

Environmental Monitoring Report

December 2015 – May 2016
Project Number: 47381-002

SRI: Mahaweli Water Security Investment Program

Prepared by Ministry of Mahaweli Development and Environment for the Asian Development Bank.

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Mahaweli Water Security Investment Program

Program Management, Design and Supervision Consultant

Semi-Annual Environmental Monitoring Report

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Semi-Annual Environmental Monitoring Report

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ABBREVIATIONS

ADB	Asian Development Bank
CEA	Central Environmental Authority
DFC	Department of Forest Conservation
DS	Divisional Secretariat
DWLC	Department of Wild Life Conservation
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
GRM	Grievance Redress Mechanism
ICB	International Competitive Bidding
ID	Irrigation Department
IEER	Initial Environmental Examination Report
MCA	Multi Criteria Analysis
MLBCR	Minipe Left Bank Canal Rehabilitation
MWSIP	Mahaweli Water Security Investment Program
NBRO	National Building Research Organization
NCB	National Competitive Bidding
NCPCP	North Central Province Canal Project
NWPC	North Western Province Canal
PIU	Project Implementation Unit
PMDSC	Project Management, Design and Supervision Consultant
PMU	Program Management Unit
SEA	Strategic Environmental Assessment
ToR	Terms of Reference
UEC	Upper Elahera Canal

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1. INTRODUCTION

1. The Mahaweli Water Security Investment Program (MWSIP), under the Ministry of Mahaweli Development and Environment (MMDE) of the Government of Sri Lanka (GoSL), is funded by the Asian Development Bank (ADB) (Loan No. 47381-002-SRI (SF)) and GoSL. The program aims to assist the goal of maximizing the productivity of the Mahaweli River Basin (MRB) water resources by transferring available water to the north and north western dry zone areas for irrigation, drinking and commercial purposes.

2. The investment program will implement Phase I of the North Central Province Canal Project (NCPCP), using the Asian Development Bank's (ADB's) Multi Tranche Financing Facility (MFF) modality, loaned to the government in three tranches. The updated Mahaweli Development Program (MDP) comprises three main individual investment projects:

(i) Upper Elahera Canal Project (UECP)

UECP includes two components. The first component is the 9 km Kalu Ganga-Moragahakanda Transfer Canal (including 8km tunnel) that transfers water between the Kalu Ganga and Moragahakanda Reservoirs. The second component is the Upper Elahera Canal that connects the Moragahakanda Reservoir to the existing reservoirs: Huruluwewa, Manankattiya, Eruwewa and Mahakanadarawa via 84 km of canals (including a 26 km tunnel). These reservoirs supply existing irrigation and water supply schemes.

(ii) North Western Canal Project (NWPCP)

NWPCP will construct 96 km of new and upgraded canals and two new earth gravity dams impounding the Mahakithula and Mahakirula Reservoirs. It will transfer water from the Dambulu Oya River and the existing Nalanda and Wemedilla Reservoirs to command existing irrigation and water supply reservoirs. The detailed designs are being finalised with the tunnelling sections and new dams and canals.

(iii) Minipe Left Bank Canal Rehabilitation Project (MLBCRP)

MLBCRP, located in the downstream reaches of the Mahaweli River, will: (i) add upstream storage by heightening the headwork's weir by 3.5 m; (ii) construct new head regulator gates to the left bank canal and emergency spillweirs to both left and right bank canals; and (iii) rehabilitate the 74 km Minipe Left Bank Canal to improve conveyance and reliability of service to existing farmers.

3. It is planned to begin implementation of civil works packages MLBCR-NCB-1 (Rehabilitation of Minipe LB Canal from 0+000 km to 30+140 km) under national competitive bidding (NCB), UEC-ICB-1 (0+100 km to 6+226 km) under international competitive bidding (ICB), and NWPC-NCB-1 (Wemedilla sluice and LBMC from Reservoir to Nebadagahawatta from 0+000 km to 5+ 250 km) under NCB within the third quarter of 2016.

4. The Program Management Unit (PMU) is established under MMDE which is the Executing Agency (EA) of the entire Investment Program and three Project Implementation Units (PIUs) for MLBCRP, NWCP and UECP are formed under the Irrigation Department (MLBCRP and NWPCP) and Mahaweli Authority of Sri Lanka (MASL) (UECP), in Hasalaka, Kurunegala/Polpithigama and Madatugama/Elahera areas. The Program Management, Design & Supervision Consultant (PMDSC) is established in Colombo, headed by Lahmeyer International GmbH of Germany, as the lead consultancy firm. The Environmental Specialist (national) assumed her duties officially in the first week of January 2016, and in the meantime, two international Environmental Specialists also commenced work, contributing mainly so far to the Strategic Environmental Assessment (SEA) and

Multi Criteria Analysis (MCA) performed for the route selection relating to Phase II, and capacity building and environmental training program as included in the Terms of Reference (ToR) for the MWSIP. The PMDSC is responsible for carrying out their consultancy services under seven key Tasks, and environmental inputs are required with every task at the initial stage to ensure the better performance of the program and supervision of the MWSIP Tranche 1 activities complying with ADB's Safeguards Policy Statement (SPS) (2009) and adhering to environmental regulations of the GoSL.

5. As stated in the ADB Loan Agreement document, the safeguards monitoring is performed by the Safeguards Unit of the PMU and PIUs and PMDSC, and the results are required to be included in the quarterly progress reports. In addition it is planned to submit (i) biannual (for UECP and NWCP) and annual (for MLBCRP) environmental monitoring reports, and (ii) resettlement monitoring reports for all projects, initially quarterly for the first year and then semi-annually. Since none of the contract packages has yet commenced, this Semi Annual Environmental Monitoring (SAEM) Report is prepared including the progress of the tasks under Phase I project components related to all three Projects: MLBCRP, UECP and NWPCP.

2. OVERVIEW OF PROGRESS

6. Conditional approval for the two Environmental Impact Assessment (EIA) reports on the NWPC and UEC Projects was granted by the Central Environmental Authority (CEA). In addition, the Initial Environmental Examination (IEE) Report for MLBCRP, including the anicut raising, also received conditional approval from CEA. The status of the approvals and further actions to be performed is listed in **Table 2-1**.

7. The environmental reports and documents produced in the previous quarter within the PMDSC scope include:

- (i) Addendum for IEE highlighting the MLBCR design changes
- (ii) Updated EMP for the IEE on MLBCR (for the CEA & ADB approval)
- (iii) Environmental compliance requirements in the Section 1 (General Requirements) and Section 6 (Employer's Requirements) in the bidding document for the contract packages
- (iv) Volume IV- Revised EMP for MLBCR Stage 2 & 3
- (v) Revised EMP – NWPC-NCB-1
- (vi) Environmental Monitoring Formats (Annex 2)
- (vii) Annex C of Route Selection Report - Environmental Criteria
- (viii) Inception report of SEA
- (ix) Inception Report Phase II - Environmental Safeguards

Table 2-1: Approval status for the EIAs and IEEs of Phase I

Project	Approval Status			Actions Taken	Further Actions to be taken		
	CEA	ADB	Other approvals Obtained		Action	Responsibility	Time Line
MLBCR	<ul style="list-style-type: none"> 16.10.2015 - conditional approval given for the IEE The conditions laid by the DWLC as a part of CEA approval to be incorporated into the designs 	<ul style="list-style-type: none"> Approval granted and published IEER on the ADB website 	<ul style="list-style-type: none"> Approvals for the felling of trees obtained from the Divisional Secretariat (DS) Minipe on 23/04/2015 NBRO approval obtained for Landslide hazard verification in Oct 2014 Both approvals are annexed to the approved IEER 	<ul style="list-style-type: none"> Addendum was sent to the CEA addressing all the design changes Revised Environmental Management EMP included in the bid documents as Volume IV (Annex 1) Reforestation areas identified along the LB canal The EMP updated along with the revised technical details/ design changes 	<ul style="list-style-type: none"> Submit updated EMMP to CEA and ADB. 	PMDSC through PMU	June 2016
					<ul style="list-style-type: none"> CEA & ADB to be informed with the dates of commencement of the project activities, including the phase implementation schedule (Clause 1.6 of CEA approval) 	PMDSC through PMU	2 weeks before contract mobilization of each package
					<ul style="list-style-type: none"> Demarcate the 100 m reservations from the FSL of the Minipe Pool, left bank canal with the Irrigation Department 	PMU through PIU with the involvement of DWLC	During the contract period
					<ul style="list-style-type: none"> Identified Reforestation areas to be submitted to CEA and Forest Department along with the planting schedule (Clause 2.4 of CEA approval letter). 	PMU	June 2016
UEC	<ul style="list-style-type: none"> CEA approval granted on 	<ul style="list-style-type: none"> Approval granted, and 	<ul style="list-style-type: none"> NBRO approval obtained for 	<ul style="list-style-type: none"> The PMU safeguard staff incl. Environment Specialist, Resettlement 	<ul style="list-style-type: none"> The updated EMP to be submitted along with the revised technical details/ design changes 	PMDSC to update EMP	By August 2016

Project	Approval Status			Actions Taken	Further Actions to be taken		
	CEA	ADB	Other approvals Obtained		Action	Responsibility	Time Line
	31st Match 2016, along with the conditions laid down by the Wild life Department	published EIAR on the ADB website	Landslide hazard verification and submitted to CEA as an addendum in January 2016 • Archeological department clearances attached to the Draft EIAR	Specialist and Communication Officer were recruited in January 2016. • The Environment Officer for the PIU has already been selected and will be recruited within 2nd quarter of 2016.	as an addendum to the submitted EIA report	and submit through PMU	
					• A survey to identify the number of trees to be cut down and the appropriate approvals to be processed	PMDSC to carry out the study and approval to process through PMU	June - August 2016
					• Reforestation boundary demarcation to be carried out in consultation with the Irrigation Department and Forest Dept	PMU	Before mobilizing each contract package
NWPC	• Conditional approval granted by CEA through the letter dated as 23rd Feb 2016	• Approval granted, and published EIAR on the ADB website	• NBRO approval obtained for Landslide hazard verification and submitted to CEA as an addendum in January 2016	• The updated EMMP included in to the bid documents (NWP NCB 1) • The procurement of Consultant for preparing the Wildlife Management Plan (including Human Elephant Conflict) In compliance with ADB loan covenant and the CEA approval was commenced on 15 th February 2016. The Proposal Evaluation	The updated EMP to be submitted along with the revised technical details/ design changes as an addendum to the submitted EIA report • Necessary approvals of the Department of Wild Life Conservation (DWLC) and Forest Department (DFC) should be obtained for the release of the lands belonging to DFC/DWLC (NWPC ICB 1 Stage 1& NWPC ICB 2- Stage 1 of Tranche 1 - Kahalla Palekele Forest Reserve &	PMDSC to update EMP and submit through PMU PMU	July 2016 May 2017

Project	Approval Status			Actions Taken	Further Actions to be taken		
	CEA	ADB	Other approvals Obtained		Action	Responsibility	Time Line
			<ul style="list-style-type: none"> Archeological Department clearances attached with the Draft EIAR 	<p>process is now in progress aiming to commence the study in May 2016.</p> <ul style="list-style-type: none"> The initiative was taken in February 2016 with the contributions from inception ADB mission, to set up the Grievance Redress Mechanism (GRM). The introductory sessions on GRM are scheduled within 2nd quarter of 2016 The PMU safeguard staffs as Environment Specialist, Resettlement Specialist and Communication Officer were recruited in January 2016.. 	<p>Sanctuary) and NWPC NCB 4 Stage II of Tanche 3 - (Kahalla Palekele Forest Reserve & Sanctuary) after submitting a Wild Life Management Plan</p>		
					<ul style="list-style-type: none"> 100 m reservation area from the FSL of the Mahakirula tank or any additional areas to be declared as protected areas 	PMU	During the contract period
					<ul style="list-style-type: none"> Canal reservations to be demarcated to avoid encroachments 	PMU	During the contract period
					<ul style="list-style-type: none"> Reforestation areas to be demarcated & map in consultation with DWLC & DFC 	PMU	During the contract period
					<ul style="list-style-type: none"> Existing and proposed protected areas comes under the project area to be mapped and submit to CEA/DWLC & DFC with the revised EMP 	PMDSC to update EMP and submit through PMU	July 2016
					<ul style="list-style-type: none"> The wild life elephant corridor connected to the Hakwatuna tank and its catchment should be established by relocating the existing families 	PMU	During the contract period

Project	Approval Status			Actions Taken	Further Actions to be taken		
	CEA	ADB	Other approvals Obtained		Action	Responsibility	Time Line
					<ul style="list-style-type: none"> The canals should be covered in the sanctuary area in Kahalla Pallekele under ICB 1 of NWPC 	PMDSC	Finalizing the designs
					<ul style="list-style-type: none"> Existing electric fence to be relocated 	Contractor under the guidance of PMDSC/PMU	During the contract period
					<ul style="list-style-type: none"> Biotic survey to be carried out to identify the species to be translocated and combined with tree survey and get the approval from DWLC for the removal of those through the State Timber Cooperation and Local Authority 	PMDSC	Complete by end 2016

3. KEY ISSUES AND PROPOSED ACTIONS

5. The key issues with respect to environmental safeguard implementation for the three main construction projects (MLBCR, UEC and NWPC) scheduled under the Tranche I were identified at different stages during the first and second quarters of the MWSIP.

6. Actions were identified in most of the issues and few remains under discussion between PMDSC and PMU. The following Table 3.1 gives the key issues and the proposed actions.

Table 3-1: Key issues and the proposed actions

Contract package	Issue	Proposed Action
All	EMP safeguard implementation, monitoring mechanism at the ground level	<ul style="list-style-type: none"> (i). PMDSC to undertake the CEMP based safeguard monitoring and PMU & PIU to undertake the balance, which is out of the scope of CEMP (ii). Monitoring formats prepared by the PMDSC will be completed by the onsite staff assigned under the PIU, with the support of the staff assigned under the Resident Engineer (RE) and Environment Officer of the PIU will guide them where necessary. (iii). The data shall be fed into the Management Information System (MIS), which is likely to be a web-based platform for data, managed by PMDSC (iv). Periodical / random monitoring shall be made by the Environmental Specialist of PMDSC / PMU (v). Scheduled monitoring visits shall be carried out by the CEA Environmental Monitoring Committee (EMC) (vi). SEMR shall be prepared by PMDSC/ PMU and submitted to ADB and CEA.
All	No baseline data obtained during the EIA study on air quality, water quality, noise & vibration	<ul style="list-style-type: none"> (i). It is suggested by PMDSC to select an accredited laboratory with the guidance of the PMU, and tender for the service as per the ToR agreed by PMU and PMDSC before Contractor mobilization of each package (ii). The same institution/laboratory will continue the periodical monitoring
NWPC-ICB 1 UEC - ICB 1 & 3	<p>There are some areas that have not been identified in the EIA documents, which include:</p> <ul style="list-style-type: none"> i. Biotic Resource Survey (BRS) in Mahakitula & Mahakirula reservoir inundation areas will be 	<ul style="list-style-type: none"> (i). A consultant selected by the PMU through NCB procedure will undertake BRS as a part of preparing the Wild Life Management Plan. (NCB=National Competitive Bidding) (ii). Carrying out Tree enumeration survey in the area affected by UEC - ICB 1 and UEC - ICB 3 by

	covered under the separate Consultancy to be undertaken by IUCN for preparing the "Wildlife Management Plan" of the NWC Project.	PMDSC - Environmental specialist and proceeding with required approval through PMU
	ii. Tree enumeration for the tree felling and particular approval process	(iii). Due Diligence will be undertaken covering social and environmental aspects to ensure that the intended improvement of access roads are complied with the CEA approval conditions, ADB Safeguard Requirements (SPS 2009) and the EIA recommendations
	iii. The construction site access road improvement of NWPCP & UECP are scheduled to be undertaken as separate packages instead of undertaking as a part of each construction package	

4. KEY ACTIVITIES FOR NEXT TWO QUARTERS (Q3 & Q4 2016)

7. The key PMDSC activities planned for the next quarter include:

- (i) Preparation of addendum for the EIA of NWP and UEC including any design changes
- (ii) Finalizing the updated EMPs for UEC
- (iii) Initiation of biotic survey and tree enumeration surveys for the NWP-ICB-1 (Kahalla Palkelele sanctuary administered under DWLC), UEC-ICB-1 & ICB-3 packages (Elahera Giritale sanctuary administered under DWLC)
- (iv) Finalizing updated EMP for NWP, incorporating findings of the field studies
- (v) Coordinating with PMU to obtain reforestation areas, required approval for tree felling
- (vi) Collection of data and preparation of SEA Interim Report
- (vii) Carry out awareness programs for the Contractor and other field staff on EMP implementation and other environmental safeguard measures
- (viii) Support PMU and PIU on environmental monitoring during construction period of Minipe LB canal
- (ix) Preparation of Rapid Environmental Assessment (REA) Checklist for Randenigala Kalu Ganga Transfer Complex (RKTC) and NCP projects under Phase 2
- (x) Preparation of Environmental Assessment Review (EAR) Framework for Phase 2
- (xi) Preparation of Basic Information Questionnaire (BIQ) for RKTC and NCP projects under Phase 2, and proceed with the Terms of Reference (ToR) for the EIA

8. The activities scheduled by the PMU for the next six months are given in **Table 4-1**.

Table 4-1: Activity Schedule of the PMU for next two quarters of 2016

5.	6. Action	7. Tentative Time					
		May	June	July	Aug	Sep	Oct
1	Establishment of the Environment Management Organizational set up for the MWSIP						
a	Assist appointing safeguard staffs (including Environment Officer) to PIU						
b	Provide orientation, training and guide-supervise safeguard staff (mainly EO-PIU)						
c	Raise awareness on safeguard policies/ requirements; exchange ideas within PMU and PIU engineering/ management staff to gain support for effective Project environment management						
d	Define and introduce environment management mechanism (includes introducing monitoring, recording, communicating protocols etc.) together with PMDSC						
e	Ensure due inclusion of environment management requirements in the contract documents						
f	Ensure proper resource mobilization for the Project environment management by the Contractors						
2	Commence the Grievance Redress Mechanism						
a	Conduct introductory awareness session for relevant stake holder agencies						
b	Conduct introductory awareness session for relevant community leaders and key interest groups						
c	Start accepting & processing public to submit their grievances to a designated Project staff (which will be transformed to formally operate environment grievance redress on start of Construction)						
3	Ensure Environment Compliance of the Project						
a	In time documentation (i.e. Submission of EMP to EMC (CEA) and ADB, EMR to ADB and CEA, revisions to EIA & EMP as required etc.) together with PMDSC						
b	Commence the Wildlife Management Plan preparation through the IUCN and interface between relevant stake holder agencies for effective development of a workable action plan						
c	Ensure availability of Project Environment Documents (EIA, CEA approval, EMP etc.) at site offices						
d	Facilitate the CEA to establish and operationalize the EMC						
e	Design and establish the routine ambient environmental quality monitoring regime including baseline monitoring together with PMDSC						
f	Guide & facilitate Contractors to gain necessary additional government approvals						
4	Coordinate with relevant agencies, potential affected communities, interest groups etc. to ensure uninterrupted Project Implementation with full compliance of the ADB (SPS-2009) and CEA environment safeguard requirements.						

ANNEXES

ANNEX 1: Updated EMP for Minipe

Enclosed as separate Report.

ANNEX 2: Monitoring Formats

Annex 2- A Environmental Monitoring Form 1**MAHAWELI WATER SECURITY INVESTMENT PROGRAM (MWSIP)****ENVIRONMENTAL MONITORING FORMAT 01 - CONSTRUCTION SITE****Instructions to the monitoring officer**

- (i) Contractor is notified on all non-conformances and requested to make arrangements on improvement. Notes on Use of Mitigation Monitoring Form
- (ii) This form, or an adaptation of it, should be used during routine (preferably weekly) site inspections by the PIU Environmental Officer/unit or representative (Supervision Consultant) to monitor implementation of the approved CEMP during the construction phase of MWSIP project contract packages.
- (iii) Routine site inspections should cover all current/relevant construction activities being implemented on the project site at the time of inspection. Ideally, the Contractor's Environmental officer/focal point should accompany the PIU Environmental Officer or representative during routine inspections.
- (iv) Once completed, the form should be sent to the Contractor for his information and action including any photographs. A copy of the completed form is retained in the data management system of the PIU for reference during subsequent site inspections and for referral during preparation of monitoring reports.
- (v) Column 1 Construction Activity – All current/relevant construction activities taking place on the project site for which mitigation measures are required under the EMP/CEMP, are listed.
- (vi) Column 2 Mitigation Measure – Specific mitigation measures required under the EMP/CEMP for the corresponding construction activity are listed.
- (vii) Column 4 Corrective Action Request – Where the inspection identifies non-compliance or ineffective implementation of a mitigation measure, specific corrective actions are identified, discussed and agreed with the Contractor including a deadline for effective corrective action.
- (viii) Column 5 Resolution Status of Previous CARs – Each subsequent site inspection involves review of the resolution status of previous CARs. This is useful in assessing the responsiveness of the Contractor to environmental non compliances and where necessary provides the basis for determining when a contractual non-compliance penalty may need to be invoked (eg persistent noncompliance / no response to CAR).

*** Mitigation Effectiveness Rating Criteria**

1	Very Good	2	Good
3	Fair	4	Poor
5	Very Poor		

Attachments: (e.g., photos, remarks, laboratory reports, etc.)

FORM 01: MITIGATION MONITORING OF THE CONSTRUCTION SITE

Project	:			
Package	:		Contractor	:
Sub Contractor	:		Scope of Inspection	:
Weather condition	:	Rainy/windy/sunny/gloomy	Date & Time	:
Name of the Assessor	:		Position & Organization	:
Monitoring visit was carried out with the presence of -----				
Work site location and description:				

Construction Activity	Item	Monitoring Parameter (as EMP / CEMP)	Mitigation Implemented Yes / No / NA	Mitigation Effective* 1 to 5	Corrective Action Request (CAR) including deadline for Effective CA.	Resolution Status of previous CAR (resolved/outstanding actions required)
Environment						
All activities	1.	Person in charge on environmental management is appointed and is present on-site				
All activities	2.	Person in charge on emergency management is appointed and is present on-site				
All activities	3.	Person in charge on health and safety is appointed and is present on-site				
All activities	4.	Approved CEMP and relevant EIA/IEE reports available in the site office for the reference				
All activities	5.	Environment Method Statement (EMS) is prepared and approved for the particular week				
All activities	6.	Grievance log and Environmental log is available and duly updated				
Health & safety						
All activities	7.	Warning signs and exclusion barriers erected around work site areas				
All activities	8.	Workers are provided with and are using the uniform, applicable safety/protection equipment for site conditions				
All activities	9.	Worker's health checks implemented				
All activities	10.	Sanitary-hygienic conditions for workers are provided: drinking and washing water supply, mealtime utilities, toilets, rest time, resting areas etc				
All activities	11.	First aid kit is available on-site and is accessible to all workers				
All activities	12.	Fire extinguisher available				

Construction Activity	Item	Monitoring Parameter (as EMP / CEMP)	Mitigation Implemented Yes / No / NA	Mitigation Effective* 1 to 5	Corrective Action Request (CAR) including deadline for Effective CA.	Resolution Status of previous CAR (resolved/outstanding actions required)
All activities	13.	Competent fire fighters are available on site				
	14.	No visitors are found on site without safety induction and wearing PPE.				
	15.	Security/emergency alarms/ lighting etc are in place				
Emergency Response Plan						
All activities	16.	Copy of ERP and emergency contact list are available, updated and posted in a visible place at all work sites				
All activities	17.	Accident report maintained				
All activities	18.	Damage of utilities and/or other structures managed				
	19.	Emergency evacuation directional signage and Muster point signage are displayed and maintained.				
	20.	Necessary resources for emergency redress (as per the ERP) are available at the designated locations on site.				
	21.	Necessary skilled man power for emergency redress (as per the ERP) are available and Mock drills are undertaken/ recorded.				
	22.	Emergency casualty management facilities (site first aider, site first aid box/ room etc.) and infrastructures (stretcher, ambulance/ designated vehicle) are available on site.				
Trainings and orientation courses						
All activities	23.	Orientation course to identify the work responsibilities and institutional arrangements held				
All activities	24.	Workers briefed on CEMP at time of starting employment & where new recruitments take place				
All activities	25.	Workers briefed on ERP at time of starting employment				
All activities	26.	Job-specific environmental and safety training for workers provided				
Public communication and grievance redress mechanism: Environmental issues						
All activities	27.	People informed about the project activities prior to the contractor mobilization				
All activities	28.	People are notified on inconveniences: road closure, stopping water issue in the canals, drinking water supply, electricity breaks, etc., Meeting with community members on				

Construction Activity	Item	Monitoring Parameter (as EMP / CEMP)	Mitigation Implemented Yes / No / NA	Mitigation Effective* 1 to 5	Corrective Action Request (CAR) including deadline for Effective CA.	Resolution Status of previous CAR (re-solved/o utstanding actions required)
		construction activities, environmental impacts and mitigation measures held				
All activities	29.	Grievance Log maintained				
All activities	30.	Complaints observed during the last visit addressed				
All activities	31.	Media engagement taken place				
Environmental parameters: Dust Control						
Earth work, stock piling, material loading, unloading and transport, demolition of existing structures, construction waste disposal, operation of quarry/borrow sites and all other construction work related to dust emissions	32.	Construction area is barricaded properly to avoid spreading dust/emissions etc				
	33.	Trucks are operating using covers				
		Material stored under cover using proper anchoring systems				
	34.	Tires of trucks / machineries are cleaned before entering city roads				
	35.	Regular watering of access roads and the construction site				
	36.	Turfing of finished earthen structures				
	37.	Dust masks are provided for the workers and using at the required time				
	38.	Ambient air quality including dust levels monitored through an accredited laboratory during this week				
Noise & Vibration Control						
Activities related to producing noise & vibration such as, construction vehicle movement and machinery operations, noise generated from the labour activities, blasting, tunneling, excavations, borrow and quarry site operations etc.	39.	Construction equipment - estimated noise emissions and operating schedules				
	40.	Allowable noise levels in the boundary of construction sites are kept below 75 dB in day time.				
	41.	Managed by restricting operating hours				
	42.	Allowable vibration limits as per the CEA interim standards (2008)				
	43.	Stationary construction equipment are kept at least 500m away from sensitive receptors (temporary, schools, public places etc.)				
	44.	Idling of temporary trucks or other equipment are not permitted during periods of loading / unloading or when they are not in active use				
	45.	The vehicles/machineries used by the contractor (specially the high noise & vibration generating) is as per the list approved by the RE and no additional are used				
Hindrance to surface runoff, soil erosion and sedimentation						

Construction Activity	Item	Monitoring Parameter (as EMP / CEMP)	Mitigation Implemented Yes / No / NA	Mitigation Effective* 1 to 5	Corrective Action Request (CAR) including deadline for Effective CA.	Resolution Status of previous CAR (resolved/outstanding actions required)
All activities related to earth work	46.	Drains not blocked by sediment or other debris				
	47.	No flood due to construction work.				
	48.	Silt traps in places				
	49.	No slope failures and cuts made according to technical standards specified in the design				
	50.	Earth work is done during the dry spell				
	51.	Turfing of completed embankments/ slopes				
	52.	Grievance log for any public complaints related to erosion/slope failures etc				
	53.	Visual observation of any turbidity of downstream water ways and erosion, slope failures, deposition of soil/sediment in the agriculture lands				
	54.	Earth material & debris of the excavated material is properly placed / disposed/ reuse for back filling				
	55.	Surface water quality measurements of the adjacent water ways as per the baseline conditions set at least 6 months prior to the contract mobilization				
Environment Pollution / Contamination of receptors (water, land, air)						
All activities related to environmental contamination	56.	The work site and the surrounding area kept clean free from debris, garbage, etc.				
	57.	No foul smelling in and around the site				
	58.	No over flowing of drains/pits etc No water ways/bodies blocked by the debris				
	59.	Sign boards in place to direct / notify about waste / spoil disposal location and mechanism within and around the work site				
	60.	EPL for waste water treatment facilities and waste disposal sites are obtained and up-to-date				
	61.	Construction wastes are removed within 24 hours from the site				
	62.	Drainage paths not blocked				
	63.	Waste water disposal paths not directed to water ways / open lands				
	64.	Hazardous material are transported/ stored and handled as per the safety data sheet				

Construction Activity	Item	Monitoring Parameter (as EMP / CEMP)	Mitigation Implemented Yes / No / NA	Mitigation Effective* 1 to 5	Corrective Action Request (CAR) including deadline for Effective CA.	Resolution Status of previous CAR (re-solved/o utstanding actions required)
	65.	Safety data sheet is available in the office and stores all the time related to the all chemicals use				
	66.	All the locations are well identified and demarcated for vehicle parking, fuel / lubricants storage, vehicle, machinery and equipment maintenance and refueling etc				
	67.	Above sites are located away from rivers/ water ways, at least 200m away and 100 m away from the wild life areas/forest areas etc.				
	68.	No open burning of waste/ litter/vegetative parts/plastics or any other material within or surrounding areas of the construction site				
	69.	Starting and finishing times of major earthworks near water bodies stick to the schedule (during dry period)				
	70.	Visual observations of waste remains left onto the soil surface (oil spills, grease patches, any other chemical spillage etc.)				
	71.	Vehicles and machinery are up to the standard operation conditions (standard emission conditions, no oil/grease leak etc.)				
Ground water / Surface water resources						
TBM Operational activities / tunneling	72.	Water leaking in the tunneling areas				
	73.	Ground water levels to be monitored				
All activities associated with surface water ways	74.	Existing canals, streams or water sources have not been obstructed without relevant permission of the Engineer.				
	75.	No any kind of water ways diverted/alternated without relevant permission of the Engineer.				
Ecological resources						
Felling of trees and vegetation clearance	76.	The approval from relevant government agency (Local authority/ DWLC/FD) is obtained for the all pre-identified and marked trees to be removed which are more than 30 DBH/cm				
	77.	Trees are removed from the site before starting the construction activities contacting concerned department				

Construction Activity	Item	Monitoring Parameter (as EMP / CEMP)	Mitigation Implemented Yes / No / NA	Mitigation Effective* 1 to 5	Corrective Action Request (CAR) including deadline for Effective CA.	Resolution Status of previous CAR (re-solved/o utstanding actions required)
		(Timber cooperation/ Local authority etc.)				
	78.	Reforestation program is initiated by the Contractor as per the guidance given in the EMP and contract documents				
	79.	No burning of vegetation parts within the construction site				
	80.	Excess vegetation matter is properly disposed or reused				
Site maintenance	81.	Proximity to ecological protected areas/sensitive areas and the relevant maps displayed on site and guidance on conservation practices to be				
Alien Invasive Species (AIS) management during material transport, weed removal, de-silting, and other activities which has a possibility of spreading AIS	82.	Inspection of soil storage areas, wash down areas, vehicle parking areas and disposal sites for the presence of weeds or alien invasive species by an Environmental officer who identify the AIS and take necessary actions to control the spreading (cleaning vehicles tires, monthly monitoring of areas where the material transport etc.)				
	83.	Poster displayed / hand outs distributed with the photos of identified AIS to educate villagers/ labors etc				
Canal weed removal/ de-silting	84.	Weeds removed and placed in a way that drainage will be directed away from the bank and slope				
	85.	Transportation and disposal of removed weed done as per the instructions given by the Engineer, through the identified routes and disposal sites to avoid contamination of associated waterways				
All activities	86.	Any project activity within wild life/forest protected areas strictly avoided				
	87.	Activities which disturb wild life are avoided (hunting, poaching, fishing in the waterways, making noises, lighting during night etc.)				
	88.	Any records of wildlife deaths, human wild life conflicts, fish kills in or around the project area are recorded in the environmental log and justify the reasons/actions taken etc.				
	89.	The conditions laid in the approval letter issued by the Wild life department followed (Annexed with revised EMP)				

Construction Activity	Item	Monitoring Parameter (as EMP / CEMP)	Mitigation Implemented Yes / No / NA	Mitigation Effective* 1 to 5	Corrective Action Request (CAR) including deadline for Effective CA.	Resolution Status of previous CAR (resolved/outstanding actions required)
	90.	No extra felling of trees other than the identified and approved				
	91.	Reforestation initiated/done as per the guidance given in the EIA/EMP				
	92.	No solid/liquid waste disposed to the wild life habitats				
	93.	Elephant fences regularly monitored and managed as per the guidance given in the EIA/EMP				
	94.	Environmental log is updated with any issue related to ecological /wild life disturbance				
	95.	Any complaints received from DWLC is addressed immediately				
Socio-economic						
Rehabilitation/ construction activities related to irrigation canals and tanks	96.	All construction activities commence just after Maha season (November - February) cultivation and construction activities to be completed below Full Supply level of the canal /tank before commencing next Maha season				
De-silting & rehabilitation of irrigation canals, tanks etc.	97.	Any temporary water issues / shortages managed as per the guidance given in CEMP				
	98.	Visual observation of any silt material deposited / drained onto the irrigation areas/paddy field etc.				
Activities related to the obstruction of livelihood activities of the community, blockage of access roads / entrance etc.	99.	Temporary access roads/ bridges and alternative roads provided where necessary				
	100.	Notice public complaints and social unrest				
	101.	Proper signaling, displays, and community awareness				
	102.	Contractor has provided convenient passage for vehicles, pedestrians and livestock				
All construction activities	103.	Grievance log is maintained in the project office up to date and the solutions given for the issues				
Increase in vehicular traffic during transport of construction materials/ waste disposal etc.	104.	Vehicle fleet is managed as per the schedule				
	105.	Transport routes taken by construction related vehicles				
	106.	Traffic management Plan is in place where necessary				
	107.	Periodical checks of Water stagnating points for any offensive smells emanating from chemicals and processes				

Construction Activity	Item	Monitoring Parameter (as EMP / CEMP)	Mitigation Implemented Yes / No / NA	Mitigation Effective* 1 to 5	Corrective Action Request (CAR) including deadline for Effective CA.	Resolution Status of previous CAR (resolved/outstanding actions required)
Construction site management and labour operations		applied in construction works or from labor camps				
	108.	Time framing of construction work as per the schedules approved				
	109.	Visual inspection of drainage and sanitation issues				
	110.	Appropriate selection of fill disposal and dispersal locations				
	111.	Presence of proper sanitation, water supply and waste disposal facilities				
	112.	Periodical health checks for the exposed community in the immediate vicinity and the labour force/ project staff held				
	113.	Awareness programs on health management held for the community and the project staff				
	114.	CSR programs developed and held to attract community to achieve project goals				
Cultural and archeological						
All activities	115.	No work spilled over to the cultural properties, premises and precincts.				
	116.	Any artifacts recorded are informed to the relevant department				

Attachments: (e.g., Photos, Remarks, Laboratory reports, etc.)

Authorization

The monitoring form is dully filled and the information provided is true and up-to-date.
Form filled by;

Name: ----- Designation: -----

Signature

Approved by

-----	-----
Resident Engineer	Environmental Officer (PIU)
Date:	Date:

Annex 2- B Environmental Monitoring Form 2**MAHAWELI WATER SECURITY INVESTMENT PROGRAM (MWSIP)****ENVIRONMENTAL MONITORING FORMAT 02 - QUARRY / BORROW/ DISPOSAL SITES**Instructions to the monitoring officer

- (i). Contractor is notified on all non-conformances and requested to make arrangements on improvement. Notes on Use of Mitigation Monitoring Form
- (ii). This form, or an adaptation of it, should be used during routine (preferably weekly) site inspections by the PIU Environmental Officer/unit or representative (Supervision Consultant) to monitor implementation of the approved CEMP during the construction phase of MWSIP project contract packages.
- (iii). Routine site inspections should cover all current/relevant construction activities being implemented on the project site at the time of inspection. Ideally, the Contractor's Environmental officer/focal point should accompany the PIU Environmental Officer or representative during routine inspections.
- (iv). Once completed, the form should be sent to the Contractor for his information and action including any photographs. A copy of the completed form is retained in the data management system of the PIU for reference during subsequent site inspections and for referral during preparation of monitoring reports.
- (v). Column 1 Construction Activity – All current/relevant construction activities taking place on the project site for which mitigation measures are required under the EMP/CEMP, are listed.
- (vi). Column 2 Mitigation Measure – Specific mitigation measures required under the EMP/CEMP for the corresponding construction activity are listed.
- (vii). Column 4 Corrective Action Request – Where the inspection identifies non-compliance or ineffective implementation of a mitigation measure, specific corrective actions are identified, discussed and agreed with the Contractor including a deadline for effective corrective action.
- (viii). Column 5 Resolution Status of Previous CARs – Each subsequent site inspection involves review of the resolution status of previous CARs. This is useful in assessing the responsiveness of the Contractor to environmental non compliances and where necessary provides the basis for determining when a contractual non-compliance penalty may need to be invoked (eg persistent noncompliance / no response to CAR).

*** Mitigation Effectiveness Rating Criteria**

1	Very Good	2	Good
3	Fair	4	Poor
5	Very Poor		

Attachments: (e.g., photos, remarks, laboratory reports, etc.)

FORM 02: MITIGATION MONITORING OF THE QUARRY / BORROW / DISPOSAL SITES

Project	:			
Package	:		Contractor	:
Sub Contractor	:		Scope of Inspection	:
Weather condition	:	Rainy/windy/sunny/gloomy	Date & Time	:
Name of the Assessor	:		Position & Organization	:
Monitoring visit was carried out with the presence of -----				
Quarry / Borrow site location and description:				

	Monitoring Parameter (as EMP / CEMP)	Mitigation Implemented Yes / No / NA	Mitigation Effective* 1 to 5	Corrective Action Request (CAR) including deadline for Effective CA.	Resolution Status of previous CAR (resolved/outstanding actions required)
Regulatory measures / Approvals					
1	Sites are identified / boundaries demarcated				
2	Site is not established within areas protected under FFPO and FO				
3	EPLs from CEA have been obtained and not expired				
4	LGA permits are available				
5	Obtained required approvals from the Defense Ministry to use/transport explosives for quarry operations				
6	Approved site rehabilitation plan is available				
7	Operation manual is available on site				
8	The GSMB mining license/ transport permit (as applicable) is available. GSMB=Geological Survey & Mines Bureau				
Noise/Vibration management					
9	Excessive site noise managed by restricting operating hours				
10	Noise & vibration level has been checked periodically				
Air quality					
11	Dust control is implemented on dump, excavation or topsoil stockpile site				
12	Emission from machineries has been controlled.				
13	No harmful/significant dust generation during quarry operation				
14	All the machineries have been fitted with proper exhaust silencers				

	Monitoring Parameter (as EMP / CEMP)	Mitigation Implemented Yes / No / NA	Mitigation Effective* 1 to 5	Corrective Action Request (CAR) including deadline for Effective CA.	Resolution Status of previous CAR (resolved/outstanding actions required)
15	Exhaust silencers have been checked periodically.				
Water quality / Soil					
16	Slopes are stable and no possibilities of eroding / landslides				
17	Sediment laden runoff from excavation or dumping sites does not enter natural water courses				
18	No water ways/bodies blocked				
19	Water logging is not evident in the site				
20	No soil/water contamination from oil/fuel/leachate /debris etc.				
Ecological Resources					
21	No damage to important flora/fauna or habitats				
22	No human - wild life conflicts				
23	No spreading of invasive species promoted				
Nuisance to human / cultural resources					
24	No unnecessary or improper interference has been done to the convenience of public, access, occupation of public, private road, or foot paths.				
25	No nuisance to public due to foul smelling, dust, noise /vibration etc.				
26	No materials have been stacked or placed to cause danger or inconvenience to any person or the public.				
27	No work spilled over to the cultural properties, premises and precincts.				
28	Tires of vehicles are free of mud and entrained material before entering public roads				
29	Public roads are cleaned of any material dropped during transit				
30	No significant fuel and oil spills visible in the excavated or dumping area				
31	Haul trucks use tarpaulins to cover loads for transportation on public roads				
32	Haul truck tailgates and sides fit properly and do not allow material to fall on public roads				
33	Haulage routes and the vehicle fleet schedules are strictly followed to ensure no traffic congestions				
Site maintenance and safety					
34	Surface of the site is properly maintained				
35	Contractor has taken necessary measures for the safety				

	Monitoring Parameter (as EMP / CEMP)	Mitigation Implemented Yes / No / NA	Mitigation Effective* 1 to 5	Corrective Action Request (CAR) including deadline for Effective CA.	Resolution Status of previous CAR (resolved/outstanding actions required)
36	Workers' safety has been assured supplying and wearing helmets, jackets, boots and mars and ear plugs etc.				
37	No visitors are found on site without safety induction and wearing PPE				
38	Competent fire fighters are available on site				
39	Hazardous waste disposal is done as per the CEA standards				
Public / community safety					
40	Availability of Notice board on operational hours/ blasts and communication mode etc. at Public places, Warning signs/ flagmen on access routes, Use of siren etc. as applicable.				

Attachments: (e.g., Photos, Remarks, Laboratory reports, etc.)

Authorization

The monitoring form is dully filled and the information provided is true and up-to-date.
Form filled by;

Name: ----- Designation: -----

Signature

Approved by;

Resident Engineer
Date:

Environmental Officer (PIU)
Date:

Annex 2- C Environmental Monitoring Form 3**MAHAWELI WATER SECURITY INVESTMENT PROGRAM (MWSIP)****ENVIRONMENTAL MONITORING FORMAT 03 - LABOUR CAMPS & CONTRACTOR'S FACILITIES & EQUIPMENTS**Instructions to the monitoring officer

- (i). Contractor is notified on all non-conformances and requested to make arrangements on improvement. Notes on Use of Mitigation Monitoring Form
- (ii). This form, or an adaptation of it, should be used during routine (preferably weekly) site inspections by the PIU Environmental Officer/unit or representative (Supervision Consultant) to monitor implementation of the approved CEMP during the construction phase of MWSIP project contract packages.
- (iii). Routine site inspections should cover all current/relevant construction activities being implemented on the project site at the time of inspection. Ideally, the Contractor's Environmental officer/focal point should accompany the PIU Environmental Officer or representative during routine inspections.
- (iv). Once completed, the form should be sent to the Contractor for his information and action including any photographs. A copy of the completed form is retained in the data management system of the PIU for reference during subsequent site inspections and for referral during preparation of monitoring reports.
- (v). Column 1 Construction Activity – All current/relevant construction activities taking place on the project site for which mitigation measures are required under the EMP/CEMP, are listed.
- (vi). Column 2 Mitigation Measure – Specific mitigation measures required under the EMP/CEMP for the corresponding construction activity are listed.
- (vii). Column 4 Corrective Action Request – Where the inspection identifies non-compliance or ineffective implementation of a mitigation measure, specific corrective actions are identified, discussed and agreed with the Contractor including a deadline for effective corrective action.
- (viii). Column 5 Resolution Status of Previous CARs – Each subsequent site inspection involves review of the resolution status of previous CARs. This is useful in assessing the responsiveness of the Contractor to environmental non compliances and where necessary provides the basis for determining when a contractual non-compliance penalty may need to be invoked (eg persistent noncompliance / no response to CAR).

*** Mitigation Effectiveness Rating Criteria**

1	Very Good	2	Good
3	Fair	4	Poor
5	Very Poor		

Attachments: (e.g. photos, remarks, laboratory reports, etc.)

FORM 03: MITIGATION MONITORING OF THE LABOUR CAMPS & CONTRACTOR'S FACILITIES & EQUIPMENT

Project	:			
Package	:		Contractor	:
Sub Contractor	:		Scope of Inspection	:
Weather condition	:	Rainy/windy/sunny/gloomy	Date & Time	:
Name of the Assessor	:		Position & Organization	:
Monitoring visit was carried out with the presence of -----				
Site location and description:				

	Monitoring Parameter (as EMP / CEMP)	Mitigation Implemented Yes / No / NA	Mitigation Effective* 1 to 5	Corrective Action Request (CAR) including deadline for Effective CA.	Resolution Status of previous CAR (resolved/outstanding actions required)
1	Sites are identified / boundaries demarcated				
2	Site is not established within areas protected under FFPO and FO				
3	EPLs from CEA have been obtained and not expired				
4	LGA permits are available				
5	Approved site rehabilitation plan is available				
6	Site Management Plan for the camp available and Camp is installed strictly in accordance with Safety Management Plan				
7	Labour camps with proper facilities such as enough spaces, ventilation, beds, mosquito nets, lavatories, bathing facilities, drinking water are available				
8	Waste water collection and treatment is implemented properly				
9	The sewage system for the camp is planned and implemented with concurrence from the Local Public Health Officer (PHO)				
10	Camp is kept clean from debris, garbage, etc. Waste is collected and disposed of in approved sites				
11	Vehicles' and machinery parking and maintenance is organized properly: re-fuelling, clean repair etc.				
12	Fuel, chemicals, lubricants and other liquid materials' storage is organized properly in accordance with ERP				
13	Storage of hazardous material is organized properly in accordance with ERP				

	Monitoring Parameter (as EMP / CEMP)	Mitigation Implemented Yes / No / NA	Mitigation Effective* 1 to 5	Corrective Action Request (CAR) including deadline for Effective CA.	Resolution Status of previous CAR (resolved/outstanding actions required)
14	The required training , notices and sign boards in and around the site related to good construction & engineering practices, occupational health and safety, commutable diseases, good behavioral practices shall be facilitated by the contractor at the labor recruitment				
15	Safety gear for workers has been supplied				
16	Medical centre/ambulance room is available with nurse and first aid medicine				
17	A vehicle is available to take patients immediately to the hospital				
18	Excessive site noise managed by restricting operating hours				
19	Water logging is not evident in the site				
20	No soil/water contamination from oil/fuel/leachate /debris etc				
21	Not facilitating for human - wild life conflicts				
22	No unnecessary or improper interference has been done to the convenience of public, access, occupation of public, private road, or foot paths				

Attachments: (e.g., Photos, Remarks, Laboratory reports, etc.)

Authorization

The monitoring form is fully filled and the information provided is true and up-to-date.

Form filled by;

Name: ----- Designation: -----

Signature

Approved by;

Resident Engineer

Date:

Environmental Officer (PIU)

Date: