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Environmental Screening Report & Environmental Management Plan for Rehabilitation of Divulegama Ihala Palugaha Wewa, Gal Wewa and Nochchiyagama Palugaha Wewa of Kumbukkalla Cascade – Ambanpola, Kurunagala.

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

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1. General Description

The specific cluster of tanks namely—, Galwewa (Kulu Wewa" (forest tank) or a silt-trapping tank at the head of the cascade), Siyambala Wewa (storage tank), Nochchiyagama Ihala Palugaha Wewa (Part of the upper catchment serving the Nochchiyagama border), Divullagama Paluga Wewa (Intermediate tank managing flow from Divullagama Ihala Palugaha Wewa (storage tank), and Kumbukkalla Wewa (the terminal tank)—forms the Kumbukkalla Cascade / Kumbukkallawa Cascade in the Ambanpola region of the Kurunegala District. The GN division is No.32/Aliya watunu wewa and the DS division is Giribava.

Under this project, Nochchiyagama iahala Palugaha Wewa, Divullagama Paluga Wewa, and Galwewa included for rehabilitation of headworks and downstream works.

Table 1: Tanks belong to the Kumbukkallawa cascade system

Tank Name	Role in the Cascade
Galwewa	Upper Catchment Tank
Siyambala Wewa	Situated at a higher elevation to capture initial runoff and regulate flow.
Nochchiyagama Ihala Palugaha Wewa	Intermediate Storage: Works alongside Siyambala Wewa to maintain the water table.
Divullagama Paluga Wewa	Intermediate Storage: Helps in distributing water to middle-tier paddy fields.
Nochchiyagama Wewa	Distribution Tank: Manages the flow toward the lower end of the chain.
Kumbukkalla Wewa	Main (Terminal) Tank: The largest reservoir in this specific chain, acting as the primary source for the major paddy tracts in the area.

1.1. Fauna around the Cascade System

Ambanpola is surrounded by several Protected Areas (PAs) within a 20–30 km radius, including the Ambanpola reserved forest, Aliya watuna wewa reserve forest, Kimbulwana Oya and Kahalla-Pallekele sanctuaries. These areas, along with the dry mixed evergreen forests managed by the Department of Forest Conservation in Ambanpola and Galgamuwa, support a large population of wild elephants.

The Galgamuwa-Ambanpola elephant corridor is an important migratory path for elephants moving between the Kala Wewa and Mi Oya basins. Of particular concern are the established elephant crossings over the A-10 highway and the Northern railway line near Ambanpola. Because the project area and the proposed transport routes intersect these active habitats, there is a high likelihood of elephant encounters during project implementation.

During field visits, it was reported that elephants enter paddy fields and other farmlands surrounding the three tanks, primarily at night. While Human-Elephant Conflict (HEC) is a persistent issue in the area, local reports suggest it is currently at a moderate level in the project areas rather than its peak.

The area surrounding the three tanks supports a diverse population of both resident and migratory water birds. Commonly observed species include the Brahminy Kite, Indian Peafowl, Sri Lanka Junglefowl, Painted Stork, Asian Openbill, and Woolly-necked Stork. Various species of herons are also frequently sighted throughout these aquatic habitats.

Other common wildlife includes the Grey Mongoose and Ruddy Mongoose. The Tufted Gray Langur is very common and is often seen leaping through trees near the tank dams, while the Toque Macaque is frequently found near village gardens. Additionally, the Water Monitor, Land Monitor, and various species of snakes are often seen basking in the sun around the tanks.

1.2. Floral Species in the cascade system

The cascade system features a variety of significant tree species, most notably Kumbuk (Terminalia arjuna), Nabada (Vitex leucoxylon), Damba (*Syzygium gardneri*), Maila (*Bauhinia racemosa*), and Mee (Madhuca longifolia). Other common species observed include Helamba (*Mitragyna parvifolia*), Siyambala (Tamarind - Tamarindus indica), Burutha/Satinwood (*Chloroxylon swietenia*), and Kohomba-Neem (*Azadirachta indica*).

The areas surrounding the cascades, particularly toward Galwewa, consist of dry-mixed evergreen scrublands. This vegetation is dominated by Ranawara (*Cassia auriculata*) and Ehela (*Cassia fistula*), while thorny shrubs such as *Ziziphus oenoplia* and *Carissa spinarum* are also frequently observed.

The forest reserve located directly above and around the Gal Wewa is the Galgiriya Mountain Forest Reserve/Galgiriya Kanda Forest Reserve[1]. This mountain and its forest cover are of immense importance to the Kumbukkalla Cascade, acting as the primary catchment area that feeds the tanks, including Gal Wewa, Siyambala Wewa, and Kumbukkalla Wewa.

No aquatic invasive species found in three tanks. But terrestrial invasives such as *Lantana camara and Chromolaena odorata* have grown along the tank bunds and adjacent areas of the three tanks.

[1] To be confirmed by the Forest Department

2. Proposed Works under the Nochchiyagama Ihala Palugaha Wewa, Gal Wewa and Divullagama Paluga Wewa[2]

2.1. Proposed rehabilitation works at Nochchiyagama Ihala Palugaha Wewa[3]

To enhance the storage capacity and safety of the tank, the bund rehabilitation works, clearance of the tank bed (desilting and removal of plants in the tank area.), Co-Spill improvement (reconstruction or rehabilitation of the spillway structure (co-spill) are proposed as elaborated in Table 2.

Table 2: Proposed rehabilitation works of Nochchiyagama Ihala Palugaha Wewa

No.	Head Works Development	Unit	Qty
01	**Improvement of Tank Bund**		
	1.1 Light jungle clearing along the Tank bund & reservation with spill area by machinery.	**Ha**	0.420
		m^3	254.00
	1.2 Stripping off soil, receiving new earth, and removing spoil outside the reservoir 30 m by machinery.	**m^3**	40.00
		m^3	525.00
	1.3 Benching on the tank bund slopes	**m^2**	870.00
	1.4 Stripping topsoil in the borrow area	**m^2**	135
	1.5 Cutting, laying, and pegging of turf as directed	**Nos**	5.00
	1.6 Supplying good-quality gravel		
	1.7 Contraction of(size 300x300x450 mm) concrete block on bund top levels		
02	**Repair of CO type spill (5.0 m Long)**		
	2.1 Clearing & Preparation of the site	**m^3**	3.50
	2.2 Earth excavation for blanket wall & part back filling (manually)	**m^3**	5.50
03	**Clearing Tank Bed**		
	3.1 Desilting of scraping l50mm thick layer of vegetation, inclusive of water plants uprooting roots from tank bed by machinery, spoil to be as directed	**Ha**	3.00
04	**Rehabilitation of Irrigation Canals**		
	4.1 Clearing & Striping off top soil to a depth of 75 to 150 mm along the canal trace	**m^3**	104.00
		m^3	461.00
	4.2 Stripping top soil in the borrow area	**m^2**	432.00
	4.3 Cutting, laying, and pegging of turf as directed		
05	**Construction of Canal Concrete Lining**		
	5.1 Excavation for concrete bracket lining in supply canal (Manually)	**m^3**	36.00
06	**Rehabilitation of Tail canals**		
	6.1 Clearing & stripping off top soil to a depth of 75 to 150 mm along the canal trace	**m^3**	325.00
		m^3	851.00
	6.2 Earth cutting by machinery		
07	**Construction of Hume pipe culvert 300 mm Ø for Tractor crossing**		
	7.1 Excavation for concrete bracket lining in supply canal (Manually)	**m^3**	3.0
	7.2 Supply, bedding and laying of 300 mm iâ x 2.4 m RCC Hume pipes	**Lm**	9.60
	7.3 Supplying good-quality gravel	**m^3**	5.40
08	**Construction of 4 Nos. farm Turnouts**		
	8.1 Earth excavation in the foundation and backfilling (manually)	**m^3**	3.50
	8.2 Supplying and laying 150 mm Ø Hume pipe 1.80 m length	**Lm**	7.2

[2] Names of the tanks based on the DAD information

[3] Works and quantities based on the BoQ submitted by the DAD to the PMU-IRDCRP

09	**Construction of End Regulator 1 Nos.** 9.1 Earth excavation for foundation & part back filling (manually)	**m^3**	0.5
10	**Miscellaneous** 10. Re-planting, suitable plants for "kattakaduwa" Reservation (Downstream of the Tank Bund) 10.1 Fixing Landmarks Boundary stones	**No.** **Nos**	60.00 6.00



The earthen dam of the tank has undergone significant erosion (Figure 1); therefore, it requires strengthening to prevent potential breaches during the heavy "Maha" monsoon rains. In addition to the dam reinforcement, the project proposes the clearing and desilting of 3.5 hectares of the tank bed. Since the kattakaduwa area of the tank remains extremely narrow, the management of the resulting debris and mud will be handled as follows:

- Primary Disposal: Material will be spread as appropriate within the *Kattakaduw*a area as directed by the Technical Officer - DAD.
- Secondary Disposal: Any remaining balance of soil and mud will be deposited on a nearby private land for agricultural use.
- Landowner Details: * Owner: Mr. A. M. Isamdin
    - Address: Aliyawatuna wewa, Thambutta
    - ID Number: 823201621V
    - Contact Number: 0717768696

The Farmer Organization has granted their consent to provide the surplus soil to Mr. Isamdin to assist with his agricultural activities.

Figure 1: Eroded tank bund of Nochchiyagama Palugaha Wewa.



Figure 2: Current spill of Nochchiyagama Palugaha Wewa

However, there is a significant pollution concern on this tank. A private entity has established a **sand processing factory** at the upper periphery of the tank (Figure 3). This has been established within

500 m of the tank, adjacent to the canal connecting **Siyambala Wewa** and **Nochchiyagama Palugaha Wewa** (Figure 4)

While an effluent storage tank has been constructed on the premises, its capacity appears insufficient to cater to the plant's processing volume (Figure 3). Consequently, it has been observed that surplus effluent is being discharged directly into the feeder canal. This canal serves as the critical hydrological link between **Siyambala Wewa** and **Nochchiyagama Ihala Palugaha Wewa** (see Figure 3).



Figure 3: The Sand Factory and its' effluent tank (the yellow circle).



The factory discharges mud-rich, highly turbid effluent directly into this canal (Figure 6)[4], which subsequently flows into the **Nochchiyagama Ihala Palugaha Wewa**, located approximately 700 m downstream from the inlet.

As a result, the canal is becoming heavily silted (Figure 4), and the Palugaha Wewa is exhibiting extreme turbidity (Figure 7). Without immediate intervention, this continuous discharge will lead to the eventual sedimentation and shallowing of the entire tank. Furthermore, this process is causing significant biological depletion; observations suggest the tank has already reached a critically depleted state.

Figure 4: connecting canal between Nochchiyagama Ihala Palugaha Wewa and Siyambalagas Wewa

The extreme turbidity prevents the survival of fish, mollusks, and various larval stages, as the high sediment load disrupts their respiratory and reproductive cycles. Consequently, the tank's ecosystem will be unable to support any aquatic life. Under these circumstances, desilting the tank bed appears to be an **unproductive investment**, as the **anthropogenic (man-made) sedimentation**

[4] This discharge is considered a punishable offense under the National Environmental Act. Of Sri Lanka.

process remains continuous. Without addressing the source of the discharge, any capacity gained through desilting will be rapidly lost to ongoing siltation.



Figure 5: The connecting canal became silted at the sand factory.



Figure 6: Effluent water from the sand factory is directly released into the canal

Where the tank connecting canal passes the sand factory, the canal segment has become heavily silted, as depicted in Figure 5. Additionally, excess runoff from the site is diverted into the canal (Figure 6). Hence, the consequences for the cascade system resulting from this sand factory should be addressed by the Department of Agrarian Development (DAD) and other relevant stakeholders, including government officials and the community. This collaboration is essential to safeguard the cascade ecosystem—specifically the **Nochchiyagama Ihala Palugaha Wewa**—to restore it as a productive aquatic ecosystem and prevent further siltation (Figure 7). Even the local farmers say their paddy fields are becoming unusually muddy due to these fine silts. Eventually, this will make it very difficult for them to work in the paddy fields.



Figure 7: The entire water column of the Nochciyagama Ihala Palugaha Wewa became extremely turbid

2.2. Proposed Rehabilitation Works at Gal Wewa

Galwewa is situated at the head of the Kumbukkallawa cascade system. As the primary, uppermost tank in the chain, its upper periphery is bordered by a natural forest[5], which plays a vital role in the hydrological catchment. To maintain its functional role within the cascade, the DAD has proposed a few rehabilitations works, as detailed in **Table 3**.

A primary concern is the current state of the tank bund, which is heavily infested with thorny scrub vegetation. To restore the reservoir's effective storage capacity, desilting of the tank bed is proposed. Per the technical specifications provided by the DAD, approximately 2,000 m^3 of excavated material will be managed entirely on-site.

This desilted material is to be spread and compacted along the *Kattakaduwa* (interceptor zone) to reinforce the downstream toe area and enhance the overall stability of the headworks. Under no circumstances will desilt material be transported outside the site boundaries, ensuring that all sediment is utilized for localized embankment strengthening. Termite hills shall be relocated as per the guidance provide, instead of being physically and chemically treated and applying insecticides. Canal rehabilitation and water management structures, such as culverts, end regulators, and farm turnouts at the paddy fields, are proposed as downstream works.

[5] Name and the legal status of the forest yet to be confirmed.

Table 3: Proposed Rehabilitation works of Gal Wewa, Kurunegala

No.	Description of the Works	Unit	Qty
Head Works Development			
01	**Improvement of Tank Bund**		
	1.1 Light jungle clearing along the Tank bund & reservation with a spill area by machinery	ha	0.324
	1.2 Stripping off soil, receiving new earth, and removing spoil outside the reservoir 30 m by Machinery.	m^3	185
	1.3 Felling and uprooting trees and disposed as directed.	Nos	5.00
	1.4 Removal of termite hills, including application of anti-termites and back-filling with suitable soil, placing and compaction in forming bund, includes watering. Termite nests and application of insecticides, refilling with selected earth.	Nos	6.00
	1.5 Benching on the tank bund slopes	m^3	85.00
	1.6 Stripping topsoil in the borrow area	m^3	1050.00
	1.7 Cutting, laying, and pegging of turf as directed	m^2	790.00
	1.8 Supplying good-quality gravel	m^3	105.00
02	**Construction of Head wall sluices 225 mm Ø for Left Bank**		
	2.1 Earth excavation for blanket wall & part back filling (manually)	m^3	2.00
03	**Tank Deepening**		
	3.1 Deepening of the tank bed, cutting and depositing soil by 90HP dozer	m^3	2150.00
Downstream Development			
04	**Rehabilitation of Irrigation canals -LB and the main canal**		
	4.1 Clearing & stripping off top soil to a depth of 75 to 150 mm along the canal trace	m^3	100.00
	4.2 Stripping topsoil in the borrow area	m^3	432.00
	4.3 Cutting, laying, and pegging of turf as directed	m^2	405.00
05	**Construction of Canal Concrete Lining**		
	5.1 Excavation for concrete bracket lining in supply canal (Manually)	m^3	18.00
06	**Construction of Hume pipe culvert 300mm Ø , for Tractor crossing .1 Nos**		
	6.1 Excavation for concrete bracket lining in supply canal (Manually)	m^3	1.50
	6.2 Supplying good-quality gravel	m^3	2.70
07	**Construction of 7 No of one-way farm Turnouts**		
	7.1 Earth excavation in the foundation and backfilling (manually)	m^3	6.200
08	**Construction of End Regulator 1 Nos**		
	8.1 Earth excavation for foundation & part back filling (manually)	m^3	0.5
09	**Rehabilitation of the tank approach Road**		
	9.1 Clearing preparation the site	m^2	440.00
	9.2 Stripping topsoil in the borrow area.	m^3	303.00
	9.3 Supplying good-quality gravel	m^3	40.00
	9.4 Cutting, laying, and pegging of turf as directed		50.00

It is proposed that five damaged and dead neem trees be removed from the tank bund. Additionally, six termite mounds will be relocated as directed, ensuring no removal or application of insecticides occurs during the process. Down stream structures, such as canal rehabilitations, construction of regulators, end structures, and rehabilitation of the tank access road are included in the BoQ provided by the DAD. Resultant soil from the deepening of tank will be spread along the *Kattakaduwa* area and compacted and shall not brought away from the tank.



Figure 8: The upper periphery of the Gal Wewa is margined to a forest.[6]



Figure 9: Paddy farming under Gal Wewa

[6] The name of the forest is to be confirmed, and clearance from the Forest Department should be obtained.

2.3. Proposed Rehabilitation Works at Diulegama Ihala Palugaha Wewa

Following the technical requirements of the previous two tanks, rehabilitation of the tank bund, the spillway structure, and the tank bed is proposed. Notably, the tank bund currently serves as a village access road (Figure 11). Efforts to clear the tank bed will prioritize restoring storage capacity through the removal of accumulated silt and invasive vegetation (Figure 12).

Regarding the tank's environment, human activities are observed at the upper periphery. The surrounding area is characterized by agricultural encroachment, specifically for maize cultivation (Figure 10), and established animal husbandry practices, such as goat farming, occurring adjacent to the reservoir. While these activities provide local livelihoods, their proximity to the water source requires careful management during the rehabilitation phase to mitigate erosion and prevent further encroachment on the tank's reservation area.



Figure 10: Diulegama Ihala Palugaha Wewa



Figure 11: The bund of the Diulegama Ihala Palugaha Wewa is used as a road.

During the bund renovation, the removal of three neem trees (*Azadirachta indica)* has been proposed, as they are already damaged and pose a potential risk to the embankment's structural stability. All other mature trees along the bund will be preserved and protected throughout the construction period. To compensate for the loss of these three trees, a replanting program will be implemented at a minimum ratio of 1:5, ensuring at least 15 new saplings are established in the project area. Regarding the 11 termite hills, the termite hills will not be destroyed as mentioned in the BoQ; instead, they will be relocated or managed as specified in the project's technical guidelines.

Debris cleared from the tank bed shall be compacted in the Kattakaduwa area; any surplus shall be distributed to farmers in accordance with the recommendations of the farmer organization.

Table 4: Rehabilitation works of Diulegama Palugaha Wewa

No.	Description of the Work	Unit	Qty.
Head Works Development			
01	**Improvement of Tank Bund**		
	1.3 Light jungle clearing along the Tank bund & reservation with spill area by machinery.	ha	0.391
	1.4 Stripping off soil, receiving new earth, and removing spoil outside the reservoir 30 m by machinery.	m^3	200.0
	1.5 Felling and uprooting trees and disposed as directed		3.0
	1.6 Removal of ant hills, including application of anti-termites and back-filling with suitable soil, placing and compaction in forming bund, including watering. Termite nests and application of insecticides, refilling with selected earth.	Nos	11.0
	1.7 Benching on the tank bund slopes	Nos	120.0
	1.8 Stripping topsoil in the borrow area	m^3	1440.0
	1.9 Cutting, laying, and pegging of turf as directed	m^3	960.0
	1.10 Supplying good-quality gravel	m^2	125.0
	1.11 Contraction of (size 300x300x450 mm) concrete block on bund top levels as per instruction, using	m^3	5.00
		Nos	
02	**Repair of Natural type spill**		
	2.1 Clearing and preparation of the site		
	2.3 Earth excavation for blanket wall & part back filling (manually)	m^3	10.00
03	**Construction of a bathing spot**		
	3.1 Earth excavation for blanket wall & part back filling (manually	m^3	6.00
04	**Clearing Tank Bed**		
	4.1 Desilting of scraping 150mm thick layer of vegetation, inclusive of water plants, uprooting roots from the tank bed by machinery, spoil to be as directed	ha	3.50
Down Stream Development			
05	**Rehabilitation of Irrigation canals -LB and main canal**		
	5.1 Clearing & stripping off top soil to a depth of 75 to150 mm along the canal trace	m^3	146.00
	5.2 Stripping topsoil in the borrow area	m^3	864.00
	5.3 Cutting and forming the canal section by the excavator and depositing earth beside	m^3	95.00
	5.4 Cutting, laying, and pegging of turf as directed	m^2	810.00
06	**Construction of Canal Concrete Lining- LB, RB, & Main Canal**		
	6.1 Excavation for concrete bracket lining in the supply canal (Manually)	m^3	20.50
07	**Construction of Hume pipe culvert 300 mm Ø, for Tractor crossing .2 Nos**		
	7.1 Excavation for concrete bracket lining in supply canal (Manually)	m^3	3.00
08	**Construction of 13 Nos. farm Turnouts**		
	8.1 Earth excavation in the foundation and backfilling (manually)	m^3	11.50
09	**Construction of End Regulator 4 Nos.**		
	9.1 Earth excavation for foundation & part backfilling (manually)	m^3	1.80

Dredging and desilting of the three proposed tanks present a complex trade-off between hydrological restoration and ecological disruption. While these activities are essential for capacity enhancement, they trigger the following technical concerns:

Negative Impacts

- Water Quality: Agitation of the tank bed increases Total Suspended Solids (TSS) and turbidity, limiting light penetration and inhibiting primary productivity (phytoplankton/macrophytes).
- Nutrient Dynamics: Resuspension of sequestered Nitrogen and Phosphorus can trigger eutrophication, leading to algal blooms and subsequent Dissolved Oxygen (DO) depletion.
- Benthic & Riparian Ecology: Mechanical excavation destroys the benthic zone, causing direct mortality to sessile and slow-moving organisms. Clearing of littoral vegetation further displaces avifauna, amphibians, and nocturnal mammals.
- Structural Integrity (Hard Pan): Excessive dredging risks breaching the impermeable hard pan. Damage to this clay layer increases vertical seepage, undermining the tank's water retention capacity during the dry season.
- Biological Risks: Soil disturbance facilitates the colonization of invasive aquatic and terrestrial species.
- Waste Management: Improper disposal of spoils (e.g., on the bund) leads to re-siltation via monsoon runoff, neutralizing the project's benefits.

Positive Impacts

- Hydrogeology: Removing accumulated silt restores the hydraulic connection to the local aquifer, enhancing the groundwater recharge of domestic and agro-wells.

To mitigate the risks, the identified negative impacts to be addressed through a rigorous Environmental Management Plan (EMP), with strict adherence during implementation, supervision, and monitoring.

3. Impact Matrix Code

Table 5: 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 damages on 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 neighbouring 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; ○ 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	Mitigation is feasible and effective, requiring only moderate design-based and/or operational planning. Residual effects are expected to

	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.	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 for Three tanks (Nochchiyagama Ihala Palugaha Wewa, Gal Wewa, and Diulegama Palugaha Wewa) of Kumbukkalla Cascade.

Table 6: Envrionmental Screening of Nochchiyagama Ihala Palugaha Wewa, Gal Wewa, and Diulegama Palugaha Wewa

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 of existing spill?) that could lead to the inundation of new areas within the catchment?	**Yes**	**Substantial Risk**	The rehabilitation of the headworks—including the desilting of the tank bed and the restoration of the tank bund and spillway—is proposed for the three tanks. Additionally, downstream works for these tanks will include canal rehabilitation, the construction of end regulators, and the installation of farm turnouts. 1.1. No new infrastructures are proposed under the three tanks except, farm turn outs and end regulators. 1.2. Rehabilitation of headworks and downstream works are proposed as described in the Table2, Table 3 and Table 4. 1.3. NO. (Neither the tank bund height nor the spillway height will be raised). 1.3. Desilting of the tank bed under the three tanks are proposed. 1.5. Disposal of Dredged Materials **i. Nochchiyagama Ihala Palugaha Wewa:** Dredged materials shall be transported off-site, as the **Kattakaduwa** (interceptor zone) of the tank is extremely narrow. The material will be deposited on private farmland at the owner's request for agricultural use. **ii. Galwewa:** Dredged materials shall be deposited within the **Kattakaduwa** area. **iii. Diulegama Palugaha Wewa:** Dredged materials will be deposited within

No	Screening Questions	Yes/No	Scale of Impact	Remarks
	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:			the **Kattakaduwa** area or designated on-site locations. 1.6 Residuals from removed scrub/throne jungles solid waste derived from the workforce, etc., may need to be disposed of. Additional solid waste accumulated around the tank must also be removed. Most importantly, the tank bund and immediate down stream of it have infested with number of invasive plants, clearing, cutting ad removing of them to be done with extra care.
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**		The construction work is scheduled to be carried out during the inter-seasonal period, specifically avoiding the *Maha* and *Yala* cultivation seasons.
3	If the water level will be artificially drawn down, please assess the potential impacts on: **3.1. Surface Water:** Will the draw down alter water flows in nearby streams, rivers, or canals, particularly during the dry season? **3.2. Groundwater:** Will the draw down affect the groundwater table or flow in local wells, especially during the dry season? **3.3. Ecology:** Is there a risk that this activity will affect the ecology of the tank bed or other	**No**	--	**3.1**. The rehabilitation of headworks shall take place only after a cultivation season. During this period, the water level in the tank is low, so deliberately lowering the water level will not be anticipated. **3.2**. No groundwater sources, such as dug wells, were identified within a 2 km radius of the Nochchiyagama Ihala Palugaha Wewa or Gal Wewa tanks. While an agricultural well is located within 100 m of the Diulegama Palugaha Wewa, local farmers report that its water level is independent of the tank's capacity (the water level in this agricultural well remains consistent even during the dry season). **3.3**. Desilting/clearing of tank bed is proposed under the three tanks. • Nochchiyagama Ihala Palugaha Wewa (නොච්චියාගම ඉහළ පලුගහ වැව)

No	Screening Questions	Yes/No	Scale of Impact	Remarks
	important wetlands around and canal systems that depend on it? **3.4**. 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).			Due to high levels of water turbidity, no aquatic plants or fauna were observed within the tank bed. The tank appears to be biologically inactive as a result of these extreme conditions. Consequently, the proposed works are expected to have no significant ecological impact. • Gal Wewa (ගල් වැව)- No aquatic plants on the tank bed, but there are plants including thorny type along the tank bund and periphery. • Diulegama Palugaha Wewa (දිවුලේගම පලුගහ වැව) – No aquatic plants on the tank bed, or around the periphery, mostly consisting with agricultural interventions. **3.4**. Prior to the commencement of desilting or dredging activities, a thorough site inspection must be conducted to identify and relocate all movable and immovable fauna. This includes the salvage and translocation of juvenile stages, eggs, and nests to suitable habitats to ensure minimal ecological disruption.
4	Will the project cause localized flooding and/or poor drainage during construction?	**No**	--	No such an impact is expected in relation to the three tanks, as nearly all activities will be conducted during the off-cultivation season when rainfall is low and tank water levels are at their minimum.
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**	**--**	The proposed physical interventions in the three tanks are mainly the rehabilitation works for existing hydrological structures and processes; thus, changes in topographical parameters and land use patterns are not expected. Proposed new activities include construction of four numbers of Hume pipe tractor crossings, construction of farm turnouts, construction of end regulators, which are having minimal earth works across the paddy fields. Hence, changes in the topography, land use, changes in water bodies are not expected.
6	Will construction of the project cause soil erosion within the site due to steep grade or soil	**No**	**--**	The tank bund rehabilitation and spill canal construction are being proposed, there is a risk of soil erosion in specific locations, especially along the tank bund, if the civil works occur during the rainy season. However,

No	Screening Questions	Yes/No	Scale of Impact	Remarks
	content?			once construction is completed, soil conservation will be improved.
7	Will the Project release pollutants or any hazardous, toxic or noxious substances to **7.1.** Air? **7.2**. Nearby surface or groundwater sources? **7.3**. Soil?	**7.1 Yes** **7.2. No** **7.3 No**	Low Risk	7.1. The project will generate minor, localized emissions from construction machinery and vehicle exhaust, causing a brief deterioration in ambient air quality. Given the limited scope and duration of work, the overall impact on air quality is considered negligible. 7.2 There are no groundwater sources within 1-2 km radius of the Nochciyagama Ihala Palugaha wewa and Gal wewa. Minor irrigational tanks are within the cascade (within a 1 km periphery). However, project-induced pollutants are not expected to reach such water tanks. There is a agri well adjacent to the Galwewa, which seems aboundand. 7.3.Accidental spills of fuel, lubricants, and cement on the ground may pose a threat to soil quality and shall be prevented.
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	With the exception of Gal Wewa, the tanks are located more than 2 km from the nearest human settlements. In the case of Gal Wewa, residential areas are situated within a 1 km radius. Consequently, impacts on human health from pollution parameters are expected to be negligible across all three locations. However, the sites are frequented by elephants, which are periodic visitors to all three tanks.
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?	--	--	i. Nochchiyagama Ihala Palugaha Wewa: No forest or forest patch is located within the project impact zone. ii. Gal Wewa: A forest is margined to a upper periphery of the tank. The name of the forest and its legal status yet to be confirmed with the forest department. iii. Divulegama Palugaha wewa: The tank is surrounded by the paddy fields, other crops, and the village. A forest is located may be one km away from the tank. No impact is anticipated sur to project works.

No	Screening Questions	Yes/No	Scale of Impact	Remarks
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.)."*	**Yes**	**Low Risk**	While a comprehensive ecological assessment has not been conducted for the three tanks and its surroundings, the habitat—comprising a mosaic of paddy fields, water bodies, scrub forest patches, and agricultural lands—suggests a high probability of diverse wildlife, including protected species. These habitats likely serve as critical water sources. Furthermore, Human-Elephant Conflict (HEC) is persistent in the region, albeit currently below peak intensity. Both site observations and testimonials from local farmers confirm the frequent presence of elephants within the project area.
11	Will the proposed project activities cause negative effects on wildlife habitats, populations, corridors or movement?	**yes**	**Low Risk**	Based on the preliminary environmental screening, direct negative impacts on wildlife populations and habitats are not anticipated. The rehabilitation activities are strictly focused on pre-existing small infrastructure, meaning no significant habitat fragmentation or destruction is foreseen. However, indirect disturbances are highly likely during the movement of machinery and vehicles, even during the daytime. Specifically, the movements can disturb ground-dwelling birds, reptiles, their nests, and associated habitats.
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**	**Low Risk**	While there are no forested areas within the immediate project footprint, the surrounding tank environment supports **nocturnal fauna**. Site operations must account for the risk of **illegal poaching** and unauthorized wildlife interference during construction.
14	Will tree felling be required for the proposed project activities?	**Yes**	**Low Risk**	**i. Nochchiyagama Ihala Palugaha Wewa:** No trees will be removed **ii. Galwewa:** It is proposed to fell and remove five damaged trees within

No	Screening Questions	Yes/No	Scale of Impact	Remarks
	If yes, please provide an estimate of the number of trees to be felled and their species.			the project area. iv. **Diulegama Palugaha Wewa:** Three damaged trees are scheduled for felling Compensation planting shall be done as guided in the ESMP
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?	**Yes**	**Low Risk**	The project site is situated on relatively flat terrain, making it visually prominent to the surrounding area. During the construction phase, the aesthetics of the landscape may be affected by visual intrusions such as stockpiled materials, heavy machinery, and dust emissions. However, these impacts are considered minor and temporary, as the site will be restored upon project completion.
16	Any invasive fauna or flora presents in the tank or surrounding area?	**Yes**	**Substantial Risk**	No aquatic invasive plants were found in the water retention area. Terrestrial Plants: • Lantana (*Lantana camara*) •

5. Screening Decision and Recommendation

The three tanks belong to the same cascade and the tanks are located with 3-4 km radius together with few other tanks that belongs to the same cascade. The surrounding environment is mainly consisting of paddy fields, chena, abundant lands and shrub forest patches. Only the upper periphery of the Galwewa bordered to a forest.

All proposed interventions under the three tanks are standard construction practices for small-scale irrigation tank rehabilitation and, renovation work. But the dredging is proposed under the three tanks which may create certain environmental and ecological concerns. However, the adverse impacts arising from the proposed other interventions are considered not significant, as they are overwhelmingly short-term, limited to the construction period, and reversible in nature.

The limited potential impacts identified are associated primarily with the construction phase and are grouped as follows:

1. Occupational Health and Safety (OHS):
    - Occupational health hazards, particularly the risk of wildlife attacks (e.g., snake bites) during material transport and construction activities.
2. Wildlife Disturbance: Disturbances to local fauna, including the potential for poaching.
3. Biological Invasion: The risk of spreading invasive terrestrial plant species.
4. Accumulation and disposal of solid waste due to proposed activities.
5. Air and Noise Pollution: Impacts related to dust, noise, and vibration.
6. Water Quality Degradation: Tank water pollution stemming from construction materials and runoff.
7. **Extraction of natural resources**
8. **Exposing and damaging physical and cultural resources**
9. **Soil erosion, sedimentation of nearby water bodies, and paddy fields.**

✅ **Environmental Management and Mitigation**

The best practices listed in the Environmental Management Plan (EMP) must be implemented as practically as possible.

The proposed project can, therefore, be carried out provided the mitigation measures stated in the EMP are fully implemented.

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6. Environmental Management Plan (EMP)

Table 7: Environmental Management Plan for the Nochchiyagama Ihala Palugaha Wewa, Galwewa, and Divulegama Palugaha Wewa

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 wildlife attacks during material transport, site access, and construction activities.	**During the site access** **Material transport** **During the work**	Given that the work area is in a sensitive zone, the following mitigatory measures shall be implemented to ensure the safety of wildlife as well as project workers. 1.1. The Department of Wildlife Conservation (DWC), as well as the regional office of the Forest Department (FD), shall be consulted before starting any work. This includes sharing the project's scope, location, and timeline. The work schedule must be planned and strictly followed based on the DWC's and FD's instructions. 1.2. Work activities are restricted to between **8:00 AM and 5:00 PM** to avoid the peak hours of elephant and other wildlife movement, which typically occur at dusk and dawn. 1.3. Elephant Sentinel: A dedicated elephant sentinel (or lookout person) with local knowledge of elephant behaviour and movement patterns must be hired. This person's sole responsibility is to monitor for approaching elephants and alert the workers. The sentinel should be equipped with a	Engineering cost	Contractor DAD	PMU

			communication device (e.g., a horn, whistle, or mobile phone) to provide a clear and immediate warning to all on-site personnel. 1.4. A supply of firecrackers should be obtained from the DWC regional office under the recommendation of the Department of Agricultural Development (DAD). These are to be used only in **emergency situations** to deter elephants and should be deployed by trained personnel. 1.5. Under no circumstances shall any elephant or any other faunal species be harmed, injured, or killed as a result of project activities. All personnel must be briefed on this non-negotiable principle. 1.6. All food waste and other attractants must not be stored on the site. Any food waste is regularly removed from the site to prevent elephants from being drawn to the area. 1.7. No one shall have access to the adjacent areas around the tank. Harming, collecting, poaching or shooting any species of wildlife is strictly prohibited. 1.8. No mode of fire, cigarettes shall be taken into the worksite without permission from the DAD officials. 1.9. Cooking shall not be allowed on the site. However, Cooking shall not be allowed on the site for the workforce. 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. 1.10. No one shall remain on the site after working hours. 1.11. No worker shall allow walking beyond the upper periphery of the tank or beyond without permission from the supervisor. 1.12. Only group transport shall be provided to the entire workforce. 1.13. Speed limits and operating times mentioned above for the construction/material transport vehicles should be imposed. 1.14. Appoint a qualified full-time designated, trained personnel responsible for daily OHS supervision, record-keeping, and enforcement. 1.15. Given the dry zone's history with specific health issues (e.g., chronic kidney disease of Unknown Etiology - CKDu), ensure that drinking water sources are safe and certified as potable, separate from the tank water, and not from potentially contaminated local wells. 1.16. Clean food shall be provided for the workers at all times.			

			1.17. Implement measures to prevent heat stroke and dehydration during the hot sunny days. o Mandatory provision of safe, clean drinking water (potable water) accessible at all times as mentioned above. o Schedule heavy work for cooler parts of the day (e.g., early morning). 1.18. Establishing labour quarters on the site is risky due to the frequent appearance of elephants. If the contractor hires a premise as labour quarters, the location shall be selected by avoiding elephant movement pathways and roaming areas. Provide adequate, clean, and separate sanitary facilities (toilets) and washing stations for workers. 1.20. Possible risks of snake bites, insect attacks, and other wild animal encounters present in the adjacent forest environment. 1.21. Safety shoes and/or boots shall be provided for all workers, and their use is mandatory on the worksite to protect against bites, sharp objects, and other ground hazards. 1.22. First Aid and Emergency Response: In the event of an incident (such as a snake bite, insect attack, or any other wildlife attack), a designated sentinel person trained in first aid and emergency response should be kept ready on site. 1.23. Immediate Hospitalization Protocol: Clear protocols must be established for immediate hospitalization and transport, ensuring rapid access to the necessary medical facilities. 1.24. Ensure all heavy equipment (excavators, bulldozers, tipper trucks) and vehicles are inspected, well-maintained, and operated only by certified and licensed operators.			

			1.25. A dedicated OH&S officer shall be deployed on-site for the full duration of all scheduled working hours. Further to the above, strict adherence to all applicable Sri Lankan OHS regulations and laws shall be applied under this contract. 1.26. Structural excavations for new sluices, drop structures, and Field Turn-Outs (FTOs) present high-risk environments. The following safeguard measures are mandatory to ensure structural stability and personnel safety. 1.27. To prevent accidental falls and vehicle-induced collapses, all excavation 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. • **Warning Signage:** Post high-visibility "Deep Excavation" and "Authorized Personnel Only" signs at 10-meter intervals. • **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. **1.28. Structural Shoring and Stabilization:** Where			

			excavations exceed a depth of **1 – 1.2 meters**, or where soil conditions are unstable (soft silt/clay), the following shoring measures are required: • **Timber/Steel Shoring:** Use close-sheeting or hydraulic shoring to support the vertical walls of the excavation. The design must be capable of resisting lateral earth pressure. • **Benching or Sloping:** If space allows, the sides of the excavation must be sloped to the "Angle of Repose" (typically a **1:1 or 1:1.5 gradient**) or "benched" in steps to prevent sudden mass movements. • **Hydrostatic Pressure Management:** During sluice or drop-structure construction, dewatering pumps must be used to prevent the "boiling" of the excavation base or the weakening of the shoring due to water saturation. • **Ladder Safety:** Secure, industrial-grade ladders must be provided for every **15 meters** of trench length. Ladders must extend at least **1 meter** above the landing platform. 1.29. **Ramps:** For large-scale sluice excavations, stabilized ramps with a maximum gradient of **1:10** should be constructed for safe foot traffic. 1.30. The dedicated OH&S Officer shall perform a **"Pre-Entry Inspection"** every morning and after any rainfall event: • Check for buckling, cracks, or shifting of the supports. • Inspect the ground surface around the perimeter for tension cracks.			

			• In deep pits for sluices, check for oxygen deficiency or trapped gases before entry. • Ensure the Farm Turn Outs/Drop structure base is not being "undercut" by water seepage. 1.31. Work must be halted immediately if: • Seepage water begins to carry fine soil particles (piping). • Evidence of "bulging" is seen in the shoring or the excavation walls. • Heavy rainfall occurs (significantly increasing the weight of the surrounding soil.)			
2	Wildlife Disturbance: Disturbances to local fauna, including the potential for poaching.	**Site clearing** **Dredging** **Earth works** **Construction works** **Site access Material transport**	2.1. Before the first bucket of silt is removed, a physical rescue operation must be conducted. 2.2. Before dredging started, work with the local Farmer Organization (Govi Sanvidhana) to relocate native fish species to a nearby connected tank in the same cascade before the water is fully drained for dredging, or before dredging started. Use small mesh sized scoop nets to collect smaller fish. (Rescued animals should be kept in oxygenated tanks or buckets with fresh tank water. Avoid overcrowding; the high temperatures in the Dry Zone can deplete oxygen in a bucket in minutes.). Relocate animals to a "sister tank" within the same Cascade System. 2.3. Trained personnel (or experienced local farmers) should walk the banks and shallow beds to look for nesting signs (disturbed soil, tracks). If a high-density nesting site is found that belongs to any species, mark it with stakes and a 5-meter buffer zone. Dredging must bypass this block until the eggs	Engineering cost	Contractor	PMU DAD

			have hatched. 2.4 Leave small patches of un-dredged silt and vegetation within the tank. These act as "islands of life" from which fish and insects can re-colonize the rest of the tank once it refills. 2.5 Some aquatic plants (like the Blue Water Lily) have seeds buried in the top layer of silt. If feasible, save the top 10-15cm of silt from a small area to be spread back after dredging to aid natural revegetation. 2.6 The contractor will take reasonable precautions to prevent workmen or any other persons from removing and damaging any flora and fauna, including fishing in the tank and hunting of any animal. 2.7. No one will have access to the forest, nearby lands, or adjacent forest patches, even in the spill area or along the canal, without permission from the supervisor of the contractor. 2.8. The contractor should ensure animals' access to water is not blocked during construction. 2.9 Due consideration should be given to carefully clearing vegetation, avoiding the destruction of habitats of fauna. Even nests of birds. 2.10. Termite hills with live colonies may be relocated as appropriate without destroying them by following the instruction given in the annexed guideline.			

3	Biological Invasion: The risk of spreading invasive terrestrial plant species.	Rehabilitation of tank bund, cleaning/rehabilitation of spill canal, Material transportation	*Lantana camara,* and *Chromolaena odorata* infestations occur along the tank bund, immediately downstream areas, and adjacent to the spill area. 3.1. Physically remove plants when they are not at the fruiting (*Lantana*) or seeding (*Chromolaena*). 3.2. If fruits/seeds are present, carefully bag and remove all reproductive material first before cutting the main plant. Dispose of this material by deep burial or by burning on the site. DO not transport. 3.3. Begin removal works from the edges of the infestation inwards. (To create a buffer zone). 3.4. Physical removal shall be done by cutting the stem as close to the ground as possible and immediately applying a registered herbicide at the correct concentration directly to the freshly cut surfaces to kill the root system, preventing prolific re-sprouting. Or else uproot the root system and immediately put on a bag for burning to the ash. Observe for a few weeks for new shoots/plants and remove them following the same procedure. 3.5. Thoroughly clean all tools and machinery (machetes, shovels, vehicle tires, and boots) before leaving the site. 3.6. Borrow material for tank bund 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	Engineering cost	Contractor	PMU DAD

			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 3.7. Washing the vehicles should be conducted periodically to prevent carrying any invasive species 3.8. The site should be inspected periodically to ensure that no new invasive species are established at the site.			
4	Accumulation and disposal of solid waste due to proposed activities.	Dredging. Setting up of material storage yards. Stockpiling of soil and dredged materials. Removal of vegetation. Solid waste from construction staff. Transport of construction material.	4.1 Conduct dredging and disposal during the **dry season**. This allows the material to dewater (dry out) and stabilize before the monsoonal rains. 4.2 Disposal should be coordinated with the **Department of Agrarian Development** and the local **Farmer Organization (Govi Sanvidhana).** 4.3 Before wide-scale disposal, test the silt for salinity or contaminants, especially if there is heavy agro-chemical use upstream. High-salinity silt should not be placed near the paddy fields. 4.4 Always consider downstream tanks. Ad-hoc dumping in one tank's catchment can cause rapid siltation in the next tank in the cascade. 4.5 If it is decided to dispose in the Kattakaduwa area; Kattakaduwa is a natural filtration zone, disposal must not compromise its function. o Do not dump silt in a way that blocks the natural seepage flow from the bund to the fields. This seepage is essential for maintaining the Kattakaduwa's specific ecosystem. o Any mounds created must have a gentle slope (gradient) and be immediately stabilized with vegetation (grass or trees) to prevent the silt	Engineering Cost	Contractor	DAD PMU

			from washing back into the drainage system. ○ Fine silt is often nutrient-rich. It can be lightly spread around established trees in the Kattakaduwa to provide nutrients, provided it does not bury the root systems too deeply. 4.6 If suitable, dredged materials/silt can be used to improve local agricultural access roads, provided it is mixed with coarser materials (like gravel) to ensure stability, as pure tank silt often has low load-bearing capacity. 4.7 In high-flood areas or within the tank bed itself, silt can be mounded into small islands. These should be stabilized with local grasses and trees to provide habitats for fauna without blocking natural drainage. 4.8 If earth was previously excavated from nearby areas for bund repairs, use the dredged material to backfill these pits. This prevents water stagnation and reduces mosquito breeding sites. 4.9 Use the silt to build or reinforce the *Iswetiya*, a soil ridge placed upstream of the tank. This acts as a physical barrier to trap new sediment before it enters the tank. 4.10 No labour camps shall be allowed under this contract on or around the worksite. 4.2. The contractor shall create a list of all types of waste generated from the construction activities and obtain directions from the Local Government Authority (LA - Pradeshiya Sabha), regarding suitable disposal sites for each waste type. 4.3. Reusable waste, such as cement bags, shall be either resold or reused.			

			4.4. Any hazardous waste must be handled with special care and according to instructions from the local authority. 4.5. 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. 4.6. Food waste shall not be discarded into the surrounding environment, as this may attract wildlife and must be removed from the site daily. 4.7. There should be no burning of wastes on site. 4.8. Workforce-related solid waste shall be removed from the site on a daily basis. 4.9. Any cleared vegetation that needs to be removed to facilitate proposed spill and spill canal works shall be removed from the construction sites under the supervision of the DAD before the commencement of proposed interventions in the spill area. No debris shall be burned on the site.			
5	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 9.00 am to 4.00 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. 5.3. 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	Water Quality Degradation: Tank water pollution stemming from construction materials and runoff.	**From the machinery, vehicles, and stores. Cement/concrete works.**	6.1. Fuel or lubricants shall not be stored anywhere on the site. 6.2. Store all oil and lubricant containers (including drums, tanks, and static plant equipment like generators) in a larger container. 6.3. Regularly inspect equipment, hoses, and storage containers for leaks, drips, or signs of wear. 6.4. Designate and use a safe area for vehicle and equipment fuelling and maintenance that is away from the water body and surrounding forest patches. 6.5. If a contamination happens, use absorbent socks, granular absorbents, or temporary barriers to immediately surround the spill and prevent its spread. 6.6. Clean up the spilled area in an appropriate manner, and dispose of it appropriately under consultation with the Local Government Authority (LA - Pradeshiya Sabha),.	Engineering Cost	Contractor	DAD PMU

			6.7. Reporting to the DAD and the PMU on the event should be performed.			
7	**Extraction of natural resources**	**Material (soil/earth/gravel) Sourcing**	7.1. The contractorshall source materials from pits/quarries that hold a valid Industrial Mining License (IML) or Artisanal Mining License (AML). Every load of 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. 7.2. 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. 7.3. The contractor is required to ensure that sand, aggregates, and other quarry material is sourced 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. 7.4. If the contractor uses a non-commercial burrow/quarry site or tank bed, the site should be	Engineering Cost	Contractor	DAD PMU

			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. 7.5. 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. 7.6. To prevent accidents, borrow pits must be finished with slanted edges. This will reduce the danger to both humans and animals.			
8.	**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; 8.1. Immediately stop the performing activity. (With the approval of the resident engineer, delineate the discovered site area. 8.2. 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. 8.3. Through the responsible officer of DAD, notify the responsible authorities, the Department of	Engineering Cost	Contractor	DAD PMU

			Archaeology, and local authorities within as soon as possible. 8.4. 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. 8.5. Responsible authorities would be in charge of protecting and preserving the site before deciding on the proper procedures to be followed. 8.6. 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. 8.7. 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.			
9	**Soil erosion, sedimentation of nearby water bodies, and paddy fields.**	**Dredging of the tanks.** **Construction work including, Removal of top**	9.1. Soil stockpiles and other construction material shall not be placed within the tank bed or on the tank bund, canals, or access road area. Soil and gravel shall be taken to the site as required without storing/stockpiling larger volumes. 9.2. Installing and maintaining erosion and sediment	Engineering Cost	Contractor	DAD

		soil, rehabilitation of the tank bund, cleaning of the spill canal, and rehabilitation of main canals.	control measures, such as silt traps, to avoid sediment runoff into the tank and nearby lands and paddy fields. 9.3. For any activity related to the construction, the excessive clearing of ground vegetation, or the removal of trees shall not be done. 9.4. Avoid stockpiling disposed material such as removed earth from the spill area and spill canal, tank bund, and canal rehabilitation works. Those shall be reused or disposed of appropriately as guided by the TO-DAD. 9.5. All exposed soil areas shall be stabilized and re-vegetated as soon as possible on completion of works to prevent potential future erosion.			