Yes</b>		
First Aid kits in construction sites, camps	<b>Yes</b>		
Emergency responsible team/person	<b>Yes</b>		
<b>PUBLIC HEALTH AND SAFETY AND TRAFFIC MANAGEMENT</b>			
Warning light and reflectorized signages should be installed in the construction	<b>Yes</b>	Where it is applicable, light, signages, barriers were temporarily installed	
Closed sections/ detour areas defined and public notified.	<b>Yes</b>		
Standardized signages installed	<b>Yes</b>	The completed construction official signages are installed	
Working and traffic zone must be defined and clearly demarcated in plan	<b>Yes</b>		
Flag persons should be assigned in all work areas.	<b>Yes</b>	Where and when required and applicable to situation	
Bollards and caution tape installed around work areas.	<b>Yes</b>	All risks areas were installed with warning signs and barricade tapes	
Accidents should be properly reported.	<b>Yes</b>		
Contractor is required to follow regulation of Lao Gov and IFC EHS guidelines	<b>Yes</b>		
<b>COVID-19 prevention</b>			
Contractor received ADB's COVID19 prevention guideline	<b>Yes</b>	Two contractors received guidelines in the implementation of anti – COVID-19 regulations	
Contractor follow Lao PDR COVID19 taskforce regulations	<b>Yes</b>	All contractors strictly implemented taskforce regulation	
COVID-19 information dissemination to workers	<b>Yes</b>	Contractor provided information posters on all the working sites	
Hand-washing/hygiene	<b>Yes</b>	Contractor provided hand washing gel at the worker's camp and office	
Mask wearing is required for meeting, training, workshop and public meetings with numerous participants	<b>Yes</b>	All workshops, trainings which included more than 10 people were provided with masks and hand washing gels however, workers are not mandated to use said provided equipment	
COVID-19 mitigation plan	<b>Yes</b>		

Table 7. ISSUES FOR FURTHER ACTION

ISSUE	REQUIRED ACTION	RESPONSIBILITY AND TIMING	RESOLUTION
Updated and finalize Landfill Operation Manual	To finalize the landfill operation manual	NES/Landfill expert	It is under preparation
		New landfill expert will support to formulate and finalize the landfill operation manual	The landfill operation manual is not a requisite for environment, health and safety section, nonetheless, other sections also need to be updated with the situation.
Bad odor as result of DEWATS operation	Reduce bad odor by planting 1/3 of the first pond with water hyacinth, increase EM to the first pond and release fish into the pond 1	Contractor, PMU and designer, by 15 April 2021	It is under preparation
		PMU and CSC had suggested contractor to pour EM	The EM and water hyacinth were consulted upon and already tested to solve the bad odor from the DEWATS
DEWATS Treatment efficiency test	Collect surface water for analysis to test the effectiveness of the DEWATS	Contractor/ Client/ Operator	Questioning regarding DEWATS effectiveness as major concern and it might affect surrounding residents
		Contractor was informed and implemented during the defect period	Contractor contract UAE for collecting samples and analysis of the DEWATS effectiveness

33. Landfill expert is originally planned for international landfill expert, the proposal and CV from INACON already submitted ; however, based on discussion with ADB on February 11, 2021, EA/IA agreed to hire the national expert to support this work due to the COVID19 pandemic travel restrictions and limited remaining project length. This proposal is already submitted to ADB, and project received NOL from ADB recently.

**B. THE DEWATS HAVE TWO MAIN ISSUES: FIRSTLY, THE WATER FLOWED OVER THE SURFACE OF THE HGF1, HGF2, HGF3. IN THE CONCEPT OF DEWATS, WATER SHOULD FLOW LOWER THAN THE GRAVEL SURFACE 20 CENTIMETERS, WHICH GENERATED BAD ODOR, MOSQUITO SPREADING AND OTHER WATER DISEASE. THIS ISSUE, BORDA EXPLAINED THAT THE CONSTRUCTION DRAWING IS NOT MATCHED WITH ORIGINAL CONCEPT DESIGN, AND CONTRACTOR USED GEOTEXTILE TO COVER THE OUTLETS IN EACH PIPE, SO IT SLOWED DOWN THE FLOW IN EACH OUTLET. SECONDLY, SEDIMENT POND ACCUMULATED SEDIMENTS FROM HLK CHANNEL. THIS POND GENERATED BAD ODOR. THE BAD ODOR ORIGINALLY SOURCED FROM POOR WASTEWATER MANAGEMENT AT THE HOUSEHOLD LEVEL IN KAYSONE PHOMVIHANE CITY. IN THE FINAL INSPECTION, BORDA TEAM AND OFFICIALS SUBMITTED A RECOMMENDATION LETTER WITH THE FOLLOWING SUGGESTIONS: (1) POND 1 SHOULD BE PLANTED WITH FLOATING ISLAND WATER HYACINTH WHICH WILL COVER 1/3 OF THE AREA, AND INCREASED EM TO POND1 TO REDUCE THE BAD ODOR, RELEASE CATFISH AND OTHER FISHES TO PRODUCE MICRO-ORGANISM (2) SHOULD SUSPEND DEWATS OPERATION FOR FEW DAYS TO DISINFECT AND KILL ALL MOSQUITO EGGS (ALREADY IMPLEMENTED). (3) RE-CHECK AND FIX OUTLETS AND INLET FOR EACH POND, HGF TO ENSURE THAT WATER IS FLOWED UNDER THE SURFACE OF HGF. (4) WE ALSO REQUIRE CONTRACTOR TO BRING THE SAMPLE IN THE POND 1 AND OUTLET TO THE LAB FOR SURFACE WATER ANALYSIS. THESE**

**ACTIONS SHOULD BE IMPLEMENTED WITHIN 15 APRIL 2021. ENVIRONMENT QUALITY MONITORING.**

34. Monitoring requirements are set out in detail in the EMP. The environmental quality monitoring program conducted on two levels (i) compliance monitoring and (ii) baseline and conduct of monitoring to determine the extent of variations and changes in the levels of pollutants in the environment and other parameters and indicators considering the implementation or operation of the project.
35. All road construction were completely constructed and no requirement for conducting any pollutant monitoring similar to Mekong River Embankment. The Landfill and DEWATS are required to monitor the water quality during the operation to observe the water quality after treatment at the outlet.
36. HLK-DEWATS Subproject resumption in the monitoring of the surface water quality in the construction areas with three locations as defined in the baseline.
37. Lao UAE laboratory and environment service Co. Ltd was hired for analyzing the surface water quality as defined in the EMP/CEMP. Samples from three locations were collected and sent to laboratory, the results are presented below:
38. Approved EMP of HLK-DEWATS has defined that contractor is required to establish the surface water baseline and quarterly monitor the three locations with Temperature, pH, COD, BOD5, TSS, turbidity (NTU), oil and grease.
39. National Surface water standard has categorized it as fourth category or (category 4), HLK is considered as grey surface water for transportation use but it needs be treated, it is discharged from urban waste water.

**Table 8. RESULT OF SURFACE WATER MONITORING**

Parameters	Unit	Upstream Monitoring			Middle Monitoring			Downstream Monitoring			Detection limited	Standard*
		Baseline	1 <sup>st</sup>	2 <sup>nd</sup>	Baseline	1 <sup>st</sup>	2 <sup>nd</sup>	Baseline	1 <sup>st</sup>	2 <sup>nd</sup>		
PH	-	7.06	6.42	7.21	6.95	6.29	7.27	7.22	6.49	7.34	2	5-9
Temperature	°C	29.30	31.2	23.3	28.10	31.7	23.5	29.30	29.4	23.7	0-100	N
BOD	mg/L	48.75	38.7	30.7	58.20	67.8	32.4	30.60	67.5	20	2	≤30
TSS	mg/L	13	16.2	32.4	288	44.2	26	103	93.5	14.2	5	50-150
COD	mg/L	121.00	74.8	60	182	112	59.6	104	124	46.3	25	10-12
Turbidity	NTU	40.00	28	34	300.00	45	16	140.00	80	16	0.10	5***
Oil and grease	mg/L	< 3.00	<3.00	ND	< 3.00	<3.00	ND	< 3.00	<3.00	ND	3.00	15
Water's color/turbid 3/	B/Y/T	B/Y/T		Yellow	B/Y/T		Yellow			Yellow		

Remark: \*standard applied for category 4, \*\*\* applied drinking water, \*\* Not available in water standard, ND=Not detected

40. Table 8 presents surface water quality monitoring; general result of each substance shows the quality of surface water. There is no big difference in results between the upstream and downstream samples. Substances in the upstream are similar to results in the middle and downstream.
41. The baseline was established in November 15, 2018, the first monitoring was conducted in March 12, 2019 and the most recent monitoring on July 6, 2020. COD is higher than

national standard, but the main cause was not related to construction, it is wastewater from urban, such issues are exclusive and independent from the construction site.

### C. OTHER MONITORING ACTIVITIES

42. Regular Monitoring: Environment, Health and Safety Officer has conducted daily monitoring as basis for checking and mitigating the environment and safety issues in the construction sites, CSC and QC also regularly observe and monitor
43. any issues relating to environment, health and safety or associated to construction activities. NES and PMU also regularly conducted monitoring for each subproject on a monthly basis to ensure that all environment requirements are implemented as defined in CEMP/EMP.
44. Provincial Office of Natural Resources and Environment (PoNRE), District Office of Natural Resource and Environment (DoNRE), village authorities joined with NES and PMU to inspect two remaining subprojects from 1-5 September 2020. This inspection is under the ECC criteria, which is allowed by PoNRE, DoNRE and related authorities to monitor the field sites. In this inspection period, PoNRE has visited two remaining subprojects, including field sites (construction work), material sources, worker's camp and directly interviewed village authorities regarding environment impact during the construction and mitigation practiced in the construction. PoNRE, DoNRE also prepared corrective action for each subproject, for non-compliance issues and where required to stringently follow the regulations of authorities.
45. Final Environment Inspection and monitor the collective action regarding the site restoration, closing contract of the contractor, complied with the local contract agreement for worker's camp, temporary storage, and other minor related to environment, health and safety during the closing subproject.

## IV. RESETTLEMENT PERFORMANCE MONITORING

46. Implementation of Resettlement Plans (RP) or Land Acquisition and Compensation Plans (LACP) is completed for 6 out of 7 Subprojects. For one subproject (Sanitary Landfill and Waste Management Facility) the implementation of the LACP has been delayed while a decision is made on the start date for the new solid waste management facility. During the current reporting period no compensation or land acquisition occurred.

Table 9: Implementation of Resettlement Plans

Subproject	RP Approval	Compensation / Land Acquisition	Implementation Status
Kaysone Phomvihane Road	April 2018	May 2018	Complete
Fa Ngum Road	May 2017	Nov 2017	Complete
Dansavanh Urban Roads	May 2018	Jul 2018	Complete
Phine Urban Roads	Aug 2018	May 2019	Complete
Houay Longkong Drainage Improvement	Nov 2018; Updated Dec 2019	Dec 2018 Additional Dec 2019	Complete
Mekong River Embankment Protection	April 2019	May 2019	Complete
Sanitary Landfill and Waste Recovery Facility	August 2020	Pendng	Pending

47. During the period July to December 2020 routine social safeguards monitoring was conducted with no significant issues arising.
48. A mission by the Resettlement External Monitor took place in July 2020, which acknowledged overall good resettlement performance and close-out of actions from the previous visit. Observations, issues and recommendations made by the external monitor together with follow-up actions undertaken (see section H).are integrated into the discussion on each sub-project in the following section.

#### **A. KAYSONE PHOMVIHANE ROAD**

49. The completed road was handed-over to Municipal authorities on 1 July 2020. There are no outstanding resettlement issues. No resettlement issues have arisen since.

#### **B. FA NGUM ROAD**

50. The completed road was handed-over to Municipal authorities on 1 July 2020.
51. One grievance was received regarding late payment by road contractors for use of electricity during Fa Ngum road construction. The grievance has been resolved.
52. PMU has submitted a proposal to ADB for additional works under this Subproject to utilize cost savings. The proposal is for road improvement on a 100m stretch of road adjoining the main Fa Ngum Road. A Social Safeguards Due Diligence Report is being prepared to confirm no resettlement impacts.

Figure 17 –Fa Ngum Road 2 (Proposed Additional Works)



#### **C. DANSAVANH URBAN ROADS**

53. The completed road was handed-over to Dansavanh District authorities on 1 July 2020. No new resettlement issues have arisen since.
54. There is one outstanding resettlement issue concerning land acquisition for road widening that resulted in partial loss of land affecting 109 AHs. In May 2020 PMU reported the details of all adjusted land plots to Dansavanh District authorities with the aim of ensuring AHs are not asked to pay annual land tax for portions of their properties acquired by the project. At a routine PSC meeting on 23 December 2020, PMU learnt that land titles had not yet been updated and no official notice has yet been issued instructing tax collectors to revise their calculation of land tax. PSC decided to convene a follow-up meeting to address this issue and PMU is coordinating with the office of the Vice-Governor (as PSC chair) on a suitable

date. At this upcoming meeting PMU will propose that AHs should (a) only pay tax on the remaining portion of their land landholdings, (b) be issued amended or new land certificates, and (c) be reimbursed for any overpayment in tax since 2017-2018.

#### D. PHINE URBAN ROADS

55. The completed road was handed-over to Phine District authorities on 1 July 2020.
56. The need for land title adjustment and tax collection described above (see Dansavanh) also applies to Phine District and is being resolved together.
57. One grievance was received from a villager in Phine District concerning late payment of electricity used by the road contractor. PMU has resolved this issue.

#### E. HOUAY LONGKONG DRAINAGE IMPROVEMENT

58. Construction of DEWATS resulted in one (1) household losing access to land used for farming. Compensation and allowances were provided in December 2019, enabling the household to invest in development of new agricultural land. Surveys of the households' socio-economic status were carried out at intervals during 2020, with the final monitoring in December 2020. These surveys found household income was consistently above pre-project levels at each monitoring interval. Thus on conclusion of 12 months of monitoring the AHs livelihood is considered to be restored and no further action is required. However, as an additional measure to assist this affected household. PMU has negotiated with the contractor responsible for operation and maintenance until the end of 2021 to hire the head of the displaced household (see above) as a casual worker.

Table 10 - Livelihood Restoration Monitoring

Income sources	Reported Annual Household Income (LAK)			
	Baseline 2019	May 2020	Sept 2020	Dec 2020
Rice farming (wet season)	36,000,000	24,000,000	24,000,000	14,400,000
Vegetable & poultry	18,000,000	30,000,000	33,060,000	56,400,000
Sale of livestock	3,000,000	3,000,000	3,000,000	6,000,000
Construction and other activities	21,000,000	24,800,000	37,920,000	11,400,000
Farming at land at KM35	-	-	-	1,500,000
<b>Total annual income</b>	<b>78,000,000</b>	<b>81,800,000</b>	<b>97,980,000</b>	<b>89,700,000</b>

59. A grievance reported in March 2020 concerning a request for additional backfill to meet a land lease agreement between the contractor and a local resident was resolved in December 2020 to the satisfaction of the land owner.
60. Steps are being taken to remedy the issue of land tax overpayment for 04 AHs at Houaylongkong whose land plots were partially impacted (see section on Dansavanh Roads above for details).

## **F. MEKONG RIVER EMBANKMENT PROTECTION**

### **Relocated vendors**

61. Construction of the Mekong Embankment required relocation of 35 vendors, who received compensation and entitlements in May 2019 to enable relocation to new vending sites prior to construction commencing. Monitoring during the 12 months after vendors relocated in July 2019 found that 9 out of 35 affected households were not immediately able to restore income to pre-project levels. Accordingly, a further compensatory payment for business loss and other eligible entitlements (e.g. vulnerable households) was provided to these households on 14 July 2020.
62. The 35 vendors displaced from the old embankment have been given priority to lease market stalls on the new embankment. This was affirmed during a meeting on 9 July 2020 with the Vice Governor of Kaysone Phomvihane Municipality, and affirmed again in an instruction issued on 5 January 2020 by the Vice-Governor of Savannakhet Province. Market stalls and kiosks on the new embankment are expected to open within the next 2 months (see Appendix).

### **Restaurant structure**

63. A grievance was received in September 2019 from a restaurant owner who had relocated from the embankment (one of the 35 AHs described above) claiming that part of the restaurant structure had not been included in the compensation payment made in May 2019. An investigation confirmed the applicant's claim and so a corrective compensation payment was made on 14 July 2020.

### **River bank gardens**

64. In the Resettlement Plan (2019) a budget was set aside to compensate riverbank gardens affected by construction of the new Mekong embankment protection. PMU has endeavored to trace affected persons with assistance from village authorities, but without success. According to local village authorities interviewed by PMU, vegetable gardening on the river bank was a seasonal activity involving people from other parts of the city, not local residents. Village authorities were therefore unable to assist in tracing them. In the absence of a claimant, the budget will revert back to the Provincial treasury.

### **Boundary wall**

65. A low wall between a road-side property and the side-walk was removed by road contractors to enable the pavement to be re-laid. The property owner is running a roadside restaurant and prefers not to replace the wall as it would hinder customer access, so the contractor has made a compensatory cash payment at replacement cost.

Figure 18 Boundary wall compensated on Mekong Embankment Road

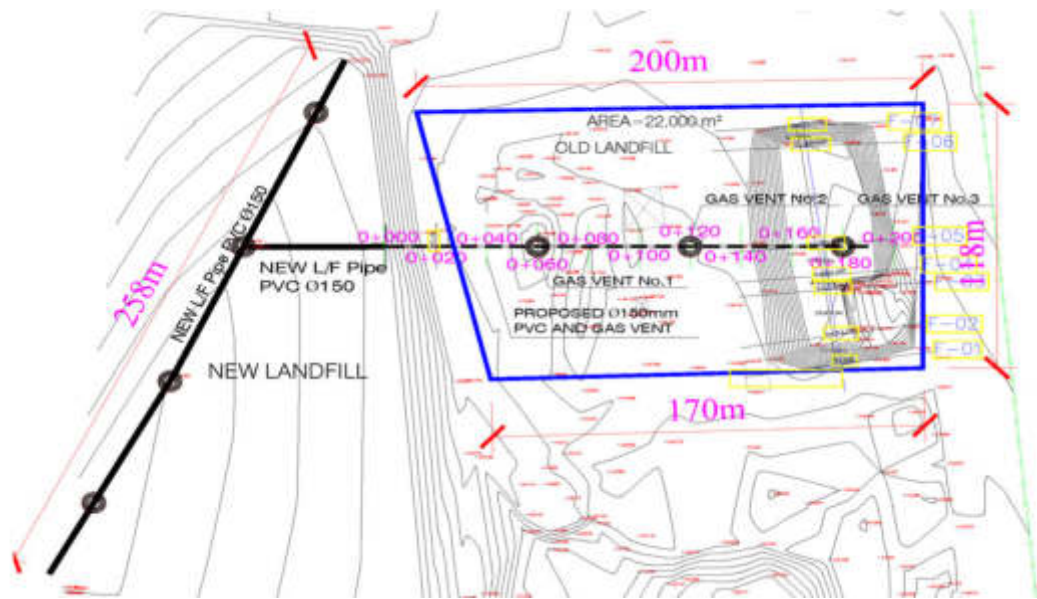


A low (40cm high) brick wall was removed for drainage and pavement works. The owner prefers not to rebuild the brick wall, as it would interrupt access to her restaurant.

#### **G. SANITARY LANDFILL AND WASTE RECOVERY FACILITY**

66. A Resettlement Plan was approved in August 2020 to mitigate economic displacement of 16 informal waste pickers active at the existing land fill facility. These waste pickers risk losing their main source of income when the existing land fill closes and the new facility opens because they will not be permitted to continue informal waste picking work at the new facility for health and safety reasons.
67. The principal mitigation measure in the RP is to provide affected persons formal employment and safe working conditions at the new waste management facility. Waste pickers have indicated they are keen to work at the new facility and a clause prioritizing their recruitment will be added to tender documents of private firms who will manage different processes (i.e. waste collection, materials recovery, septic and composting, etc.). In case any AHs do not obtain employment at the new waste management facility they will receive assistance to establish alternative livelihood activities. Additional entitlements for severely affected and vulnerable AHs will be provided in accordance with Project entitlements.
68. Implementation of this RP will commence when the new landfill commences operation, as only then can waste-pickers transition from the old to the new facility. Kaysone Municipal authorities plan to tender for private sector participation in managing the new landfill early in 2021, with operations likely to commence early in the second quarter of 2020.
69. PMU has submitted a proposal to ADB for additional works under this Subproject to utilize cost savings. The proposed additional works will ensure a safe and environmentally-sound closure of the existing landfill that is adjacent to the new solid waste management facility constructed as part of GMS1. The additional works involve installation of pipes to collect and vent gas generated from the waste, and capping the cells with compacted earth. A Social Safeguards Due Diligence Report is being prepared to confirming no resettlement impacts.

Figure 19 – Landfill Closure - Proposed Additional Works



## H. STATUS OF ACTIONS FROM EXTERNAL MONITORING MISSIONS

Recommendation July 2020	Status Dec 2020
Verify that AHs who lost portions of their landholdings Houay Longkong, Phine, and Dansavanh are not continuing to pay tax for the portions of land acquired by Project had already acquired.	In progress Inquiries confirmed that local tax authorities continue to collect tax on the full land area without adjustment for loss. PMU raised this during the PSC Meeting on 23 December and a follow-up meeting will be held to address this outstanding issue.
PMU to submit a compensation completion report (CCR) for each subproject.	In progress Drafts CCRs have been completed for each Subproject and are being reviewed internally by PMU prior to submission to ADB
PMU to obtain minutes of the meeting on 9 July 2020 with the Vice Governor of Kaysone Phomvihane Municipality confirming the 35 vendors displaced from the Mekong embankment will have priority to lease new stalls at the new embankment night market.	Complete Additionally, an instruction has been issued to the same effect from the Vice-Governor of Savannakhet Province. See meeting memo in Appendix.
PMU to endeavor to locate persons who previously grew crops on the Mekong river bank so that compensation can be provided.	Complete PMU has consulted with local village authorities who report that those engaged in farming these plots were not locals from their village. PMU therefore proposes to return the compensation budget to the Provincial treasury.
Continue to livelihoods monitoring of the AP affected by DEWATS until December 2020. Confirm if he can be offered a job at the DEWATS facility upon its completion.	Complete Monitoring conducted in September and December demonstrated that income is higher than the pre-project level. A job will be offered to the AP in the new year when the O&M contract starts.
Resolve complaint against the contractor of the Houay Longkong Drainage Subproject regarding backfill of land as fulfillment of the land rental agreement.	Complete Land has been filled to the satisfaction of the landowner.

## I. RP COMPLIANCE CHECKLIST

Table 11: Compliance with RP Requirements

RP Requirements	Compliance Yes/No/Partial	Comment or Reasons for Compliance, Partial Compliance/Non-Compliance	Issues for Further Action <sup>2</sup>
Establishment of personnel in PMU/PIU	Yes	<ul style="list-style-type: none"> <li>PMU has been established at Province level since the start of the Project; PIU's are established at the District level (x3).</li> <li>CSC provides ongoing technical support to PMU with a team including 1 national and 1 international social safeguards specialist.</li> </ul>	None
Public consultation and socialization process	Yes	<ul style="list-style-type: none"> <li>Multiple consultations with project affected households have been held as per consultation plans in RPs and LACPs. For his reporting period see Section VII</li> </ul>	None
Land area to be acquired is identified and finalized	Yes	<ul style="list-style-type: none"> <li>Completed in previous reporting period; No land acquisition has occurred during the reporting period.</li> </ul>	None
Resettlement plan(s) updated after detailed design	Yes	<ul style="list-style-type: none"> <li>Resettlement Plans (RP) have been prepared and implemented for all 7 Subprojects based on detailed engineering designs.</li> </ul>	None
Land acquisition completed	Yes	<ul style="list-style-type: none"> <li>Completed in previous reporting period; No land acquisition in this reporting period.</li> </ul>	None
Establishment of Resettlement Site(s)	Yes	<ul style="list-style-type: none"> <li>No physical resettlement due to this project</li> </ul>	None
Compensation payments for affected assets is completed prior to civil works commencing	Yes	<ul style="list-style-type: none"> <li>Completed in previous reporting period; No compensation in this reporting period.</li> <li>Disbursement of compensation and other entitlements in this reporting period = 0</li> </ul>	None
Transport assistance for relocating affected households	Yes	<ul style="list-style-type: none"> <li>AHs receiving transport assistance in this reporting period = 0</li> </ul>	None
Additional assistance to vulnerable affected household	Yes	<ul style="list-style-type: none"> <li>0 AHs classified as vulnerable in this reporting period;</li> <li>29 AHs classified as vulnerable in previous reporting periods.</li> </ul>	None
Income Restoration Program	Yes	<ul style="list-style-type: none"> <li>Houay Longkong DEWATS – Monitoring of 1 AH shows livelihood restoration has been successful and sustained after 12 months.</li> </ul>	None
Temporary impacts have been addressed (affected properties restored to at least pre-project conditions)	Yes	<ul style="list-style-type: none"> <li>Access to roadside properties was minimized and promptly restored during road civil works.</li> </ul>	None.
Capacity building activities	Yes	<ul style="list-style-type: none"> <li>CSCS held a training for PMU on electronic record keeping practices and provides continuous on-the-job coaching to PMU on resettlement issues.</li> </ul>	None

<sup>2</sup> To be elaborated further in table 12 (Issues for Further Action)

## J. ISSUES FOR ACTION AND FOLLOW-UP

Table 12: Issues for Further Action

Issue	Required Action	Responsibility and Timing	Resolution
<b>Old Issues from Previous Reports</b>			
Houay Longkong (DEWATS) - Monitoring of livelihood restoration by 1 AH shows good progress after 3 months.	Livelihoods restoration surveys to be conducted in Sept and Dec 2020. Immediate corrective action to be taken if income is found to be less than baseline.	Responsible: PMU/CSCS Timing: Sept and Dec 2020	Completed, September and December 2020
Mekong Embankment - The majority of traders have successfully relocated and restored livelihoods. 9AHs require supplementary allowances for livelihood restoration and income loss (payment pending) in line with monitoring data July 2016- June 2020.	Provide livelihood restoration, income loss and other eligible allowance to 9 AHs by 15 July	Responsible: PMU/CSCS Timing: July 2020	Completed, July 2020
<b>New Issues from This Report</b>			
Compensation completion reports	Submit final versions to ADB	Responsible: PMU/CSC Timing: Jan 2020	

## **V. PUBLIC CONSULTATION, INFORMATION DISCLOSURE, AND CAPACITY BUILDING**

### **A. CAPACITY BUILDING**

70. Workers awareness augmentation has been conducted by contractors as required in CEMP/EMP, on a weekly basis regarding environment, health and safety. All workers had been oriented about environment, health and safety before the start of their duties. The detailed information is available in the monthly environment monitoring report submitted to CSCS each month.
71. During report period, awareness raising activities on HIV and other communicable diseases prevention were attended by workers in HLK-DEWATS subprojects dated 03.07.2020 with details provided in APPENDIX A and photos in APPENDIX B.
72. Road component Operation & Maintenance trainings were organized in Dansavan and Phine. In Dansavan, the most participants were from Dansavan village (3 small clusters/groups), in Phine, participants came from 5 villages located in the Phine Urban. The total participants had 137 persons, which includes 62 females (45.26%) in two training events.
73. CSC resettlement specialists have provided on-the-job coaching to PMU and PIU counterparts through regular interactions including monthly progress meetings.
74. On January 12 2021, CSC resettlement specialists held a refresher training on use of the electronic filing system for resettlement works established on Microsoft One Drive.

### **B. INFORMATION DISCLOSURE/PUBLIC CONSULTATION**

75. In compliance with the Safeguards Policy Statement of the Bank (SPS 2009) and the approved EMPs and the Environmental Regulations of the Government of Lao, Public Consultations were conducted with the stakeholders, affected persons (APs), government representatives and concerned parties in the sub-project areas. The consultations were organized to provide the stakeholders and APs with the venue to provide feedback, raise issues and concerns about environmental matters directly to the Contractors, PMU and CSC.
76. Orientation on the GRM Process has been conducted as part of public consultations process.
77. Project information leaflets have been printed and distributed to APs and the local community. Information boards with contact details of the Contractor, PMU and Consultants have been installed.
78. Resettlement plans have been translated into Lao language to ensure accessibility by APs and other local stakeholders.
79. During the report period, two major events occurred on July 1, 2020 three subproject in Kaysone Phomvihane municipality were handed over to the Client i.e. Fa Ngum Road, Kaysone Phomvihane road and Solid Waste Management Subproject. On December 18, 2020 the Mekong River Embankment (included Vo.01) and HLK-DEWATS were handed over to the client as well. In both events, the Vice Minister of PWT and the Provincial Governor with key stakeholders and relevant agencies participated. Savannakhet DPWT Director General presented the progress and success of the construction, the Vice Minister of PWT gave speech on the importance, success and challenges for the operation and maintenance for sustainable utilization. Vice Governor as representative to provincial gave a

strong commitment to follow with comments from the Vice Minister and promised to successfully use the infrastructure for long term.

80. Provincial Steering committee workshop was held at the Savannakhet governance meeting hall, dated 23<sup>rd</sup> December 2020, chaired by Mr. Thonekkeo Phouthakaiyalath, Vice governor of Savannakhet with 30 participants of which 6 were women.
81. Consultations were conducted routinely and informally between contractors and local residents during the course of construction works nearby or adjacent to communities in order to address any inconvenience or disturbances.

## VI. GRIEVANCES

82. A project grievance redress mechanism (GRM) has been established within each Subproject to enable affected persons and other stakeholders to lodge complaints and raise concerns on any project-related issues, including inter alia environmental management, resettlement management, community health and safety. Villagers and AHs were informed about their right to lodge a complaint through the GRM and the procedure for reporting a grievance through community meetings prior to construction commencing.
83. During the current reporting period, 2 grievances were received and investigated. Grievances outstanding from previous reporting period were also addressed.
  - Number of new grievances since last monitoring period: 2
  - Number of grievances resolved during this reporting period: 4
  - Number of outstanding grievances: 0

Table 13. STATUS OF GRIEVANCES

Date Subproject	Description of Grievance	Result of Investigation	Resolution Status
<b>Issues outstanding from previous reporting period</b>			
26.08.2019 Mekong Embankment	One (1) road-side property owner complained that road works had encroached on his land, damaged a brick wall and negatively affected business revenue.	Investigation found: - road works are within right of way and no encroachment has occurred; - Boundary wall was made of interlocking blocks without cement and so was dismantled by the road contractor in consultation with the owner; - Business can continue operating without adverse effects	Resolved  Applicant has received compensation for the wall. However the applicant prefers not to re-construct the wall as they are operating a kerb-side restaurant.
17.03. 2020 Houay Longkong Subproject	Landowner complained that the civil works contractor has not sufficiently filled and leveled his land as per the easement agreement signed on 1 November 2018.	The land was previously a pond - backfilling is in-kind payment for easement. Backfilling has been completed but the owner would like it to be higher.	<b>Resolved</b>  Additional fill has been provided to the satisfaction of the landowner
<b>New Issues in current period of report</b>			
20.11.2020 Phine Roads	A villager in Phine District reported verbally during a consultation meeting that the	PMU investigated with PIT and village chief to confirm this	<b>Resolved</b>  Contractor has made

	civil works contractor has not paid for electricity used during the construction works.	was an old issue and the contractor has no outstanding electricity payments (see memo)	payment in full for all electricity used.
08.10.2020 Fa Ngum Rd	The Justice Department Office at Fa Ngum Road reported that the civil works contractor has not paid for the electricity connection provided during the works.	PMU mediated between the parties concerned, who confirmed an unpaid bill.	<b>Resolved</b>  Contractor has made payment in full for all electricity used.

## VII. APPENDICES

### A. CAPACITY BUILDING/AWARENESS RAISING EVENTS

Awareness raising on HIV and other Communicable disease for workers	
Date, Venue, Participants, Project	Summary of discussion / event
<b>Date:</b> 03.07.2020 <b>Venue:</b> HLK-DEWATS worker's camp <b>Participant:</b> 22/3 FM <b>Subproject:</b> HLK-DEWATS	<b>Title:</b> HIV, AIDS, Sexually Transmitted Disease and other communicable diseases prevention awareness raising.  <b>Contents:</b> (1) Sexually Transmitted Disease: the common sexually transmitted types, symptom and protection methods (2) HIV, and AIDS: knowledge about AIDS regarding original HIV virus, symptoms of the affected person, risk person to get affected from HIV, and prevention strategy/optional (3) Demonstration for using condom to prevent any sexually transmitted disease and disseminated brochures regarding HIV-AIDS, (4) Basic first aid and (5) Health and Safety warning and prevention
<b>Date:</b> 19.08.2020 <b>Venue:</b> Dansavan village meeting hall <b>Participant:</b> 68/34 FM <b>Subproject:</b> Dansavan Urban Road	<b>Title:</b> Road Component operation and maintenance training (road, drainage, streetlight, traffic sign and trees in the right of way) <b>Contents:</b> (i) Regulation/law related to road component management, (ii) main cause of damage of road component (iii) establishment of focal point and implementation team at community level (iv) road and drainage operation and maintenance at community level and their responsibility for O&M (v) Streetlight, traffic sign and tree along the road operation and maintenance, and (vi) district road component regulation consultation (specific for Phine Urban road).
<b>Date:</b> 20.08.2020 <b>Venue:</b> Primary School <b>Participant:</b> 69/28 FM <b>Subproject:</b> Phine Urban Road	

## B. PROVINCIAL STEERING COMMITTEE WORKSHOP



### C. HAND OVER CEREMONY OF MEKONG EMBANKMENT & HLK-DEWATS



#### D. HAND OVER CEREMONY OF KAYSONE , FA NGUM ROAD & SWM SUBPROJECT



## E. Photos of STD, HIV Awareness Raising



## F. PHOTOS OF ROAD COMPONENT TRAINING IN DANSAVAN





G. PHOTOS OF ROAD COMPONENT TRAINING IN PHINE

## H. PONRE, DONRE JOINT ENVIRONMENT INSPECTION





## I. ENVIRONMENT COMPLIANT CERTIFICATE FOR IEE EXTENSION



Lao People's Democratic Republic  
Peace Independence Democracy Unity Prosperity

Department of Natural Resource and Environment

Ref. No. 1140/PONRE.SVK

Savannakhet, Date: 06 August 2020

### **Environmental Compliance Certification**

- Pursuant to the Law on Environment Protection, Ref. No. 29/NA. Date 18 December 2012
- Pursuant to instruction on IEE of Investment project and other activities, Ref. No. 8029/MNE. Date 17 December 2013.
- Pursuant to Decree on organization and responsibility of Provincial of Natural Resource and Environment (PoNRE), Savannakhet Province, Ref. No. 3171/MNE. Date 01 August 2017.
- Pursuant to application letter on IEE extension of GMS-EWEC Towns Development Project No. 0732/SVK.DPWT, date 12 May 2020 with updated EMP

### **Provincial of Natural Resource and Environment agreed that:**

1. Agree to provide Environmental Compliance Certification extension for Initial Environment Examination of GMS-EWEC TDP, Savannakhet Province.
2. The implementing agency should be strictly followed the requirements in the annex of this ECC
3. This certification can be using only 3 years from the date of signature.

Head Provincial of Natural Resource and Environment

Savannakhet Province

Phouthone Yothbounheang



**ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ**  
**ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນະຖາວອນ**

ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມແຂວງ

1140-3  
 ເລກທີ...../ພຊສ.ສຂ  
 ສະຫວັນນະເຂດ, ລົງວັນທີ 06 AUG 2020..

**ໃບຢັ້ງຢືນສິ່ງແວດລ້ອມ**

- ອີງຕາມ ກົດໝາຍ ວ່າດ້ວຍການປົກປັກຮັກສາສິ່ງແວດລ້ອມສະບັບປັບປຸງ ເລກທີ 29/ສພຊ, ລົງວັນທີ 18/12/2012;
- ອີງຕາມ ຄຳແນະນຳ ຂະບວນການສຶກສາເບື້ອງຕົ້ນ ກ່ຽວກັບ ຜົນກະທົບຕໍ່ສິ່ງແວດລ້ອມ ຈາກໂຄງການລົງທຶນ ແລະ ກິດຈະການຕ່າງໆ ສະບັບເລກທີ 8029/ກຊສ, ລົງວັນທີ 17/12/2013;
- ອີງຕາມ ຂໍ້ຕົກລົງວ່າດ້ວຍ ການຈັດຕັ້ງ ແລະ ການເຄື່ອນໄຫວ ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມແຂວງ/ນະຄອນຫຼວງ ສະບັບເລກທີ 3171/ກຊສ ລົງວັນທີ 1 ສິງຫາ 2017;
- ອີງໃສ່ ຫຼັກສູດສະເໜີ ຂໍ້ຕົກລົງລວມສິ່ງແວດລ້ອມ(IEE) ໂຄງການສັດທະນາຕົວເມືອງ ຕາມແລວທາງ ເສດຖະກິດ ຕາເວັນອອກ-ຕາເວັນຕົກ ອະນຸພາກພື້ນແມ່ນ້ຳຂອງ ສະບັບເລກທີ 0732/ບຫຂ.ສຂ, ລົງວັນທີ 12 ພຶດສະພາ 2020 ແລະ ແຜນຄຸ້ມຄອງສິ່ງແວດລ້ອມຂອງໂຄງການ.

**ພະແນກຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມ ຕົກລົງ:**

1. ຮັບຮອງເອົາ ແຜນຄຸ້ມຄອງສິ່ງແວດລ້ອມຂອງໂຄງການສັດທະນາຕົວເມືອງ ຕາມແລວທາງເສດຖະກິດ ຕາເວັນອອກ-ຕາເວັນຕົກ ອະນຸພາກພື້ນແມ່ນ້ຳຂອງ ພະແນກໂຍທາທິການ ແລະ ຂົນສົ່ງແຂວງ;
2. ເຈົ້າຂອງໂຄງການ ຕ້ອງປະຕິບັດຢ່າງເຂັ້ມງວດ ບັນດາເງື່ອນໄຂ ທີ່ໄດ້ກຳນົດໄວ້ໃນ ເອກະສານຊ້ອນທ້າຍຂອງ ໃບຢັ້ງຢືນກ່ຽວກັບສິ່ງແວດລ້ອມ ສະບັບນີ້;
3. ໃບຢັ້ງຢືນ ກ່ຽວກັບ ສິ່ງແວດລ້ອມ ສະບັບນີ້ ມີຜົນສັກສິດ ນັບຕັ້ງແຕ່ວັນລົງລາຍເຊັນເປັນຕົ້ນໄປ ແລະ ໃຫ້ເຈົ້າຂອງໂຄງການ ຕ້ອນຮັບຮອງເອົາແຜນການຄຸ້ມຄອງ ແລະ ຕິດຕາມກວດກາສິ່ງແວດລ້ອມ ສັງຄົມ ແລະ ທຳມະຊາດ ຊຶ່ງຕ້ອງໄດ້ປັບປຸງ ຈົນຮອດໄລຍະເວລາສິ້ນສຸດອາຍຸສຳປະທານໂຄງການ.

**ຫົວໜ້າພະແນກ**  
**ຊັບພະຍາກອນທຳມະຊາດ ແລະ ສິ່ງແວດລ້ອມແຂວງ**



**ບຸທອນ ບອດບຸນເຮືອງ**

## J. RESULT OF SURFACE WATER QUALITY MONITORING



ບໍລິສັດ ລາວ-ປາຍີ ທີ່ທຳການວິໄນ ແລະ ບໍລິການສິ່ງແວດລ້ອມ ຈຳກັດ  
 LAO-LAE Laboratory and Environmental Services Co., Ltd  
 ບ່ອນທີ 37 ທະນາຄົມບູນ, ເມືອງຟ້າຄຸນເມືອງສະຫວັນນະເຂດ, ວຽງຈັນ  
 No.37, Dongsean Road, Dongseanthe Village, Suanthasak District, Vientiane Capital  
 Phone : 009698989 - www.lao-lae.com/lae.com Email : marketing@lao-lae.com/lae.com

---

### ANALYSIS REPORT

**PROJECTNAME** : WATER QUALITY ANALYSIS FOR KAYSONE PHOMVICHANE WASTEWATER MANAGEMENT-HOUAY LONGKONG (CANNEL)

**CUSTOMER NAME** : TAY TRUONGSON CONSTRUCTION SOLE CO., LTD

**ADDRESS** : SIBOUNHUEANG VILLAGE, CHANTHABOULI DISTRICT, VIENTIANE CAPITAL

**PHONE NUMBER** : +856 20 9713 3919

**SAMPLING SOURCE** : HOUAY LONGKONG

**SAMPLE TYPE** : WASTEWATER

**SAMPLING DATE** : JULY 6, 2020

**SAMPLING TIME** : -

**SAMPLING METHOD** : GRAB

**SAMPLING BY** : CUSTOMER

**ANALYZED BY** : LAO-LAE

**RECEIVED DATE** : JULY 6, 2020

**ANALYSIS DATE** : JULY 6-17, 2020

**ANALYSIS NO.** : 2020/AA148

**WORK NO.** : LU00023/2020

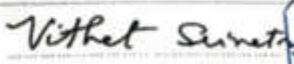
**REPORT NO.** : 2020/203

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	
			DOWNSTREAM 2020/AA148	DETECTION LIMIT
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.34	2.0
TEMPERATURE	°C	THERMOMETER (SM: 2550 B)	23.7	-
TOTAL SUSPENDED SOLID	mg/L	TOTAL SUSPENDED SOLID DRIED AT 103-105°C (SM: 2540 D)	14.2	5.0
BIOCHEMICAL OXYGEN DEMAND	mg/L	AZIDE MODIFICATION METHOD (SM: 5210 B AND 4500-O C)	20.0	2.0
CHEMICAL OXYGEN DEMAND <sup>MC</sup>	mg/L	CLOSED REFLUX, COLOURIMETRIC METHOD (SM: 5220 D)	46.3	25.0
TURBIDITY <sup>MC</sup>	NTU	NEPHELOMETRIC METHOD (SM: 2130 B)	16	0.1
FAT, OIL & GREASE <sup>MC</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	ND	3
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID YELLOW	


SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23<sup>rd</sup> EDITION, 2017.

ND : NON-DETECTABLE

MC : THE TEST WAS SUBCONTRACTED TO THE ANOTHER LABORATORY.



(DR. VITHET SRINETR)  
 DIRECTOR  
 JULY 21, 2020



## ANALYSIS REPORT

**PROJECTNAME** : WATER QUALITY ANALYSIS FOR KAYSONE PHOMVIHANE WASTEWATER MANAGEMENT-HOUAY LONGKONG (CANNEL)  
**CUSTOMER NAME** : TAY TRUONGSON CONSTRUCTION SOLE CO., LTD  
**ADDRESS** : SIBOUNHUEANG VILLAGE, CHANTHABOULI DISTRICT, VIENTIANE CAPITAL  
**PHONE NUMBER** : +856 20 9713 3919  
**SAMPLING SOURCE** : HOUAY LONGKONG  
**SAMPLE TYPE** : WASTEWATER  
**SAMPLING DATE** : JULY 6, 2020  
**SAMPLING TIME** : -  
**SAMPLING METHOD** : GRAB  
**SAMPLING BY** : CUSTOMER  
**ANALYZED BY** : LAO-LIAE

**RECEIVED DATE** : JULY 6, 2020  
**ANALYSIS DATE** : JULY 6-17, 2020  
**ANALYSIS NO.** : 2020/AA147  
**WORK NO.** : LU00023/2020  
**REPORT NO.** : 2020/202

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			MIDDLE STREAM 2020/AA147	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.27	2.0
TEMPERATURE	°C	THERMOMETER (SM: 2550 B)	23.5	-
TOTAL SUSPENDED SOLID	mg/L	TOTAL SUSPENDED SOLID DRIED AT 103-105°C (SM: 2540 D)	26.0	5.0
BIOCHEMICAL OXYGEN DEMAND	mg/L	AZIDE MODIFICATION METHOD (SM: 5210 B AND 4500-O C)	32.4	2.0
CHEMICAL OXYGEN DEMAND <sup>SM</sup>	mg/L	CLOSED REFLUX, COLOURIMETRIC METHOD (SM: 5220 D)	59.6	25.0
TURBIDITY <sup>SM</sup>	NTU	NEPHELOMETRIC METHOD (SM: 2130 B)	31	0.1
FAT, OIL & GREASE <sup>SM</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAYMETRIC METHOD (SM: 5520 B)	ND	3
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID YELLOW	

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23<sup>rd</sup> EDITION, 2017.  
 ND : NON-DETECTABLE.  
 SM : THE TEST WAS SUBCONTRACTED TO THE ANOTHER LABORATORY.

*Vithet Srinetr*

(DR VITHET SRINETR)

DIRECTOR

JULY 21, 2020



## ANALYSIS REPORT

**PROJECTNAME** : WATER QUALITY ANALYSIS FOR KAYSONE PHOMVITHANE WASTEWATER MANAGEMENT-HOUAY LONGKONG (CANNEL)  
**CUSTOMER NAME** : TAY TRUONGSON CONSTRUCTION SOLE CO., LTD  
**ADDRESS** : SIBOUNHUEANG VILLAGE, CHANTHABOULI DISTRICT, VIENTIANE CAPITAL  
**PHONE NUMBER** : +856 20 9713 3919  
**SAMPLING SOURCE** : HOUAY LONGKONG  
**SAMPLE TYPE** : WASTEWATER  
**SAMPLING DATE** : JULY 6, 2020  
**SAMPLING TIME** : -  
**SAMPLING METHOD** : GRAB  
**SAMPLING BY** : CUSTOMER  
**ANALYZED BY** : LAO-LVAF

**RECEIVED DATE** : JULY 6, 2020  
**ANALYSIS DATE** : JULY 6-17, 2020  
**ANALYSIS NO.** : 2020/AA146  
**WORK NO.** : LU00023/2020  
**REPORT NO.** : 2020/201

PARAMETER	UNIT	METHOD OF ANALYSIS	RESULT	DETECTION LIMIT
			UPSTREAM 2020/AA146	
pH	-	ELECTROMETRIC METHOD (SM: 4500-H <sup>+</sup> B)	7.21	2.0
TEMPERATURE	°C	THERMOMETER (SM: 2550 B)	23.3	-
TOTAL SUSPENDED SOLID	mg/L	TOTAL SUSPENDED SOLID DRIED AT 103-105°C (SM: 2540 D)	32.4	5.0
BIOCHEMICAL OXYGEN DEMAND	mg/L	AZIDE MODIFICATION METHOD (SM: 5210 B AND 4500-O C)	30.7	2.0
CHEMICAL OXYGEN DEMAND <sup>SM</sup>	mg/L	CLOSED REFLUX, COLOURIMETRIC METHOD (SM: 5220 D)	60.0	25.0
TURBIDITY <sup>SM</sup>	NTU	NEPHELOMETRIC METHOD (SM: 2130 B)	34	0.1
FAT, OIL & GREASE <sup>SM</sup>	mg/L	LIQUID-LIQUID, PARTITION-GRAVIMETRIC METHOD (SM: 5520 B)	ND	3
SAMPLE CONDITION WATER'S COLOUR/TURBID SEDIMENT			YELLOW/TURBID YELLOW	

SM : STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER, APHA, AWWA, WEF, 23<sup>rd</sup> EDITION, 2017.

ND : NON-DETECTABLE.

SM : THE TEST WAS SUBCONTRACTED TO THE ANOTHER LABORATORY.

*Vithet Srinetr*

(DR VITHET SRINETR)

DIRECTOR

JULY 21, 2020



## K. SITE RESTORATION OF PHINE URBAN ROAD SUBPROJECT



Borrow Pits for Phine urban road were developed to fish pond and resident land



## L. SITE RESTORATION OF KAYSONE PHOMVIHANE URBAN ROAD



## M. OFFICIAL RECOMMENDATION LETTER FROM BORDA



Bremen Overseas Research  
and Development Association

BORDA Laos

BORDA Laos Project Office  
P.O. Box 2579 | Vientiane Capital  
Lao People's Democratic Republic

+856 (0)21 480253 | vientiane@borda-sea.org

ເລກທີ: 019 /ບຄລ

ນະຄອນຫຼວງວຽງຈັນ, 19/03/2021

### ໜັງສືແນະນຳ

**ຮຽນ:** ທ່ານ ຫົວໜ້າຫ້ອງການຄຸ້ມຄອງໂຄງການ ພັດທະນາຕົວເມືອງຕາມແລວທາງເສດຖະກິດຕາເວັນ  
ອອກ-ຕາເວັນຕົກ ອະນຸພາກພື້ນແມ່ນ້ຳຂອງໜຶ່ງ

**ເລື່ອງ:** ຂໍສະເໜີກ່ຽວກັບການປັບປຸງອ່າງບໍາບັດນ້ຳເບື້ອນ DEWATS (Constructed Wet-  
land) ເພື່ອແກ້ໄຂບັນຫາກິນເໝັນຢູ່ໜອງທີ 1 ແລະ ບັນຫານ້ຳຂ້າງອ່າງບໍາບັດ Wetland.

- ອີງຕາມໜັງສືສະເໜີຂໍ້ຄຳຊີ້ແຈງກ່ຽວກັບໜອງຕົກຕະກອນ (ໜອງທີ 1) ສິ່ງກິນເໝັນຢາງຮຸນແຮງ ແລະ  
ບັນຫານ້ຳຖ້ວມຂຽນໃນອ່າງກັ້ນຕອງ ສຳລັບອ່າງບໍາບັດນ້ຳເບື້ອນ (DEWATS) ສະບັບເລກທີ 0231/  
ຄພຕອ.ສຂ ລົງວັນທີ 12 ມີນາ 2021.

ໃນນາມຜູ້ອອກແບບເຕັກນິກລະບົບບໍາບັດນ້ຳເບື້ອນ **Constructed Wetland (DEWATS)** ຢູ່ ຫ້ວຍລົງກົງ ທີ່  
ນອນຢູ່ໃນ ໂຄງການ **GMS1**, ຂ້າພະເຈົ້າຂໍນຳສະເໜີຂໍ້ມູນເພີ່ມເຕີມ ແລະ ວິທີການແກ້ໄຂບັນຫາ ເພື່ອປັບປຸງ  
ລະບົບບໍາບັດໃຫ້ສາມາດເຮັດວຽກໄດ້ຕາມເຕັກນິກ ແລະ ບໍາບັດນ້ຳເບື້ອນຕາມເປົ້າໝາຍ ເຊິ່ງມີລາຍລະອຽດດັ່ງລຸ່ມ  
ນີ້:

#### 1. ບັນຫາກິນເໝັນຈາກໜອງຕົກຕະກອນ (ໜອງບໍາບັດທີ 1) ແລະ ຂໍສະເໜີເພື່ອປັບປຸງ

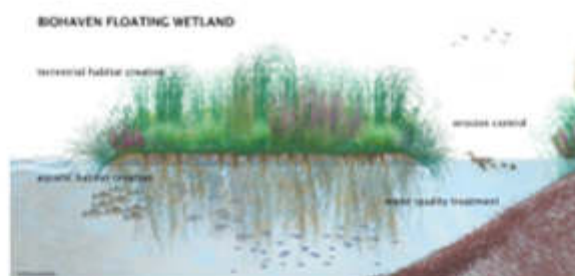
##### ບັນຫາ:

ເນື່ອງຈາກຫ້ວຍລົງກົງເປັນ ຮ່ອງລະບາຍນ້ຳເບື້ອນຫຼັກ ຂອງນະຄອນໄກສອນ, ນ້ຳເບື້ອນຈາກຄົວເຮືອນ ກໍ່  
ຄືຈາກຕົວເມືອງ ມີການການບໍາບັດເບື້ອງຕົ້ນເພງແຕ່ນ້ຳເບື້ອນຈາກວິດຖ່າຍ ດ້ວຍ **Septic tank** ແລະ ຊຸມວິດ  
ຊຶມ ສ່ວນນ້ຳເບື້ອນຈາກການຊະລ້າງ ແລະ ນ້ຳເບື້ອນຈາກອ່າງລ້າງຖ້ວຍ ແມ່ນບໍ່ໄດ້ຮັບການບໍາບັດ ຫຼື ການ ດັກ  
ໄຂມັນ ເຊິ່ງໄດ້ປ່ອຍລົງຮ່ອງລະບາຍນ້ຳຂ້າງທາງ ແລະ ຮອງຫ້ວຍລົງກົງ ໂດຍກົງ. ພ້ອມກັນນັ້ນວຽກງານການ  
ຄຸ້ມຄອງນ້ຳເບື້ອນຈາກຊຸມວິດ (**Faecal Sludge Management**) ແມ່ນຍັງບໍ່ທັນໄດ້ຮັບການຈັດຕັ້ງປະຕິບັດ  
ຢ່າງທົ່ວເຖິງ ແລະ ເປັນປົກກະຕິ ເຊິ່ງເຮັດຊຸມບໍາບັດ **septic tank** ບໍ່ສາມາດບໍາບັດນ້ຳເບື້ອນໄດ້ຕາມຄວາມ  
ສາມາດ ກ່ອນປ່ອຍທ່າມາລົງສູ່ຮ່ອງລະບາຍນ້ຳ ເຊິ່ງສົ່ງເກດໄດ້ຈາກຜົນການທົດລອງຄຸນນະພາບນ້ຳເບື້ອນຢູ່  
ຫ້ວຍລົງກົງ ໂດຍມີຄ່າ **BOD** ສູງເຖິງ **50 mg/l** ຈາກການທົດລອງ ວັນທີ 10 ຫາ 21 ເດືອນ 10 ປີ 2011  
(ເລີ່ມລະດູແຫ້ງ) ແລະ **BOD = 32 mg/l** ດັ່ງວັນທີ 6 ເດືອນ 7 ປີ 2020 (ຊ່ວງຕົ້ນລະດູຝົນ ເຊິ່ງນ້ຳໃນຮ່ອງ  
ມີອາດມີການເຈື່ອປົນຈາກນ້ຳໃຕ້ດິນ ຫຼື ນ້ຳຝົນ). ສະນັ້ນ, ອີງຕາມຄ່າຄຸນນະພາບນ້ຳ, ນ້ຳເບື້ອນຢູ່ຮ່ອງຫ້ວຍລົງກົງ  
ແມ່ນຍັງມີກິນເໝັນ ແລະ ໜອງບໍາບັດ ໜອງທີ 1 ເມື່ອເອົານ້ຳເບື້ອນຈາກຄອງ ແມ່ນຍັງມີກິນເໝັນ ຈາກການ  
ລະເຫີຍອ່າຍ.

##### ຂໍສະເໜີເພື່ອປັບປຸງ:

- 1) ດ້ອງມີການຄຸ້ມຄອງ ແລະ ບໍາບັດນ້ຳເບື້ອນຂຶ້ນຄົວເຮືອນ, ອາຄານຫ້ອງການ, ຮ້ານອາຫານ  
ເປັນຕົ້ນແມ່ນການ ດູດວິດທຸກໆສອງຫາສາມປີ ແລະ ຕິດຕັ້ງອ່າງດັກໄຂມັນ.
- 2) ປຸງຈຸດໜອງບໍາບັດ ໜອງທີ 1 ດ້ອງສ້າງລະບົບບໍາປຸງໃນໜອງເພີ່ມເຕີມ ດ້ວຍລະບົບກັ້ນຕອງດ້ວຍ  
ພືດນ້ຳ (**floating constructed wetland**) ເພື່ອໃຫ້ພືດດູຊຶມເອົາສານອາຫານ (**Nutrient**)

ຈາກນ້ຳເບື້ອນ ແລະ ຜະລິດອາກາດລົງສູ່ນ້ຳເບື້ອນ. ຮູບແບບຂອງການບໍາບັດດ້ວຍພືດທີ່ຟຸ່ງຢູ່ນ້ຳ  
ນ້ຳຄືດັ່ງຮູບລຸ່ມນີ້:

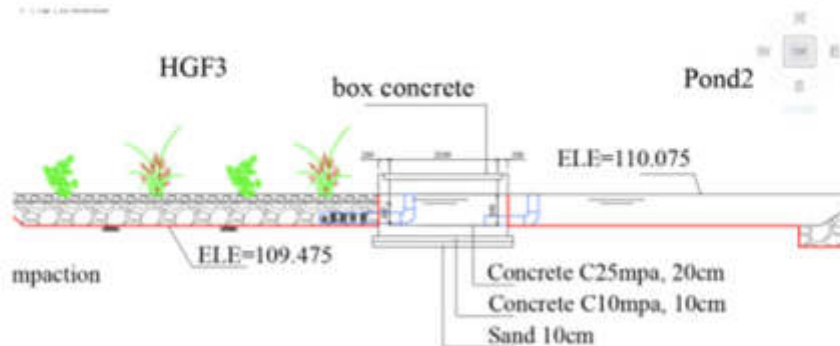


- 3) ສ້າງເງື່ອນໄຂການບໍາບັດດ້ວຍຊີວະພາບໃຫ້ໄວຂຶ້ນ ໂດຍການເພີ່ມສານອາຫານ **Efficiency Microorganisms (EM)** ແບບກ້ອນ ໃຫ້ໜອງບໍາບັດ ເກີດມີຈຸລິນຊີຫຼາຍຂຶ້ນ ເພື່ອຊ່ວຍສ້າງຂະບວນການບໍາບັດ
- 4) ເພື່ອຫຼຸດຜ່ອນໜອງບຸງ ຢູ່ໃນໜອງ ຕ້ອງໄດ້ປ່ອຍສັດນ້ຳ (ປາດູກ, ປາຊິວ, ປາຫາງນົກບຸງ...)

## 2. ບັນຫານ້ຳຖ້ວມຂັງຢູ່ອ່າງກັນຕອງ HGF

ບັນຫາ:

- 1) ເນື່ອງຈາກການອອກແບບລະດັດລະບົບທີ່ລະບາຍນ້ຳເບື້ອນຈາກອ່າງກັນຕອງ **HGF 1** ຫາ **HGF 2** ແລະ ຫາຫ້ອງອື່ນໆ ແມ່ນວາງຢູ່ເທິງໜ້າຫີນຕອງ ແລະ ເທົ່າກັບລະດັບນ້ຳຢູ່ອ່າງຕອງ ອີຕາມແບບລຸ່ມນີ້:



- 2) ຕາມການລາຍງານຂອງວິຊາການບໍລິຫານໄດ້ມີການໃຊ້ຜ້າ **geotextile** ພັນປາກທີ່ທີ່ຕໍ່ນ້ຳ ເປື້ອນຈາກພື້ນອ່າງ HGF ຫາ ຄອງລະບາຍນ້ຳ ຕາມການອອກແບບເບື້ອງຕົ້ນແມ່ນບໍ່ໄດ້ລະບຸໄວ້. ສະນັ້ນເມື່ອມີຕະກອນສະສົມ ແລະ ຕິດຢູ່ຜ້າ **geotextile** ຈະເຮັດໃຫ້ການລະບາຍນ້ຳບໍ່ສະດວກ ແລະ ຈະເກີດການອຸດດັນ.

**ຂໍ້ສະເໜີເພື່ອປັບປຸງ:**

- 1) ຕັດທໍ່ໂຕ L ຈາກລະດັບນ້ຳ 60 cm ລົງມາເປັນ 40 cm ເພື່ອປັບລະດັບນ້ຳໃຫ້ຕໍ່າກວ່າລະດັບ ຫີນກັນຕອງ ປະມານ 20 cm
- 2) ປັບລະດັບນ້ຳໄຫຼອອກຢູ່ໜອງສຸດທ້າຍ ໃຫ້ຕໍ່າກວ່າລະດັບທໍ່ໂຕ L ຢູ່ຫ້ອງກັນຕອງ HGF ສຸດ ທ້າຍ 10-15 cm
- 3) ເອົາຜ້າ **geotextile** ອອກຈາກປາກທໍ່ ໂຕ L ອອກທັງໝົດ ເພື່ອໃຫ້ການລະບາຍນ້ຳສະດວກດີ

**ຂໍ້ສະເໜີເພີ່ມຕື່ມ:**

- ທາງວິຊາການອື່ງການບໍດາ ຈະລົງໄປຕິດຕາມໃນກໍລະນີມີການປັບປຸງ ພ້ອມທັງຈັດຝຶກອົບຮົມວິທີການບ ບົວລະບັດຮັກສາ
- ຕ້ອງມີການກວດສອບຄຸນນະພາບນ້ຳຢູ່ຄອງຫ້ວຍລົງກິ່ງກ່ອນປ່ອຍເຂົ້າ ໜອງ, ຢູ່ໜອງທີ່ 1 ແລະ ໜອງ ສຸດທ້າຍໃນຊ່ວງລະດູແຫ້ງນີ້

ດັ່ງນັ້ນ, ຈຶ່ງຂໍສະເໜີມາຍັງທ່ານພິຈາລະນາຕາມທາງຄວນດ້ວຍ.

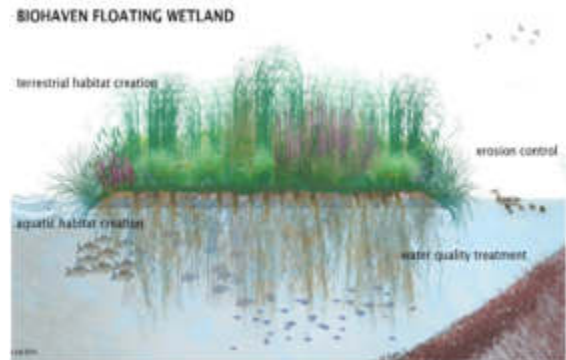
ດ້ວຍຄວາມນັບຖືເປັນຢ່າງສູງ,  
ຫົວໜ້າຫ້ອງການ ໂຄງການບໍດາລາວ

Letter

To: Project Director of GMS1

Subject: Recommendations on the Improvement of DEWATS (Constructed Wet-land) to solve the problem of water in the first pond and the water problem in Wetland treatment basin.

- According to the letter requesting clarification on sedimentation pond (Pond 1), it gives off a strong odor and Flooding problems in the filter tank for the wastewater treatment plant (DEWATS) No. 0231/GMSEWEC.SK , dated 12 March 2021.



On behalf of the technical designer of the Constructed Wetland Wastewater Treatment System (DEWATS) at Huay Long Kong in the GMS1 project, I would like to introduce more information and how to solve problems to improve the treatment system to be able to work according to the technique and treatment of wastewater according to the target, which is detailed below:

1. Odor problems from sedimentation pond (Pond1) and requests for improvement

Problem:

Because of Huay Long Kong is the main drainage in Kaysone city, wastewater from households, commercial and from the city. The primary treatment is septic tank treatment system and latrines infiltration, wastewater from the sink, kitchen, bathroom is untreated or no trapping grease, which is directly discharged to road channels and flow to HLK. The Faecal sludge management is not yet fully and regularly implemented and septic tanks is low-capacity treatment before discharged to the road channel or HLK, which can be observed from the results of the wastewater quality test at Huay Long Kong with a BOD value up to 50 mg/l from the laboratory, 10-21 October 2011 (Beginning of the dry season) and BOD = 32 mg/l on 6 July 2020 (early in the rainy season, when water in the ditch may be contaminated by groundwater or rainwater). Therefore, according to the water quality value, the wastewater at Hong Houay Long Kong is still remain bad odor and the pond 1 is accumulated all wastewater from HLK and stored all sediments, this generated more bad odor to the areas.

Recommendation for improvement:

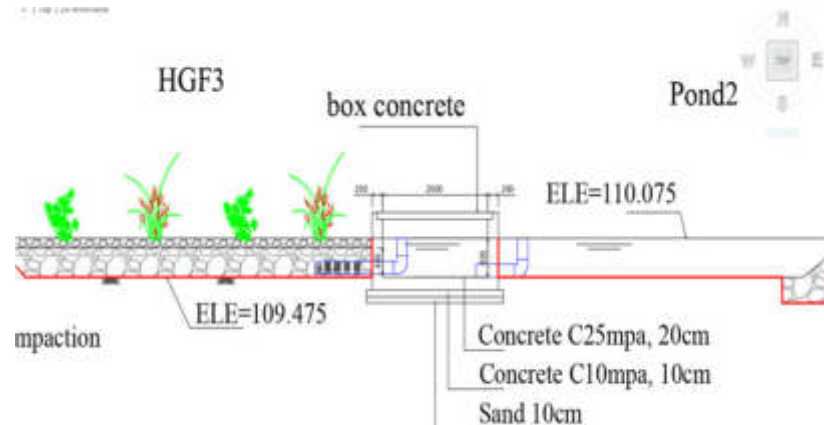
- 1) Should be manage the bad odor from the originally sources as wastewater treatment in households, office buildings, restaurants, etc., as the faecal sludge should be regular removed within two to three years and install a grease trap.
- 2) Should be treated by a floating constructed wetland to allow the plants to absorb nutrients from the pond 1 and generated more oxygen under water as figure below:

- 3) To produce the biological therapy by adding Efficiency Microorganisms (EM) in the form of increase more microorganisms to effluence treatment process.
- 4) In order to reduce the number of mosquitoes in the swamp, aquatic animals must be released (catfish, minnow, guppy....)



## 2. Flooding problems in HGF filters

1) Due to the design of the sewer system from the HGF 1 to HGF2 basin and to other rooms is placed on the filter wall and equal to the water level in the filter according to the following:



- 2) According to the reported from technician, contractor used of geotextile fabric for rolling the pipe at the outlet and inlet, the original design is not specified. Therefore, when sediment cover the geotextile, drainage will be inconvenient and clogged.

### Suggestions for improvement:

- 1) Cut the L-tube from the water level 60 cm down to 40 cm to adjust the water level to be about 20 cm lower than the filter level.
- 2) Adjust the water level at the end of the swamp to lower than the level of the L tube at the last HGF filter 10-15 cm.
- 3) Remove all geotextile fabric from the mouth of the L-tube for easy drainage

### Additional Notes:

- BORDA will follow up on updates as well as provide training of maintaining
- It must be checked water quality at Houay Long Kong before ended dry season.

Therefore, we invite you to consider as appropriate.

N. MEMO RESOLVING GRIEVANCE OF HOUAY LONGKONG LANDOWNER

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ  
ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນາຖາວອນ

-----00000-----

ເລກທີ: 002/2024-HLK  
ວັນທີ: 12-01-2024

ໃບຢັ້ງຢືນ(ລົບລ້າງສັນຍາ)

ອີງຕາມ: ຈົດຮອດຕົກ ຄັ້ງວັນທີ: 1/11/2018, ເລກທີ: .....  
ລະຫວ່າງ ທ່ານ: ສິນ-ກຸມ-ດິນ ຕົວແທນ  
ບໍລິສັດ ໄຕເຈືອງເຊີນ ກໍ່ສ້າງຂົວທາງຈຳກັດຜູ້ດຽວ, ໂທລະສັບໝາຍເລກ: 030-4313692  
ແລະ ທ່ານ: ພູ-ຮຸ້-ໄວ ໂທລະສັບໝາຍເລກ: .....  
ຢູ່ບ້ານ: ສະພາບໄຮ ເມືອງ: ມະຫາລາດ ສະຫວັນ  
ແຂວງ: ສະຫວັນນະເລີ  
ວ່າດ້ວຍ: ສິນ-ກຸມ-ດິນ ທີ່ຢູ່ບ້ານ: ສະພາບໄຮ + ໂພນສະຫວັນ  
ເມືອງ: ມະຫາລາດ ສະຫວັນ ແຂວງ: ສະຫວັນນະເລີ

ມາຮອດຄັ້ງວັນທີ: 12-01-2024  
ພວກຂ້າພະເຈົ້າທັງສອງຝ່າຍຄື: ທ່ານ: ສິນ-ກຸມ-ດິນ  
ໂທລະສັບໝາຍເລກ: 030-4313692 ຕົວແທນຂອງ ບໍລິສັດ ໄຕເຈືອງເຊີນ ກໍ່ສ້າງຂົວທາງຈຳກັດ  
ແລະ ທ່ານ: ພູ-ຮຸ້-ໄວ

ທັງສອງຝ່າຍມີຄວາມເພິ່ງພໍໃຈ ຕາມເງື່ອນໄຂທຸກຢ່າງທີ່ລະບຸໄວ້ໃນບົດບັນທຶກຄັ້ງວັນທີ: 1/11/2018  
ດັ່ງກ່າວນັ້ນແລ້ວ ແລະ ໄດ້ຕົກລົງເປັນເອກະພາບນຳກັນລົບລ້າງບົດບັນທຶກຄັ້ງກ່າວ(ນັບແຕ່ມີລົງລາຍ  
ເຊັນເປັນຕົ້ນໄປ), ທັງສອງຝ່າຍຍືນຍັນວ່າຈະບໍ່ມີການຮຽກຮ້ອງໃດໆທັງໝົດໃນອານາຄົດຂ້າງໜ້າ.

ດັ່ງນັ້ນທັງສອງຝ່າຍຈຶ່ງໄດ້ຕົກລົງສ້າງໃບຢັ້ງຢືນສະບັບນີ້ຂຶ້ນເປັນ 2 ສະບັບໄວ້ເພື່ອເປັນບ່ອນອີງ  
ໃນອາຄົດຂ້າງໜ້າ.

ທີ່: ສະພາບໄຮ ວັນທີ: 12-01-2024

ຮັບຮູ້ແລະຢັ້ງຢືນ

ເຈົ້າຂອງດິນ

ຕ່າງໜ້າບໍລິສັດTCS

  
ບຸນທຸ່ວ



ຈຳນວນເສດຖະກິດ ວັນປະເສີດ

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ  
ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນາຖາວອນ

-----00000-----

ເລກທີ: 003/2021-44K  
ວັນທີ: 12-01-2021

### ໃບຢັ້ງຢືນ(ລົບລ້າງສັນຍາ)

- ອີງຕາມ: ບັນດາໜ້າທີ່ ຄັ້ງວັນທີ: 01.11.2018, ເລກທີ: .....  
ລະຫວ່າງ ທ່ານ: ສົມພອນ ສິນສຸກ ຕົວແທນ  
ບໍລິສັດ ໄຕເຈືອງເຊີນ ກໍ່ສ້າງຂົວທາງຈຳກັດຜູ້ດຽວ, ໂທລະສັບໝາຍເລກ: 030.471.3692  
ແລະ ທ່ານ: ສົມພອນ ສິນສຸກ ໂທລະສັບໝາຍເລກ: .....  
ຢູ່ບ້ານ: ແລ້ວ ກວ້າງ ເມືອງ: ນະຄອນປາກສາວ  
ແຂວງ: ສະຫວັນນະເຂດ  
ວ່າດ້ວຍ: ທີ່ຢູ່ບ້ານ: ສົມພອນ ສິນສຸກ  
ເມືອງ: ນະຄອນປາກສາວ ແຂວງ: ສະຫວັນນະເຂດ

ມາຮອດຄັ້ງວັນທີ: 12-01-2021  
ພວກຂ້າພະເຈົ້າທັງສອງຝ່າຍຄື: ທ່ານ: ສົມພອນ ສິນສຸກ  
ໂທລະສັບໝາຍເລກ: 030.471.3692 ຕົວແທນຂອງ ບໍລິສັດ ໄຕເຈືອງເຊີນ ກໍ່ສ້າງຂົວທາງຈຳກັດ  
ແລະ ທ່ານ: ສົມພອນ ສິນສຸກ

ທັງສອງຝ່າຍມີຄວາມເພິ່ງພໍໃຈ ຕາມເງື່ອນໄຂທຸກຢ່າງທີ່ລະບຸໄວ້ໃນບົດບັນທຶກຄັ້ງວັນທີ: 01.11.2018  
ດັ່ງກ່າວນັ້ນແລ້ວ ແລະ ໄດ້ຕົກລົງເປັນເອກະພາບນຳກັນລົບລ້າງບົດບັນທຶກຄັ້ງກ່າວ(ນັບແຕ່ມີລົງລາຍ  
ເຊັນເປັນຕົ້ນໄປ), ທັງສອງຝ່າຍຍືນຍັນວ່າຈະບໍ່ມີການຮຽກຮ້ອງໃດໆທັງໝົດໃນອານາຄົດຂ້າງໜ້າ.

ດັ່ງນັ້ນທັງສອງຝ່າຍຈຶ່ງໄດ້ຕົກລົງສ້າງໃບຢັ້ງຢືນສະບັບນີ້ຂຶ້ນເປັນ 2 ສະບັບໄວ້ເພື່ອເປັນບ່ອນອີງ  
ໃນອາຄົດຂ້າງໜ້າ.

ທີ່: ນະຄອນປາກສາວ ວັນທີ: 12-01-2021

ຮັບຮູ້ແລະຢັ້ງຢືນ  
ບຸນເກີດ ແກ້ວຊຸວິງ

ເຈົ້າຂອງດິນ  
ສົມພອນ ສິນສຸກ



ຈັນທະປະສູດ ວັນປະເທິດ  
Chanthapasuth VANPASEUTH

ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ  
ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນາຖາວອນ

-----00000-----

ເລກທີ: 002/2024-444  
ວັນທີ: 12-01-2024

**ໃບຢັ້ງຢືນ(ລົບລ້າງສັນຍາ)**

ອີງຕາມ: ຈົດຮຸ້ນໃກ້ ຄັ້ງວັນທີ: 1/11/2018, ເລກທີ: .....  
ລະຫວ່າງ ທ່ານ: ສິນທິພອນ ສິນທິພອນ ຕົວແທນ  
ບໍລິສັດ ໄຕເຈືອງເຊີນ ກໍ່ສ້າງຂົວທາງຈຳກັດຜູ້ດຽວ, ໂທລະສັບໝາຍເລກ: 0304313692  
ແລະ ທ່ານ: ພູມສິດ ພູມສິດ ໂທລະສັບໝາຍເລກ: .....  
ຢູ່ບ້ານ: ສະພາບໄຮ ເມືອງ: ມະຫາວິທະຍາໄລ  
ແຂວງ: ສະຫວັນນະເຂດ  
ວ່າດ້ວຍ: ພູມສິດ ພູມສິດ ທີ່ຢູ່ບ້ານ: ສະພາບໄຮ + ພູມສິດ  
ເມືອງ: ມະຫາວິທະຍາໄລ ແຂວງ: ສະຫວັນນະເຂດ

ມາຮອດຄັ້ງວັນທີ: 12-01-2024  
ພວກຂ້າພະເຈົ້າທັງສອງຝ່າຍຄື: ທ່ານ: ສິນທິພອນ ສິນທິພອນ  
ໂທລະສັບໝາຍເລກ: 0304313692 ຕົວແທນຂອງ ບໍລິສັດ ໄຕເຈືອງເຊີນ ກໍ່ສ້າງຂົວທາງຈຳກັດ  
ແລະ ທ່ານ: ພູມສິດ ພູມສິດ

ທັງສອງຝ່າຍມີຄວາມເພິ່ງພໍໃຈ ຕາມເງື່ອນໄຂທຸກຢ່າງທີ່ລະບຸໄວ້ໃນບົດບັນທຶກຄັ້ງວັນທີ: 1/11/2018  
ດັ່ງກ່າວນັ້ນແລ້ວ ແລະ ໄດ້ຕົກລົງເປັນເອກະພາບນຳກັນລົບລ້າງບົດບັນທຶກຄັ້ງດັ່ງກ່າວ (ນັບແຕ່ມີລົງລາຍ  
ເຊັນເປັນຕົ້ນໄປ), ທັງສອງຝ່າຍຍືນຍັນວ່າຈະບໍ່ມີການຮຽກຮ້ອງໃດໆທັງໝົດໃນອານາຄົດຂ້າງໜ້າ.

ດັ່ງນັ້ນທັງສອງຝ່າຍຈຶ່ງໄດ້ຕົກລົງສ້າງໃບຢັ້ງຢືນສະບັບນີ້ຂຶ້ນເປັນ 2 ສະບັບໄວ້ເພື່ອເປັນບ່ອນອີງ  
ໃນອາຄົດຂ້າງໜ້າ.

ທີ່: ສະພາບໄຮ ວັນທີ: 12-01-2024

ຮັບຮູ້ແລະຢັ້ງຢືນ

ເຈົ້າຂອງດິນ


ຕ່າງໜ້າບໍລິສັດTCS

  
ບຸນທິດ



ຈຸນທາຍະສຸດ ວັນປະເທດ

**O. PROVINCIAL GOVERNOR DECISION TO GIVE PRIORITY TO 35 VENDORS FOR NEW MARKET STALLS AND PRIORITY EMPLOYMENT FOR 10 WASTE PICKERS**



ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ  
ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນະຖາວອນ

ແຂວງສະຫວັນນະເຂດ  
ເຈົ້າແຂວງ

0099  
ເລກທີ...../ຈຂ.ສຂ  
ວັນທີ 05 JAN 2021

**ຂໍ້ຕົກລົງ**  
ຂອງທ່ານເຈົ້າແຂວງ ສະຫວັນນະເຂດ  
ໃຫ້ພິຈາລະນາຈັດບຸລິມະສິດທຳອິດໃຫ້ 35 ຄອບຄົວເຂົ້າຄ້າຂາຍໃນເຂດຂອງຕຳນະເຈືອນ ແລະ  
10 ຄອບຄົວທີ່ເຮັດວຽກໃນສະໜາມຂີ້ເຫຍື້ອເກົ່າ ໃຫ້ເຂົ້າເຮັດວຽກໃນສະໜາມຂີ້ເຫຍື້ອໃໝ່ ພາຍຫຼັງເປີດນຳໃຊ້  
ແລ້ວ

- ອີງຕາມ ກົດໝາຍວ່າດ້ວຍການປົກຄອງທ້ອງຖິ່ນແຫ່ງ ສປປ ລາວ ( ສະບັບປັບປຸງ ), ສະບັບເລກທີ 68/ ສພຊ ລົງວັນທີ 14 ທັນວາ 2015 ໝວດ IV, ມາດຕາ 20, ຂໍ້ 13.
- ອີງຕາມ ໃບສະເໜີຂອງພະແນກໂຍທາທິການ ແລະ ຂົນສົ່ງແຂວງ, ສະບັບເລກທີ 0021/ບທຂ.ສຂ, ລົງວັນທີ 04 ມັງກອນ 2021.


**ເຈົ້າແຂວງ ສະຫວັນນະເຂດ ຕົກລົງ:**

ມາດຕາ 1: ເຫັນດີໃຫ້ພິຈາລະນາຈັດບຸລິມະສິດທຳອິດໃຫ້ແກ່ 35 ຄອບຄົວທີ່ໄດ້ຮັບຜົນກະທົບຈາກໂຄງການກໍ່ສ້າງ  
ຕຳນະເຈືອນໄດ້ຮັບສິດເຂົ້າຄ້າຂາຍໃນເຂດຂອງຕຳນະເຈືອນ ແລະ 10 ຄອບຄົວທີ່ເກັບຂີ້ເຫຍື້ອໃນສະ  
ໜາມເກົ່າໃຫ້ເຂົ້າເຮັດວຽກໃນສະໜາມຂີ້ເຫຍື້ອໃໝ່ພາຍຫຼັງເປີດນຳໃຊ້, ຕາມການສະເໜີຂອງພະ  
ແນກ ໂຍທາທິການ ແລະ ຂົນສົ່ງ ສະບັບເລກທີ 0021/ບທຂ.ສຂ, ລົງວັນທີ 04 ມັງກອນ 2021.

ມາດຕາ 2: ໃຫ້ທຸກພາກສ່ວນທີ່ກ່ຽວຂ້ອງ ຈົ່ງຮັບຮູ້ ແລະ ໃຫ້ການຮ່ວມມືໃນການຈັດຕັ້ງປະຕິບັດວຽກງານໃຫ້ໄດ້  
ຮັບຜົນສຳເລັດເປັນປາງດີ.

ມາດຕາ 3: ຂໍ້ຕົກລົງສະບັບນີ້ມີຜົນສັກສິກ ແລະ ນຳໃຊ້ນັບແຕ່ມີລົງລາຍເຊັນເປັນຕົ້ນໄປ.

ເຈົ້າແຂວງສະຫວັນນະເຂດ



**ທ່ານແກ້ວ ພູດທະໄກຍະລາດ**

ບ່ອນນຳສົ່ງ

- ສາກສ່ວນທີ່ກ່ຽວຂ້ອງ ບ່ອນລະ 1 ສະບັບ ເພື່ອຊາບ
- ພວກກ່ຽວຜູ້ລະ 1 ສະບັບ ເພື່ອປະຕິບັດ
- ສຳເນົາເກັບມືງານ 1 ສະບັບ

## P. MEMO CONFIRMING EMPLOYMENT OFFER FOR AP AT HOUAY LONGKONG DEWATS



ສາທາລະນະລັດ ປະຊາທິປະໄຕ ປະຊາຊົນລາວ  
ສັນຕິພາບ ເອກະລາດ ປະຊາທິປະໄຕ ເອກະພາບ ວັດທະນະຖາວອນ.

ໃບຢັ້ງຢືນ

ກ່ຽວກັບການເອົາທ່ານສີຝອງ ຜູ້ຖືກກະທົບຈາກໂຄງການພັດທະນາຕົວເມືອງ  
ໂຄງການກໍ່ສ້າງບໍ່ປ່າບັດນ້ຳເສຍ

- ອີງຕາມແຜນຈັດຕັ້ງປະຕິບັດວຽກງານກໍ່ສ້າງທາງຂອງໂຄງການພັດທະນາຕົວເມືອງຕາມແລ່ວທາງເສດຖະກິດ  
ຕາເວັນອອກ-ຕາເວັນຕົກ ອະນຸພາກພື້ນແມ່ນ້ຳຂອງ ພາຍຫຼັງການມອບຮັບໂຄງການໃຫ້ປະຊາຊົນມີສ່ວນຮ່ວມ  
ໃນການປົກຄຸມສາເສັ້ນທາງ.
- ອີງຕາມແຜນຍົກຍ້າຍສິ່ງກົດຂວາງຂອງໂຄງການທີ່ລະບຸກ່ຽວກັບການປັບປຸງຊີວິດຂອງປະຊາຊົນຜູ້ຖືກກະທົບ  
ໃຫ້ມີຊີວິດ ແລະ ລາຍຮັບດີກ່ອນການຍົກຍ້າຍອອກຈາກສະຖານທີ່ກໍ່ສ້າງບໍ່ປ່າບັດນ້ຳເສຍ.

ບໍລິສັດ ໄຕເຈືອງເຊີນ ກໍ່ສ້າງຂົວທາງຈຳກັດຜູ້ດຽວ, ໂທລະສັບ 030 471369 ຂໍຢັ້ງວ່າ ໃນໄລຍະຮັບປະກັນ 1 ປີ  
ຫຼັງກໍ່ສ້າງບໍ່ປ່າບັດນ້ຳເສຍ ບໍລິສັດ ພວກເຮົາຈະຮັບເອົາ ທ່ານ ສີຝອງ ຜູ້ຖືກກະທົບຈາກໂຄງການ ເຂົ້າເຮັດວຽກນຳ  
ບໍລິສັດ ໄຕເຈືອງເຊີນ.

ດັ່ງນັ້ນ, ຈຶ່ງອອກໃບຢັ້ງຢືນສະບັບນີ້ ເພື່ອເປັນຫຼັກຖານ ໃນການຈັດຕັ້ງປະຕິບັດໃນຕໍ່ໜ້າ.

ວັນທີ 24/01/2021

ຕາງໜ້າ ບໍລິສັດ TCS



ຈັນທະປະສຸດ ວິນປະເສີດ  
Chanthapassuth VINFASUTM