Climate Smart Irrigated Agriculture Project (CSIAP)

IDA Financed project

of the

Ministry of Agriculture (MoA)

Environmental Screening Report

of

Rehabilitation of Seven Agriculture Roads

under Vanneri Kulam Irrigation Scheme in the Akkarayan ASC area in Kilinochchi District

Northern Province

May 2020

Abbreviations

ARPA	Agriculture Research and Production
ASC	Agrarian Service Center
CBO	Community Based Organization
CEA	Central Environmental Authority
CSA	Climate Smart Agriculture
CSIAP	Climate Smart Irrigated Agriculture Project
DAD	Department Of Agrarian Development
DPD	Deputy Project Director
DS	Divisional Secretariat Divisions
EIA	Environmental Impact Assessment
EMP	Environmental and Management Plan
ESO	Environmnetal Safeguard Officer
ESR	Environmental Screening Report
ESSS	Environmental and Social Safeguard Specialsit
FGD	Focus Group Discussion
FO	Farmer Organization
GN	Grama Nilathari
GND	Grama Niladhari Division
GOSL	Government of Sri Lanka
HAS	Hot Spot Areas
HS	Hot Spot Area
HSAADP	Hot Spot Area Agriculture Development Plan
ICT	Information and Communication Technology
IEC	Information and Education Campaign
KII	Key Informant Interview
KM	Kilo Meter

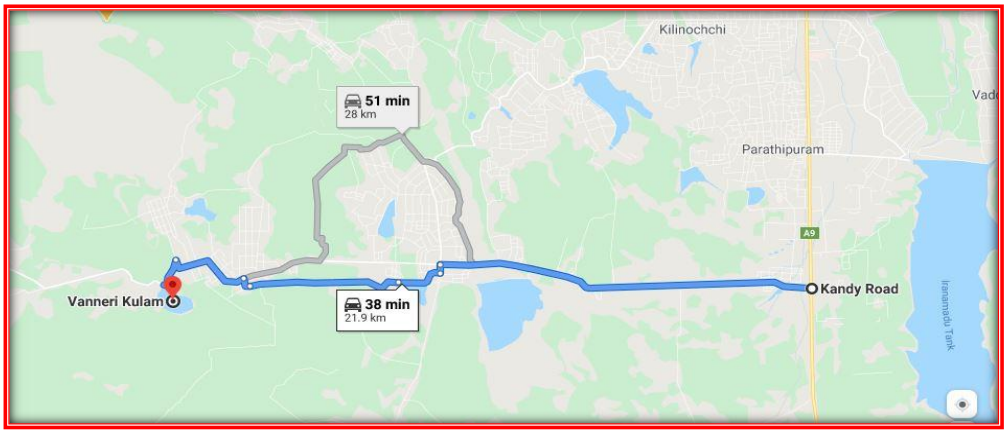
LA	Local Authority
LDO	Land Development Ordinance
LKR	Lanka Rupee
MSL	Mean Sea Level
NGO	Non-Governmental Organization
NP	Northern Province
PDA	Provincial Director of Agriculture
PMU	Project Management Unit
WB	World Bank

Contents

1. Project Identification

Project title	Rehabilitation of Agriculture Roads under Vanneri Kulam Irrigation Scheme
Project Proponent	Department of Irrigation (Provincial)

2. Project Location

Location (*relative to the nearest town, highway*)	Province – Northern District - Kilinochchi DS Division – Karachchi Cascade – Mandakkalaru Hotspot area – Mandakkalaru River basin Agrarian Service Centre – Akkarayan ASC Local government ward - Akkarayankulam GN Division - Vennerikulam  The project location is the Vannerikulam village.This location can be reached by Proceeding from Kilinochchi along Kandy Road (A-9) up to Murukandy at 244 Km. post, turn right and continue about 21.9 Km along the road linking Akkarayan kulam Tank, Skandapuram and Vannerikulam Tank.
Definition of Project Area *(The geographical extent of the project & areas affected during construction)*	The project propose to improve the agriculture roads under vannerikulam irrigation scheme subproject in Kilinochchi District. The project location is the Vannerikulam village in Vennerikulam Grama Niladari Division in the Killinocchi District. It is situated 30 km away from Killinochchi town. The project affected areas are 7 rural agricultural roads. Either sides of the roads fallow lands or farmlands are found. The village houses are located more than 500m – 1km awaya from the road sides. The project location is a lowland area with dry zone vegetation, shrubs and few trees scaterd arraound and farmers agricultural lands also located around the propose road area.The predominant land use type of the project area is agriculture. The propose project site is

	located in 3ha land area.The project site is a government owned land. The proposed road sections are as follow;

No	Name of the Road	Length	Type of Road
1.	FC-02	1280M	Gravel road
2.	FC-03	566M	Gravel road
3.	FC-04	1070M	Gravel road
4.	FC-06	1440M	Gravel road
5.	FC-09	750M	Concrete road
6.	FC-10	528M	Gravel road
7.	Maniyakulam-Vannerikulam road	2100M	Gravel road

3. Project Justification

Need for the project (*What problem is the project going to solve*)	Vennerikulam village farmers are facing a lot of difficulties to transport the commodities to paddy fields such as seed paddy, fertilizers, etc. Due to inadequate road facilities, transportation of the harvest is difficult. Many buyers are reluctant to reach the farmlands due to this and farmers had to depend on limited buyers to sell their products or have to use man power for the transportation of harvest from the paddy lands. Therefore, to increase the transportation in the area, proposed to develop seven Agriculture roads. Those proposed rural roads provide easy access and transport their harvest to stores in Akkarayan and Granary Ware House in Iranamadu junction of Kilinochchi district.These roads link the fruit growers such as Passion fruit and Papaw to Cargills Fruit Processing factory in Murikandy junction. Vegetable growers are benefited to transport their harvest with minimal post-harvest losses to Dambulla market. Mainly Gherkin producers transport Gerkin to Colombo for exports. Dairy farmers can produce their product to the Milk collection points in Akkarayankulam area. Therefore propose Agri road rehabilitation will be very useful to the villages especially the farming community The Seven agri roads proposed to develop in this project.
Purpose of the project (*what is going to be achieved by carrying out the project*)	Facilitate the farmers in Vannerikulam to transport their commodities to the farms and from the farms without any difficulties in both Maha and Yala seasons to carry out the cultivation in time to get the more yield and thus to get more income. Most importantly, rehabilitating these agriculture roads will promote the 410 farmers who are direct beneficiaries of this Vanneri kulam Irrigation Scheme, to do the paddy cultivations in time to get the improved yield in the project area. The project hopes to achieve.

	• Averagely 10 % of increase in the yield of paddy (From 2,200 kg/Ac to 2,420 kg/Ac) due to the timely starting the cultivation timely ploughing,Sowing,Application of fertilizer and pesticide on time and timely harvesting. • Around 10 % reduction in the cultivation cost (From LKR. 47,000.00 to LKR. 42,300.00 per acre) due to reduction in the cost of transport.i.e.carry on shoulder can be replaced by vehicle transport. • Selling the paddy in reasonable high price as more buyers are coming to the field with their lorries due to the easy accessibility of the paddy field. • Around 50 Acres of crop diversification from paddy to other field crop Such as black gram,Green gram,Ground nut,etc in yala season due to the easy access to fiels and market.
Alternatives considered (*different ways to meet the project need and achieve the project purpose*)	None .

4. Project Description

Proposed start date	By April
Proposed completion date	End of 2020
Estimated total cost	LKR 39.0 million
Present land ownership	All the roads selected under the sub-projects are existing roads and which were not rehabilitated for more than twenty years. The paddy lands surrounding these roads are mostly government land to which the land permits have been issued to farmers by the Divisional Secretary. Therefore, there is no land issue in the project area.
Description of the project (*with supporting material such as maps, drawings etc attached as required*)	The sub project is developed under the Cluster Village Development Programme. Sub-project is to facilitate Vannerikulum village farmers to transport the commodities to the farms and from the farms without any difficulties in both Maha and Yala seasons. Seven roads are proposed to be developed as agriculture roads. Proposed roads will be widened up to 3.6 m and according to the land elevation, some areas of the road will be elevatede from the existing level up to 1 feet highte. Shrub jungle clearing and compaction activities will be proposed in the project. The proposed roads; • The FC-9 Paddy field road

This is a Paddy field road which is 750 m long and it is proposed to be developed as a concrete road.

- The FC-2 Paddy field road which is 1280 m long will develop as a gravel road,and the below-sated roads will be developed as gravel roads.

- The FC-3 Paddy field road which is 566 m long, to be developed as a gravel road

- The FC-4 Paddy field road which is 1070 m long, proposed to be developed as a gravel road. Alonge the road there are 11 **Palmyra** trees found.

- The FC-6 Paddy field road which is 1440 m long, it will be developed as a gravel road. Drought tolerant trees are scattered around the area, but enough space is found for road widdening.

- The FC-10 Paddy field road which is 528 m long

- The Maniyakulam road is a 2100 m long and will develop as a gravel road (Vannerikulam Tank Paddy Land) are found on one side of the road

Shrub jungle and paddy fields are found in the visinity of the proposed roads.

The Provincial Department of Irrigation will implement this sub-project and the Provincial Deputy Project Director's Office of CSIAP will closely coordinate with them. The estimated total cost for the sub-project is LKR 39.0 million, while the expected community contribution is LKR xxx, 000.

Summary of the estimates of proposed construction

Item No.	Description	Amount (Rs)
01	**Construction of FC – 2 Channel Road (1280 m)**	**3,144,000.00**
02	**Construction of FC – 3 Channel Road (566 m)**	**1,275,649.61**
03	**Construction of FC – 4 Channel Road (1070 m)**	**3,084,165.65**
04	**Construction of FC – 6 Channel Road (1440 m)**	**3,911,354.28**
05	**Construction of FC – 9 Channel Road (760 m)**	**10,553,304.10**
06	**Construction of FC – 10 Channel Road (528 m)**	**1,255,091.46**
07	**Construction of Vanneri tank paddy land maniyankulam Road – 10 Channel Road (2100 m)**	**6,917,118.82**

Project Management Team	DPD of Northern Province Mr.Jeganathan Contact No – 0770327752 E-mail – jeyajeha@gmail.com Deputy Director of Irrigation,Kilinochchi Eng.T.Rajagobu Contact No – 021 2283969 / 0773172093, E-mail – ddikoc@gmail.com

5. Description of the existing environment

5.1 Physical features – Ecosystem components	
Topography and terrain	The Topography of Kilinochchi district is flat to slightly undulating. The elevation is varying from 0-250 m MSL. However, the elevation of the majority of the area is less than 10 m MSL.
Soil (*type and quality*)	Reddish-brown earth soil is dominant in the project area.
Surface water (*sources, distance from the site, local uses and quality*)	The Project area is approx 20 km away from the Coastal area. Vannerikulam tank is situated in Vanneri village as a freshwater source. This tank delivers irrigation water to 139 ha of paddy cultivation. The catchment area is 12.95 sq.km and the capacity is 211.3 ha.m Vannerikulam reservoir is fed by the tributary of Mandakkalaru river Water Quality of the wells are somewhat Brackish
Ground water (*sources, distance from the site, local uses and quality*)	There are two dug wells around the project area. The depth of the dug wells is approx 20 - 30 ft. There are no tube wells on or around the project area. The aquifer type of Akkarayankulam Regolith is deep Aquifer. Quality: water with a high salinity level. This water doesn't use for drinking purposes.
Flooding	Flooding is not reported in the area . There are no records of flood damage to the Vannerikulam area. Therefore, precautions are not needed to be taken for flood prevention.
Air quality (*any pollution issues*)	Akkarayan is largely a rural area, hence air pollution is not an issue. No major air pollution sources within the 100m radius of the project site are recorded other than the highway close by.
5.2 Ecological features – Eco-system components	
Vegetation (*trees, ground cover, aquatic vegetation*)	Vegetation type is an arid zone shrub jungle with drought tolerant trees scattered in the area. Trees found in the area are Coconut trees (*Cocos nucifera*), Palmyra palmtrees (Borassus sp.), Lemon trees (Citrus limon),Mango tree (*Mangifera indica*) , Neem tree (*Azadirachta indica*), Wood apple (Limonia acidissima) .
Presence of wetlands	Vannerikulam medium tank is the identified wetland. Propose roads are located in the down stream areas . The paddy fields are located beside the proposed roads. Proposed project has reservation on both sides of the road.
Fish and wildlife habitats	None

Birds (*waterfowl, migratory birds, others*)	Common home garden birds resident in the area are found but the project site is a human modified area and hence no major avifaunal diversity is observed.
Presence of special habitat areas (*special designations and identified sensitive zones*)	The area has not been identified as a special habitat area and according to environmentally sensitive areas map of CEA, the proposed site does not fall into any sensitive areas.
Other features	
Residential/Sensitive Areas (*Eg, Hospitals, Schools*)	This area is a village, therefore, only farmlands and village houses are located around the project site.
Traditional economic and cultural activities	Traditional economic and cultural activities within a 100 m radius of the project site are not observed.
Archeological resources (*recorded or potential to exist)*	Archeological resources within 100 m radius of the project site are not recorded.

6. Public Consultation

Public consulted	Consultation method	Date	Details/Issues raised
Mr.ViyajaSuntharam	**Informal Communication,Over the Phone.** **Note – I could not conduct the public consultation meeting Due to corona.**	**02.05.2020**	**Farmer (President of vannerikulam FO)** **Contact No – 0779670261** Community consented & Supported for the proposed rehabilitation work

7. Screening for Potential Environmental Impacts

	Screening question	Yes	No	Significance of the effect (Low, moderate, high)	Remarks
Project Design					
1	Will the project cause the removal of large trees in the locality?	✓		Low	Only one **Palmyra tree** will be removed in the FC – 04 Road development. Other roads constructions may not have any tree removal
2	Will the project use energy efficient, water efficient green building design principles in the design of the building	✓		Moderate	The area is very hot during day time therefore, tarred roads will not be a suitable concept. But developing concrete and gravel roads are sustainable designs. This concept can be concidered as moderately green designing.
Project Construction					
3	Will construction and operation of the Project involve actions which will cause physical changes in the locality (topography, land use, changes in waterbodies, etc)		✓		No physical changes to the locality that will lead to a change of water bodies.
4	Will construction of the project cause soil erosion within the site due to steep grade or soil content? What is the risk of landslides taking place in the area?	✓		Low	Soil erosion will be minimal as area if dry and flat,However, each movement during road building can cause limited erosion issues and hence compaction need to be carried out immediately after applying earth and gravel. No landslides in the area.
5	Will the Project involve generation and disposal of solid wastes during construction? Are their	✓		low	Cleared vegetation which are organic matter will not be a major issue as they will be piled up and left to decay. Only construction site materials which left out can take as the waste. left out

	Screening question	Yes	No	Significance of the effect (Low, moderate, high)	Remarks
	wastes in the hazardous category?				gravel /sand cymet bags , but not expected hazard waste form the site. Expect to remove waste form proper instruction from EMP.
6	Will the Project release pollutants or any hazardous, toxic or noxious substances to air?		✓		No any chemical or hazardous substance will generate from the project.
7	Will the Project cause noise and vibration or release of light, heat energy or electromagnetic radiation?	✓		Low	During construction, noise and vibration impacts can be anticipated. Compaction, loading and unloading of materials & movement of vechicles are potential sources of noise and vibration during construction.
8	Will the Project lead to risks of contamination of land or water from releases of pollutants onto the ground or into surface waters, groundwater?	✓		Low	Wash offs from material stockpiles, sedimentation of surface waterways due to site clearing is likely but not with severe impacts as construction can be done during the long off – rainy season.
9	Will the project cause localized flooding and poor drainage during construction Is the project area located in a flooding location?	✓		Low	During the construction, If the waste drainage system is not properly maintained, there is a chance for flooding and water stagnation.
10	Will there be any risks and vulnerabilities to public safety due to physical hazards during construction of the Project?	✓		Low	Safety issues in terms of injuries due to construction work, using heavy machinery could be anticipated. However such incidences can be avoided with proper precautions exercised on health and safety aspects.
11	Are there any transport routes on or around the location which are susceptible to congestion or which cause	✓		Low	The creation of dust and noise are the potential environmental impacts which are temporary.

	Screening question	Yes	No	Significance of the effect (Low, moderate, high)	Remarks
	environmental problems, which could be affected due to construction work?				
12	Are there any routes or facilities on or around the location which are used by the public for access to recreation or other facilities, which could be affected by the project?	✓		Low	There are agricultural land & some residential houses within the 100 m radius of the project site
13	Are there any areas or features of high landscape or scenic value on or around the location which could be affected by construction activity?		✓		No features of the high landscape or scenic value within 100 m radius of the project site.
14	Are there any other areas on or around the location which are important or sensitive for reasons of their ecology e.g. wetlands, watercourses or other waterbodies, the coastal zone, mountains, forests which could be affected by the project?		✓		No any ecological sensitive areas within 100 m radius of the project site.
15	Are there any areas on or around the location which are used by protected, important or sensitive species of fauna or flora e.g. for breeding, nesting, foraging, resting, migration, which could be affected by the project?		✓		All the project locations are found within the village and semi urben areas. Therefore, slight clering of shrub jungle will not damage to natural habitats. No any protected areas found in or around the location used by protected, important or sensitive species of fauna and flora are recorded.
16	Will any part of the project's construction activities be located in a previously undeveloped		✓		No green field land on the project location.

	Screening question	Yes	No	Significance of the effect (Low, moderate, high)	Remarks
	area where there will be loss of greenfield land				
17	Will the project cause any offsite impacts from example burrowing, quarrying, relocation of facilities etc?		✓		Road Construction will need Gravel / Sand / Soil. And those need to be taken form licensed sources as instructed by EMP
18	Are there any areas or features of historic or cultural importance on or around the location which could be affected by the project?		✓		No historic or cultural importance within a 100 m radius of the project site.
19	Are their sanitary units planned?		✓		No
	Operational Impacts				
20	Will the project lead to stagnant water and drainage problems causing increased mosquito breeding	✓		Low	During the construction, water stagnation is possible in the rainy season. But this area is very dry for 9 months of the year, Hence, water will evaporate quickly therefore, stagnation will not be a serious issue.
21	Will the project involve removal and disposal of wastes ?	✓		Low	Expect the small amount of construction waste. Proper waste management needs to be applied.

8. Permits and clearances needed for project to proceed

	Permit/Clearance	Yes	No	TBD	Remarks
1	National Environmental Act		✓		**No violation of the acts**
2	Soil Conservation Act		✓		
3	Coast Conservation Act		✓		
4	Fauna and flora protection ordinance		✓		
5	Local Authority Act		✓		
6	Irrigation Ordinance		✓		
7	Any other		✓		

9. Conclusions

Summary of key issues	Low/High/Medium	Rating
Air pollution including dust generation that can affect near by vegetation	Low	**N/S**
Noise pollution & vibration that can affect nearby structures	Low	**N/S**
Solid waste disposal	Low	**N/S**
Public /Occupational safety hazard	Low	**N/S**
Clearing/Closure of construction site/Labour camps	Low	**N/S**
N/S - Effect not significant, or can be rendered insignificant with mitigation SP - Significant positive effect SN - Significant negative effect U - Outcome unknown or cannot be predicted, even with mitigation		

10.Screening Decision Recommendation :

The majority of the potential adverse effects can be classified as general construction-related impacts and can be mitigated on site with proper engineering interventions. These Potential impacts are temporary.

Implementation of the environmental management plan is sufficient to mitigate the identified impacts.

11. Details of Persons Responsible for the Environmental Screening

Screening report completed by Ms.Kesiga.Sampasivam Environmental Safeguard Officer- NP Email: kesiga.sampasivam@gmail.com	Date 02.06.2020 Signature Ms. Kesiga. Sampasivam Environmental Safeguard Officer Climate Smart Irrigated Agriculture Project Northern Province
Screening report Checked by Mrs.Udula J. Sedera Environmental Officer -PMU Email: jeny.usedera@gmail.com	Date 03.06.2020 Signature M. U. J. Sedera Environmental Safeguard Officer Project Management Unit Climate Smart Irrigated Agriculture Project (CSIAP) Ministry of Agriculture
Screening report Recommended by Dr. Janake Jayawardana Social & Environmental Specialist - PMU Email: jaya.ybj.@yahoo.com	Date 04.06.2020 Signature Dr. Y. B. J. N. Jayawardana Environmental & Social Safeguard Specialist Project Management Unit Climate Smart Irrigated Agriculture Project (CSIAP) Ministry of Agriculture
World Bank Clearance given for the ESR & EMP by Mrs. Nadeera Rajapaksha Environmental Safeguard Specialist Email: nrajapakse@worldbank.org	Date 18.06.2020

Environmental Management Plan (EMP)

Title of Project:- Rehabilitation of Agriculture Roads under Vanneri Kulam Irrigation Scheme in the Akkarayan ASC area

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
01.	**Public complaints and lack of community support for the project implementation**	Information Disclosure among Stakeholders	***1.*** Discussions should be conducted with the Residents, Farmer orgnizations in the area have to be briefed of the project, purpose and ***This should be done immediately once the contractor is mobilized.*** ***2.*** The contractor should take note of all impacts, especially access issues and safety hazards that will be of concern to the residents and take necessary measures as stipulated in the EMP to mitigate them. ***3.*** The contractor will maintain a log of any grievances/complains and actions taken to resolve them. ***4.*** A copy of the EMP should be available at all times at the project supervision office on site.	Engineering Cost	Contractor	DAD Regional Engineer & Provincial DPD Office ESO
02.	**Impact on existing habitats, trees**	• Tree removl due to road constrcution / Vehicle and machinery movements	1. Due to the road construction 4 Palmirah trees will be removed from only one road. Therefor for each tree that will be removed ,two trees need to be planted in a provided space of the same area .	Engineering Cost	Contractor	DAD Regional Engineer & Provincial DPD

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
			1. Thus the contractor shall make every effort to avoid removal and/or destruction of trees, including those of religious, cultural and aesthetic significance. 2. If such action is unavoidable, the Engineer shall be informed in advance to verify and report on the technical justification for the trees that will be required to be removed. **3.** The following steps are to be followed if trees are identified for removal during the road construction 3.1 Identify and document the number of trees that will be affected with girth size & species type 3.2 Trees shall be removed from the construction sites before commencement of construction with prior permission from the concerned department (LA). 3.3 Compensatory plantation by way of Re-plantation of at least twice the number of trees cut should be carried out in the project area. 4 The contractor shall adhere to the guidelines and recommendations made by the Central Environmental Authority (CEA), if any with regard to felling of trees and removal of vegetation.			Office ESO

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
			5 Removed trees of economic value must be handed over to the State Timber Corporation.			
03.	**Road side vegetation removal & debries accumulation**	1. Clearing of road shoulders and Removal and Disposal of construction debris and excavated materials	2. During site clearance activities, removal of vegetation and debris must done with care. 3. The contractor shall identify the sites for disposal of material cleared be carried out swiftly and in well-planned manner. 4. Plants, shrubs and other vegetation cleared should not be burned on site. 5. Spoil and other disposal materials should only be dumped at sites for which prior approval from relevant authorities such as the LA have been obtained. Taking into account the following a. The dumping does not impact natural drainage courses b. No endangered / rare flora is impacted by such dumping c. Should be located in nonresidential areas located in the downwind side d. Located at least 100m from the designated forest land. e. Avoid disposal on productive land. f. should be located with the consensus of the local community , in consultation with the engineer			

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
			and shall be approved by the highways department g. Minimize the construction debris by balancing the cut and fill requirements. The contractor should avoid any spillage of spoil when transporting such materials to the approved material dumping sites.			
04.	**Material sourcing for road**	Burrowing of Earth and Management of Self Operated Burrow Sites	1. In the event the contractor will use a self-operated burrow site o Contractor shall comply with the environmental requirements/guidelines issued by the CEA and the respective local authorities with respect of locating burrow areas and with regard to all operations related to excavation and transportation of earth from such sites. o Contractor can also find suitable soil materials from currently operated licensed burrow pits in the surrounding area, subject to approval of the engineer o No burrow-sites be used (current approved) or newly established within areas protected under FFPO and FO o Burrow areas shall not be opened without having a valid mining license from the GSMB. The location, depth of excavation and the extent of the pit or open cut area shall be as approved by the engineer.	Engineering Cost	Contractor	DAD Regional Engineer & Provincial DPD Office ESO

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
			○ All burrow pits/areas should be rehabilitated at the end of their use by the contractor in accordance with the requirements/guidelines issued by the CEA and the respective local authority. ○ Establishment of burrow pits/areas and its operational activities shall not cause any adverse impact to the near-by properties. Also shall not be a danger of health hazard to the people. Contractor shall take all steps necessary to ensure the stability of slopes including those related to temporary works and burrow pits.			
05.	**Material extraction of natural resources**	Quarry Operations and Management of Self Operated Quarry Sites	1. In the event the contractor manages a self-owned existing quarry sites available in the project area 2. The should be approved by GSMB with valid EPL and Industrial Mining Licenses. 3. Prior approval should be obtained from GSMB, CEA and local authorities such as Pradeshiya Sabha. 4. Selected quarry sites should have proper safety measures such as warnings, safety nets etc., and third party insurance cover to protect external parties that may be affected due to blasting. 5. Quarry sites should not be established within protected sites identified under the FFPO and FO.	Engineering Cost	Contractor	DAD Regional Engineer & Provincial DPD Office ESO

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
			6. It is recommended not to seek material from quarries that have ongoing disputes with community. 7. The maintenance and rehabilitation of the access roads in the event of damage by the contractors operations shall be a responsibility of the contractor. 8. Copies of all relevant licenses should be maintained by the contractor for review and documentation by the engineer.			
06.	**Debries and sedimentation**	Control of Sedimentation and Soil Erosion	1. Debris material shall be disposed in such a manner that existing drainage paths are not blocked. 2. Drainage paths associated with irrigation structures should be improved / erected to drain rain water properly. 3. Silt traps will be constructed to avoid siltation into the water ways. where necessary along the road corridor. 4. To avoid siltation, drainage paths should not be directed to waterways and irrigation canals and they should be separated from such water bodies 5. In Hilly terrain and areas with slopes o Embankment slopes, slopes of cuts, etc. shall not be unduly exposed to erosive forces.			

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
			○ These exposed slopes shall be graded and covered by grass or other suitable materials per the specifications. ○ During the rainy season open cuts/slopes should be covered with fixed polythene sheeting to avoid excessive erosion. 6. All fills, back fills and slopes should be compacted immediately to reach the specified degree of compaction and establishment of proper mulch. 7. Work that lead to heavy erosion shall be avoided during the raining season. If such activities need to be continued during rainy season prior approval must be obtained from the Engineer by submitting a proposal on actions that will be undertaken by the contractor to prevent erosion. 8. The work, permanent or temporary shall consist of measures as per design or as directed by the engineer to control soil erosion, sedimentation and water pollution to the satisfaction of the engineer. ○ Typical measures include the use of berms, dikes sediment basins, fiber mats, mulches, grasses, slope drains and other devices. All sedimentation and pollution control works and maintenance thereof are deemed, as incidental to			

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
			the earthwork or other items of work and no separate payment will be made for their implementation.			
07.	**Impact to water bodies**	1.Construction site debris /Solid waste &construction waste /Piled up excavated Soil at the site 2. Mosquito breeding	**1.** During the rainy season to prevent runoff debris solid waste should be properly segregated and disposed**.** 2. Run off debris should not be accumulated in water bodies . 3. Excavated Soil should be covered until it is properly removed or compacted to prevent siltation in the water bodies. 4. All the utensils used for construction should be covered to avoid water accumulation to prevent Mosquito breeding grounds.	Engineering Cost	Contractor	DAD Regional Engineer & Provincial DPD Office ESO

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
08.	**Spreading of Invasive**	▪ Vegetation clearing▪ Material transportation	1. Close monitoring of transportation, storage of borrowing material for the spread of any invasive species must be done. 2. Invasive pants species removed should be destructed onsite without transporting to another place. 1. Vehicles should be covered during transportation of cleared vegetation to and from the construction site. 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. 3. Washing the vehicles should be conducted periodically to prevent carrying any invasive species 4. The construction site should be inspected periodically to ensure that no invasive species are establishing themselves at the site.	Engineering Cost	Contractor	DAD Regional Engineer & Provincial DPD Office ESO
09.	**Air Pollution by dust generation that can**	• Setting up of material storage yards,	1. These dust emitting sources should be located away from human activity and natural drainage paths as much as possible	Engineering Cost	Contractor	DAD Regional Engineer &

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
	affect nearby farm fields , vegetation and households	• Removal of vegetation • Transport of construction material	2. the contractor should clearly designate areas for material stock piles, waste stock piles, labour camps and vehicle maintenance yards. 3. Stockpiled soil and sand shall be slightly wetted before loading, particularly in windy conditions. 4. The site should be wetted at least 2/3 times a day during dry weather to keep dust levels low. 5. Vehicles transporting soil, sand and other construction materials shall be covered. 6. Apply speed limitations to vehicles to avoid dust generation when transport through densely populated area and farm lands. 7. There should be no burning of wastes on site Debries generate due to shru jungle cleard during the project need to stock pile in abandend land or cover with soil to degradae ,taking precausions not to block any water ways.			Provincial DPD Office ESO
10.	**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 7.00 pm. 2. All equipment and machinery should be operated of noise not to exceed 75 dB (during construction) as practical as possible.	Engineering Cost	Contractor	DAD Regional Engineer & Provincial DPD Office ESO

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
			3. 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). 4. If the construction activities happen during the night time, it is necessary to maintain the noise level at below 50 dB. 5. Use of mechanically driven saw blades for tree felling will make the noise levels restrict to only a short period of time. 6. Construction equipment and machinery should be maintained in good condition. 7. Contractor shall submit the list of high noise/vibration generating **machinery & equipment** for approval to Local Authority.			
11.	**Blocking of surface drainage paths leading to localized flooding and ponding of water**	• Site Preparation including provision of access roads, material/waste piles	1. Proper planning to avoid construction during rainy season. 2. Preventing total blockage of streams/ providing alternative drainage path during construction. 3. Provide necessary culverts to avode flooding and block dranage paths , cannals. 4. Until transported out debris and waste from site shall be stockpiled in a place with minimal interference with local drainage paths and obstruction to traffic and local residents.	Engineering Cost	Contractor	DAD Regional Engineer & Provincial DPD Office ESO

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
			5. The contractor shall identify areas for stockpiling material and waste. 6. The stockpiles should be suitably covered to minimize wash-offs to nearby waterways. 7. If impacts to surface drainage cannot be avoided leading to ponding of rain water and inconvenience to people, the contractor must provide an adequate surface drainage system to safely remove water from the site to canal to avoid on site ponding or flooding.			
12.	**Prevention of possible Soil erosion, sedimentation of nearby water bodies**	Control of Sedimentation and Soil Erosion	1. Debris material shall be disposed in such a manner that existing drainage paths are not blocked. 2. Drainage paths associated with irrigation structures should be improved / erected to drain rain water properly. 3. Silt traps will be constructed to avoid siltation into the water ways. where necessary along the road corridor. 4. To avoid siltation, drainage paths should not be directed to waterways and irrigation canals and they should be separated from such water bodies 5. In Hilly terrain and areas with slopes	Engineering Cost	Contractor	DAD Regional Engineer & Provincial DPD Office ESO

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
			a. Embankment slopes, slopes of cuts, etc. shall not be unduly exposed to erosive forces. b. These exposed slopes shall be graded and covered by grass or other suitable materials per the specifications. c. During the rainy season open cuts/slopes should be covered with fixed polythene sheeting to avoid excessive erosion. 6. All fills, back fills and slopes should be compacted immediately to reach the specified degree of compaction and establishment of proper mulch. 7. Work that lead to heavy erosion shall be avoided during the raining season. If such activities need to be continued during rainy season prior approval must be obtained from the Engineer by submitting a proposal on actions that will be undertaken by the contractor to prevent erosion. 8. The work, permanent or temporary shall consist of measures as per design or as directed by the engineer to control soil erosion, sedimentation and water pollution to the satisfaction of the engineer. Typical measures include the use of berms, dikes sediment basins, fiber mats, mulches, grasses, slope drains and other devices.			

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
			All sedimentation and pollution control works and maintenance thereof are deemed, as incidental to the earthwork or other items of work and no separate payment will be made for their implementation.			
13.	**Damage to Flora and wildlife**	Vehical movements	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. It is recommended to do the project work day time only.	Engineering Cost	Contractor	DAD Regional Engineer & Provincial DPD Office ESO
14.	**Issues of use water supply for the construction activities**	Supply of Water for the site	1. The contractor should arrange adequate supply of water for the project purpose throughout the construction period from a source agreed upon with the engineer. 2. Water may not be obtained for project purposes, including for labour camps, from public or community water supply schemes without a prior approval from the relevant authority. 3. Not allow to extraction of water from ground water or surface water bodies without the permission from Engineer and the relevant authority. 4. Permission for the extraction of water should be obtained prior to the commencement of the project, from the relevant authority.	Engineering Cost	Contractor	DAD Regional Engineer & Provincial DPD Office ESO

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
15.	**Occuptional health & safety hazard**	• Personal hygine to safeguard from pandemics • Prevention from possible accidents from work site.	**Training** 1. The contractor must ensure that all workers, including managers are trained on occupational health and public safety risks and mitigation measures for the site, prior to commencement of construction. **2. Personal Protective Equipment** All workers will be provided with necessary PPEs (basic should include safety helmet, protective footwear and high visibility jackets). 3. Gloves, ear muffs, goggles, dust masks, safety harness and any other equipment considered necessary should be maintained in stock at the site office. 4. A safety inspection checklist should be prepared taking into consideration what the workers are supposed to be wearing and monitored. **5. Equipment safety** Inspections must be carried out to test the equipment before it is used, so that worker safety can be secured. Inspections should look for evidence of wear and tear, frays, missing parts and mechanical or electrical problems.	Engineering Cost	Contractor	DAD Regional Engineer & Provincial DPD Office ESO

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
16.	**Public safety hazard due to road work.**	Site safety measures / Preventionn of Accidents / Workers safety measures	**Site Delineation and Warning Signs** 1. The entire construction site should be delineated using devices such as cones, lights, tubular markers, orange and white strips and barricades to inform oncoming vehicular traffic and pedestrians in the area about work zones. 2. People should not be allowed to enter the construction area, 3. Where the construction activities take place close to public waiting/visiting areas, Barricading screens should be used . 4. Dangerous warning signs should be raised to inform public of particular dangers and to keep the public away from such hazards. 5. Overloading of vehicles with materials should be controlled 6. Construction wastes should be removed as much as possible within 24 hours from the site to ensure public safety. 7. The safety inspection checklist must look to see that the delineation devices are used, whether they are appropriately positioned, if they are easily identifiable and whether they are reflective.	Engineering Cost	Contractor	DAD Regional Engineer & Provincial DPD Office ESO

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
			8. All equipment and vehicles to be stored/parked away from public visiting areas, barricaded and warning signs posted.			
17.	**Public safety**	Prevention of accidents	1. Prevention of accidents involving human beings, animals or vehicles falling or accidents due to open trenches/manholes during construction period. This needs to be ensured with proper barricading, signage boards and lighting etc. 2. A readily available first aid unit including an adequate supply of sterilized dressing materials and appliances should be available at the site office at all times 3. Availability of suitable transport at all times to take injured or sick person(s) to the nearest hospital should also be insured. Names and contact information for emergency services such as Ambulance services, hospitals, police and the fire brigade should be prepared as a sign board and displayed at the work site.	Engineering Cost	Contractor	DAD Regional Engineer & Provincial DPD Office ESO
18.	**Occupational safety hazard**	Safety of workers	Contractor shall comply with the requirements for safety of the workers as per the ILO Convention No. 62 and Safety & Health Regulations of the Factory Ordinance of Sri Lanka to the extent that those are applicable to this contract.			DAD Regional Engineer & Provincial DPD

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
			4. The contractor shall supply all necessary safety measures at site. 5. Protective footwear and protective goggles should be provided to all workers employed on mixing of materials like cement, concrete etc. 6. Welder's protective eye-shields shall be provided to workers who are engaged in welding works. 7. Earplugs shall be provided to workers exposed to loud noise, and workers working in crushing, compaction, or concrete mixing operation. 8. The contractor shall supply all necessary safety appliances such as safety goggles, helmets, safety belts, ear plugs, mask etc. to workers and staffs. 9. In addition, the contractor shall maintained in stock at the site office, gloves, ear muffs, goggles, dust masks, safety harness and any other equipment considered necessary. A safety inspection checklist should be prepared taking into consideration what the workers are supposed to be wearing and monitored on a monthly basis and recorded. **Emergency Procedures** 9. An emergency aid service must be in place in the work site.			Office ESO

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
			10. During health and safety training, site staff should be properly briefed as to what to do in the event of an emergency, such as who to notify and where to assemble in an emergency. This information must be conveyed to employees by the site manager on the first occasion a worker visits the site. **Information management** 11. Develop and establish contractor's own procedure for receiving, documenting and addressing complaints from the affected public and nearby communities. 12. Provide advance notice to local communities by way of information boards or leaflet, during village committees about the schedule of construction activities, interruption to services and access etc.			

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
19.	**Construction camps conditions**	Operation of Camp site & management	1. The Contractor shall construct and maintain all labor accommodation in such a fashion that uncontaminated water is available for drinking, cooking and washing. 2. Supply of sufficient quantity of potable water (as per IS) in every workplace/labor camp site at suitable and easily accessible places and regular maintenance of such facilities. 3. The sewage system for the camp are designed, built and operated in such a fashion that no health hazards occurs and no pollution to the air, ground water or adjacent water courses take place. Ensure adequate water supply is to be provided in all toilets and urinals. 4. The contractor shall provide garbage bins in the camps and ensure that these are regularly emptied and disposed of in a hygienic manner **5.** Follow health measures to prevet from epidemics,especialy follow COVID guidelines.	Engineering Cost	Contractor	DAD Regional Engineer & Provincial DPD Office ESO
20.	**Block any road access paths of human /animal**	Loss of Access due to construction	1. Temporary access will be provided when permanent access is blocked for construction. 2. When construction work is in progress in one side, the other side will be opened for traffic & properly	Engineering Cost	Contractor	DAD Regional Engineer & Provincial DPD

	Potential Environmental Impacts and Risk Level	Key project activities causing the impacts	Mitigation Measures proposed and action to be implemented by the Contractor	Mitigation Cost	Responsibility	
					Implementation	Compliance Monitoring
			3. At the end of each day, debris that blocked access path will be cleared away under the supervision of a supervisor.			Office ESO
21.	**Exposing and damaging of physical cultural resources**	Site preparatory work	Upon discovery of physical cultural material during project implementation work, the following should be carried out; 1. Immediately stop construction activities. 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 Resident Engineer, notify the responsible authorities, the Department of Archaeology and local authorities within 24 hours. 5. Submit a brief chance find report, 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	Engineering Cost	Contractor	DAD Regional Engineer & Provincial DPD Office ESO

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			deciding on the proper procedures to be carried out. 7. An evaluation of the finding will be performed by the Department of Archaeology who may decide to either remove the 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.			

Annexure – I Activity plan / Time frame Rehabilitation of Agriculture Roads under Vanneri Kulam Irrigation Scheme in the Akkarayan ASC area

SN	Activities	2020											
		Janu - Mar			Apirl - June			July - Sep			Oct - Dece		
01	Preparation of the sub project proposal Rehabilitation of Agriculture Roads under Vanneri Kulam Irrigation Scheme												
02	Preparation of technical designs & estimates												
03	Data collection for screening												
04	Writing the screening check list												
05	Write the ESR & EMP												
06	Submit to PMU												
07	Get the clearance from the WB												
08	Tender calling procedure												
09	Cleaning and forming the roadway												
10	Construction of culverts												
11	Formation of earthen sub - base												
12	Formation of Gravel wearing surface												
13	Formation of Concrete wearing surface												
10	Supervision & Monitoring												
11	Completion of construction work												
12	Hand over Civil work												

Annex II: Road Map