

Improvements to FC 13 and FC 14 Canal – LB Tract 01 and Improvement to FC-02 Canal and Farm Road – RB Track-04, at Muthuiyankaddu Scheme in Muthuiyankaddu Division.

ESR & EMP

Integrated Rurban Development and Climate Resilience Project (IRDCRP). Ministry of Agriculture, Livestock, Land, and Irrigation

Table of Contents

1. Introduction 2
1.1. Project Summary: Rehabilitation of FC 13 & FC 14 Canals (Muththuiyankaddu LB Tract 01) 3
1.2. Improvements to FC-02 Canal and Farm Road – RB Track-04 6
2. Brief Description of the Proposed Activities 9
3. Impact Matrix Code 0
4. Environmental Screening 2
5. Screening Decision and Recommendation 8
5. Environmental Management Plan 9

List of Table

Table 1: **Improvements to LB- FC 13 and 14 Canal Lining-Tract 01** 9
Table 2: Improvements to Track 04 of the FC 02 canal (Right Bank – RB) 11
Table 4: Trees need to be cut along the FC 14 canal 13
Table 5: Environmental Screening for the proposed Rehabilitation Works at Muththiyankaddu Scheme. 2
Table 6: Environmental Management Plan 9

List of Figures

Figure 1: Location and surrounding area of Muththiyankaddu Tank (Source: Google Earth, 2026) 2
Figure 2: Current appearance of the FC 13 Canal Tract 01 3
Figure 3: Current condition of the FC 13 and FC 14 Canals of LB Tract 01, respectively 4
Figure 4: The FC-13 Canal running parallel to the road (the canal segment is marked in purple). 5
Figure 5: Current appearance of the Track 04 of the FC 02 canal (Right Bank – RB) 6
Figure 6:Certain sections of the Track 04 of the FC 02 canal (Right Bank – RB) remain with concrete lining 7
Figure 7: A section of the Track 04 of the FC 02 canal and farm road (Right Bank – RB) 7
Figure 8: Current condition of the different sections of Track 04 of the FC 02 canal (Right Bank – RB) 8

1. Introduction

The **Muthiyankaddu Tank**, located in the Oddusudan Divisional Secretariat Division, Mullaitivu district of the Northern Province, is a vital irrigation resource, is primarily fed by the **Per Aru** and features a catchment area encompassing approximately **66 square miles (171 square kilometers)**. This hydrological system is supported by the surrounding **Muthiyankaddu Forest Reserve**, which serves as the critical watershed for the reservoir. Beyond its hydrological function in preventing siltation and regulating inflow, the forest is a high-biodiversity zone that acts as a significant habitat and corridor for wildlife, including elephants, contributing to the broader ecological connectivity of the Northern Province. The forest remains in the catchment, also shelters the Mutiyankattuwa Archaeological Ruins, which include ancient stone pillars, moonstones, and remnants of a Buddhist religious complex from the Anuradhapura period.



Figure 1: Location and surrounding area of Muththiyankaddu Tank (Source: Google Earth, 2026)

The tank has a gross storage capacity of 48,000 acre-feet and an irrigable command area of 6,112 acres. It supplies water through a gravity-based canal network as well as lift irrigation systems that serve higher elevation farmlands. The irrigation system consists of both Left Bank (LB) and Right Bank (RB) canal networks including many feeder canals.

The proposed activities by the Provincial Irrigation Department of the Northern Province do not

impact the upper catchment area, where the original forest cover remains intact. Instead, the project scope is confined to the downstream sections of the scheme, specifically focusing on the smaller feeder canals located within areas of existing paddy cultivation and human habitation. Further, elephant corridors, HEC or archaeological ruins do nor remain in the project impact zone at the downstream.

1.1. Project Summary: Rehabilitation of FC 13 & FC 14 Canals (Muththuiyankaddu LB Tract 01)

The FC 13 and FC 14 canals have deteriorated due to inadequate maintenance for decades of time, and flood damage, resulting in severe seepage and structural breaches that affect approximately **250 acres**. The adjoining farm road is also heavily eroded, restricting essential agricultural access. Proposed interventions include desilting, structural reconstruction, concrete lining, and road gravelling. These improvements are expected to reduce conveyance losses by **40–60%**, restore irrigation to the full 250-acre command area.

Hence, the proposed improvements to FC 13 and FC 14 will restore their hydraulic conveyance capacity to design discharge levels while reducing seepage losses through the installation of concrete lining and structural stabilization. Proposed interventions (Table 1) will help reinstate full operational connectivity to approximately 250 acres of cultivated land and enhance the resilience of the canal network to extreme rainfall and erosion events. In addition, proposed farm road rehabilitation (Table 1) will ensure reliable access for maintenance and agricultural activities. Severe erosion was observed near the spillway of the Perunkaruveppamurippu tank due to continuous overflow.



Figure 2: Current appearance of the FC 13 Canal Tract 01

Several canal sections were observed to have lost their original shape, reducing flow capacity. Seepage losses were observed due to poor or missing lining. Structural damage and side slope

failures were also observed in several places. In addition, silt buildup and vegetation growth were observed, reducing the effective flow and efficiency of the canal.



Figure 3: Current condition of the FC 13 and FC 14 Canals of LB Tract 01, respectively

Figures 2, 3, 4, and 5 illustrate various segments of the **FC 13 and 14 Canal (LB Tract 01)** at different locations. The entire canal has undergone varying levels of degradation across these segments; specifically, the earthen sections are heavily silted.

As shown in **Figure 4**, an approximately **800 m** segment of the FC 14 runs parallel to the **Katchilalmadu public road**. During the proposed rehabilitation works, removal of vegetation will

be minimal, and no trees will be cut. While farmers report that no elephants or other critical fauna are present during the day, poisonous snakes are occasionally encountered.

As outlined in **Table 1**, the proposed minor rehabilitation works include:

- **Desilting** specific canal segments where necessary.
- Installing **concrete lining**.
- Establishing **regulatory apparatus**.



Figure 4: The FC-13 Canal running parallel to the road (the canal segment is marked in purple).

1.2. Improvements to FC-02 Canal and Farm Road – RB Track-04



Figure 5: Current appearance of the Track 04 of the FC 02 canal (Right Bank – RB)



Figure 6:Certain sections of the Track 04 of the FC 02 canal (Right Bank – RB) remain with concrete lining.

During the rehabilitation and lining of the vegetation removal will be minimal in every canal, and no large trees require removal. Diurnal fauna activity is limited, as the canal is surrounded by human habitation and paddy fields. While farmers report that poisonous snakes occasionally appear, no elephants or other critical fauna are present during the daytime.



Figure 7: A section of the Track 04 of the FC 02 canal and farm road (Right Bank – RB)

Figure 8 depicts the farm access road and the FC 14 along the access road. Figure 9 depicts the current condition of the FC 14 Canal and the amount of vegetation that requires clearing during rehabilitation. In this segment, the canal remains 3–4 feet deep and shows signs of erosion.

Both sites intended for canal rehabilitation and are not situated within or in proximity to any designated forest reserves, wildlife reserve, protected natural habitats, or recognized archaeological or cultural heritage sites, and no trees shall be removed or cut as part of the proposed rehabilitation works. Therefore, no impacts on such environmentally or historically sensitive areas are anticipated. The area is not identified as a human–elephant conflict zone, and wildlife presence is minimal, with only rare sightings of peacocks reported.



Figure 8: Current condition of the different sections of Track 04 of the FC 02 canal (Right Bank – RB)

2. Brief Description of the Proposed Activities

The rehabilitation of the headworks is not proposed under this project. Only downstream activities, such as channel and farm road improvements, are proposed, as shown in the following tables.

Table 1: **Improvements to LB- FC 13 and 14 Canal Lining-Tract 01**

No	Description	Unit	Quantity
1	**Improvements to LB/ Track01 / FC13 Canal Lining**		
1.1	**Construction of (600mm x 1000mm) Canal lining at LB/Track 01/FC13-(0+000 - 0+150)** **DWG. NO: IRDCRP/2025/MUL/MIK/LB/Tr01/FC-13 / CANAL/LS/01**		
1.1.1	Secondary growth clearing along the channel & reservation, including uprooting stumps, removing all debris outside the reservation, and burning manually.	Ha	0.05
1.1.2	Earth Excavation in the foundation and backfilling / spoil to waste (away from 1km at the site) / dump, including watering and compaction	m^3	66.08
1.1.3	Burrow earth from the burrow area and backfill along the side, forming bund for canal lining, including placing, watering, and compacting.	m^3	85.95
1.2	**Construction of (600mm x 800mm) Canal lining at LB/Track 01/FC13-(0+150 -0+375)** **DWG. NO: IRDCRP/2025/MUL/MIK/LB/Tr01/FC-13/CANAL/LS/02**		
1.2.1	Secondary growth clearing along the channel & reservation, including uprooting stumps, removing all debris outside the reservation, and burning manually.	Ha	0.07
1.2.2	Earth Excavation in the foundation and backfilling / spoil to waste (away from 1km at the site) / dump, including watering and compaction	m^3	81.20
1.2.3	Burrow earth from the burrow area and backfill along the side, forming a bund for canal lining, including placing, watering, and compacting.	m^3	96.04
1.3	**Construction of (600mm x 600mm) Canal lining at LB/Track 01/FC13-(0+375 -0+592)** **DWG. NO: IRDCRP/2025/MUL/MIK/LB/Tr01/FC-13/CANAL/LS/03**		
1.3.1	Secondary growth clearing along the channel & reservation, including uprooting stumps, removing all debris outside the reservation, and burning manually.	Ha	0.07
1.3.2	Earth Excavation in the foundation and backfilling / spoil to waste (away from 1km at the site) / dump, including watering and compaction	m^3	59.02

1.3.3	Burrow earth from the burrow area and backfill along the side, forming bund for canal lining, including placing, watering, and compacting.	m^3	72.05
1.4	**Construction of (300mm x 450mm) Canal lining at LB/Track 01/FC13-(0+592 -0+742) DWG. NO: IRDCRP/2025/MUL/MIK/LB/Tr01/FC-13/ CANAL/LS/04**		
1.4.1	Secondary growth clearing along the channel & reservation, including uprooting stumps, removing all debris outside the reservation, and burning manually.	Ha	0.05
1.4.2	Earth Excavation in the foundation and backfilling / spoil to waste (away from 1km at the site) / dump, including watering and compaction	m^3	17.50
1.4.3	Burrow earth from the burrow area and backfill along the side, forming a bund for canal lining, including placing, watering, and compacting.	m^3	57.61
1.5	**Repair of 300mm dia. hump pipe Turnout (6.1m Long) at LB/Track 01/ FC13/-(0+000) DWG. NO: IRDCRP/2025/MUL/MIK/LB/Tr01/FC-13/ Structure/01**		
1.5.1	Demolish the damaged existing structures and Hume pipes, and remove all debris and transport it up to 1 km away from the site as directed	L/Day	2.00
1.5.2	Earth Excavation in the foundation and backfilling / spoil to waste/dump, including watering and compaction	m^3	1.08
1.5.3	Burrowing earth form identified burrow area and filling around the structure with compacting by Machinery and shaping by manual	m^3	1.89
1.6	**Construction of 150mm,300mm dia. hump pipe Turnout (6.1m Long) at LB/Track 01/FC13/(FC-0+010, FC14-0+110, FC-0+592) DWG. NO: IRDCRP/2025/MUL/MIK/LB/Tr01/FC-13/FC/TO/Type/01**		
1.6.1	Demolishing existing damaged Structures spoil to waste.	L/day	6.00
1.6.2	Earth Excavation in the foundation and backfilling / spoil to waste/dump, including watering and compaction	m^3	38.20
1.6.3	Burrowing earth form identified burrow area and filling around the structure with compacting by Machinery and shaping by manual	m^3	19.40
1.7	**Construction of 700x600 Single Bay Regulator at LB/Track 01/ FC13(0+592) DWG. NO: IRDCRP/2025/MUL/MIK/LB/Tr01/FC-13/ Structure/01**		
1.7.1	Demolishing existing damaged structures spoil to waste	L/Day	2.00
1.7.2	Earth Excavation in the foundation and backfilling / spoil to waste/dump, including watering and compaction	m^3	0.47
1.8	**Repairs of 100mm dia. hump pipe Farm turnout at LB/Track 01 /FC13/ (0+268,0+305,0+371, 0+467,0+520,0+568,0+592,0+643) DWG. NO: IRDCRP/2025/MUL/MIK/LB/Tr01/FC-13/ FTO/Type/01**		

1.8.1	Earth Excavation in the foundation and backfilling / spoil to waste / dump, including watering and compaction	m^3	0.69
1.8.2	Burrowing earth form identified burrow area and filling around the structure with compacting by Machinery and shaping by manual	m^3	2.17

Table 2: Improvements to Track 04 of the FC 02 canal (Right Bank – RB)

No	Description	Unit	Quantity
2	**Improvements to LB/Track01/FC14 Canal Lining and Field Road**		
2.1	**Construction of (350mm x 450mm) Canal lining at LB/Track 01/FC14-(0+000 - 0+086)** **DWG. NO: IRDCRP/2025/MUL/MIK/LB/Tr01/FC-14/ CANAL/LS/01**		
2.1.1	Secondary growth clearing along the channel & reservation, including uprooting stumps, removing all debris outside the reservation, and burning manually.	Ha	0.03
2.1.2	Earth Excavation in the foundation and backfilling / spoil to waste (away from 1km at the site) / dump, including watering and compaction	m^3	17.85
2.1.3	Burrow earth from the burrow area and backfill along the side, forming bund for canal lining, including placing, watering, and compacting.	m^3	34.54
2.2	**Construction of (300mm x 450mm) Canal lining at LB/Track 01/FC14-(0+086 - 0+357) DWG. NO: IRDCRP/2025/MUL/MIK/LB/Tr01/FC-14/CANAL/LS/02**		
2.2.1	Secondary growth clearing along the channel & reservation, including uprooting stumps, removing all debris outside the reservation, and burning manually.	Ha	0.09
2.2.2	Earth Excavation in the foundation and backfilling / spoil to waste (away from 1km at the site) / dump, including watering and compaction	m^3	61.06
2.2.3	Burrow earth from the burrow area and backfill along the side, forming bund for canal lining, including placing, watering, and compacting.	m^3	53.62
2.3	**Construction of (300mm x 300mm) Canal lining at LB/Track 01/FC14-(0+357 - 0+400)** **DWG. NO: IRDCRP/2025/MUL/MIK/LB/Tr01/FC-14/CANAL/LS/03**		

2.3.1	Secondary growth clearing along the channel & reservation, including uprooting stumps, removing all debris outside the reservation, and burning manually.	Ha	0.02
2.3.2	Earth Excavation in the foundation and backfilling / spoil to waste (away from 1km at the site) / dump, including watering and compaction	m^3	3.90
2.3.3	Burrow earth from the burrow area and backfill along the side, forming bund for canal lining, including placing, watering, and compacting.	m^3	7.69
2.4	**Improvements of (300mm x 450mm) Earthen Canal at LB/Track 01/FC14-(0+400 -0+600)** **DWG. NO: IRDCRP/2025/MUL/MIK/LB/Tr01/FC-14/ CANAL/LS/04**		
2.4.1	Scarifying top soil along the upstream slope, downstream slope, and top of the canal bund to a thickness of 0.025 meters in order to receive new earth and spoils to be disposed outside the reservation as directed	m^2	0.04
2.4.2	Earth Cutting in the canal or canal reservation and forming the canal bund, including Compaction by Machinery and shaping by manual	m^3	25.27
2.4.3	Earth Excavation from burrow and forming the canal bund, including Compaction by Machinery and shaping by manual	m^3	53.87
2.5	**Construction of 100mm dia.,7.32m long hump pipe Farm turnout at LB/Track 01/FC14/ (0+055,0+086,0+371,0+158,0+244,0+325,0+357,0+520,0+640)** **DWG. NO: IRDCRP/2025/MUL/MIK/LB/Tr01/FC-14/ FTO/Type/01**		
2.5.1	Earth Excavation in the foundation and backfilling / spoil to waste/dump, including watering and compaction	m^3	1.39
2.5.2	Burrowing earth form identified burrow area and filling around the structure with compacting by Machinery and shaping by manual	m^3	14.52
2.6	**MISCELLINIOUS**		
2.6.1	Removal of secondary vegetation and 4 tresses in the canal and canal reservation area, demolition of damaged existing structures using by back hoe loader (JCB-120hp), removal of all debris, and transport debris up to 1km away from the site as directed.	M/hrs.	8.00
2.7	**Improvements to Gravel Road at LB/Track 01/ FC14-(0+000 -0+600)** **DWG. No: IRDCRP/2025/MUL/MIK/LB/Tr01/FC-14/ Road/LS/01**		

2.7.1	Trimming and comparing road way by machinery	m^2	3,300.00
2.7.2	Earth Excavation from burrow and forming roadway, including transport, spreading, and placing in layers average thickness not more than 225 mm as earth filling in the existing road, including picking roots, watering, and compacting by machinery	m^3	351.98

Table 3: Trees need to be cut along the FC 14 canal[1]

No	Picture	***Species***	Diameter @ the DBH
1		***Borassus flabellifer***	-
2		***Thespesia populnea***	46 cm

[1] The GPS locations could not be obtained, but all the trees were located within 50 m along the Track 04 of the FC 02 canal (Right Bank – RB). The GPS location appears as 9.21558^0 N, 80.64633^0 E

3.			***Azadirachta indica***	52 cm
4.			***Azadirachta indica***	58 cm

3. Impact Matrix Code

Risk Level	Nature of Assessment/Impact-Based Criteria	Mitigation Based Criteria
High Risk	The subproject will be classified as 'High risk' if: The sub project is expected to cause significant, severe, long-lasting, or permanent damage to the natural, physical, or social environment, cannot be mitigated or; ○ Sub-projects that involve significant conversion or degradation of critical natural habitats such as sensitive ecosystems (e.g., wetlands, primary forests, protected areas). ○ The effects extend beyond the project site, potentially impacting entire regions or even neighboring provinces. ○ The risks of the sub project are novel, complex, or the project involves specialized or hazardous processes that are difficult to manage. ○ Sub projects involving large-scale use of hazardous materials, significant air emissions, or large volumes of untreated industrial waste. ○ Sub projects that significantly alter major hydrological systems, such as large dams or barrages, which can affect river flow, aquatic biodiversity, and downstream communities. ○ Sub projects requiring the physical displacement or economic displacement (loss of land, assets, or access to resources) of a large number of people. ○ Sub projects impact on Indigenous Peoples/Vulnerable Groups ○ Sub projects that negatively affect the land, natural resources, culture, or livelihoods of Indigenous Peoples or other significantly vulnerable populations, often requiring Free, Prior, and Informed Consent (FPIC). ○ Major construction activities or infrastructure that poses severe risks to the health, safety, and security of surrounding communities (e.g., large-scale labor influx, major traffic hazards, or structural risks). ○ Destruction or significant damage to nationally or internationally recognized physical cultural resources or heritage sites.	Mitigation necessitates meticulous planning and the implementation of high-tech, costly design solutions. Even with such measures, residual effects are likely to persist.
Substantial Risk	The Subproject will be classified as a substantial risk intervention if it will directly lead to the following;	Mitigation is feasible and

	○ Activities that could lead to invasion or spread of weeds and feral animals or the use of toxic chemicals, intensive use of pesticides. ○ Activities that could dangerously lead to the exposure of sensitive/critical/vulnerable habitats. ○ Construction of large new infrastructure within or directly adjacent (in buffer zones) to protected areas. ○ Illegal Activities as defined specifically under the Forest Ordinance and Fauna and Flora Protection Ordinance. ○ Subprojects, those involve collection of seeds/farming materials from the wild. ○ Sub-projects that may impose changes in land use that restrict access to resources in legally designated parks or protected areas or other common property resources on which local people may depend for livelihood purposes. In addition, as per the screening the subproject will have a majority of large-scale E&S impacts that will cause irreversible damage to the environment and communities.	effective, requiring only moderate design-based and/or operational planning. Residual effects are expected to be nil, minor, or temporary in nature.
Moderate Risk	The subproject will be classified as 'Moderate risk' if: ○ The subproject will have a majority of reversible, small-medium scale E&S impacts, specifically limited to the civil works phase of the project that can be managed by site specific mitigation measures. ○ Require minor land acquisition or restrictions on land use, as a result of which there will be no significant impact on incomes or livelihoods. ○ Subprojects requiring adoption of Abbreviated Resettlement Action Plan (ARAP), Environmental and Social Management Plans (ESMPs) and or E&S Assessment and require further screening in line with the detailed technical designs of the respective subproject.	Mitigation is straightforward and low-cost, and it is expected to fully address the impact. No residual impacts shall remain.
Low Risk	A subproject will be classified as 'Low risk,' if: ○ The Subproject has low-negligible E&S impacts that can be managed via mitigatory codes of practice that will be defined as part of the contractual agreement/memorandums of understanding with project implementing contractors or operators. ○ The Subproject does not require any land acquisition or lead to any impact on incomes or livelihoods. ○ The Sub-project does not require formal E&S assessment, nor preparation of ESMPs and do not have identifiable negative E&S impacts.	No mitigation required or minimal preventive measures sufficient within O & M.

4. Environmental Screening

Table 4: Environmental Screening for the proposed Rehabilitation Works at Muththiyankaddu Scheme.

No	Screening Questions	Yes/No	Scale of Impact	Remarks
1	Will the proposed project involve the **construction of new physical infrastructure or the rehabilitation of existing infrastructure**? Or; Will the project involve any of the following? (Select all that apply) **1.1.** Construction of new physical infrastructure (e.g., buildings, roads, anicuts, canals, sluice gates, pipelines *etc.*). **1.2.** Rehabilitation, expansion, or upgrade of existing physical infrastructure. **1.3.** Will the project activities involve changes to the original design levels of the headworks (Raise the height of tank bund? And/or raise the height or length	**1.1. Yes** **1.2. Yes** **1.3. No** **1.4. No**	**Low Risk**	The rehabilitation of the headworks is not proposed under this project. Only downstream activities, such as channel and farm road improvements, are proposed. **1.1.** New works; Track 04 - Canal Lining, Turnout & Hump, Box Pipe Culvert Track 01 - Farm Turnout **1.2.** Canal Rehabilitation and improvements to the farm access road

No	Screening Questions	Yes/No	Scale of Impact	Remarks
	of existing spill?) that could lead to the inundation of new areas within the catchment? **1.4.** Dredging of the tank bed and the subsequent disposal of dredged materials? **1.5.** If yes, will the dredged material be disposed of on-site or off-site?? **1.6.** Solid waste management:			
2	Will any of the planned improvements necessitate an artificial lowering of the reservoir's water level? * If the water level will be artificially lowered, please specify the anticipated duration and magnitude of the drawdown.	No	--	No works will involve the reservoirs' headworks; all proposed activities ar strictly limited to canal rehabilitation, the construction of water diversion structures, and farm road rehabilitation. Furthermore, these works will b carried out exclusively during the paddy farming off-season.
3	If the water level will be artificially drawn down, please assess the potential impacts on: **16.1. Surface Water:** Will the draw down alter water flows in nearby	**No**	--	

No	Screening Questions	Yes/No	Scale of Impact	Remarks
	streams, rivers, or canals, particularly during the dry season? **16.2. Groundwater:** Will the draw down affect the groundwater table or flow in local wells, especially during the dry season? **16.3. Ecology:** Is there a risk that this activity will affect the ecology of the tank bed or other important wetlands around and canal systems that depend on it? **16.4**. If a risk is identified, please describe the specific potential impacts on the ecosystem (e.g., impact on aquatic life, changes to vegetation, effects on migratory birds and other fauna).			
4	Will the project cause localized flooding and/or poor drainage during construction?	**No**	--	No such impact is expected.
5	Will the construction and operation of the Project involve actions which will cause physical changes in the	**No**	**--**	No such an impact is possible.

No	Screening Questions	Yes/No	Scale of Impact	Remarks
	locality (topography, land use, changes in water bodies, *etc*.)			
6	Will construction of the project cause soil erosion within the site due to steep grade or soil content?	**No**	--	No such an impact is expected due to there will not be cutting that may result steep grade. The canal rehabilitation works do not require such a deep cutting.
7	Will the Project release pollutants or any hazardous, toxic or noxious substances to **7.1.** Air? **7.2**. Nearby surface or groundwater sources? **20.3**. Soil?	**7.1. Yes** **7.2. No** **7.3. No**	Low Risk	The project will generate temporary, localized emissions from the combustion of fossil fuels by construction equipment and project-related vehicles. However, these emissions will not be on a significant scale. While **dust emissions** may occur due to soil disturbance during dry periods, the overall impact is **considered negligible** and insignificant given the limited duration and scope of construction. These activities will not result in the long-term release of hazardous, toxic, or noxious substances. **20.2.** There are no groundwater sources along the project boundary; therefore, no such impact is expected, as interventions are limited to the **surface layers** of the soil.
8	Will the proposed activities cause **8.1**. Noise? **8.2**. Vibration? **8.3**. dust emission? **8.4.** Release of light? **8.5**. Heat energy? **8.6**. Electromagnetic radiation?	**8.1.** Yes **8.2**. Yes **8.3**. Yes **8.4.** No **8.5**. No **8.6**. No	Low Risk	**Noise and vibration levels will be minimal and insignificant.** **8.3**. Dust emission will occur with the dry weather and wind action prevails. But in the sense of the community, it is not a concern. However, the gravel and sand access roads may be a source of dust during construction due to vehicle movements, and dust suppression measures should be implemented along them concerning the wildlife.

No	Screening Questions	Yes/No	Scale of Impact	Remarks
				8.4. No nighttime works shall be involved under this contract 8.5 & 8.6. No
9	Does the proposed location fall within or border any gazetted protected areas (PAs) designated by the Forest Department (FD) or the Department of Wildlife Conservation (DWC), Department of Archaeology or any other?	**No**	**---**	
10	Is the proposed project location known to contain any species protected under the Fauna and Flora Protection Ordinance, or any other sensitive species of fauna or flora? If yes, please provide details on the species and why they are considered sensitive (e.g., critical for breeding, migration routes, *etc.).*"	**No**	--	
11	Will the proposed project activities cause negative effects on wildlife habitats, populations, corridors or movement?	**No**	--	The area is not identified as a human–elephant conflict zone, and wildlife presence is minimal, with only rare sightings of peacocks reported

No	Screening Questions	Yes/No	Scale of Impact	Remarks
12	Will the proposed project activities cause negative effects on impact on fish migration and navigation?	**No**	No Impact	Such an impact is not expected.
13	Will the proposed project activities will cause increased risk of wildlife poaching and forest fires?	**No**	No Impact	Such an impact is not expected.
14	Will tree felling be required for the proposed project activities? If yes, please provide an estimate of the number of trees to be felled and their species.	**No**	No Impact	Such an impact is not expected.
15	Are there any areas or features of high landscape or scenic value on or around the location which could be affected by construction activity?	**No**		The project site is situated on almost flat terrain, characterized by human habitation and paddy fields. No such impact is expected or considered possible.
16	Any invasive fauna or flora presents in the tank or surrounding area?	**No**		There are no aquatic invasive plants found in the reservoir or along the canal segment or around the paddy field. No terrestrial invasive plants were also observed along the canal segments.

5. Screening Decision and Recommendation

The proposed downstream rehabilitation of the **Muththuiyankaddu Irrigation scheme** is located within well-established agricultural command area. The screening process confirms that the project scope is limited to a few **downstream activities**, specifically, canal lining, turnout construction, and farm road improvements, and does not involve any modifications to the headworks, bund raising, or artificial lowering of reservoir water levels.

As the site is **not situated within or adjacent to a forest reserve or protected area**, the potential environmental impacts are categorized as **minimal, temporary, and low-risk**. The findings are summarized as follows:

- **Social & Occupational Health:** The project poses standard construction-related health and safety risks (e.g., machinery handling), which will be managed through the use of Personal Protective Equipment (PPE). Possibilities for snake bites shall also be avoided.
- **Physical Environment:** Minor risks of soil erosion and dust emissions are expected during the construction of canal linings and road gravelling. These impacts are localized and will be mitigated through standard engineering practices such as water spraying and proper compaction.
- **Biological Context:** Wildlife in the project area is very limited. There is no evidence of human–elephant conflict or important animal migration paths. No trees will be cut, and no invasive aquatic species have been recorded in the project area.
- **Agricultural Continuity:** To avoid any negative impacts on the farming community, all rehabilitation work should be scheduled during the **dry season (after Yala season)** or the fallow period between cultivation cycles, ensuring no disruption to irrigation water delivery.

In conclusion, the proposed project by the Provincial **Department of Irrigation, Northern Province**, is not expected to cause any significant or irreversible environmental damage. The project is recommended for implementation subject to the standard mitigation measures outlined in the **Environmental Management Plan (EMP)**.

Name: Maheeni Samarakoon Singappuli
Title: Senior Environmental Specialist - IRDCRP
Date: 18.03.2026

5. Environmental Management Plan

Table 5: Environmental Management Plan

No	Potential Environmental Impacts	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Implementation	Compliance Monitoring
1	Occupational Health and Safety: Risks to workers, particularly the potential for snake attacks during material transport, site access, and construction activities. Dehydration for workers.	**During the site access** **Material transport** **During the work**	1.1. Environment, Occupational Health and Safety Officer (EOHS Officer) shall be employed by the contractor covering the entire work program under this contract. He or she will be responsible for the daily implementation of EMP and SMP[2] (ESMP[3]). 1.2. Implement measures to prevent heat stroke and dehydration during the hot sunny days. Mandatory provision of safe, clean drinking water (potable water) accessible at all times. It may schedule heavy work for cooler parts of the day (e.g., early morning). Clean food shall be provided for the workers at all times. 1.3. Possible risks of snake bites, insect attacks. Safety shoes and/or boots shall be provided for all workers, and their use is mandatory on the worksite to protect against snake bites, sharp objects, and other ground hazards. No one shall remain on the site after working hours.	Engineering cost	Contractor	DAD PMU

[2] Social Management Plan

[3] Environment and Social Management Plan

			1.4. First Aid and Emergency Response: In the event of an incident (such as a snake bite, insect attack, or any other), a designated sentinel person trained in first aid and emergency response should be kept ready on site. Immediate Hospitalization Protocol: readily available facilities must be established on site for immediate hospitalization, ensuring rapid access to the necessary medical facilities. 1.5. Cooking shall not be allowed on the sites. However, if it is essential to make tea/coffee on site, the following procedure shall be followed. Select a location on bare soil, rock, or gravel, away from overhanging branches, dry grass, or fallen leaves. Create a fire buffer zone by clearing all flammable material (leaves, dry grass, twigs, *etc*.) down to the soil in a circle at least 10 feet (3 meters) in diameter around the fire site. Lay a ground cloth or large piece of foil/rock to protect the ground, then spread a layer of mineral soil, sand, or gravel at least 3-5 inches thick on top. Build the fire on this mound. The fire should be kept small to boil the required amount of water. No kerosene, diesel, or petrol is used to ignite the fire. Use only dead and downed wood that can be easily broken by hand. Never cut wood from standing trees (dead or alive). Gather wood from a wide area to minimize impact or bring it from outside. Keep extra firewood and flammable items well away from the fire buffer zone. Keep a bucket of water (or a large pot of water) and a shovel nearby at all times to quickly extinguish any embers or spreading flames.			

			Never leave the fire unattended, even for a moment. A responsible person must be responsible for supervising the fire until it is completely out. Finally, allow the fire to burn down to fine white ash and small embers. Pour lots of water onto the fire, ensuring all embers, coals, and wood fragments are thoroughly soaked. Do NOT use dirt to put out the fire, as it can smother the flames but insulate hot coals, allowing them to reignite later. Use a stick or shovel to stir the ashes and coals to ensure the water reaches the centre and bottom layers. Drown and stir repeatedly until the mixture is cool to the touch. (The ashes and pit must be cool to the touch before leave the site in the evening. Once completely cool, scatter the ashes and any unburned wood widely over the prepared area to further minimize impact. 1.6. Ensure all equipment and vehicles are inspected, well-maintained, and operated only by certified and licensed operators. 1.7. To prevent accidental falls and vehicle-induced collapses, all sites must be clearly demarcated. **Physical Barriers:** Use rigid barricades (e.g., scaffolding pipes or heavy-duty plastic fencing) at a minimum height of **1.1 meters** around the perimeter of the cut, as appropriate. **Warning Signage:** Post high-visibility "Deep Excavation" and "Authorized Personnel Only" signs at 10-meter intervals, as appropriate/if required. **Night Visibility:** All delineation zones must be equipped with solar-powered amber flashing lights to ensure visibility during low-light conditions or heavy rain.			

			Surcharge Loading: No heavy machinery, excavated spoil, or construction materials shall be placed within **1.5 meters** (or a distance equal to the depth of the cut) from the edge of the excavation.			
2	Biological Invasion: The risk of spreading invasive terrestrial and aquatic plant species.	Rehabilitation of pond dikes, canal dikes, cleaning/rehabilitation of canals, and Material transportation.	**No terrestrial or aquatic invasive species were observed; therefore, no invasives shall be introduced under this contract.** 2.1. None of the chance shall be kept to inoculate aquatic invasives or any other species to the canal segments. 2.2. All tools and machinery (machetes, shovels, vehicle tires, and boots) shall be cleaned before leaving the site. 2.3. Borrow material for farm road rehabilitation works to be brought from properly identified borrow pits and quarry sites; the sites should be inspected in order to ensure that no other form of invasive plant species is being carried with the borrow material. As much as possible, locate burrow sites within a radius of 10Km to the site	-----	Contractor	DAD
3.	Accumulation and disposal of solid waste due to proposed activities.	Removal of vegetation. Solid waste from construction staff.	3.1. Disposal should be coordinated with the Department of Agrarian Development and the local Farmer Organization (Govi Sanvidhana). 3.2. Always consider surrounding paddy fields. Ad-hoc dumping in one area can cause rapid pollution in the next tank in the cascade. 3.3. No labour camps shall be allowed on site under this contract on or around the worksite. 3.4. Reusable waste, shall be either resold or reused. 3.5. Any hazardous waste must be handled with special care and according to instructions from the local authority.	------	Contractor	DAD

			3.6. The contractor shall document all types and quantities of waste generated, including their removal from the site and their disposal locations, under the supervision of the TO - DAD officer. 3.7. Food waste shall not be discarded into the surrounding environment. 3.8. There should be no burning of wastes on site. 3.9. Workforce-related solid waste shall be removed from the site on a daily basis. 3.10. Any cleared vegetation shall be removed from the construction sites under the supervision of the DAD before the commencement of proposed interventions in the bund. No debris shall be burned on the site. **Cleared vegetation along the canal may be hand over to the community, for fire woods.**			
4	Air and Noise Pollution: Impacts related to dust, noise, and vibration.	**Operation of equipment and machinery. Material storage and transport.**	5.1. Working time for noise/vibration generation activities should be restricted and carried out only from 7.00 am to 5.00 pm. 5.2. All equipment and machinery should be operated of noise not to exceed 75 dB (during construction) as practically possible. Regular maintenance of all construction vehicles and machinery to meet noise control regulations stipulated by the CEA in 1996 (Gazette Extraordinary, No 924/12). Due to urgent or unavoidable reasons, if the construction activities happen during the nighttime, it is necessary to maintain the noise level below 50 dB.	----	Contractor	DAD
5	**Extraction of natural resources**	**Material (soil/earth/gravel) Sourcing**	5.1. The contractor shall source materials from pits/quarries that hold a valid Industrial Mining License (IML) or Artisanal Mining License (AML). Every load of	-----	Contractor	DAD PMU

			sand, gravel, or soil transported to the site must be accompanied by a GSMB-issued Transport Permit. (Unauthorized transport is a legal offense). If purchasing from a third party, they must hold a Mineral Trading License. 5.2. Sourcing or purchasing of any material that is sourced from any protected areas and/or designated natural areas, is strictly prohibited. Materials cannot be extracted from within the statutory reservations of rivers, streams, or the tanks themselves (usually defined as 60m from a river bank and specific limits from the high-flood level of a tank) unless specifically approved for desilting. 5.3. The contractor is required to ensure that sand, aggregates (if required for this contracts), and other quarry material is sourced from licensed sources or the instructions given by the pond ownership (The Department of Agrarian Services). The contractor is required to maintain the necessary licenses and environmental clearances for all burrow and quarry material they are sourcing – including soil, fine aggregate, and coarse aggregate. 5.4. If the contractor uses a non-commercial burrow/quarry site or tank bed, the site should be remediated accordingly once material sourcing has been completed. Prior approval shall be taken from the Engineer – DAD. For new borrow pits, under recommendation and approval of the DAD, a **Restoration Plan** must be submitted to the PMU (or else should inform to the PMU for restoration plan). This includes plans for backfilling, slope stabilization, and			

			replanting to prevent the pits from becoming breeding grounds for mosquitoes or safety hazards. 5.5. When there is a requirement, the contractor must submit in writing all relevant numbers and details of prerequisite licenses and their current status to the DAD and/or the PMU. 5.6. To prevent accidents, borrow pits must be finished with slanted edges. This will reduce the danger to both humans and animals.			
6	**Exposing and damaging physical and cultural resources**	**Site preparatory work**	Upon discovery of physical cultural materials of Archaeological importance during construction work, the following shall be carried out; 6.1. Immediately stop the performing activity. (With the approval of the resident engineer, delineate the discovered site area. 6.2. Secure the site to prevent any damage or loss of removable objects. In case of removable antiquities or sensitive remains, a night guard should be present until the responsible authority takes over. 6.3. Through the responsible officer of DAD, notify the responsible authorities, the Department of Archaeology, and local authorities within as soon as possible. 6.4. Submit a brief chance find report under the supervision of the DAD officer, within a specified time period, with date and time of discovery, location of discovery, description of finding, estimated weight and dimension of PCR, and temporary protection implemented.	Engineering Cost	Contractor	DAD PMU

			6.5. Responsible authorities would be in charge of protecting and preserving the site before deciding on the proper procedures to be followed. 6.6. An evaluation of the finding will be performed by the Department of Archaeology who may decide to either remove the Physical Cultural Resources (PCR) deemed to be of significance, further excavate within a specified distance of the discovery point and conserve on-site, and/or extend/reduce the areas demarcated by the contractor, etc. This should ideally take place within about 7 days. 6.7. Construction work could resume only when permission is given by the Department of Archaeology after the decision concerning the safeguard of the heritage is fully executed.			
7	**Soil erosion, sedimentation of paddy fields.**	**Construction work including, clearing surface vegetation** **Removal of top soil along the canal segments and farm road.**	7.1. Installing and maintaining erosion and sediment control measures, such as silt traps, to avoid sediment runoff into the tank and nearby lands and paddy fields, shall be done. 7.2. For any activity related to the construction, the excessive clearing of ground vegetation, or the removal of trees shall not be done. 7.3. Avoid stockpiling disposed material such as removed earth from canal rehabilitation works. Those shall be reused or disposed of appropriately as guided by the TO-DAD. 7.4. All exposed soil areas shall be stabilized and re-vegetated as soon as possible on completion of works to prevent potential future erosion.	Engineering Cost	Contractor	DAD