World Bank Financed Climate Smart Irrigated Agriculture Project (CSIAP)
Ministry of Agriculture (MoA)

ENVIRONMENTAL, SOCIAL AND GENDER SCREENING REPORT FOR REHABILITATION IN KATTARU ANICUT PULMODDAI ASC AREA IN TRINCOMALEE DISTRICT

Submission
Safeguard Team
Deputy Project Director Office of the CSIAP
Eastern Province
04 - July – 2021

Abbreviation

ASC	Agrarian Service Centre
AI	Agriculture Instructor
ARPA	Agriculture Research and Production Assistant
CBO	Community Based Organization
CSIAP	Climate Smart Irrigated Agriculture Project
CVDP	Cluster Village Development Programme
DAD	Department of Agrarian Development
DOA	Department of Agriculture
DSD	Divisional Secretariat Divisions
ESIMP	Environmental and Social Impact Management Plan
ESSR	Environmental and Social Screening Report
FGD	Focus Group Discussion
FO	Farmer Organization
GBV	Gender Based Violence
GND	Grama Niladhari Division
GRC	Grievance Redressal Committee
GRM	Grievance Redressal Mechanism
HEC	Human- Elephant Conflict
HSA	Hot Spot Areas
IPDOA	Inter Provincial Department of Agriculture
IPM	Integrated Pest Management
LKR	Lanka Rupee
OFC	Other Field Crop
PDOA	Provincial Department of Agriculture
PDPDO	Provincial Deputy Project Director Officer
PMU	Project Management Unit
PPT	Personal Protective Tools

PS	Producer Society
SAC	Social Auditing Committee
SPP	Sub Project Proposal
WB	World Bank
WFO	Women Farmer Organization
WHF	Woman Headed Family
WRDS	Women Rural Development Society

Contents

Annex No: 01 Environmental, Social and Gender Screening Report for Implementation of Rehabilitation and Development of Kattaru Anicut in Pulmoddai GN Division in Kuchchaveli DS Division, Trincomalee District, Eastern Province

1. Introduction of the Safeguard for Implementation of Development in Kattaru Anicut Subproject

The Climate Smart Irrigated Agriculture project (CSIAP) social and gender safeguard policies are designed to prevent and mitigate undue harm to people and their environment in the implementation of specific projects activities, and to ascertain those benefits reach the target farmers. CSIAP safeguard is comply with the World Bank safeguard policies and are carefully examined proposals on how to achieve due to compliance with safeguard policies. Therefore, subproject preparation involves a process of social screening/ assessment and conclusion with multi-stakeholders' groups in the targeted subproject areas.

This screening process allows all parties involved to anticipate potential positive as well as negative impacts of each sub-project and to implement measures that reinforce the positive aspects and mitigate the negative consequences. Thus, it is expected to bring positive environmental and social benefits to the project areas through the scale-up of climate-resilient agricultural technologies and farming practices that help to improve soil health, water use efficiency and catchment area treatment to promote more efficient use of surface water and more sustainable use of groundwater for agriculture.

Kattaru Anicut is fed by the tributary of Yan Oya River and located at the downstream of Sathanamadu Kulam, Kallikaattu Kulam, Andankulam, Kalliluppai Kulam, and Sinnakkalliluppai Kulam. This Anicut is located as the end of the identified cascade system. This Anicut is situated in Pulmoddai 01 village in the Kuchchaveli Divisional Secretary Division in Trincomalee District. The proposed Scheme aims to achieve the PDO of CSIAP in the particular

context of Kattaru Anicut. This Scheme with a total investment of LKR49.2 million (Anicut Rehabilitation) will be implemented during the period of 24 months during 2021-2022. It will cover an area of 290 ha and benefit 283 farmers of the beneficiary farmers, 10% will be female farmers or women representing female headed farm families.

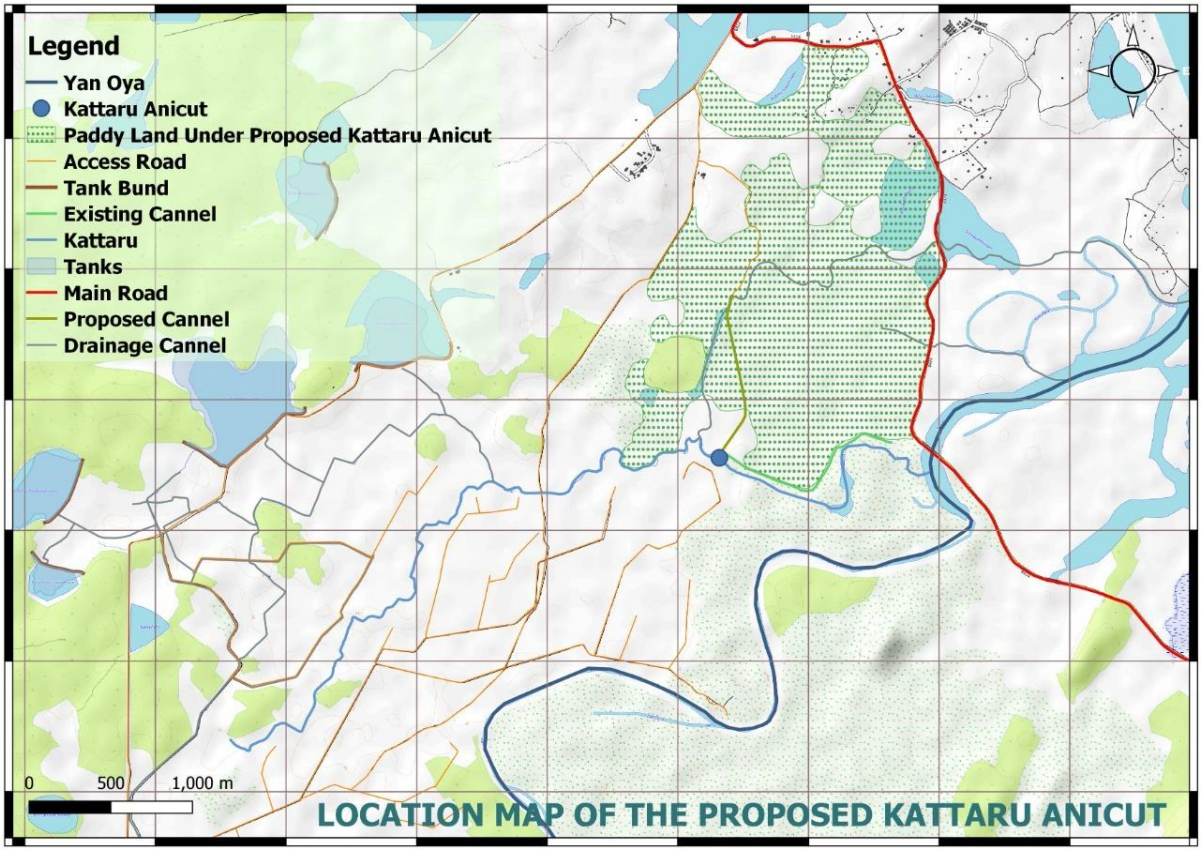
This Anicut is around 60 years old and it has not been repaired for 20 years (Community consultation). This Anicut has the capacity to delivers irrigation water to 290 ha of paddy cultivation in Maha season as well as particulate percentage of extent (70 %) in Yala season based on the drainage water received from the upper catchment of above-mentioned tanks and cultivation land of Yan Oya Reservoir, even though it is unable to achieve such benefit because this Anicut is in damaged condition. Rehabilitation of Kattaru Anicut includes repair of Coffer dam, River bund, Sluice in main Canal, Channel system and Retaining Wall. In addition, Rehabilitation of the Kattaru paddy field road which is 1500m long as Gravell road with hump pipe culverts since this road is mostly used to reach other paddy field roads.

1.2 Profile of the selected anicut

No	Anicut Name	ASC	GND	Villages
01	Kaataru anicut	Pulmoddai	Pulmoddai 1	Pulmoddai 1

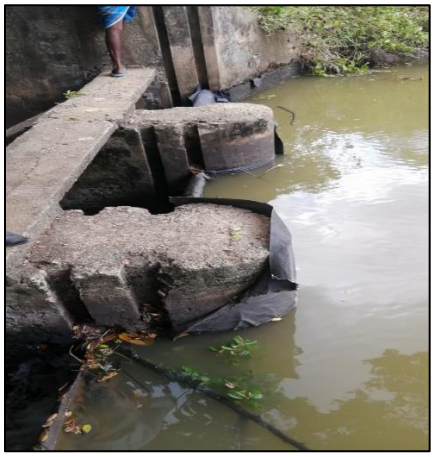
1.2.1 Geographical coverage and location of the Subproject: -

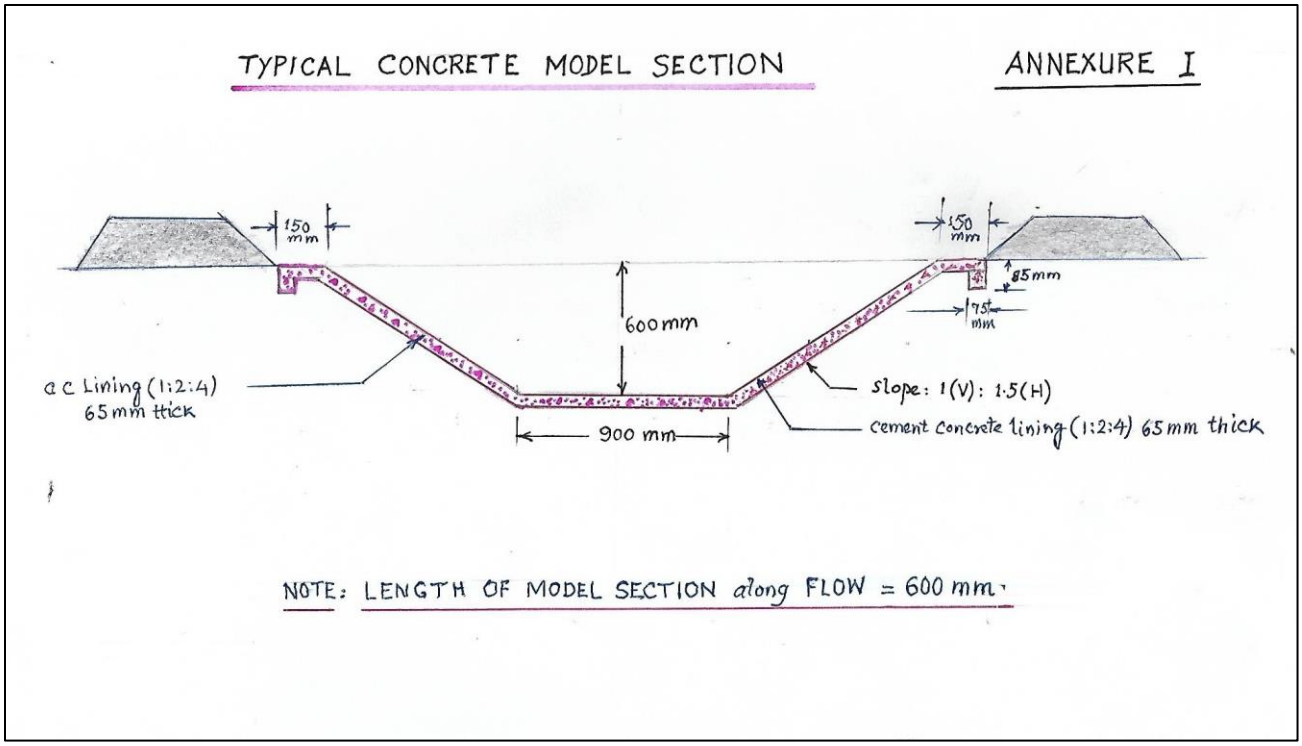
Location Map:



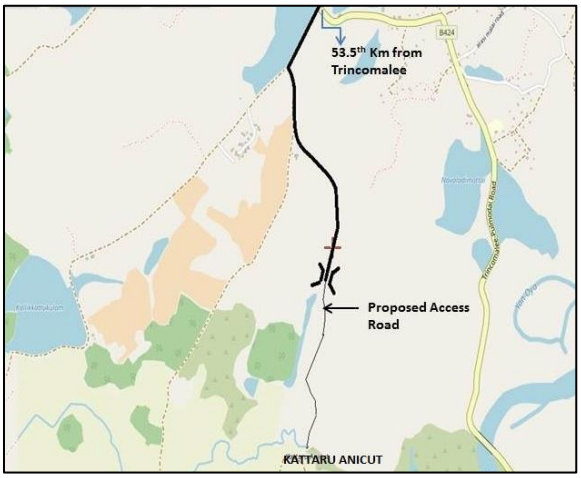
Source – CSIAP- 2021

Photos of existing condition of the anicut -





Rehabilitation Works



1.3 Socio-economic profile of the community

Name of the ASC	Name of the GND	Number of GND	Total Number of Families	Total Number of Farm Families	Total Number of Woman headed farm Families
Pulmoddai	Pulmoodai-01	31 I	1,314	1,220	142
	Thennamaravady	31 E	98	85	13
	Pulmoodai-02	31 H	721	685	43
	Pulmoodai-03	31 G	595	554	78
	Pulmoodai-04	31 J	964	895	49

1.4 Physical features

3..1 Physical features – Ecosystem components	
Topography and terrain	The project area is located in DL1d agroecological region, Eastern Province. According to the landscape features, this is a flat area.
Climate	The project site falls into DL2 Agro-Ecological Zone in Ampara. District temperature shows slight elevation over the year and generally warm throughout the year. The average maximum temperature is about 31C. There is a high chance to have precipitation during the North-East monsoon and inter monsoon.
Soil (type and quality)	Alluvial soils of variable drainage and texture and Reddish-Brown Earths & Low Hemic Cley soils; undulating terrain flat terrain most domination soil groups

Surface water (sources, distance from the site, local uses and quality)	Kattaru Anicut is fed by a tributary of Yan Oya River which is main water source in the area.
Ground water (Sources, distance from the site, local uses and quality)	Ground water in the vicinity of the anicut is heavily reliant on the water level. The monsoonal rain replenishes the depleted anicut and ground water reserves. Groundwater sources commonly found in this area are Agro wells. Those are used for agricultural activities.
Flooding	The project area is flooding annually under the regular seasonal monsoonal storm event.
Air quality (any pollution issues)	Project is located in rural area there is no air pollution sources. However, the canopy trees that have rooted in the vicinity of the area help trap the airborne particles hence, no air quality issues have been recorded for the area.
3.2 Ecological features – Eco-system components	
Vegetation (Trees, ground cover, aquatic vegetation)	Biological environment around the anicut both sides terrestrial habitats. Conserved or nationally protected habitats or highly environmentally sensitive areas are not found. Local birds belonging to different species inhabit in surrounding trees, cultivation lands including paddy fields are located in the surrounding area which also provide various habitats for species. Some of more common tree species are Borassus flabellifer (Palmyra tree) Paalai (Manilkara hexandra) commonly observed species in the area.

Presence of wetlands	Selected tanks are wetlands. There are Paddy fields, which can consider as man-made wetlands. They are located in the downstream areas of the tanks.
Fish and wildlife habitats	No significant fish habitats are found along the anicut area. wildlife and forest reserves are not present in the immediate vicinity of the project affected area.
Birds (waterfowl, migratory birds, others)	Common birds in this area are American Crow, woodpecker, peacock and pigeon.
Presence of special habitat areas (special designations and identified sensitive zones)	Conserved or nationally protected habitats or highly environmentally sensitive areas are not found.
Other features	
Residential/Sensitive Areas (Eg, Hospitals, Schools)	Not identified
Traditional economic and cultural activities	Agriculture and business are the traditional economic activities in this area.
Archaeological resources	Not identified

(Recorded or potential to exist)	

1.5 Current land use of the area

The land use of the area mainly paddy cultivation and OFC cultivation. This Anicut has the capacity to delivers irrigation water to 290 ha of paddy cultivation in Maha season as well as particulate percentage of extent (70 %) in Yala season based on the drainage water received from the upper catchment of above-mentioned tanks and cultivation land of Yan Oya Reservoir, even though it is unable to achieve such benefit because this Anicut is in damaged condition.

1.6 Social Impacts and Mitigation Measures (addressing Gender issues and impacts on vulnerable groups)

Positive Social Impacts.

1. Increase of cultivation and productivity helps to increase farm family income.
2. Road rehabilitation will help improve the welfare and general well-being of rural beneficiaries and farmers through increased access to marketing, vehicular movement and other social services.
3. The effect on overall vehicle operational costs will be positive and significant.
4. This is turn results in the increase in the demand for goods which causes more people to engage in various economic activities.
5. Increased production results in employment generation.
6. In the construction phase, opportunities for skilled as well as unskilled labour will be available to earn income.

Negative Social Impacts and proposed mitigation measures

This project proposes to rehabilitate the Anicut and agri road. It has no major negative social impact

1. Inflow of workers may endanger public security and to mitigate conduct awareness with resource persons.
2. Contractor mobilization, include the initial establishment of site office, works yard and worksites will lead to interaction between local people and construction workers.

1.5 Environmental impacts & Mitigation measures

1. Flora and fauna will be survived during the offseason.
2. Water availability for animals would be increased and after the Anicut rehabilitation
3. Tree cover in the areas will be increased.
4. Animals around the Anicut will benefitted
5. Biodiversity of the area will increase

Negative Environmental impacts

- Noise pollution occurs during rehabilitation activities, it may be disturbing wild animals.
- Flora and Fauna may be damaged due to the vehicle movement into the subproject area.

Negative environmental impact is very less but noise and vibration are expected during construction. ESIMP will help to mitigate the impacts.

Gender - Positive impacts

1. An increase of cultivable area will give more opportunities for women and children for their welfare.
2. Road availability will indirectly benefit women by easing long-distance walking with children.
3. The transportation of people and products between the villages will become faster and safer.
4. Transportation of women farmers and laborers to paddy fields without wild animals' attack and fear.

2. Screen Question Checklist

	Screening question	Yes	No	Significance of the effect	Remarks
Project Design					
a. General					
1	Does the sub project involve the construction of new physical infrastructure or rehabilitation of existing physical infrastructure?	Yes		Low	1. Rehabilitation of Coffer dam 2. Rehabilitation of River bund 3. Rehabilitation of Anicut. 4. Head Wall Type Sluice in Main Canal. 5. Rehabilitation of Channel System 6. Rehabilitation of Retaining Wall (20 m). 7. Rehabilitation of agriculture road
b. Rehabilitation of dam head works and rip rap associated irrigation infrastructure					
2	Will improvements to tank bund including the head works and rip rap structures require the water level in the reservoir to be artificially drawn down?		No		The construction is planned to be done particularly during the yala season where water level is low. Lowering of water level is not thus necessary for the proposed interventions, hence no impacts.

	Screening question	Yes	No	Significance of the effect	Remarks
3	If yes, can this lead to any alteration of water flows in surface as well as groundwater sources, especially in the dry season?		No		The water tables are always low during the proposed construction periods of the dry yala months. There are no alternations in water flow caused by this activity.
4	Will the water draw down affect the ecology of the tank and other important wetlands that depend on the main lake and canal system to maintain water level?		No		There will be no ecological impacts caused by water scarcity due to project activities
5	Will repairs to irrigation canals require temporary suspension of water issuance in order to facilitate civil works? Can this lead to diminishing of other downstream water uses that can result in social issues such as community bathing, drinking water supplies, irrigation of home gardens etc.		No		Rehabilitation has planned during Yala season, therefore no need suspension.

	Screening question	Yes	No	Significance of the effect	Remarks
6	Will there be changes to original design levels of the head works that will result in inundation of new land in the catchment		No		There will be no changes to design levels of the dam crest, spill crest, or any other structure. There is no inundation of new land in catchment due to rehabilitation.
7	Will the rehabilitated scheme serve new areas of paddy under its command?		No		This Anicut able to delivers irrigation water to 290 ha of paddy cultivation in Maha season. Project expect to cultivate 70 % of existing command area during Yala season.
8	Will there be construction of new irrigation or drainage canals or widening of existing canals?	Yes		Low	New irrigation canals are not constructing only rehabilitation existing cannel.
9	If yes, will new/modified canal trace/alignments interfere with existing land uses (habitats, home gardens) and infrastructures (as roads, pedestrian paths, schools and temples) in a negative way?		No		Not identified

	Screening question	Yes	No	Significance of the effect	Remarks
Project Construction					
10	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 existing structures will be rehabilitated, this rehabilitation will have a significant beneficial impact on the irrigation system and improve the overall efficiency.
11	Will construction of the project cause soil erosion within the site due to steep grade or soil content?	Yes		Low	The bund is exposed to erosion due to cleared and stripped topsoil. The slope of the bund is inducing erosion. However, construction works are proposed to be done during dry season soil erosion is expected to be controlled.
12	Will the Project involve dredging and disposal of dredge material as well as other solid wastes during construction?	Yes		Low	During the Dredging activity, it will generate small quantity of debris,

	Screening question	Yes	No	Significance of the effect	Remarks
13	Will the Project release pollutants or any hazardous, toxic or noxious substances to air?		No		There will be no any hazardous, toxic or noxious substances released in to the air, other than fumes emanated by a few construction vehicles.
14	Will the Project cause noise and vibration or release of light, heat energy or electromagnetic radiation?	Yes		Low	During project implementation, vibration and noise will be produce. There can be a low level of noise during material transportation and construction work. It can mitigate through ESMP.
15	Will the Project lead to risks of contamination of land or water from releases of pollutants on to the ground or in to surface waters, groundwater?		No		Not identified
16	Will the project cause localized flooding and poor drainage during construction?		No		This area is Flooding under the seasonal monsoonal rain. The construction may not lead to flooding.

	Screening question	Yes	No	Significance of the effect	Remarks
17	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		Not identified
18	Are there any areas on or around the location which are used by protected, important forest, wetland or sensitive species of fauna or flora e.g. for breeding, nesting, foraging, resting, migration, which could be affected by the project?		No		No. The trees existing along the anicut inhabits likely to be roosting sites for many of the avifauna in the area. However, no sensitive species.
19	Will any part of the project's construction activities be located in a previously undeveloped area where there will be loss of greenfield land?		No		This is a rehabilitation project. Hence, no new areas will be opened up.
c.					

	Screening question	Yes	No	Significance of the effect	Remarks
20	Will the sub-project require acquisition of land and or other assets?		No		Rehabilitation works for the project does not require acquisition of additional land.
21	Is the land for material mobilization, vehicular movement, transport for the civil work available within the identified work site / Right of way?	Yes		Moderate	Land available next to the Kaataru Anicut.
22	Is the site chosen for this work free from any encumbrances (e.g. squatters, encroachers)?	Yes		Low	Does not have any structures but weedy shrubs.
23	Is the site chosen for this work in possession of the implementing agency?	Yes			Legal ownership of the Kaataru Anicut with the irrigation department.
24	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?		No		There are no such sites routes or facilities with main access through the paddy land.
d.					

	Screening question	Yes	No	Significance of the effect	Remarks
25	Will there be damage to agricultural lands, standing crops, trees, etc.?	Yes		Low	No any agriculture lands are affected from the activities, one tree will be removed from the proposed location as mentioned in estimate.
26	Will there be any permanent or temporary loss of income and livelihoods as a result of the civil works? If so, for what period?		No		If rehabilitation start in off season, there is no impact.
27	Will there be any impacts on cultural, community properties or facilities?		No		Not identified
28	Have measures been planned to mitigate temporary impacts including ease of access? Give the details	Yes			Implementing agency and farmer organization will take mitigation measures and safeguard team monitor the ESIMP

<table>
<tr><th></th><th>Screening question</th><th>Yes</th><th>No</th><th>Significance of the effect</th><th>Remarks</th></tr>
<tr><td>29</td><td>Are there any vulnerable people or groups (poorest/ women headed households/ elderly families/ single parents/ families with disable persons) living in the proposed locations or affects or benefitted by the project interventions? (Give the numbers)</td><td>Yes</td><td></td><td>High</td><td><table><tr><th>Details of vulnerable group</th><th>Numbers</th></tr><tr><td>WHF/ Widow</td><td>68</td></tr><tr><td>Senior Citizens/ Elders</td><td>12</td></tr><tr><td>Samurdhi Beneficiary families</td><td>40</td></tr><tr><td>Disable/Special Need People</td><td>20</td></tr></table>Above mentioned families are benefiting through this anicut construction.</td></tr>
<tr><td>30</td><td>Are there any indigenous people living in the proposed location or affected/ benefited by the project interventions? (give the number)</td><td></td><td>No</td><td></td><td>No any indigenous peoples identified.</td></tr>
<tr><td>31</td><td>Does this project involve physical or economic displacement/temporary relocation or resettlement of any person? If yes, give details.</td><td></td><td>No</td><td></td><td>The project will not involve any physical or economic displacement/ temporary relocation or resettlement of any person.</td></tr>
</table>

	Screening question	Yes	No	Significance of the effect	Remarks
32	Will people permanently or temporarily lose access to facilities, services, or natural resources?		No		As this project is implementing in the Yala season it won't affect people to access the facilities or resources.
e. Impacts on community resources, public services, cultural/historical sites, /Vegetation & Trees etc					
33	Are there any areas on or around the location which are densely populated or built-up, which could be affected by the project?		No		Community residents' places are located 4km far from the project site.
34	Are there any areas on or around the location which are occupied by sensitive land uses e.g., hospitals, schools, places of worship, community facilities, cultural important which could be affected by the project?		No		Schools, hospitals, worship places and other community important places are located more than 4km from the project site.
35	Are there any areas on or around the location which are already subject to		No		

	Screening question	Yes	No	Significance of the effect	Remarks
	pollution or environmental damage e.g. where existing legal environmental standards are exceeded, which could be affected by the project?				
36	Will the project cause the removal of trees in the locality?	Yes			A Tree located in close to the anicut. GPS location is - 8.901952,80.988786 Tree Local Name – Paalai, Species Name – Manilkara hexandra
37	Are there bathing spots that will be unusable during the construction period?		No		No any bathing spots identified in the project site.
38	Is there subsistence fishing taking that will get disturbed due to canal rehabilitation		No		No any fishing areas identified the project site.
39	Are there drinking water supply sources located in the project are that may be rendered unusable during construction period?		No		People use wells as their source of drinking water.

	Screening question	Yes	No	Significance of the effect	Remarks
40	Are there tourism activities taking place in the project area that will get disturbed by construction activity?		No		No any tourism spots identified in the project site.
a. Construction related impacts (labor influx, community health and safety, etc)					
41	Will there be any risks and vulnerabilities to public safety due to physical hazards during construction of the Project?	Yes		Low	There will be a low elevated risk of safety with the operation of machinery in the project area. This issue can be managed by adopting safety regulations at construction sites.
42	Are there any transport routes on or around the location which could be affected due to construction work?		No		this area mostly oriented for agriculture activities. Agriculture field road also proposed to rehabilitate. there are alternative roads. Contractors will be advised to mitigate these impacts following the ESMP
43	Will the project require significant number of workers (skilled and unskilled)	Yes		High	Skill workers around 30, unskilled workers around 20 to be need from existing workforce in Pulmoddai ASC division Skill workers - 240 Semi skill workers – 360

	Screening question	Yes	No	Significance of the effect	Remarks
					Unskilled workers – 640 (Approximate Number) Source – Divisional Statistical Hand Book, Pulmoddai – 2018
44	Can the project hire workers from the local workforce?	Yes		Low	Workforce is available at the local community and contractor will bring his workforce if needed.
45	Will a camp be required to house these incoming workers?		No		They will find a house for rent.
46	Will the project attract significant number of migrant workers to the area?		No		
47	Are there any adverse impacts that may be anticipated due to labour influx?		No		Since outside laborers would also be from similar ethnic/religious backgrounds, adverse social impacts may not be anticipated.
48	Will construction activity lead to burrowing of earth, gravel and sand? And/or quarrying for rock?		No		

	Screening question	Yes	No	Significance of the effect	Remarks
49	Will the project increase the risk of introduction of alien invasive species to the locality	Yes		Low	The risk of invasive species needs to be managed by the ESIMP
Operational Impacts					
50	Will the project lead to stagnant water and drainage problems causing increased mosquito breeding?		No		Through this sub project water stagnation & mosquito breeding will not be produced.
51	Will the project involve removal and disposal of aquatic invasive species?		No		The project will not involve the removal and disposal of aquatic invasive species.
52	Will the project involve regular maintenance dredging of the canal network		No		Not identified regular involvement
53	Will the scheme after rehabilitation serve a larger command area?		No		The Command area will remain the same. Cultivable season and cropping intensity may be increased.
54	Has the project received community consent and support?	Yes		High	1 IEC Meting conducted. 2 CBO meeting conducted.
55	Are there any CBOs or others that	Yes		Moderate	Alsafa Farmer Organization – 01

	Screening question	Yes	No	Significance of the effect	Remarks
	Exist in the selected locations?				
56	Will the project mobilize these CBOs for GRM/ Social Audit/ etc activities?	Yes		Low	Social audit committee will be form to monitor the project activities.
57	If CBOs are involved, do these organizations have prior experiences in GRM/ Social Audit/ etc practices?		No		They have to be trained and guided.
58	Will the project expect any counterpart contribution from the beneficiary households? (if yes, what is the expected contribution)	Yes			Shramadana activities.
Gender Based Violence					
59	Undertaken consultations with women's groups?	Yes		Moderate	In the ASC Division, arranged one community consultant meeting and one IEC programme. Male and female farmers were participated and no arranged separate meeting with female farmers.

	Screening question	Yes	No	Significance of the effect	Remarks
60	Issues related to GBV and GBV-related concerns about the project have arisen in the community engagement discussions?		No		Gender based issues or violence not identified and not recorded during the community consultant meeting and discussions.
61	Is the subproject construction near school route or other pedestrian access that women and girls use for their daily activities?		No		The selected Anicut located in more than 4 km from the community residence and schools.
62	Will the subproject be able to monitor implementation across the full span (both in terms of geographic spread and duration) of the work	Yes		Low	The proposed project area is rural area

3. Permits and clearances needed for the project to proceed

	Permit/Clearance	Yes	No	TBD	Remarks
1	National Environmental Act		✓		On tree should be removed (Tree Local Name – Paalai, Species Name – Manilkara hexandra), permission will be obtained from the central environmental authority and forest department.
2	Soil Conservation Act		✓		
3	Coast Conservation Act		✓		
4	Fauna and flora protection ordinance		✓		
5	Local Authority Act	✓			
6	Irrigation Ordinance		✓		
7	Archaeology		✓		

4. Screening Decision Recommendation (Select One):

Project Safeguard Category	Screening Decision Categorization	YES/NO
1	All potentially adverse effects can be classified as general rehabilitation related impacts and are mitigate with known technology. Community concern does not warrant further assessment. Therefore, stand-alone Environmental Social and Gender Assessment not required, an Environmental and Social Management Plan sufficient	Yes
2	Potential adverse impact is significant, hence, stand-alone Environmental Assessment and Management Plan needed before the project can proceed	No

3	The final recommendation of E&S instruments that need to be prepared Potential adverse impact is significant; hence project cannot be justified	No

5. Environmental and Social Management Plan

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	Implementation	Compliance Monitoring	Time
Public complaints and lack of community support for the project implementation	**Information Disclosure among Stakeholders**	1. Discussions should be conducted with the project-affected persons. 2. Residents in the area have to be briefed on the project, purpose and design and outcomes via a documented community consultation session ***-This should be done immediately once the contractor is mobilized.*** 3. The contractor should take note of all impacts, especially access issues and safety hazards that will be of concern to the residents and take	Engineering Cost	Contractor	Provincial DPD Office ESO/ SSO /	

		necessary measures as stipulated in the ESIMP to mitigate them. 4. The contractor will maintain a log of any grievances/complaints (suggestion box) and actions are taken to resolve them. 5. A copy of the ESIMP should be available at all times at the project supervision office on site. 6. Contractor's Environment and Social Safeguard Officer to review construction schedule to manage and monitor restriction issues, and ensure that safeguards related mitigation measures are implemented effectively and promptly				

Exposing and damaging of physical and cultural resources	**Site preparatory work**	Upon discovery of physical cultural materials of Archaeological importance 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 nightguard 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.	Engineering Cost	Contractor	Provincial DPD Office ESO/ SSO /	

		5. Submit a brief chance find the report, within a specified period, with date and time of discovery, location of discovery, description of finding, estimated weight and dimension of PCR and temporary protection implemented. 6. Responsible authorities would be in charge of protecting and preserving the site before deciding on the proper procedures to be followed. 7. An evaluation of the finding will be performed by the Department of Archaeology who may decide to either remove the Physical Cultural Resources (PCR) deemed to be of significance, further excavate within a specified distance of the discovery point and conserve on-site, and/or				

		extend/reduce the areas demarcated by the contractor etc. This should ideally take place within about 7 days. 8. Construction work could resume only when permission is given from the Department of Archaeology after the decision concerning the safeguard of the heritage is fully executed.				
Over extraction of natural resources	**Material Sourcing**	1. 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 implementing agency(PID). The contractor is required to maintain the necessary licenses and environmental clearances for all burrow and quarry	Engineering Cost	Contractor	Provincial DPD Office ESO/ SSO /	

		material they are sourcing – including soil, fine aggregate and coarse aggregate. 2. Sourcing of any material from protected areas and/or designated natural areas are strictly prohibited. 3. If the contractor uses non-commercial burrow/quarry sites, the sites should be remediated accordingly once material sourcing has been completed. 4. The contractor should submit in writing all the relevant numbers and relevant details of all pre-requisite licenses etc. and report of their status accordingly. 5. Burrow pits need to finish with slant edges to reduce ay possible accidents. Not to let humans or animals into danger.				

Loss of cultivation	**In case construction extend beyond the dry season**	Plan construction schedule in consultation with the community to complete construction during dry & and Yala season. If required advance cultivation season by requesting the irrigation department to issue water ahead of schedule. Provide compensation in case the farmers need to forgo a cultivation season due to construction extending beyond the dry season.	Compensation to be calculated based on the EM. Compensation to be paid from the Government budget.	Contractor & PMU, Social Audit Committee (SAC) / Farmer Organization (FO)	Provincial DPD Office ESO/ SSO /	
Construction and rehabilitation work on tank during high water levels could provide a serious	**De-silting, dredging Work Removal of vegetation especially those with deep roots**	1. Carry out rehabilitation work during low water levels in tank. The timing of rehabilitation works to avoid the rainy season. 2. Vegetation removal to be carried out carefully and completely to prevent decomposing roots, etc. from being left behind.	Engineering Cost	Contractor	Provincial DPD Office ESO/ SSO /	

threat to the safety and functioning of the bund.	**Repair the sluice and tank bund**	3. Proper compaction to be followed after such removal 4. Carry out all activities on the tank bund under a site Supervisor's supervision				
Impact on existing hab itats, trees	**Tree removal tank bund renovation /Vehicle movement and machinery movements**	1. 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 together with the environment Officer and Social Safeguard shall be informed in advance to verify and report on the technical justification for the trees that will be required to be removed and the lack of technical alternatives	Engineering Cost	Contractor	Provincial DPD Office ESO/ SSO /	

		3. The following steps are to be followed if trees are identified for removal during the rehabilitation of the tank sluice and supply canal. • Identify and document the number of trees that will be affected with girth size & species type. • Trees shall be removed from the construction sites before commencement of construction with prior permission from the concerned department Local Authority (LA). • Compensatory plantation by way of Re-plantation of at least twice the number of trees cut should be carried out in the project area. • The contractor shall adhere to the guidelines and recommendations made by the Central Environmental Authority (CEA), if any about the				

		felling of trees and removal of vegetation. • Removed trees of economic value must be handed over to the State Timber Corporation.				
Spreading of Invasive species	**Vegetation clearing Material transportation De-silting**	1. Close monitoring of transportation, storage of borrowing material for the spread of any invasive species must be done. 2. Invasive plants species removed should be disposed onsite without transporting to another place. 3. Vehicles should be covered during transportation of cleared vegetation to and from the construction site. 4. 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	Engineering Cost	Contractor	Provincial DPD Office ESO/ SSO /	

		carried with the burrow material. As much as possible locate burrow sites within a radius of 10Km to the site. 5. Washing the vehicles should be conducted periodically to prevent carrying any invasive species 6. The construction site should be inspected periodically to ensure that no invasive species are established themselves at the site.				
Air Pollution including dust generation that can affect nearby vegetation	**Setting up of material storage yards, and removal of vegetation Transport of construction material and storage on site**	1. In the construction method statement, the contractor should clearly designate areas for maintaining material stockpiles, waste stockpiles, labour camps and vehicle maintenance yards. 2. These dust-emitting sources should be located away from human activity and natural drainage paths as much as	Engineering Cost	Contractor	Provincial DPD Office ESO/ SSO /	

and households	**De-silting Improvements to sluice, spill and bund Setting up of material storage yards, and removal of vegetation Transport of construction material and storage on site**	possible. Negotiate with landowners to agree on terms and conditions for land use. Park heavy machinery upstream where possible. 3. All heavy equipment and machinery shall be fitted in full compliance with the national and local regulations. 4. Stockpiled soil and sand shall be slightly wetted before loading, particularly in windy conditions. 5. The site should be wetted at least 2/3 times a day during dry weather to keep dust levels low. 6. Vehicles transporting soil, sand and other construction materials shall be covered. Limitations to speeds of such vehicles necessary.				

		Transport through densely populated area should be avoided. 7. Regular and proper maintenance of construction vehicles and machinery to avoid air emissions. 8. There should be no burning of wastes on site. 9. Until removal to arranged disposal sites, waste from demolition shall be held stockpiled in a place with minimal interference with local drainage paths and obstruction to traffic, local residents.				
High Noise & Vibration levels that can affect nearby	**Operation of equipment and machinery.**	1. Working time for noise/vibration generation activities should be restricted and carried out only from 6.00 am to 6.00 pm. 2. All equipment and machinery should be operated of noise not to	Engineering Cost	Contractor	Provincial DPD Office ESO/ SSO /	

structures and wildlife	**Material storage and transport**	exceed 75 dB (during construction) as practical as possible. Regularly maintenance of all construction vehicles and machinery to meet noise control regulations stipulated by the CEA in 1996 (Gazette Extra Ordinary, No 924/12). If the construction activities happen during the night time, it is necessary to maintain the noise level at below 50 dB. 3. Use of mechanically driven saw blades for tree felling will make the noise levels restrict to only a short period of time. One tree should be removed. Minimum 02 trees per 1 removed tree expected to plant. 4. 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.				
Blocking of surface drainage paths leading to localized flooding and ponding of water	**Site Preparation including provision of access roads, Material/waste piles De-silting Repair sluice, spill and bund**	1. Until transported out to arranged disposal sites, debris and waste from site preparation work and de-silting shall be stockpiled in a place with minimal interference with local drainage paths and obstruction to traffic and local residents. The contractor shall identify areas for stockpiling material and waste. 2. The stockpiles should be suitably covered to minimize wash-offs to nearby waterways. 3. If impacts to surface drainage cannot be avoided leading to ponding of rain water and inconvenience to people,	Engineering Cost	Contractor	Provincial DPD Office ESO/ SSO /	

		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. 4. Proper planning to avoid construction during the rainy season. 5. Preventing total blockage of streams/ providing alternative drainage path during construction.				
Soil erosion, sedimentation of nearby water bodies and low-lying areas	**Construction work including de-silting, canal bund strengthening** **Removal of top soil**	1. Soil stockpiles and other construction material should not be placed within the bed or banks of the tanks or canal. 2. Installing and maintaining permanent erosion and sediment control measures such as silt traps to avoid sediment runoff into tank and nearby waterways. All stockpiles	Engineering Cost	Contractor	Provincial DPD Office ESO/ SSO /	

		should be covered so as not to be exposed to rain and wind.				
12 Damage to Flora and wildlife Specially impacts to elephants roaming in the area	**Vegetation clearing**	1. Speed limits and operating times for the construction vehicles should be imposed. 2. Due consideration should be given to carefully clearing of vegetation avoiding the destruction of habitats of fauna. 3. The de-silted matter shall immediately be disposed of to pre-decided disposal sites. 4. The contractor will take reasonable precautions to prevent workmen or any other persons from removing and damaging any flora (plant/vegetation) and fauna (animal) including fishing in any water body and hunting of any animal.	Engineering Cost	Contractor	Provincial DPD Office ESO/ SSO /	

		5. If any wild animal is found near the construction site at any point of time, the contractor will immediately upon discovery thereof acquaint the Engineer and carry out the Engineer's instructions for dealing with the same. 6. The Engineer will report to the nearby Forest Department /Department of Wild Life Conservation (range office or divisional office) and will take appropriate steps/ measures if required in consultation with the forest officials. 7. It is recommended to do the project work in day time only. 8. The contractor should ensure elephant access to water is not blocked during construction.				

13 Impaired water quality	**Spill out of fuels and lubricants from machinery** **Vegetation removal** **Repair sluice, spill and bund**	1. Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets 2. Prioritize re-use of excess spoils and materials in the construction works. 3. Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies; 4. Place storage areas for fuels and lubricants away from any drainage leading to water bodies; 5. Dispose any wastes generated by construction activities in designated sites. 6. Irrigation works must be planned to be carried out during times of lowest flow	Engineering Cost	Contractor	Provincial DPD Office ESO/ SSO /	

14 Solid Waste Disposal	**Site clearing Waste from labour camps**	1. The contractor shall make a list of all types of waste resulting from the construction activity, and obtain direction from the LA on possible disposal sites for each waste type. 2. Any hazardous type of waste shall be dealt with special care and instructions from the LA. 3. The contractor shall document all types and quantities of waste generated and removed from the site and the disposal locations. 4. The contractor shall remove waste from the site each day and dispose of the waste in the LA approved site/s.	Engineering Cost	Contractor	Provincial DPD Office ESO/ SSO /	
15 Public/occupational safety hazard -	Site clearing, storage of equipment, material etc.	**Training** 1. The contractor must ensure that all workers, including managers are trained on occupational health and public safety risks and mitigation	Engineering Cost	Contractor	Provincial DPD Office ESO/ SSO /	

including labour Influx related issues (e.g., GBV)	Increased traffic of heavy vehicles for material transportation Noise and vibration of construction machinery	measures for the site, prior to commencement of construction. **Personal Protective Equipment (PPE)** 2. All workers will be provided with necessary PPEs (basic should include safety helmet, protective footwear and high visibility jackets). Any visitors to the worksite also need to be provided with PPE 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.				

		Safety from wildlife The contractor will educate his staff about possible attacks from wildlife such as elephants and snakes. Strict instructions and monitoring to be done on worker activities after 6 pm, they should not roam into the wild. PPEs are essential in land clearing as snakes are present. **Site Delineation and Warning Signs** 5. 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.				

		6. Dangerous warning signs should be raised to inform public of particular dangers and to keep the public away from such hazards. 7. Overloading of vehicles with materials should be controlled 8. Construction wastes should be removed as much as possible within 24 hours from the site to ensure public safety. 9. 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. **Equipment safety** **10.** Work zone workers use tools, equipment and machinery that could be dangerous if used incorrectly or if				

		the equipment malfunctions. 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. **Emergency Procedures** 11. An emergency aid service must be in place in the work site. 12. 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.				

		The contractor shall always maintain a first aid kit on site **Information management** 15. Develop and establish contractor's own procedure for receiving, documenting and addressing complaints from the affected public and nearby communities, including those that relates to GBV. 16. 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. **Managing Labor Influx related issues (e.g., GBV)** Hire local labor as possible to minimize labor influx – Contractor to				

		give priority for women when hiring. Include Worker Code of Conduct as part of the employment contract – this should define workers' commitment in attitudes and behavior to preventing, combating and responding GBV. Contractors to implement robust measures to prevent sexual harassment/GBV including training of workforce and sanctions for non-compliance (e.g., termination).				
Health & safety of Camp site management	**Prevention of any disease spread**	**Construction camps** 01. Construction camps should have adequate sanitation facilities for construction workers to control transmission of infectious diseases.	Engineering Cost	Contractor	Provincial DPD Office ESO/ SSO /	

		02. Avoid housing workers in camps and provide socio-economic benefits locally by employing local people. If there is no alternative to employing workers from elsewhere, 03. Locate accommodation camps away from communities on land acquired from willing sellers. Provide labor camps with adequate sanitation, waste disposal and health facilities according to labor laws. Clear work camp sites after use and reinstate vegetation. 04. Clear work camp sites after use and reinstate vegetation. 05. Conduct programs to raise worker awareness of HIV/AIDS 06. Follow health & safety Guidelines to prevent any				

		epidemics, communicable diseases (COVID guidelines)				

6. Cost of Mitigation measures for ESIMP

	Environmental and social safeguard mitigation measures	Cost (LKR) can be changed As mentioned in BOQ	Remarks
1	Information board	15,000	GRM information leaflet will be provided by the project which already printed.
2	Safety equipment (hard hats, dust masks, gloves, boots)	4000/ person	
	On site first aid facilities	2,000	
6	Dust suppression	Rs.6000/day	
7	Tree planting and one tree removal	Rs. 1000/tree	

8. Conclusions

Assuming that all mitigation measures are implemented as proposed, the following effect can be predicted

Conclusions		
	environment and social issues	Rating
Material transportation & storage	Low	N/S
Vegetation clearing	Low	N/S
Stabilization of canal embankment Soil erosion	Low	N/S

Human Elephant Conflict (HEC)	Low	N/S
Loss of Livelihood	Low	N/S
Gender Based Violence	Low	N/S
Other (Please Specify)		
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		

9. Public Consultation and Disclosure

Community consultations were conducted by the Environmental and Social Safeguard team of CSIAP. Following concerns were arisen during the discussions had with farmers and tank users in the area

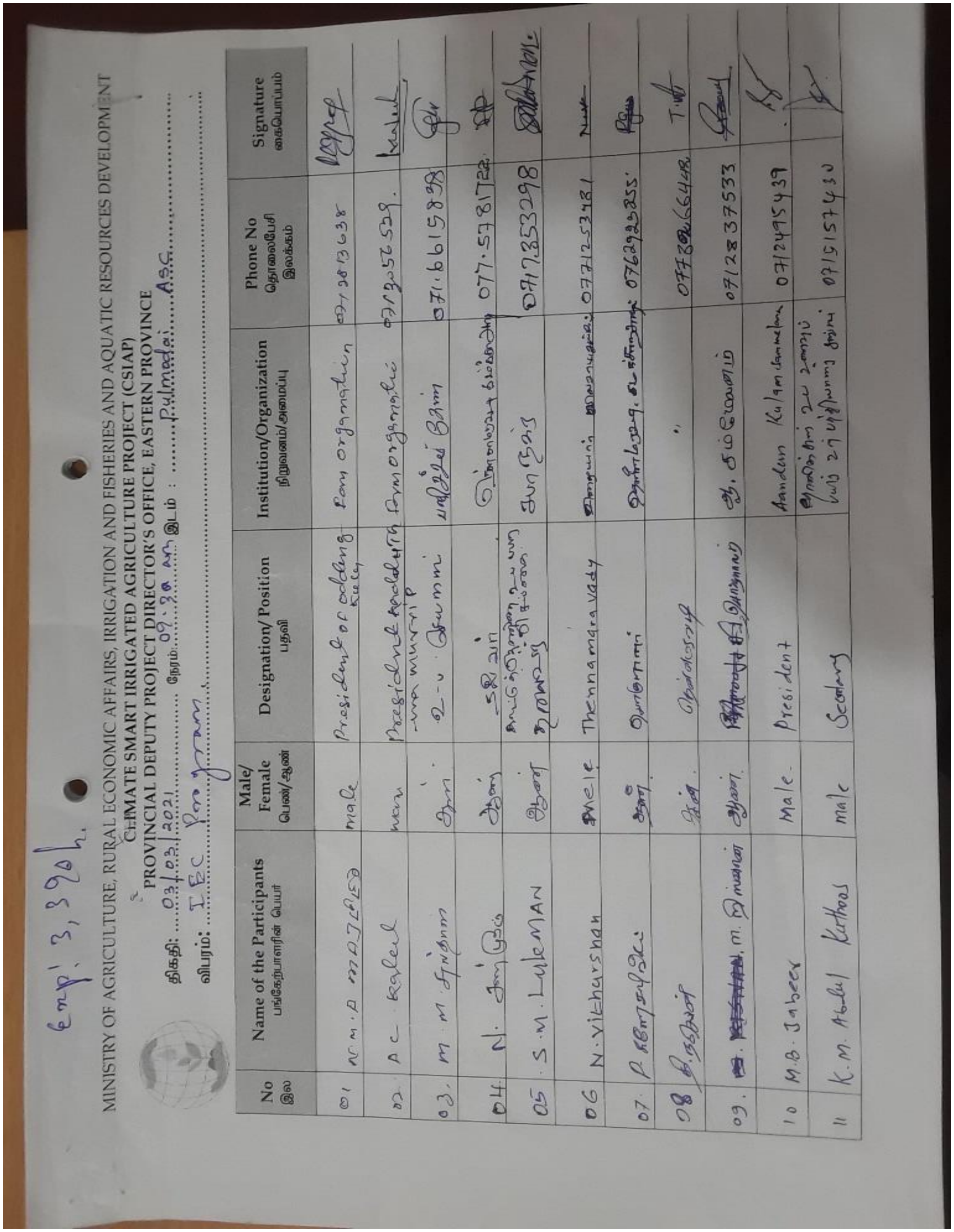
Community consulted	Consultation method	Date	Details/Issues raised
22 participants participated in the meeting 22 Male farmers participated in the meeting.	Focus group discussion	09.03.2021	✓ It will provide benefits in water availability in cultivation. ✓ Easy to cultivation ✓ Farmers are facing difficulties during access the road. Easy to marketing of agriculture goods through road rehabilitation. ✓ Farmers comfortable works will be increase. ✓ The farmers are facing difficulties to store the water during the Yala season, because of the poor condition of anicut.

			At the movement temporary they construct the sand bag bud and store the water for Yala season. ✓ After the rehabilitation of the anicut the farmers will extent the cultivation. Number of farmers will engage for the Yala cultivation and they will improve their economical sound.

09. Details of Persons Responsible for the Environmental/Social/ Gender Screening Report

Screening report completed by **01. Social Aspects Prepared and Completed by:** **……** **T. Sekaran** Social Safeguard Officer PDPD Office – Eastern Province Email – thsekaran@gmail.com Date – 04.07.2021	**02. Gender Apscets Prepared and Completed by** **……** **S.T.Kayalvily** Gender Development Officer PDPD Office- Eastern Province Email- tdkkayal@gmail.com Date – 04.07.2021	**03. Environmental Aspect Prepared and Completed by** **……** **A.Raviraj** Environmental Safeguard Officer PDPD Office – Eastern Province Email - amirthalingamraviraj@gmail.com Date – 04.07.2021
Social and Gender Inclusion Sections Reviewed By: **……** **Ms. Sharmila Shanmuganathan** Social Safeguard and Gender Development Officer PMU – CSIAP Email: Sociologistsharmila@gmail.com Date – 05/07/2021	**Environmental Section Reviewed By:** **……** **M. Udula J. Sedera** Environmental Officer - PMU/ CSIAP Email: jeny.usedera@gmail.com Date – 05/07/2021	**Recomanded By:** **……** **Dr. Janaka Jayawardana** Environmental & Social Safeguard Specialist – PMU/ CSIAP Email: jaya.ybjn@yahoo.com Date: - 06/07/2021
Clearance Given By: **Shanek Fernando** Social Development Specialist – The World Bank Consultant Date:		**Nadeera Rajapaksha** World Bank Environmental Safeguard Specialist Date:

10. Attendance Sheet - Community consultation Meetings (Social and Gender Parts are carryout during the CBO Meeting)



Exp! 3,390/-

MINISTRY OF AGRICULTURE, RURAL ECONOMIC AFFAIRS, IRRIGATION AND FISHERIES AND AQUATIC RESOURCES DEVELOPMENT
CLIMATE SMART IRRIGATED AGRICULTURE PROJECT (CSIAP)
PROVINCIAL DEPUTY PROJECT DIRECTOR'S OFFICE, EASTERN PROVINCE

திகதி: 03/03/2021 நேரம்: 09:30 am இடம் : Pulmodai ASC

விபரம்: IEC Program

No இல	Name of the Participants பங்கேற்பாளரின் பெயர்	Male/ Female பெண்/ஆண்	Designation/ Position பதவி	Institution/Organization நிறுவனம்/அமைப்பு	Phone No தொலைபேசி இலக்கம்	Signature கையொப்பம்
01	[illegible]	male	President of adding Kuly	Farm organation	0712813638	
02	A.C. Kaleel	[illegible]	President [illegible]	Farm organation	0713056529	
03	M. M. [illegible]	ஆண்	[illegible]	[illegible]	0716615838	
04	N. [illegible]	ஆண்	[illegible]	[illegible]	077.5781722	
05	S.M. LuleMAN	ஆண்	[illegible]	[illegible]	0717353298	
06	N. Vikharshan	Male	Thennamaravady	[illegible]	0771253481	
07	P. [illegible]	ஆண்	[illegible]	[illegible]	0762923855	
08	[illegible]	ஆண்	[illegible]	"	0773066448	
09	[illegible]	ஆண்	[illegible]	[illegible]	0712837533	
10	M.B. Jabeer	Male	President	Aandan Kulam [illegible]	0712495439	
11	K.M. Abdul Kuthoos	male	Secretary	[illegible]	0715157430	

MINISTRY OF AGRICULTURE, RURAL ECONOMIC AFFAIRS, IRRIGATION AND FISHERIES AND AQUATIC RESOURCES DEVELO

CLIMATE SMART IRRIGATED AGRICULTURE PROJECT (CSIAP)

PROVINCIAL DEPUTY PROJECT DIRECTOR'S OFFICE, EASTERN PROVINCE

திகதி: ..... நேரம்:..... இடம் : .....

விபரம்: .....

No இல	Name of the Participants பங்கேற்பாளரின் பெயர்	Male/ Female பெண்/ஆண்	Designation/ Position பதவி	Institution/Organization நிறுவனம்/அமைப்பு	Phone No தொலைபேசி இலக்கம்	Signa கையெ
12	M.T. [illegible]	ஆண்	[illegible]	[illegible]	0716085400	
13	A. [illegible]	ஆண்	[illegible]	[illegible]	0715906070	
14	S. [illegible]	ஆண்	[illegible]	[illegible]	0714682017	
15	I. Nawfar	"	ADO - [illegible]	DS office	0713058821	
16	A.S. Ossali	"	EDO - Pulmoddai-03	"	0718586615	
17	M.M.M. Siyam.	"	GN - Pulmoddai -01	DS office	0715511789	
18	A.J. Rajabutheen	"	G " -03	"	0713520020	
19	A.N.M. Ali	"	S.D.O	"	0717873807	
20	N. Mubarak	"	S.D.O - Pulmoddai-01	"	0713056941	
21	M.S. Abul Hasan	"	GN - [illegible]	DS office	0712993601	
22.	L.A. Mufaas	"	G.T	AC.S	0716817140	

11. Photos During the Field visits and Consultations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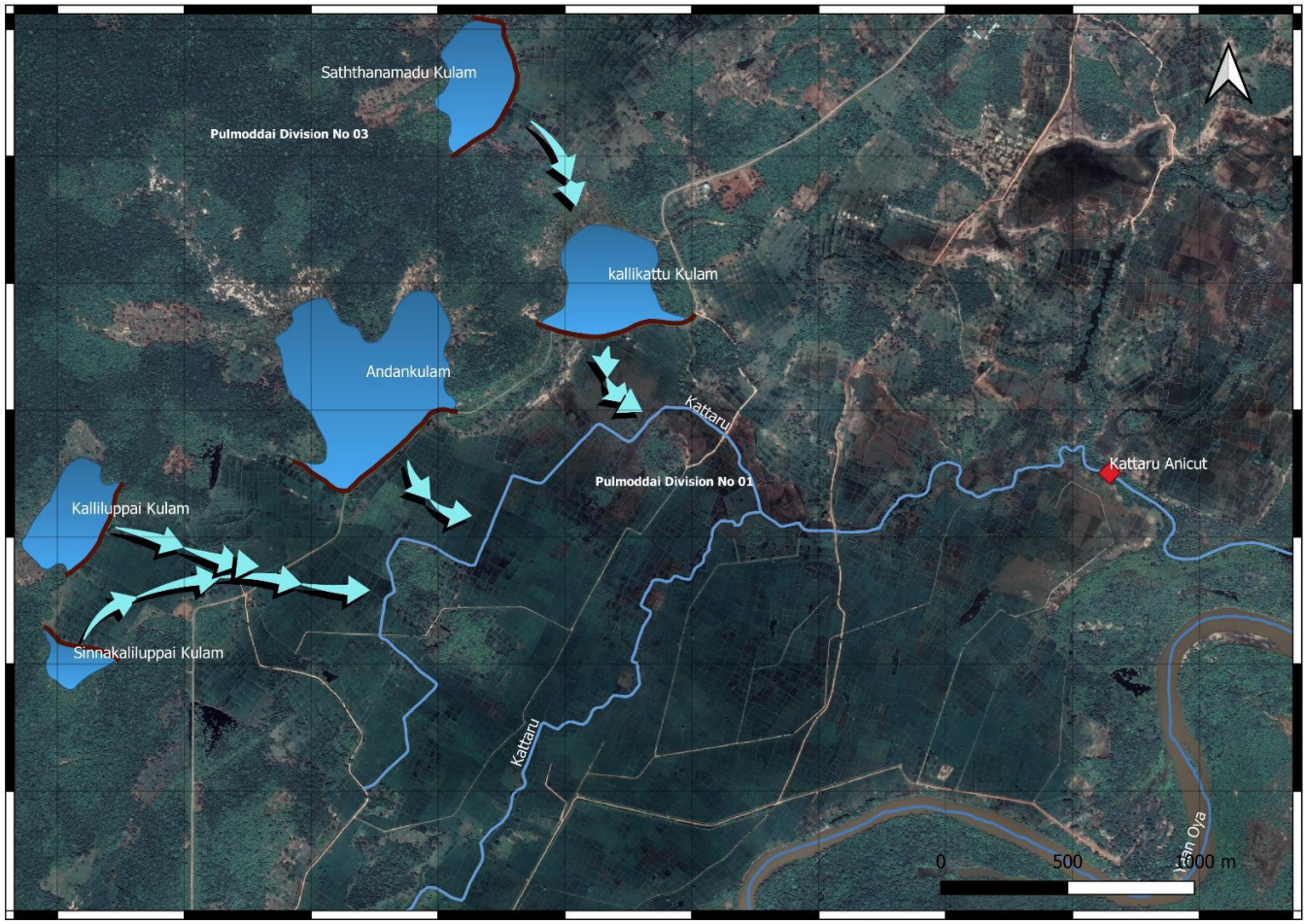
10.03.2021 00:01

Map of the Cascade



GUIDANCE NOTE ON REHABILITATION OF SMALL SCALE BORROW PITS

RISKS OF ABANDONING BORROW PITS

Small scale rural development projects such as rural road rehabilitation, small tank cascade restoration etc require significant quantities of earth and gravel. Often, this material is borrowed from the local environment with or without a valid clearance from the necessary authorities. Once the project is completed, these borrow pits are usually abandoned without proper closure, leaving open, water-filled, unattended pits that are associated with many risks.

Notable risk factors associated with abandoned borrow pits include: (i) frequent sliding (especially in hilly areas), (ii) loss of life and ecosystem services, (iii) groundwater contamination, (iv) increase in vector populations and associated illnesses and (v) loss of arable land and flora and fauna.

It is, therefore, very important to identify potential environmental risk factors posed by abandoned borrow pits to the local environment and people from project activities. As soon as sites for borrowing are identified, the most suitable form of site restoration need to be planned on order to close the pit/s properly.

Figure 1. Risk factors associated with abandoned borrow pits

OPTIONS AND RECOMMENDATIONS FOR REHABILITATION

Many options have been identified for the rehabilitation of borrow pits around the world ranging from water retention ponds/lakes, borrow pit meadows, marshes to recreational areas. However, these require a more in-depth planning and designing of the borrow pits as well as technical interventions and after care and maintenance resulting in relatively high rehabilitation costs. These interventions are more likely in large scale development projects.

Figure 2. Images for large burrow pits that have been converted to meadows, lakes, fish ponds and ponds.

Therefore, for relatively small-scale development projects it is recommended to rehabilitate the borrow area to resemble its original state to the extent possible. Where possible, options provided above can be incorporated.

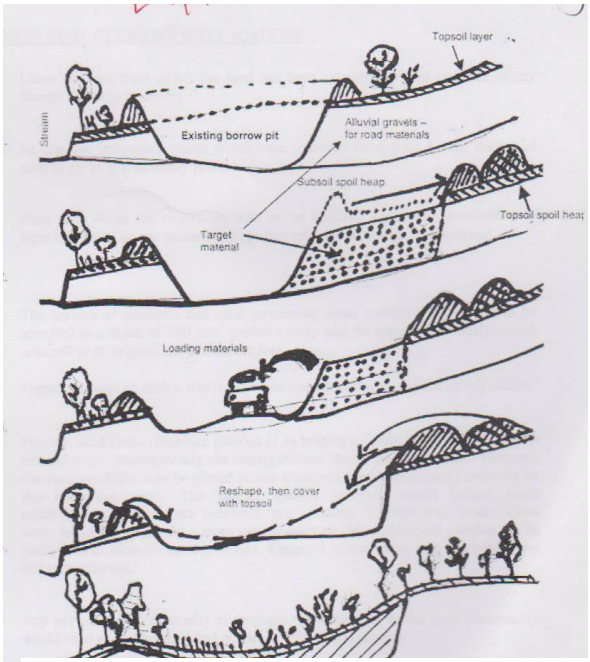


Figure 3. Illustration on burrow of rehabilitation. Sourced from EAMF, Ministry of Finance, GOSL, 2018.

Main steps to follow

1. Identify the borrow site/s for gravel and earth and obtain clearance from site engineer
2. At the start of borrowing, topsoil should be carefully removed and stored on the edges of the borrow area.
3. On completion of borrowing, the pit should be filled with spoil/soil/dredged matter followed by the reinstatement of the top soil that has been stored.
4. Filling of the pit should either achieve (a) original ground level or (b) new level as depicted in the diagram, agreed with the site engineer
5. This will be followed by compaction and in-situ and laboratory testing to achieve the original geotechnical ground condition.

Figure 3 provides a simple diagrammatic description of the steps to be followed in rehabilitating a borrow pit after use.

In addition to the topsoil that was removed from the pit surface, dredge material and other topsoil that is removed from the project site (close by) can also be used to fill the borrow pit.

Figure 5 provides a best practice diagram for progressive rehabilitation of a shallow borrow pit, that is done while the borrowing is ongoing. Once borrow material removal is completed from one area, the topsoil and any other fill material is reintroduced so that vegetation can start recolonizing. This will also reduce erosion issues and stabilizing pit embankment. If this method is adopted, it will also reduce the rehabilitation effort required at the end. Figure 4 shows rehabilitated borrow pits – some into recreational gardens and others into gently undulating landscapes.

Figure 4. Borrow pits filled and rehabilitated

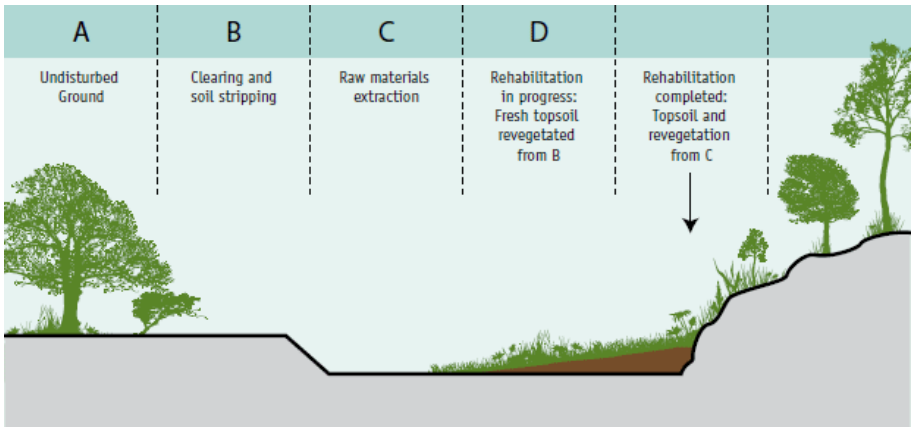


Figure 5. Progressive rehabilitation to maximize visual amenity. Sourced from Code of Practice for Small Quarries, Department of Primary Industries, Australia 2010

Attention should also be directed to the area surrounding the pit including the access paths of the machinery as the vegetation in these areas will also be disturbed. These areas should also be properly rehabilitated (by levelling and revegetating) so that it does not give rise to erosion issues and water stagnation.

IMPORTANT POINTS

- Borrow pits should be properly sited, planned and designed by professionals, with provision of appropriate safety measures. The location of the borrow pit has to be planned in consultation with the local authorities and the community.

- Operators, host community and the government agency must agree and enforce reclamation of borrow pits soon after use. Reclaiming a borrow pit should be as important as opening a borrow pit, towards sustainable engineering and environment.

- If new ponding/wetland area is created as a result of rehabilitation of the borrow site, this should be done in with technical advice from an engineering and environmental expert to ensure that this water body is in line with existing natural environment and does not lead to drainage issues, steep slopes leading to potential accidents, vector breeding sites and garbage dumping sites.

කුඩා පරිමාණ පස් හා බොරළු ලබා ගත් වළවල් පුනරුත්ථාපනය කිරීම පිළිබඳ මාර්ගෝපදේශ සටහන

පස් ලබා ගත් වළවල් අත්හැරීමේ අවදානම

ග්‍රාමීය මාර්ග ප්‍රතිසංස්කරණය, කුඩා වැව් සහ ඇළ ප්‍රතිසංස්කරණය වැනි කුඩා පරිමාණ ග්‍රාමීය සංවර්ධන ව්‍යාපෘති සඳහා සැලකිය යුතු ප්‍රමාණයක් පස් හා බොරළු අවශ්‍ය වේ. බොහෝ විට මෙම ද්‍රව්‍යය අවශ්‍ය බලධාරීන්ගෙන් වලංගු බලපත්‍රයන් සහිතව හෝ රහිතව අවට පරිසරයෙන් ලබා ගෙන ඇත. ව්‍යාපෘතිය අවසන් වූ පසු, මෙම පස් ලබා ගත් වළක් සාමාන්‍යයෙන් නිසි පරිදි වසා දැමීමකින් තොරව අතහැර දමා හෝ බොහෝ අවදානම් සහිතව විවෘතව හෝ ජලයෙන් පිරී පවති. තවද මෙම පස් ලබා ගත් වළවල් අවධානයට ලක් නොවූ වළවල් ලෙස ඉතිරි කර ඇති අයුරු දැක ගත හැකිය.

අතහැර දැමූ පස් ලබා ගත් වළවල් ආශ්‍රිත සැලකිය යුතු අවදානම් අතරට: (i) පස් කදු කඩා වැටීම (විශේෂයෙන් කඳුකර ප්‍රදේශවල), (ii) ජීවිත හානි සහ පරිසර පද්ධති වලට හානි වීම, (iii) භූගත ජලය දූෂණය වීම, (iv) රෝග වාහකයන් වැඩිවීම සහ ඒ ආශ්‍රිත රෝග සහ (v) වගා කළ හැකි ඉඩම් සහ වෘක්ෂලතා හා සත්ත්ව විශේෂ අහිමි වීම දැක්විය හැකිය.

රූප සටහන් අංක 1. පස් ලබා ගත් වළවල් ආශ්‍රිත සැලකිය යුතු අවදානම්

එබැවින් අතහැර දැමූ පස් හා බොරළු ලබා ගත් වළකින් අවට පරිසරයට සහ මිනිසුන්ට ඇති විය හැකි පාරිසරික අවදානම් සාධක හඳුනා ගැනීම ඉතා වැදගත් වේ. පස් හා බොරළු ගැනීම සඳහා ස්ථාන හඳුනා ගත් විහාම එම ස්ථාන පස් හා බොරළු ලබා ගැනීමෙන් පසු නිසි ලෙස වසා දැමීම සඳහා වඩාත් සුදුසු ප්‍රතිසංස්කරණ ක්‍රම සැලසුම් කිරීම අවශ්‍ය වේ.

පස් හා බොරළු ලබා ගත් ස්ථාන ප්‍රතිසංස්කරණය සඳහා විකල්ප හා නිර්දේශ

ලොව පුරා පස් හා බොරළු ලබාගත් වළවල් ප්‍රතිසංස්කරණය කිරීම සඳහා ජලය රැඳවුම් පොකුණු/විල්, තණබිම්, වගුරු බිම්වල සිට විනෝදාත්මක ප්‍රදේශ දක්වා බොහෝ විකල්ප හඳුනාගෙන ඇත. කෙසේ වෙතත් මෙම වැඩසටහන් වඩාත් ගැඹුරින් සැලසුම් කිරීම, තාක්ෂණික මැදිහත් වීම්, සහ නඩත්තු කිරීම සඳහා සාපේක්ෂව ඉහළ පුනරුත්ථාපන පිරිවැය අවශ්‍ය වේ. මහා පරිමාණ සංවර්ධන ව්‍යාපෘති වලදී මෙම මැදිහත්වීම් වැඩි වශයෙන් සිදුවේ.

රූප සටහන් අංක 2. පස් ලබා ගත් වළවල් ජලය රැඳවුම් පොකුණු/විල්, තණබිම් බවට පත් කිරීම

එම නිසා බොරළු සහ පස් ලබා ගත් ප්‍රදේශය හැකි තාක් දුරට එහි මුල් තත්වයට සමාන වන පරිදි ප්‍රතිසංස්කරණය කිරීම රෙකමදාරු කරනු ලැබේ. ඉහත දක්වා ඇති විකල්පයන් කුඩා පරිමාණයේ සංවර්ධන ව්‍යාපෘති සඳහාද ඇතුළත් කළ හැකිය.

<u>කුඩා පරිමාණයේ සංවර්ධන ව්‍යාපෘති සඳහා පස් හා බොරළු ලබා ගැනීමේදි අනුගමනය කළ යුතු පියවර.</u>

1. බොරළු සහ පස් ලබා ගන්නා ස්ථානය හඳුනාගෙන ප්‍රාදේශීය ඉංජිනේරුවරයාගෙන් අනුමැතිය ලබා ගත යුතුය.

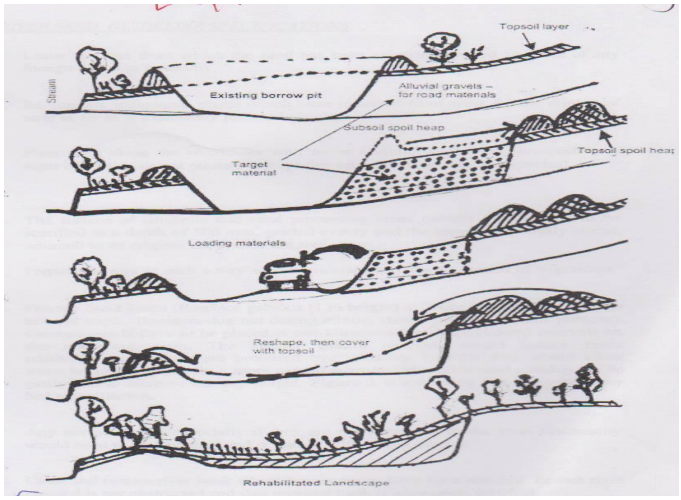
2. පස් ගැනීම ආරම්භයේදී, මතුපිට පස් ප්‍රවේශමෙන් ඉවත් කර ඒවා පස් ලබා ගන්නා ප්‍රදේශය ආසන්නයේ තැන්පත් කළ යුතුය.

3. පස් ගැනීම අවසන් වූ පසු හෑරූ ප්‍රදේශය ජලය බැස යන පරිදි මට්ටම් කිරීමෙන් අනතුරුව තැන්පත් කර ඇති ඉහළ පස නැවත ස්ථාපනය යුතුය.

4. බොරළු සහ පස් ලබා ගත් ප්‍රදේශ යන්ත්‍ර මගින් පහත රූප සටහනේ දැක්වෙන පරිදි, ප්‍රාදේශය ඉංජිනේරුවරයා සමඟ එකඟ වූ නව මට්ටමක් ලබා ගත යුතුය.

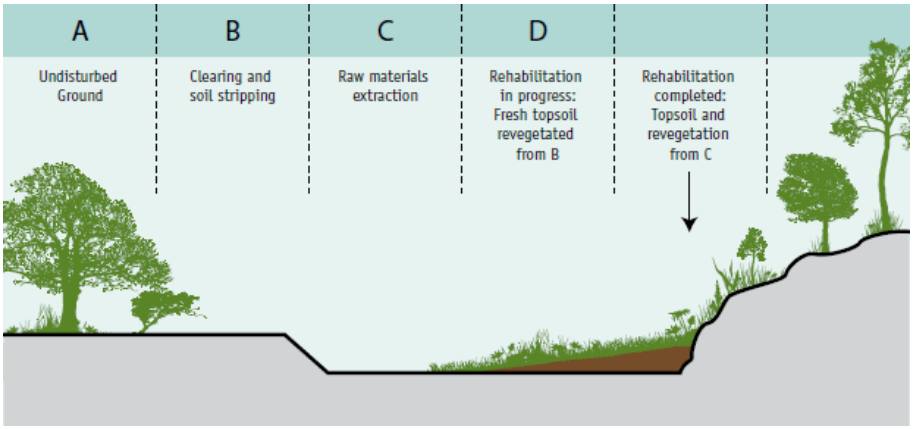
5. මට්ටම් කරන ලද භූමිය සෝදාපාළුව වලක්වා ගැනීම සඳහා බුරුල් පස් අවශ්‍ය පරිදි තලා සකස් කිරීම හෝ පිහිටි පොළව මතුවනතුරු භූමිය සකස් කළ යුතුය.

වළ මතුපිටින් ඉවත් කරන ලද මතුපිට පස්වලට අමතරව ව්‍යාපෘති භූමියෙන් ඉවත් කරන ලද ද්‍රව්‍ය සහ අනෙකුත් මතුපිට පස් ද වළ පිරවීම සඳහා භාවිතා කළ හැකිය. සෝදා පාළුව වලක්වා ගැනීම සඳහා ඉවත් කරන ලද ගල් බොරළු ආදිය යොදා වැටියක් ආකාරයට සකස් කිරීමද සුදුසුය.



රූප සටහන් අංක 3. භාවිතයෙන් පසු පස් ලබා ගත් වළක් ප්‍රතිසංස්කරණය කිරීමේදී අනුගමනය කළ යුතු පියවර

නොගැඹුරු පස් ලබා ගත් වළක පුනරුත්ථාපනය සඳහා හොඳම ප්‍රායෝගික රූප සටහනක් රූප සටහන 4 යටතේ දැක්වේ. එහිදි පුනරුත්ථාපන කටයුතු පස් ගැනීම සිදුවෙමින් පවතින අතරතුර සිදු කෙරේ. එක් ප්‍රදේශයකින් ගන්නා ද්‍රව්‍ය ඉවත් කිරීම අවසන් වූ පසු වෘක්ෂලතාදිය නැවත ස්ථාපනය කිරීම ආරම්භ කළ හැකි වන පරිදි මතුපිට පස් සහ වෙනත් පිරවුම් ද්‍රව්‍ය නැවත හඳුන්වා දෙනු ලැබේ. මෙමගින් පාංශු බාදනය වීමේ ගැටළු අවම කර වළෙහි බැම්ම ස්ථාවර කරයි. මෙම ක්‍රමය අනුගමනය කළ හොත් අවසානයේ අවශ්‍ය වන පුනරුත්ථාපන ප්‍රයත්නයද අඩු වේ.



රූප සටහන් අංක 4. නොගැඹුරු පස් ලබා ගත් වළක් පුනරුත්ථාපනය කිරීම

රූප සටහන 5 හි දැක්වෙන්නේ පුනරුත්ථාපනය කරන ලද පස් වලවල් - සමහරක් විනෝද උද්‍යානවලට සහ අනෙක් ඒවා මෘදු රැළි සහිත භූ දර්ශන බවට පත්කර ඇති ආකාරයයි.



රූප සටහන් අංක 5. පුනරුත්ථාපනය කරන ලද පස් වලවල්

මෙම ක්‍රියාවලියේදී ප්‍රදේශයේ ඇති වෘක්ෂලතා වලටද හානි ඇති වන හෙයින් යන්ත්‍රෝපකරණ වල ප්‍රවේශ මාර්ග ඇතුළුව පස් ලබා ගන්නා ස්ථානය වටා ඇති ප්‍රදේශය කෙරෙහිද අවධානය යොමු කළ යුතුය. පාංශු බාදනය හා ජලය එකතැන පල්වීම ඇති නොවන පරිදි මෙම ප්‍රදේශ නිසි ලෙස ප්‍රතිසංස්කරණය කළ යුතුය (මට්ටම් කිරීම සහ පැළ සිටවීම).

<u>වැදගත් කරුණු</u>

- සුදුසු ආරක්ෂක විධි විධාන සලසා දෙමින් බොරළු සහ පස් වලවල් නිසි ලෙස ස්ථාන ගත කිරීම සහ සැලසුම් කිරීම වෘත්තිකයන් විසින් කළ යුතුය. බොරළු සහ පස් වළේ පිහිටීම පළාත් පාලන ආයතන සහ ප්‍රජාව සමඟ සාකච්ඡා කර සැලසුම් කළ යුතුය.

- ව්‍යාපෘති ක්‍රියාකරුවන්, සත්කාරක ප්‍රජාව සහ රජයේ ආයතනවිසින් භාවිතය අවසන් වූ වහාම බොරළු සහ පස් ලබා ගත් වළක් ඉවත් කර ගැනීමට එකඟ වී ක්‍රියාත්මක විය යුතුය. තිරසාර ඉංජිනේරුමය සහ පාරිසරික බව පවත්වා ගැනීම සඳහා බොරළු සහ පස් වළක් ආරම්භ කිරීමේ දී ලබා දෙන වැදගත්කම තරම්ම වැදගත් කමක් එය අවසන් කිරීමේදීද ලබා දියයුතුය.

- බොරළු සහ පස් ගත් ස්ථානය ප්‍රතිසංස්කරණය කිරීමේ ප්‍රතිඵලයක් වශයෙන් නව පොකුණු/තෙත්බිම් ප්‍රදේශයක් නිර්මාණය කරන්නේ නම්, මෙම ජලාශය පවතින ස්වාභාවික පරිසරයට අනුකූල වන බව සහතික කර ගැනීම සඳහා ඉංජිනේරු හා පරිසර විශේෂඥයෙකුගේ තාක්ෂණික උපදෙස් ලබාගත යුතුය. ජලාපවහන ගැටළු, අනතුරු වලට තුඩු දෙන තද බෑවුම් ඇති කිරීම, රෝග බෝවන ස්ථාන ඇති වීම සහ කසල බැහැර කරන ස්ථාන අහිමි වීම/ඇති කිරීම ආදි ගැටළු ඇති නොවීමට මෙහිදී වගබලා ගත යුතුය.

<u>වැව් ප්‍රතිසංස්කරණයේදී ඉවත් කරන රොන්මඩ ව්‍යාපෘති භූමිය ඇතුලත හා පිටත කළමණාකරනය සඳහා මාර්ගෝපදේශ සංග්‍රහය</u>


කුඩා වැව් හෑරීම හෝ රොන්මඩ ඉවත් කිරීම සිදුකරන විට ව්‍යාපෘතිය සැලසුම් කරන අවධියේදීම එම ද්‍රව්‍ය බැහැර කිරීම පිලිබඳ සලකා බැලීම ඉතා වැදගත් වේ. හඳුනා ගන්නා ලද ස්ථානයකට බැහැර කිරීම දැනට බහුලව සිදුවන ක්‍රමයකි.

කෙසේ නමුත් ආර්ථික වශයෙන් සුදුසු හා පරිසර හිතකාමී ක්‍රමයක් වන්නේ හැකිතාක් දුරට ඉවත් කරන ද්‍රව්‍ය නැවත භාවිතා කිරීමයි.

වැව් පත්ලෙන් ඉවත් කරන රොන්මඩ ව්‍යාපෘති භූමිය තුලදී අරමුණු දෙකක් සඳහා භාවිතා කල හැකිය.

- පාරිසරික භාවිතය : වාසස්ථාන නිර්මාණය සහ වැඩි දියුණු කිරීම, කෘෂිකාර්මික ඉඩම් දියුණු කිරීමට භාවිතා කිරීම, ජලජීවී වගා බිම් සකස් කිරීම සහ පස් ලබාගන්නා ක්ෂේත්‍ර නැවත ප්‍රතිසංස්කරණය කිරීම.

- ඉංජිනේරුමය භාවිතය : සුළු ගංවතුර ආරක්ෂණ ව්‍යුහයන් ප්‍රතිසංස්කරණය කිරීම සහ මාර්ග ඉදිකිරීම.

මෙම මාර්ගෝපදේශ සංග්‍රහය මගින් දේශගුණ සුහුරු වාරි කෘෂිකර්ම ව්‍යාපෘතිය මගින් ප්‍රතිසංස්කරණය කරන වැව් වල වැව් පත්ලෙන් ලබා ගන්නා කැණීම් කල ද්‍රව්‍ය කලමණාකරනය සඳහා ඇති විකල්පයක් පිලිබඳ පෙන්වා දීම සිදු කරයි.

01. වාසස්ථාන නිර්මාණය හා වැඩි දියුණු කිරීම.



- වැවේ උපරිම ධාරිතා අවස්ථාවේදී යටවන භූමිය ස්ථාවර කිරීම හා වැඩි දියුණු කිරීම වඩාත් ආර්ථිකමය වශයෙන් වාසි සහගත සහ පහසු එක් ක්‍රමයක් වේ.
- රොන්මඩ ගස් වටා තැන්පත් කල හැකිය.(විශේෂයෙන් අස්ථාවර ලෙස පෙනෙන ගස්) කෙසේ වෙතත් ශාක මූල පද්ධතිය තුල කුඩා සතුන්ගේ වාසස්ථාන විනාශ නොකිරීමට වගබලා ගත යුතුය.

- වැව් පතුලෙන් ඉවත් කරන පස් පරීක්ෂාවකින් පසුව වෙනත් ප්‍රදේශ වලින් පස් ලබා නොගෙන වැව් බැම්මේ උපරිම ජල ධාරිතා මට්ටමේ ඉහළ කොටස පිරවීම සඳහා සහ වැව් බැම්ම ශක්තිමත් කිරීමට භාවිතා කළ හැකිය.මෙම ක්‍රමය වැව් පතුලෙන් ඉවත් කරන ලද පස් බැහැර කිරීම සඳහා වඩාත් ප්‍රායෝගික හා ආර්ථිකමය වශයෙන් ලාබදායී වන අතර සහ පුනරුත්ථාපනය කිරීමේදී පස් වැඩ වලට යන පිරිවැය සැලකිය යුතු ලෙස අඩු කර ගැනීමට උපයෝගි කර ගත හැකිය.

- මෙම පස් ගොඩවල් වැව් දෙසට සෝදා ඒම වලකින පරිදි ආරක්ෂිත බැම්මක් ලෙස සකසා පැළෑටි හා තණකොළ වලින් ස්ථාවර කල යුතුය.

- මෙම පස් ගොඩවල් කුඩා දූපත් ලෙස නිර්මාණය වන අතර ඒවායේ ඵලදායී ශාක විශේෂ වගා කල හැකිය.

- මෙම පස් ගොඩවල් මගින් වැවට ජලය සපයන ස්වාභාවික ජල මාර්ග අවහිර නොවිය යුතුය.

- මෙය පාරිසරික නිලධාරියකුගේ මගපෙන්වීම මත පදනම් වී නිර්මාණය විය යුතුය.

02. පාංශු ඛාදනය පාලනය කිරීමට පාංශු වැටි නිර්මාණය කිරීම. (ඉස් වැටිය හා පොට වැටිය)

- වැව් පත්ලෙන් කැණීම් කරන ලද රොන්මඩ පාංශු වැටි ඉදි කිරීමට භාවිතා කල හැකි අතර එමගින් පාංශු ඛාදනය පාලනය හැකිවන අතර එමගින් අපද්‍රව්‍ය වැවේ රොන්මඩ ලෙස තැන්පත් වීම අවම වේ.

- වැව් පත්ලෙන් කැණීම් කරන ලද රොන්මඩ වැවේ ඉහල පෝෂක ප්‍රදේශයෙන් එන අපද්‍රව්‍ය රඳවා තබා ගැනීම සඳහා සුදුසු ප්‍රදේශ වල පොට වැටිය ඉදිකිරීමට භාවිතා කල හැකිය.මෙම වැටි ජලය ගලායන ප්‍රවේගය අඩුකරන අතර එය සාමාන්‍ය තත්වයට පත්වූ ජලජ ශාක හා සත්ව විශේෂ අඩංගු වගුරු බිමකට සමාන වේ.

- ඊට අමතරව පස් වැටිය සමඟින් වියලි කාලයේ වැවට ජලය ක්‍රමයෙන් නිදහස් කිරීමට පෙර අතිරික්ත ජලය වැවේ ඉහල පෝෂක ප්‍රදේශයේ ගබඩා කර තැබීම සිදු වේ.

03. පස් ලබාගත් ස්ථාන ප්‍රතිසංස්කරණය කිරීම.



- බොහෝ අවස්ථාවලදී කුඩා වැව් ප්‍රතිසංස්කරණයේදී සංවර්ධනයට අවශ්‍ය පස් ව්‍යාපෘති භූමිය ආසන්නයෙන් ලබා ගෙන එම ප්‍රදේශ අත්හැර දැමීමට සිදුවේ.
- එසේ අතහැර දැමූ ප්‍රදේශ මඟින් මිනිසුන් හා සතුන්ට මාරාන්තික අනතුරු සිදු වීමට ඉඩ ප්‍රස්ථාව ඇත.
- එසේම වර්ෂා කාලය තුලදී ජලය එක්රැස් වීමෙන් මදුරුවන් බෝවීම තුලින් සෞඛ්‍ය ආරක්ෂණ ගැටලු ඇති කිරීමට ද දායක වේ.
- වැවක් හැරීමේදී ඉවත් කරන අමුද්‍රව්‍ය (පස්) ඉතා පහසුවෙන් වැව ප්‍රතිසංස්කරණයට පස් ලබාගත් ප්‍රදේශ ප්‍රතිසංස්කරණය සඳහා භාවිතා කළ හැකිය.

04. කෘෂිකාර්මික භාවිත


Figure 6. Use as topsoil for agriculture


Figure 7. Erosion control in agricultural fields (photo: www.stancounty.com


Figure 8. Berms in paddy fields

- ප්‍රයෝජනවත් මතුපිට පස් නිෂ්පාදනය සහ කැණීම් කරන ලද ද්‍රව්‍ය (සියුම් කොටස්) හෝ ජෛව ශාක ද්‍රව්‍ය, පොහොර, කොම්පෝස්ට් සහ වෙනත් කාබනික ද්‍රව්‍ය සමග මිශ්‍ර කර භාවිතා කල හැකිය.
- කැණීම් ද්‍රව්‍ය එම ද්‍රව්‍ය කැණීම් කරන පරිසරය පිලිබඳ පැහැදිලි කිරීම් කරයි. සමහර අවස්ථාවන් හීදී එම ද්‍රව්‍ය විවිධ ප්‍රභවයන් මගින් දූෂණයට ලක්වේ. මෙම ද්‍රව්‍ය අපවිත්‍ර වූ විට එහි බලපෑම පිළිබඳ අවධානය යොමු කළ යුතුය.
- කුඩා වැව් සහිත එල්ලංගා පද්ධති වල පාංශු දූෂණය විශාල අවදානමක් ලෙස නොපෙනේ.

- සමහර අවස්ථාවන් හීදී මෙම කැණීම් ද්‍රව්‍ය ප්‍රයෝජනයට ගැනීමට පෙර එය පිරිසිදු කිරීමට හා අපද්‍රව්‍ය ඉවත් කිරීමට ප්‍රතිකාර අවශ්‍ය වේ. මෙම ක්‍රියාවලිය සඳහා වැයවන කාලය වැඩි බැවින් එවැනි අවස්ථාවක වෙනත් ප්‍රයෝජනයන් පිළිබඳව සලකා බැලිය හැකය.

- කැණීම් ද්‍රව්‍ය ජල ප්‍රවාහයට ලම්භකව පිහිටුවා පාංශු කැණීම් පාලනය වන ව්‍යුහයක් ලෙස සැකසිය හැකිය. (7 වන රූපයේ ඇති පරිදි).

- එම ද්‍රව්‍ය කුඹුරු වල ඉස් වැටි සඳහා ද භාවිතා කල හැකි වේ. (8 වන රූපයේ දක්වා ඇති පරිදි)

- මෙම ක්‍රම අනුගමනය කිරීමේදී කෘෂිකර්ම දෙපාර්තමේන්තුවේ හා දේශීය ගොවීන්ගේ යෙදවුම් පිළිබඳව සලකා බැලිය යුතුවේ.

05. කෘෂි මාර්ග ප්‍රතිසංස්කරණය

- කෘෂි මාර්ග සංවර්ධනයට සහ මාර්ග වල බෑවුම් පිරවීමට ඉවත් කරන ලද පස් භාවිතා කල හැක.

- කෙසේ වෙතත් ඉවත් කරන ලද පස්වල ගුණාත්මක භාවය සහ භාවිතයට ඇති හැකියාව සලකා බැලීමේදී සෑම විටම ඉවත් කරන පස් මෙවන් භාවිතයන් සඳහා සුදුසු නොවේ.

- මේ සඳහා ඉංජිනේරුමය දැනුම සහ තොරතුරු උපයෝගී කර ගැනීමට අවශ්‍ය වේ.

වැදගත් කරුණු

- කැණීම් කිරීමට පෙර කැණීම් කරන ලද ද්‍රව්‍ය භාවිතය පිලිබඳ ප්‍රථමයෙන් සලකා බැලීම තුලින් එහි සාර්ථකභාවයට පත් විය හැකිය.

- පාරිසරික ප්‍රතිලාභ සඳහා පද්ධතිය තුල රඳවා ගැනීමේ හැකියාව පලමුව සලකා බැලිය යුතු වේ.

- එසේම ක්‍රියාත්මක කිරීම ආරම්භයේදීම කැණීම් ද්‍රව්‍යයන් නියදි පරීක්ෂාව සිදුකල යුතුය.

- කැණීම් කරන ලද ද්‍රව්‍ය වටිනා සම්පතක් ලෙස සැලකීමට සහ එය තිරසාර සංවර්ධනය සඳහා වූ දායකත්වයක් ලෙස පිලිගැනීමට මහජනතාවගේ සහ පාර්ශවකරුවන්ගේ පුළුල් සහයෝගය ලබා ගැනීම වැදගත් වේ.

- කැණීම් ද්‍රව්‍ය භාවිතය පිලිබඳව ව්‍යාපෘතිය ක්‍රියාත්මක කරන ආයතනය, ප්‍රජාව, ප්‍රාදේශීය බලධාරීන් සහ අනෙකුත් අදාල පාර්ශවකරුවන් සමඟ සාකච්ඡා කල යුතුවේ.