Integrated Rurban Development and Climate Resilience Project (IRDCRP).

Ministry of Agriculture, Livestock, Lands and Irrigation



Environmental Screening Report & Environmental Management Plan
For
Rehabilitation of Halmillakotuwa Tank downstream structures
Package Number: MoALLI/IRDCRP/PMU/NCB/Works/Halmillakotuwa Wewa (R)/2025/03

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1. Overview of the Intergraded Rurban Development and Climate Resilience project (IRDCRP).

The IRDCRP is executed by the Ministry of Agriculture, Livestock, Land, and Irrigation and implemented by the Department of Agrarian Development and the Department of Irrigation. The project's main beneficiaries are small-scale and medium-scale producers and households engaged in the agri-food sectors residing in the project areas. The project will also benefit agribusiness firms through support of improved market linkages.

The project has five components: promotion of climate-smart production, value addition, and inclusive access to markets; integrated management of natural resources for climate resilience (sub components for improving cascade management and on-farm water, irrigation and water resources management, boosting climate-smart agriculture technologies and practices,); and strengthening the enabling environment for sectorial growth (sub-components for better quality and availability of agriculture data, quality infrastructure improvements, and enhanced provision of agricultural insurance)); project management; monitoring and learning; and a contingent emergency response component. The project development objective is to increase productivity, market access, and climate resilience of agri-food producers in selected areas.

This Social environmental screening focuses on the proposed civil works at the Halmillakotuwa tank, in compliance of the World Bank Environmental and Social Framework (ESF) and GoSL regulations. Halmillakotuwa Wewa plays a vital role in supporting agriculture in the region, benefiting 47 families (200 individuals) who rely on the tank for paddy cultivation and other livelihoods. The area's total population is 690 individuals, with a slightly higher proportion of females (53.3%) than males (46.7%).

1.1. Administrative Setup

Province: North-western
District: Kurunagala
Divisional Secretary Division: Ambanpola
GN Division: Borawewa (174)
Agrarian Service Center: Ambanpola
Ellanga System: Bakmee Wewa

1.2. Project Proponent

Department of Agrarian Development
Ambanpola Agrarian Service Center

Estimated cost

Rs. 11,938,700.00[1]

[1] As per the initial BoQ submitted by the DAD

2. General Description

The Halmillakotuwa tank is a minor irrigation tank that functions under the purview of the Department of Agrarian Development (DAD) in Kurunegala District. Based on a request from the farmers' organization, the DAD has proposed an intervention with the objectives of regularizing the tank's water flow, directing water equally to the entire paddy field area, and improving access to the paddy fields.

3. Physical Environment

The Kurunegala district, situated approximately 116 meters above sea level, features a varied landscape that encompasses both dry and intermediate climate zones. This unique combination directly affects its weather patterns, especially its rainfall and temperature. The area receives a mean annual rainfall of between 1,500 mm and 2,000 mm. The rainy season, referred to as the Maha season, extends from October to January, with the heaviest rainfall typically occurring in November and December. Inter-monsoonal rains are also common in March. A notable characteristic of the climate is the drought period, which lasts for about five months, from May to early September. During this time, the weather is typically hot and dry. Average temperatures in the area range from 30°C to 33°C. The dominant soil types in the project area are reddish-brown earth and low-humic clay.

Air Quality: During the site visit, there were wind gusts, and nothing in the area would impair the quality of the air. The air in the area appeared to be clean.

Noise and vibration: The tank area and the immediate surrounding area were free of unwanted sounds. Hence, the background noise levels in the area were very low. The sounds produced by the wind and the occasional movement of motorbikes or three-wheelers were attributed to the existing sound levels. No perceptible vibration levels were noticed, suggesting that vibration-induced activities were almost non-existent.

4. Ecological Environment

Habitat types**:** The immediate habitat types within a one-kilometre radius of the project site are a mosaic of paddy fields, home gardens, scrub and thorny type tiny forest patches. However, a forest area can be seen at the upper periphery of the tank catchment.[2]

[2] Whether it is a reserved forest under the purview of the Forest Department or merely an undesignated forest patch—is currently unknown to both the local villagers and the DAD officers. This lack of a definitive land use map for the area or difficult to see on the Google map too makes an accurate determination of the forest's legal status impossible.

The area is also not known to harbour any rare and/or endangered plant species. However, the surveys were limited with little time spent on ground to carry out a comprehensive survey. The vegetation within the project's impact zone is limited, with a noticeable paucity of trees and woody plants across the tank, tank bund, downstream areas, and access roads. A few mature trees are present along the tank bund (Figure: 3) and just downstream, including *Azadirachta indica*, *Mangifera* sp., *Limonia acidissima* (wood apple), *Thespesia populnea*, and *Borassus flabellifer* (toddy palm). No endemic, rare, or threatened plant species were identified in the project's impact zone. There was no noticeable roosting site within the proposed project area. The tank's surface is colonized by *Nelumbium* sp. (Figure 5).



Figure 1: The command area of the Halmillakotuva tank and its water column, which supports the surrounding wildlife.

4.1. Fauna

There are no records on human-elephant conflict in the tank area. Other common species associated with the dry zone are likely to inhabit the area. The area is also not known to harbour rare and / or endangered fauna.

4.2. Natural and Geological Hazards

The project area exhibits a low risk profile for natural disasters. The region is not prone to events such as floods, prolonged droughts, or cyclones. Furthermore, the area is not susceptible to geological hazards, including landslides or rock falls.



Figure 2: The two trees (*Azadirachta indica*, *Mangifera* sp.) that need to be removed for construction purpose.



Figure 3: The limited number of trees along the earthen bund.



Figure 4: View of the access road leading to the paddy fields.

This road has proposed to rehabilitate. The image in Figure 3 highlights the proximity of a residential unit, which is located at the margin of the road and may be impacted by project activities. There is another house at the beginning of the access road. Dust emissions, noise and vibration are the critical parameters to be monitored and mitigated without harming the residents and structures.

Only two trees (*Azadirachta indica* and *Mangifera* sp.) (Figure 2) require removal for the road rehabilitation works, as depicted in Figure 2. All other trees established on the tank bund will be preserved during the bund rehabilitation works. Any other work proposed under this contract including canal rehabilitation works will not require tree removal.



Figure 5: The entire tank has encroached by *Nelumbium* sp.

5. Proposed Civil Works

5.1. Headwork Development:

1. Repairing of headwall sluice (Figure 6)
- **1.1.** Removing sluice gate and site preparation
- **1.2.** Excavation of foundation & part of back filling (manually) 5 m^3
- **1.3.** Making and fixing 600mmx100 mm reinforced concrete
- **1.4.** Fixing of steel bars

5.2. Downstream Development

1. Rehabilitation of irrigation canals (Figure 7)
- **1.1.** Clearing and stripping off top soil to a depth of 75to 150 mm along the canal trace (95 m^3)
- **1.2.** Stripping top soil in barrow area, earth excavation hauling and placement of fill material on canal bund (425.00 m^3)
- **1.3.** Cutting, laying pegging of turf as directed including watering and keep moist until plants growth. (400 m^3)

2. Construction of canal concrete lining
- **2.1.** Excavation for concrete bracket lining in supply canal (5.5 m^3)
- **2.2.** Supplying of concrete (10.00 m^3)

3. Construction of two numbers of Hume pipe culvert (300 mm ₵) for tractor crossing

4. Construction of one box culvert (450 x 450 mm) for tractor crossing

5. Construction of 07 numbers of one way farm turnouts.

The construction of seven numbers of one-way farm turnouts is proposed as a new activity to improve irrigation efficiency to the paddy fields. These farm turnouts will facilitate a more controlled and equitable distribution of water to different paddy field zones, thereby

minimizing water wastage. This new activity has proposed by the framer organization of the Halmillakotuva.

6. Construction of one number of two way farm turnout.

This new infrastructure is designed to fulfil the specific water facilitation requirements for a designated area of the paddy field.

7. Construction of over crossing
8. Construction of two numbers of end regulators

To minimize the water wastage in the paddy field, this has been proposed.

9. Rehabilitation of access road/agri road to the paddy fields.
   9.1. Light jungle clearing along the road trace (0.135 ha)
   9.2. Earth excavation for foundation and part of back filling (15.5 m^3)
   9.3. Stripping of top soil in the barrow area, earth excavation, hauling and placement of fill material on the road watering and compaction. (345 m^3)[3] .

The proposed access road rehabilitation is a primary intervention to improve operational efficiency of farm equipment such as tractors and harvesting machines. Currently, the paddy fields adjacent to the tank bund lack adequate access for machinery. Current limitations in access have caused delays and difficulties in farming activities. The construction of paddy field access road involves placing 345 m^3 of soil. The required soil may be sourced from the tank area, pending a quality assessment to ensure it meets specifications. All work, including spreading, watering, and compaction, shall be performed as required.

10. Anicute construction (A new construction)

It is experiencing considerable amount of water wastage since there is no regulatory mechanism along the canal system. This has resulted in an unequal distribution of water: one section of the paddy field is receiving an excessive amount of water, while another part is being abandoned because of water scarcity. As a corrective measure construction of this anicut is proposed by the farmer organization. The required volume of earth is **15.5 m^3**. The excavation for the foundation is anticipated to yield the necessary amount of material. This excavated earth shall be used for backfilling if it is deemed suitable. Otherwise required amount shall be sources from a licensed supplier.

11. **Renovation of bathing place.**

11.1. Excavation of foundation and part of backfilling (6 m^3)

11.2. Making, mixing and placing of cement concrete (7.5 m^3)

[3] This amount of soil is planned to be obtained from the upper periphery of the tank bed area



Figure 6: The current sluice gate that proposed to rehabilitated



Figure 7: The LB canal proposed to rehabilitate.

6. Environmental Screening Halmillakotuwa Tank Rehabilitation Works – IRDCRP

No.	Screening Question	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 head works (Raise the height of tank bund? And/or raise the height or length 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?	**yes**	**medium**	Both rehabilitation and new works are proposed. **1.1.** New works; ▪ Construction of two numbers of Hume pipe culvert (300 mm ₵) for tractor crossing ▪ Construction of one box culvert (450 x 450 mm) for tractor crossing ▪ Construction of 07 numbers of one way farm turnouts ▪ Construction of one number of two way farm turnout. ▪ Construction of over crossing ▪ Construction of two numbers of end regulators **1.2.** Rehabilitation, expansion, or upgrade of existing physical infrastructure ▪ Rehabilitation of paddy field approach road ▪ Repairing of headwall sluice ▪ Rehabilitation of irrigation canals **1.3.** No **1.4**. Clearing/desilting of the tank bed is not proposed. **1.5**. Not applicable **1.6.** Residuals from branches of the removed trees (2), solid

	1.5. If yes, will the dredged material be disposed of on-site or off-site?? **1.6.** Solid waste management:			waste derived from the workforce and construction *etc*., may need to be disposed of. Additional solid waste accumulated around the tank should also be removed.
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 draw down.	**No**		All construction work is planned to be carried out after the main cultivation seasons (when the water level in the tank is low).
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 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).	**No**		Water level of the tank will not be artificially drawn down.
4	Will the project cause localized flooding and/or poor drainage during construction?	**No**		Construction activities are planned to be carry out during the dry season, and the site is on a vast flat terrain with a mild

				slope towards the downstream area; therefore, there is no concern about flooding. On the other hand, the inappropriate establishment of material storage, the erecting of temporary huts/camps across the natural drainage paths, the accumulation of solid waste and other similar activities may cause water stagnation and obstruction of natural drainage, which can be mitigated by applying suitable measures.
5	Will construction and operation of the Project involve actions which will cause physical changes in the locality (topography, land use, changes in water bodies, *etc.*)	**No**		Since the project is focused on rehabilitating existing water structures, and minor scale civil works such as farm and tractor turnouts no changes to the landscape or land use are expected.
6	Will construction of the project cause soil erosion within the site due to steep grade or soil content?	**No**		The site is located in a flat terrain. The rainy season shall be avoided during the construction, and the soil type in the location is humic clay (The clay component is higher).
7	Will the Project release pollutants or any hazardous, toxic or noxious substances to **20.1.** Air? **20.2**. nearby surface or groundwater sources? **20.3**. Soil?	**20.1 Yes** **20.2. No** **20.3 No**	Negligible	20.1. Vehicles used in construction emit pollutants into the atmosphere from the burning of fossil fuels. These emissions include carbon dioxide, nitrogen oxides, and particulate matter. Additionally, construction activities can generate dust emissions from disturbed soil and the handling of materials like cement, degrading local air quality. 20.2. There are ground water sources within 1 km of area from the project site, but the chance for groundwater pollution due to project activities is not expected. 20.3. Accidental spills of fuel, lubricants, concrete and cement on the ground may pose a threat to soil quality.
8	Will the proposed activities cause **21.1**. Noise? **21.2**. Vibration? **21.3**. Dust emission?	**21.1**. Yes **21.2**. Yes **21.3**. Yes **21.4.** No	Minor	**21.1**. Noise impacts may not be on a considerable scale; since, there are residential units within a 500 m radius. Two residential units are just beneath the tank bund (Figure:3) Noise from the machinery may be a concern during the

	21.4. Release of light? **21.5**. Heat energy? **21.6**. Electromagnetic radiation?	**21.5**. No **21.6**. No		construction period. **21.2**. Yes. There are two housing units on the margin of where the access road rehabilitation works are proposed (along the Kattakaduwa). Hence vibration impacts from backhoes, tractors may be possible (Figure 3). A crack survey prior to beginning of works is recommended. **21.3**. Tank bund rehabilitation works may cause for dust emission and should be suppressed due to residential units around.
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**		Information on the local fauna and flora is not readily available, as no literature on the area could be found. Based on the information received from the field visits, farmers and local residents, no such fauna or flora present on or around the project site. However, none of the project's activities are planned beyond the tank bund (bathing spot) and the downstream areas where the paddy fields are located. Furthermore, no externalities from the proposed activities will impact anything beyond the water retention area and high flood level (HFL). The only area frequently used by many species of fauna is upstream and water retention area of the project site.

				Therefore, we infer that there will be no impacts on this fauna. Any negative impacts on downstream-dwelling fauna will be restricted to the construction phase and will be minimized through planned mitigation measures.
11	Will the proposed project activities will cause negative effects on wildlife habitats, populations, corridors or movement?	**Yes**	**Minor**	Based on the preliminary environmental screening, direct negative impacts on wildlife populations and habitats are not anticipated from the proposed activities. The rehabilitation activities are focused on pre-existing infrastructure, and no habitat fragmentation or destruction is foreseen. Wildlife movement, particularly of elephants, has not been recognized around the tank or in the village. However, small mammalians and reptilians may utilize the tank for water, especially during the nighttime.
12	Will the proposed project activities cause negative effects on impact on fish migration and navigation?	**No**		Such an impact is not expected.
13	Will the proposed project activities will cause increased risk of wildlife poaching and forest fires?	**Yes**	Minor	The project site is may be frequented by wildlife, particularly during the nighttime, as they come to the tank for water. This increases the potential for wildlife poaching. Therefore, appropriate mitigation measures must be implemented.
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.	**yes**	Negligible	The construction of an access road to the paddy fields beneath the tank bund necessitates the removal of the two trees identified in Figure 1.
15	Are there any areas or features of high landscape or scenic value on or around the location which could be affected by	**No**		The project site is located on a flat terrain, surrounded by paddy fields, and home gardens.

	construction activity?			
16	Any invasive fauna or flora presents in the tank or surrounding area?	**No**		Indian Peafowl (*Pavo cristatus*) are abundant around the tank and its associated paddy fields. No invasive flora was observed in the vicinity of the tank.
17	Are there any sites, monuments, or areas with archaeological value, or that are under the authority of the Department of Archaeology on or around the construction site or within 1 km territory or project impact zone?	**No**		Archaeologically, historically, or culturally important locations, sites, or monuments are not located within the project impact zone. Therefore, no such impact is expected.

7. Impact Matrix Code

Risk Level	Impact Based Criteria	Mitigation Based Criteria
HIgh	The impact is **significant** and **widespread**, or it affects **sensitive receptors**. It could also cause **long-term or irreversible changes** and affect **ecosystem services**.	Mitigation necessitates **meticulous planning** and the implementation of **high-tech, costly design solutions**. Even with such measures, **residual effects** are likely to persist.
Medium	The impact is **moderate**, **localized**, and may be **temporary**. It could affect specific **ecosystem components**, **users**, or **operational functions** without causing **irreversible damage**.	Mitigation is **feasible** and **effective**, requiring only **moderate design-based and/or operational planning**. Residual effects are expected to be **nil**, **minor**, or **temporary** in nature.
Minor	The impact is **minor**, **highly localized**, or **temporary**. It is unlikely to significantly affect overall **ecosystem functions**, **public use**, or **operational activities**.	Mitigation is **straightforward** and **low-cost**, and it is expected to **fully address the impact**. No **residual impacts** shall remain.
Negligible	Impacts is insignificant; changes are barely measurable or within natural variability.	No mitigation required or minimal preventive measures sufficient within O & M.

8. Screening Decision and Recommendation

The project site is located in a socially sensitive area due to residential units near the access road and tank bund. However, it does not fall within any protected areas designated by the Forest Department, Department of Wildlife Conservation, or Department of Archeology and no human-elephant conflict has been reported.

The proposed activities are not expected to cause significant or irreversible environmental impacts during construction or operation. The limited, temporary impacts are primarily associated with the construction phase and include:

- **Dust, vibration, and noise pollution:** Disruption from construction machinery.
- **Water pollution:** Risk of tank contamination from construction materials.
- **Occupational health and safety:** Potential for wildlife encounters or attacks.
- **Wildlife disturbance:** Potential for local wildlife disruption and poaching.

A comprehensive **Environmental Management Plan (EMP)** will be included in the bid documents to address these concerns. The EMP will detail mitigation measures and a monitoring framework to ensure these potential impacts are minimized or avoided. Regular monitoring is essential throughout the construction phase.

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Title: Senior Environmental Specialist



Date:

9. Environmental Management Plan (EMP) – Halmillakotuwa Tank

This plan is designed adhering to the Environmental and Social Management guidelines of the IRDCRP to **identify, avoid, and mitigate** potential environmental impacts during the pre-construction and construction phases of the proposed civil works at the Halmillakotuwa tank. This EMP will amalgamate with the Social Management Plan (SMP) to foam Environmental and Socail Management Plan (ESMP).

The main contractor and all sub-contractors are required to comply with the measures detailed in the ESMP. The main contractor is ultimately responsible for ensuring compliance among all sub-contractors. Monitoring will be conducted by the Project Management Unit (PMU) with assistance from the respective Divisional Engineer/Technical Officer of the Agrarian Department (DAD).

9.2. Ecological concerns of the proposed activities.

- **Removal of two trees** from just beneath the dam bunds can weaken the soil structure, may increase the risk of erosion.
- **Damage to fauna, their habitats, and vegetation cover** results from the physical footprint of construction activities. The movement of heavy machinery, vehicles, earthworks, and can destroy nesting sites of birds, reptilians, foraging areas, and disrupt migratory paths. The loss of ground cover, such as grass, can lead to soil erosion.
- **Disturbance to wild fauna**, particularly aquatic birds, from noise and vibration and the presence of workers and machinery can cause stress, disrupt breeding cycles, and force animals to abandon their habitats.
- **Illegal activities like poaching** are a significant social and ecological risk. The presence of labor gangs in a natural area can lead to a surge in illegal hunting, which can decimate local wildlife populations.

9.2. Pollution concerns.

- **Solid waste disposal**, generated from both civil works and labor activities, can contaminate surrounding area, soil and water column of the tank if not managed properly. This can harm wildlife and pose health risks to nearby communities who use the tank for bathing.
- **Water quality deterioration** in the tank from construction activity can occur due to the mixing of cement, concrete, mixing of oil and grees if the constriction vehicles are washed on the tank bund, chemicals, and other pollutants. This can harm aquatic life and affect the quality of water used for human consumption or agriculture. Labor camps if setup in the project sites will generate grey water and sewage that needs to be managed onsite to ensure that the surrounding environment do not get polluted (Since

the proposed civil works are expected to be small scale, the requirement for labor at a given time is not expected to be significant).

- Noise pollution:

9.3. Geological and Hydrological Impacts

- **Soil erosion due to earthworks** is a concern, especially if the project works are done during monsoonal and inter-monsoonal seasons. The removal of vegetation, damages to grass cover, and foundation works expose the soil to rain and wind

9.4. Social and Cultural Risks

- During the construction, noise and vibration impacts not only affect wildlife but can also cause disturbance to nearby residents along the tank access road and adjacent to the tank bund.
- Damages to undiscovered earthen archaeological crafts/monuments are a risk during earth moving activities especially agricultural road/paddy field access rehabilitation works.

10.Environmental Management Plan – Proposed Civil Works of HalmillaKotuwa tank

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	**Over extraction of natural resources**	**Material Sourcing**	1. The contractor is required to ensure that sand, aggregates and other quarry material is sourced[4] from licensed sources or the instructions given by the tank 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. 2. Purchasing of any material which are sourced from protected areas and/or designated natural areas are strictly prohibited. 3. If the contractor uses a non-commercial burrow/quarry sites, the sites should be remediated accordingly once material sourcing has been	Engineering Cost	Contractor	DAD

[4] The BOQ submitted by the DAD (Department of Agrerian Development) includes a cost for 297 m^3 of soil at a rate of Rs. 604.00 per cubic meter.

			completed. Prior approval shall be taken from the Engineer – DAD. 4. 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[5] and/or the PMU[6]. 5. To prevent accidents, borrow pits must be finished with slanted edges. This will reduce the danger to both humans and animals.			
2	**Ecological concerns such as;** **Rremoval of two trees.** **Damage to fauna, their habitats, and vegetation cover.** **Disturbance to wild fauna.** **Illeagal activities such as wildlife poaching.**	**Material Sourcing and Material transport.**	1. Only two trees are identified to remove for rehabilitation of paddy field access road/agri access road. 2. The following steps are to be followed for removal. • Trees shall be removed from the construction sites before commencement of construction. • Compensatory plantation by way of Re-plantation of at least twice the number of trees cut should be carried out in the project area. • Replanted plants shall be	Engineering Cost	Contractor Farmer organization	DAD

[5] Department of Archeology
[6] Project Management Unit

			monitored and look after by the farmer organization			
	Pollution concerns. **Such as accumulation of solid waste,** **Water quality deterioration** **Air Pollution including dust generation that can affect nearby vegetation and households**	**Setting up of material storage yards, and removal of vegetation** **Transport of construction material and storage on site** **Transport of construction material and storage on site**	1. The contractor should clearly designate areas for maintaining material stock piles, waste stock piles, labour camps[7] and vehicle maintenance yards under consultation of the DAD. 2. These dust emitting sources should be located away from human activity and housing units adjacent to the tank, and natural drainage paths. Negotiate with landowners and farmer organization to agree on terms and conditions for land use, if it is required. 3. All heavy equipment and machinery shall be fitted in full compliance with the national and local regulations. 4. Stockpiled soil and sand shall be slightly wetted before loading, particularly in windy conditions. 5. The site should be wetted at least 2 times a day during dry weather to keep dust levels low. 6. Vehicles transporting soil, sand and other construction materials shall be covered. Limitations to speeds of such vehicles necessary. Transport through	Engineering Cost	Contractor	DAD PMU

[7] Given the minor scale of the proposed construction, a labour camp may not be required. However, if it is decided to establish one, a plan will be developed accordingly.

			densely populated area should be avoided. 7. Regular and proper maintenance of construction vehicles and machinery to avoid air emissions. 8. There should be no burning of wastes on site.			
3.	**Exposing and damaging of 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; 1. Immediately stop the performing activity. 2. With the approval of the resident engineer delineate the discovered site area. 3. 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. 4. Through the responsible officer of DAD, notify the responsible authorities, the Department of Archaeology and local authorities within as soon as	Engineering Cost	Contractor	DAD PMU

			possible. 5. Submit a brief chance find report under supervision of 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. 6. Responsible authorities would be in charge of protecting and preserving the site before deciding on the proper procedures to be followed. 7. 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. 8. Construction work could resume only when permission is given from the Department of Archaeology after the decision concerning the safeguard of the heritage is fully executed.			

4.	**Spreading of Invasive species**	**Vegetation clearing** **Material transportation**	1. No invasive plants were observed on the bund or immediate downstream areas where construction works will happen. However, close monitoring of transportation, storage of borrowing material for the spread of any invasive species must be done. 2. Borrow material to be brought from properly identified borrow pits and quarry sites, the sites should be inspected in order to ensure that no invasive plant species are being carried with the burrow material. As much as possible locate burrow sites within a radius of 10Km to the site 5. Washing the vehicles should be conducted periodically to prevent carrying any invasive species 6. The construction site should be inspected periodically to ensure that no invasive species are established themselves at the site.	Engineering Cost	Contractor DAD	PMU
5	**High Noise &** **Vibration levels that can affect nearby structures and wildlife**	**Operation of equipment and machinery.** **Material storage and transport**	1. Working time for noise/vibration generation activities should be restricted and carried out only from 6.00 am to 6.00 pm. 2. All equipment and machinery should be operated of noise not to exceed 75	Engineering Cost	Contractor	DAD

			dB (during construction) as practical as possible. Regularly maintenance of all construction vehicles and machinery to meet noise control regulations stipulated by the CEA in 1996 (Gazette Extra Ordinary, No 924/12). Due to urgent or unavoidable reason, if the construction activities happen during the night time, it is necessary to maintain the noise level at below 50 dB. 3. Construction equipment and machinery should be maintained in good condition. Contractor shall submit the list of high noise/vibration generating machinery & equipment to the PE for approval.			
6	**Soil erosion, sedimentation of nearby water bodies and low lying areas**	**Construction work including de-silting, canal bund strengthening** **Removal of top soil**	1. Soil stockpiles and other construction material should not be placed within the bed or banks of the tanks, canals or access road area. 2. Installing and maintaining erosion and sediment control measures such as silt traps to avoid sediment runoff into tank and nearby lands and paddy fields. All stockpiles should be covered so as not to be exposed to rain and wind. 3. For any activity related to the construction, excessive clearing of ground vegetation, removal of trees	Engineering Cost	Contractor	DAD

			shall not be done.			
	12 Damage to Flora and wildlife.	**Vegetation clearing**	1. Speed limits and operating times for the construction vehicles should be imposed. 2. Due consideration should be given to carefully clearing of vegetation avoiding destruction of habitats of fauna. 3. The contractor will take reasonable precaution to prevent workmen or any other persons from removing and damaging any flora (plant/vegetation) and fauna (animal) including fishing in the water body and hunting of any animal. 5. If any wild animal is found near the construction site at any point of time, the contractor will immediately upon discovery thereof acquaint the DAD officer or Engineer and carry out the officer's instructions for dealing with the same. 6. The Engineer will report to the nearby Forest Department/Department of Wild Life Conservation (range office or divisional office) and will take appropriate steps/measures, if required in consultation with them.	Engineering Cost	Contractor	DAD PMU

			7. It is recommended to do the project work day time only. 8. The contractor should ensure animals' access to water is not blocked during construction.			
7	**Impaired water quality**	**Spill out of fuels and lubricants** **from machinery** **Vegetation removal** **Repair sluice, spill and bund**	1. Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets 2. Prioritize re-use of excess spoils and materials in the construction works. 3. Install temporary silt traps or sedimentation basins along the drainage leading to the paddy fields. 4. Place storage areas for fuels and lubricants away from any drainage leading to water bodies. 5. Irrigation works must be planned to be carried out during times of lowest flow	Engineering Cost	Contractor	DAD PMU
8	**14 Solid Waste Disposal**	**Site clearing** **Waste from labour camps**	14.1 The contractor shall create a list of all types of waste generated from construction activities and obtain directions from the Local Government Authority (LA - Pradeshiya Sabha), regarding suitable disposal sites for each	Engineering Cost	Contractor	Provincial DPD Office ESO/ SSO /

			waste type. 14.2. Reusable waste, such as cement bags, shall be either resold or reused. 14.3. Any hazardous waste must be handled with special care and according to instructions from the LA. 14.4. 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 DAD officer. Waste must be removed from the site daily and disposed of at the LA-approved site(s). Food waste shall not be discarded into the surrounding environment, as this may attract wildlife.			