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Ministry of Agriculture
கமத்தொழில் அமைச்சு

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விவசாய நவீனமயமாக்கல் திட்டம்
Agriculture Modernization Project

ENVIRONMENTAL SCREENING REPORT

Subproject Tittle:

Improved Dried Chilli Production and Value addition Cluster in Vavuniya District



Sri Lanka Agriculture Sector Modernisation Project (ASMP)

Prepared for Project Management Unit of the Agriculture Sector Modernization Project

Democratic Socialist Republic of Sri Lanka, Ministry of Agriculture (MOA)

Updated: February 2022

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ABBREVIATIONS

ASMP	Agriculture Sector Modernization Project
DSD	Divisional Secretary Division
EMP	Environmental Management Plan
GND	Grama Niladari Division
LKR	Sri Lanka Rupees
MOA	Ministry of Agriculture
PMU	Project Management Unit
WQI	Water quality index
RDS	Rural Development Society
WRDS	Women Rural Development Society

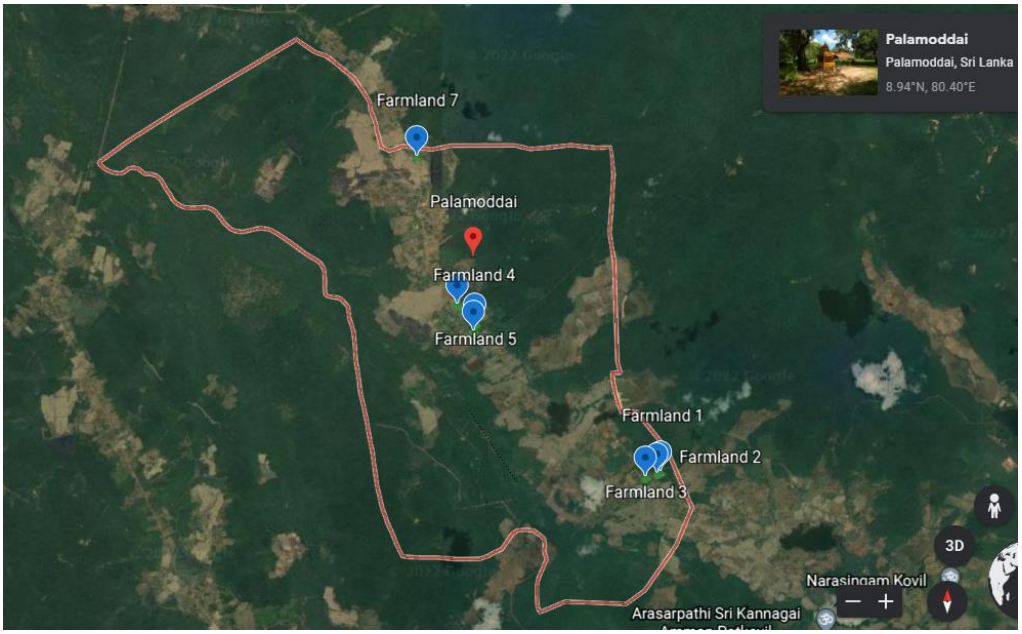
Agriculture Sector Modernization Project

Environmental Screening Report

1. PROJECT IDENTIFICATION

Project title	Improved Dried Chilli Production and Value Addition Cluster in Vavuniya District
Project Proponent	Agriculture Sector Modernization Project (ASMP), Ministry of Agriculture

2. PROJECT LOCATION

Location (*Relative to the nearest town, highway*)	The Vavuniya District is divided into 102 Grama Niladari Divisions and there are 550 villages in the District. This District is divided into five administration bodies including one Urban Council and four Pradeshiya Sabhas namely Vavuniya Urban Council, Vavuniya Tamil Pradeshiya Sabha, Vavuniya North Pradeshiya Sabha, Vavuniya South Sinhala Pradeshiya Sabha, and Vengalacheddikulam Pradeshiya Sabha. The proposed dry chilli cluster is belonging to the Palamoddai GN division which is under the Vavuniya DS division. Palamodai is one GN division out of the forty-two in the DS division. There are eight villages namely Kilavikulam, Palamoodai, Varuyadayar I K, Panichchankulam, Uralkulam, Navvy, Kovilkunchukulam and Madathuvilankulam. The project includes the establishment of a dry chilli cluster, and the construction of a Collection, Centre and Compost Yard. Farm lands of dry chilli cluster is scattered across the GN division and few selected farmlands are shown in Figure 1. All these farmlands are private farmlands having permits or deeds.  ***Figure 1: Few selected farmlands***

	Collection centre will be constructed at Navvi which is also in the Palamoddai GN division. The proposed location is accessible through the Omanthai-Mundumurippu road and closest town is Omanthai. Selected land is around 150 m away from the Omanthai-Mundumurippu road and around 100 m away from the Navvi Sri Vani Vidyalaya. Selected land slot is shown in Figure 2. These cluster villages are located about 8km from Omanthai A9 Kandy-Jaffna Road. Proposed land is 0.5 acre and belongs to department of agriculture.  ***Figure 2: Proposed land for the collection centre***
Definition of Project Area *(The geographical extent of the project & areas affected during construction)*	Almost all farmers have both lowlands and uplands for their livelihood activities. Palalmoddai farmers cultivate paddy on a lowland in one term (Maha Seasons) per year. During Yala season (May to August), cultivation activities are limited to paddy on lowlands and upland seasonal crop cultivation is dominant. Farmers use water from minor tanks and open well for cultivation purposes. Farmers have cultivated perennial crops such as coconut and mango on upland for their household consumption. Since it is receiving high rainfall during the Maha season (September to March), some farmers are cultivating seasonal crops on their uplands. During the Yala season, seasonal crops such as groundnuts, Chili, and various vegetables are cultivated by using open well/tube well water. However, open well/tube well water is not sufficient to cultivate their entire land, and most of the time only around 1 acre is cultivated. The project will select about 250 potential chili cultivating farmers who are fulfilling the project criteria enabling the project to cluster the farmers into two groups for project intervention. The minimum requirement to be a beneficiary is having 1 acre land for the chili cultivation and the rest of the beneficiary selection criteria to be met as per the selection comity recommendations. The selected beneficiary list is shown in annexure 3. All these beneficiaries are entitled to the collection centre benefits as well. Selected farmlands are scattered across the GN division and it is not possible to demarcate affected boundaries and features.

	The selected location for the collection centre is accessible through a gravel road. The nearest house is around 30 m away from the location it is the only feature found within the 50 m boundary. Navvi primary school is northward adjoining to the proposed land. Other adjoining lands are private owned lands. The selected land is a bare land and surrounded lands of the proposed area contains both cultivated and bare lands. 50 m boundary is shown below.  ***Figure 3: 50 m boundary of the collection centre*** The project is aiming minimum of 250 acres of chili cultivation and farmlands are located across the GN division. All these 250 acres are scattered among eight (8) villages. Technological support including drip irrigation technology will be on the farmlands themselves. Most of the farmers use water from minor tanks and open wells for the existing cultivation and water resources will not be changed with the implementation of the dry chilli cluster. Further, additional water extraction sources will not be funded under the project instead of drip irrigation technology. It is estimated that drip irrigation will also help reduce the use of Irrigation water by more than 50% of the traditional cultivation practice requirement.
Adjacent land and features	The proposed dry chili cluster is belonging to the Palamoddai GN division which is under the Vavuniya DS division. Paddy is cultivated under irrigation systems in both minor and major medium tanks. Mainly these tanks are belongs to Agrarian Development Department and Provincial Irrigation Department. In addition, vegetable cultivation, livestock and dairy are most common economic activities in the area. However, paddy and vegetables are cultivated on a narrow strip of lands either side of Omanthai-Mundumurippu Road as beyond that forest lands belongs to the Forest Department can be seen. In the Palamoddai GN division paddy and other crops like Chilli, Red onion, big onion, green gram, Cowpea, Groundnut, Black gram, Maize, Ginger, and Kurukkan. Vegetables are also grown in the Palamoddai GN division. Further, perennial crops such as coconut, mango are found within the selected area. All selected farmlands are in general cultivation lands which farmers used to

	cultivate upland varieties such as vegetable, cereals, onion, etc in addition to their paddy lands. Navvi primary school is northward adjoining to the proposed land. Other adjoining lands are private owned lands. Most of these cultivated lands contain perennial crops such as coconut and mango. However, only one house is within the 50 m boundary. Socio-economic infrastructures in area such as schools, hospitals, temples, post offices, etc observed to be functioning. However, other than the main road, rural roads are not yet improved in the area.

3. PROJECT JUSTIFICATION

Need for the project (*What problem is the project going to solve*)	Chili production is very low in the drier months of May, June, July and again in the rainy days of November, December and January. During the dry period production is affected due to extreme heat causing stress to the plant which in turn reduces the fruit set. Further, the presence of a peak insect pest population during the months of May to July also makes the plants less productive. Flower drops are very high during the rainy season and the wet conditions are more favourable for many fungal diseases leading to loss of production. The technology package of the insect-proof net and poly mulching along with the drip irrigation technology system would overcome the losses caused by biotic and abiotic stresses, especially during drier months. The hybrid chili variety MICHHY1 introduced by the Department of Agriculture is fairly resistant to the leaf curl complex disease which is the major cause for production loss and also other technical constraints encountered in chili production. Further, it provides an enhanced yield of more than two to four times compared to other normal recommended chili varieties. Thus, the project will use this hybrid chili variety for dried chili production to enhance proactivity and reduce losses The new technology package for dried chili production is more remunerative than conventional dried chili production. This will pave way for a chili-based agribusiness to commercialize agriculture in the Mullaitivu district. However, this new technology package requires a high initial cost and also a farmer group with an entrepreneurship attitude. The project will assist to build up these physical and human capacities for the selected two farmer groups for intensive chili cultivation and marketing practices. Chili is one of the most important cash crops Palamoddai farmers. However, farmers' chili cultivation is mainly meant for green chili production, and dried chili production is very much marginal. Thus self-reliance on dried chili production is important for the country. The immediate objectives of modernization are to increase productivity, decrease the cost of production, improve value addition and provide a steady market through buy-back agreement. The ultimate goal is increased income and employment opportunities in production and value addition. Palamoddai farmers have prior experience in dried chili production and marketing and each farmer has adequate land for commercial cultivation. High-yielding Hybrid chili seeds are locally available, and Vavuniya district farmers

	have good market access than the other northern districts. Further Year-round water availability for continuous cultivation is a key factor to commence the dry chili cluster at Palamoddai GN division. With the dry chili cluster project will cultivation overlaps with offseason, higher prices may provide more margins to farmers. Farmers will be able to access the export market for the value-added products and prevailing dried chili import restrictions could provide a ready market for local production. All the above benefits are directed towards the sustainable income of the farmers. In addition, below objectives to be achieved to increase the economy of selected farmers. a) Create a competitive market for the value-added products b) Increase young generation involvement for seasonal crop cultivation c) To introduce and demonstrate efficient and effective water d) management in dried chili production e) To organize farmers for group marketing and value addition With the expansion of cultivation, high-quality products will have higher prices, and the main purpose of the construction of collection centre is to ensure competitive market price for Chilli by adding economic values beyond the existing value. In addition, below objectives to be achieved to increase the economy of selected farmers. a) To introduce machinery to improve the quality of dry Chili b) To provide storage facilities prior to releasing to the market c) To introduce various value-added products to the market d) To increase direct marketing opportunities Further, Compost unit facilities with necessary machinery and equipment will be provided to the societies for them to produce their own compost. Since organic manure application envisages a large portion of the cost of cultivation. The said compost unit will help the societies to produce their own compost on a commercial basis and sell it to the membership for a fee making it a viable business.
Purpose of the project (*What is going to be achieved by carrying out the project*)	Dried Chili production and value addition under the lift irrigation schemes project in Vavuniya is driven to achieve the below objects. a) To expand national dried chili production b) To introduce and demonstrate new technology for enhanced productivity and value addition in chili production c) To organize farmers for group marketing and value addition d) To disseminate modern technology in dried chili production and marketing among other surrounding farmers. e) To introduce an environment-friendly sustainable dried chilli production system

	To achieve these objectives, Project will provide each selected farmer ½ ac technology package consisting of the insect-proof net, Drip Irrigation system, GI pipes to erect the insect-proof net surrounding farmer field, polymulch, seedling trays for raising nursery plants, and MICHHY1 variety hybrid chili seeds for the farmers to commence cultivation. Electric dryers provided to the society will be used to dry the ripen fruit for uniform drying and appearance. This will reduce the cost of manual sun-drying while increasing the quality. With the above-mentioned technological support, the below benefits will be there in addition to the project objectives. a) In Chili cultivation, nearly 60% of the cost of production is spent on labor. Labor-intensive operations like land preparation, irrigation, weeding, spraying, harvesting, and drying. The use of modern technology like drip irrigation, insect-proof net poly mulch, the electric dryers will reduce the use of labor in labor-intensive operations b) Further fertilizer use can be minimized to 10-20 % due to drip irrigation. Drip irrigation will also help reduce the use of Irrigation water by more than 50% of the traditional cultivation practice requirement. c) As insect-proof net and poly mulch are physically keeping away insect pests from the chili fields, thus there is no necessity for intensive use of chemicals to control pests. d) Increased productivity can be achieved due to the use of hybrid MICHHY1 variety which performs well under drip irrigation and polymulching practice. A dried chili yield of 3,000 kg /ac can be harvested using this technology compared to the 1,000 kg/ ac yield usually obtained under conventional cultivation systems and varieties. Thus, the use of technology reduces the cost of production on one hand and increases the yield on the other thereby increasing margins to the farmer in chili cultivation. Further, there is a project in the pipeline to provide value addition and quality improvements during the post-harvesting processes. The dried Chili collection centre is driven to achieve the below objects. a) To introduce machinery to improve the quality of Chilli b) To provide storage facilities prior to releasing to the market c) To introduce various value-added products to the market d) To increase direct marketing opportunities Simply, the ultimate purpose of the overall project is to have sustainable income generation by agricultural activities. Finally, products should have required value additions to be competitive in the market, and the proposed collection centre will full fill the requirements in different ways. Currently, open drying of Chilli is taking place, and required humidity levels are not possible to control by the farmers. Chili drying machines will make sure the relevant qualities are met and the same type of value additions to be done for the Groundnut as well. Wastage of these types of crops is higher due to lack of acceptable storage conditions and providing a proper storage facility is also can be considered as a key purpose of the project. Further, different value-added products will be

	directly exposed to the market without any interference from intermediate buyers. In addition, below objectives to be achieved to increase the economy of selected farmers.
Alternatives considered (*Different ways to meet the project need and achieve the project purpose*)	The "site alternative" would mean the feasibility of meeting the project needs at the selected cluster. Chilli is an important cash crop to the farmers in the Vavuniya district. Annually about 1,000 acres of chili is being cultivated in the district mainly for green chili. There is potential to expand this further, as land and water resources are available in the district. Palamoddai GN division has well-established farmer organizations already and production of seasonal crops is available immediately. There are experienced ground nuts, chili, and vegetable farmers and all these upland cultivations rely on technological support. Most of the farmers have large-scale, low flat farmer-based lands with traditional cultivation practices. These farmers are capable of cultivating chili of their entire uplands if they are getting technological guidance during the cultivation and also support on value-added services during the post-harvesting processes. Further, an attitude and market-led vision of field staff are highly acceptable. Hence, the selected area is highly supportive to meet the project needs within a short period of time with the expected quality. The "technology alternative" would mean different technology applications to meet the project needs at the selected cluster. On-farm technological applications will be introduced by ASMP with the dry chili cluster development plan. Hence, these technological improvements will result in consistent dry chili production to meet the project objectives. Farmer assets such as Hybrid chili seeds, Seedling trays, Drip tape Irrigation system, Insect proof net, GI pipes (40 pipes), and Polymulch film will be provided and society assets will be provided to complete the project. Further, a project is in pipeline to provide value additional services during the post-harvesting processes. Hence, technological benefits will be there for the existing farmers. The "no-action" alternative would mean that no Dry chili cluster project was undertaken by the ASMP and hence no irrigational support for the existing cultivators in the selected area. That will lead the same agricultural activities and economy of farmers won't increase. Therefore, conventional farm practices, low productivity, low quality, and low income will continue to dominate the economy of the farmers, and agriculture sector will not develop in the Palamoddai GN division.

4. PROJECT DESCRIPTION

Proposed start date	November 2021
Proposed completion date	June 2022

Estimated total cost	LKR 85.275 million
Present land ownership	Collection centre land – 0.5 Acre: Department of Agriculture Farm Lands: - Private Farmlands, Lands with deeds and permits (Total minimum 250 acres)
Description of the project (*With supporting material such as maps, drawings etc. attached as required*)	Planned interventions of the project includes • Installation of drip irrigation system • Laying GI pipes • Farmer exposure visits • Nursery management • Introduction of quality and Productive enhancing technologies ✓ Insect proof net ✓ Polymulch ✓ Electric dryer • Training, capacity building and extension • Cluster post-harvest facilities, organic fertiliser facilities and others Agriculture Sector Modernization Project identified dried chili also one of the markets competitive and remunerative crops with potential for value addition. Chili is one of the main spice ingredients in cooking. The proposed dry chilli cluster will be implemented in Palamoddai GN division and the project consist with introduction of technology package for the cultivational practices and construction of collection centre to improve post harvesting process. The technology package of the insect-proof net and poly mulching along with the drip irrigation technology system would overcome the losses caused by biotic and abiotic stresses, especially during drier months. The proposed dry chili cluster will be financed for the technological improvements including installation of drip irrigation system, providing hybrid chilies, providing of Insect proof net, GI Pipes, Polymulch, Electric drier and required training and construction of collection centre. The project will select about 250 potential chili cultivating farmers who are fulfilling the selection criteria enabling the project to cluster the farmers into two groups for project intervention. Project will be focused on few physical activities such as activities related to the construction of collection centre, installation of drip irrigation system and cultivational activities starting from the land preparation activities. Most of the cultivational activities are similar to the existing practices and technological improvements will be added such as introduction of insect proof nets and polymulch. Operation stage of collection centre will be equipped with electric dryers. The hybrid chili variety MICHHY1 introduced by the Department of Agriculture is fairly resistant to the leaf curl complex disease which is the major cause for production loss and also other technical constraints encountered in chili production. The new technology package for dried chili production is more

	remunerative than conventional dried chili production. However, this new technology package requires a high initial cost and also a farmer group with an entrepreneurship attitude. The project will provide each selected farmer ½ ac technology package consisting of the insect-proof net, Drip Irrigation system, GI pipes to erect the insect-proof net surrounding farmer field, polymulch, seedling trays for raising nursery plants, and MICHHY1 variety hybrid chili seeds for the farmers to commence cultivation in November 2021. Electric dryers provided to the society will be used to dry the ripen fruit for uniform drying and appearance. This will reduce the cost of manual sun-drying while increasing the quality. Before commencing chili cultivation farmers will cultivate a groundnut crop in the same land during this Maha season commencing in October 2021. The project will supply groundnut seeds for them to initiate the project activity. After the groundnut harvest in December 2021, chili will be established with this new technology in January 2022. This chili crop will remain up to August 2022. After the first cycle of chili, the land will be rotated with groundnut again in October 2022 before commencing the second cycle of chili in the same land. Thus there will be two cash crops namely chili and groundnut cultivated continuously on a rotational basis. This will help break the pest build-up and also regenerate the fertility of the soil in addition to the additional revenue from groundnut to the farmer. The construction of the Chilli collection centre is to add value for the Groundnut & Chilli produced by the surrounded farmers. It will provide Chilli drying facilities and also required machinery to process up to marketable varieties of groundnut. Further, maintaining storage conditions of seasonal crops is very difficult at home and this collection centre will provide facilities to store value-added products until getting market access. Once the operation is established, controls of the collection centre will be taken by the farmer society. There will be permanent employment opportunities and also daily paid employment opportunities attached to the activities involved.

Project Management Team	A PMU was established under the Ministry of Agriculture to implement proposed project activities. **Project Director** Agriculture Sector Modernization Project Ministry of Agriculture No. 123/2 Pannipitiya Road, Battaramulla Tel: +94 112 877 550, Fax: +94 112 877 546 Email: projectdirectorasmp2@hotmail.com Web: https://www.asmp.lk/ Deputy Project Director – Northern Province Agriculture Sector Modernization Project Ministry of Agriculture Tel:+94 773 876 364 **Environmental and Social Safeguards Specialist** Agriculture Sector Modernization Project Ministry of Agriculture No. 123/2 Pannipitiya Road, Battaramulla Tel: +94 112 877 550, Fax: +94 112 877 546 Email: sanjayadms@hotmail.com Web: https://www.asmp.lk/ **Nature of Consultations and Inputs Received** Consultations with Environmental and Social Safeguard Specialist/ PMU • Great potential to increase Farmer income with less labour and inputs. • adopt Good Agriculture Practices (GAP) in his cultivation operations • Effective mechanism to attract young farmers for commercial agriculture. • Guide farmers to shift from subsistence agriculture to commercial agriculture • All farmers are waiting till completion of the project to extend the land area for the cultivation

5. DESCRIPTION OF THE EXISTING ENVIRONMENT

5.1 PHYSICAL FEATURES – ECOSYSTEM COMPONENTS	
Topography and terrain	Geographically the Vavuniya District falls within the Northern lowlands. Commonly the topography pattern of the District consists of gently sloping (0-8%) and undulating terrain types. The elevation varies from 100 – 300 feet from the Mean Sea Level and this district can be called a plateau. The slope goes towards, Mannar plains to the West and Mullaitivu narrow plains to the East. This part has the highest elevation, 300 feet from the Mean Sea Level. It is the highest elevation in the North of Sri Lanka. The rest part of the district is a gently sloping plain. The slope is between 0 – 8%. The topography of the plains is undulating. The Vavuniya District is categorized under the areas of the dry zone of Sri Lanka and it is divided into 3 Agro-Ecological Regions namely DL1b (Dry zone- Low country 1b), DL1e (Dry zone- Low country 1e), and DL1f (Dry zone- Low country 1f).
Soil (*type and quality*)	The soil types of selected area are Reddish Brown Earths, Low humic gley, and alluvial soils. At present Reddish-Brown Earth is used for cultivation for a number of cereals, pulses, and subsidiary food crops during Maha season under rain-fed conditions and Yala Season under irrigation. In addition, forests are located in these soils, and also shifting cultivation is practiced. Alluvial soils are under cultivation with rice, subsidiary food crops, vegetables and are also used for grazing or for forest Reddish-brown earth soil is a well-drained soil found on the crest, upper slope, and mid-slope physiographic positions within undulating and rolling landforms. Depth of soil varies according to the physiographic position of the landform. Low Humic Gley soil is a deep and poorly drained soil found in flat terrain. The texture is sandy clay loam throughout the profile. Available soil moisture content is medium. It has low organic matter content and low available nutrient. Soil is used mainly for irrigated paddy.
Surface water (*Sources, distance from the site, local uses and quality*)	Selected farmlands of the proposed project are scattered across the GN division and there are 30 minor tanks found within the GN division. The upland irrigated agriculture uses the groundwater resources in the area. However, few Thulavilkulam tank beneficiaries were identified during the community engagement program. Water bodies of the Vavuniya district are shown in figure 4. Closest surface water body for the proposed collection centre is an around 400 m away and it is in high elevate than the proposed land.
Ground water (*Sources, distance from the site, local uses and quality*)	Based on field investigations, it is not possible to exactly quantify the availability, yield, and capacity within the project area. However, the water levels of agro wells in the area observed at about 15-25 feet deep. The water table goes deeper during the dry season, however, it rises up during the rainy season. Groundwater is used for drinking purposes through dug wells, however, “hard water” is found in the project area.

	The irrigation tanks serve the groundwater level in the District. During the dry season, 95.0% of domestic water uses depend on the groundwater in the District. The upland irrigated agriculture uses the groundwater resources in the District. Agricultural wells are a common sight in the area which is used to extract groundwater to irrigate small areas of high-value crops or to provide a supplementary and secure source of water for the paddy crop.
Air quality (*Any pollution issues*)	Any major air pollution sources in the vicinity of the project site are not recorded. Small scale industries and traffic may cause air pollution within the area. However, https://www.breezometer.com/air-quality-map/air-quality/sri-lanka/palamoddai that the Air Quality Index (AQI US) of Palamoddai is 25/500 and $PM_{2.5}$ is the dominant pollutant.
5.2 ECOLOGICAL FEATURES – ECOSYSTEM COMPONENTS	
Vegetation (*Trees, ground cover, aquatic vegetation*)	This selected area can be considered as the main food growing area as most of the paddy and other cereal crops, fruits, and vegetables are cultivated. In the Palamoddai GN division paddy and other crops like Chilli, Red onion, big onion, green gram, Guava, Cowpea, Groundnut, Black gram, Maize, Ginger, and Kurukkan. Vegetables are also grown in the Palamoddai GN division. Further, perennial crops such as coconut, mango are found within the selected area. Palu, Weera, Wood apple, Adathoda, Siyambala, Ahu, Mango, Cashew, Palmyrah, Kohomba, etc trees observed within the cluster area. However, in general, forest, homesteads, paddy, field crops, waterbodies, and scrublands can be seen in the cluster area. Coconut and cashew are the major plantation crops. Since there are number of minor tanks in the area, there can be seen aquatic associated vegetation in the area.
Presence of wetlands	There are no wetlands in the area other than tanks associated areas and abandoned paddy fields. Waterbodies cover around 6% of the district land while Wetlands represent 0.01% of the total land area. There is one major tank, 22 medium tanks, and 674 minor irrigation tanks functioning in the district. Figure 4 shows the distribution of water bodies of the Vavuniya district. There are 30 minor tanks distributed across the GN divisions.
Fish and fish habitats	There are 30 minor tanks in the GN division, and these tanks' associated waterways can be identified as fish habitats around the selected area. As there are number of minor tanks, freshwater fishing industry is being promoted by NAQDA and NGOs in the area. The tanks provide important habitats for a wide range of species including migratory birds and waterfowl, amphibians, and fish. Since the selected farm lands are scattered across the GN division, it is difficult to identify the possible impacted fish habitats. The closest tank for the collection centre is an around 400 m away and it is in high elevate than the selected land.
Birds (*waterfowl, migratory birds, others*)	Most of the boundaries of selected farmlands are attached to the dense forest reserves. Hence, many bird species can be found. The Tank and associated vegetation, natural scrublands, and abandoned paddy fields can be potential bird habitats including migratory birds. Many large birds such as owls, eagles,

<table>
<tr><td></td><td>and hawks hunt rodents. Also, aquatic bird species such as cranes, storks, and herons feed on insects and crabs that pose a threat to rice production.</td></tr>
<tr><td>Presence of special habitat areas (special designations and identified sensitive zones)</td><td>Vavuniya district has protected areas such as forest reserves, historical reserves, archaeological reserves, and water bodies. Most of them include forest reserves and water bodies. Refer to figure 5 which shows the protected areas of the Vavuniya district. 7.4 ha areas of archaeological and historical places are identified in the Vavuniya DS division and none of the archaeological sites are identified in the Palamoddai GN division. However, Kunsukulam Muththumari Amman Kovil (1.2 ha) is protected as a place having historical value.

The selected project areas have not been identified as a special habitat areas except forest reserves. Almost all the villages of the GN division are surrounded by forest reserves. Further, the tanks provide important habitats for a wide range of species including migratory birds and waterfowl, amphibians, and fish. Many of these species also comprise a large part of the daily nutritional intake. The tanks also benefit neighbouring farmers by providing a habitat for bio-control agents, which consume pests such as insects, crabs, and rodents. The surrounding canals also provide a habitat for a variety of flora.</td></tr>
<tr><td colspan="2">5.3 OTHER FEATURES</td></tr>
<tr><td>Residential/Sensitive Areas
(E.g., Hospitals, Schools)</td><td>Commonly, there are twelve Hindu temples scattered in the GN division and distance will vary depending on the closest farmland. However, there is a Hindu temple found around 1.5 km distance from the randomly selected location.

In the GN division there are four Tamil schools and Except for one type III school, others are not functioning in the GN division. The school in Kovilkunchukulam village is functioning the teacher-student ratio is 1:6. There is a General Hospital in Vavuniya Town and two District Hospitals in PoovarasamKulam and Sithamparapuram and one Primary Medical Care Unit in Omanthai in Vavuniya District. One Gramodaya Health Centre out of 17 in the district is functioning in the GN division</td></tr>
<tr><td>Traditional, economic and cultural activities</td><td>Palamodai is one GN division out of the forty-two in the DS division. The boundaries of this division are Mannar district in the East, Mullaithivu district in the Northwest, Puliyamkulam GN division in the Northeast, Maruthamadu GN division in the East, and Kalmadu GN division in the South. This is a border village near Manthai West DS division in Mannar and Manthai East DS division in Mullaithivu. There are eight villages namely Kilavikulam, Palamoodai, Varuyadayar I K, Panichchankulam, Uralkulam, Navvy, Kovilkunchukulam and Madathuvilankulam. The total number of families in the GN division is 359 and 1184 members. The GN division is 100% Tamils, and the population density is 62 people per square kilometre. In the total population, 594 members are males and 590 members are female. The male-female ratio is 1.00. Hence, sex-wise it is a well-balanced village. The highest number of families are living in Kovilkunjukulam village, and the lowest number of families are in Variyudayar I K.

<table>
<tr><th></th><th>0-19</th><th>20-39</th><th>40-59</th><th>>60</th><th>Total</th></tr>
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</td></tr>
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Age Range (Years)	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Palamoddai	229	202	178	186	123	144	64	58	594	590
Percentage (%)	38.5	34.2	30.0	31.5	20.7	24.4	10.7	9.8	100	100

Source: Statistical Handbook 2019- Vavuniya Divisional Secretary

The male population in the age group of 0-14 and over 65 years is 198 and the female population in this age group is 189. The total population is 387. The total population in the age group 15-64 years is 797. Hence, the dependency rate is 48.55. The number of families relocated and resettled in the division is 341. Permanent families and the subfamilies are 18.

In the district paddy and other crops like Chilli, Red onion, big onion, green gram, Cowpea, Groundnut, Black gram, Maize, Ginger, and Kurukkan. Vegetables are also grown in the district. There are three Agrarian Service Centres servicing the district farmers. One such ASC is in Omanthai and there are 34 Farmer Organizations registered under this ASC/ADC. Palamoddai GN farmers are served by this ASC and the Farmer Organization has 57 members and functioning well. In Palamoddai there is a fertilizer store with a 300 Mt capacity. There are 30 minor tanks in the GN division. Nearly 515 farming families are cultivating under these minor tanks in the GN division. Under the Omanthai ASC fingerlings are stocked in 12 seasonal tanks with funding from NAQDA. The Government Veterinary Surgeon office is functioning in the district providing services such as distributing day-old chicks, artificial inseminations, and vaccination for the animals. Milk, eggs, and meat are produced in the district and the Palamodai GN division is also contributing to the district production. Value addition is very minimal in the livestock sector. Electricity is available and 591 houses, 59 industries, 102 commercial, and 9 religious places are connected to the main grid. Under the Provincial RDD, 22 C class roads and one D class road of 156.0- and 3.5-kilometer length are being maintained in the district. Furthermore, 702 Pradeshiya Sabha roads of the total length of 704.22 kilometers connecting the villages to the main roads and towns are also available. Vavuniya Urban Council is also responsible for a few roads within its administrative area. The motorcycle is the main vehicle for transport. Public transport service from Palamodai to Mundumurrippu is available and more than 250 people per day are using this service in this route.

Banking services are available and 36 financial institutions with branches are functioning and mainly in Vavuniya Town. Three garments, industries are operating in the district and providing employment to 3,759 people especially women. Technical education and training centres are available in the district providing various courses for the students interested in technical studies. The cooperative sector is well nourished in the district. There are 133 Thrift and Credit Societies, 6 agricultural cooperatives, three freshwater fisheries cooperative Societies, one MPCS, one Palm Product cooperative four secondary and eight other types of Cooperatives are functioning in the district.

There are 279 permanent and 80 Improvised housing units in the GN division and the main source of lighting is electricity. Kerosene and solar lighting are in

	a few units. Firewood and Liquefied Petroleum Gas (LPG) are the cooking fuel mainly firewood. Drinking water is mainly from protected common and individual wells. Water seal toilets are available in houses constructed by Government Housing Programs. There is a General Hospital in Vavuniya Town and two District Hospitals in PoovarasamKulam and Sithamparapuram and one Primary Medical Care Unit in Omanthai in Vavuniya District. One Gramodaya Health Centre out of 17 in the district is functioning in the GN division. Omanthai PMCU is being attended by the people in the surrounding villages. In 2019, approximately 17,060 outdoor patients, 9,526 clinics attendance were treated in the centre. The average daily attendance of patients' amounts to 59 and the number of treatment days during the year is 301. There are two educational zones in the district, and one is in the North and the other one is in the South, In the GN division there are four Tamil schools All the schools (48) in the Vavuniya North zone are Provincial schools and 32 schools are Type II and Type III schools. Except for one type III school, others are not functioning in the GN division. The school in Kovilkunchukulam village is functioning the teacher-student ratio is 1:6. Samurdhi beneficiaries in the GN 263 and 39.5% of the beneficiaries are receiving Rs 1,500 per month, 16.3% of the families are receiving Rs 2,500 per month and the remaining 44.2% of the beneficiaries are receiving Rs.3,500 per month. 53 people are receiving government financial assistance such as PAMA, kidney disease, and spinal cord problems in the GN division. Financial assistance for PAMA recipients, ranges from Rs 250/= to Rs 500/= per month and 21 persons receive Rs 300/= and one person receives Rs. 400/= per month in the division. Further, there are 38 differently able people, 62 widows, 17 women-headed families, 387 dependent, and 101 poor families in the GN division. Out of the 38 differently able people, 16 of them are affected by war. Three hundred and twenty-four families with 1065 members were resettled in all the villages from 2009 to 2011 in the GN division. Communication facilities of service providers are available in the GN.
Archaeological resources (*Recorded or potential to exist)*	Some areas in the district are protected by gazette notifications. The protected area network includes Forest, other state forest lands, Archeologically and Historically significant places, and Waterbodies. However, there are areas or sites that are not presently protected in the district. They have to be protected in order to conserve the bio-diversity, environment and ensure the protection of the religious, cultural, and archaeological sites. Vavuniya DS division has approximately an area of 7.4 ha archaeological and historic value and one historical place belongs to the Palamoddai GN division namely, Kunsukulam Muththumari Amman Kovil which has 1.2 ha of land area. Altogether there are 12 Hindu temples are scattered across the Palamoddai GN division and no archaeological reserves were found. However, any of these won't be affected by the project activities.

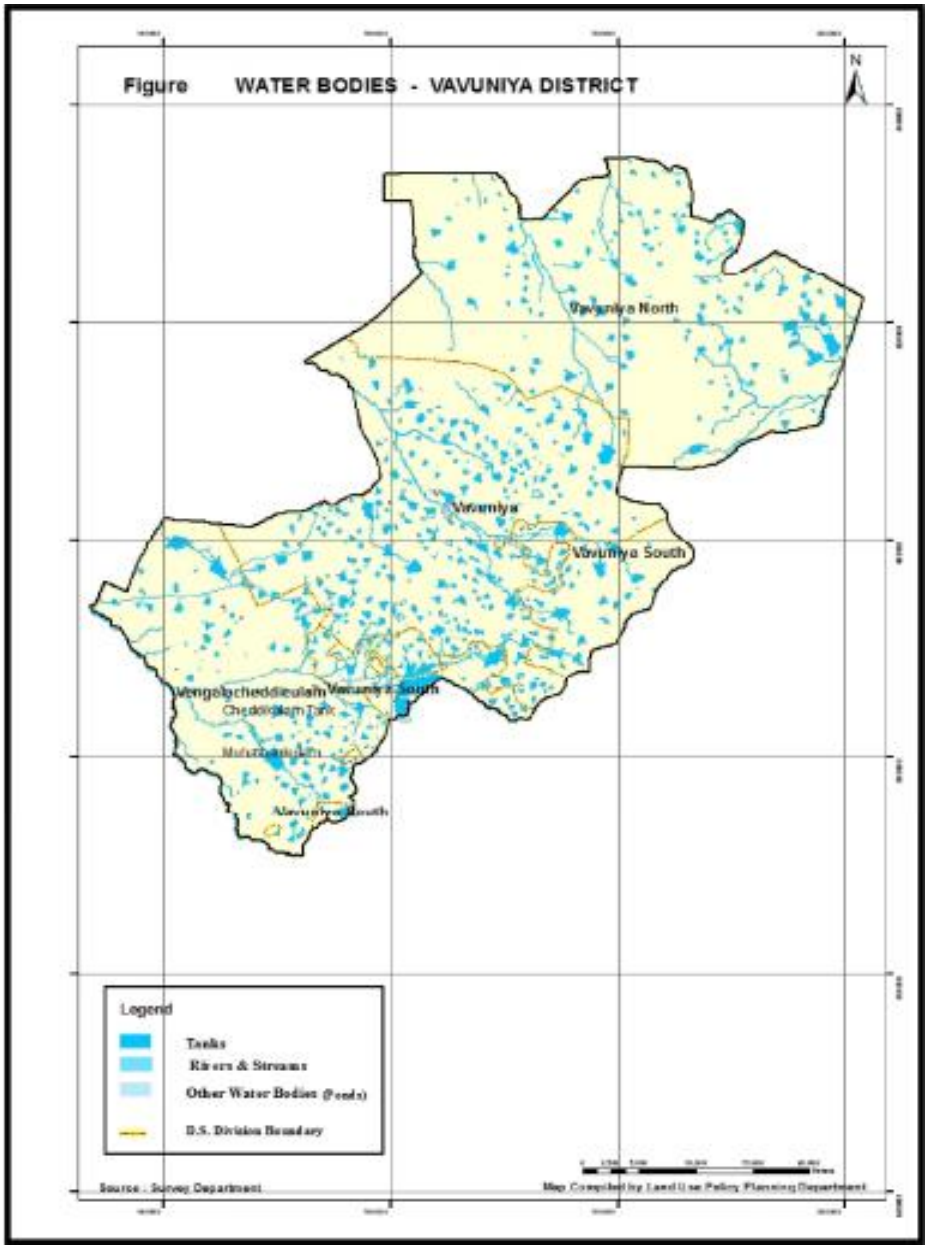


Figure 1: *Water bodies of Vavuniya District (Source Land Use Policy Planning Department, Ministry of Lands, 2016*

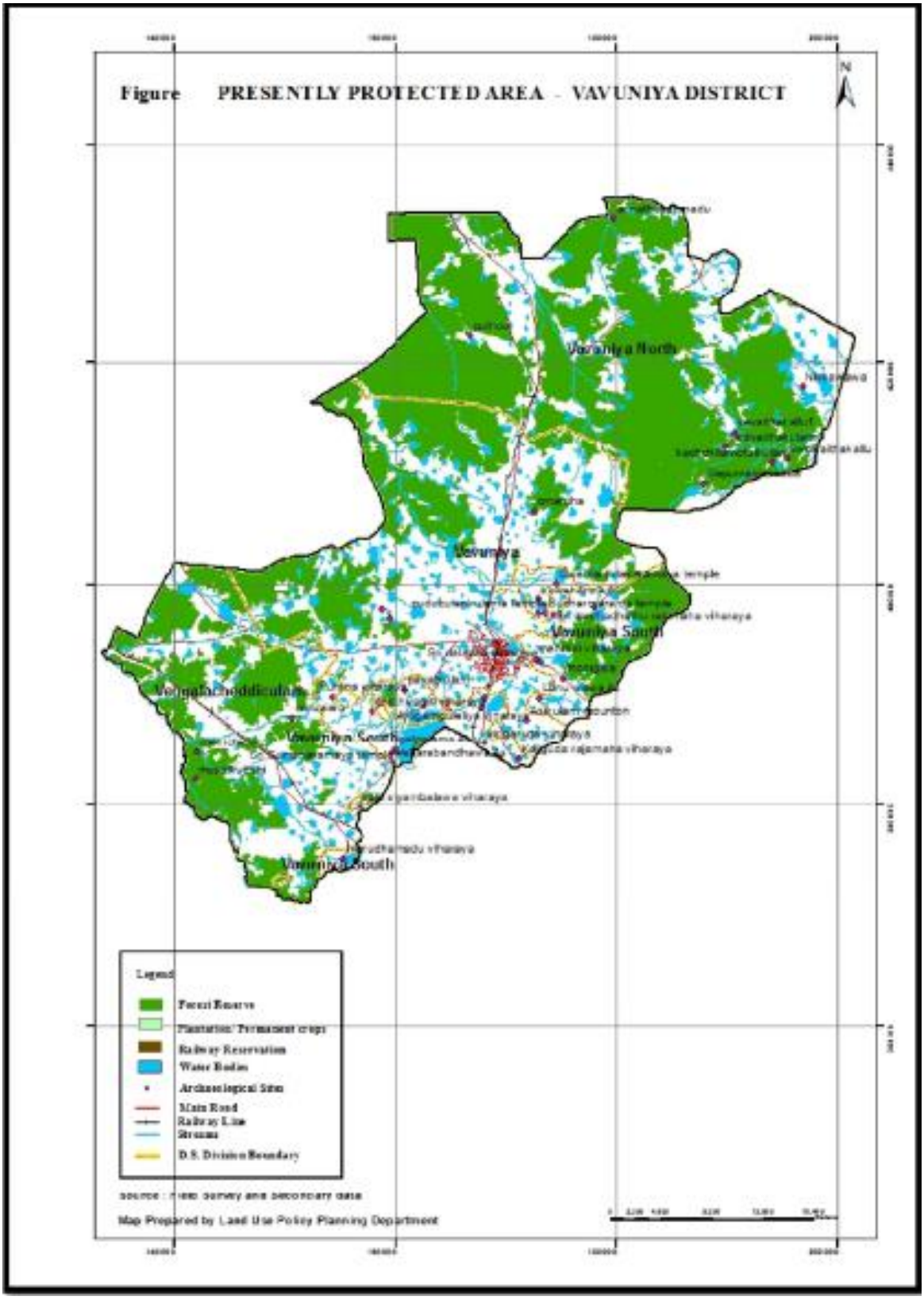


Figure 2: Protected areas – Vavuniya District

6. DESCRIPTION OF PROPOSED AGRICULTURAL ACTIVITIES

6.1 Cultivation	
Existing Condition of the Crop	The subproject concerns the introduction of new technology for the farmers who are practicing the traditional irrigation system for Chilli cultivation. The screening revealed that the existing watering system is a high-cost method and it increases water losses and wastes more time. The selected farmers will be encouraged to obtain high yield with more quality from their cultivations with improved irrigation system and it will be indirectly benefitted for customers too since they have the opportunity to buy high-quality fruit products at the local market. Annually about 1,000 acres of chili is being cultivated in the district mainly for green chili. Presently, there are some farmers cultivating chili, and used land slots are low compared to the other crops. This is mainly due to the lack of technological applications. Farmers were further discouraged due to low yield due to pests and diseases, moisture stress, shortage of availability of quality seeds, high inputs costs, the unstable market situation with the Government import policy. As a result, farmers withdrew themselves from the chili cultivation. The land area that is being used for chili cultivation in this area is an average of 0.5-1 acre. Marketing and all other activities related to Chili cultivation are at present attended by farmers individually with no collective bargaining for sales. The closest market for these selected farmers is Vavuniya and the Price fluctuation is the major issue faced by Farmers. At the present market price of 1 kg of dried chili is about 550 LKR. Furthermore, a short supply is direct to the retail market, mainly to the local boutiques. Chili cultivation has always been associated with inappropriate and indiscriminate use of pesticides and high labour input for weed control, both of which have significantly contributed to increasing the cost of cultivation. The continuous and indiscriminate use of pesticides has major drawbacks such as adverse effects on human beings and other non-target organisms, development of pest resistance, an outbreak of secondary pests, and environmental pollution. However, agrochemicals have not shown successful results for controlling the leaf curl complex. At present farmers prefer to produce green chili than dry red chili due to high price, ready market, high return, lack of availability of drying facilities, high labour input for drying, etc. For dry chili, production harvesting should be done at the proper stage more than 80% red coloured pods, and use of tarpaulins when dryers are not available. This sub-project encourages Chilli crop production in the dry zone of Sri Lanka. The introduction of a drip irrigation system will save water and it will be benefited to conserve the groundwater table of the area. Further, the current watering system (Irrigation) encourages spreading diseases since the irrigated water flows over the total cultivation land.

Polluting Processes (point source)	
In cultivation some key polluting steps, although limited, takes place; mainly in the cultivating and post-harvesting phases.	
Land preparation for cultivation	In general, farmers prepare nursery beds width of almost 0.9m (3ft) in well-drained virgin soil. Farmers sterilized soils before sowing by burning the nursery bed with rice husk and rice straw. At present some farmers use seed treatment with fungicides recommended by the DOA or chemical companies. Usually, nursery beds are prepared a few days before seeding. Application of compost or any other organic manure is a common practice. In addition, the application of recommended fungicide for control of damping-off and anthracnose is also practiced. After seeding seeds are covered with a layer of soil and straw. Thereafter, remove the mulch 7-10 days after sowing before the seedlings overgrow through the mulch. To avoid hot sunlight and heavy rain cover the bed with Cajon leaves or transparent polythene. Then almost one week before transplanting control water application. When the seedlings are ready for transplanting planting will be done with the onset of rain. Land preparation is done by using agricultural machinery such as ploughing or disking for the cultivation of OFCs and vegetables. In general, raised beds are prepared width of 0.9 m (3ft) to facilitate proper drainage due to high clay in paddy soils. Some farmers make farrows without making beds. The majority of farmers make planting holes approximately with the spacing of 50x50cm or 60cm x50cm. In general, compost and chili chemical fertilizer mixture are applied in the hole.
Water requirement[1]	Water is applied immediately after transplanting. After planting, they apply different chemical fertilizers every 3-4 weeks. Though flood irrigation is popular among farmers, it has created many problems due to the poor drainage of soils found in the area. Excess water use due to flood irrigation could be considered as the main reason for the increase of diseases and subsequent low yield. New low-pressure drip irrigation systems that conserve water and prevent laminar erosion; precise application of fertilizers using the low-pressure irrigation systems and based on soil and foliar analyses. Drip irrigation will also help reduce the use of Irrigation water by more than 50% of the traditional cultivation practice requirement. In quantities, minimum of 4000lts at time required for a ½ Acre in flood irrigation system which will reduce up to 1500lts at a time in drip irrigation.
Use of fertilizer and pesticides and weedicides	Farmers use chemical fertilizer for Chili cultivation. Urea is used as the nitrogen source, Rock Phosphate and Triple Super Phosphate are used as the phosphate source and Mutreate of Potash is the Potassium source. However, the proposed project will not provide chemical fertilizers and is also not encouraged to do so. Further, the chemical fertilizer to cultivate 0.5-acre slots will be low and farmers will be used their own space to store if required.

[1] https://doa.gov.lk/FCRDI/index.php/en/crop/42-green chili-e

	Leaf Curl Complex (LCC) was identified in the 1980s is considered as a major threat to chili cultivation particularly in the dry zone of Sri Lanka. Chilli leaf curl complex is prominent especially in Yala season than in Maha season. Therefore, the objective of the chili hybridization and selection program of the DOA targeted to develop new chili varieties with tolerance/resistance to leaf curl complex (LCC), Choanephora blight (Choanephora spp.), Anthracnose (Colletotrichum capsicum), Leaf spot (Cercospora capsicum), etc. In addition, insect pests are also major constraints to the production of chili in Sri Lanka. It reduces not only the production but also the quality of pods. Important pests reported in chili are Trips (Scirtothrips dorsalis), Mites (Hemitarsonemous latus), Aphids (Aphis gossypii, Myzus persicae), Whitefly (Bemisia tabaci), Pod borer (Spodopetera litura / Helicoverpa armigera), etc. Chilli leaf curl complex identified as due to damage by thrips (Scirtothrips dorsalis), mites (Hemitarsonemous latus), and aphids (Aphis gossypii, Myzus persicae), and viruses transmitted by whitefly (Bemisia tabaci). Therefore, farmers apply various agrochemicals available in the market. Chili cultivation has always been associated with inappropriate and indiscriminate use of pesticides and high labour input for weed control, both of which have significantly contributed to increasing the cost of cultivation. The continuous and indiscriminate use of pesticides has major drawbacks such as adverse effects on human beings and other non-target organisms, development of pest resistance, an outbreak of secondary pests, and environmental pollution. The project proposed by the DOA is the selection of quality seeds, use of appropriate nursery management techniques, early planting, use of barrier crops, use of recommended fertilizer, use of sticky traps, use of mulches, spraying of water, control weeds, adequate irrigation, and use of insect-proof net.
Harvesting	At present farmers prefer to produce green chili than dry red chili due to high price, ready market, high return, lack of availability of drying facilities, high labour input for drying, etc. For dry chili production harvesting should be done at the proper stage more than 80% red coloured pods and use of tarpaulins when dryers are not available.
Post-harvest storage and transportation	This Chili is mainly used as dry chili and a quality drying process is important. Therefore, the harvest should be transported to the collection centre after harvesting. Grading, drying, and packing of the dried chili is an essential part during the post-harvest period as it helps to cut down the losses and increase the high quality and value. Therefore grading, drying, packing, and transporting should be undertaken with improved technology. These technology facilities will be available for farmers.
Other factors	
Solid waste	The solid organic waste is generated as crop residuals and at the post-harvest period. All the crop residuals and post-harvest waste should be burnt or buried under soil to keep the hygienic condition of the farmlands.

Wastewater	Due to the application of an integrated pest management mechanism, soil and ground/surface water pollution will be minimalized. ASMP will conduct the awareness creation and training programs for both farmers as well as the officers regarding integrated pest management as per the Pest Management Plan (PMP). Application of IPM during implementation of Dry Chilli cluster given below:

7. APPLICATION OF AN INTEGRATED PEST MANAGEMENT PRACTICES FOR DRY CHILLI CLUSTER

SN	Crop Stages	IPM Practice/ Practices	Impacts of IPM Practices	Benefits
1	Pre-Land preparation stage	• Proper removal of debris, residues, and host plants (Burring, dumping, compost making) - Keep land clean. • Deep ploughing during dry seasons • Field sanitation by burning straw or paddy husk or spreading transparent polythene cover	• Fewer incidents of pests, diseases, and weeds, • Improvements in aeration in the soils	Farmers maintain pest and disease-free fields
2	Land preparation stage	• Deep ploughing and making soils into fine tilth using a rotavator. • Removal of weeds and their residual parts (tubers and rhizomes etc.) • Sun drying, adding cow dung and compost	• Destructions of pests (eggs and cocoon and adult) • Control weeds growth • Good drainage	• Low incidence of pest and disease attack • Low water stagnation leads to healthy plants and low virus wilt diseases
3	Planting stage	• Growing resistance variety, using disease-free seeds, seed treatments, and carrying out good nursery management (Sanitation of nursery by burning of paddy husk and straw). • Removal of unhealthy plants	Healthy plants	Low incidence of pest and disease attack
4	Seedling stage/ Planting stage	• Using appropriate spacing and timely planting (Collective planting by all farmers at a particular time frame in early in the season) • Border planting (selecting insect-repelling plants)	Pest and disease-free fields	Low incidence of pest and disease attack
5	Juvenile stage	• Identifying pest, disease – Proper Removal of unhealthy plants. • Controlled watering by using a sprinkler system	• Pest and disease-free fields • Weeds free fields	Low incidence of pest and disease attack

		• Using insect protective net or clothes Proper manual weeding		
6	Flowering stage	• Identifying pest, disease – Proper Removal of unhealthy plants. • Removal of the larva (hand collection) • Controlled watering by using a sprinkler system	• Pest and disease-free fields • Weeds free fields	Low incidence of pest and disease attack
7	Maturity stage	• Identifying pest, disease – Proper Removal of unhealthy plants. Removal of the larva (hand collection) • Controlled watering by using a sprinkler system	• Pest and disease-free fields • Weeds free fields	Low incidence of pest and disease attack
9	Harvesting stage	• Removal of infected/affected chili pod • Controlled watering by using a sprinkler system	• Pest and disease-free fields • No pest and diseases spreading	Low incidence of pest and disease attack
10	Post Harvesting stage	No post-harvest	----------	----------
11	Storage stage	No storage	----------	----------
12	Transport stage	Proper packing in hygienic gunny bags and transport	No pest and diseases spreading	Low incidence of pest and disease attack
13	Marketing stage	No	No	No
14	Any others	Inorganic fertilizer and chemicals are used when there is a necessity only	Pest and disease-free fields	Low incidence of pest and disease attack

8. PUBLIC CONSULTATION

The consultation was held with the support of the project director, project engineer, agricultural scientist of the Northern Province, and the project coordinator of the selected DS division. Overall project implementation and future plan were discussed with them and deep level information was collected. They were trying hard to rehabilitate and distribute water as soon as possible to the beneficiaries.

Farmer gatherings were not conducted due to the pandemic situation. However, on-field discussions were conducted with benefitted farmers while ensuring COVID 19 safety precautions. The conclusion of the consultation was clear, and it was to rehabilitate the pump house and provide water immediately starting from next season onwards. Further, the following comments were taken during the discussions held with farmers in the selected area.

- **Water availability and accessibility**

All above-selected farmlands are uplands and open wells are the main water source for the water. These lands will be fed by pumping water from the open wells and flood irrigation is used for the cultivation. Drip irrigation technology will be provided through the ASMP project and it hopes to reduce water usage by 50% compared to the traditional water usage. All most all beneficiaries have their own open wells/agro wells or tube wells for the cultivation and maximum utilization ensure 1-1.5 acres of different crops. They cultivate two seasons per year using these resources and maximum land usage is limited to 1-1.5 acres. The water level is 6-7 m below the ground level and it goes deeper with the dry season.

- **Issues bound with flood irrigation system**

Excessive flood irrigation creates many problems such as waterlogged conditions, poor crop performances, high disease incidence and waste of water, high soil erosion due to prolonged flood irrigation were identified in underwater conservation and management discussions. Bringing water to inaccessible lands was a prioritized question raised by farmers and the introduction of water-conserving and low-pressure drip and mini sprinkler systems was highlighted during the discussion. However, technical knowledge on the implementation and continuity of mini sprinkler systems needed to be given.

- **Failure on the export market**

One of the main objectives of the project is to full fill the local market-based production and doubt were highlighted that what will happen if local market demand is lower than the supply. Are there any options available in the local market for excessive production?

- **Infrastructure development**

Some farmers looking to bring water to lands that are not flooded by the existing irrigation system. Hence water and drainage work is required to bring water to farms and to avoid flooding and waterlogging. Further construction of the post-harvesting collection centre and the compost yard were highlighted during the discussions.

Further, there were points highlighted during the discussions such as the use of weedicide, poor and inefficient land utilization pattern, attention for micronutrient fertilizers, and knowledge of farmers for pest management mechanisms for better crop production. There is a high tendency of using organic fertilizers and most of them are producing compost on their own. Further, livestock farming is found at each beneficiary

The majority of the community is willing to support the project activities as they will benefit from the proposed sub-project directly. Extensive social screening has been covered under the Social Safeguard component. The summary of the community consultation is shown below.

Table 1 : Public consultations' outputs

Name	Details	Matter Discussed/ Suggestions
V.Velayutham	He is a 65 years old farmer living with his wife and currently cultivating seasonal crops in uplands.	His main crop is groundnut and upland cultivation is used open well water. Further, he is benefited from this project representing the Navy farmer organization.
T. Ajeevkaran	He is 27 years old young farmer having 6 family members.	He is the secretary of the Navy farmer organization and waiting to engage with the project as soon as started
A.Yogashwaran	He is a 41 years old farmer having 3 family members including him self	He has 6 acres of uplands and cultivates using open well water. He cultivates mainly groundnut and onion in uplands while having cattle farming with around 100 cattle. Further, he has 1.5-acre paddy land and it is fed by Pallapooverasankulam tank. He was benefitted from the project representing the Kunchukkulam farmer organization
S.Sivanandan	49 years old Sivanandan has 5 family members including himself and all of them are supporting his cultivation activities.	He is also representing the Kunchukkulam farmer organization having 13 acres of paddy lands and 3 acres uplands. He is getting water from the Thulavilkulam tank for paddy lands and open well water for the upland cultivations
S.Sinnaraja	He is 48 years old well established farmer having 6 family members	He is the chairman of the Kunchukkulam farmer organization and he has 50 acres of paddy lands under a few small tanks. 6 acres of his uplands are used to cultivate groundnut and vegetables. He is leading the farmer organization to get the maximum benefits from the project and keenly looking to start the project immediately.
T.Sivaeswaran	He is 43 years old farmer having 5 family members	He is also representing the Kunchukkulam farmer organization. He is having 15 acres of paddy lands under the Thulavilkulam tank. 1 acre of his upland is used to cultivate vegetables and currently, he has cultivated 0.5 acre of Chili

K.Mahendran	This is 61 years old well experienced farmer having 4 family members	He is also representing from Kunchukkulam farmer organization and he has 10 acres of uplands for seasonal crop cultivation. Ground nut and vegetables are cultivated in these uplands and he has 0.5 Acer of chili already. Further, he has 12 acres of paddy lands which used to cultivate during the Maha season

Figure 3: Existing environment of land selected for the collection centre




Figure 4: Existing lands for Chili cultivation

Figure 5: Public consultations during screening process

- **Existing environmental issues**

Some farmlands are accessible through gravel roads and most of these are eroded during rainy seasons. All these roads are to be developed to ensure the smooth transportation of goods. Further, it was highlighted that wild animals are damaging the crops 3, 4 times per year. In addition, crop damages from monkeys were highlighted by a few farmers. Farmers are aware that there is a project under ASMP to install an elephant fence. However, the type of the elephant fence and the how and covering what area is not finalized yet.

9. ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

8A. SCREENING FOR POTENTIAL ENVIRONMENTAL IMPACTS

	Screening question	Yes	No	Significance of the effect (Low, moderate, high)	Remarks
1	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?)	√		1) Low-moderate	The existing land preparation and flood irrigation system will be changed. Land preparation techniques will focus on reducing the effects of flood irrigation. No significant disturbances for any existing land use or waterbodies and no negative impact causes are anticipated. Construction of the collection centre will take place on bare land and construction activities will slightly change the topography. Debris/unsuitable excavated or clearing material should not be disposed of improperly
2	Will the Project involve use, storage, transport, handling or production of substances or materials which could be harmful to human health or the environment or raise concerns about actual or perceived risks to human health?	√		Moderate	Pesticides, weedicides, fertilizers, and some additional chemicals will be used and there is a possibility to have chronic impacts due to the long-term usage. However, proposed techniques will reduce the number of chemicals and fertilizers used and modern techniques/methods will be introduced to increase productivity by other means. In terms of the construction of the building will have substances that could harm human health and the environment such as cement? During the construction transport of material and construction activities including vegetation removal, site

	Screening question	Yes	No	Significance of the effect (Low, moderate, high)	Remarks
					preparation, and material piles will emit dust and fugitive particles. However, as the affected area is small, and mitigation is straightforward; therefore the significance of the effect can be considered as low.
3	Will the Project produce solid wastes during construction or operation?	√		Low	Lands clearing and preparation stage there can be an insignificant solid waste generation. During the operation, solid organic waste will be produced as crop residuals. During the construction of the building, excavated material and debris will be generated and the contractor is responsible to manage this waste properly until it is disposed of properly. Solid waste collected on the site should be disposed of by the contractor himself at a suitable location. During the operation, solid waste will be generated such as residual crops from the value addition process. Since it is an operation centre having machinery, there will be disposable machinery or related parts with less frequency. Solid waste collected on the site should be disposed of by the farmer societies themselves at a suitable location.
4	Will the Project release pollutants or any hazardous, toxic or noxious substances to air?	√		Moderate - high	Pesticides, weedicides will be used and released into the air. Possibility to have significant impacts on other flora & fauna.

	Screening question	Yes	No	Significance of the effect (Low, moderate, high)	Remarks
5	Will the Project cause noise and vibration or release of light, heat energy or electromagnetic radiation?	√		Low	There will be an insignificant noise generation from machinery during land preparation and crops transportation. During the construction of the collection centre, noise and vibration impacts can be anticipated. Site clearing, excavation, backfilling, compaction, loading, and unloading of materials are potential sources of noise and vibration during construction. Further, Noise and vibration impacts can be anticipated during operational activities of the collection centre
6	Will the Project lead to risks of contamination of land or water from releases of pollutants onto the ground or into surface waters, groundwater or coastal wasters?	√		Moderate	All chemicals used, including pesticides and weedicides during cultivation, may contaminate land or water. It will have an impact on surface and groundwater in surrounding areas if not properly managed
7	Will the project cause localized flooding and poor drainage during construction Is the project area located in a flooding location?		√		The project will not cause localised flooding
8	Will there be any risks and vulnerabilities to public safety due to physical hazards during construction or operation of the Project?	√		Low	No severe health and safety hazard was identified. Better hazard identification and prevention and corrective measures during operation will eliminate the risk associated.

	Screening question	Yes	No	Significance of the effect (Low, moderate, high)	Remarks
					All the safety measures deployed in "Best Engineering Practices" need to be adopted during the construction period. 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.
9	Are there any transport routes on or around the location which are susceptible to congestion or which cause environmental problems, which could be affected by the project?	√		Low	Chilli transportation from cultivated lands to post-harvesting storages and transportation from post-harvesting storages to shipments/or any other location will be taken place. No creation of significant environmental problems.
10	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?		√	N/A	
11	Are there any areas or features of high landscape or scenic value on or around the location which could be affected by the project?		√		No areas or features with high landscape or scenic value on or around the location.
12	Are there any other areas on or around the location which are important or sensitive for reasons of their ecology e.g. wetlands,		√		No important or sensitive areas identified on the project location affected by the project.

	Screening question	Yes	No	Significance of the effect (Low, moderate, high)	Remarks
	watercourses or other water bodies, the coastal zone, mountains, forests which could be affected by the project?				
13	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?		√		No such identified areas
14	Is the project located in a previously undeveloped area where there will be loss of green field land		√		No such Greenfields are encountered.
15	Will the project cause the removal of trees in the locality?		√		No removal of trees required.
16	Are there any areas or features of historic or cultural importance on or around the location which could be affected by the project?		√		No features of historic importance identified
17	Are there existing land uses on or around the location e.g. home gardens, other private property, industry, commerce, recreation, public open space, community facilities, agriculture, forestry, tourism, mining or quarrying which could be affected by the project?		√		

	Screening question	Yes	No	Significance of the effect (Low, moderate, high)	Remarks
18	Are there any areas on or around the location which are densely populated or built-up, which could be affected by the project?		√		No densely populated or built-up areas affected by the project.
19	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, which could be affected by the project		√		No sensitive land-uses in the vicinity affected by the project.
20	Are there any areas on or around the location which contain important, high quality or scarce resources e.g. groundwater, surface waters, forestry, agriculture, fisheries, tourism, minerals, which could be affected by the project?		√		The ongoing period.
21	Are there any areas on or around the location which are already subject to pollution or environmental damage e.g. where existing legal environmental standards are exceeded, which could be affected by the project?		√		No location where any environmental standards exceeded or have environmentally polluted.

8B. Environmental Management Plan

Contractor's responsibility for mitigating adverse environmental issues raised during agricultural activities

SN	Potential Environmental Impacts and Risk Level	Key project activities causing the impact	Mitigation Measures proposed and action to be implemented by the Contractor
1	Public complaints and lack of community support for the project implementation	• Information Disclosure among Stakeholders • Community Outreach activities including training	• Discussions should be conducted with the beneficiary farmers including women, and youth • The beneficiary farmers selection based on the criteria which were developed at stakeholders meeting and identifying of beneficiary farmers were undertaken transparently • Residents in the area will be briefed on the project, purpose and design, and outcomes with a comprehensive discussion • Communication and training activities focusing on women, youth, and farmers who are poor in communication • The contractor should take note of all impacts, especially temporary issues and safety hazards that will be of concern to the cropping pattern of the farmers. All possible impacts will be mitigated as stipulated in the EMP to mitigate them • The contractor will maintain a log of any grievances/complaints and actions taken to resolve them • A copy of the EMP should be available at all times at the project supervision office on site
2	Spreading COVID 19 virus	• All activities	• The contractor must ensure that all workers, including managers, are well trained on COVID 19 safety precautions published by the health ministry.
3	Lack of knowledge on basic harvest and post-harvest practices lead to low quality	• Mechanical scarring and bruising quality defects	• Maintain good hygiene and good housekeeping

SN	Potential Environmental Impacts and Risk Level	Key project activities causing the impact	Mitigation Measures proposed and action to be implemented by the Contractor
	of product and high amount of waste	• Cleaning the selected product • Storing the harvested product before delivery to the drying facility • Discarding poor quality Chili and other waste organic materials in the field	• Practical training for the selected farmers on basic harvest and post-harvest practices to protect the quality of the product and to assure the packing facility receives only clean and viable product • Avoiding mechanical scarring and bruising quality defects • Provide packaging materials and storage facilities
4	Spreading of Invasive Alien Species	• Vegetation clearing • Cultivation of Chili	• Provide DOA certified Chilli variety only to farmers • Good housekeeping • Manual and integrated weed control • Prevent weed spreading via organic manure (Compost) by periodic inspection and manual removal after application
5	Noise Pollution & Vibration that can affect nearby structures	• Use of tractors and agricultural equipment/ machineries • Transportation of products from farmlands to post harvesting storages	• Working time for noise/vibration generation activities should be restricted and carried out only from 6 am to 6 pm. • Noise related to all agricultural improvement activities should not exceed 55 dB (daytime) and 45dB (night time) as practicable as possible. • Equipment and machinery should be maintained in good condition. • It is highly recommended to do transportation during daytime only
6	Contamination of water, land and air during usage of chemicals (pesticides, weedicides.)	• Land preparation • Vegetation clearing • Use of fertilisers • Use of chemicals for specific requirements	• Introduce technological methods to reduce dosage amounts • Awareness of usage time, handling, and storage • Guidance on a suitable time for the usage of chemicals • Promote organic fertilizers • Formulation of fertilizer regimes based on complete soil tests and foliar analysis
7	Water Quality	• Cultivation of Chilli	• Excess water extraction is to be cut down to preserve the ground water table

SN	Potential Environmental Impacts and Risk Level	Key project activities causing the impact	Mitigation Measures proposed and action to be implemented by the Contractor
			• Proper introduction of drip irrigation practices instead of flood irrigation to preserve water and use of modern techniques to reduce water consumption • Proper irrigation practice to avoid excess water drain back to the RB canal
8	Solid Waste Disposal	• Organic materials in the field • Waste from weed control activities	• Burnt to maintain the farmlands' hygienic condition • Use post-harvest waste for compost production
9	Spread of crop related diseases among other flora species	• Throughout the cultivation period	• Provide technical guidance on application of chemicals including dosage, suitable time and frequency • Pest population and pest damage surveys to assess pest threshold status for application of pesticides
10	Health hazard	• Use of agrochemicals (fertilizers, pesticides, weedicides etc.)	• Carry out proper hazardous identification and risk assessment of all proposed activities • Training and awareness on safe chemical handling • Implement proper health and safety protocols by elimination, substitution, engineering controls, administrative control, and providing personal protection equipment (PPEs). Provided necessary PPEs (basic should include gloves, goggles, masks, and protective clothing) • A safety inspection checklist should be prepared to take into consideration what the workers are supposed to be wearing and monitored • Pest and disease control according to the international standard and pest management action plan prepared by ASMP • Formulation of fertilizer regimes based on complete soil tests and foliar analysis • Pest population and pest damage surveys to assess pest threshold status for application of pesticides

SN	Potential Environmental Impacts and Risk Level	Key project activities causing the impact	Mitigation Measures proposed and action to be implemented by the Contractor
11	Temporary loss of livelihood due to inability to grow crops during Installation works	• Installation of dripirrigation systems • Fixing water pumps and electricity supply • Plumbing works	• Carry out sub-project activities to a strict time table to prevent excessive losses to the farmers • Carry out installation works during off cultivation seasons • Solid waste generation during installation should be minimized and disposed of generated waste with care • Potential damages to pipe system should be minimized by burying or covering the pipe distribution

Contractor's responsibility for mitigating adverse environmental issues raised during construction of Collection Centre

SN	Potential Environmental Impacts and Risk Level	Key project activities causing the impact	Mitigation Measures proposed and action to be implemented by the Contractor
1	Public complaints and lack of community support for the project implementation	• Information Disclosure among Stakeholders • Community Outreach activities including training	• Discussions should be conducted with the beneficiary farmers including women, and youth • The beneficiary farmers selection based on the criteria which were developed at stakeholders meeting and identifying of beneficiary farmers were undertaken transparently • Residents in the area will be briefed on the project, purpose and design, and outcomes with a comprehensive discussion • Communication and training activities focusing on women, youth, and farmers who are poor in communication • The contractor should take note of all impacts, especially temporary issues and safety hazards that will be of concern to the cropping pattern of the farmers. All possible impacts will be mitigated as stipulated in the EMP to mitigate them • The contractor will maintain a log of any grievances/complaints and actions taken to resolve them • A copy of the EMP should be available at all times at the project supervision office on site
2	Spreading COVID 19 virus	• All activities	• The contractor must ensure that all workers, including managers, are well trained on COVID 19 safety precautions published by the health ministry.
3	Water Quality	• Spill out of fuels and lubricants from machinery • Vegetation removal	• Avoid stockpiling of earth fill especially during the monsoon season unless covered by tarpaulins or plastic sheets • Prioritize re-use of excess spoils and materials in the construction works. • Install temporary silt traps or sedimentation basins along the drainage leading to the water bodies;

SN	Potential Environmental Impacts and Risk Level	Key project activities causing the impact	Mitigation Measures proposed and action to be implemented by the Contractor
			• Place storage areas for fuels and lubricants away from any drainage leading to water bodies; • Dispose of any wastes generated by construction activities in designated sites. • Irrigation works must be planned to be carried out during times of lowest flow
4	Exposing and damaging of physical cultural resources (PCR)	• Site preparatory work • Vehicle and machinery movements	• Upon discovery of physical cultural material during project implementation work, the following should be carried out • Immediately stop construction activities • With the approval of the resident engineer delineate the discovered site area. • 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. • Through the Resident Engineer, notify the responsible authorities, the Department of Archaeology, and local authorities within 24 hours. • Submit a brief chance to find the report, within a specified time period, with the date and time of discovery, location of discovery, description of finding, estimated weight and dimension of PCR, and temporary protection implemented. • Responsible authorities would be in charge of protecting and preserving the site before deciding on the proper procedures to be carried out. • 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. • 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.

SN	Potential Environmental Impacts and Risk Level	Key project activities causing the impact	Mitigation Measures proposed and action to be implemented by the Contractor
5	Spreading of Invasive Alien Species	• Vegetation clearing • Material transportation • Desilting	• Close monitoring of transportation, storage of borrowing material for the spread of any invasive species must be done. • Vehicles should be covered during transportation of cleared vegetation to and from the construction site. • 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 burrowing material. • Washing the vehicles should be conducted periodically to prevent carrying any invasive species • The construction site should be inspected periodically to ensure that no invasive species are establishing themselves at the site. • Good housekeeping
6	Noise Pollution & Vibration that can affect nearby structures	• Operation of equipment and machinery. • Material storage and transport • Use of hammer type pile driving will generate high noise and vibration.	• Working time for noise/vibration generation activities should be restricted and carried out only from 6.00 am to 6.00 pm. • All equipment and machinery should be operated of noise not to 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. • Use of mechanically driven saw blades for tree felling will make the noise levels restricted to only a short period of time. • Construction equipment and machinery should be maintained in good condition. The contractor shall submit the list of high noise/vibration generating machinery & equipment to the PE for approval

SN	Potential Environmental Impacts and Risk Level	Key project activities causing the impact	Mitigation Measures proposed and action to be implemented by the Contractor
7	Air Pollution including dust generation that can affect nearby vegetation and households	• Site Preparation activities setting up of material storage yards, and removal of vegetation • Transport of construction material and storage on site	• In the construction method statement, the contractor should clearly designate areas for maintaining material stockpiles, waste stockpiles, labor camps, and vehicle maintenance yards. These dust-emitting sources should be located away from human activity and natural drainage paths as much as possible. • All heavy equipment and machinery shall be fitted in full compliance with the national and local regulations. • Stockpiled soil and sand shall be slightly wetted before loading, particularly in windy conditions. • The site should be wetted at least 2/3 times a day during dry weather to keep dust levels low. • Vehicles transporting soil, sand, and other construction materials shall be covered. Limitations to the speeds of such vehicles are necessary. Transport through densely populated areas should be avoided. • Regular and proper maintenance of construction vehicles and machinery to avoid air emissions. • There should be no burning of wastes on-site. • 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.
8	Solid Waste Disposal	• Site clearing • Construction waste • Waste from labour resting areas	• 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. • Any hazardous type of waste shall be dealt with special care and instructions from the LA. • The contractor shall document all types and quantities of waste generated and removed from the site and the disposal locations.

SN	Potential Environmental Impacts and Risk Level	Key project activities causing the impact	Mitigation Measures proposed and action to be implemented by the Contractor
			• The contractor shall remove waste from the site each day and dispose of the waste in the LA-approved site/s.
9	Blocking of surface drainage paths leading to localized flooding and ponding of water	• Site Preparation including provision of access roads, material/waste piles	• Until transported out to arranged disposal sites, debris and waste from site preparation work and desilting 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. • The stockpiles should be suitably covered to minimize wash-offs to nearby waterways. • If impacts to surface drainage cannot be avoided leading to ponding of rainwater and inconvenience to people, the contractor must provide an adequate surface drainage system to safely remove water from the site to the canal to avoid on-site ponding or flooding. • Proper planning to avoid construction during the rainy season. • Preventing total blockage of streams / providing alternative drainage paths during construction.
10	Public/occupational safety hazard	• Site clearing, storage of equipment, material etc. • Increased traffic of heavy vehicles for material transportation • Noise and vibration of construction machinery	**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. **Personal Protective Equipment** 2. All workers will be provided with necessary PPEs (basic should include a safety helmet, protective footwear, and high visibility jackets).

SN	Potential Environmental Impacts and Risk Level	Key project activities causing the impact	Mitigation Measures proposed and action to be implemented by the Contractor
			3. In addition, the contractor shall maintain in stock at the site office, gloves, ear muffs, goggles, dust masks, safety harness, and any other equipment considered necessary. 4. A safety inspection checklist should be prepared to take into consideration what the workers are supposed to be wearing and monitoring. **Site Delineation and Warning Signs** 5. The entire construction site should be delineated using devices such as cones, lights, tubular markers, orange and white stripes, and barricades to inform oncoming vehicular traffic and pedestrians in the area about work zones. 6. All digging and installation work items that are not accomplished should be isolated and warned of by signposts and flash lamps in the night-time. 7. Dangerous warning signs should be raised to inform the public of particular dangers and to keep the public away from such hazards. 8. Trenches should be progressively rehabilitated once work is completed. 9. Overloading of vehicles with materials should be controlled 10. Construction wastes should be removed as much as possible within 24 hours from the site to ensure public safety. 11. 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.

SN	Potential Environmental Impacts and Risk Level	Key project activities causing the impact	Mitigation Measures proposed and action to be implemented by the Contractor
			Equipment safety 12. 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** 13. An emergency aid service must be in place on the worksite. 14. 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. **Construction camps** 15. Construction camps should have adequate sanitation facilities for construction workers to control the transmission of infectious diseases. 16. 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, locate accommodation camps away from communities on land acquired from willing sellers. Provide labour camps with adequate sanitation, waste disposal, and health facilities according to labour laws. Clear

SN	Potential Environmental Impacts and Risk Level	Key project activities causing the impact	Mitigation Measures proposed and action to be implemented by the Contractor
			work campsites after use and reinstate vegetation. Conduct programs to raise worker awareness of HIV/AIDS. **Information management** 17. Develop and establish the contractor's own procedure for receiving, documenting, and addressing complaints from the affected public and nearby communities. 18. Provide advance notice to local communities by way of information boards or leaflets about the schedule of construction activities, interruption to services and access, etc.
11	Damage to Flora and Fauna	• Vegetation clearing	• Speed limits and operating times for the construction vehicles should be imposed. • Due consideration should be given to carefully clearing of vegetation avoiding the destruction of habitats of fauna. • The de-silted matter shall immediately be disposed of off to pre-decided disposal sites. • 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. • 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. • 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. • It is recommended to do the project work in day time only

SN	Potential Environmental Impacts and Risk Level	Key project activities causing the impact	Mitigation Measures proposed and action to be implemented by the Contractor
12	Soil erosion, sedimentation of nearby waterbodies and low-lying areas	• Construction work • Removal of topsoil • Vegetation clearance	• Soil stockpiles and other construction material should not be placed within the bed or banks of the tanks or canal. • Installing and maintaining permanent erosion and sediment control measures such as silt traps to avoid sediment runoff into the tank and nearby waterways.
13	Access restrictions and public inconvenience	• Material transportation and storage • Noise, vibration, dust and waste piling from demolition and construction	• If any temporary interruptions to house access take place, the contractor should inform the concerned houses prior to breaching access. • Provision of access during designated times of the day or where possible provides temporary access paths for pedestrians on the downstream side of the bund. • If a road is closed completely for a period, signage is to be put up at both ends.
Post construction phase			
14	Clearing/Closure of Construction Site/Labour Accommodations		• Contractor to prepare site restoration plans for approval by the engineer. The plan is to be implemented by the contractor prior to demobilization. This includes burrow sites and storage yards as well • On completion of the works, all temporary structures will be cleared away, all rubbish cleared, excreta or other disposal pits or trenches filled in and effectively sealed off and the site left clean and tidy, at the contractor's expenses, to the entire satisfaction of the engineer.
15	Solid waste	• Operational stage crops related waste, general household waste & machinery parts.	• Any hazardous type of waste shall be dealt with special care and instructions from the LA. • The farmer societies shall document all types and quantities of waste generated and removed from the site and the disposal locations. • The farmer societies shall remove waste from the site each day and dispose of the waste in the LA approved site/s.

SN	Potential Environmental Impacts and Risk Level	Key project activities causing the impact	Mitigation Measures proposed and action to be implemented by the Contractor
16	Environmental Enhancement/ Landscaping		• Landscape plantation, including turfing shall be taken up as per either detailed design or typical design guidelines given as part of the Bid Documents. • The contactor also shall remove all debris, piles of unwanted earth, spoil material, away from the site and disposed at locations designated or acceptable to the Engineer or as per the stipulated waste management criteria of this EMP

9. COST OF MITIGATION

SN	Environmental mitigation measure	Cost (LKR)	Remarks
1	Information Boards, leaflets	35,000	Diversion of roads, Safety signage, awareness leaflets & COVID 19 sign boards
2	On site first aid facilities	15,000	
3	Safety equipment	70,000	Basic should include sanitizers, safety helmet, protective footwear and high visibility jackets.
4	Site delineation and barricading material and equipment	15000	
4	Dust suppression	20,000	Need to be done during road and canal renovation activities
5	Waste removal from site	20,000	Desilted material, waste from vegetation clearing, labour camps (amount is only for construction phase)
6	Training of Farmers and Village level stakeholders on new technological applications	20,000	Should be scheduled to a few sessions

10.CONCLUSION AND SCREENING DECISION

Summary of environmental effects:

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

Key project activities	Potential Environmental Effects	Significance of environmental effect with mitigation in place2
DURING AGRICULTURAL ACTIVITIES		
➢ Land preparation. • Fencing (if applicable) • Land preparation • Micro levelling • Drainage Labour • Raised Beds • Preparation of pits & planting • Planting materials • Fertiliser in the planting pit • Planting Tools	Solid waste generation Spreading of Invasive Alien Species Contamination of water, land and air during usage of chemicals	NS
➢ Introduction of basic flood prevention and drainage field techniques • Quick water evacuation ditches • Surface drainage techniques (removal of wet spots)	Less water consumption, less soil erosion	SP

[2] NS - 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

Key project activities	**Potential Environmental Effects**	**Significance of environmental effect with mitigation in place2**
➢ Use of fertilisers and chemicals • Application of fertilizers • Application of weedicides • Application of pesticides • Other Spray	Land, water an air contamination	NS
➢ Manual weed control	Solid waste generation	NS
➢ New and improved quality enhancing technologies • Introduction of water conserving and drip irrigation systems • Insect proof net • Polythene mulch	• No such harm, less use of water and Less contamination of agro-chemicals on Land, air and water • Less insect impact	SP
DURING CONSTRUCTION ACTIVITIES		
Material transportation and storage	Emission of dust, generation of noise and disturbance to community including farmers, and households	NS
Vegetation clearing	Clearing of vegetation will collect significant amount of waste which will lead to several environmental issues such as blockage of drainage, siltation of downstream, damage to habitats, spreading of invasive species etc.	NS
Construction of building	Emission of dust, generation of noise and disturbance to community including farmers, and households	NS
Collection activities	Solid waste generation from crop related value addition and machinery parts will lead minor environmental issues.	NS

11. EMP IMPLEMENTATION RESPONSIBILITIES AND COSTS

The overall responsibility of ensuring compliance with safeguard requirements lies with PMU while the contractor will be responsible for implementing the provisions of the EMP. In addition, the PMU will be directly responsible for reviewing the proposed design to ensure that all design-related mitigation measures mentioned herein are implemented with the support and supervision of the PMU. The overall supervision will be carried out by the in-house staff of the PMU supported by the Provincial Deputy Project Director who is responsible for the overall supervision of the proposed project. Any consequent design modification will be reflected in the project cost.

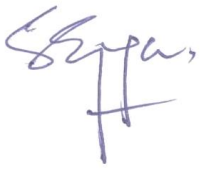
Environmental monitoring will be carried out largely through visual observations and compliance monitoring using the checklist provided in the EMF by the Provincial project engineer of the PMU and the contractor jointly. The Environmental and Social Safeguards Specialist will need to visit the site on a monthly or quarterly and report on issues and performance on EMP implementation to the PMU.

12. SCREENING DECISION RECOMMENDATION

The majority of the potential adverse effects can be classified as general cultivation-related impacts and construction related impact which can be mitigated on-site with proper engineering interventions. These potential construction impacts are temporary in nature. It is recommended to start the project work off-season for upland cultivation and avoid night-time work. However, it should be noted that EPL is not required for the collection centre as per the CEA direction since the collection centre does not have a grinding operation. This collection centre is more likely a collection centre with no grinding activities or processing activities. Implementation of the Environmental Management Plan is sufficient to mitigate the identified impacts.

It is recommended that if any groundwater wells are going to be established, obtain the Water Resources Board Yield test report and follow their recommendations before excavations.

13. DETAILS OF PERSONS RESPONSIBLE FOR THE ENVIRONMENTAL SCREENING

Screening conducted and reviewed by **D.M. Sanjaya Bandara** Environment and Social Safeguard Specialist Agriculture Sector Modernization Project Name/Designation/Contact information	**Date** **February 2022**  **Signature**
Screening report recommended by **Dr. Rohan Wijekoon** Project Director Agriculture Sector Modernization Project Name/Designation/Contact information	**Date** **February 2022**  **Signature**

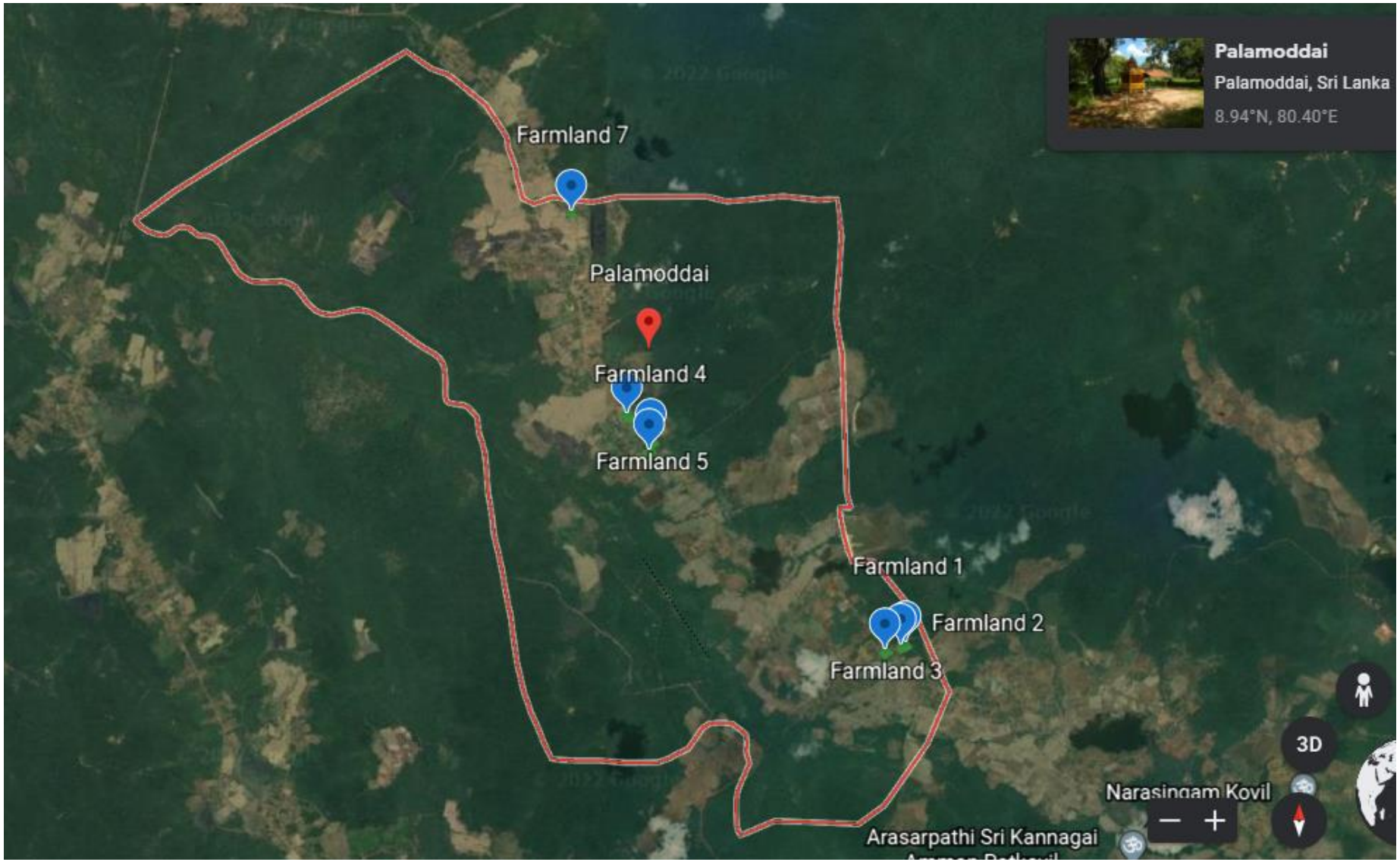
Annex 1: List of References

1) https://luppd.gov.lk/images/content_image/downloads/pdf/llrc_vavunia.pdf
2) https://unhabitat.lk/wp-content/uploads/2015/01/DRRVavuniya.pdf
3) https://biwta.portal.gov.bd/sites/default/files/files/biwta.portal.gov.bd/page/f3ca1ff6_95b0_4606_849f_2c0844e455bc/2020-10-01-11-04-ad9ef55c947057f54b4f4f76f5be54ff.pdf

Annex 2: Project locations

1) Location of collection, collection, and compost Yard

2) Random farmlands



Annex 3: Beneficiaries list

Area/GN Division: Kovilkunchukkulam/Palamoddai

SN	Name of the Farmer	Gender	NIC No	Residential Address	Contact No	Land Extent (ac)
1	Sureswaran Jasika	M	876363658V	Kovilkunchukkulam, Palamoddai, Omanthai		0.5
2	Thambirajah Venthan	M		Kovilkunchukkulam, Palamoddai, Omanthai		0.5
3	A Kamalraj	M	922074356V	Kovilkunchukkulam, Palamoddai, Omanthai		0.5
4	S Vickneswaran	M		Kovilkunchukkulam, Palamoddai, Omanthai	768570710	0.5
5	P Linganathan	M	195726000866	Kovilkunchukkulam, Palamoddai, Omanthai		0.5
6	S Rasapooranam	F	565851292V	Kovilkunchukkulam, Palamoddai, Omanthai	774676011	0.5
7	T Kathirgamanathan	M	812784625V	Kovilkunchukkulam, Palamoddai, Omanthai	760690741	0.5
8	A Thusiyanthini	F	916524250V	Kovilkunchukkulam, Palamoddai, Omanthai		0.5
9	A Pragash	M		Kovilkunchukkulam, Palamoddai, Omanthai		0.5
10	S Muththurasa	M	521863722V	Kovilkunchukkulam, Palamoddai, Omanthai	774153053	0.5
11	S Karalasingam	M	721784207V	Kovilkunchukkulam, Palamoddai, Omanthai	770299347	0.5
12	M Manoranjan	M	731094837V	Kovilkunchukkulam, Palamoddai, Omanthai	772770203	0.5
13	Selliah Vilvarasa	M	660111948V	Kovilkunchukkulam, Palamoddai, Omanthai	776066461	0.5
14	Nachchuthan Thayanithi	M	821837626V	Kovilkunchukkulam, Palamoddai, Omanthai	776792631	0.5
15	T Thanabalasingam	M	610412920V	Kovilkunchukkulam, Palamoddai, Omanthai	761314714	0.5
16	K Sivaneswaran	M	782776410V	Kovilkunchukkulam, Palamoddai, Omanthai	763193906	0.5
17	K Ganeshamoorthy	M	730904606V	Kovilkunchukkulam, Palamoddai, Omanthai	766643833	0.5
18	I Rasendran	M	753244026V	Kovilkunchukkulam, Palamoddai, Omanthai	766612504	0.5
19	R Arumainayagam	M	582414548V	Kovilkunchukkulam, Palamoddai, Omanthai	768369758	0.5
20	A Yogeswaran	M	810274972V	Kovilkunchukkulam, Palamoddai, Omanthai	773396719	0.5
21	S Kunanayagam	M	580581226V	Kovilkunchukkulam, Palamoddai, Omanthai	761123590	0.5
22	T Rajikumar	M	780084235V	Kovilkunchukkulam, Palamoddai, Omanthai	767670480	0.5
23	S Sritharan	M	197800505138	Kovilkunchukkulam, Palamoddai, Omanthai	773306201	0.5
24	S Srikanthan	M	197530403411	Kovilkunchukkulam, Palamoddai, Omanthai	772898751	0.5
25	N Rajanikanthan	M	830441875V	Kovilkunchukkulam, Palamoddai, Omanthai	770303350	0.5

26	P Shanmugarasa	M	197435503403	Kovilkunchukkulam, Palamoddai, Omanthai	772705169	0.5
27	M Thevathasan	M	803135568V	Kovilkunchukkulam, Palamoddai, Omanthai	773153053	0.5
28	A Gnaneswaran	M	783454238V	Kovilkunchukkulam, Palamoddai, Omanthai	773968865	0.5
29	A Ravichandran	M	721624021V	Kovilkunchukkulam, Palamoddai, Omanthai	766196965	0.5
30	S Suthakaran	M	800865417V	Kovilkunchukkulam, Palamoddai, Omanthai	777113518	0.5
31	S Shanthirasegaram	M	196618301583	Kovilkunchukkulam, Palamoddai, Omanthai	774731032	0.5
32	Sabaratnam Panchavarnam	M	6316738408V	Kovilkunchukkulam, Palamoddai, Omanthai	762363026	0.5
33	P Ananthabawan	M	197632604254	Kovilkunchukkulam, Palamoddai, Omanthai	778593002	0.5
34	K Thilakeswaran	M	199136504943	Kovilkunchukkulam, Palamoddai, Omanthai	766484143	0.5
35	R Sivakumaran	M	198014805014	Kovilkunchukkulam, Palamoddai, Omanthai	772163177	0.5
36	S Sinnarasa	M	721702995V	Kovilkunchukkulam, Palamoddai, Omanthai	774534326	0.5
37	S Ajanthan	M	790143540V	Kovilkunchukkulam, Palamoddai, Omanthai	771007249	0.5
38	Nadarajah Selvarasa	M	590752290V	Kovilkunchukkulam, Palamoddai, Omanthai		0.5
39	Kanagalingam Sribaskaran	M		Kovilkunchukkulam, Palamoddai, Omanthai		0.5
40	Arunasalam Shanthirasekaram	M	195705600154	Kovilkunchukkulam, Palamoddai, Omanthai	779742219	0.5
41	Kunalingam Perinpam	M	197118204030	Kovilkunchukkulam, Palamoddai, Omanthai	777350179	0.5
42	S Srinivasan	M	672962862V	Kovilkunchukkulam, Palamoddai, Omanthai	772472012	0.5
43	Markanndu Sivakumar	M	662621854V	Kovilkunchukkulam, Palamoddai, Omanthai		0.5
44	M Ganesh	M	696334366V	Kovilkunchukkulam, Palamoddai, Omanthai	772403851	0.5
45	K Thushiyanthan	M	920084184V	Kovilkunchukkulam, Palamoddai, Omanthai	772403851	0.5
46	K Yuvendran	M	920084184V	Kovilkunchukkulam, Palamoddai, Omanthai	772403851	0.5
47	Rasasegaram Suloshan	M	983071465V	Kovilkunchukkulam, Palamoddai, Omanthai	767969134	0.5
48	S Thanalogini	F	818604912V	Kovilkunchukkulam, Palamoddai, Omanthai	768094984	0.5
49	S Sivasanthakumar	M	882262308V	Kovilkunchukkulam, Palamoddai, Omanthai	779478758	0.5
50	R Santhiradevi	F	628455767V	Kovilkunchukkulam, Palamoddai, Omanthai	771468519	0.5
51	Visuvalingam Eswaran	M	197528504092	Kovilkunchukkulam, Palamoddai, Omanthai	779147859	0.5
52	Sriganeshathasan Vijiyaluxmi	F	745344291V	Kovilkunchukkulam, Palamoddai, Omanthai	770529987	0.5
53	Subramaniam Chitradevanayaki	F	736134199V	Kovilkunchukkulam, Palamoddai, Omanthai	778584329	0.5
54	Subramaniam Suntharamoorthi	M	530643230V	Kovilkunchukkulam, Palamoddai, Omanthai	775455989	0.5

55	T Sivaneshwari	F	803505551V	Kovilkunchukkulam, Palamoddai, Omanthai	772819354	0.5
56	Theiventhiran Vithushan	M	200035202810	Kovilkunchukkulam, Palamoddai, Omanthai	764063973	0.5
57	Nagalingam Rajeswari	F	196264110157	Kovilkunchukkulam, Palamoddai, Omanthai	760690741	0.5
58	Markanndu Vijeyanathan	M	197157803991	Kovilkunchukkulam, Palamoddai, Omanthai	774534326	0.5
59	K Ithayaranjini	F		Kovilkunchukkulam, Palamoddai, Omanthai		0.5
60	K Manoharan	M		Kovilkunchukkulam, Palamoddai, Omanthai		0.5
61	Krisnarubi	F		Kovilkunchukkulam, Palamoddai, Omanthai		0.5
62	Panchavarnam Satheeswaran	M		Kovilkunchukkulam, Palamoddai, Omanthai	764818763	0.5

Area/GN Division: Madaththuvilankulam/Palamoddai

SN	Name of the Farmer	Gender	NIC No	Residential Address	Contact No	Land Extent (ac)
1	K Sujeevan	M	891961340V	Madathuvilankulam, Palamoddai, Omanthai	767890605	0.5
2	A Mahendran	M	592660776V	Madathuvilankulam, Palamoddai, Omanthai	773230300	0.5
3	T Yasotharan	M	851994469V	Madathuvilankulam, Palamoddai, Omanthai	762739532	0.5
4	S Kirushanthan	M	981423275V	Madathuvilankulam, Palamoddai, Omanthai	762568533	0.5
5	S Eswaran	M	712591771V	Madathuvilankulam, Palamoddai, Omanthai	775127485	0.5
6	S Banugopan	M		Madathuvilankulam, Palamoddai, Omanthai	763155703	0.5
7	V Kumaravel	M	19692804320	Madathuvilankulam, Palamoddai, Omanthai	773445767	0.5
8	S Rasakumaran	M		Madathuvilankulam, Palamoddai, Omanthai		0.5
9	E Mithushan	M	991160633V	Madathuvilankulam, Palamoddai, Omanthai	766463921	0.5
10	K Kokila	F	19825490335	Madathuvilankulam, Palamoddai, Omanthai	773023196	0.5
11	P Thanushan	M	960181751V	Madathuvilankulam, Palamoddai, Omanthai	762727586	0.5
12	K Vekavanam	M	680902860V	Madathuvilankulam, Palamoddai, Omanthai	778648531	0.5
13	P Vasanthakumari	M	19705060130	Madathuvilankulam, Palamoddai, Omanthai	764540425	0.5
14	V Vijitharan	M	963250223V	Madathuvilankulam, Palamoddai, Omanthai	771783373	0.5
15	K Ananthan	M	772924336V	Madathuvilankulam, Palamoddai, Omanthai	768416023	0.5
16	V Sujinthan	M	983400477V	Madathuvilankulam, Palamoddai, Omanthai	779151675	0.5
17	S Vipulakumar	M	903282231V	Madathuvilankulam, Palamoddai, Omanthai	775959250	0.5

18	K Vijeyakumar	M	782813462V	Madathuvilankulam, Palamoddai, Omanthai	775781426	0.5
19	K Sinnaiya	M	721433585V	Madathuvilankulam, Palamoddai, Omanthai	771147654	0.5
20	K Kulanathan	M	553473187V	Madathuvilankulam, Palamoddai, Omanthai	767890605	0.5
21	A Dilakshan (Leelawathi)	M	991150803V	Madathuvilankulam, Palamoddai, Omanthai	778062852	0.5
22	Rasathurai Nishanthan	M	862453585V	Madathuvilankulam, Palamoddai, Omanthai	765252519	0.5
23	Sriskantharajah Kiruban	M	951412945V	Madathuvilankulam, Palamoddai, Omanthai	779426986	0.5
24	Thambirajah Navarathinam	M	601093871V	Madathuvilankulam, Palamoddai, Omanthai	761525286	0.5
25	Markandar Sriskantharajah	M	196725403843	Madathuvilankulam, Palamoddai, Omanthai	765209199	0.5
26	T Srikaran	M	690463822V	Madathuvilankulam, Palamoddai, Omanthai	776368731	0.5
27	T Sukumar	M		Madathuvilankulam, Palamoddai, Omanthai		0.5
28	T Vijayathas	M		Madathuvilankulam, Palamoddai, Omanthai		0.5
29	K Pakeetharan	M		Madathuvilankulam, Palamoddai, Omanthai		0.5
30	A Senthoornayagam	M		Madathuvilankulam, Palamoddai, Omanthai		0.5
31	S Thabotharan	M		Madathuvilankulam, Palamoddai, Omanthai		0.5
32	S Selvalingam	M		Madathuvilankulam, Palamoddai, Omanthai		0.5
33	S Sivaseelan	M		Madathuvilankulam, Palamoddai, Omanthai	761060295	0.5
34	A Kunabalasingam	M		Madathuvilankulam, Palamoddai, Omanthai		0.5
35	K Thujeepa	F	811943363V	Madathuvilankulam, Palamoddai, Omanthai	775014932	0.5
36	Veluppillai Sivakanthan	M				0.5
37	P Maharajah	M				0.5

Area/GN Division: Navvi & Uralkulam/Palamoddai

SN	Name of the Farmer	Gender	NIC No	Residential Address	Contact No	Land Extent (ac)
1	M Manokaran	M		Navvi, Palamoddai, Omanthai	775723139	0.5
2	K Sivashanthakumar	M		Navvi, Palamoddai, Omanthai	779478758	0.5
3	T Ajeenkaran	M	941270468V	Navvi, Palamoddai, Omanthai	770386366	0.5
4	A Kirubakaran	M	623483380V	Navvi, Palamoddai, Omanthai		0.5

5	N Ragini	F	727845097V	Navvi, Palamoddai, Omanthai		0.5
6	R Kalaichelvi	F	777973378V	Navvi, Palamoddai, Omanthai	777171827	0.5
7	K Sathiyabama	F	688644577V	Navvi, Palamoddai, Omanthai	762272435	0.5
8	V Pratheepan	M		Navvi, Palamoddai, Omanthai	740097641	0.5
9	A Kubendran	M	771973833	Navvi, Palamoddai, Omanthai	773047220	0.5
10	R Mohanadas	M	971643080V	Navvi, Palamoddai, Omanthai	773717616	0.5
11	L Ganthidevan	M	962232760V	Navvi, Palamoddai, Omanthai	768882123	0.5
12	R Niranjini	F		Navvi, Palamoddai, Omanthai	775119371	0.5
13	S Rasathurai	M	722223837V	Navvi, Palamoddai, Omanthai	773717616	0.5
14	S Muthukumar	M	753414258V	Navvi, Palamoddai, Omanthai	771323135	0.5
15	J Giriharan	M	940832632V	Navvi, Palamoddai, Omanthai	775630235	0.5
16	R Panchalingam	M	640552662V		776960115	0.5
17	V Mahadevan	M	601153580V		772434963	0.5
18	K Pushparani			Navvi, Palamoddai, Omanthai		0.5
19	M Thamendran	M		Navvi, Palamoddai, Omanthai	769271785	0.5
20	M Premanath	M		Navvi, Palamoddai, Omanthai	760423927	0.5
21	M Nadaraja	M	783534711V	Navvi, Palamoddai, Omanthai	774775647	0.5
22	l Kasthoori	F	200272400904	Navvi, Palamoddai, Omanthai	779455748	0.5
23	S Malini	F	746613474V	Navvi, Palamoddai, Omanthai	779654011	0.5
24	S Vijenthini	F	198284201247	Navvi, Palamoddai, Omanthai	770346951	0.5
25	M Sasikaran	M		Navvi, Palamoddai, Omanthai		0.5
26	Vickneswari Rajeswaran	F	767154668V	Navvi, Palamoddai, Omanthai	772579912	0.5
27	S Krishnajothi	F	885906729V	Uralkualam, Palamoddai, Omanthai	769011653	0.5
28	V Navatheesan	M	197820804291	Uralkualam, Palamoddai, Omanthai	776992600	0.5
29	S Selvasothi	F	770814499V	Uralkualam, Palamoddai, Omanthai	774155707	0.5
30	E Thavakulasingam	M	812024906V	Uralkualam, Palamoddai, Omanthai	775414704	0.5
31	V Velayutham	M	195726310075	Uralkualam, Palamoddai, Omanthai	771123061	0.5
32	E Umaramanan	M	860832356V	Uralkualam, Palamoddai, Omanthai	761810758	0.5
33	N Sujendra	M	798345028V	Uralkualam, Palamoddai, Omanthai	773047220	0.5

Area/GN Division: Kathilavelar Poovarasankulam/Maruthamadu

SN	Name of the Farmer	Gender	NIC No	Residential Address	Contact No	Land Extent (ac)
1	S Vasuki	F	697413740V	Poovarasankulam, Maruthamadu, Omanthai	774586576	0.5
2	S Tharmarani	F	736771802V	Moondrumurippu Rd, Maruthamadu, Omanthai	770676264	0.5
3	T Krishnaruban	M	720444127V	Moondrumurippu Rd, Maruthamadu, Omanthai	773825869	0.5
4	T Sivaneshalingam	M		Poovarasankulam, Maruthamadu, Omanthai	773862920	0.5
5	M Jeevarani	F		Poovarasankulam, Maruthamadu, Omanthai		0.5
6	P Balajeyanthan	M	803424144V	Poovarasankulam, Maruthamadu, Omanthai	769701277	0.5
7	R Satkunam	M	640473649V	Poovarasankulam, Maruthamadu, Omanthai	774512621	0.5
8	S Puvanendrarajah	M	633112223V	Poovarasankulam, Maruthamadu, Omanthai	776143612	0.5
9	K Sritharan	M	610402968V	Poovarasankulam, Maruthamadu, Omanthai	764353711	0.5
10	S Koneshwaranathan	M	660904069V	Poovarasankulam, Maruthamadu, Omanthai	776967572	0.5
11	S Theivendrampillai	M	551052109V	Poovarasankulam, Maruthamadu, Omanthai	7704865931	0.5
12	V Sivasubramamiam	M	420552785V	Moondrumurippu Rd, Maruthamadu, Omanthai	776143682	0.5
13	S Sivarajan	M	705771319V	Moondrumurippu Rd, Maruthamadu, Omanthai	776014948	0.5
14	T Thiviya	F	200061104895	Poovarasankulam, Maruthamadu, Omanthai	741996932	0.5
15	M Nirushan (M Parameshwari & Vuvaneshwari)	M&F	200011200269	Moondrumurippu Rd, Maruthamadu, Omanthai	778022877/ 766611988	0.5
16	K Shanthiraverni	F	198569904503	Moondrumurippu Rd, Maruthamadu, Omanthai	776660819	0.5
17	G Gnanaseelan	M	197326303952	Poovarasankulam, Maruthamadu, Omanthai	779969125	0.5
18	Nimalaraj Subashini	F	837994764V	Moondrumurippu Rd, Maruthamadu, Omanthai	762157882	0.5
19	N Thiyagarajah	M		Poovarasankulam, Maruthamadu, Omanthai		0.5
20	Sriranganathan	M	610402968V	Poovarasankulam, Maruthamadu, Omanthai	776143682	0.5
21	K Thiviya	F		Poovarasankulam, Maruthamadu, Omanthai		0.5
22	Road Verakkal Proposed Road	M		Poovarasankulam, Maruthamadu, Omanthai		0.5
23	Gnanakulasingam	M		Poovarasankulam, Maruthamadu, Omanthai		0.5

Area/GN Division: Matharpanikkar Mahilankulam/Maruthamadu

SN	Name of the Farmer	Gender	NIC No	Residential Address	Contact No	Land Extent (ac)
1	M Balasingam	M	692844556V	Matharpanikkar Makilankulam, Maruthamadu, Omanthai	776612818	0.5
2	P Thiyakaran	M	991610820V	Matharpanikkar Makilankulam, Maruthamadu, Omanthai	776612818	0.5
3	P Suseelan	M	951733075V	Matharpanikkar Makilankulam, Maruthamadu, Omanthai	771890551	0.5
4	R Paviththiran	M	200132301538	Matharpanikkar Makilankulam, Maruthamadu, Omanthai	769847239	0.5
5	A Sivikaran	M	952953354V	Matharpanikkar Makilankulam, Maruthamadu, Omanthai	764141661	0.5
6	S Sivashankar (RDS Chairman)	M	900754639V	Matharpanikkar Makilankulam, Maruthamadu, Omanthai	774259388	0.5
7	K Kugan	M		Matharpanikkar Makilankulam, Maruthamadu, Omanthai		0.5
8	N Sivasithamparam	M		Matharpanikkar Makilankulam, Maruthamadu, Omanthai		0.5
9	S Mayooran	M		Matharpanikkar Makilankulam, Maruthamadu, Omanthai		0.5
10	Navaratnam Jeyendran	M		Matharpanikkar Makilankulam, Maruthamadu, Omanthai		0.5
11	T Shanrthiravathan	M	891382839V	Matharpanikkar Makilankulam, Maruthamadu, Omanthai	779680558	0.5
12	K Shanthiravathanan	M	980190056V	Matharpanikkar Makilankulam, Maruthamadu, Omanthai	779492305	0.5
13	T Prasanth	M	199618410034	Matharpanikkar Makilankulam, Maruthamadu, Omanthai		0.5
14	T Selvarani	F		Matharpanikkar Makilankulam, Maruthamadu, Omanthai		0.5
15	K Rasendram	M	761836412V	Matharpanikkar Makilankulam, Maruthamadu, Omanthai	773982206	0.5

16	N Viloshan	M		Matharpanikkar Makilankulam, Maruthamadu, Omanthai		0.5
17	K Sivalingam & Jeyanthi	M&F	562283678V	Matharpanikkar Makilankulam, Maruthamadu, Omanthai	779237741	0.5
18	K Paviththiran	M		Matharpanikkar Makilankulam, Maruthamadu, Omanthai		0.5
19	K Marmajogi	M	197673203107	Matharpanikkar Makilankulam, Maruthamadu, Omanthai	763622896	0.5
20	K Manikkalingam	M	692932463V	Matharpanikkar Makilankulam, Maruthamadu, Omanthai		0.5
21	Balasingam Thiyakaran	M		Matharpanikkar Makilankulam, Maruthamadu, Omanthai		0.5
22	Suseelan Sivaloganathan	M	722543599V	Matharpanikkar Makilankulam, Maruthamadu, Omanthai	776033499	0.5
23	R Pathmanathan	M		Matharpanikkar Makilankulam, Maruthamadu, Omanthai		0.5
24	Poomakal	F	197173402143	Matharpanikkar Makilankulam, Maruthamadu, Omanthai	774161763	0.5
25	P Tharani	F	978600166V	Matharpanikkar Makilankulam, Maruthamadu, Omanthai	766612585	0.5
26	Sivagnanam Sivanathan	M		Matharpanikkar Makilankulam, Maruthamadu, Omanthai	770291475	0.5
27	Thanabalasingam Jeyanthi	F	656141140V	Matharpanikkar Makilankulam, Maruthamadu, Omanthai	768062466	0.5
28	Gnanasekaram Gnanachandran	M		Matharpanikkar Makilankulam, Maruthamadu, Omanthai		0.5