

# Environmental Monitoring Report

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Semi-Annual Report no. 3  
For the period covered June 2018–June 2019  
Project Number: 47381-002  
December 2019

## SRI: Mahaweli Water Security Investment Program – Tranche 1

Minipe Left Bank Canal Rehabilitation Project (MLBCRP)

Prepared by Ministry of Mahaweli Development and Environment with the assistance of Program Management, Design and Supervision Consultant (Joint Venture Tractebel Engineering GmbH – GeoConsult ZT GmbH) for Democratic Socialist Republic of Sri Lanka and the Asian Development Bank.

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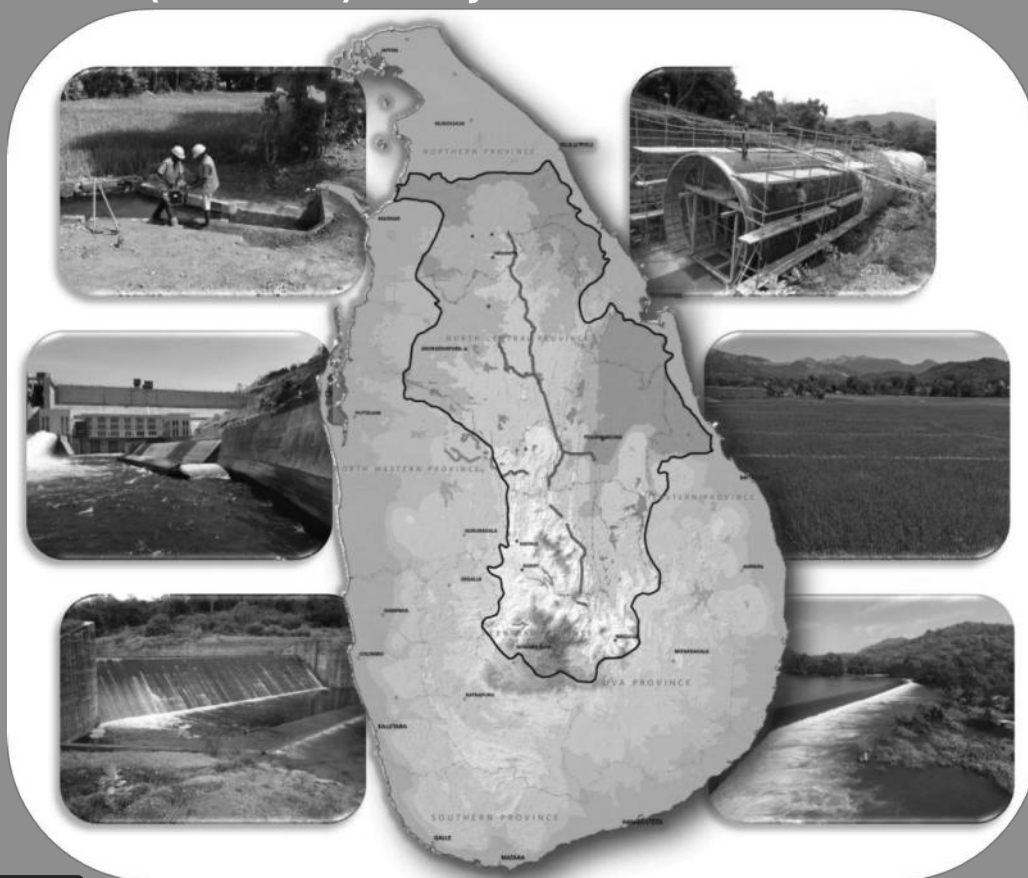
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# Mahaweli Water Security Investment Program

## Annual Environmental Monitoring Report (AEMR) No. 03 for Minipe Left Bank Canal Rehabilitation Project (MLBCRP) – July 2018 to June 2019



**Ministry of Mahaweli  
Development and Environment  
Sri Lanka**



**December 2019  
Final Report**

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**AEMR No. 03 for MLBCRP**

Project Number     H.503409

Subject               Project Report

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Country               Sri Lanka

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Client                 Ministry of Mahaweli Authority for Development and Environment

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# 1 INTRODUCTION

## 1.1 Scope of the Report

1. This Annual Environmental Monitoring Report (AEMR) No. 3 is prepared to update the progress of Minipe Left Bank Canal Rehabilitation Project (MLBCRP) with respect to environmental safeguard aspects for the period of July 2018 to June 2019, which fulfils the Asian Development Bank (ADB) requirement to submit a AEMR to ADB and Central Environmental Authority (CEA) for the “Category B” projects as documented in FAM<sup>1</sup> and EARF<sup>2</sup>.

2. The purpose of this report is to ensure that the Project is implemented with due concern for environmental and social safeguards according to the ADB’s Safeguard Policy Statement (SPS) 2009, and specifically to ensure that these issues are adequately addressed in compliance with the requirements of ADB. Further, this report is to assess the progress with implementation of the program in complying with the approved Initial Environmental Examination (IEE), including the Addendum to the IEE prepared in April 2016: NWPCP Tranche 1 packages (May 2017) and Environmental Management Plan (EMP)<sup>3</sup> as per the stipulation No. 13.1 of the IEE approval No. CEA/CPO/KY/07/929/12 issued by CEA on 16 October 2015, renewed approval by CEA on 03.01.19 by Letter Ref. Ref. CEA/CPO/KY/07/929/2012.

3. This AEMR is prepared addressing the following aspects, based on the available information as of the monitoring period from July 2018 to June 2019:

- (i) Background/context of the monitoring report (adequate information on the project, including physical progress of project activities, scope of monitoring report, reporting period, and the monitoring requirements including frequency of submission as agreed upon with ADB);
- (ii) Changes in project scope and adjusted safeguard measures;
- (iii) Qualitative and quantitative monitoring data;
- (iv) Monitoring parameters/indicators and methods based on the EMP previously agreed upon with ADB;
- (v) Monitoring results compared against previously established benchmarks and compliance status (e.g., obtaining necessary approvals for establishment of certain facilities, national environmental emission and ambient standards and/or standards set out in the WB’s EHS guidelines; timeliness and adequacy of environmental mitigation measures; and training, capacity building, etc.);
- (vi) Monitoring results compared against the objectives of safeguards or desired outcomes documented (environmental impacts avoided or minimized, etc.);
- (vii) Records on disclosure of monitoring information to affected communities;
- (viii) Identification of key issues, or grievances from affected people, or recommendations for improvement;
- (ix) Monitoring adjustment measures recommended based on monitoring experience/trends and stakeholder’s response;
- (x) Information about actual institutional arrangements for implementing the monitoring program;
- (xi) Proposed items of focus for the next reporting period and due date.

4. This AEMR for MLBCRP is prepared by the Environmental Specialist of PMDSC based on the monthly monitoring and progress reports of the PMDSC, contractors and the updates received from the Environmental Specialist of PMU and Senior Environmental Officer for PIU of MLBCRP.

<sup>1</sup> Paragraph 60 of Facility Administration Manual (FAM), June 2015 prepared by MMDE.

<sup>2</sup> Paragraph 111 of Environmental Assessment Review Framework (EARF) November 2014 (updated in June 2017) by MMDE.

<sup>3</sup> Initial Environmental Examination Report (IEER) dated April 2015 and approved by CEA on 16.10.2015.

## 1.2 Current status of MLBCRP

5. All six contract packages scheduled under Phase I of the MWSIP, for MLBCRP-NCB-1, NCB-2, NCB-3, NCB-4, & ICB-1 have been awarded and the description of individual packages is summarized in **Table 1-1** as of June 2019.

**Table 1-1: Details of the MLBCRP contract packages as of June 2019**

Pack-age	Description	Contractor	Start date	Completion due date / Delay up to June 2019
NCB 1	Rehabilitation of Minipe Left Bank Canal from 0 + 000 km to 30 + 140 km	M/s. Edward and Christie	13 Oct 2016	13 Oct 2018 / 08 months
NCB 2	Rehabilitation of Minipe Left Bank Canal from 30+140 km to 49+820 km	M/s. Gamini Construction	25 Apr 2017	25 Apr 2019 / 2 months
NCB 3	Rehabilitation of Minipe Left Bank Canal from 49+820 km to 63+650 km	M/s. Nawaloka Construction	28 Apr 2017	28 Apr 2019 / 2 months
NCB 4	Rehabilitation of Minipe Left Bank Canal from 63+650 km to 73+960 km	M/s. Gamini Construction	26 Apr 2017	26 Apr 2019 / 2 months
NCB 5	Rehabilitation and Electrification of Radial Gated Structures at 8 Locations and Improvements to Cross Regulators Structures at 3 Locations of Minipe Left Bank Canal	Dockyard General Engineering (Pvt) Ltd	10 Jan 2018	10 Jan 2020 / within the scheduled period
ICB 1	Heightening of Minipe Anicut Including Water Control & Measurement Facilities for Left Bank & Right Bank Canal	China Gezhouba Group Company Ltd.	05 May 2018	05 Nov 2020 / still within the scheduled period

6. Following **Table 1-2** provide a brief description of the physical progress of each contract package mobilized under MLBCRP as of end June 2019.

**Table 1-2: Summary of physical progress as of end June 2019**

MLBCRP Contract	Percentage (%) of Physical progress		
	As per contractor's Original program	As per contractor's current program	Actual as of end June 2019
NCB 1	100	91	78
NCB 2	100	68	64
NCB 3	100	60	55
NCB 4	100	100	94
NCB 5	73	80	55
ICB 1	33	42	24



## 2 CHANGES IN PROJECT SCOPE AND ADJUSTED SAFEGUARD MEASURES

### 2.1 MLBCRP-NCB-1 to NCB-4

7. There were no major changes in project scope observed in the NCB packages awarded under MLBCRP. The contractors have been unable to complete the construction during the scheduled period, as is described in the **Table 1-1**. As a result of the resulting extension of the construction period, the inconvenience experienced by the general public as the water users of the canal was managed by educating the community through the Grievance Redress Mechanism (GRM) implemented by the Employer (PIU).

8. Further, the environmental impacts such as water pollution, sedimentation and erosion due to stockpiling, temporary cofferdams were managed by adopting required mitigation measures as per the CEMP/EMP. The construction activities were limited only during the water closure period (August-October 2018), and prior to water issue the entire canal was cleaned and all foreign material, equipment was taken out from the canal to avoid water pollution, disturbances to the public.

### 2.2 MLBCRP-ICB-1

9. The requirement for a temporary bypass canal during the construction stage of Minipe anicut was mentioned in the approved IEE. The purpose of the bypass canal is to facilitate the water flow diverted to the Minipe LB canal, delivering the required discharge to the LB canal during the period that the existing approach canal is unavailable during construction. However, the dimensions of the bypass canal and the requirement of associated tree removal had not been identified at the IEE stage.

10. Once the Contractor was mobilized, preliminary walk-through surveys and topographical surveys were carried out jointly with the environment team to identify the trace with the minimum damage to the existing environment.

11. As a result, a new tree list in addition to the tree list given in the IEE report was prepared jointly with the Contractor by EMS of PMDSC, which included 34 additional trees (**Table 2-1**) to be felled with the approval of the Department of Wildlife Conservation (DWC).

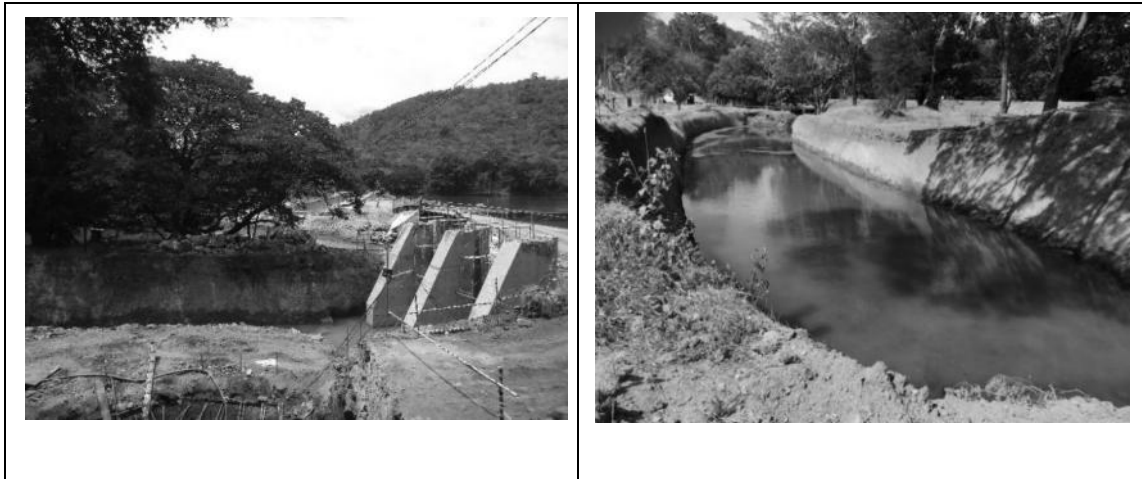
**Table 2-1: Tree list be affected during the construction of temporary bypass canal under MLBCRP - ICB 1**

TS – Taxonomic Status, N – Native, E – Endemic, I – Introduced, NCS – National Conservation Status, VU – Vulnerable, NT – Near Threatened

No	Family	Scientific Name	Common Name	TS	NCS	GBH (cm)
1	Ulmaceae	<i>Holoptelea integrifolia</i>	Goda Kirilla	N	NT	1360
2	Fabaceae	<i>Tamarindus indica</i>	Siyabala	I		1070
3	Sapindaceae	<i>Lepisanthes tetraphylla</i>	Dambu	N		650
4	Sapindaceae	<i>Schleichera oleosa</i>	Koon	N		720
5	Malvaceae	<i>Pterospermum suberifolium</i>	Welang	N		1190
6	Rubiaceae	<i>Mitragyna parvifolia</i>	Helamba	N		445
7	Rubiaceae	<i>Haldina cordifolia</i>	Kolon	N		710
8	Fabaceae	<i>Tamarindus indica</i>	Siyabala	I		2010
9	Fabaceae	<i>Tamarindus indica</i>	Siyabala	I		1445
10	Fabaceae	<i>Tamarindus indica</i>	Siyabala	I		1080

No	Family	Scientific Name	Common Name	TS	NCS	GBH (cm)
11	Fabaceae	<i>Tamarindus indica</i>	Siyabala	I		1080
12	Moraceae	<i>Ficus racemosa</i>	Attikka	N		1960
13	Fabaceae	<i>Bauhinia racemosa</i>	Maila	N		775
14	Rubiaceae	<i>Haldina cordifolia</i>	Kolon	N		940
15	Fabaceae	<i>Tamarindus indica</i>	Siyabala	I		3820
16	Fabaceae	<i>Tamarindus indica</i>	Siyabala	I		1800
17	Annonaceae	<i>Annona sp.</i>	Anoda	I		420
18	Fabaceae	<i>Tamarindus indica</i>	Siyabala	I		2190
19	Fabaceae	<i>Samanea saman</i>	Para Mara	I		4780
20	Moraceae	<i>Artocarpus heterophyllus</i>	Kos	I		1945
21	Moraceae	<i>Artocarpus heterophyllus</i>	Kos	I		1680
22	Rubiaceae	<i>Haldina cordifolia</i>	Kolon	N		1550
23	Sapindaceae	<i>Glenniea unijuga</i>	Wal Mora	E		2060
24	Sapotaceae	<i>Madhuca longifolia</i>	Mi	N	NT	2190
25	Fabaceae	<i>Samanea saman</i>	Para Mara	I		4040
26	Annonaceae	<i>Annona sp.</i>	Anoda	I		680
27	Rutaceae	<i>Chloroxylon swietenia</i>	Buruta	N	VU	1320
28	Phyl-lanthaceae	<i>Bridelia retusa</i>	Ketakala	N		1260
29	Bignoniaceae	<i>Stereospermum colais</i>	Dunu Madala	N		1630
30	Myrtaceae	<i>Syzygium cumini</i>	Madan	N		1610
31	Rutaceae	<i>Chloroxylon swietenia</i>	Buruta	N	VU	1120
32	Rubiaceae	<i>Haldina cordifolia</i>	Kolon	N		1310
33	Lamiaceae	<i>Tectona grandis</i>	Thekka	I		1240
34	Fabaceae	<i>Samanea saman</i>	Para Mara	I		1300

12. This bypass canal has to be functional until the completion of anicut heightening, the new head regulator and the silt ejector. The approximate canal length is 327.8 m and some photographic records of the bypass under excavation as of June 2019 are given in **Figure 2-1**.



**Figure 2-1: Status of temporary bypass canal under construction as of end June 2019**

### 3 ENVIRONMENTAL MONITORING FINDINGS

13. This section summarizes the key environmental issues recorded during the monitoring period from July 2018 to June 2019, and the corrective actions taken by the contractors.

#### 3.1 MLBCRP-ICB-1

##### 3.1.1 Reporting and Documentation

14. The Contractor's Environmental Management Plan (CEMP) 1<sup>st</sup> submission was made on 29 June 2019, and the summary of the revisions is as follows:

Date of Commencement	Date of 1 <sup>st</sup> CEMP submission	Date of CEMP approval	Number of revisions up to June 2019
20 May 2018	29 June 2018 and review comments submitted 24 June 2018	CEMP Revision 2 (10.09.18) was conditionally approved to carry out the construction work on 01.10.2018	03

15. The Contractor was made aware that the CEMP is considered as a live document, which needs subsequent updates as of the construction program. 50 % out of the total payment was made for the draft acceptable CEMP and balance shall be paid as 10 % for each successful update up to maximum 5 of the CEMP.

16. In addition to the CEMP, each item of key construction works, as per the construction program – which includes coffer dam construction, establishing contractor's facilities including batching plants, disposal and stockpile areas, construction of by-pass canal, and other project work related to civil and mechanical engineering interventions – was assessed for the adequacy of implementing environment safeguard management following receipt of separate Method Statements (MS) including a section on Environment Management. Without the approval for the Environment Management section reviewed by the Environmental Specialist (ES) or relevant Environment Monitoring Specialist (EMS) it was not permitted to commence the engineering work at site.







17. Monthly Environmental Progress Reports have been submitted by the Contractor at the end of each month since October 2018, describing the progress of CEMP implementation, issues and major concerns noted during the previous month, as per the format shared by the Engineer.


##### 3.1.2 Key safeguard aspects recorded during the monitoring period

18. The temporary rearrangement of the existing electric fence surrounding the construction area of Minipe anicut and the contractor's office and batching plant area on the other side of the Randenigala – Hasalaka road with the approval and supervision of the Department of Wildlife Conservation (DWC) was attended to by the Contractor in October 2018. The owner of the boutique (Mr N. Gunathilake) near bridge No 20/2 had objected to erection of the fence in front of his boutique and hence the rearrangement has been made with the approval of RDA and DWC as shown in **Annex 1**.

19. **Table 3-1** summarizes the best practices and issues noted during the monitoring period in MLBCRP-ICB-1.

**Table 3-1: The environmental issues noted in MLBCRP ICB 1 site during the monitoring period**

Date	Incident	Corrective Action
Aug 2018	Temporary disposal yard No. 1 overreached its capacity creating environmental damage to the area	<ul style="list-style-type: none"> <li>Stockpile rearranged to an acceptable height with adequate erosion control measures, silt trap etc by Sept 2018.</li> </ul>  
11 Dec 2018	  <ul style="list-style-type: none"> <li>Engineer's Approval Sheet (Ref. MA-ICB 1-MS-05-C dated as 29.08.2018) responding to Contractor's letter Ref. CGGC-MIN-IPE/ICB-1/RE/101, Engineer informed that that the proposed land was rejected, and not to use it as a disposal or stock piling area. The instruction considered the anticipated significant environmental impacts, as well as per the decision made by Independent Environmental Monitoring Specialist (Mr Attygala) reporting to ADB during his joint site visit made in 21st August 2018 with contractor's EO and EMS of PMDSC.</li> </ul>	<ul style="list-style-type: none"> <li>Stockpile yard was suspended by the Engineer. Contractor attended to erosion control measures immediately and cleared waste by end December. Corrective actions attended to by the Contractor were informed to RE on 01 Jan 2019 through letter Ref. CGGC-Minipe/ICB 1/RE/245</li> <li>The Contractor restored the land and handed it over to the landowner in February 2019.</li> </ul>  

Date	Incident	Corrective Action
	<ul style="list-style-type: none"> <li>However, rejected Yard No. 3 was still in use for various disposal and stockpiling activities, and washing of cement and of mixed pollutants into the River were observed</li> </ul>	
31 Jan 2019	<ul style="list-style-type: none"> <li>Test blast carried out with the participation of GSMB, CEA and other relevant parties</li> </ul>	<ul style="list-style-type: none"> <li>N/A</li> </ul>
07 Feb 2019	<ul style="list-style-type: none"> <li>Approval for night time work from 10 pm to 6 am was requested by the Contractor through letter Ref. CGGC- MINIPE/ICB 1/RE/306</li> </ul>	<ul style="list-style-type: none"> <li>PIU was informed by RE to obtain required approval for night-time work from the DWC on 09 Feb 2019 through letter Ref. PMDSC-ML-Site/ICB 1/PIU/057 as the project area falls within the Victoria Randenigala Rantambe (VRR) sanctuary, which comes under the jurisdiction of Fauna and Flora Protection Ordinance (FFPO), and night time work may disturb the behaviours of the wildlife in the surrounding area</li> </ul>
03 April 2019	 <ul style="list-style-type: none"> <li>The coffer dam material is heavily eroded and has created siltation and sedimentation in both upstream and downstream areas of the anicut. The end section of the coffer dam is built without erosion protection measures, and heavy erosion and siltation are observed in the water course above the Minipe anicut.</li> <li>Large amount of silt is washed off to both upstream and downstream sections, which caused significant water pollution in the LB canal and the associated critically endangered flora species in the downstream area of the anicut (refer to the photographic evidences shown in Section 3.2.2)</li> <li>The river and canal water are used by the general public, and this siltation will cause social impacts as well</li> </ul>	<ul style="list-style-type: none"> <li>Payments deducted for not attending to the required mitigations and the Contractor was instructed to attend to the following corrective actions: <ul style="list-style-type: none"> <li>a. Clear the silted material and provide adequate erosion protection measures using jumbo sandbags – attended</li> <li>b. Provide silt traps where appropriate to protect the downstream area – not attended</li> <li>c. After attending to the required mitigation to remove silt, erosion protection etc. water quality testing was inspected to ensure that the surface water quality parameters (particulate matter, Total Suspended Solids, pH, DO) meet the relevant CEA standards – this was not attended to.</li> </ul> </li> </ul>
03 April 2019	<ul style="list-style-type: none"> <li>The approval for felling 26 trees along the LB canal related to the Minipe anicut construction was granted by DEC on 03 April 2019, through the letter Ref. Wajee/6/12/545-ii. These trees</li> </ul>	<ul style="list-style-type: none"> <li>The tree removal was informed to the Divisional Secretary – Hasalaka on 29 April 2019 by PD -PIU Minipe</li> </ul>

Date	Incident	Corrective Action
	were identified in the IEE and prior to receiving the approval, DWC carried out a separate joint inspection with the Contractor and the Engineer. The most wanted trees were identified for removal as per the design and construction plan	

## 3.2 MLBCRP-NCB packages


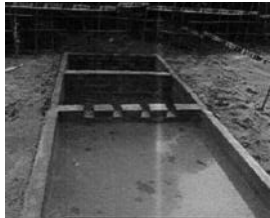

### 3.2.1 Reporting and Documentation

20. For packages NCB 1 – NCB 4, the monthly environmental progress reports were submitted, and the monthly reforestation progress reports were also submitted, updating the operation and maintenance progress of reforestation work included in each package.



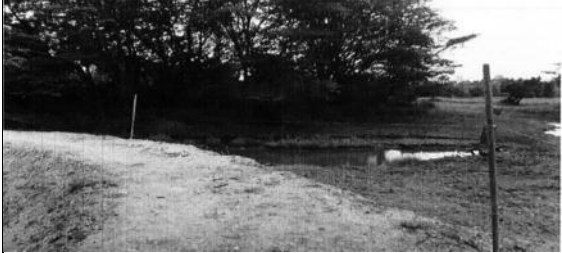
21. The reporting standard was unable to achieve the required level due to the lack of experience of the Environmental Officers appointed by the contractors.



22. For package MLBCRP-NCB-5, the CEMP 1<sup>st</sup> draft was submitted on 24 June 2018, and the comments were submitted including an awareness session by the ES PMDSC in July 2018. The updated version was submitted on 08 August 2018, and the approval to continue with the construction work including the conditions and comments to improve CEMP was submitted by Resident Engineer on 24 Aug 2018.

### 3.2.2 Monitoring findings

Pack-age	Incident	Corrective Action
NCB-1	<ul style="list-style-type: none"> <li>July 2018 - issues in the sedimentation pond of the batching plant installed in Morayaya due to inadequate capacity of the sedimentation tanks when the plant runs in full capacity</li> </ul> 	<ul style="list-style-type: none"> <li>Contractor submitted restoration plan on 10 Sept 2018. The sedimentation tank was emptied, and the capacity increased, while a green belt including banana and grasses was established at the edge of the sedimentation tank to prevent contamination of the adjacent stream</li> <li>The tank was continuously emptied and thereafter maintained the treatment</li> </ul> 
	<ul style="list-style-type: none"> <li>18 Sept 2018, the Contractor was notified about not having proper disposal sites to dispose spoil generated by excavations at chainages 19+395 km and 26+446 km.</li> </ul>	<ul style="list-style-type: none"> <li>Excavated material was used for sandbag cofferdams and the balance was disposed to identified and approved disposal areas</li> </ul> 
NCB-2	<ul style="list-style-type: none"> <li>Construction of the cross regulator at Ch 39+795 km on Minipe LB canal was obstructed by 4 trees (Burutha, Ketakela, Teak)</li> </ul>	<ul style="list-style-type: none"> <li>List of 4 trees indicating the girth, location and ecological status was submitted to the Divisional Secretary Wilgamuwa and clearance obtained for tree felling.</li> </ul>



Pack- age	Incident	Corrective Action
	 <p>New borrow pit identified in July 2018, and operation commenced at Pimburagala, Kolongoda</p>	<ul style="list-style-type: none"> <li>All required approvals were obtained, including GSMB, Divisional Secretary office, Central Environmental Authority, Archaeology Department, National Building Research Organization, Pradhesisya saba, Land Commissioning Department, and police station</li> <li>MS got approved from RE for operation of burrow pit and restoration plan and copies of the approvals submitted by contractor on 23.08.19</li> </ul>
	<ul style="list-style-type: none"> <li>Sept 2018 - Unmanaged stockpile, and unattended balance material in the canal susceptible to erosion and siltation once water issued in the canal</li> </ul>	<ul style="list-style-type: none"> <li>Stockpiles were surrounded by the sandbags and protected from erosion</li> </ul>
	<ul style="list-style-type: none"> <li>Jan 2019 – gully formation in stockpiles</li> </ul>	
NCB-3	<ul style="list-style-type: none"> <li>The Contractor was informed about the following key issues noted during the construction work in NCB-3 area during the monitoring period:               <ol style="list-style-type: none"> <li>Stockpile at Weheragala had none of the required approvals</li> <li>Desilted material had been dumped at the canal bank without transporting them to the approved disposal areas</li> <li>No traffic controller engaged</li> <li>Dust, improper sludge disposal issues noted in the batching plant</li> <li>Unmanaged stockpiles of earth, rocks along the canal bank, which are susceptible for erosion</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>Contractor attended to the removal of desilted material to the approved disposal areas and some material was used for backfilling</li> <li>Required approvals were obtained for stockpile by the contractor from the landowner and confirmed by Grama Niladhari and DS</li> </ul>
NCB-4	<ul style="list-style-type: none"> <li>Since majority of the construction work was over, there were no records of noticeable issues were found related to package NCB-4.</li> <li>Site restoration plans were reviewed and the site was prepared for handing over</li> </ul>	N/A
NCB-5	 <ul style="list-style-type: none"> <li>Coffer dam constructed at Gemburu Oya for rehabilitating radial gates was inside the electric fence and the elephants were entering the area. This was identified as a risk, as there is a possibility of elephants falling from the coffer dam</li> </ul>	 <ul style="list-style-type: none"> <li>The Contractor was informed about this on 28 June 2018, and the site was visited by the ES / EMS of PMDSC jointly, who arranged a special meeting with DWC, Wasgamuwa. This was held on 18 July 2018 requesting a solution.</li> <li>On 19 July 2018, DWC officers temporarily rearranged the electric fence avoiding the risk.</li> </ul>

Pack-age	Incident	Corrective Action
	<ul style="list-style-type: none"> <li>It was noted and informed on 18 Sept 2018, that the Contractor had performed sand blasting activities without arranging for the required mitigation measures to prevent dust</li> </ul>	<ul style="list-style-type: none"> <li>The Contractor attended to the required mitigation measures by covering the</li> </ul>  <p>area using wet gunny bags as shown here.</p>
	<ul style="list-style-type: none"> <li>The Contractor was directed by ES-PMDSC to check the sandblast waste for the presence of any heavy metals prior to identifying the disposal method.</li> </ul>	<ul style="list-style-type: none"> <li>Sand blasting waste was collected and temporarily stored as of end Sept 2018.</li> <li>The waste was tested by ITI and the test report was issued on 25 Oct 2018 (<b>Annex 2</b>) which concluded that the waste contained some traces of Lead (1.8 mg/Kg as Pb), Zinc (184 mg / Kg as Zn), Chromium (3 mg/Kg as Cr) and Arsenic (0.72 mg/kg as As). Cadmium (Cd) and Mercury (Hg) were not detected.</li> <li>The waste sand material was reused for brick and veranda column manufacturing as to avoid environmental contamination by disposing it openly. The relevant details are given in <b>Annex 2</b>.</li> </ul> 

## 4 ENVIRONMENTAL SAFEGUARD COMPLIANCE STATUS - MLBCRP

23. The overall environmental safeguard compliance implementing the recommendations and conditions given in the EIA for MLBCRP conditional approvals issued by CEA and other stakeholder agencies, such as DWC and the ADB requirements, are addressed by the Employer and the PMDSC, simultaneously with the environmental monitoring and supervision carried out on the Contractors' CEMP implementation.

24. The activities and measures carried out during the monitoring period from July 2018 to June 2019 are briefly described in this chapter.







### 4.1 Key Actions in Compliance with CEA Approval Conditions

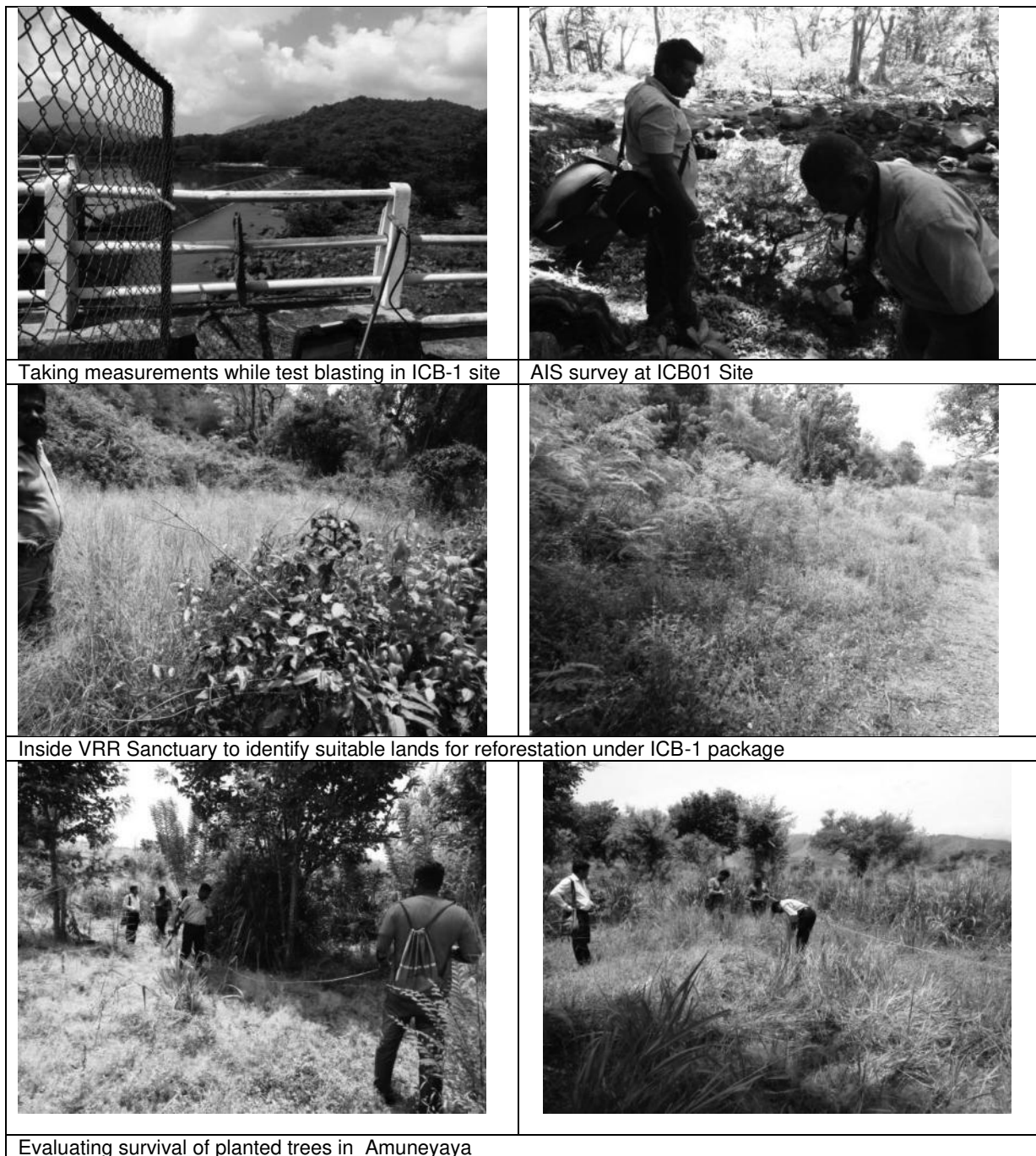
25. **Table 4-1** summarizes the activities carried out jointly by the Employer and PMDSC to meet the conditions given in the CEA approval.

**Table 4-1: Key Actions in Compliance with the CEA approval conditions**

Approval condition	Compliance status	Remarks
<ul style="list-style-type: none"> <li>Implementation of HEC Mitigation Action Plan</li> </ul>	In progress	<ul style="list-style-type: none"> <li>Funds have been given for initial activities for construction of Heen Ganga and Bulathwalkandura Electric Fences</li> <li>Survey estimate was prepared for renovation of Muththethuthanna wewa</li> <li>DWC Staff quarters renovation is in progress</li> <li>Purchasing equipment for elephant management is in progress within the budget</li> <li>A 4 wheel tractor was purchased and handed over to Wasgamuwa NP and there is a request for another by DWC – Minipe</li> <li>Solar power system was provided with Gamburuoya beat office</li> <li>Thalakolapitiya tank is to be renovated while renovation of Kumbuk wawa is not possible with the funds allocated</li> </ul>
<ul style="list-style-type: none"> <li>Implementation of EMP</li> </ul>	In progress	<ul style="list-style-type: none"> <li>ToR for IAS Survey is to be evaluated</li> </ul>
<ul style="list-style-type: none"> <li>Implementation of IEER conditions</li> </ul>	In progress	<ul style="list-style-type: none"> <li>Nearly 80 ha of 145 ha have been reforested and now ready to be handed over</li> <li>Borrow sites of NCB-4 have been restored</li> <li>Canal flow releases were made in consultation with the community</li> </ul>

26. Some photographic evidences of the events held related to CEA approval conditions and EMP implementation are shown in **Figure 4-1**.

	
During Muththettuthanna wewa survey visit with DWC officials	Survey works of Thalkolapitiya wewa
	
Gamburuoya Beat Office with solar power supplied	
	
Discussion with school principals for maintenance of reforested lands after taking over	



**Figure 4-1: Photographic records in MLBCRP area**

27. A Memorandum of Understanding (MoU) was prepared for implementing mitigation measures for Human Elephant Conflict (HEC) management between MWSIP and DWC in September 2018. The MoU is included in **Annex 3** and the Action Plan prepared for the implementation of the plan in the MLBCRP area is included in **Annex 4**.

## 4.2 Habitat Restoration through Reforestation

28. Initial Environmental Examination (IEE) studies conducted during the project preparatory stage, prepared by the MWSIP, included an assessment of the project impact area and consequential forest habitat loss. The approximate loss of forest and wildlife habitats according to IEE for MLBCRP, and the proposed mitigation by reforestation and ecological restoration measures, are summarized below.

Project	Approximate habitat loss	Expected outcome through reforestation as recommended in IEE/EIA
MLBCRP	25 ha of habitat due to increased inundation area after raising the Minipe anicut and reduction of flow in the Mahaweli River due to the implementation of this project	<p><u>Total of 145 ha</u> as compensatory reforestation in the following areas:</p> <ul style="list-style-type: none"> <li>Minipe LB canal reservation and adjacent areas with indigenous plant species to function as an ecological corridor between three protected areas (Victoria-Randenigala-Rantambe sanctuary, Knuckles Conservation Forest and Wasgomuwa National Park) which would facilitate gene flow between forest restricted species that occupy these three protected areas.</li> <li>Further, it will prevent future encroachment of the canal reservation as well as reducing sediment runoff to the canal during rainy season.</li> </ul>

29. The implementation of reforestation work had no separate budget and hence the PMDSC with the approval of Employer decided to utilize the budget allocated under Contractor's Provisional Sum for carrying out additional environmental mitigation measures as recommended by IEE. Hence, a Provisional Sum Order (PSO) was issued for respective contractors from NCB-1 to NCB-4 and ICB-1 to implement habitat enrichment, which comprises some or all of the following activities as directed by the Engineer:

- reforestation of degraded lands (due to spreading of invasive species or other exotic tree species that does not support the sustenance of respective habitat or the ecosystem) for habitat enrichment or to prepare an arboretum;
- ecological restoration or habitat enrichment of the identified protected areas to function as an ecological corridor to facilitate gene flow between forest restricted species that occupy such protected areas;
- tree planting along canal banks or other land areas to minimize erosion and prevent future encroachment of the canal reservation.

30. PSOs consist of a Specification Section for Ecological Restoration through Reforestation, format for Bill of Quantities, details of allocated land by the Employer, and details of seeds and trees to be planted, prepared by the PMDSC. In addition, the required guidance and table of contents for the preparation of survey plans, carrying out ecological baseline surveys to understand the selection of plant species based on the existing site ecological condition were prepared, and progress reports were distributed by the PMDSC.

31. Since the contractors lack adequate experience and competence in the planning and implementation of such reforestation activities, the reforestation work was executed by a properly qualified Specialist Reforestation Subcontractor and subject to the direction of Environmental Specialists in the Engineer's and Employer's organisations.

32. The initial O&M period was 6 months given in the PSO, and due to various reasons – including the fact that the exercise was carried out with contractors qualified for civil engineering works - major effort had to be exercised to achieve the expected output, which included planting, maintenance and periodical reporting. This includes growth rate analysis, programming etc. and preparation of survey plans indicating the planted locations referring to the National Grid. Hence the handing over period was extended, until the mechanism is finalized with the Employer and relevant stakeholder agencies such Irrigation Department, Forest Department (FD) and Zonal education department as some of the planted areas along the Minipe LB canal were located inside school lands.

33. The summary and the progress of the reforestation activities carried out through the contractors under MLBCRP as of June 2019 is given in **Table 4-2**.

Table 4-2: Summary of the Reforestation progress in MLBCRP as of June 2019

Package details		Available Total PS budget (LKR)	PSO / issue date	Location	Commencement date	completion date	Extent (Ha)	PSO/VO Amount issued (Rs)	Remarks
1	MLBCR/NCB-1 Stage 1 (0+000 km to 30+140 km)	12,450,000.00	PSO No. 01/ 10.01.2018	Morayaya School	Commenced in Jan 2018, but the maintenance was not carried out, again maintenance started from July	6 months completed by Dec 2018	0.865	1,369,870.00	not certified IPC. Six months extension for O&M issued by RE
			VO No.10	behind definition walls (Alukumbura at 0+650 km to 0+800 km;	17.12.2018	17.07.2018	0.484	5,063,749.00	
				Asamodagamyaya 10+950 km to 10+990 km	05.10.2018		0.086		
2	MLBCR/NCB-2 Stage 2(30+140 km to 49+820 km)	6,170,000.00	PSO 1	Ranasinghe Premadasa School, Ulpothagama School, Udawela Bandaranayake School along the LB canal	05.06.2018	06 months O&M completed by 05.12.2018	1.21	2,532,894.00	Six months extension for O&M issued by RE until handing over is taken place through the employer
3	MLBCR/NCB-3 Stage 3 (49-820 km to 63+650 km)	24,410,000.00	PS 01	15 location along the LB canal and Marakawewa	Nov-18	Apr-19	15.00	22,747,250.00	
4	MLBCR/NCB-4 Stage 4 (63+650 km to 73+960 km)	37,670,000.00	PS 1	Gabmuru oya along LB canal	20.08.2018	20.03.2019	1.60	7,412,475.00	
			PS No. 2/ 05.11.2018	Amunyaya through FD	05.11.2018	05.04.2019	62.50	17,071,320.00	
			PS NO. 3/ 06.12.2018	4 schools- (i) Handungamuwa MV; (ii) Medakanda junior school; (iii) Weheragalyaya Junior school; (iv) Lediayangala Junior School	10.01.19	10.07.19	7.74	16,134,021.23	

5	MLBCR/ICB-1 - Raising of Crest of Minpe Anicut Including Water Control and Measurement Facilities for LB and RB Canals	29,310,000.00	13.02.2019	VRR sanctuary area	PSO issued on 13 February 2019 and waiting contractor to submit the estimate and proposal for planting
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34. Accordingly, a total of 89.485 ha of lands has been enriched through reforestation, and the balance is planned to be implemented under the MLBCRP-ICB-1 package.

35. The selected lands in the VRR sanctuary areas proposed for reforestation under MLBCRP-ICB-1 are not yet implemented, as the Contractor was unable to prepare a realistic technical and financial proposal as per the Variation Order (VO) issued to the Contractor on 13 Feb 2019.

36. Another joint inspection was made by the Engineer on 09 May 2019 to facilitate the Contractor's submission of an estimate, and as a result the Contractor submitted a bid on 14 May 2019 responding to the instruction. However, due to the incompleteness of the bids, the Engineer was unable to instruct the Contractor to initiate the work, and the Contractor also admitted on the follow up meeting held on 18 June 2019, that the bids were prepared without having a clear understanding about the planting areas.

37. Understanding that the Contractor needs to be aware about the exact areas available for planting and the existing habitat conditions in the proposed area, the Engineer decided to split the work items given in the BOQ into 2 phases as follows:

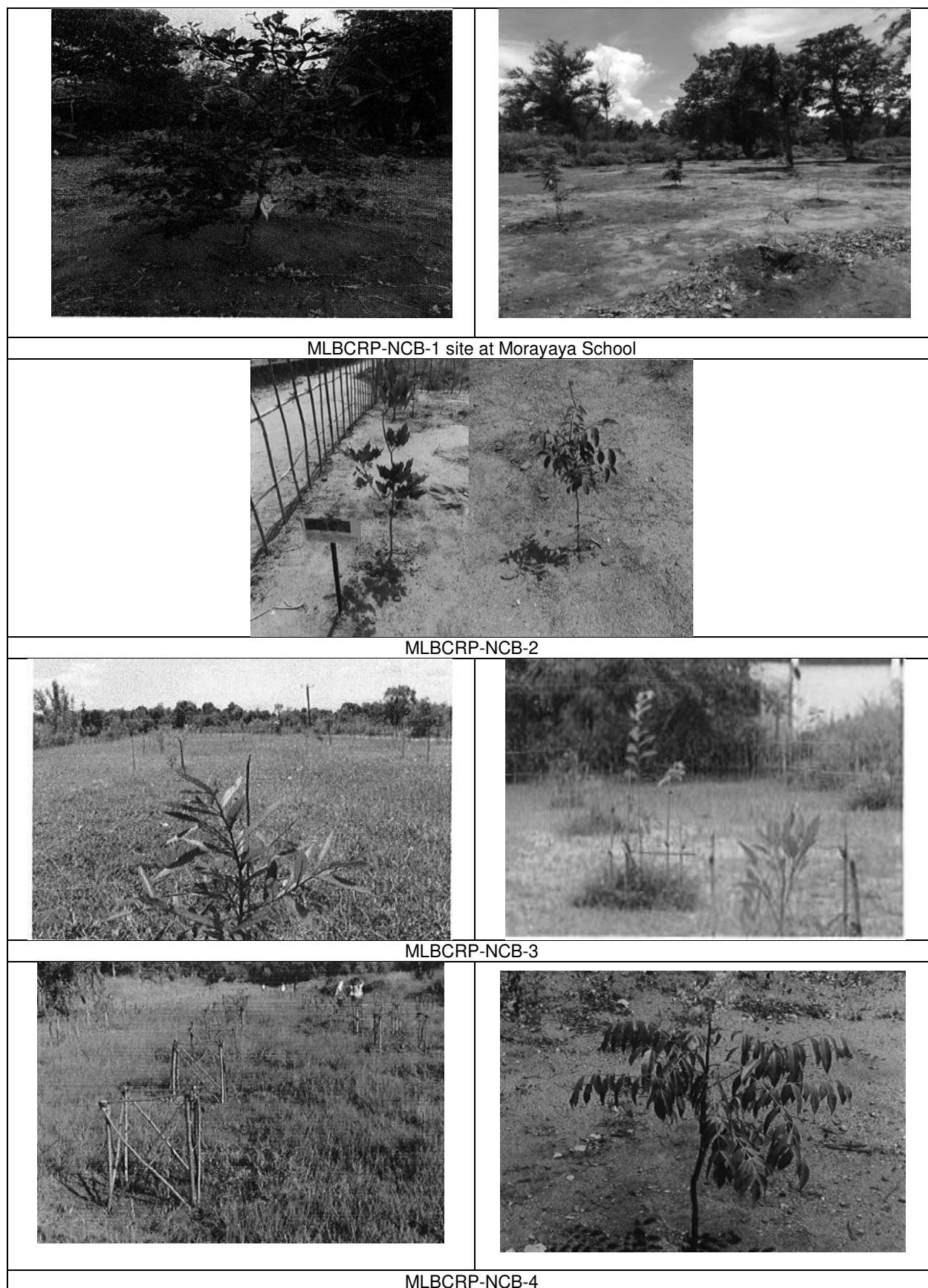
Phase I	Carrying out land survey, ecological survey and preparation of topographical / survey plan, demarcation of planting area and verification of the tree list to be planted
Phase II	Carrying out Site preparation, planting and maintenance

38. Once the estimate for the Phase I is submitted, the contractor will be instructed to first implement the relevant work, and based on the outcome of the Phase I, the estimate for the Phase II will be obtained for the Engineer's approval.

39. Reforestation of 60 ha was carried out through FD in the Amunayaya area, implemented under the PS budget allocated by contract package MLBCRP-NCB-4. The monitoring findings as of June 2019 revealed the following:

- (i) No monthly reforestation reports were received up to end May from FD / through the Contractor for NCB-4. As per the service agreement, within the first 3 days of each month, FD shall submit to the Contractor with a copy to the Project Manager a Monthly Reforestation Report, which shall describe the relevant activities and status during the previous month and contain as a minimum the following in a format which is to be agreed with the Project Manager:
  - detailed schedule of work, separated into nursery establishment and operation, planting area preparation, planting and maintaining, with each individual activity as specified and the actual personnel allocation;
  - monitoring records, including records of individual plant growth, identification and description of dead or defective plant details;
  - full photographic records of all work performed during the month.
- (ii) No survey maps were produced through a licensed surveyor and hence the total extent of reforested could not be estimated accurately. The survey plans should indicate the total planted areas and the area for the fire belt, including the planting locations
- (iii) The survival rate of the plants was recorded as approx. 60 % by June 2019

40. Some photographic evidences for the reforested areas under MLBCRP are shown in **Figure 4-2**.



**Figure 4-2: photographic evidences for the reforested areas under MLBCRP**

## 5 PROPOSED ITEMS OF FOCUS FOR THE NEXT REPORTING PERIOD (JULY 2019 TO JUNE 2020)

41. The key activities plan for next reporting period on the construction management and supervision will mainly include following activities:

- (i) Preparing project completion reports considering environment safeguard aspects for MLBCRP NCB 2, NCB 4 and NCB 5 packages verifying the restoration of contractor's facilities operated including burrow sites, camp sites, batching plants, disposal areas etc.
- (ii) Handing over the habitat enriched areas through reforestation under the contractor's provisional sum (PS) budget by MLBCRP NCB 1, NCB 2, NCB 3 and NCB 4 contracts complying with the IEE recommendations to the respective landowners through the PIU/PMU
- (iii) Commence reforestation under MLBCRP ICB 1 in the selected lands at Asaodagamyaya and Theripaha in Victoria Randenigala Rantambe (VRR) sanctuary under the PS budget allocated for carrying out additional environmental mitigations as recommended in the IEE

42. In addition to above PIU has planned to carry out following activities given in the Table 5-1 within the next reporting period.

**Table 5-1: The activities planned by PIU for the next reporting period**

No	Task Name	Expected time of completion
	<b>HEC Mitigation Action Plan</b>	
1	Construction of Heenganga Electric fence	2020
2	Maintenance of Bulathwalkandura electric fence	2020
3	Renovation of Muththettuthanna wewa	2020
4	Purchasing equipment required for Wildlife Department	Dec. 2019
5	Renovation of Thalakolapitiya wewa	2020
	<b>IEE/EMP activities</b>	
6	Carrying out IAS Survey and awareness	2020
7	Annual Environment Monitoring Committee (EMC) Inspection	Oct. 2019
	<b>Habitat enrichment through reforestation</b>	
8	Sign MoU with the landowners (ID/Zonal Education Dept) to continue with O&M of the reforested lands handed over from the contractors	2020
9	Monitoring of the reforested lands	2020

## 6 FINDINGS AND RECOMMENDATIONS

43. The key findings and recommendations observed during the current reporting period are summarized in the following **Table 6-1**.

**Table 6-1: Key findings and recommendations to rectify the issues**

(i)	Delays of the contract completion cause exposure of soil resulting erosion and siltation, canal water contamination	Planning Engineer newly recruited to the PMDSC under CRE to support contractor to plan the construction and complete contracts early as possible
(ii)	New bypass canal caused additional tree felling with the approval of the DWC	The habitat restoration to compensate the habitat loss is already planned by through the contractors
(iii)	Poor planning and reporting capabilities of the contractors EOs	<p>New EMS recruiting to look after Environment safeguard activities in MLBCRP</p> <p>Continuous guidance provided to the officers individually by carrying out monthly Environment meetings, and awareness sessions to improve the EOs knowledge</p> <p>In future contracts, selection criteria of the Environment staff to be emphasized, and the EO to be recruited under contractor's key staff</p>
(iv)	Contractor's slow progress in implementing required corrective actions	<p>Implemented payment deductions for poor performance with respect to environment safeguard measures by issuing NCR</p> <p>Improve BoQ in future contracts to verify with defined items</p>
(v)	Overall environment safeguard performance of MLBCRP NCB 5 contract is comparatively high	<p>The experiences of handling similar projects as a reputed government agency (Colombo Doc yard) and exposure with the ADB projects is identified as the reason behind that.</p> <p>The same selection criteria for the future contractor selection should be adopted</p>

## **ANNEX 1 - ELECTRIC FENCE LAYOUT MLBCRP-ICB-1**

No. CGGC-MINIPE/ICB-1/RE/153

Date: October 15<sup>th</sup> 2018

**To:** Mr. V.H.K. Samaratunga  
PMDSC Resident Engineer (PMDSC-RE)  
**Address:** Irrigation Engineer Premises,  
Hasalaka, Sri Lanka.

**Project:** Heightening of Minipe Anicut Including Water Control and Measurement  
Facilities for Left Bank and Right Bank Canals

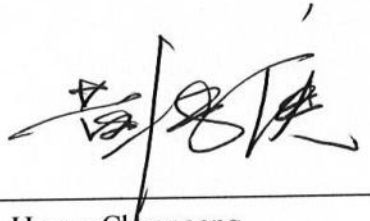
**Subject:** Relocation of Electric Fence

**Refer:** Your letter no. PMDSC-ML-Site/ICB-1/CGGC/077 dated 26<sup>th</sup> September 2018

Dear Sir,

We are proceeding with the above work as instructed by your letter under reference. Boutique owner Mr. N Gunathilake near the bridge (N0.20/2) raises objections for erecting the fence in front of his boutique as shown in the drawing. Therefore, we have to deviate that section of fence as shown in the attached drawing and provide a gate across Randenigala road on the left bank of the bridge. For this arrangement we have to obtain approval from the RDA (EE-Kundasala) and provide two warning boards on both sides and a watcher in the night as per the wildlife officers' instruction.

Yours faithfully,



Eng. Huang Chuangeng  
Authorized Representative  
China Gezhouba Group Company Limited  
Tel: 0769413888  
Email: gzbmnpmb@126.com

<b>MWSIP - PMDSC</b>	
<b>MINIPE SITE OFFICE - HASALAKE</b>	
Registered Incoming by:	Thejan
Seen:	CRE RE
Date:	15 OCT 2018
Action by:	RE, ADE, ES
Copies to:	
Copy to Files:	

Attachments: 1. Drawing of proposed temporary electric fence.

Copy: Mr.S.D. Mediwaka (PD-PIU),

**Contract:** Heightening of Minipe Anicut including Water Control and Measurement Facilities for Left Bank and Right Bank Canals.

**Address:** Unit B7, 7th Floor, Condominium Building, 189, Dr Danister De Silva Mawatha, Colombo 9.

**Email:** gzbmnpmb@126.com 1 / 1

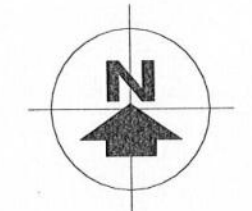
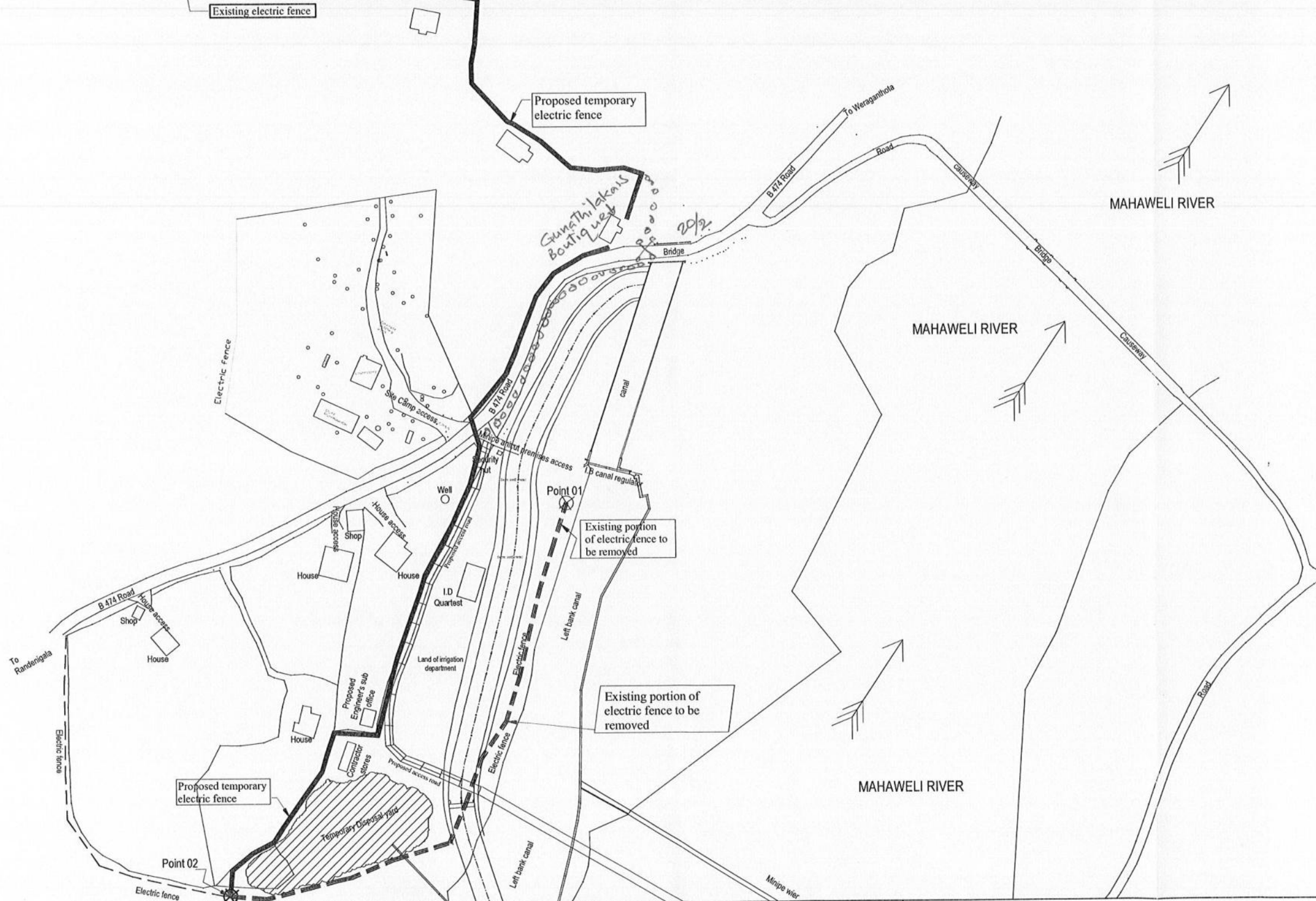


Point 03

**Note**

1.0 Existing Electric fence to be removed( point 01 to point 02) = 278 m (approximate)

2.0 Proposed temporary electric fence to be established ( point 02 to point 03) = 710 m(approximate)



0- deviation

REVISION			CONSULTANT	APPROVED	RECOMMENDED	CHECKED	SUBMITTED	W.M.J.S.K.Warnasooriya	CONSULTANT	CONTRACTOR	DATE :- 06 <sup>TH</sup> JULY 2018
NO	DATE	DESCRIPTION									
											DRAWING NO.
											MA-ICB1-SUR-EF- 01
											SHEETS 01 OF 01
											SCALE ORIGINAL REV
											1:2000 A3

EMPLOYER  
DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA  
MINISTRY OF MAHAWELI DEVELOPMENT AND ENVIRONMENT  
**MAHAWELI WATER SECURITY INVESTMENT PROGRAMME**

CONSULTANT  
**LAHMEYER INTERNATIONAL**  
Engineering Consultants (Pvt.) Limited

CONTRACTOR  
**CEEC**  
中国能建  
ENERGY CHINA

Heightening of Minipe Anicut Including Water Control and Measurement Facilities for Left Bank and Right Bank Canals

MMDE/NWSIP/ADB/MLBCRP/ICB-1/3267/-3268-SRI/ICB/2016/031

**PROPOSED TEMPORARY ELECTRIC FENCE**

## **ANNEX 2 - ITI TEST REPORT FOR SAND BLAST WASTE AND WASTE RECYCLING EVIDENCES**





**Dockyard General Engineering Services (Pvt) Ltd., PV 1974**

Our Ref: EMME- DGES - ML/NCB- 5/PMDSC/095

7<sup>th</sup> November, 2018

The Residence Engineer,  
Mr.V.H.K.Samarathunga,  
Irrigation Engineer Premises,  
Hasalaka,

MWSIP - PMDSC	
MINIPE SITE OFFICE - HASALAKE	
Registered Incoming by:	
Seen:	CRE RE
Date:	09 NOV 2018
Action by:	RE, ME, ES.
Copies to:	
Copy to Files:	

Dear Sir,

**Rehabilitation and Electrification of Radial Gated Structures at 08 Locations and Improvements to Cross Regulator Structure at 03 Locations of Minipe Left Bank Canal**

**Contract No: MMDE/MWSIP/ADB/MLBCRP/NCB-5/3267-3268-SRI/NCB/2016/019**

**Subject: Submission of the test report for analysis of parameters of the used silica sand for the above project.**

We herewith submitting the report on the above captioned matter tested by ITI as request by you. The used silica sand was collected at Mananna Oya location where the radial gates were blasted.

This is for your information please.

Yours Faithfully,

**Dockyard General Engineering Services (Pvt) Ltd.**

A.M.D.B. Atapattu  
Engineering Manager (ME)

Copies: Mr. S.D. Mediwaka, PD, PIU

**Sunil Wijesinghage**  
**Project Manager**  
Dockyard General Engineering Services(Pvt)Ltd

**CORPORATE OFFICE - ENGINEERING / ADMINISTRATION**

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**Colombo Dockyard PLC**



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Telephone: +94 11 2379800 Fax: +94 11 2379950

503/A, Halbarawa Gardens, Thalahena, Malambe, Sri Lanka.

Telephone: +94 11 2797300 Fax: +94 11 2379848

## TEST REPORT

Reference No. SS 1815351

### Report to:

Dockyard General Engineering Services (Pvt) Ltd,  
No. 223, Jayantha Mallimarachchi Mawatha,  
Colombo 14.

### Issued by:

Residue Analysis Laboratory  
Industrial Technology Institute

2018/10/25

THE REPORT IS ISSUED SUBJECT TO CONDITIONS MENTIONED OVERLEAF

"PLEASE ADDRESS ALL COVERS TO THE DIRECTOR GENERAL"

Page 01 of 03 pages

2018/10/29

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**RETENTION OF TEST ITEMS:** Perishable items will be destroyed immediately after testing, other items after 01 month from the date of issue of the report.

**RETURN OF TEST ITEMS:** Test items will be returned to the customer at the sole discretion of the ITI only on a written request by the customer.

**LOSS OR DAMAGE:** While the ITI exercises every care in respect of work entrusted to the Institute by customers, the Institute is not liable for any loss/damage howsoever caused to person/property, including property entrusted by customer to the Institute whether such loss, damage or delay may have been caused by reasons beyond the control of the Institute or otherwise.

**LITIGATION:** All costs associated with litigation or dispute for oral or written testimony or preparation of same or for any other purpose related to work provided by the ITI shall be paid by the customer. Such costs include, but are not limited to hourly charges, travel and accommodation, mileage, counsel, legal fees and all other expenses associated with the said litigation and dispute.

**CHANGE OF CONDITIONS:** ITI may at its sole discretion add to or amend the conditions of this report at the time of issue of the report and such additions or amendments shall be binding on the customer.

March 2017



## ... Continuation Sheet

### TEST REPORT Reference No. SS 1815351

<b>CUSTOMER :</b> Dockyard General Engineering Services (Pvt) Ltd, No. 223, Jayantha Mallimarachchi Mawatha, Colombo 14.	<b>Test Item:</b> Silica sand <b>Service Requested :</b> Analysis for parameter requested by the customer's letter dated 2018/10/08.
<b>Description :</b> Approximately 1 kg of silica sand packed in a polythene bag.	<b>Identification of Test Item :</b> No Label  <b>Date of Receipt of Test Item: 2018/10/08</b>
<b>Test Dates: 2018/10/15 – 2018/10/19</b>	

### TEST RESULT:

Test / unit	Test method	Results	Limit of Determination
Cadmium (as Cd), mg/kg	Microwave digestion / ICP-MS	ND	0.05
Lead (as Pb), mg/kg		1.8	-
Zinc (as Zn), mg/kg		184	-
Chromium (as Cr), mg/kg		3.0	-
Mercury (as Hg), mg/kg		ND	0.05
Arsenic (as As), mg/kg		0.72	-

ICP – MS – Inductively Coupled Plasma Mass Spectrometry.

ND: Not Detected

Analysis was carried out by Mr. R. Chathuranga - Assistant Research Technologist.

.....  
Authorized Signatory  
2018/10/25  
R.W.M

**M.N.A. Mubarak**  
B.Sc. (Chem.Sp.Hons), M.Sc. (WQM, Delft)  
M.I. Chem. C  
Senior Deputy Director  
Residue Analysis Laboratory  
Industrial Technology Institute - Colombo - 07.

## **ANNEX 3 - MOU FOR HEC MINIPE**



DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

# Memorandum of Understanding

For

## IMPLEMENTING MITIGATION MEASURES FOR HUMAN ELEPHANT CONFLICT UNDER THE MINIPE LEFT BANK CANAL REHABILITATION PROJECT



Mahaweli Water Security Investment Program

Department of Wildlife Conservation

September 2018

**MEMORANDUM OF UNDERSTANDING**  
**FOR**  
**IMPLEMENTING MITIGATION MEASURES**  
**FOR HUMAN ELEPHANT CONFLICT**  
**UNDER THE**  
**MINIPE LEFT BANK CANAL REHABILITATION PROJECT**

**P r e a m b l e**

This Memorandum of Understanding (hereinafter referred to as the **MoU**) is made and entered into at Colombo in the Democratic Socialist Republic of Sri Lanka on this **26<sup>th</sup> day of September Two Thousand Eighteen** (26/09/2018) by and between the Program Director of the Program Management Unit of the Mahaweli Water Security Investment Program (MWSIP), having its head office at No.493 1/1, T.B. Jayah Mawatha, Colombo 10 (hereinafter referred to as the **1<sup>st</sup> Party**, which term or expression shall include his assign and or successors in his Office).

**A N D**

the Director General, Department of Wildlife Conservation (**DWC**), having its head office at No 811A, Jayanthipura, Battarmulla (hereinafter called and referred to as the **2<sup>nd</sup> Party**, which term or expression shall include his assign and or successors in his Office).

**W H E R E A S**

- a) Recognizing that any condition stipulated in this document shall be executed in accordance with the provisions of Fauna and Flora Protection Ordinance (Chapter 469).
- b) The 1<sup>st</sup> Party is the Program Director of Program Management Unit of Mahaweli Water Security Investment Program (MWSIP) representing the Secretary of the Ministry of Mahaweli Development & Environment (MMDE) Executing Agency of the Government of Sri Lanka for the Minipe Left Bank Canal Rehabilitation Project (MLBCRP) of the MWSIP.

- c) The 2<sup>nd</sup> Party is the Head of the Department of Wildlife Conservation, which is charged with protecting wildlife, Flora, Fauna in the Island of Sri Lanka and the Statutory Body established under the provisions of Fauna and Flora Protection Ordinance (Chapter 469).
- d) The 2<sup>nd</sup> Party desires to mitigate Human-Elephant Conflict likely to increase with increasing cropping intensity by MLBC rehabilitation work.

The 2<sup>nd</sup> Party also stipulates that the 1<sup>st</sup> Party shall assist for the same as per the condition No. 4 of the Environmental Approval reference CEA/CPO/KY/07/929/12 dated 16/10/2015 issued by Central Province Office of Central Environmental Authority for the MLBCR Project (appended as Attachment 1 and treated as a part and parcel of this MoU).

- e) The 1<sup>st</sup> and 2<sup>nd</sup> Party desires to assist the implementing Action Plan for the Human Elephant Conflict (HEC) Mitigation under the MLBCR Project of the Mahaweli Water Security Investment Program implemented by Program Management Unit (PMU) established under the MMDE through Project Implementing Unit of the MLBCRP having Department of Irrigation as the Executing Agency.

The "Action Plan for Implementing Mitigation Measures on HEC for MLBCRP", which was agreed between 1<sup>st</sup> and 2<sup>nd</sup> parties are attached as Attachment 2 and considered a part and parcel of this agreement.

**NOW THIS MEMORANDUM OF UNDERSTANDING WITNESSETH** and is hereby agreed between the Parties hereto that in consideration of the covenants conditions and stipulations herein contained, the Parties hereto will collaborate with each other for implementing Action Plan for "Implementing Mitigation Measures on HEC for MLBCRP".

### **Responsibilities of the 1<sup>st</sup> Party**

#### **1. The 1<sup>st</sup> Party Shall;**

- 1.1 assist 2<sup>nd</sup> party by implementing the items No. 3, 4, 5, 6, 7 and 8 in the MOU for the satisfaction of the 2<sup>nd</sup> party.
- 1.2 provide funds on the request of 1<sup>st</sup> party out of the total estimated budget (which is given in the Attachment 2 to this document) for implementation of Action Plan for "Implementing Mitigation Measures on HEC for MLBCRP".



- 1.3 the funds shall be paid on instalments, after satisfactory achievement of the deliverable milestones mentioned in the Attachment 2, based on the Monitoring Committee comprises of the following members;

- i. Program Director-PMU (MWSIP)
- ii. Project Director-PIU (MLBCRP)
- iii. Irrigation Engineer (Hasalaka)

### **Responsibilities of the 2<sup>nd</sup> Party**

#### **2. The 2<sup>nd</sup> Party Shall;**

- 2.1 Implementation of the agreed actions, during the relevant time period as per the Attachment 2 from the funds received from 1<sup>st</sup> Party.
- 2.2 Make all the efforts to achieve target input, maintain records and submit performance report to 1<sup>st</sup> Party.
- 2.3 a. Facilitate the 1<sup>st</sup> Party (Ministry Committee nominated under above 1.1.3) to monitor the program for releasing funds.  
  
b. Attend at any significant incomplete/unattended activities as per the agreement and as recommended by Ministry Committee to release next instalment funds.
- 2.4 Submit payment request with certifying the performance of work using the previous installment by a report or requirement.

### **Responsibilities of both Parties**

#### **3. Both Parties shall;**

- 3.1. Initiate relevant administrative procedures and coordinate relevant agencies in implementing the agreed activity.

### **Modifications**

- 4. This Memorandum of Understanding may be modified at the written request of one of the Parties, and upon the Agreement of the other Parties.

### **Dispute Settlement**

- 5. All Parties shall use their best effort to settle amicably, all disputes arising out of or in connection with this MoU or the interpretation thereof, and in the event of an amicable settlement cannot be arrived at the Party shall appoint a Mediator with mutual consent to settle the dispute.

6. Any notice or other information required by or authorized by this Memorandum of Understanding by either Party to the other may be given by hand with due acknowledgement, sent by registered post, telex facsimile transmission or comparable means of communication to the respective address and facsimile number herein mentioned, or to such other address or facsimile number provided by the Parties.

Attachment 1: The Approval reference CEA/CPO/KY/07/929/12 dated 16/10/2015 issued by Central Province Office of Central Environmental Authority.

Attachment 2: Action Plan for "Implementing Mitigation Measures on HEC for MLBCRP".

The 1<sup>st</sup> Party

Address:

No. 493 1/1, TB Jayah Mw,  
Colombo 10.  
Fax No: 011-267 5227  
Telephone No: 011-267 5810

The 2<sup>nd</sup> Party

Address:

No.311 A Jayanthipura Road  
Battaramulla  
Fax No: 11-2883355  
Telephone No: 11-2888585

IN WITNESS WHEREOF, the undersigned, being duly authorized to do so, have executed this Memorandum of Understanding in two (2) counterparts, each of which shall be deemed an original, and which together shall constitute one and the same instrument.

1<sup>st</sup> Party

2<sup>nd</sup> Party

Program Director,

Program Management Unit

Mahaweli Water Security Investment Programme  
Project

**Eng. K.R. Neil Bandara**  
Program Director  
Mahaweli Water Security Investment Programme  
No: 493 1/1, T.B. Jayah Mawatha,  
Colombo - 10.

Witness:

Project Director

Project Implementation Unit

Minipe Left Bank Canal Rehabilitation Project

**Eng. S.D. Mediawaka**  
Project Director (MLBCR Project)  
Divisional Irrigation Engineer's office  
Premises, Hasalaka.

Director General

Department of Wildlife Conservation  
**M. G. C. SOORIABANDARA**

Director General

Department of Wild Life Conservation  
No. 811/A, Jayanthipura Road,  
Battaramulla.

Director (Operations)

Department of Wildlife Conservation

**Manjula Amararatna**  
Director (Operations)  
Department of Wildlife Conservation  
No. 811/A, Jayanthipura Road,  
Battaramulla.

Attention : Mr. Sisira Kumara

බෙබ් ගෙලුව  
உமது தொடர்பு  
Your Ref.

අප් ගෙලුව  
எமது தொடர்பு  
Our Ref.

දිනය  
திகதி  
Date

මධ්‍යම පරිසර අධිකාරිය

மத்திய சுற்றாடல் அதிகாரசபை

Central Environmental Authority

CEA/CPO/KY/07/929/12

16/10/2015

පරිසර පිටිය , 104, ඩෙන්සිල් කොබ්බෑකඩුව මාවත, බත්තරමුල්ල, ශ්‍රී ලංකාව.

"பரிசுர பியச", 104, டென்சில் கொப்பேகடுவ மாவத்தை, பத்தரமுல்லை, இலங்கை.

"Parisara Piyasa", 104, Denzil Kobbekaduwa Mawatha, Battaramulla, Sri Lanka.

Web : www.cea.lk



Central Provincial Office,  
Dam Site, Polgolla.  
Tel. /Fax 081-2494884.

Director General,  
Department of Irrigation,  
No. 230,  
Buddhaloka Mawatha,  
Colombo 07.

Dear Sir,

**ENVIRONMENTAL APPROVAL FOR PROPOSED IMPROVEMENT OF MINIPE ANICUT, AND REHABILITATION OF THE MINIPE LEFT BANK CANAL PROJECT.**

This is to inform you that the Central Environmental Authority (CEA) being the project Approving Agency for the above project has studied the Initial Environmental Examination Report (IEER) submitted to this Authority on 06<sup>th</sup> July 2015 by you and your responses to the clarifications sought by the Technical Evaluation Committee (TEC) and has decided in terms of regulations No. 1 of 1993 as amended by the Gazette (Extra-Ordinary) No. 1159/22 dated 22.11.2000 to grant approval for the implementation of the above project subject to the terms and conditions given below.

**1. GENERAL CONDITIONS**

- 1.1 This environmental approval is valid for improvement of the Minipe Anicut raising by 4m height and rehabilitation of minipe left bank canal as described in the IEER dated April 2015 submitted by the Department of Irrigation.
- 1.2 This Approval is granted on the basis that all information provided by the Department of Irrigation in the IEER dated April 2015 is true and accurate.
- 1.3 This approval is valid for a period of 3 years from the date of issue of this letter, unless upon application in writing to this Authority within 30 days prior to the expiry date the validity is extended.

Chairman	Tel : 2872361, 2872348 Fax : 2872347	Director General	Tel : 2872359 Fax : 2872608	Gen. Office	Tel : 2872278, 2873447, 2873448 7877277-280	Complain Unit : 071 3603333 , 2888999
Deputy Director Generals	HRD, Admin & Finance Division Tel : 2865296 Fax : 2877515	Env't. Pollution Control Division	Tel : 2873453 Fax : 2872605	Env't. Mgt & Assess. Division	Tel : 2872388 Fax : 2872296	Env't. Edu. & Awareness Division Tel : 2872297 Fax : 2872609
Directors	2872607 (Admin), 7877290 (Finance) 2872301 (HRD), 7877288 (Planning) 2872601 (Admin), 2863984 (Finance)	2873452 (EPC), 2872606 (Lab) 2882335 (WM)	2872346 (NRM), 2876643 (EIA) 2867263 (R&D) Fax : 2872296	2867266 (EEA) Fax : 2872609 Media Unit : 2873449	2872604 (Legal) (Western Province) Tel: 2862831 Fax : 2865293	



- 1.4 The Department of Irrigation where necessary should obtain ~~fr~~ approvals in respect of any alterations that would be made to the IEER dated April 2015 submitted to this Authority.
- 1.5 The Department of Irrigation is bound to ensure that those terms and conditions are adhered to and shall have full control over a third party that may be involved in this project implementation. The CEA should have access to the contract documents pertaining to environmental aspects, entered into by the Department of Irrigation and any outside contractors. The conditions in this approval should be included into the contract documents, so that the contractor or sub-contractor is held responsible for carrying them out during construction and on completion of the work. The Department of Irrigation would be held responsible for the breach of any such conditions by any contractor or sub-contractor.
- 1.6 The Department of Irrigation shall intimate to CEA, the date of commencement of the project activities/construction activities, inclusive of a phased implementation schedule.
- 1.7 A copy of this approval letter should be kept at the project site at all times, for purposes of perusal by concerned agencies.
- 1.8 It is the duty of the Department of Irrigation to inform this Authority of any adverse environmental impacts which may arise during project implementation which is not anticipated at this stage. In such an event, relevant guidelines and necessary mitigatory measures should be implemented as directed by this Authority. The Department of Irrigation should ensure that such impacts are properly assessed and addressed even at a later stage of project implementation. CEA guidelines
- 1.9 The Department of Irrigation should co-ordinate closely with planning agencies, relevant Provincial and Local Authority, Divisional Secretaries (Minipe / Kandeketiya) and other Government Departments to resolve any conflict with existing and future development plans of the area.
- 1.10 Relevant Local Authority in the Project Area should be kept informed regarding the project activities and should have written approval of the same. LA approval
- 1.11 The trees expected to be removed in the project area listed out according to the page 136, 137 and 138 of the IEER should be enumerated and removed with the consultation of Divisional secretary (Minipe / Kandeketiya) and Forest Department through the state Timber Corporation.
- 1.12 Any additional condition stipulated by this Authority as and when required shall be strictly adhered to.



## 2. ECOLOGICAL ASPECTS



- 2.1 A 100 meter reservation area from the FSL of the reservoir or any additional area should be demarcated and declared as a protected area. *New reservation*
- 2.2 Adequate reservation for left bank canal should be demarcated and managed properly avoiding encroachments. *Make & Declare*
- 2.3 Reforestation / enrichment planting should be carried out within the above reservation area in close consultation with the FD using native species.
- 2.4 Reforestation / enrichment areas should be clearly marked on a map and submitted to this Authority and FD together with replanting schedule.
- 2.5 Precautions should be taken to reduce construction impacts on existing natural forest areas, streams and wild animals within these habitats.
- 2.6 The improvement of left bank canal should be designed in such a way the it will not cause impacts on wild life of the area.
- 2.7 Temporary labour camps should not be constructed within remaining forest areas. *Construction Zone Map*
- 2.8 Abandoned dumping sites, stockpiles and borrow pits should be rehabilitated and suitable tree planting programmes should be implemented in these areas in consultation with the FD. *All within that zone*

## 3. SOCIAL ASPECTS

- 3.1 The Department of Irrigation should be responsible for providing facilities, in the case that there are impacts to existing water usage from the left bank canal during the improvement stage of the canal.
- 3.2 Affected road segment/s due to project activities should be re-routed or modified appropriately in order to avoid impacts on existing transportation system of the project area.

## 4. HYDROLOGICAL AND WILDLIFE ASPECTS

- 4.1 The Department of Irrigation should undertake to release an adequate volume of water for downstream of Mahaweli River maintaining a healthy ecology and for utility of downstream users to maintain the downstream in proper condition. Following operational procedure should be adopted.

a) The conditions stipulated by the Department of Wildlife Conservation by the letter No 08/6/1/1/171 - vii and dated 07-10-2015 (Copy in the annexe) shall strictly be adhered to.



#### b) Other Requirements

Adequate water should be provided to the villagers in the area who depend on seepage and drainage water of Mahaweli river for their day to day activities.

- ✓ 4.2 Necessary measures should be taken to mitigate water pollution due to contaminant leakage from machinery and workers sites during construction phase.

Construction Site Mo

#### 5. LAND STABILITY AND SOIL EROSION ASPECTS.

- 5.1 Recommendations made in the Landslide Hazard Investigation Report dated 2014 October Numbered LRRMD/SPI/WP/MNP/14/31/14216 issued by the NBRO shall be strictly adhered to as stated in the Annexure VII of the IEER.
- 5.2 Earth retaining structures should be applied wherever required to prevent initiation of local failure.
- 5.3 The riverbanks of the inundation area must be protected to minimize water infiltration into the soil mass of the river banks.
- 5.4 Earth Work shall be carried out during low rainfall season to minimize soil erosion.
- 5.5 Uprooting the trees should be done with appropriate equipment to minimize the soil erosion/ damage to the soil.
- 5.6 Natural Water paths should be kept free from any obstruction through any kind of construction or disposal of soil/rocks etc. All efforts should be made during constructions period to avoid adverse impacts on existing drainage system of the project area.
- ✓ 5.7 Soil removed during the construction of project components should not be dumped at any edge of waters or disposed into surrounding environment without proper protection measures to prevent soil erosions.
- ✓ 5.8 Exposed areas should be kept suitably protected to prevent erosion or emission of dust during dry and windy periods.

#### 6. DISPOSAL OF EXCAVATED MATERIALS

- \* 6.1 Excavated materials as far as possible should be used in the construction sites which are associated with the project, care must be taken by the way of adequate safeguards been put in place to prevent erosion and washing away of any of this material into the water ways.

6.2 Any balance materials shall be disposed of in consultation with Authority. The details regarding such disposal sites should be submitted to this Authority and approvals obtained.

6.3 Soil /debris removed during the implementation of the project components should not be disposed/dumped into neighbouring areas.

## 7. RESTORATION/REHABILITATION OF CONSTRUCTIONS SITES

7.1 Borrow pits and temporary transport routes shall be rehabilitated with required measures.

7.2 Temporary used areas shall be restored /rehabilitated properly and post - construction unusable material shall be disposed of in consultation with the relevant local Authorities. The land used for temporary establishments shall be restored upto the level of satisfactions.

7.3 Rehabilitation of construction sites and spoil dump areas should be completed prior to commissioning of the operational activities. The disturbed areas due to constructions of labour camps spoil areas stockpile areas workshops office etc shall be rehabilitated and replanted by using native plant species.

## 8. WASTE DISPOSAL

8.1 Measures shall be taken to prevent discharge of cement, cement mix, fuel oil, lubricants, waste oil, polythene and other waste materials into water bodies during construction and operation period. Oil separation devices shall be installed where required.

8.2 Proper sanitary facilities shall be provided for the work force involved in the construction activities.

## 9. ARCHAEOLOGICAL ASPECTS.

The approvals from the Department of Archaeology should be obtained prior to commencement of the project. If any archaeological remnants are encountered within the project area suitable measures shall be adapted to conserve in consultation with the Archaeological Department.

## 10. NOISE AND VIBRATION

10.1 All Constructional activities shall be carried out in such a way, so as not to cause nuisance to the wildlife and neighbourhood.





10.2 Noise levels at the construction sites shall not exceed 75 dB (A) from 06.00 hours to 21.00 hours and 50 dB (A) from 21.00 hours to 06.00 hours to be measured at the boundary of the site.

10.3 Appropriate mitigatory measures should be adapted in order to maintain the vibration levels generated by construction, activities, operations of machineries and equipment, and vehicle transport within the interim standards stipulated by this Authority.

## 11. TRANSPORTATION OF MATERIALS AND MACHINERY.

11.1 Suitable action should be taken to identify the routes of transport and to mitigate traffic issues during constructions and operational period. Required approvals should be obtained from relevant traffic authorities.

11.2 Transport, loading and unloading of materials shall be carried out in such a way as not to cause nuisance to the surrounding environment.

11.3 Construction materials should be adequately covered during transportation to avoid wind induced dust and spillage.

11.4 The vehicles and the machinery used in the project should be maintained regularly in order to avoid smoke emissions.

## 12. SAFETY/ EMERGENCIES.

The Department of Irrigation shall draw up an emergency preparedness plan inclusive of dam failures and other contingencies such as issues associated with flood etc. The Department of Irrigation should ensure that all relevant personnel are trained and aware of their responsibilities in executing the plan. Copies of the plan shall be placed at suitable locations and to consultate on a regular basis.

EPP

## 13. ENVIRONMENTAL MANAGEMENT PLAN (EMP)

13.1 The Department of Irrigation shall forward to the CEA a detailed EMP incorporating the mitigatory measures proposed precisely and the monitoring plan. It should contain the significant impacts of the project, specific mitigation measures to be implemented for each significant impact schedule of implementation of mitigation measures, parameters to be monitored with intervals/ frequencies and the responsible agencies for implementation of the EMP. The EMP should be approved by the Monitoring Committee.

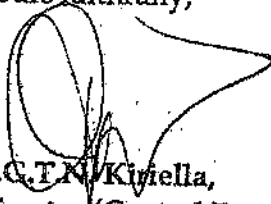
Prior to start  
EMP  
Approval of MC

13.2 A Monitoring Committee consisting representatives of CEA, DWC, MASL, Department of Agrarian Development, Department of Archaeology, Divisional Secretary Minipe/kandaketiya and pradeshiya sabha of Minipe, kandeketiya and any other agency appointed by the CEA to monitor the implementation of EMP by the Department of Irrigation.



- 13.3 Periodic compliance report should be submitted by the Department of Irrigation on progress of the implementation of the EMP.
- 13.4 Suitably trained and qualified officers who would be responsible for the implementation of the EMP shall be assigned.
- 13.5 This officers shall act as the contact person(s) for members of the public and shall liaise with local organisations.
- 13.6 All costs incurred by the monitoring committee appointed by the CEA to oversee implementation of the EMP shall be borne by the Department of Irrigation

Yours faithfully,

  
K.G.T.N. Kiriella,  
Director (Central Province),  
Central Provincial Office,  
Central Environmental Authority,  
Polgolla,

cc

1. Additional Secretary, Ministry of Mahaweli Development and Environment.
2. Director General, Mahaweli Authority of Sri Lanka.
3. Director General, Department of Archeology
4. Director General, Department of Wildlife Coservation..
5. Divisional Secretary, Minipe/ Kandeketiya.
6. Secretary/Officer in Charge , Pradeshiya Sabha, Minipe/Kandeketiya.



**වනජීවී සංරක්ෂණ දෙපාර්තමේන්තුව**  
**வனசீவராசிகள் பாதுகாப்புத் திணைக்களம்**  
**DEPARTMENT OF WILDLIFE CONSERVATION**

ප්‍රධාන කාර්යාලය - අංක 811/ඒ, ජයන්තිපුර පාර, මහරගමුව  
 பிரதான அலுவலகம், இல. 811/ஏ, ஜயந்திபுர வீதி, மகரகமுவில்  
 Head Office - No. 811/A, Jayanthipura Road, Maharagama



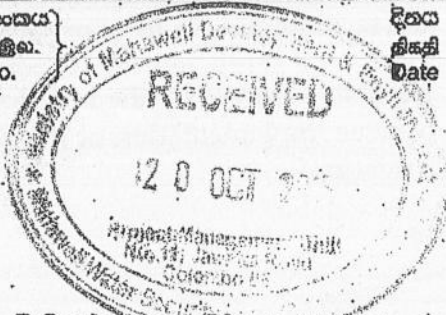
මගේ අංකය  
எனது இல.  
My No.

ව3/6/1/1/171 - vii

ඔබේ අංකය  
உமது இல.  
Your No.

දිනය  
திகதி  
Date

2015.10.07



අධ්‍යක්ෂ,  
මධ්‍යම පරිසර අධිකාරිය,  
පොල්ගොල්ල.

මහත්මයාණෙනි,

**පාරිසරික අනුමැතිය ලබාදීම - මිනිස් අමුණ වැඩිදියුණු කිරීමේ ව්‍යාපෘතිය**

ඉහත ව්‍යාපෘතිය සම්බන්ධයෙන් මබ විසින් මා වෙත යොමු කර ඇති අංක CEA/CPO/KY/ 07/ 929/ 12 හා 2015.09.01 දිනැති ලිපිය හා මගේ අංක ව3/6/1/1/171 - iii හා 2012.11.07 දිනැති ලිපියට වැඩිමහත්වයි.

02. මෙම ව්‍යාපෘතියේ අවසන් මූලික පාරිසරික පරීක්ෂණ වාර්තාවේ යෝජනා කර ඇති පරිදි ව්‍යාකරණ ලබන කාල සීමාව සහ ව්‍යා නොකරන කාල සීමාව (ජනවාරි මස 30 සිට අප්‍රේල් මස 15 දක්වා සහ අගෝස්තු මස 25 සිට නොවැම්බර් 15 දක්වා) තුළ පිළිවෙලින් තක්සරයට සහ මීටර් 8 ක් 16 ක් ලෙස පාරිසරික ජල ධාරාවක් (Environmental Flow) මුදාහැරීම පිළිබඳව එකඟ වන නමුත් යෝජනා කර ඇති පරිදි පාරිසරික ජල ධාරාව මුදා හැරීම දිනකට පැය 5 කට පමණක් සීමා කිරීමට එකඟ විය නොහැකිය. අප යෝජනා කරනුයේ අඛණ්ඩ පාරිසරික ජල ධාරාවක් මුදා හරින ලෙසය. එබැවින් මෙම ව්‍යාපෘතිය වෙත පාරිසරික අනුමැතිය ලබා දීමේදී එයට පහත සඳහන් කොන්දේසි ඇතුළත් කරන මෙන් ඉල්ලා සිටිමි.

- 2.1. ව්‍යා කරන කාල සීමාව තුළ තක්සරයට සහ මීටර් 1.6 ක් ද ව්‍යා නොකරන කාල සීමාව තුළ තක්සරයට සහ මීටර් 3.2 ක් ද වගයෙන් පාරිසරික ජල ධාරාව අඛණ්ඩව මුදා හැරීමට සැලසුම් කළ යුතුය.
- 2.2. පාරිසරික ජල ධාරාව මුදාහරින බවය (Environmental Flow tube) මබ භෞරොව්ව මට්ටමට ඉහළින් ස්ථාපනය කළ යුතුය.
- 2.3. වස්තුවට ජාතික වෘන්දානයේ කදුරුපිටිය I සහ II වැව් වලට අඛණ්ඩව ජලය සැපයිය යුතුය.
- 2.4. සත්ත්ව වාසස්ථාන වලට හානි සිදු නොකළ යුතුය.
- 2.5. රක්ෂිතය තුළ ඇති ශාක ඉවත් කිරීමට සිදුවන්නේ නම් ඒ සඳහා අනුමැතිය ලබාගත යුතුය.
- 2.6. රක්ෂිතය තුළ සිදු කරන සංවර්ධන කටයුතු වනජීවී සංරක්ෂණ නිලධාරීන්ගේ අධීක්ෂණය යටතේ සිදුවිය යුතුය.
- 2.7. සියළු කටයුතු වනසත්ව හා වෘක්ෂලතා ආරක්ෂක ආඥා පනතෙහි ප්‍රතිපාදන උල්ලංඝනය නොවන ලෙස සිදු කළ යුතු වේ.

මෙයට - විශ්වාසී,

*Mr. Sumil Perera*  
F.N.M.  
28/10/21

*(Signature)*  
 විජේපාල මහේස්වරණ  
 අධ්‍යක්ෂ (මෙහෙයුම්)  
 අධ්‍යක්ෂ ජනරාල් වෙනුවට

දුරකථන } අධ්‍යක්ෂ ජනරාල් - 011 2888581  
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## **ANNEX 4 - IMPLEMENTATION PLAN HEC MINIPE**

### Action Plan for Implementng Measures on HEC for MLBCRP

[illegible]

