


Sri Lanka Agriculture Sector Modernisation Project (ASMP)

ENVIRONMENTAL SCREENING REPORT

FOR

CDP № 1 - ANURADHAPURA (RAJANGANAYA) - SMALL BANANA (AMBUL)

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

Revised: 21 May 2022

FCG

NEW ZEALAND G2G KNOW-HOW

InfotechsIDEAS

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TABLE OF ABBREVIATIONS

ADA	Assistant Director of Agriculture
ADO	Agricultural Development Officer
AI	Agriculture Instructor
AQI	Air Quality Index
ARPA	Agriculture Research and Production Assistant
ASMP	Agriculture Sector Modernisation Project
ATDP	Agriculture Technology Demonstration Parks
BS	British Standards
CDP	Cluster Development Plan
CEA	Central Environmental Authority
DOA	Department of Agriculture
DS	Divisional Secretary
EMP	Environmental Management Plan
EMS	Environmental Method Statement
EPL	Environmental Protection Licence
FPO	Farmer Producer Organisation
GAP	Good Agricultural Practices
IPM	Integrated pest management
IPNS	Integrated Plant Nutrition System
ISP	International Service Provider
IUCN	International Union for Conservation of Nature
LA	Local authority
MoD	Ministry of Défense
MOP	Muriate of Potash
O&M	Operation and maintenance
OFC	Other farm crops
PCR	Physical cultural resources
PMC	Project Management Committee
PMP	Pest management plan
PMU	Project Management Unit
RDA	Road Development Authority
RPM	Residential Project Manager
SMP	Social Management Plan
WQI	Water Quality Index

ASMP

ENVIRONMENTAL SCREENING REPORT

1. PROJECT IDENTIFICATION

Project title	Introduction of Improved Technologies to enhance the quality and productivity of banana in Anuradhapura District
Project Proponent	Project Management unit, ASMP, Ministry of Agriculture

2. PROJECT LOCATION

Location **(Relative to the nearest town, highway)**	The ASMP and Department of Agriculture (DOA) have identified the farmers from Tracts 1-5 in Rajanganaya Irrigation Scheme right bank, with more than 727 banana farmers cultivating 260 ha in parcels of about 0.4 ha in area. Rajanganaya banana cluster scattered across 5 Tracts starting from Tract 1 to 5 and it includes 442, 443, 444, 445, 446 and 447 GN divisions. Rajanganaya Divisional Secretary (DS) Division is located in Anuradhapura District. It is boarded to Nochchiyagama and Thambuttegama DS divisions and Kurunegala district. The closest market and the town of the selected farmers is Thambuttegama and the closest farmland is around 9 km away from the Thambuttegama town (A28). Similarly, Rajanganaya is accessible via Kalaoya Junction on A12 Anuradhapura-Puttalam Road and there are about 11km to Rajanganaya. Selected farmer lands are shown in figure 1 (Refer Annex 4 for detailed maps). ***Figure 1**: **Selected farmlands*** 
Definition of project area **(The geographical extent of the project & areas affected during construction)**	The beneficiaries have been identified (refer Annexure 2) for the cluster project from five (5) tracts in Rajanganaya Irrigation Scheme of Anuradhapura District covering 6 GN divisions. The 2021 annual n forecast for the cluster is 187 ha (462 acres). This is expected to increase to 384 ha (950) acres for the year of 2023 and these lands will be selected based on the availability across the Tracts 1-5. Few selected farmlands are shown in Figure 1 and it will increase with the time. A total of 50 technology new plantings, 0.4 ha (approx. 1 acre) each in area, will be established for bananas in Rajanganaya. There will be 10 demonstration plots per Track in Tracks 1 to 5. Since the farmers in this cluster use a rotation system with bananas for 5 years, followed

by two crops of paddy rice, technology demonstration plots for bananas will be established as soon as land becomes available. Hence, it is not practical to identify the demonstration plots in advance.

Table 1: Information on Banana Cluster in five Tracts of Rajanganaya Right Bank

Tract	Existing extent under bananas above 0.2 ha (½ acre)	Number of banana farmers having above 0.2 ha (½ acre)	% of banana farmers	% of banana extent
1	32 ha (80 acre)	110	90	33
2	54 ha (133 acre)	175	73	29
3	19 ha (46 acre)	70	49	16
4	93 ha (230 acre)	162	74	45
5	62 ha (153 acre)	210	70	31
Total	**260 ha (642 acre)**	**727**	**71**	**30**

Source: Resource profile, Rajanganaya Divisional Secretariat

Table 2: Extent of Rural roads improvement

Track location	Length (m)
Tract 1	3,247
Tract 2	2,983
Tract 3	3,633
Tract 4	6,058
Tract 5	5,679
Total	**21,600**

Proposed roads for the rehabilitation are lying along the irrigation canals, regular maintenance is done by the Farmer Organization as per the guidance of Department of Irrigation. Only the rehabilitation of existing roads will be included, and total length of the selected roads is around 21 km. Existing 3 field canals will be improved including concrene lining. No new constructions are proposed. Further, renovation of collection centre activities will be taken place. Proposed project will not clear new lands for the banana cultivation and only existing farmlands will be used.

Adjacent land and features

Farmers in Rajanganaya belongs to small and medium farmer groups with less than 2 ha of land. The land area that is being used for banana cultivation is on average 0.8 ha. Though there are about 727 farmers in Rajanganaya tracts 1 to 5. From each tract, 50-60 leading farmers will be selected who have existing plantations and have suitable locations for ensuring maximum exposure to large number of farmers. The selected far lands are scattered across five Tracts covering six GN divisions. Paddy cultivation is established in the selected area, but later people converted many paddy lands into banana cultivations due to high income through banana and most of the selected farmlands are surrounded by the paddy lands and banana cultivated lands. Convertion of paddy lands to Banana is being done of more than 15 years with the consent District Administration.

Further, vegetable and fruit cultivation are also very prominent in surrounding farmlands. Figure 2 given below shows the tanks/water catchments available in the surrounding area. Angamuwa tank is situated in north east in the selected area and

	the closest farm land is around 1.4 km away from the tank. Further, Rajanganaya reservoir is in south east of the proposed project area and the closest farm land is around 500 m away from the reservoir. However, all these lands are low elevated than the tanks/reservoirs. No any other environmental or socio-economic sensitive areas are found near to the selected area. The closest marketplace for banana farmers in the areas is the "Thambuththegama" wholesale market. The identified are consists of large and medium scale commercial cultivation lands observed. It included coconut, green chili, vegetable, fruit, etc. Further, good dairy/livestock industry observed.

3. PROJECT JUSTIFICATION

Need for the project **(What problem is the project going to solve)**	This crop was introduced by the DOA as a pilot project in selected area and it was a good alternative crops for farmers to get maximum output from their uplands. Conversion paddy lands to banana was mainly due to easy management and high return of banana when compared to paddy and other farm crops (OFCs). The existing conversion done by the farmers are with the concent of District Administration including District Secretary, Divisional Secretary, District Agriculture Department, Department of Irrigation and Farmer Organizations in the area during planning for every Season (Kanna Resweem). However, ISP/ASMP is not supporting for any conversion of paddy lands into other crops. Therefore, this project will not be triggered as a negative list project. After establishment of plantations, expenditure on banana cultivation is low and farmers are able to receive continuous income from their plantations. Banana is grown rainfed with supplementary irrigation whenever necessary. In general, farmers are using flood irrigation methods in banana cultivation where high amount of water will be used. Though there are three main banana varieties grown in the district such as Ambul, Seeni and Kolikuttu, Ambul is the most common banana variety grown in Rajanganaya due to its tolerant to Panama disease when compared to Kolokuttu and Seeni. The proposed project is designed as a model for primary value addition, collecting centre and productivity enhancement by using new technology with sprinkler irrigation and construction of collecting centre. New cultivation of banana land is going to be selected for sprinkler irrigation systems to reduce water issues in some areas and value addition activities will implemented for existing orchard in cluster area. This sprinkler irrigation system will be powered by renewable energy through the solar panel system, and it will reduce the energy cost. Agriculture Technology Demonstration Parks (ATDPs) will support farmers to: (a) develop professional producer associations; (b) achieve economies of scale in production and exports; (c) improve marketing and value addition; and (d) achieve greater efficiency in the provision of technical and other support services. Farmers are expected to directly benefit through improved production capacity and input supply/management, better and more efficient technologies for production and postharvest, improved market linkages as well as opportunities for value addition. Furthermore, farmers would benefit from capacity building through farmer business and marketing training. The business opportunity identified with farmers and agribusiness is the modernisation of existing and renewed plantation of Ambul banana, for export to the Middle East.
Purpose of the project	A total of 50 technology demonstration plots will be established for bananas in Rajanganaya. There will be 10 demonstration plots per Track in Tracks 1 to 5. Though

(What is going to be achieved by carrying out the project)	there are 727 farmers in Rajanganaya Track 1-5, at the initial stage from each track 50-60 number of leading farmers will be selected with existing plantations in most suitable locations with maximum exposure to large number of farmers in each tract. The technology package and other management practices will be introduced to the selected group. This group will provide the foundation to initiate quick marketing of high-quality banana for export market. The main objective of the subproject is to develop Agriculture-related livelihood by achieving below objectives. • To introduce new technologies to increase yield • Land preparation • Water conservation/Management • Disease control • Use of weedicides, pesticides • Enhancement of productivity and Quality of banana • To minimise postharvest losses • To increases sustainable farm income • Create new employment opportunities • Identify international market opportunities • Postharvest processing facilities The famers who are engaging with farming activities in the project's intervention area will follow the Good Agricultural Practices (GAP) introduced by the DOA. ASMP will facilitate to implement GAP by introducing new technologies and enhancing farmers' capacities
Project Justification and Alternatives considered **(Different ways to meet the project need and achieve the project purpose)**	The Department of Agriculture, Anuradhapura proposed Rajanganaya as a Banana Cluster to be established. Rajanganaya has a well-established farmer organisation already and production of small Ambul banana available immediately. Following concerns were focused during selection of Banana Cluster in Rajanganaya. • Great potential to increase farmer income with less labour and inputs. • Ability to save water in the reservoir for next seasonal cultivation and minimise water crisis during Yala season. • Effective mechanism to attract young farmers for commercial agriculture. • Almost all the banana farmers have kept smaller part of their land for paddy crop for domestic consumption. • All the banana farmers are members of farmer organisations or successors • Requirement for disturbing new lands are not triggered as existing cultivation will be sufficiento to upgrade • Ability to cater the continuous supply of Banana to export market • Soil characteristics such as pH, water holding capacity, electrical conductivity and organic matter contents favours banana cultivation in Rajanganaya There are experienced banana farmers and 70% of farmers of Rajanganaya rely on banana for livelihood. Most of the farmers have large scale, low flat farmer-based lands with plenty of water with less drainage concerns. Since it consists with already established farmlands, no clearance of new lands are required and anticipated site specific negative environmental impacts are found. Hence, the selected area is highly supportive to meet the project needs within short period of time without negative environmental impacts. On-farm technology package with control/prevention of Panama Disease and the Banana Bunchy Top Virus to be introduced. Further, crop management by fruit age control using coloured ribbons, oriented to export will be used. New and improved quality enhancing technologies and Productivity Enhancing Technologies such as

drone technology, water conserving and low pressure drip and mini sprinkler irrigation systems, basic flood prevention and drainage field techniques, new planting patterns with high population densities, precision fertilisation techniques, pest and disease control based on integrated pest management (IPM) practices and modern spray techniques and precision agriculture practices to be introduced to meet the expected project out comes. All these technological applications will prevent excess use of water, and also it will reduce the impact cause by the use of chemical fertilizers. Hence, technological applications of the proposed project will reduced the existing environmental impacts.

The "no-action" alternative would mean that no Banana Cluster Development undertake by the ASMP and hence no financial, technical and market support for the existing banana Cultivators in Rajanganaya Tract 1-5. 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 Anuradhapura. It will also continue the same agricultural practices and existing environmental impacts such as high water usage, use of chemical fertilizers will be continued.

Legal framework and WB Safeguards Policies

According to the nature of project activities, following local legal framework and WB safeguards policies will be applicable:

#	Permit/Clearance	YES	NO	TBD	Remarks
1	The National Environmental Act. No. 47 of 1980 & its amendments		√		None of the proposed activities are coming under prescribed activities
2	Agrarian Development Act of No 46 of 2000 and 2011 (Section 32)	√			Even though ASMP not supporting to convert paddy lands, the cluster lands selected area paddy converted to Banana with approval of relavent authorities.
3	The Mines and Mineral Act No.33 of 1992	√			Improvements of rural roads and other proposed infrastructure activities may require extraction of soil and rocks. Soil and rocks should be purchased from GSMB permitted borrow pits and quarries.
4	Local Authorities Acts	√			Improvements of rural roads, waste disposal should be approved by the Rajanganaya Pradeshiya Sabha.
5	Water Resources Board Act No. 29 of 1964	√			Extraction of ground water should be concented by the WRB
6	The Irrigation Ordinance (Chapter 453)	√			Use of water from Rajanganaya should be with the approval of Irrigation Department

	7	Soil Conservation (Amendment)Act No. 24 of 1996	√			Any activity which increases the erosion of soil or potentials for activate erosion potential need to take maximum mitigation measures to control soil erosion and apply soil conservation measures wherever applicable
	8	The Fauna & Flora Protection Ordinance Act No. 49 of 1993 & its amendments	√			Any cluster activity or infrastructure development closer to a protected area or outside which hinders wildlife movements restrictions should be adhered to FFPO measures

World Bank safeguards policies triggered by the project

Safeguard Policies Triggered by the Project	**Yes**	**No**
Environmental Assessment (OP/BP/GP 4.01)	[**x**]	[]
Natural Habitats (OP/BP 4.04)	[]	[**x**]
Pest Management (OP 4.09)	[x]	[]
Physical Cultural Resources(OP 4.11)	[]	[**x**]
Involuntary Resettlement (OP/BP 4.12)	[]	[**x**]
Indigenous Peoples (OD 4.20, being revised as OP 4.10)	[]	[x]
Forests(OP/BP 4.36)	[]	[x]
Safety of Dams (OP/BP4.37)	[]	[x]
Projects on International Waterways (OP/BP/GP 7.50)	[]	[x]

4. PROJECT DESCRIPTION

Proposed start date	December 2020
Proposed completion date	December 2023
Estimated total cost	LKR 244 million excluding LKR 40 million allocated for postharvest production centres
Present land ownership	Private Farmlands, Lands with 'Swarnabhoomi', deed and permits given by Divisional Secretariat of Rajanganaya
Description of the project **(With supporting material such as maps, drawings etc attached as required)**	Though there are about 727 farmers in Rajanganaya Tract 1-5, at the initial stage from each tract 50-60 number of leading farmers will be selected with existing plantations in most suitable locations with maximum exposure to large number of farmers in each tract project is keenly looking to get on board at least 35% of female representation for the project. The technology package and other management practices will be introduced to the selected group. This group will provide the foundation to initiate quick marketing of high quality banana for export market. The selection of such farmers will be carried out with the participation of farmer organisations of the area, agriculture instructor, agriculture research and production assistant, agriculture scientist of PPMU, ISP consultants, etc. The selected farmers should be capable of supplying in the initial stage required quality and quantities

consistently ship a banana 40ft container per week. Their fields will be used as demonstration plots for gradual expansion for other farmers in each tract. In addition, selected farmers will be used as trainers for new comers to disseminate new technologies and management practices introduced by ISP. Demonstration plots will serve as practical learning sites for new farmers of the area.

Table 3: New and improved quality enhancing technologies

Activity	Sub Activity
Introduction of coloured plastic ribbons to fix the age of the fruit and to develop and manage true fruit inventories 13 weeks before harvest that will improve marketing and selling practices to maximise pricing for farmers	
Introduction of field bunch caring practices to protect the bananas from damage	Bunch clearing, de-flowering, de-handing, de-leafing, de-budding, bagging, propping and guying
Harvesting by de-handing at the mat and bringing hands only to packing centres	Fish line de-handing, de-latexing in the field, disposal of organic waste in the plantation, prolonging the usefulness of the mother plant
Introduction of improved Postharvest technology to obtain optimum export quality	Field heat removal
	Line packing technology
	Cold chain management
	Integration of export protocols into standard SOP's
Establishment of a quality monitoring and evaluation system that provides feedback mechanisms to ensure and maintain high bananas quality throughout the supply chain	Quality score
	Defects' tally
	Feedback loop

Table 4: Improved technology package

Activity	Sub Activity
Introduction of drone technology	Geo-positioning
	Land surveys for site selection
	Levelling for land preparation and drainage
	Disease surveys using infra-red photography
	Application of pesticides
	Precision agriculture
Introduction of water conserving and low pressure drip and mini-sprinkler irrigation systems	Computer controlled heads for water application scheduling supported by fertility sensors, soil moisture sensors and irrigation friendly double row planting
	Precision fertigation with liquid organic compounds
	Precision application of liquid pesticides
	Anti-clogging flushing components
Introduction of basic flood prevention and drainage field techniques	Site levelling using drone surveying and laser levelling machinery
	Quick water evacuation ditches
	Surface drainage techniques (removal of wet spots)
Introduction of new planting patterns with high population densities	Hexagon and equilateral triangle patterns
	Double row planting pattern suitable for multiple cropping
Introduction of precision fertilisation techniques	Formulation of fertiliser regimes based on complete soil tests and foliar analysis
Pest and disease control based on IPM practices and modern spray techniques	Pest population and pest damage surveys to assess pest threshold status for application of pesticides
	Prevention and management of Fusarium wilt (Panama disease)

	Control of Sigatoka disease and other pre and postharvest diseases
Introduction of precision agriculture practices	Introduction of blocking and tree tagging systems to develop tree identification nomenclature to allow agricultural precision practices

Table 5: Farm access roads – summary of lengths of road identified for repair

LOCATION	TOTAL LENGTH (m)
TRACT 1	
FC 4	1,310
FC 5	333
FC 9	1,444
FC 13	160
Total	**3,247**
TRACT 2	
FC 1	508
FC 2	321
FC 5	111
FC 8	278
FC 16	909
FC 24	856
Total	**2,983**
TRACT 3	
FC 1	308
FC 5	160
FC 7	214
FC 8	347
FC 9	214
FC 11	385
FC 14	406
FC 15	417
FC 16	620
FC 18	113
FC 22	449
Total	**3,633**
TRACT 4	
FC 3	866
FC 4	1,954
FC 5	1,198
FC 6	1,112
D	500
FC 13	428
Total	**6,058**
TRACT 5	
FC 1	432
FC 2 +3	610
FC 4	492
FC 5	363
FC 6	481
FC 20	920
FC 22	909
FC 24 + D2	1,472
Total	**5,679**

Table 6: Summary of Project Interventions in the Cluster

#	Project component	Key Activities	Approx. extent / quantity	Implementation responsibility
1	Cultivation of Banana (Refer table 3 and 4)	Land Preparation Irrigation pipelaying Installation of mini-sprinklers	260ha	ISP PPMU
2	Improvements of Rural Roads (Rehabilitation) (Refer table 5)	Trimming, levelling and compaction of sub grade Supplying and pilling approved gravel Spreading and compaction garvel	35 road sections Total length 21km	Contractor LAs Civil Engineer –ISP PPMU Engineer - PMU
3	Canal rehabilitation (concrete lining) D canal in Track - 1 RB BC FC 10 canal @ 0 - 525 in Track - 2 canal RB BC 01 FC - 20 canal in Track - 03 in RB BC – 01	Concrete lining of canal	3 canals	Contractor ID-Rajanganaya Civil Engineer –ISP PPMU Engineer - PMU
4	Renovation of storage and production collection facilities	Laying interlock tiles Widening the existing entrance gate Provision of equipments	1 Collection Centre	Contractor FO Civil Engineer –ISP PPMU Engineer - PMU
5	Construction of Compost Production Unit	Fencing Constrution of builing Disposal yards Mixing yards Leachat management	1	Contractor FO Civil Engineer –ISP PPMU Engineer - PMU

At the same time as the shipping container task is being implemented, a set of initial and fundamental activities will be undertaken to prepare the farmers and their fields to receive the new and improved technology from the ISP.

Project management team

A PMU was established under the Ministry of Agriculture to implement proposed project activities.

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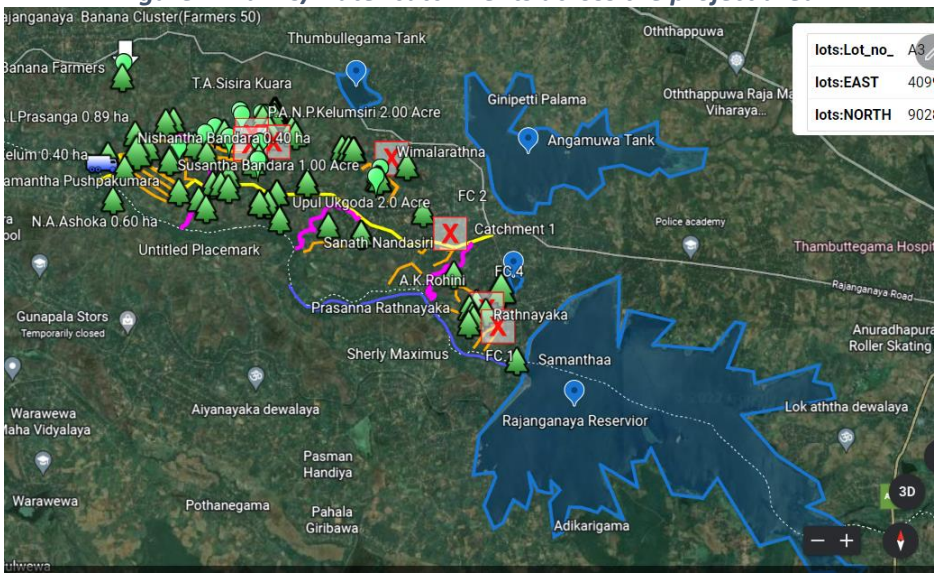
	Deputy Project Director – North Central Province National Institute of Postharvest Management Jayanthi Mawatha Anuradhapura Environmental and Social Safeguards Specialist ASMP Ministry of Agriculture No. 123/2 Pannipitiya Road, Battaramulla Tel: +94 112 877 550 Fax: +94 112 877 546 Email: sanjayadms@hotmail.com Web: https://www.asmp.lk/ **Nature of Consultations and Inputs Received** Consultations with Environmental and Social Safeguard Specialist/ PMU However, institutional mechanism for the Banana Cluster Development has been proposed. Institutional roles in this cluster (Cluster Development Plan (CDP) № 1 - Anuradhapura (Rajanganaya) - Small Banana (Ambul)) are attached in Annexure 3. The Rajanganaya Major Irrigation Scheme Project Management Committee chaired by Resident Project Manager, consisting of all the line agencies (Agriculture, irrigation, Agrarian Development and Land), and all the chairmen of farmer organisations have extended cooperation for banana cultivation in paddy lands under irrigation considering following reasons. • Great potential to increase Farmer income with less labour and inputs. • Ability to save water in the reservoir for next seasonal cultivation and minimise water crisis during Yala season. • Effective mechanism to attract young farmers for commercial agriculture. • Almost all the banana farmers have kept smaller part of their land for paddy crop for domestic consumption. • All the banana farmers are members of farmer organisations or successors.

5. DESCRIPTION OF THE EXISTING ENVIRONMENT

5.1 PHYSICAL FEATURES	
Topography and terrain	Geologically, the project area belongs to the Wanni Complex of Sri Lanka. Generally, the project site is an undulating terrain with a gentle slope (slope <30%) and the relief is <20m. The elevation of the area is between 43 to 70 metres above mean sea level[1].
Soil **(Type and quality)**	The area of Rajanganaya falls under the agro-ecological region of Low Country Dry Zone (DL1b) which has a bi-modal rainfall pattern as in other areas of the district. Farmers in Rajanganaya grow mainly banana in paddy lands where main soil group is Low Humic Gley soils (Eutric Gleysols- GLe). Banana growing lands in Rajanganaya could be categorised as low flat lands

[1] https://en-in.topographic-map.com/maps/gmcr/Sri-Lanka/

	with poor drainage. As Rajanganaya is located at the boundary of North Western and North Central provinces it has an effect from both provinces for climatic changes. Banana growing soils in Rajanganaya are Low Humic Gley soils (Eutric Gleysols- GLe), which is a deep soil with poorly drained drainage characteristics. Colour of soil varies from dark brown to dark grey with the increase of soil depth. Texture of the soil is sandy clay loam. Clay content increases with soil depth. Surface soil is sticky and plastic when moist. Soil pH is slightly less than 7.0 (1.2.5, Soil: water) in the surface horizon but become greater than 7.0 below 50cm depth mainly due to presence of high content of sodium salt. Cation exchange capacity is variable in the profile and shows a fluctuating value of 6.0-20.0 cmolckg-1 soil. Organic carbon content is lower than 1% in the surface soil. Available P content in surface soil is below 10 mgkg-1 (Mapa et al., 2010). The dominant factor that governs the expression of these soils is the periodically high groundwater level; this may be true groundwater or a water table that develops on an impermeable stratum during the rainy season. The base saturation in the subsoil is in the range of 90-100 percent and free carbonates are present at varying depths of the subsoil; soil reaction is thus moderately alkaline. The water holding capacity of the soil is high because of the presence of smectite clay minerals (Panabokke, 1996).
Surface water **(Sources, distance from the site, local uses and quality)**	Several tanks and streams are scattered within the identified area. The major irrigation scheme of Rajanganaya tank made it possible to cultivate banana successful. All selected banana cultivation lands are fed by Rajanganaya tank. Comparatively Rajangana Irrigation system is considered as a water abundant scheme and main source of water is the Kalaoya river and in addition drainage water from Mahaveli System H contributes significantly to maintain the reservoir capacity. All together there are four tanks/catchments are found closer to the proposed farmlands and none of them are affected by the proposed development activities. There are no any other surface water bodies are found within the area. Figure 2 shows the tanks and water catchments in the project area. ***Figure 2: Tanks/water catchments across the project area*** 

	However, according to recent reports irrigation water use efficiency in Rajanganaya Scheme is around 68%, indicates the poor water management practices adopted by farmers. Rajanganaya Reservoir is feed by Kala Oya basing and the Water Quality Index (WQI) of surface water ranged from 35 to 158. The WQI values of shallow water ranged from 6 to 187. Therefore, drinking water of Kalaoya basin should purify before using. (Muhandiram, Bandara, Perera, Vithanage, Edirisinghe, Athapaththu, 2019).
Ground water **(Sources, distance from the site, local uses and quality)**	In general, there is a recharge of around 100mm in this aquifer during the Maha season, mostly in the north central and north western provinces. The ground water levels in the area can be seen at around 10-25 feet. Use of ground water mainly limited to agriculture due to heavy metal concentration. Agro wells are wells, 7-8 metres deep, with an average diameter of 5 m. They are a popular way to obtain water in upland areas to irrigate small areas of high value crops or to provide a supplementary and secure source of water for the paddy crop. An estimated 5,000 agro wells have been installed in the North Central Province in the past three years. All together there are 58 agro wells found within the selected cluster and 24 out of 58 are non-used. Recent studies Senaratna (1996) have shown that there is a limit beyond which the exploitation of the regolith aquifer would result in an irreversible degradation of this limited but very precious groundwater resource. These studies also support the view that at least 25 percent of the potential groundwater storage in an aquifer should be reserved to meet environmental requirement in areas where there is intensive agro well farming. Severe droughts are known to cause a severe depletion of this regolith aquifer, especially in locations where there are no small tanks of appreciable size located along the inland valleys of the small tank cascade system.
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, Check the Air Quality in Rajanganaya, Sri Lanka - BreezoMeter shows that the Air Quality Index (AQI) of Rajanganaya is 57/500 and $PM_{2.5}$ is the dominant pollutant while O_3, PM_{10} and CO are having lower concentration than $PM_{2.5}$.[2]
5.2 ECOLOGICAL FEATURES – ECOSYSTEM COMPONENTS	
Vegetation **(Trees, ground cover, aquatic vegetation)**	Rajanganaya is considered one of the most recognised areas for the cultivation of paddy and drought-tolerant cash crops and vegetables. Such cash crops are chillies, onions, ground nuts, soya beans, green gram, cow pea, sweet corn, etc. The common agroforestry type of the Rajanganaya area is dry zone home gardens. Normally the average size of home gardens varies between 0.5 ha and 1 ha. Crop types depend on the availability of moisture content of the soil. Coconut, jack, mango, papaya, orange, guava, halmilla, margosa, tamarind, sandalwood, and teak could be commonly observed in the home gardens. Few commonly Identified species are listed in Table 7.

[2] Check the Air Quality in Rajanganaya, Sri Lanka - BreezoMeter

Table 7: Commonly identified varieties

Common Sinhala Name	Scientific Name	Conservation status according to the National red list 2020
Kos	*Artocarpus heterophyllus*	-
Del	*Artocarpus nobilis*	*LC*
Pol	*Cocos nucifera*	-
Kumbuk	*Terminalia arjuna*	*LC*
Maila	*Bauhinia racemosa*	*LC*
Pare Mara	*Albizia saman f.muell.*	-
Albezia	*Gliricidia sepium*	-
Siyambala	*Tamarindus indica*	-
Puwak	*Areca catechu*	-
Heen-eraminya	*Ziziphus oenoplia*	*LC*
Una	*Bambusa vulgaris*	-
Ipil	*Leucaena leucocephala*	-
Kotta	*Ceiba pentandra*	-
Aguna wel	*Wattakaka volubilis*	*LC*
Thekka	*Tectona grandis*	-
Karanda	*Millettia pinnata*	-
Jam	*Muntingia calabura L.*	-
Halmilla	*Berrya cordifolia*	*LC*
Wel-keliya	*Grewia orientalis*	*LC*
Katupila	*Flueggea leucopyrus willd.*	*LC*

(LC- Least Concern)

Red onion, chilli, banana, coconut, papaw and vegetables are relying on rain-fed areas. However, paddy is the major crop that depended on the tank system. Almost all tanks in the Rajangana – Angamauwa sub-catchments have lotus and sedges. The density of lotus increases as the depth of the tank decreases due to siltation.

Since the proposed project continues on the existing paddy cultivated areas, no forested areas or wetlands will be impacted.

Presence of wetlands

Tanks associated ecosystems and abandoned paddy fields are the wetlands types that could be observed in the Rajanganaya area. High biological diversity could be observed around these wetlands.

Since this is a rapid environmental assessment, threaten species listed in the IUCN red list could not be observed. However, the observed species were very common.

Without having a proper biodiversity survey cannot conclude the direct impact of the proposed project activities on the biodiversity of the wetlands. However, during the “yala” (dry) season, this project will be more economically feasible than paddy cultivation.

Fish and fish habitats

Rajanganaya Reservoir and associated waterways can be identified as fish habitats. The reservoir provides important habitats for a wide range of species including migratory birds and waterfowl, amphibians and fish.

	The surface area of the Rajanganaya Reservoir is around 1600 ha and the mean depth is around 6.4 m. Hence, it is contributing to the supply of sustainable fish yield to the market[3]. Thilapiya, Banded etroplus, Flying barb, Clinbing perch, Spiny eel, Eel and Freshwater catfish are the common fish species found at the Rajanganaya Reservoir.
Birds (waterfowl, migratory birds, others)	The reservoir and its' associated ecosystem, natural scrublands and abandoned paddy fields could be identified as some potential bird habitats. Many large birds such as owls, eagles and hawks hunt rodents in the paddy fields. Also, aquatic bird species such as cranes, storks, and herons feed on insects and crabs that pose a threat to rice production. Since the proposed activities converted paddy cultivations into banana cultivation, some food webs can be disturbed. However, this may not be much impact on the food webs. Further, it was highlighted that there has been a huge increase in peacock populations over the past years in the area and peacocks feed on the tendril roots, seeds and flowers of the crops, which will not severely be destroying the bananas, but affect the future paddy cultivations as well.
Presence of special habitat areas (special designations and identified sensitive zones)	The area has not been identified as a special habitat area as per the map of the sensitive area (Annexure 4) of the Central Environmental Authority. However, the reservoir provides important habitats for a wide range of species including migratory birds and waterfowl, amphibians and fish. Many of these species depend on wetland ecosystems. The proposed banana cultivation continues in the existing paddy cultivated areas. Since these areas already were farmlands, no considerable impact on the wetlands environment or home gardens will have happened.
5.3 OTHER FEATURES	
Residential/sensitive areas **(e.g., hospitals, schools)**	Commonly there are few residential areas were found such as Buddhist temple, one school, divisional secretarial office and sub post office at tract 1, two temples at tract 2, 'Sewa Piyasa' and fertiliser storage at tract 3, a clinic centre for mothers, one temple and one school at tract 4, one school, 'Sewa Piyasa', rural hospital and veterinary facility were found in tract 5. Few locations are shown in Annexure 4.
Traditional, economic and cultural activities	Out of total workforce in Anuradhapura District, 54% is employed in agriculture sector activities, 15% is employed in government sector and 11% is engaged with private sector occupations. With compared to other district, the considerable percentage of workforce is engaged in labour works and it is 16.5%. Other sectors are minor and low contribution to the economy[4]. There are no published household Income and Expenditure details specific to the banana farmers in Rajanganaya and even not available in Rajanganaya DS Division resource profile.

[3] https://core.ac.uk/download/pdf/33720752.pdf

[4] www.anuradhapura.dis.gov.lk/images/PDF/Statistical

	In general, the household *Income and Expenditure Statistics* in Anuradhapura District (2006 to 2016) published by Department of Census & Statistics shows that the mean household monthly income in 2016 of Anuradhapura District is about LKR 58,326. Even though there are no specific family income details relevant to Rajanganaya Banana CDP, in research published in International Journal of Business, Economics and Law (June 2013), statistical analysis carried out using Rajanganaya Scheme for paddy farmers showed that the average total annual income in the Rajanganaya Irrigation Scheme was about LKR 129,117 and per capita income is about LKR 23,665 in the year 2013. The proportion of the community that lives below the poverty line is about 4% in the district. The primary income source of the majority households is agriculture. More than 90% of households have both upland and paddy lands. Farmers cultivates their paddy land in both Yala and Maha seasons under irrigation system. The farmers have constructed their residential houses on upland and timber trees and fruit bearing trees are planted in balance part of the land. During the Maha season (September to March), intercropping is done on upland. There are 2,832 families (included in these selected tracts 1 to 5) with about 9,819 people with about 49% being male (4,765). Of 2,832 families, 727 families (26%) out are receiving Samurdhi. Tract 5 has a divisional hospital with three wards and 48 beds that is staffed by 30 medical and ancillary staff including three doctors. According to the information provided by Grama Niladhari, there three schools are available within the selected areas those are found in tract 1, tract 4 and tract 5; namely A/Rajanganaya yaya 1 viduhala, A/Rajanganaya yaya 4 lama mithuru viduhala. As per the selected area's information, around 270 employees are entitled to security services, and second highest participation was found in the textile & apparel sector while 1,488 were found as an unemployed. Total area of the selected tracts is 48.5 km^2 with about 576 ha being used for the banana cultivation during both Yala and Maha seasons in 2019. Furthermore, it was found that there are 1,145 ha in rainfed land are available for the cultivation and almost all land is used for cultivation. All the identified paddylands of the selected tracts are cultivated and around 609 highland parcels are larger than 0.4 ha. Approximately 2,200 farmers are working within the selected tracts, so demonstrating that the main economic activities for this cluster are agro based activities. Further, around 356 female headed families were found within the area. Cultivating banana will provide a good opportunity to gain economic benefits.
Archaeological resources **(Recorded or potential to exist)**	Archaeological resources in the proposed project site are not recorded. However, Rajanganaya is located in Anuradhapura District and it has proud history. Anuradhapura District is having thousands of known and unknown historical places and archaeological resources. Atamasthana or eight sacred places are bound religious history and also Anuradhapura is the first kingdom in Sri Lankan history. Hence, find chance scenarios can be expected and required guidance are provided in the Environmental Management Plan (EMP).

6. DESCRIPTION OF PROPOSED AGRICULTURAL ACTIVITIES

6.1 CULTIVATION	
Existing condition of the crop	In reference to the CDP № 1 for banana cultivation, the subproject concerns the introducing of new technology for the farmers who are practising the traditional cultivation system for banana cultivation. Out of 18 tracts in Rajanganaya area banana is mainly grown in tract 1-5. The major irrigation scheme of Rajanganaya tank made it possible to cultivate banana successfully. Banana land size varies between 0.4 to 0.8 ha per farmer, however, there are some farmers farming up to 4 to 5 ha by leasing out lands from other farmers in the area. Farmers have been cultivating bananas in paddy fields in last 25 - 30 years. Conversion paddy cultivation to banana was mainly due to easy management and high return of banana when compared to paddy and OFCs. After establishment of plantations, expenditure on banana cultivation is low and farmers are able to receive continuous income from their plantations. Raised beds are prepared after planting because there are concerns with too much of water due to paddy lands. Banana is grown rainfed with supplementary irrigation whenever necessary. In general, farmers use both flood irrigation and canal irrigation methods in banana cultivation. During the rice growing season water is issued frequently targeting rice cultivation in the area. During the off-season water is issued for banana and OFC every 10 days. Banana farmers get water at free of charge as rice farmers. The poor drainage due to high clay in soils as well as high water usage could be considered as major problems in banana cultivation in Rajanganaya. In addition, banana is grown commercial basis with low adoptability of new technologies in the area. As a result, productivity of banana is low when compared to potential yield. Though there are three main banana varieties grown in the district such as Ambul, Seeni and Kolikuttu, Ambul is the most common banana variety grown in Rajanganaya due to its tolerant to Panama disease when compared to Kolokuttu and Seeni. It has the lowest price in the local market. In general, lands are not prepared by ploughing or disking for initiation of the banana cultivation due to paddy soil. Majority of farmers' plant sword suckers in paddy fields in dry season of the year with the spacing of 8ft to 10ft. They use suckers obtained from their own plantations or bought from the same area with the height of 1 m. Price of a sucker is varies from LKR 25 to 40. However, use of tissue culture planting material is very rare due to its high cost as LKR 120 - 150 per plant. Plantations are usually renewed every 5 to 6 years; however, some plantations are kept for 10 years or more if yields are satisfactory. If yields are low, majority of farmers replant banana after two continuous paddy seasons. This practice has been a reason for distribution of diseases throughout the field. As a perennial fruit crop which has a highwater requirement, the banana is more suitable for Rajanganaya due to a major irrigation area. They place the sword suckers in planting holes at a depth of 300 to 450 mm (1 or 1.5 ft). Before planting, basal fertiliser is not applied to the hole and after 1.5 to 2 months later with the appearance of a leaf, paddy fertiliser mixture or banana fertiliser mixture is applied. In Rajanganaya, no chemicals are applied to the planting hole at planting. However, some farmers Diazinon insecticide is placed in the planting hole to control the banana weevil attacks in young suckers. Best time for planting of banana is January/February. After planting, they apply fertiliser every 1.5 - 2 months. In established plantations, fertiliser is applied every 2 - 3 months.

	Weeds are mostly controlled manually in early stages of the crop. However, some farmers apply weedicides such as Round Up. In mature plantations shade as well as use of banana residue as mulch help to keep bananas free of weeds. Mealy bugs could be considered as a common pest in banana cultivation in Rajanganaya but are considered not serious. Thrips and red rust thrips are not prominent. However, due to poor crop management Sigatoka fungus effects on older leaves. In general, farmers do not apply chemicals to control diseases in banana cultivation. As a result, existing Ambul banana plantations in Rajanganaya are surviving long period without serious pests and diseases. Harvesting is done every 2 weeks. Harvested bunches are sold weighed in the Thambuttegama market by transporting in small trucks to a collector coming from other districts. Farm gate prices of Ambul banana varies from LKR 25 to 40 per kg. However, in peak period farm gate price may go up to LKR 80-100 per kg. The cost of production of banana is about LKR 20 per kg. In general, the average bunches weight is 15 to 20 kg. However, in young plantations in first and second bunces average weight may between 25 to 30 kg. Farmers aim to harvest for the festival seasons in mid-April and end of December by maintaining suckers in their cultivations. Though, presently farmers are getting low price between LKR 25 to 40 per kg. By exporting Ambul banana, farmers will certainly get high price for their products. Export of Ambul banana has not been done yet due to unavailability of suitable export protocol. Screening revealed that existing watering system is 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 opportunity buy high quality fruit products at local market. Further, current watering system (irrigation) encourages spreading diseases since the irrigated water flows over the total cultivation land.

Figure 3: Existing Conditions of the crop

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	Removal of all shrubs and bushes is the first step. Manual weed control is the best method at preliminary land preparation stage. Then, shading branches of big trees near the field will be taken place to destroy all alternative host for pest and diseases

	and this will provide required sun light for the plants. First soil preparation step is ploughing with disc or board ploughs and compost will be added. Second deep ploughing is taking place perpendicular to the 1st ploughing. Lastly, the flood prevention and drainage improvements and these steps destroy pest cycles in different stages. Harmful bacteria and microorganisms are destroyed and minimise due to aeration is improved. Also, Harmful pathogens are destroyed also due to exposing soils to sunlight. This will minimise future pest and disease incidences and damages. They place the sword suckers in planting holes at a depth of 1 or 1.5 ft. Before planting, basal fertiliser is not applied to the hole and after 1.5 to 2 months later with the appearance of a leaf, paddy fertiliser mixture or banana fertiliser mixture is applied. However, some farmers Diazinon insecticide is placed in the planting hole to control the banana weevil attacks in young suckers. Weeds are mostly controlled manually in early stages of the crop. However, some farmers apply weedicides such as glyphosate.
Water requirement	Main source of irrigation for the Rajanganaya Banana Cluster is Rajanganaya tank. As a result, there are no water issues for banana farmers in the Rajanganaya. In general, farmers use both flood irrigation and canal irrigation methods in banana cultivation. During the rice growing season water is issued frequently targeting rice cultivation in the area. During the off-season water is issued for banana and OFC every 10 days. Banana farmers get water at free of charge as rice farmers. The poor drainage due to high clay in soils as well as high water usage could be considered as major problems in banana cultivation in Rajanganaya. Raised beds are prepared after planting because there are concerns with too much of water due to paddy lands. Banana is grown rainfed with supplementary irrigation whenever necessary. As a perennial fruit crop which has a high water requirement, the banana is more suitable for Rajanganaya due to a major irrigation area. Introduction of water conserving and low pressure drip and mini sprinkler irrigation systems powered by solar panels is one objective of the project.
Use of fertiliser and pesticides and weedicides	Majority farmers use 450g of fertiliser mixture per plant prepared by mixing of 120g Urea, 80g Triple Superphosphate (TSP) and 250 of Muriate of Potash (MOP). They do not apply organic fertiliser for banana cultivation. In Rajanganaya, no chemicals are applied to the planting hole at planting. However, some farmers Diazinon insecticide is placed in the planting hole to control the banana weevil attacks in young suckers. After planting, they apply fertiliser every 1.5 - 2 months. In established plantations, fertiliser is applied every 2 - 3 months. Weeds are mostly controlled manually in early stages of the crop. However, some farmers apply weedicides such as Round Up. In mature plantations shade as well as use of banana residue as mulch help to keep bananas free of weeds. Mealy bugs could be considered as a common pest in banana cultivation in Rajanganaya but are considered not serious. Thrips and red rust thrips are not prominent. However, due to poor crop management Sigatoka fungus effects on older leaves. In general, farmers do not apply chemicals to control diseases in banana cultivation. As a result, existing Ambul banana plantations in Rajanganaya are surviving long period without serious pests and diseases. To control pest and diseases, there are several crop management methods apart from pesticide application. They are: • Covering the banana fruit at early stage • Use improved varieties of banana resistance to pest and diseases • Select healthy budded plants from DOA certified nursery • Keep the hygienic condition of the land

	• Weed control • Implement Pest and disease control based on IPM practices and modern spray techniques Use of organic manure before planting. High amount of nitrogen fertiliser (urea) may increase the susceptibility to pests. Therefore, excessive use of nitrogen fertiliser must be avoided Use of sprinkler irrigation methods International standard IPM framework of the world bank is encouraged to control the pest and diseases in the crop management as per the pest management plan (PMP) prepared for ASMP and for both pest and diseases the recommended pesticides and the fungicides are applied by the framers. IPM of the Rajanganaya Banana cluster is shown in Table 8 and that should be implemented during the cultivation process. These agrochemicals are recommended by the pesticides register of DOA and PMP as well.
Harvesting	Fruiting commences at 10 to 12 months of age of plants and time is taken to fruit maturity about 70 - 100 days. Harvesting is done every 2 weeks. Harvested bunches are sold weighed in the Thambuttegama market by transporting in small and large trucks to a collector coming from other districts. Farm gate prices of Ambul banana varies from LKR 25 to 40 per kg. However, in peak period farm gate price may go up to LKR 80-100 per kg. The cost of production of banana is about LKR 20 per kg. In general, the average bunches weight is 15 – 20 kg. However, in young plantations in first and second bunces average weight may go up to 25-30 kg. Farmers aim to harvest for the festival seasons in mid-April and end of December by maintaining suckers in their cultivations. Though, presently farmers are getting low price between LKR 25 to 40 per kg, by exporting Ambul banana farmers will certainly get high price for their products. Export of Ambul banana has not been done yet due to unavailability of suitable export protocol.
Postharvest storage and transportation	This banana is mainly used as the fresh fruit and maintain of freshness is important and need to transport immediately to the local market. However, project expectation is to provide fresh banana fruit to the export market. Therefore, the harvesting should be done by maintaining required time gap (at least two weeks) prior to the shipment day. Grading and packing of the fruit are an essential part during the postharvest period as it helps to cut down the losses and increase the fruit high quality and value. Therefore grading, packing, and transporting should be undertaken with improved technology. These technology facilities will be available for farmers. At the same time, banana farmers use to send their products to market as bulk and it is directly affected on the market price. Just after the harvest, farmers pack the banana in the bags and send to market. Due to overweight, handling of bags is difficult, and it make high postharvest losses. Postharvest losses are a national crisis and it directly decrease the quality and the quantity of harvest and ultimate result is the decreasing of farmers' income.

Figure 4: Packaging materials and ripening cupboard

Other factors	
Solid waste	The solid organic waste is generated as crop residuals and at postharvest period and all are biodegradable. However, compost production unit (See Annexure 6: Compost plant proposal) will be implemented to produce compost using solid waste generated from post harvesting processing centre and these organic fertilisers will be used at land preparation stage. Used polythene bags during cultivation will have to be disposed safely in consultation with Pradeshiya Sabha. Reuse and recycling of polythene should be encouraged among farmers. Proper segregation and collection should be done at the field level. Screening report and relevant EMP and Social Management Plan (SMP) for the post harvesting processing centre will be developed separately.
Wastewater	Surface runoff will carry the fertilisers and applicable chemicals (pesticides, weedicides etc.) and impact is higher due to flood irrigation system. This will minimise by introducing water conservation techniques. Further, due to application of IPM mechanism, soil and ground/surface water pollution will be minimalised. ASMP will conduct the awareness creation and training programmes for both farmers as well as the officers regarding the IPM as per the PMP. Proposed application of IPM during implementation of banana cluster is given in table 8.

Table 8: ISP of ASMP - Proposed IPM Technologies for Crop Banana in Rajangana (CDP 1)

Stages	IPM practices	Impacts of implementation	Benefit for farmers
Pre-land preparation stage	Removal of all shrubs and bushes. Shading branches of big trees near the field are removed	Destroying of all alternative host for pest and diseases	Future risks of pest damages are minimised
Land preparation stage	Doing 1st ploughing with disc or mould board ploughs	*Different stages of pest cycles are destroyed. * Harmful bacteria and microorganisms are destroyed and minimise due to aeration is improved. *Also, Harmful pathogens are destroyed also due to exposing soils to sunlight	Future pest and disease incidences and damages are minimised. Cost reduced
	Adding Compost		
	Doing 2nd deep ploughing with disc or mould board ploughs perpendicular to 1st ploughing		
	Disking or harrowing (two perpendicular passes)		
	Flood prevention and Drainage improvements		
Planting stage	Healthy Planting Materials are selected	strong and vigorous Saplings are ensured for planting	A healthy plantation is assured. Cost reduced
	Plant of nonstandard are removed		
	farmers own production of saplings from peeper suckers are encouraged		
	Saplings of same hight and growth are planted in separate rows	Easy to manage agronomic practices. Uniform plantation is assured	A healthy plantation is assured. Cost reduced
Sapling stage	Daily attention on all saplings is assured	Early identification of pest and diseases incidents	A healthy plantation is assured. Cost reduced
	weakened plants are replaced by new saplings	Even plantation is assured	A healthy plantation is assured. Cost reduced
	No water stress is assured	Vigorous growth and Even plantation is assured	A healthy plantation is assured. Cost reduced
	Only correct dose of nutritionally balanced fertilisers will be applied	No unwanted canopy development and vigorous growth is assured	A healthy plantation is assured. Cost reduced
Juvenile stage	Daily attention on all saplings is assured. This procedure is followed in every growth stage of the crop cycle	A healthy crop field is assured	A healthy plantation is assured. Cost reduced
	weakened plant parts are removed and vacancies will be filled		
	Field sanitation is assured by managing garbage in the field		

Stages	IPM practices	Impacts of implementation	Benefit for farmers
	Suspicious plants are marked and will be monitored for pest and diseases. Treatment is followed if identified a pest or a disease incident		
	Attacked plants and parts are uprooted and immediately destroyed		
	Intercropping	*Minimise the weed control. *No need to weedicide application	additional income
	Micro irrigation	*Volume of water need for the effective root zone is assured. *Percolation of irrigated water towards the ground water is minimised	Easy to handle
	Fertigation with organic liquid fertilisers supplemented with fertilisation and/or fertigation with chemical fertilisers. Formulation of fertiliser regimes based on complete soil tests and foliar analyses. It will be continued flowering and maturity stages too	Correct dose of nutrient to the plant is assure	Easy to handle
Flowering stage	Bunch clearing before bagging. Removing leaves that can damage bunch and bending or removal of placenta leaf	Bunch clearing practices protect the bananas from mechanical damage by removing potential causes of damage	A healthy plantation is assured. Cost reduced
	Bagging with plastic bags. Premature bagging when the bunch is just emerging and the flower bud points downward	Bagging protects the banana bunch from physical and pest damage and increases bunch vigour	
	Bunch clearing after bagging. De-leafing, de-flowering, de-handing, debudding	Bunch clearing practices protect the bananas from mechanical damage by removing potential causes of damage and increase the vigour of the bunch	Healthy crop is assured
Maturity stage	The banana bunch is propped with wooden poles tied with rope or plastic	Propping protects the banana bunch avoiding field losses of fruit or bunches. Risk of pest and disease incidents are minimised	Expected yield is assured
Harvesting stage	* Bunches for de-handing in the field are chosen based on age (ribbon colour) and calliper grade to protect quality, prevent ripening and turnings during transport and extend shelf life * Hands are removed from the bunch using a fish line (100 test) that cuts and seals the crown properly with no additional trimming required	De-handing at the mat avoids the handling of whole bunches after harvest and brings only good hands to the packing centre for packing. All organic matter waste remains in the field as organic fertiliser	Expected yield is assured
	Removed hands from harvested bunch are placed on banana leaves for delatexing for at least one hour	Fruit arrives free of latex for packing, avoiding the use of large amounts of water for delatexing purposes. A dry packing procedure can then be applied that requires less investment in packing infrastructure. Small farmers can easily pack bananas with minimum infrastructure	

Stages	IPM practices	Impacts of implementation	Benefit for farmers
Post Harvesting and storage	Field heat removal Line packing Cold chain management Integration of export protocols into standard SOP	These practices are utilised to preserve optimum quality and shelf life throughout value chain	Banana producers will win a brand of quality product suppliers
Transport stage	Packing the de-hands into 20-kg plastic trays lined with foam. One bunch, one crate. Colour ribbon tied securely to crate to allow for inventory management at packing centre	Protects banana hands from damage during transport to packing centre. Possible cause of pest and disease incidents are minimised	Expected quantity of produce is assured. Reasonable price is assured
Marketing stage	Export protocol, guidelines to grow, pack and ship bananas for export	The export protocol ensures bananas arrive in optimum biological and commercial condition to international markets	Banana producers will win a brand of quality product suppliers

7. PUBLIC CONSULTATION

Consultation was held with the private sector involved in input supplies, marketing and transportation of agricultural products. Most importantly, attention has been paid on the existing situation of farmer organisations (officially identified as Distributary Canal Organisations (DCO)) and their role and functions in irrigation management and decision making. Community consultations were conducted by ISP-ASMP. Following concerns were arisen during the discussions held with farmers in the selected area.

- How to obtain continues technical knowhow throughout the cultivation cycle to take products up to suitable quality for export market.

Concerns were raised by farmers that the yield of existing crop is low, size and the shape of the product is low. Hence, whether is it acceptable for the future forecast of the project? However, it was found that this is mainly due to the poor agronomic practices adopted by farmers. Low adoptability of new technologies, low productivity of lands, labour and other inputs, Poor crop management practices and poor sanitation, Fertiliser application is not practice by based on soil and foliar analyses were identified as common reason for above concern and the technology package and other management practices will be introduced to the selected group to overcome the concerns.

- Hygienic conditions that should be maintained during harvesting as well as post harvesting periods.

Caring for harvesting crates, best harvest time, harvest maturity index by age and calliper, discarding poor quality fruit and other waste organic materials in the field to leave as organic fertiliser, avoiding mechanical scarring and bruising quality defects, selecting the best product for packing, cleaning the selected product, properly storing the harvested product before delivery to the packing facility were highlighted during discussions and practical training awareness on basic harvest and postharvest practices are highly needed.

- Implementation of field bunch caring practices to protect the bananas from damage.

Bagging of banana bunches is not a common practice and attention was given to discuss bunch clearing, de-flowering, de-handing, de-leafing, debudding, bagging, propping and guying activities. Unavailability of packing materials was highlighted while some farmers use bags prepared from recycle polythene.

- 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 under water conservation and management discussions. Bringing water to inaccessible lands was a prioritised question raised from farmers and introduction of water conserving and low pressure drip and mini sprinkler system was highlighted during the discussion. However, technical knowledge on implementation and continuity of mini sprinkler system needed to be given.

- Failure on export market

One of the main objectives of the project is export market-based production and doubt was highlighted that what will happen if export market is failed? Are there any options available in the local market for the excessive production?

- Infrastructure development

Some of farmers looking to bring water to lands which are not flooded by existing irrigation system. Hence, water and drainage work required to bring water to farms and to avoid flooding and water logging. Further, Improvement of access roads and especially postharvest processing and packing centre are highlighted during the discussions. The small-scale infrastructure development plan can be found in Annexure 10.

Figure 5: Existing flood irrigation system

Further, there were points highlighted during the discussions such as use of weedicide, poor and inefficient land utilisation pattern, attention for micronutrient fertilisers and knowledge of farmers for IPM mechanism for better crop production.

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.

Figure 6: Community mapping activities

- Existing environmental issues

Some farmers were raised their existing issues related to the agricultural activities during the public consultation such as floods and accessibility difficulties. There were two locations identified in tract 2 having floods during monsoons and damage to roads. Tract 3 is also having few locations which has impacts due to floods and major impact is on roads. Most of these roads are crossing the canals derived from the Rajanganaya Reservoir. All these roads to be developed to ensure the smooth transportation of goods. There were locations found in tract 4 which has difficulties on accessibility of water while few locations having flood issues. Similarly, few damaged roads were highlighted. Further, it was highlighted that there are few locations having high wind and damage to the crops. Tract 5 farmers also raised high wind concern while having few damaged rods within the tract (See Annexure 8: Outcomes of community mapping).

Figure 7: Damaged roads

8. ENVIRONMENTAL EFFECTS AND MITIGATION MEASURES

Table 9: 8a. Screening for Potential Environmental Impacts

№	Screening question	Yes	No	Significance: (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.?)	√		Low-moderate	• Existing land preparation and flood irrigation system will be changed. Land preparation techniques will focus on reducing the effects of flood irrigation. Land clearance will be there for the civil works such as access roads, collection centre, and organic production unit. Construction of post harvesting processing centre requires a separate screening report, EMP and SMP reports will be developed for the post harvesting processing centre. No significant disturbances for any existing land use, or waterbodies and no negative impact causes are anticipated
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, fertilisers 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 amount of chemicals and fertilisers use and modern techniques/methods will be introduced to increase the productivity by other means. • In terms of public infrastructure development, handling, storage, transportation and use of substances which will be harmful for human health such as cement
3	Will the Project produce solid wastes during construction or operation?	√		Moderate - High	• During the operation solid organic waste will be produced as crop residuals. Crop residual will be used for the compost production unit. • Use polythene bags during cultivation should be safely disposed. Recycling of polythene bags should be encouraged. Pradeshiya Polythene collectors can be used to dispose polythene • However, development of infrastructure will create solid waste during clearing and grubbing, construction, etc which need to handle with care, but quantum would be small

№	Screening question	Yes	No	Significance: (low, moderate, high)	Remarks
4	Will the Project release pollutants or any hazardous, toxic or noxious substances to air?	√		Moderate	• Pesticides, weedicides will be used and released to the air. Possibility to have impacts to other flora & fauna. However, the project is not encouraged to use harmful pesticides and weedicides during the cultivations • Further, infrastructure development activities will also create emission of dust during clearing and grubbing, construction, etc which need to be mitigated by good engineering practices. However, since small-scale infrastructure development, no significant pollution expected during construction
5	Will the Project cause noise and vibration or release of light, heat energy or electromagnetic radiation?	√		Low	• Land preparation, transportation and Construction of collecting centre may create noise and vibration impacts and it can be mitigated through proper implementation of EMP. • Similar noise and vibration will create during proposed infrastructure development which will also be mitigated by adhering to EMP
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. However, the project does not encourage to use harmful chemicals for the cultivation. In addition, pollutants during infrastructure development will have an impact on surface and ground water in surrounding areas if not properly managed
7	Will the project cause localised flooding and poor drainage during construction? Is the project area located in a flooding location?	√		Low	• There are few natural flooding areas identified at tract 2, tract 3, and tract 5 already. However, 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 medium and large scale infrastructure development envisaged and hence, no severe health and safety hazard identified. Better hazard identification and prevention and corrective measures during construction will eliminate the risk associate
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	• Banana 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.

№	Screening question	Yes	No	Significance: (low, moderate, high)	Remarks
					• However, improvements to existing road network will create some form of traffic during construction which can be reduced or prevented by adhering to proper traffic management plan during construction
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?		√		• No recreational or other facilities will be disturbed
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?		√		• There are 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, watercourses or other water bodies, the coastal zone, mountains, forests which could be affected by the project?		√		• Important or sensitive areas were not found except Rajanganaya Reservoir and will not be affected
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?		√		
14	Is the project located in a previously undeveloped area where there will be loss of green field land		√		• No new lands will be used for cultivation and only existing banana farmers will be engaged. Infrastructure development will not be undertaken newly and only improvements to the existing structures will be undertaken
15	Will the project cause the removal of trees in the locality?		√		• Removal of trees is not 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 have been identified within the study area

№	Screening question	Yes	No	Significance: (low, moderate, high)	Remarks
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?	√		Low	• Individual sprinkler systems will be installed on private lands and some of existing paddy lands will convert for the banana cultivation
18	Are there any areas on or around the location which are densely populated or built up, which could be affected by the project?		√		• Densely populated or built up areas will not be 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		√		• Sensitive land uses in or around the project site will not be negatively affected by the project. There will be improvements on Road network and canals which positively affected to the livelihood of selected areas
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?		√		• Existing agricultural practices will be improved by the sub project activities and no negative impacts are anticipated
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?		√		• There are no areas around the location where legal environmental standards have been exceeded or has been environmentally polluted

8B. Environmental Management Plan

Table 10: EMP for mitigating environmental impacts during agricultural activities

№	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 Institutional development based on farmer organisations	• Strengthen institutional development component and proper awareness and community leadership • 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 of the project, purpose and design and outcomes with comprehensive discussion • Communication and training activities focusing 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/complains 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	Lack of knowledge on basic harvest and postharvest practices lead to low quality of product and high amount of waste	Introduction of bagging Use of harvesting crates Mechanical scarring and bruising quality defects Cleaning the selected product Storing the harvested product before delivery to the packing facility Selecting the best product for packing	• Maintain good hygiene and good housekeeping • Practical training for the selected farmers on basic harvest and postharvest practices to protect the quality of the product and to assure the packing facility receives only clean and viable product • Harvest maturity index by age and calliper • Use of Discarded poor quality fruit and other waste organic materials in the field to leave as organic fertiliser or use for compost production • Avoiding mechanical scarring and bruising quality defects • Provide packaging materials and storage facilities • Establishment of temporary packing facilities

№	Potential environmental impacts and risk level	Key project activities causing the impact	Mitigation measures proposed and action to be implemented by the contractor
		Discarding poor quality fruit and other waste organic materials in the field	
3	Activities related to installation of sprinkler irrigation systems	Installation of sprinklers systems Fixing water pumps and electricity supply Plumbing works	• Carry out installation works during off cultivation seasons • Solid waste generation during installation should be minimised and disposed generated waste with care • Potential damages to pipe system should be minimised by burying or covering the pipe distribution

4	Exposing and damaging of physical cultural resources (PCR)	Site preparatory work	• 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 find report, within a specified time period, with date and time of discovery, location of discovery, description of finding, estimated weight and dimension of PCR and temporary protection implemented
			  • 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

№	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 Cultivation of banana	• Provide DOA certified banana 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
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	• Adherence to IPM standards of the WB, IPM action plan of ASMP and standards • Introduce technological methods to reduce dosage amounts • Awareness on usage time, handling and storage • Guidance on suitable time for the usage of chemicals • Promote organic fertilisers • Formulation of fertiliser regimes based on complete soil tests and foliar analysis
7	Impaired water quality	Cultivation of banana	• Excess water extraction is to be cut down to preserve ground water table • Proper introduction of drip irrigation practices instead of flood irrigation to preserve water and use of modern techniques as discussed in the CDP for reduce water consumption
8	Solid Waste Disposal	Discarding poor quality fruits Organic materials in the field (Bunch clearing, de-flowering, de-handing, de-leafing, debudding, bagging, propping and guying) Waste from weed control activities Polythene bags	• Burnt to maintain the farmlands' hygienic condition • Use postharvest waste for compost production • Implement waste minimisation as proposed in pilot activity of minimisation of waste generation, income generation and empowerment • Make a safe disposal system for polythene bags in consultation with Pradeshiya Sabha. Reuse and recycling should be encouraged as much as possible. Until safe disposal, proper segregation and collection should be done by the farmers
9	Spread of crop related diseases among other flora species	Throughout the cultivation period	• Use of drone technology to conduct disease surveys using infra-red photography • Provide technical guidance on application of chemicals including dosage, suitable time and frequency • Use of chemicals using drone technology • Pest and disease control based on IPM practices and modern spray techniques • Pest population and pest damage surveys to assess pest threshold status for application of pesticides
10	Health hazard	Use of agrochemicals (fertilisers, pesticides, weedicides etc.)	• Carry out proper hazardous identification and risk assessment of all proposed activities including snake bites related hazards

№	Potential environmental impacts and risk level	Key project activities causing the impact	Mitigation measures proposed and action to be implemented by the contractor
		Snake Bites	• Training and awareness on safe chemical handling • Use drone technology to spray chemicals • Implement proper health and safety protocols by elimination, substitution, engineering controls, administrative control and provide personal protection equipment (PPEs). Provided necessary PPEs (basic should include gloves, goggles, masks and protective clothing) • Availability of first-aid facilities • A safety inspection checklist should be prepared taking into consideration what the workers are supposed to be wearing and monitored • Pest and disease control according to the international standard including IPM frame work of the world bank and pest management action plan prepared by ASMP • Formulation of fertiliser regimes based on complete soil tests and foliar analysis • Pest population and pest damage surveys to assess pest threshold status for application of pesticides

Table 11: EMP for Improvements of Rural Farm Access Roads and Canals

№	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	1. Discussions should be conducted with the project affected persons. 2. Residents in the area have to be briefed of the project, purpose and design and outcomes via a documented community consultation session ***-This should be done immediately once the contractor is mobilised.*** 3. The contractor should take note of all impacts, especially access issues and safety hazards that will be of concern to the residents and take necessary measures as stipulated in the EMP to mitigate them. 4. The contractor will maintain a log of any grievances/complains and actions taken to resolve them. 5. A copy of the EMP should be available at all times at the project supervision office on site.
2	Exposing and damaging of physical cultural resources	Site preparatory work	Upon discovery of physical cultural material during project implementation work, the following should be carried out;

№	Potential Environmental Impacts and Risk Level	Key project activities causing the impact	Mitigation Measures proposed and action to be implemented by the Contractor
			1. Immediately stop construction activities. 2. With the approval of the resident engineer delineate the discovered site area. 3. Secure the site to prevent any damage or loss of removable objects. In case of removable antiquities or sensitive remains, a night guard should be present until the responsible authority takes over. 4. Through the Resident Engineer, notify the responsible authorities, the Department of Archaeology and local authorities within 24 hours. 5. Submit a brief chance find report, within a specified time period, with date and time of discovery, location of discovery, description of finding, estimated weight and dimension of PCR and temporary protection implemented. 6. Responsible authorities would be in charge of protecting and preserving the site before deciding on the proper procedures to be carried out. 7. An evaluation of the finding will be performed by the Department of Archaeology who may decide to either remove the PCR deemed to be of significance, further excavate within a specified distance of the discovery point and conserve on site, and/or extend/reduce the areas demarcated by the contractor etc. This should ideally take place within about 7 days. 8. Construction work could resume only when permission is given from the Department of Archaeology after the decision concerning the safeguard of the heritage is fully executed.
3	Over extraction of natural resources	Material Sourcing	1. The contractor is required to ensure that sand, aggregates and other quarry material is sourced from licensed sources. The contractor is required to maintain the necessary licenses and environmental clearances for all burrow and quarry material they are sourcing –including soil, fine aggregate and coarse aggregate. 2. Sourcing of any material from protected areas and/or designated natural areas, including tank beds, are strictly prohibited. 3. If the contractor uses a non-commercial burrow/quarry sites, the sites should be remediated accordingly once material sourcing has been completed. 4. The contractor should submit in writing all the relevant numbers and relevant details of all pre-requisite licenses etc. and report of their status accordingly.
4	Impact on habitats of fauna and flora	Vehicle and machinery movements Site preparation including tree removal (if any)	1. The contractor shall make every effort to avoid removal and/or destruction of trees, including those of religious, cultural and aesthetic significance.

№	Potential Environmental Impacts and Risk Level	Key project activities causing the impact	Mitigation Measures proposed and action to be implemented by the Contractor
			2. If such action is unavoidable, the Engineer shall be informed in advance to verify and report on the technical justification for the trees that will be required to be removed. • The following steps are to be followed if trees are identified for removal during the renovation. • Identify and document the number of trees that will be affected with girth size and species type. • Trees shall be removed from the construction sites before commencement of construction with prior permission from the concerned department (LA). • Compensatory plantation by way of Re-plantation of at least twice the number of trees cut should be carried out in the project area. • The contractor shall adhere to the guidelines and recommendations made by the Central Environmental Authority (CEA), if any with regard to felling of trees and removal of vegetation. • Removed trees of economic value must be handed over to the State Timber Corporation.
5	Air Pollution including dust generation that can affect nearby vegetation	Site Preparation activities, setting up of material storage yards, and removal of vegetation Transport of construction material and storage on site	1. In the **construction method statement**, the contractor should clearly designate areas for maintaining material stock piles, waste stock piles, labour camps and vehicle maintenance yards. These dust emitting sources should be located away from human activity and natural drainage paths as much as possible. 2. Stock piles should be suitably covered to minimise washing off. 3. The site should be wetted at least 2/3 times a day during dry weather to keep dust levels low. 4. Transporting out debris to be carried out with minimal use of heavy transport vehicles and taking due care to avoid unwanted damages to existing structures. 5. Until removal to arranged disposal sites, waste shall be held stockpiled in a place with minimal interference with local drainage paths and obstruction to local traffic, local residents. 6. There should be no burning of wastes on site.
6	Noise Pollution & Vibration that can affect nearby structures	Operation of construction equipment and machinery. Material storage and transport.	1. Working time for noise/vibration generation activities should be restricted and carried out only from 6.00 am to 6.00 pm. 2. All equipment and machinery should be operated of noise not to exceed 75 dB (during construction) as practical as possible. Regularly maintenance of all construction vehicles and machinery to meet noise control regulations stipulated by

№	Potential Environmental Impacts and Risk Level	Key project activities causing the impact	Mitigation Measures proposed and action to be implemented by the Contractor
			the CEA in 1996 (Gazette Extra Ordinary, No 924/12). 3. If the construction activities happen during the night time, it is necessary to maintain the noise level at below 50 dB. 4. Use of mechanically driven saw blades for tree felling will make the noise levels restrict to only a short period of time. 5. Construction equipment and machinery should be maintained in good condition. Contractor shall submit the list of high noise/vibration generating **machinery & equipment** to the PMU for approval. Material procurement should be carried out only from places where environmental clearance or environmental protection license is obtained.
7	Traffic Congestion and public inconvenience	Increased construction vehicle traffic causing congestion on Access Roads and impact on the transport.	1. Speed limits and operating times for the construction vehicles should be imposed. 2. Travel route for construction vehicles should be designed to avoid areas of congestion. 3. All roads and access sites must be restored to their original state as soon as possible 4. If project works occur after dark, a lighting system should be maintained such that vehicles and pedestrians can clearly see the construction area. 5. Public should informed properly on the inconvenience made during construction. 6. During construction, proper safety measures and barricade systems should be introduced for traffic management.
8	Siltation of adjoining canals Blocking of surface drainage paths leading to localised flooding and ponding of water	Embankment construction Site Preparation including provision of access roads, material/waste piles	1. Until transported out to arranged disposal sites, debris and waste from site preparation work shall be stockpiled in a place with minimal interference with local drainage paths and obstruction to traffic and local residents. The contractor shall identify areas for stockpiling material and waste. 2. Construct silt-traps where necessary to avoid siltation field canals along the roads 3. The stockpiles should be suitably covered to minimise wash-offs to nearby waterways/ drains. 4. If impacts to surface drainage cannot be avoided leading to ponding of rain water and inconvenience to people, the contractor must provide an adequate surface drainage system to safely remove water from the site to roadside drains to avoid on site ponding or flooding.
9	Solid Waste Disposal	Site clearing Construction debris Unsuitable soil	1. The contractor shall make a list of all types of waste resulting from the construction activity, and obtain direction from the LA on possible disposal sites for each waste type.

№	Potential Environmental Impacts and Risk Level	Key project activities causing the impact	Mitigation Measures proposed and action to be implemented by the Contractor
			2. Any hazardous type of waste shall be dealt with special care and instructions from the LA. 3. The contractor shall document all types and quantities of waste generated and removed from the site and the disposal locations. 4. The contractor shall remove waste from the site each day and dispose of the waste in the LA approved site/s.
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 safety helmet, protective footwear and high visibility jackets). 3. In addition, the contractor shall maintained in stock at the site office, gloves, ear muffs, goggles, dust masks, safety harness and any other equipment considered necessary. 4. A safety inspection checklist should be prepared taking into consideration what the workers are supposed to be wearing and monitored. **Site Delineation and Warning Signs** 5. The entire construction site should be delineated using devices such as cones, lights, tubular markers, orange and white strips and barricades to inform oncoming vehicular traffic and pedestrians in the area about work zones. 6. Dangerous warning signs should be raised to inform public of particular dangers and to keep the public away from such hazards. 7. Overloading of vehicles with materials should be controlled 8. Construction wastes should be removed as much as possible within 24 hours from the site to ensure public safety. 9. The safety inspection checklist must look to see that the delineation devices are used, whether they are appropriately positioned, if they are easily identifiable and whether they are reflective. **Equipment safety** 10. Work zone workers use tools, equipment and machinery that could be dangerous if used incorrectly or if the equipment malfunctions. Inspections must be carried out to test the equipment before it is used, so that worker safety can be secured.

№	Potential Environmental Impacts and Risk Level	Key project activities causing the impact	Mitigation Measures proposed and action to be implemented by the Contractor
			Inspections should look for evidence of wear and tear, frays, missing parts and mechanical or electrical problems. **Emergency Procedures** 11. An emergency aid service must be in place in the work site. 12. During health and safety training, site staff should be properly briefed as to what to do in the event of an emergency, such as who to notify and where to assemble in an emergency. This information must be conveyed to employees by the site manager on the first occasion a worker visits the site. **Information management** 13. Develop and establish contractor's own procedure for receiving, documenting and addressing complaints from the affected public and nearby communities. 14. Provide advance notice to local communities by way of information boards or leaflet about the schedule of construction activities, interruption to services and access etc.
11	Access restrictions and public inconvenience	Site Preparation activities Vehicle and machinery movements	1. Prior consultation and consent should be taken from relevant authorities and should conduct work with a minimum disturbance to public. 2. Provision of access during designated times of day or where possible provides temporary access paths for users/ staff within the premises.
	Post construction phase		
12	Clearing/Closure of Construction Site/Labour Camps		1. 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. 2. 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.
13	Environmental Enhancement/ Landscaping		1. Landscape plantation, including turfing shall be taken up as per either detailed design or typical design guidelines given as part of the Bid Documents. 2. 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

Table 12: Environmental mitigation measures and estimated cost

№	Environmental mitigation measure	Cost (LKR)	Remarks
1	Information Boards, leaflets	60,000	Awareness leaflets for organic cultivation practices and IPM
2	On site first aid facilities	25,000	
3	Safety equipment	50,000	PPEs should be provided for road and canal renovation activities
4	Dust suppression	20,000	Need to be done during road and canal renovation activities
5	Waste removal from site	40,000	Waste from vegetation clearing, site preparation, labour camps
6	Training of Farmers and Village level stakeholders on IPM and new technological applications	200,000	Should be scheduled to a few sessions

10. CONCLUSION AND SCREENING DECISION

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

Table 13: Summary of environmental effects:

Key project activities	Potential environmental effects	Significance of environmental effect with mitigation in place[5]
During Agricultural activities		
• Land preparation • Fencing (if applicable) • Land preparation • Micro levelling • Drainage Labour • Raised Beds • Preparation of pits & planting • Planting materials	No significant negative impacts since new lands are not used for the cultivation activities. Water accessibility will be improved	SP
• Introduction of basic flood prevention and drainage field techniques • Site levelling using drone surveying and laser levelling machinery • Quick water evacuation ditches • Surface drainage techniques (removal of wet spots)	Less water consumption, less soil erosion	SP
• Use of fertilisers and chemicals • Mechanical Weeding • Insect Control • Sigatoka Fungus Control • Nematode Control • Other Spray	Land, water an air contamination	NS
Product transportation and storage	No significant impacts	NS

[5] 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 place[5]**
• Introduction of drone technology • Geo-positioning • Land surveys for site selection • Levelling for land preparation and drainage • Disease surveys using infra-red photography • Application of pesticides	Less agro-chemical contamination on Land, water, and air	SP
• New and improved quality enhancing technologies • Introduction of coloured plastic ribbons to fix the age of the fruit • Bunch clearing, de-flowering, de-handing, de-leafing, debudding, bagging, propping and guying • Fish line de-handing, delatexing in the field, disposal of organic waste in the plantation, prolonging the usefulness of the mother plant • Field heat removal • Line packing technology cold chain management	Solid waste generation	SN
• Introduction of water conserving and low pressure drip and mini sprinkler irrigation systems • Computer controlled heads for water application scheduling supported by fertility sensors, soil moisture sensors and irrigation friendly double row planting • Precision fertigation with liquid organic compounds • Precision application of liquid pesticides • Anti-clogging flushing components	No such harm, less use of water and Less contamination of agro-chemicals on Land, air and water	SP
Infrastructure Activities (Renovation of roads and Canals/Drainages)		

Key project activities	Potential environmental effects	Significance of environmental effect with mitigation in place[5]
• 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
• Material transportation and storage	Emission of dust, generation of noise, disturbance to natural drainage, traffic congestion, public inconvenience	NS
• Embankment Construction	Emission of dust, generation of noise and vibration, disturbances/blockage of natural drainage paths, public inconvenience	NS
• Disposal of waste	Pollution of waterways, blockage of drainage, siltation of downstream and damage to habitats	NS
• Wastewater	The proposed agricultural activities will be undertaken using only organic fertiliser and IPM practices. Therefore, application of chemical fertiliser, pesticides and insecticides will be minimised. Hence the soil and ground/surface water will not be polluted	NS

11. EMP IMPLEMENTATION RESPONSIBILITIES AND COSTS

The overall responsibility of ensuring compliance with safeguard requirements lie with the ISP team and supervised by the PMU while the contractor will be responsible for implementing the provisions of the EMP. In addition, the ISP 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 Environmental Management Framework (EMF) by the Environmental and Social Safeguards Specialist of ISP and Provincial Deputy Project Director's Office of the PMU and the contractor jointly. The Environmental and Social Safeguards Specialist of ISP will need to visit the site on a monthly or quarterly and report on issues and performance on EMP implementation to the PMU. The Cost of Environmental compliance monitoring would be borne by the ISP project implementation cost.

12. SCREENING DECISION RECOMMENDATION

Majority of the potential adverse effects can be classified as general agricultural activities and construction related impacts and can be mitigated on site with proper engineering interventions. These potential impacts are temporary in nature.

However, farmers required to get water resource board approval with the yield test to implement new water extraction sources such as open wells/agro wells and tube wells. Further, prior recommendation for new water extraction sources should be obtained from the Environment and Safeguard specialist of ASMP. Further, it is required to get a consent letter from department irrigation granting permission to access water from the Rajanganaya Irrigation Scheme for the farmlands during the project implementation. It is recommended to start the project work off-season for upland cultivation and avoid night time work. Plastic and polythene waste is significant during cultivation and post-harvest. Hence, safe disposal system for polythene should be arranged. Reuse and recycling of polythene bags should be encouraged. Pradeshiya Sabha polythene collectors can be used for disposal of polythene waste. Implementation of the EMP is sufficient to mitigate the identified impacts.

In addition, following recommendations are proposed based on the activities:

Agriculture activities: Proper implementation of Integrated Pest Management practices proposed above should be highly encouraged and use of chemical fertilizers should be avoided. Water conservation practices such as proposed micro sprinkling should be encouraged and farmers should be educated on the benefits of the same. Reuse/recycling of fruit bags is recommended up to maximum possible. Failing with, proper segregation, collection and disposal of waste through LA's collectors is recommended. Organic solid waste should be directed to the compost facility as much as possible.

Post harvesting practices at the collection centre: Degradable wastes and non-degradable waste should be segregated properly and degradable can be directed to the compost while non-degradable should be reuse, and recycle as much and if not disposed through LA. Domestic wastewater should be soaked through pits without discharging to adjoining drains.

Improvements of Rural roads: Implementation of the Environmental Management Plan will be sufficient to mitigate the identified impacts and EMP shall be updated with detailed designs of infrastructure improvements. Health and Safety proactive measures should be implemented by the

contractors. Siltation of adjoining drains, canals, streams, etc will be significant as roads will be basically earth filling and should implement mitigation measures proposed in the EMP. Avoid construction of lengthy sections at a time to avoid disturbances to the public. Proper traffic arrangements including diversions, signs, etc should be available. Construction activities should be restricted to 0600-1800hours to avoid inconvenience to the general public. Disposal of soil abruptly should be avoided which can leads to many environmental issues. Maximum of 250m stretch should be open at a time for construction to minimise the public convenience.

Table 14: Screening Recommendations for each activity

Key recommendations	**Actions / Approvals to be attended**	**Time period to attend each action**	**Responsibility / Remarks**
Construction of Agro Wells	Obtain WRB Recommendations with yield test reports	Before mobilise contractors to construct wells	ISP PPMU Engineer-PMU
Use of Rajanganaya Water	Obtain written consent from the Department of Irrigation - Rajanganaya	Urgently	ISP PPMU
Disposal of Waste (Plastics and polythene)	Start collection and segregation of waste Reuse and Recycle Dispose through LAs Implement Waste Minimization Programme	During harvesting During harvesting time	FOs ISP PPMU ISP PPMU
Integrated Pest Management Practices	Implement IPM activities proposed above at each stage	From land preparation onwards	National and International Agronomist – ISP Agronomist – PPMU
Construction of rural roads	Construction of silt-traps where drains and canals are adjoining which has the potential for siltation	During construction of rural roads	Civil Engineer – ISP PPMU

13. DETAILS OF PERSONS RESPONSIBLE FOR THE ENVIRONMENTAL SCREENING

Screening report completed by **J.A.P. Jayaweera** National Safeguards Specialist ISP/ASMP ***Name/Designation/Contact information***	**Date** April 2022  ***Signature***
Screening report reviewed by **D.M. Sanjaya Bandara** Environment and Social Safeguard Specialist Agriculture Sector Modernization Project ***Name/Designation/Contact information***	**Date** 20 June 2022  ***Signature***
Screening report Approved by **Dr. Rohan Wijekoon** Project Director Agriculture Sector Modernization Project ***Name/Designation/Contact information***	**Date** 20 June 2022  ***Signature***

ANNEXURE 1: LIST OF REFERENCES

1) https://en-in.topographic-map.com/maps/gmcr/Sri-Lanka
2) https://portals.iucn.org/library/efiles/documents/2005-016.pdf
3) https://core.ac.uk/download/pdf/33720752.pdf
4) www.anuradhapura.dis.gov.lk/images/PDF/Statistical

ANNEXURE 2: BENEFICIARY LIST

Track 01												
№	**Name of the farmer**	**Contact No**	**Address**	**Gender**	**NIC**	**Land extent of proposed crop (Acres)**	**Presence of land**	**Ownership**	**Available of security fence**	**Availability of water annually**	**Irrigation system**	**Water resource**
1	H.P.P.P. Wanigasooriya	765256136	No: 25, Track 01, Rajanganaya	F	686502090V	1	Yes	Yes	Yes	Yes	Surface water	Canal
2	R.M.A.G. Rathnayaka	714902202	Track 01, Ussana, Rajanganaya	M	720584174 V	2	Yes	Yes	Yes	Yes	Surface water	Canal
3	K.P.G. Padhmasiri	776557473	Guruge House, Track 01, Rajanganaya	M	580020658 V	1 1/2	No	No	Yes	Yes	Surface water	Canal
4	R.P. Sriyani Ramya Priyadarshani	784425194	No: 116, Track 01, Rajanganaya	F	687233468 V	1/2	Yes		Yes	Yes	Surface water	Canal
5	K.G. Palitha Kusumsiri	765583602	No: 112, Track 01, Rajanganaya	M	198105402605	1	No		Yes	Yes	Surface water	Canal
6	R.P. Rohan Ranasinghe	762422695	No: 115, Track 01, Rajanganaya	M	197916703860	1	No		Yes	Yes	Surface water	Canal
7	K.G. Harendra Thushara	767430222	No: 121, Track 01, Rajanganaya	M	770901030 V	3	Yes	Yes	Yes	Yes	Surface water	Canal
8	W, P, Aruna Pradeep Ruwan Kumara	760762915	Near the Agrarian Centre, Track 1, Rajanganaya	M	752144079 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
9	M.R.U.R.K. Jayathilaka	716303752	No.36/1, Track 1, Rajanganaya	M	712861660 V	3/4	Yes	Yes	Yes	Yes	Surface water	Canal
10	H.S. Dinusha Premalal	758974221	No.32, Track 1, Rajanganaya	M	772052693 V	1 1/2	Yes	Yes	Yes	Yes	Surface water	Canal
11	K.G. Nimoniyan	767430222	No.120, Track 1, Rajanganaya	M	492070017 V	2	Yes	Yes	Yes	Yes	Surface water	Canal
12	K.A. Premadasa Kaluarachchi	711303447	No.119, Track 1, Rajanganaya	M	501934062 V	1/2	Yes	Yes		Yes	Surface water	Canal
13	N.A.P. Sunil	717235714	No.111, Track 1, Rajanganaya	M	650452259 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
14	K.P. Ravindra Karunarathna	702698000	No: 117, Track1, Rajanganya	M	500895863	1 1/2	No		Yes	Yes	Surface water	Canal
15	M.A. Manjula Pushpa Kumara	713431143	No: 136, Track1, Rajanganya	M	800713145 V	2	Yes	Yes	Yes	Yes	Surface water	Canal
16	K.D. Nadeeka Sandamali	729301905	No: 119, Track1, Rajanganya	F	198566401007	2	No	Leased land	Yes	Yes	Surface water	Canal
17	K.G. Ananda Kusumsiri	767616915	Near the School, Track 01, Rajanganaya	M	650034180 V	1	Yes	Leased land	Yes	Yes	Surface water	Canal
18	W.K. Sajitha Indaika	771153360	No.61, Track 01, Rajanganaya	M	772644116 V	5 1/2	Yes	Yes	Yes	Yes	Surface water	Canal
19	Padhmini Munasinghe	789405327	No.189, Track 01, Rajanganaya	F	74840263 V	2 1/2	Yes	Yes	Yes	Yes	Surface water	Canal
20	S.P. Ajith Nishantha	723955960	No.122, Track 01, Rajanganaya	M	740503286 V	1 1/2	Yes	Yes	Yes	Yes	Surface water	Canal
21	W. Pradeep Kumara	711604050	No.31, Track 01, Rajanganaya	M	823290179 V	3 1/2	Yes	Yes	Yes	Yes	Surface water	Canal
22	L.Nilmini Chandrika		No.108, Track 01, Rajanganaya	F	766913768 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
23	K.M. Sharly Maxsimas	766780243	No.09, New Village, Track 01, Rajanganaya	M	743533712 V	4	Yes	Yes	Yes	Yes	Surface water	Canal
24	R.P. Piyarathna	711317920	No.122, Track 01, Rajanganaya	M	480250010 V	4	Yes	Yes	Yes	Yes	Surface water	Canal

Track 01												
№	**Name of the farmer**	**Contact No**	**Address**	**Gender**	**NIC**	**Land extent of proposed crop (Acres)**	**Presence of land**	**Ownership**	**Available of security fence**	**Availability of water annually**	**Irrigation system**	**Water resource**
25	I.I. Sunil Vijesiri	767008458	No.35, Upland Irrigation Section, Track 01, Rajanganaya	M	611713428 V	3 1/2	Yes	Yes	Yes	Yes	Surface water	Canal
26	R.P. Prasanna Rathnayaka	711317920	No.31, Track 01, Rajanganaya	M	850374414 V	4	Yes	Yes	Yes	Yes	Surface water	Canal
27	P.A. Munasinghe		No.46, Track 01, Rajanganaya	M	601264110 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
28	P.G. Kalyani Premalatha	712616888	No.101, Track 01, Rajanganaya	F	656060433 V	2 1/2	Yes	Yes	Yes	Yes	Surface water	Canal
29	Y.A. Nalin Kamal Asiri	725152234	Temple Lane, The Ascending Part, Track 01, Rajanganaya	M	791053633 V	7	Yes	Yes	Yes	Yes	Surface water	
30	Y.A. Anura Kamalasiri	723770423	No.13, Track 01, Rajanganaya	M	802331541 V	5 1/2	Yes	Yes	Yes	Yes	Surface water	Canal
31	W.K. Asela Indika Siriwardana	767696643	No.41, Track 01, Rajanganaya	M	753210404 V	2	No	Rent land	Yes	Yes	Surface water	Canal
32	G.D. Addin	763802033	The Ascending Part, Track 01, Rajanganaya	M	690023963 V	4	Yes	Yes	Yes	Yes	Surface water	Canal
33	H.R. Lesli Gunawardhana	755395831	The Ascending Part, Mail Post 05, Rajanganaya	M	773113424 V	2	Yes	Yes	Yes	Yes	Surface water	Canal
34	W.K.D. Lanka Kumara	718062665	The Ascending Part, Track 01, Rajanganaya	M	711982205 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
35	L.A.D. Joshap Haisan Appuhami	777295839	Bihainde The School, Track 01, South Bank, Rajanganaya	M	883222954 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
36	P. Chandima Lakmini	767749337	No.50, Track 01, Rajanganaya	F	788582862 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
37	M.I.P. Jayathilaka	771252398	No.18, Track 01, Rajanganaya	M	773112398 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
38	J.M. Rathnasiri Pushpa Kumara	723942441	No.41, Track 01, Rajanganaya	M	750452183 V	2 1/2	Yes	Yes	Yes	Yes	Surface water	Canal
39	W.A. Anura Chandradasa	712511340	No.24, Track 01, South Bank, Rajanganaya	M	652803423 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
40	M.S.P. Jayathilaka	778892370	No.98, Bakery Junction, Mail Post 05, Rajanganaya	M	198524704300	1	Yes	Yes	Yes	Yes	Surface water	Canal
41	P. Gunarathna	252275247	Track 01The Ascending Part, Rajanganaya	M	581823177 V	2	Yes	Yes	Yes	Yes	Surface water	Canal
42	P.A. Lakshitha Madhushanka	789556907	Track 01The Ascending Part, Rajanganaya	M	911882086 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
43	K.T.A. Sampath Kumara	728423088	Track 01The Ascending Part, Rajanganaya	M	782483811 V	2	No	Leased land	Yes	Yes	Surface water	Canal
44	W.M.N. Wijekoon	715418387	Near the Agrarian Centre, Track 1, Rajanganaya	F	838664547 V	1		Land for rent for cultivation	Yes		Surface water	Canal
45	L.A.D. Chamil Jayashantha	712864118	No.01, Track 01, Rajanganaya	M	822521894 V	1	Yes	Yes	Yes	Yes	Surface water	Canal

Track 01												
№	**Name of the farmer**	**Contact No**	**Address**	**Gender**	**NIC**	**Land extent of proposed crop (Acres)**	**Presence of land**	**Ownership**	**Available of security fence**	**Availability of water annually**	**Irrigation system**	**Water resource**
46	K.A. Dilani Madhumali	720975840	No.15, New Village, Track 01, Rajanganaya	F	885663311 V	5	Yes	Yes	Yes	Yes	Surface water	Canal
47	T. Wasantha	761137656	New Village, Track 01, Rajanganaya		726371180 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
48	K.M. Wasantha Anura	724015805	New Village, Track 01, Rajanganaya	M	690782014 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
49	K.P. Susantha Karunanayaka	767745848	No.117, Track 01, Rajanganaya	M	781763861 V	1/2	Yes	Yes	Yes	Yes	Surface water	Canal
50	W. Pradeep Vije Kumara	726983012	Track 01, Rajanganaya	M	197824404450	1/2	No	Yes	Yes	Yes	Surface water	Canal
51	I.J. Roshan Chamara Jayarathna		No. 35/A, Track 01The Ascending Part, Rajanganaya	M	871302740 V	1/2	Yes	Yes	Yes		Surface water	Canal
52	R.A. Saman	725152101	No.53, Track 01, Rajanganaya	M	722503392 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
53	R.V.A. Dharmasena	762645840	The Ascending Part, Track 01, Rajanganaya	M	661652659 V	5	Yes	Yes	Yes	Yes	Surface water	Canal
54	R.D. Sanath Nandasiri	716258288	No.128, Track 01, Rajanganaya	M	711981691 V	2	Yes	Yes	Yes	Yes	Surface water	Canal
55	H. Chandradasa	767441168	No.27, Track 01	M	573303326 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
56	R.A. Samantha Rajapaksha	724393909	No.42, Track 01, Rajanganaya	M	752322619 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
57	D.M. Sarath Kumara Hemachandra	717645175	No.29, Track 01, Rajanganaya	M	632973918 V	2	Yes	Yes	Yes	Yes	Surface water	Canal
58	P.K. Amith	760446507	No.33, Track 01, Rajanganaya	M	883394070 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
59	A.G. Ajith Kumara	711522746	Track 01, Rajanganaya	M	731360901 V	1/2	Yes	Yes	Yes	Yes	Surface water	Canal
60	K.A. Samantha Ananda	781968472	No.38, Track 01, Rajanganaya	M	780384328 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
61	H.D. Wasantha Pradeep	710615175	No.45, Track 01, Rajanganaya	M	832631248 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
62	K.K. Cevinda Ananda	7031611851	No.38, Track 01, Rajanganaya	M	733320608 V	2	Yes	Yes	Yes	Yes	Surface water	Canal
63	K.K. Rasika Udayanga	773843656	No. 67/A, Track 01, The Ascending Part, Rajanganaya	M	890502369 V	1/2	No	Land for rent for cultivation	Yes	Yes	Surface water	Canal
64	S.A. Richad Kumara	779478889	Lamali Stores, Trak 01, Rajanganaya	M	622403544 V	1	Yes	Land for rent for cultivation	Yes	Yes	Surface water	Canal
65	Y.G. Niroshika Amarasinghe	719155254	The Ascending Part, Track 01, Rajanganaya	F	867212795 V	1	Yes	Yes	Yes	Yes	Surface water	Cultivation well
66	U.P. Gamini	701626060	No68, The Ascending Part, Track 01, Rajanganaya	M	196812804214	1 1/2	Yes	Yes	Yes	Yes	Surface water	Canal
67	A.K. Rohini	723502828	Lanka Hardwer,5 Mile Post, tract 1, Rajanganaya	F	615231100V	5	Yes	Yes	Yes	Yes	Surface water	Canal

Track 01												
№	**Name of the farmer**	**Contact No**	**Address**	**Gender**	**NIC**	**Land extent of proposed crop (Acres)**	**Presence of land**	**Ownership**	**Available of security fence**	**Availability of water annually**	**Irrigation system**	**Water resource**
68	K.P. Ranjith Nissanka	725360089	No: 95/1, The Ascending Part, Track 01, Rajanganaya	M	19733062088	1/2	Yes	Yes	Yes	Yes	Surface water	Canal
69	D.M. Ajith Manjula	763636074	No: 50, Vihara Mawatha, The Ascending Part, Rajanganaya	M	801422152V	1	Yes	Yes	Yes	Yes	Surface water	Canal
70	S.P. Sumanarathna	716729778	New Village, Track 01, Rajanganaya	M	741272040V	1	Yes	Yes	Yes	Yes	Surface water	Canal
71	I.P.A. Thilani Nadeeshani	726038806	No: 9/1, tract 1, Rajanganaya	F	856070417V	1/2	Yes	Yes	Yes	Yes	Surface water	Canal
72	M.M.A.S. Premakumara	725151999	Colony Shop, tract 1, Rajanganaya	M	693143195V	6	Yes	Yes, land for rent for cultivation, leased land	Yes	Yes	Surface water	Canal
73	J.A. Ashoka	775724524	No: 37, tract 1, Rajanganaya	M	773641048V	1/2	Yes	Yes	Yes	Yes	Surface water	Canal
74	Piyal Nishantha Perera	781421865	No: 95, The Ascending Part,5 Mile Post, Rajanganaya	M	197211701930		No				Surface water	
75	Y. Samantha	771054910	No: 107, tract 1, Rajanganaya	M	800483212V		Yes	Yes	Yes	Yes	Surface water	Canal

Track 02												
№	**Name of the farmer**	**Contact No**	**Address**	**Gender**	**NIC**	**Land extent of proposed crop (Acres)**	**Presence of land**	**Ownership**	**Available of security fence**	**Availability of water annually**	**irrigation System**	**Water Resource**
1	P.K. Rani		No.171, Track 02, Rajanganaya	F	656422130 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
2	A.A. Danee Sisira Kumara	711473821	No.173, Track 02, Rajanganaya	M	652382568 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
3	A.M. Dinesh Sri Adikari	788180470	No.167, Track 02, Rajanganaya	M	682613694 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
4	B. Amarawathi	788255554	No.154, Track 02, Rajanganaya	F	608373730 V	1.5	Yes	Yes	Yes	Yes	Surface water	Canal
5	T. Jayarathna	713640191	No.138, Track 02, Rajanganaya	M	612363242 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
6	A. Nimal	755395008	No.123, Track 02, Rajanganaya	M	713460842 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
7	C.A.D.S. Priyantha	772516143	No.168, Track 02, Rajanganaya	M	680311510 V	1 1/2	Yes	Yes	Yes	Yes	Surface water	Canal

Track 02												
№	Name of the farmer	Contact No	Address	Gender	NIC	Land extent of proposed crop (Acres)	Presence of land	Ownership	Available of security fence	Availability of water annually	irrigation System	Water Resource
8	K.A. Ranjan Pradeep	257927325	No.178, Track 02, Rajanganaya	M		0.5	Yes	Yes	Yes	Yes	Surface water	Well
9	A.R.D.L.R. Ramanayaka	718272715	No.146, Track 02, Rajanganaya	M	792550533 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
10	R.M. Jayantha Kumara	717067442	No.125, Track 02	M	741241781 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
11	K.A. Nandana Sarath Kumara	715919070	No.36, Track 02, Rajanganaya	M	780532017 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
12	L.G.J. Karunarathna	711892202	No.185, Track 02, Rajanganaya	M	552322592 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
13	K. Premachandra	776183869	No.76, Track 02, Rajanganaya	M	593413730 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
14	K.D. Siripala		No.76, Track 02, Rajanganaya	M	551143279 V	01 Feb	Yes	Yes	Yes	Yes	Surface water	Canal
15	W.D. Karunarathna	780872930	track 02,18 Canal, Rajanganaya	M		1.5	Yes	Yes	Yes	Yes	Surface water	Canal
16	K.K. Chandrasena	785528700	No.175, Track 04, Rajanganaya	M	782713090 V	1	Yes	Mortgaged Land	Yes	Yes	Surface water	Canal
17	P. Gayan Asanka Perera	710655131	01 Canal, Track 02, Rajanganaya	M	801013694 V	2	Yes	Yes	Yes	Yes	Surface water	Canal
18	D.L. Chaminda Udaya Kumara	717957990	No: 20,01Canal, Rajanganaya	M	811494143 V	2	Yes	Yes	Yes	Yes	Surface water	Canal
19	S.D. Anoma Nandha Malani	717602643	01, Canal, Rajanganaya	F	1.97158E+11	2	Yes	Yes	Yes	Yes	Surface water	Canal
20	H.A.D.j. Hettiarshshi	711772566	No.69, Track 02, Rajanganaya	M	733392193 V	1	Yes	Leased Land	Yes	Yes	Surface water	Canal
21	L.D. Sunil Ranjith	779593821	No.69, Track 02, Rajanganaya	M	620642991 V	10	Yes	Mortgaged Land	Yes	Yes	Surface water	Canal
22	R.D. Nimalarathna	718493067	No.199/A, Track 02,10 Canal, Rajanganaya	M	722092392 V	1	Yes	Leased Land	Yes	Yes	Surface water	Canal
23	K.T. Sarath Ajith Kumara	740363443	10 Canal, Track 02, Rajanganaya	M	76174341 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
24	T.A. Ashoka Thilakarathna	781932358	No.25,10 Canal, Track 02	F	725933894 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
25	A.G. Chamila Damayanthi		No.191, Track 02, Rajanganaya	F	1.97876E+11	2	Yes	Yes	Yes	Yes		Canal
26	D.M. Nanawathi	726038941	Track 02, No.47, Rajanganaya	F	655704965 V	01 Feb	Yes	Yes	Yes	Yes	Surface water	Canal
27	A.D. Chamila Janaki Kumari	7887193556	01 Canal, Track 02, Rajanganaya	F	1.97885E+11	1	Yes	Yes	Yes	Yes	Surface water	Canal
28	Sarath Kumara Jayawardhana	781058907	Track 02,10 Canal, Rajanganaya	M	721692019 V	1	Yes	Yes	Yes	Yes	Surface water	Canal (Kala Oya)
29	H.D. Ranasinghe	783652420	Track 02,10 Canal, Rajanganaya	M	530363694 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
30	M. Saman Kumara	716429019	Mail Post 4, Sirimapura, Rajanganaya	M	782972618 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
31	H.P. Ajantha Airangani	778929770	No.189, Track 02, Rajanganaya	F	665752950 V	4	Yes	Yes	Yes	Yes	Surface water	Canal
32	Jinapala Warnakulasinghe	719246860	No.75, Track 02, Rajanganaya	M	413430011 V	2	Yes	Yes	Yes	Yes	Surface water	Canal
33	W.A. Chandrasiri	722656748	No.74, Track 02,10 Canal, Rajanganaya	M	631812805 V	1.5	Yes	Yes	Yes	Yes	Surface water	Canal
34	J. Leelarathna	761243642	No.196, Track 02, Rajanganaya	M	1.96012E+11	1	Yes	Yes	Yes	Yes	Surface water	Canal
35	R.G. Sumindha Chinthaka Karunarathna	778145553	No.197, Track 02, Rajanganaya	M	850292973 V	3	Yes	Yes	Yes	Yes	Surface water	Canal

Track 02												
№	Name of the farmer	Contact No	Address	Gender	NIC	Land extent of proposed crop (Acres)	Presence of land	Ownership	Available of security fence	Availability of water annually	irrigation System	Water Resource
36	J.R. Lalith Chandrathika Bandara	789075710	No.213, Track 02, Rajanganaya	M	713522740 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
37	W. Sugandika	716351217	No.76, Track 02, Rajanganaya	F	658472224 V	1	No	Rent	Yes	Yes	Surface water	Canal
38	L.W. Keerthi Rathnayaka	786042050	No.77, Track 2,10 Canal, Rajanganaya	M	812503375 V	1	Yes	Yes	Yes	Yes	Surface water	Canal
39	H.D. Ruwan Prageeth Ranasinhe	729580187	No.70, Track 2,10 Canal, Rajanganaya	M	791934028 V	1	yes	Yes	Yes	Yes	Surface water	Canal
40	P.H.G. Ariyasinghe	712907116	Wale Kade, Track 2, Rajanganaya	M	631853277 V	1	yes	yes	yes	yes	Surface water	Canal
41	R.M.K.K. Dissanayake	766088804	No:54, Track 05, Rajanganaya	M	771421792V	1	No	Bed farming	Yes	Yes	Surface water	Canal
42	A.G. Biso Menike	716780017	No:104, Track 03, Rajanganaya	F	1.97465E+11	01 Feb	Yes	Own	Yes	Yes	Surface water	Canal
43	P.A. Darmasena	722911888	No:235, Track 02, Rajanganaya	M	1.99211E+11	2	Yes	Own	Yes	Yes	Surface water	Canal
44	R.P.C. Samudra	726498150	No: 215.Track 02, Rajanganaya	F	1.98864E+11	2	Yes	Own	Yes	Yes	Surface water	Canal
45	G.D. Mahinda Nimal	768555899	No:63, Track 02, Rajanganaya	M	630691877V	6	Yes	Own	Yes	Yes	Surface water	Canal
46	K. Muditha Dinesh Rohana	789440741	No:60, Track 02, Rajanganaya	M	863544440V	1	Yes	Own	Yes	Yes	Surface water	
47	K.A. Devika Sudarshani	723955964	No:38, Track 02, Rajanganaya	F	718043476V	1	Yes	Own	Yes	Yes	Surface water	Canal
48	W. Rangalla	252275113	No:39, Track 02, Rajanganaya	M	320230020V	1	Yes	Own	Yes	Yes	Surface water	Canal
49	D. K alyanawathei	713516866	No:131, Track 02, Rajanganaya	F	565494473V	1	Yes	Own	Yes	Yes	Surface water	Canal
50	N. Karunathilaka	775233558	No:80, Track 02, Rajanganaya	M	571723409V	1	Yes	Own	Yes	Yes	Surface water	Canal
51	M.Anoma Nandani	784950300	No:93, Saliya Mawatha, Track 02, Rajanganaya	F	787804101V	1	Yes	Own	Yes	Yes	Surface water	Canal
52	H. Sthija Madhuranga	715662443	No:87, Saliya Mawatha. Rajanganaya	M	961014182V	01 Feb	Yes	Own	Yes	Yes	Surface water	Canal
53	K.R. Niranjala	714718525	No:185, Track 04, Rajanganaya	F	1.97166E+11	4	Yes	Own	Yes	Yes	Surface water	Canal
54	R.P. Darmaveera	702190055	No:84, Track 03Rajanganaya	M	570415255	1		Mortgage Land	Yes	Yes	Surface water	Canal
55	U.G. Rohitha	725152710	Ajantha Trade Centre, Track 03, Rajanganaya	M	731240132V	1 1/2	Yes	Own	Yes	Yes	Surface water	Canal
56	U.G. Dhammika Sarath Kumara	725152099	Ajantha Trade Centre, Track 03, Rajanganaya	M	791221340V	3	Yes	Own	Yes	Yes	Surface water	Canal
57	A.G. Dayananda	704926553	No:2, Track 03, Rajanganaya	M	671703138	1	Yes	Own	Yes	Yes	Surface water	Canal
58	B.V.R. Nilanthi	704926553	No:2, Track 03, Rajanganaya	F	1.97477E+11	1	Yes	Own	Yes	Yes	Surface water	Canal
59	J.R. Upul Ukgoda	711340015	No: 29, Track 03, Rajanganaya	M	1.97808E+11	3	Yes	Own	Yes	Yes		Canal
60	B.M. Heenbanda	0726`93544	No: 30, Track 03, Rajanganaya	M	510851781V	2	Yes	Own	Yes	Yes	Surface water	Canal
61	K.G. Renuka Nirmalee	776324279	No: 30, Track 02, Rajanganaya	F	736571242	1	Yes	Own	Yes	Yes	Surface water	Canal
62	A.G. Sirisena	774267450	No: 12, Track 02, 10 Ela, Rajanganaya	M	492770027	1		Own	Yes	Yes	Surface water	Canal
63	G.S. Priyankara		24 Ela Rd, Track 02, Rajanganaya		861861937V	1	Yes	Own	Yes	Yes	Surface water	Canal

Track 02												
№	Name of the farmer	Contact No	Address	Gender	NIC	Land extent of proposed crop (Acres)	Presence of land	Ownership	Available of security fence	Availability of water annually	irrigation System	Water Resource
64	M.R.G.S. Mapitiya	711808250	No: 146, Track 02, 24 Ela, Rajanganaya	M		1 1/2	Yes	Own	Yes	Yes	Surface water	Canal
65	W.A. Chandima Lakmal	771343277	222 Ela 24, Track 02, Rajanganaya		850343071	1	Yes	Own	Yes	Yes	Surface water	Canal
66	A. Leelarathna	719167646	223. 24 Ela, Track 02, Rajanganaya	M	540432384V	2	Yes	Own	Yes	Yes	Surface water	Canal
67	K.H.L. Jayakodi	779551768	24 Ela, Track 02, Rajanganaya	M	683231290	1 1/2	Yes	Own	Yes	Yes	Surface water	Canal
68	H. Raveendra Rupasinhge	724198576	No: 119, Track 02, Rajanganaya	M	1.97602E+11	2	Yes	Own	Yes	Yes	Surface water	Canal
69	K.H. Chaminda Kumara	781787825	24 Ela, Track 02, Rajanganaya	M	853603392V	1	Yes	Own	Yes	Yes	Surface water	Canal
70	S.P. Susantha Gunasekara	782049211	No: 192, Track 02, 24Ela, Rajanganaya	M	1.97504E+11	2	Yes	Own	Yes	Yes	Surface water	Canal
71	M.K.D. Prasanna Jayalath	774613760	Track 02, 10Ela, Rajanganaya	M	1.98031E+11	2	Yes	Own	Yes	Yes	Surface water	Canal
72	U. Upali Navarathna	723554620	No.233, Track 02, Rajanganaya	M	681882626V	2	Yes	Own	Yes	Yes	Surface water	Canal
73	M.G.D.J. Ravindra	773044594	4 1/2 Mail Post, Rajanganaya	M	783471655V	6		Leased Land	Yes		Surface water	Canal
74	M. Darmarathna	711829350	No: 230, Track 02, Rajanganaya	M	1.95321E+11	01 Feb	Yes	Own	Yes	Yes	Surface water	Canal
75	A.A. Senavirathna	716505234	No:166, Track 05, Rajanganaya	M	810044705V	2	Yes	Own	Yes		Surface water	Canal
76	M. Priyanga Padmasiri	777622533	No: 193, Track 02, Rajanganaya		800363888V	2	Yes	Own	Yes	Yes	Surface water	Canal
77	B.A.S.J. Perera	716986544	No: 152, Track 02, Rajanganaya	M	1.97232E+11	3rub	Yes	Own	Yes	Yes	Surface water	Canal
78	Y.A.B. Perera	767816637	No:205, Track 02, Rajanganaya	M	751791429V	1	Yes	Own	Yes	Yes	Surface water	Canal
79	K.K. Janith Nalaka	712606449	25 1/4 Mail Post, Rajanganaya	M	851863494	2	Yes	Own	Yes	Yes	Surface water	Canal
80	P.M.A. Piyantha	784950300	No: 93, Track 02, Saliya Mw, Rajanganaya	M	731363811V	01 Feb	Yes	Own	Yes	Yes	Surface water	Canal
81	R.D. Jayasena	711066906	No: 126, Track 02, Rajanganaya	M	421310670	2	Yes	Own	Yes	Yes	Surface water	Canal

Track 03													
No	**Name of the farmer**	**Contact No**	**Address**	**Gender**	**NIC**	**Agreed Quantity for proposed crop with the ASMP (Acres)**	**Presence of land**	**Ownership**	**Available of security**	**Availability of water**	**irrigation System**	**Water Resource**	
1	W.W. Liyanage	718612409	Ussana Track 6, Angamauwa, Rajanganaya	M	820631366V	No	Yes	Own	Yes	Yes	Surface water	Canal	
2	G.G.S.A. Gampalage	760983775	No: 44, Track 03, Rajanganaya	M	713541214V	1/2	Yes	Own	Yes	Yes	Surface water	Canal	
3	R.G.N.R. Menike	716475031	No: 2/143, Track 05, Rajanganaya	F	197757202169	2	Yes	Own	Yes	Yes	Surface water	Canal	
4	L.H. Nandasiri	711871517	No: 150, Track 03, Rajanganaya	M	620574155V	5	Yes	Own	Yes	Yes	Surface water	Canal	
5	P.M.A. Nilanthi	786549670	No: 43, Track 03. Rajanganaya	F	757543320V	1	Yes	Own	Yes	Yes	Surface water	Canal	
6	A.G. Thilakarathna	774201502	Track 03, Rajanganaya	M	682042626V	5	Yes	Own	Yes	Yes	Surface water	Canal	
7	P.G. Nimal Jayarathna	717087365	No: 149, Track 03, Rajanganaya	M	196430523768	1	Yes	Own	Yes	Yes	Surface water	Canal	
8	M.P. Darmasena	783907574	No: 129, Track 03, Rajanganaya	M	N0	1/2	Yes	Own	Yes	Yes	Surface water	Canal	
9	H.P. Sampath Leelarathna	786280275	No: 51, Track 03, Rajanganaya		197804101686	3/4	Yes	Own	Yes	Yes	Surface water	Canal	
10	W.P. Wickramasingha	725123443	No: 124, Track 03, Rajanganaya	M	653124139V	1/2	Yes	Own	Yes	Yes	Surface water	Canal	
11	P. Silman	766547300	No: 19, Track 03, Rajanganaya		502282840V	1 1/2	Yes	Own	Yes	Yes	Surface water	Canal	
12	W.G. Mithrawathi	711310198	No: 25, Track 03, Rajanganaya	F	516411970V	1/2	Yes	Own	Yes	Yes	Surface water	Canal	
13	A.G. Gunarathna	725175541	No: 28, Track 03. Rajanganaya	M	610843743V	No	Yes	Own	Yes	Yes	Surface water	Canal	
14	K.R. Dingiribanda	72478857	No:27, Track 03, Rajanganaya	M	491670690	No	Yes	Own	Yes	Yes	Surface water	Canal	
15	A Dharmarathna	705652761	No: 48, Track 03, Rajanganaya	M	1955020041	Yes	Yes	Own	Yes	Yes	Surface water	Canal	
16	M.G. Sumanasinhga	789346636	No: 157, Track 05. Rajanganaya	M	633630070V	1	Yes	Own	Yes	Yes	Surface water	Canal	
17	R.D.R.W. Rajapaksha	724145692	No: 43, Track 03. Rajanganaya	M	660312668	2	Yes	Own	Yes	Yes	Surface water	Canal	
18	D.P. Thilakarathna	763070395	No: 4, Track 03, Rajanganaya	M	500613629V	No	Yes	Own	Yes	Yes	Surface water	Canal	
19	E.M. Sanjeewa Jayarathna	712342133	No: 71, Track 03, Rajanganaya	M	82169656V	1	Yes	Own	Yes	Yes	Surface water	Canal	
20	K.R. Lalith Gunarathna	711859251	No: 130, Track 03, Rajanganaya	M	852380390V	2	Yes	Own	Yes	Yes	Surface water	Canal	
21	A.G. Ranasinghe	703984787	FC 1 Ela, Track 03, Rajanganaya	M	582211302V	No	Yes	Own	Yes	Yes	Surface water	Canal	
22	E.M. Upali Somasiri	771795085	No: 37, Track 03, Rajanganaya	M	681523499V	1/2	Yes	Own	Yes	Yes	Surface water	Canal	
23	U.R. Rukman Nishsntha	722151462	No: 22, Track 03, Rajanganaya	M	198221632031	1/2	Yes	Own	Yes	Yes	Surface water	Canal	
24	P.G. Chandrawathi	711490904	No: 126, Track 03, Rajanganaya	F	586192817V	1/2	Yes	Own	Yes	Yes	Surface water	Canal	
25	I.P.A. Jayasekara	716522203	No: 128, Track 03, Rajanganaya	M	601122251V	1	Yes	Own	Yes	Yes	Surface water	Canal	
26	Udayakumara Ranathunga	719799466	No: 108, Track 03, Rajanganaya	M	763642488V	1 1/2	Yes	Own	Yes	Yes	Surface water	Canal	
27	M. Wijirathna	7146374778	No: 33, Track 03, Rajanganaya	M	195800700469	1	Yes	Own	Yes	Yes	Surface water	Canal	
28	P.G.R. Sunil Jayasinghe	711580074	No: 49, Track 03, Rajanganaya	M	631713696V	1 1/2	Yes	Own	Yes	Yes	Surface water	Canal	
29	S.D. Dayarathna	712938407	No: 42, Track 03, Rajanganaya	M	610794742V	1	Yes	Own	Yes	Yes	Surface water	Canal	
30	K.A. Gunathilaka Banda		No: 228, Track 03, Rajanganaya	M	602803759V	1/2	Yes	Own	Yes	Yes	Surface water	Canal	
31	A. Uddika Enil Surangajeewa	712706044	No: 54, Track 03, Rajanganaya	M		No	Yes	Own	Yes	Yes	Surface water	Canal	
32	S.M.A.A. Kumara	771792940	No: 46, Track 03, Rajanganaya	M	812912500V	1	Yes	Own	Yes	Yes	Surface water	Canal	
33	I.G.N. Kumari	711321297	No: 66, Track 03, Rajanganaya	F	835803309V	1/2	Yes	Own	Yes	Yes	Surface water	Canal	
34	A.V. Wasantha Bandara		No: 110, Track 03, Rajanganaya	M	803110948V	1	Yes	Own	Yes	Yes	Surface water	Canal	

Track 03													
No	**Name of the farmer**	**Contact No**	**Address**	**Gender**	**NIC**	**Agreed Quantity for proposed crop with the ASMP (Acres)**	**Presence of land**	**Ownership**	**Available of security**	**Availability of water**	**irrigation System**	**Water Resource**	
35	A.A. Peramasiri	718949107	No: 06, Track 03, Rajanganaya	M	195832002919	1	Yes	Own	Yes	Yes	Surface water	Canal	
36	D.A.N. Damayanthi	771343277	No: 222, (24 Ela), Track 03, Rajanganaya	F		1	Yes	Own	Yes	Yes	Surface water	Canal	
37	s. Hemantha Prasanna	776721757	No: 114, Track 03, Rajanganaya	M	832730360V	2	Yes	Own	Yes	Yes	Surface water	Canal	
38	H.B.S. Herath	779597263	No: 59, Track 03, Rajanganaya	F	648212887V	1	Yes	Own	Yes	Yes	Surface water	Canal	
39	K.G. Susanth Srilal	782911789	No: 127, Track 03, Rajanganaya	M	682393262V	1/2	Yes	Own	Yes	Yes	Surface water	Canal	
40	W.D. Jayathissa	788910235	No: 122, Track 03, Rajanganaya	M	663634135V	1	Yes	Own	Yes	Yes	Surface water	Canal	
41	V.R. Sanjeewa Pradeep	70574999	No: 103, Track 03, Rajanganaya		850350230V	1/2	Yes	Own	Yes	Yes	Surface water	Canal	
42	P. Rasika Harshani	722871741	No: 135, Track 03, Rajanganaya	F	198064202320	1	Yes	Own	Yes	Yes	Surface water	Canal	
43	I.G. Vijerathna	76527260	No: 118, Track 03, Rajanganaya	M	581062443V	1/2	Yes	Own	Yes	Yes	Surface water	Canal	
44	E. G. Thilak Kumara	782927994	No: 117, Track 03, Rajanganaya	M	790650720V	2	Yes	Own	Yes	Yes	Surface water	Canal	
45	M. Pushpa Ranjani	253852865	Near Isuru Seed Farm, Track 04, Rajanganaya	F	655720863V	1	Yes	Own	Yes	Yes	Surface water	Canal	
46	M.D.G.C. Shantha Kumara	716302185	Near Isuru Seed Farm, Track 04, Rajanganaya	F	655720863V	1	Yes	Own	Yes	Yes	Surface water	Canal	
47	D.K. Ajith Kumara	765726953	No: 64, Track 03, Rajanganaya	M	792561195V	1	Yes	Own	Yes	Yes	Surface water	Canal	
48	R.P. Sriwardana	718896157	No: 134, Track 03, Rajanganaya	M	571711214V	1	Yes	Own	Yes	Yes	Surface water	Canal	
49	K.R. Ruchith Gunarathna	721472944	No: 130, South t Bank, Track 03, Rajanganaya	M	823193173V	2	Yes	On a rental basis	Yes	Yes	Surface water	Canal	
50	K.P. Ranathunga	711937426	No: 137, Track 03, Rajanganaya	M	551803244V	1	Yes	Own	Yes	Yes	Surface water	Canal	
51	A.V. Dinesh Ruwan Kumara	715858739	No: 149, Near Sanasa, Track 04, Rajanganaya	M	871933545V	2	Yes	Own	Yes	Yes	Surface water	Canal	
52	S.D. Vijedasa	787768117	No: 21, Track 03, Rajanganaya	M	553491070V	1/2	Yes	Own	Yes	Yes	Surface water	Canal	
53	I.G.P. Vijerathna	0717917523V	No: 118, Track 03, Rajanganaya		850820449V	1 1/2	Yes	Own	Yes	Yes	Surface water	Canal	
54	D.P. Nalinda Priyankara	726967860	No: 133, Track 03, Rajanganaya	M	932271480V	1	Yes	Own	Yes	Yes	Surface water	Canal	
55	D.T. Malinda Priyankara	767408961	No: 133, Track 03, Rajanganaya	32	892950822V	1	Yes	Own	Yes	Yes	Surface water	Canal	
56	H.M.C. Edirisinghe	714131110	No: 62, Track 03, Rajanganaya	M	953403684V	1	Yes	Own	Yes	Yes	Surface water	Canal	
57	A.M.S. Wasantha	712867882	No: 66, Track 03, Rajanganaya	M	872544798V	1/2	Yes	Own	Yes	Yes	Surface water	Canal	
58	K.R.N.C. Bandara	705740708	No:54, Track 04, Rajanganaya	M	831930560V	1	Yes	Own	Yes	Yes	Surface water	Canal	
59	R.B. Nandana	725421721	Second Double Culvert, Track 03, Rajanganaya	M	652750343V	1	Yes	Own	Yes	Yes	Surface water	Canal	
60	H.G. Gayan Prasad Lalindra	718205924	No: 4, Track 04, Rajanganaya	M	801604056V	1	Yes	Own	Yes	Yes	Surface water	Canal	
61	M.V.R. Thilak Kumara	716916721	No: 63, Bathla Mw, Track 04, Rajanganaya	M		2	Yes	Own	Yes	Yes	Surface water	Canal	
62	A.W.G.G.C.L. Wickramasinghe	770788250	Jeewa Iron Warks, Track 03, Rajanganaya	M	791980216V	1/2	Yes	Own	Yes	Yes	Surface water	Canal	
63	U.W.G.C.R. Pradeep Jayasinghe	779844648	No: 45, Track 03, Rajanganaya	M	791101280V	1	Yes	Own	Yes	Yes	Surface water	Canal	
64	E.M. Jinadas	719073913	No: 1/227, Track 03, Rajanganaya	M	6122600290V	1	Yes	Own	Yes	Yes	Surface water	Canal	
65	B. Jayasundara	711835541	No: 106, Track 03, Rajanganaya	M	550960869V	1	Yes	Own	Yes	Yes	Surface water	Canal	
66	W.D. Thusara Wijesinghe	768081315	Near the Polkotuwa, Track 03, Rajanganaya	M	853630233V	1/2	Yes	Own	Yes	Yes	Surface water	Canal	
67	S.H.M. Chandrasiri	717567167	No: 74, Track 03, Rajanganaya	M	69195248V	1/2	Yes	Own	Yes	Yes	Surface water	Canal	
68	B.G. Anura Sujeewa	713581551	Wasantha Stores, Track 03, Rajanganaya	M	196812104593	1/2	Yes	Own	Yes	Yes	Surface water	Canal	

Track 03													
No	**Name of the farmer**	**Contact No**	**Address**	**Gender**	**NIC**	**Agreed Quantity for proposed crop with the ASMP (Acres)**	**Presence of land**	**Ownership**	**Available of security**	**Availability of water**	**irrigation System**	**Water Resource**
69	W. Suneetha Damayanthi	786706087	Fc 10 Ela, Track 03, Rajanganaya	F	79517136V	1/2	Yes	Own	Yes	Yes	Surface water	Canal
70	S.P. Henri Jayasena	715869824	No: 1, Track 04, Rajanganaya	M	195412702798	1/2	Yes	Own	Yes	Yes	Surface water	Canal
71	W.A. Karunawathi	716554086	Fc9 Ela, Track 03, Rajanganaya	F	495481859V	1	Yes	Own	Yes	Yes	Surface water	Canal
72	H.M.S.K. Herath	711888795	Kandegedara, Track 03, Rajanganaya	F	625743524V	1	Yes	Relatives	Yes	Yes	Surface water	Canal
73	K.G. Rajitha Prasanna	783881599	Fc 10 Ela, Track 03, Rajanganaya	M	852000767V	1	Yes	Own	Yes	Yes	Surface water	Canal
74	R.G. Nandasiri	789781433	Fc 10 Ela, Track 03, Rajanganaya	M	852000767V	1	Yes	Own	Yes	Yes	Surface water	Canal
75	P.G. Kalyani Somalatha		Near the Polkotuwa House, Track 03, Rajanganaya	F	615061255V	1/2	Yes	Own	Yes	Yes	Surface water	Canal
76	R.M. Jeewani Smudrika	762232416	No: 162, Track 03, Rajanganaya	F	708633275V	1	Yes	Own	Yes	Yes	Surface water	Canal
77	W.P. Indrasiri Udaya Kumara	713034935	No: 132, Track 03, Rajanganaya	M	752391407V	4 1/2	Yes	Own	Yes	Yes	Surface water	Canal
78	W.A. Samaraweera	711735135	Polkotuwa, Track 03, Rajanganaya	M	570910884V	1	Yes	Own	Yes	Yes	Surface water	Canal
79	R.G. Niranjala Kumari	768578037	No: 148, Track 03, Rajanganaya	F	197554203408	1/2	Yes	Own	Yes	Yes	Surface water	Canal
80	I.A. Wickramasinghe	717401626	Fc 20 Ela, Track 03, Rajanganaya	M	541462171V	1/2	Yes	Own	Yes	Yes	Surface water	Canal
81	W.V. Vajira Pushpa Kumari	779772290	Near the Second Double Culvert, Track 05, Rajanganaya	F	7674909933V	1	Yes	Own	Yes	Yes	Surface water	Canal
82	W.G. Sarath Kumara Weedagama	705555676	Weedagama Stores, Track 04, Rajanganaya	M	808463375V	1 1/2	Yes	Own	Yes	Yes	Surface water	Canal
83	M.Chadrani Munasinghe	768553610	No: 36, Track 03, Rajanganaya	F	705040346V	1/2	Yes	Own	Yes	Yes	Surface water	Canal
84	G.G. Abeyrathna	703385269	No: 39, Track 03, Rajanganaya	M	522235938V	2	Yes	Own	Yes	Yes	Surface water	Canal
85	N.D. Premadasa	778629304	No: 2, Behind the School, Track 04, Rajanganaya	M	531792904V	1/2	Yes	Own	Yes	Yes	Surface water	Canal
86	M.P. Indrani Marasinghe	705747053	No: 6, Track 03, Rajanganaya	F	687623258V	1/2	Yes	Own	Yes	Yes	Surface water	Canal
87	D.P. Samarasinghe	255719161	No: 05, Track 03, Rajanganaya	M	561044430V	1/2	Yes	Own	Yes	Yes	Surface water	Canal
88	T. Nilantha Jyarathna	728543511	No: 3/15, Track 03, Rajanganaya	M	1984-1604942	1	Yes	Leased Land	Yes	Yes	Surface water	Canal
89	H.P.J. Kelum Jayarathna	725903297	No: 09, Track 03, Rajanganaya	M	853044440V	1/2	Yes	Own	Yes	Yes	Surface water	Canal
90	A.G. Dayananda	704926553	No: 02, Track 03, Rajanganaya	M	671703138V	1	Yes	Own	Yes	Yes	Surface water	Canal
91	S.H.M. Ranjith Senavirathna	787173944	Fc 20 Ela, Track 03, Rajanganaya	M	650322657V	1/2	Yes	Own	Yes	Yes	Surface water	Canal
92	S.D. Krishantha Shyamali	725514497	No: 179, Track 03, Rajanganaya	F	838012604V	4	Yes	Own	Yes	Yes	Surface water	Canal
93	W.G. Dammika Nissanka	788188756	No: 31, Track 03, Rajanganaya	M	833473930V	1	Yes	Own	Yes	Yes	Surface water	Canal
94	K.P.T. Dammika Weerasooriya	776796587	No: 144, Track 03, Rajanganaya	M		1/2	Yes	Own	Yes	Yes	Surface water	Canal
95	R. Madusanka	7121229903	No: 88, Track 03, Rajanganaya	M	961224306V	1	Yes	Own	Yes	Yes	Surface water	Canal
96	G.G. Priyantha Manoj	714394476	No: 26, Track 03, Rajanganaya	M	843523587V	1/2	Yes	Own	Yes	Yes	Surface water	Canal
97	M.V.P. Vijerathna Banda	711116319	No: 7, Track 03, Rajanganaya	M	650514785V	3/4	Yes	Own	Yes	Yes	Surface water	Canal
98	M.V.R. Vijeweera Banda	767000872	No: 14, Track 03, Rajanganaya	M		1	Yes	Own	Yes	Yes	Surface water	Canal
99	K.G. Siripala	715125217	No: 13, 1 Ela, Track 04, Rajanganaya	M	742690547V	1	Yes	Own	Yes	Yes	Surface water	Canal
100	G.G. Vijerathna	711420501	No: 39, Track 03, Rajanganaya	M	197232800648	1/2	Yes	Own	Yes	Yes	Surface water	Canal
101	U.R. Upul Ukgoda	711340015	No: 29, Track 03, Rajanganaya	M	197808402610	2	Yes	Own	Yes	Yes	Surface water	Canal
102	K.G. Rajitha Prasanna	783881599	No: 100, Track 03, Rajanganaya	M	842262003V	1/2	Yes	Own	Yes	Yes	Surface water	Canal

Track 03												
No	**Name of the farmer**	**Contact No**	**Address**	**Gender**	**NIC**	**Agreed Quantity for proposed crop with the ASMP (Acres)**	**Presence of land**	**Ownership**	**Available of security fence**	**Availability of water annually**	**irrigation System**	**Water Resource**
103	K.R. Tharuka Madusanka	771157405	No: A/75, Track 03, Rajanganaya	M	952930052V	1	Yes	Own	Yes	Yes	Surface water	Canal
104	H.R. Jayasekara	767925432	No: 80, Track 03, Rajanganaya	M	700952045V	2	Yes	Own	Yes	Yes	Surface water	Canal
105	W.P. Jayathilaka	710537352	Behind the School, Track 04, Rajanganaya	M		3/4	Yes	Own	Yes	Yes	Surface water	Canal
106	N.A. Chandana Pushpa Kumara	787148030	No: 36, Track 03, Rajanganaya	M	197930603253	1/2	Yes	Own	Yes	Yes	Surface water	Canal
107	D.A. Nandasiri	776281065	Second Double Culvert, Track 03, Rajanganaya	M	681154027V	1/2	Yes	Own	Yes	Yes	Surface water	Canal

Track 04												
No	**Name of the farmer**	**Contact No**	**Address**	**Gender**	**NIC**	**Agreed Quantity for proposed crop with the ASMP (Acres)**	**Presence of land**	**Ownership**	**Available of security fence**	**Availability of water annually**	**irrigation System**	**Water Resource**
1	I.G.K. Priyanka Damayanthi	771889828	No.34, 01 Canal, Track 4, Rajanganaya	M	197550703903	2	No	Rent For land	Yes	Yes	Surface water	Irrigation Canal
2	J.A. Keerthi Kalum Kumara	789593895	7 Canal, Track4	M	803293597 V	5	Yes	Rent For land	Yes	Yes	Surface water	Irrigation Canal
3	N.A. Malinda Prasadh Ranathungha	714721387	No.2, Track 4, Rajanganaya	M	821470099 V	2	Cultivation by bed	No	Yes	Yes	Surface water	Irrigation Canal
4	T.P.G. Jayantha Sarath Alwis	722515145	No.77, Thack 4, Rajanganaya	M	703563023 V	2.5	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
5	J.P. Pradeep Kumara	770342648	F.C.14, Track 4, Rajanganaya	M	197201303474	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
6	K.G. Ariyawathi	728811571	1 Canal, Track 4, Rajanganaya	F	16560203	3/4	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
7	W. Palitha	7225152261	No.174, Bathala Mawatha, Track 04, Rajanganaya	M	651722409 V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
8	W.K. Upali Ranjith	719786383	Track4,1canal, Rajanganaya	M	711121528 V	1	No	Rent For land	Yes	Yes	Surface water	Irrigation Canal
9	B.M. Leeratahna		1 canal, Track 4, Rajanganaya	M	R.J.N.19510404	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
10	E.D. Piyadasa	771889828	1canal, Track 4, Rajanganaya	M	481710731 V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
11	B.M. Gamini	729369087	1canal, Track 4, Rajanganaya	M	681070915	1/2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
12	L.K.L. Chamara Niwanthaka	720819339	No.174, Track 04, Rajanganaya	M	85220408 V	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
13	M.G. Layanal Vijesiri	789765636	No.04, Track 04,1 Canal, Rajanganaya	M	592103230 V	1	Yes	Own Land	Yes	Yes	Surface water	irrigation Canal
14	L.K.L. Chandrasiri	27208119339	No: 9, Track 4, Rajanganaya	M	531073355 V	2	Yes	Own Land	Yes	Yes	Surface water	irrigation Canal
15	T.G. Manju	7818770622	No. 17,1 Canal, Track 4, Rajanganaya	M	891444524 V	1	Yes	Own Land (From Father)	Yes	Yes	Surface water	irrigation Canal

Track 04													
No	**Name of the farmer**	**Contact No**	**Address**	**Gender**	**NIC**	**Agreed Quantity for proposed crop with the ASMP (Acre)**	**Presence of land**	**Ownership**	**Available of security fence**	**Availability of water annually**	**irrigation System**	**Water Resource**	
16	B.E.G. Sisisra Wasantha	712387310	No. 15, Track 4, Rajanganaya	M	833052071 V	1	Yes	Own Land	Yes	Yes	Surface water	irrigation Canal	
17	N.A.S. Dayas	788089517	1 Canal, Track 4, Rajanganaya	M	902601554 V	1	yes	Own Land	Yes	Yes	Surface water	irrigation Canal	
18	Nandana Weerasooriya	723726759	Track 4, 1canal, Rajanganaya	M	742933237 V	1	No	Bed Farming	Yes	Yes	Surface water	irrigation Canal	
19	K.G. Siripala	715125217	Track 4,1 canal, Rajanganaya	M	742690547 V	3 1/2	Yes	Own Land	Yes	Yes	Surface water	irrigation Canal	
20	N.W.A.L. Dayas	719032250	1 Canal, Track 4, Rajanganaya	M	198500094594	2	Yes	From Mother	Yes	Yes	Surface water	irrigation Canal	
21	M.W. Mahathun	710598033	No.115, Track 4, Rajanganaya	M	571942372 V	2	Yes	Own Land	Yes	Yes	Surface water	irrigation Canal	
22	N.A. Ashoka Ruwan Kumamra	721035831	No.09, 1 Canal, Track 4, Rajanganaya	M	810463210 V	2	Yes	Own Land	Yes	Yes	Surface water	irrigation Canal	
23	D.Niroshi Surangika	788918062	No.29,1 Canal, Track 4, Rajanganaya	F	838401678 V	1 1/2	Yes	Own Land, Leased Land	Yes	Yes	Surface water	Irrigation Canal	
24	K.G. Chamara Sandaruwan	785911312	No.26,1 Canal, Track 4, Rajanganaya	M	982553113V	1	Yes	Leased Land	Yes	Yes	Surface water	Irrigation Canal	
25	G.G. Gunapala	775759363	No: 102, Track 4, Rajanganaya	M	571820870V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal	
26	B.G.S. Manjula	754252438	No.26,1 Canal, Track 4, Rajanganaya	M	9116662647V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal	
27	K.L.G. Indralal	776130764	No.20, Track 4, Rajanganaya	M	592282801V	4	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal	
28	Ruwan Weerasooriya	788348559	No: 91, Track 04, Rajanganaya	M	197834800760	1	Yes	Leased Land	Yes	Yes	Surface water	Irrigation Canal	
29	K.L.G.I.D. Madhuranga	712027204	No.20, Track 4, Rajanganaya	M	941154506V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal	
30	T.G. Sugath	712797537	Track4,1canal, Rajanganaya	M	831821620V	1/2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal	
31	D.T. Nimal Vijitha Kumara	712571478	4 1/2 Mail Post, Nawasirigama, Rajanganaya	M	683324396V	5	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal	
32	M.G. Karunasena	784363352	No25, Track 04, Rajanganaya	M	461711362V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal	
33	S.t. Sman Kumara	784850527	F.C.1, Track 4, Rajanganaya	M	791762723V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal	
34	U.A. Kelum Jayalath	779442866	Rajanganaya, Second Double Culvert, Track 05	M	823561612V	2	No	Leased Land	Yes	Yes	Surface water	Irrigation Canal	
35	T.N. Piyaseeli	711622003	Track4, Rajanganaya, 8 canal,	F	536700595V	3 1/2	No	Own Land	Yes	Yes	Surface water	Irrigation Canal	
36	M.G. Jayantha	723854521	Track 4,1 Ela, Rajanganaya	M	760571342V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal	
37	M.V.R. Vijerathna Bandara	784830953	No63, Track 04, Rajanganaya	M	810330457V		No	Tenant farmers	Yes	Yes	Surface water	Irrigation Canal	
38	W.G. Ranasinghe Weedagama	0705555676V	Weedagama Stores, Track 04, Rajanganaya	M	810330457V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal	
39	Saliya Susanda Pimiwela	712740644	No: 50, Track 04, Rajanganaya	M	752822964V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal	
40	W.K. Seelawathi	253253038	No: 72, Track 04, Rajanganaya	F	485380868V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal	
41	Asitha Rathnayaka	773041035	F.C. 05 Ela, Track 04, Rajanganya	F	781622001V	1/2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal	
42	K.S. Rushan Chaminda	71949377	F.C.12 Ela, Track 04, Rajanganya	M	822023665V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal	
43	T.G. Wejiseksra	715510118	No: 110, 7 Ela, Track 04, Rajanganya	M	196431904155		Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal	

Track 04												
No	**Name of the farmer**	**Contact No**	**Address**	**Gender**	**NIC**	**Agreed Quantity for proposed crop with the ASMP (Acre)**	**Presence of land**	**Ownership**	**Available of security fence**	**Availability of water annually**	**irrigation System**	**Water Resource**
44	K.A. Chamika Gayan Madusanka	789542957	4 Ela, Track 04, Rajanganya	M	962670857V	2	Yes	Own Land	Yes	Yes	Surface water	
45	D.T. Manjula Malkanthi	763687177	F.C.4 Ela, Track 04, Rajanganya	F	758580652V	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
46	S. Geeth Mohanlal	779220165	No: 33, Track 04, Rajanganya	M	76011708V	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
47	D.A. Sunil Padmasiri	767053051	No: 10, Track 04, Rajanganya	M	772834098V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
48	K.G. Saman Pushpa Kumara	778732635	No: 49, Track 04, Rajanganya	M	762094517V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
49	M.H. Niroshan Saman Kumara	771810499	No: 159, Track 04, Rajanganya	M	823013418V	1/2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
50	D.A. Gunasiri	772493146	No: 162, Track 04, Rajanganya	M	712913185V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
51	D.W. Dahanayaka	718086615	No: 52, Track 04, Rajanganya	M	195219301558	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
52	E.G. Prasad Mahinda weerakoon	775765482	Near lotus lake, Track 04, Rajanganya	M	800322111V	1	Yes	Rent For land	Yes	Yes	Surface water	Irrigation Canal
53	D.L. Sundara	716216440	No: 85, Track 04, Rajanganya		57306282V	1/2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
54	O.V. Ranil Saminda	787919360	No: 05, Track 04, Rajanganya	M	812691490V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
55	G.K. Priyanth Godawaththa	711055260	No84, Track 04, Rajanganya		197427100874	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
56	T. Karunawathi	7764115018	F.C. 04 Ela, Rajanganya		535739186V	1		Own Land	Yes	Yes	Surface water	Irrigation Canal
57	K.R. Wimal Shantha		F.C.10 Ela, Track 03, Rajanganya	M	731234174V	1		Rent For land	Yes	Yes	Surface water	Irrigation Canal
58	D.P. Malinda	767408961	No: 133, Track 04, Rajanganya	M	892950822V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
59	K.G. Senavirayhna	729057734	Samadhiya, Track 05, Rajanganaya	M	196228800350	1/2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
60	M.H. Dilrukshika Jayasekara	767617152	No: 133, FC 14 Ela, Track 04, Rajanganya	F	806362719	1/2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
61	M.D. Hemasiri	729820946	FC 05 Ela, Track 04, Rajanganya	M	642263056V		Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
62	L.P. Wimalarathna	712206594	04 Ela, Track 04, Rajanganya	M	502931547V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
63	D.M. Wasantha Kumara	776115654	Wasantha, FC 04 Ela, Rajanganya	M	743341871V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
64	W.A. Gunawardhana	783550134	FC 04 Ela, Track 04, Rajanganya	M	523460986V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
65	A.T.S. Advin	763033045	No: 44, Track 04, Rajanganya	M	771080693V		Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
66	S.S.A. Wickramasinghe	774259986	Track 4, Saliyagama		501684422V	No	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
67	W.A. Manoj Priyantha Diyas	770542568	FC 03, Track 04, Rajanganaya	M	790911210V		Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
68	W.L. Lalith Prasanna	729608635	FC13 Ela, Track 04, Rajanganya	M	782895338V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
69	K.K. Senavirathna	779524415	FC04 Ela, Track 04, Rajanganya		633402922V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
70	R.M. Kavindu Dushan Rathnayaka	778176261	FC 09 Ela, Track 04, Rajanganaya	M	19931811032		Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
71	R.D.W. Dasanayaka	716360961	No: 53, Track 04, Rajanganaya	M	821801303V	1/2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
72	G.K. Seelawathi	717464998	FC04 Ela, Track 04, Rajanganya	F	538284564V		Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
73	W.J. Jayantha Widanagama	725421720	No: 44, Track 04, Rajanganya	M	771023282V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
74	B.G. Anusha Priyangani	774298110	No: 41, B Track 04, Rajanganaya	F	727100313V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
75	P.K. Samak Aruna Kumara	714664657	No: 26, Track 04, Rajanganya	M	891913800V		Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal

Track 04													
No	**Name of the farmer**	**Contact No**	**Address**	**Gender**	**NIC**	**Agreed Quantity for proposed crop with the ASMP (Acre)**	**Presence of land**	**Ownership**	**Available of security fence**	**Availability of water annually**	**irrigation System**	**Water Resource**
76	D.Chandralatha Thennakoon	776766198	No: 82, Track 4, Rajanganaya		726551995V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
77	P.K. Niluka Swarnalatha	7707811230	Wasantha Trade Centre, Track 04, Rajanganya	F	776380776V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
78	M.A. Sajith Malinda Chathumal	789047800	No: 144, Track 04, Rajanganya	M	960671856V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
79	D.T. Nalinda Priyankara	726967860	No: 133, Track 04, Rajanganya		932271486V	1	No	Rent For land	Yes	Yes	Surface water	Irrigation Canal
80	N. Chathuranga Vitharana	789326599	No: 144/2, Track 04, Rajanganya		860652838V	1	No	Rent For land	Yes	Yes	Surface water	Irrigation Canal
81	W.I. Premalal	71133440	Track 04, Rajanganya	M	771521355V	1/2	No	Own Land	Yes	Yes	Surface water	Irrigation Canal
82	T.M.A. Thennakoon	725152464	No: 197, Track 04, Rajanganya	M	762083027V	1	No	Own Land	Yes	Yes	Surface water	Irrigation Canal
83	S. Thusara Sampath Subasinghe	725514497	No: 179, Track 4, Rajanganaya	M	197901705522	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
84	U.G. Samantha Pushpa Kumara	717765449	No: 119, Track 4, Rajanganaya	M	800100143V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
85	W.K.A.N. Chandrasiri	712314802	No: 106/1, Track 04, Rajanganya	M	670873790V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
86	M.A. Samiyj Nilanka Munasinghe	72252005	No: 10, Track 04, Rajanganya	M	822452019V	1/2	Yes	Own Land		Yes	Surface water	Irrigation Canal
87	R.P. Ariyawathi	773847412	Track 05, In front of the Cooperative	F	497300576V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
88	P.A. Prasanna	771586332	No: 99, Track 04, Rajanganya	M	760902195V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
89	C.N.W. Dahanayaka	701126550	No: 135, Track 04, Rajanganya	F	825861459V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
90	M.K. Sujith Kumara	725152728	No: 152, Track 4, Rajanganaya	M	772683456V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
91	J.A. Osman	778060431	No: 130, Track 4, Rajanganaya	M	781843920V	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
92	M.W.M. Chamila Kumara	775467586	No: 115, Track 4, Rajanganaya	M	882102815V	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
93	M.W.M. Mahesh Chandra Kumara	775467586	No: 115, Track 4, Rajanganaya	M	840432033V	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
94	W.A.I.S. Warnasinghe	719089561	No: 141/2, Track 04, Rajanganya	M	900670834V	3/4	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
95	M.P.N. Shantha	762187160	No: 144/1, Track 04, Rajanganya	M	742391345V	2	Yes	Rent For land	Yes	Yes	Surface water	Irrigation Canal
96	M.G. Chandra Pathmini	721445934	No244/1, Track 4, Rajanganaya	F	725792476V	1	Yes	Mortgage Land	Yes	Yes	Surface water	Irrigation Canal
97	K. L. G. Sriyani		No: 107, Track 4, Rajanganaya	F	655882537V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
98	N.G. Nilanthi	771824097	No: 142, Track 04, Rajanganya	F	197875302020	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
99	K. L. G. Ranjith Wasantha Kumara	779520211	No96, Track 4, Rajanganaya		722070968V	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
100	A. G. K. Kumari	781780232	No: 66, Track 04, Rajanganya	F	197381302963	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
101	B.G. Jayanth Senavirathna	757088058	No: 16, Track 04, Rajanganya	M	740322761V	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
102	L.W. Keerthi Rathnayaka	786042050	No: 77, Track 02,10 Ela	M	812503375V	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
103	K.S.K. Jayanath	777291864	FC16 Ela, Track04, Rajanganaya	M	792872433V	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
104	K.A.L.S.P. Kumara	722706458	No: 157, Track 4, Rajanganaya	M	721352560V	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
105	A. Asanga Senavirathna	716505234	No: 166, Track 4, Rajanganaya	M	810044705V	4	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
106	H.G. Chandrasiri	726580412	No: 111, Track 04, Rajanganya	M	196124003740	1 1/2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal

Track 04												
No	**Name of the farmer**	**Contact No**	**Address**	**Gender**	**NIC**	**Agreed Quantity for proposed crop with the ASMP (Acre)**	**Presence of land**	**Ownership**	**Available of security fence**	**Availability of water annually**	**irrigation System**	**Water Resource**
107	G.K. Punayasena	765278382	No: 30, Commercial Land, Kalundegama	M	195803903799	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
108	K.M.S. Konnasinghe	712159204	No225/5, Track 4, Rajanganaya	M	650193520V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
109	N.V. Jayarathna	703378974	No: 127, Track 4, Rajanganaya	M	483613741V	1 1/2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
110	W.K.K. Ariyasena	701609312	No35, Track 4, Rajanganaya	M	542891076V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
111	B.G. Kamal Kumara	705354510	Wasantha Trade Centre, Track 03, Rajanganya	M	751081723V	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
112	S.P. Susantha Gunasekara	782049211	24 Ela, Track 02	M	750411452	1/2	No	Mortgage Land	Yes	Yes	Surface water	Irrigation Canal
113	D.M. Nanda Kumara	701307436	No: 149, Track 4, Rajanganaya	M	762892812V	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
114	W.A.N. Premarathna	0784386102/ 0761331630	No: 178, Track 4, Rajanganaya	M	793475039V	1 1/2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
115	K.K. Siriyawathi	765491340	No: 129, Track 4, Rajanganaya	F	546740200V	1 1/2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
116	W.E.M. Kusumawathi	768703086	No09, Track 4, Rajanganaya	F	197265702895	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
117	K.G. Manjula Wasantha	789060825	Road behind the school, Track 04, Rajanganaya	M	743040333V	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
118	E.N. Ekanayaka	717188113	No: 141, Track04, Rajanganaya	F	708250856V	3	No	Own Land	Yes	Yes	Surface water	Irrigation Canal
119	S.H.A. Pushpa Kumari	725152265	No: 137, Track04, Rajanganaya	F	197780703137	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
120	K.M. Chandani Kumudu Kumari	788887243	No: 57, Track 03, Rajanganaya	F	747260630V	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
121	T.G. Gunasekara	705759901	FC Ela, Track 04, Rajanganaya	M	611113030v	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
122	K.K. Ariyabandu	717442802	No: 67, Track 04, Rajanganaya	M	###########	1 1/2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
123	S. Lakshani	762201451	No: 67, Track 05, Rajanganaya	F		1	Yes	Mortgage Land	Yes	Yes	Surface water	Irrigation Canal
124	M.W. Heenbanda	0789697610 / 0786290259	No: 21, Behind the Hospital, Elevation Section	M	541704884V	2	Yes	Son's Land	Yes	Yes	Surface water	Irrigation Canal
125	D.M.G. Raveendra Kumara	717618427	No: 61, Track 04	M	197827801049	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
126	R.M.K. Rathnayaka	778083121	No: 228, Rajanganaya left bank	M	882812847V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
127	H.B. Kamalawathi	717128347	FC 8 Ela, Track 04, Rajanganaya	F	626234380V	No	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
128	K.L. Pathmakumara	714394807	No: 30, Track 04, Rajanganaya	M	613510885V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
129	H.P. Himanka Suneth	784425188	N023,4 1/2 Mail Post, Nawasirigama, Rajanganaya	M	820214820V	1/2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
130	B.G. Prasadani Gamage	717645279	No: 149, Track 5, Rajanganaya	F	865043864V	2	Yes	Mortgage Land	Yes	Yes	Surface water	Irrigation Canal
131	M.A. Sajith Malinda	789047800	No: 144, Track 04, Rajanganya	M	960671856V	3/4	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal

Track 05												
No	**Name of the farmer**	**Contact No**	**Address**	**Gender**	**NIC**	**Agreed quantity for proposed crop with the ASMP**	**Presence of land**	**Ownership**	**Available of security fence**	**Availability of water annually**	**irrigation System**	**Water Resource**
1	H.A. Manoj Dilana	762201452	No.67, Track 5, Rajanganaya	M	952464156 V		Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
2	P.V. Mala Damayanthi	705742005	No.18Upland Irrigation Section, Randenigama, Track 5, Rajanganaya	F	716021580 V	3/4	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
3	W.R. Pemawathi	713445615	No.39, Track 5									
4	P.G.S. Udaya Kumara	724644279	No.73, Track 5, Rajanganaya	M	753463380 V	3	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
5	P.G. Ranjith Kulathungha	712492174	No.240, Track 5, Rajanganaya	M	198224202543	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
6	J.D.D. Sameera Kumara	782806084	No.309, Track 5, Rajanganaya	M	890383866 V	3	Yes	Tax and Bed Farming	Yes	Yes	Surface water	Irrigation Canal
7	A. Premasiri	777046559	No: 103, Track 5, Rajanganaya	M	741641690 V	3/4	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
8	K.P. Kusuma Ranjani	714083429	Rathne Stores,120, Track 5, Rajanganaya	M	635762314 V	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
9	R.P. Ishara Budhdhika	719131549	No.214, Track 5, Rajanganaya	M	880894463 V	5	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
10	J.M.J. Kalum Rupasena	788513350	No.99, Track 5, Rajanganaya	M	833640240 V	1	Yes	Tax and Bed Farming	Yes	Yes	Surface water	Irrigation Canal
11	K.M. Tissa Vijendra Samaranayaka	724054449	9 Canal, Track 5, Rajanganaya	M	741783207 V	3	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
12	T.M. Jayathilaka		No.43, Track 5, Rajanganaya	M	542230932 V	1	Mortgage Land	Yes	Yes	Yes	Surface water	Irrigation Canal
13	T.M. Wasantha Tennakoon	767696430	No.220, Track 4, Rajanganaya	M	793005342 V	2	Yes	Mortgage Land	Yes	Yes	Surface water	Irrigation Canal
14	M.K.S.J. Samarakoon	723955941	No.145, Track 4, Rajanganaya	M	632794386 V	2	Yes	Yes - owned by the wife	Yes	Yes	Surface water	Irrigation Canal
15	K.S. Mahinda Kumara Werasinghe	764861630	No.35, Track 5, Rajanganaya	M	790162390 V	2	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
16	RD.L. Tissa	783745953	No.242, Track 5	M	590803863 V	1	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
17	H.R.S.R. Lakshman	713730699	No.04, Track 5, Rajanganaya	M	723500281010	2	Yes	yes	Yes	Yes	Surface water	Irrigation Canal
18	T.M.A. Tennakoon	725152464	No.197, Track 4, Rajanganaya	M	762083027 V	3	Yes	Own Land	Yes	Yes	Surface water	Irrigation Canal
19	K.P. Prasanna Sanjeewa	723854528	No.30, Track 5, Rajanganaya	M	772682077 V	3	Yes	Yes - owned by the father	Yes	Yes	Surface water	Irrigation Canal
20	E.A. Sisira Kumara	785529291	No.220, Track 5, Rajanganaya	M	622451735 V	4	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
21	H.R. Sumanapala	723559640	Track 5, Randenigama, Rajanganaya	M	480203259 V	2	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
22	K.H. Jayantha Kumara Weerasinghe	719100983	No.61, Track 5, Rajanganaya	M	732790772 V	1/2	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
23	D.L.U.P. Liyanage	711859870	No.242, Track 5, Rajanganaya	M	752431612 V	4	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
24	D.W. Renuka Priyadarshani	7748744505	No.92, Track4, Rajanganaya	F	707813673 V	4	Yes	yes	Yes	Yes	Surface water	
25	U.A. Sanjaya Madhushanka	785613975	No.15, Track 5, Rajanganaya	M	933283453 V	1	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
26	H.V.A. Gamini	767408674	No.04, Track 5, Rajanganaya	M	643062488 V	1	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal

Track 05												
No	**Name of the farmer**	**Contact No**	**Address**	**Gender**	**NIC**	**Agreed quantity for proposed crop with the ASMP**	**Presence of land**	**Ownership**	**Available of security fence**	**Availability of water annually**	**irrigation System**	**Water Resource**
27	P.H. Gamini Ranasinghe	767609242	No.288, Track 5, Rajanganaya	M	610903320 V	2	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
28	K. Chaminda Kumara Ilangarathna	755450681	No.282, Track 5, Rajanganaya	M	773011001 V	2	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
29	M.M.D. Wimarathna	714749655	9 Canal, Track 5, Rajanganaya	M	196102302442	2	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
30	M.H.K. Chandrapala	777750995	No.274, Track 5, Rajanganaya	M	52354247 V	1	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
31	L.Somarathna	764037353	No.178, Track 4, Rajanganaya	M	198131002935	2 1/2	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
32	R.R. Jantha Rathnayaka	716972412	No.3, Track 5, Rajanganaya	M		5	1/2 (only half an acre legally)	Yes	Yes	Yes	Surface water	Irrigation Canal
33	W.A. Lalani Gunasekara	788206088	No.119, Track 4, Rajanganaya	M	792760244 V	2	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
34	R.P. Nimal Jayarathna	783344829	No.07, Track 5, Rajanganaya	M	631292968 V	3/4	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
35	R.R. Jayasinghe Banda	712607152	No.189, Track 4, Rajanganaya	M	563484225 V	1/2	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
36	R.R. Wasantha Rathnayaka	770844635	No.03, Track 5, Rajanganaya	M	750213650 V	5	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
37	H.G. Vimalasiri	784917560	Track 5, Rajanganaya	M	650584082 V	1/2	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
38	M.A. Ajantha Munasinghe	7854184428	No.83, Track 5, Rajanganaya	M	761322290 V		Yes	yes	Yes	Yes	Surface water	Irrigation Canal
39	E.A. Nilantha Edirisinghe	725540984	No.98, Track 5, Rajanganaya	M	850403929 V	1/2	No	Mortgage Land	Yes	Yes	Surface water	Irrigation Canal
40	D.L. Lalith Liyanage	781932987	Track 5, Rajanganaya	M	197418803627	1/2	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
41	Piyadasa Vitharana	712567030	No.268, Track 5, Rajanganaya	M		2	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
42	D.L. Edvin	764554669	No.243, Track 5, Rajanganaya	M	490881506 V	1	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
43	H.G. Nayana Priyadarshana	775229614	No.51, Track 5, Rajanganaya	M	830102183 V	1 1/2	Yes	yes	Yes	Yes	Upland Irrigation Scheme	
44	P. Premasiri	726013870	No.234, Track 5, Rajanganaya	M	720722879 V	2	Yes	yes	Yes	Yes	Surface water	Irrigation Canal
45	E.W. Nandasena Wijesena	789633527	No.171, Track 5, Rajanganaya	M	640361255 V	3/4	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
46	L.G. Vimalarathna		No.73, Track 5, Rajanganaya	M	533455085 V	1/2	Yes	yes	yes (Boundaries)	Yes	Surface water	Irrigation Canal
47	N.G.I. Saman Gunarathna	786720704	No.18/1, Track 5, Rajanganaya	M	851550160 V	1/2	Yes	yes	Yes	Yes	Upland Irrigation Scheme	Cultivation Well
48	D.W. Santha Disanayaka	783283312	No.11, Upland irrigation Section, Track 5, Rajanganaya	M	752684065 V	1/2	Yes	Yes	Temporary fence	Yes	Surface water	Cultivation Well
49	B.G. Samantha Udaya Kumara	783652215	No.25, Behind the hospital	M	841570146 V	1/2	Yes	Yes	No	Yes	Upland Irrigation	Lunu Oya

Track 05												
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50	W.E.M.T. Mahesh Ekanayaka	787073692		M	198223202085	1/4	Yes	Yes - owned by the mother	No	Yes	Surface water	Lunu Oya
51	H.G. Gunasekara	781213554 - 723943974	No.51, Track 5, Rajanganaya	M	4000661200 V	1	Yes	yes	yes (Boundaries)	Yes	Surface water	Irrigation Canal
52	W.A. Chandrika Sanjeewani Weerasinghe	789075724	Near the Mada Kade, Track 5, Rajanganaya	F	816895057 V	1 1/2	No	Tax and Bed Farming	yes	Yes	Surface water	Irrigation Canal
53	W.P. Sunil Chandrasiri	764023272	No.227, Track 5, Rajanganaya	M		1/2	Yes	Yes - owned by the father	Yes	Yes	Surface water	Irrigation Canal
54	M.H.K. Indrarathna	729437373	Fc 9 Canal, Track 5, Rajanganaya	M	581181744 V	4	Yes	Own Land	yes	Yes	Surface water	Irrigation Canal
55	M.H.K.U.A. Indrarathna	717465040	Fc 9 Canal, Track 5, Rajanganaya	F	866623643 V	2	Yes	Own Land	yes	Yes	Surface water	Irrigation Canal
56	M.H. Anura Chandrasiri Thisera	789387092	No.89, Track 5, Rajanganaya	M	803155380 V	2	Yes	Yes - owned by the father	yes	Yes	Surface water	Irrigation Canal
57	W.A. Sujith Rohana Weerasinghe	781932917	No.68, Track 5, Rajanganaya	M	741022028 V	2	Yes	Yes	yes	Yes	Surface water	Irrigation Canal
58	H.W. Prabodha	721945235	In Charge of the snake doctor, Track 5, Rajanganaya	M	912331784 V	2	Yes	Yes - owned by the father	Yes	Yes	Surface water	Irrigation Canal
59	S.M. Sumanarathna	784443582	No.204, Track 4, Rajanganaya	M	661091266 V	3/4	No	Yes - owned by the father	yes (Boundaries)	Yes	Surface water	Irrigation Canal
60	P.D.C. Sandaruwan Pushpa Kumara	712480858	Fc 5 Canal, Track 5, Rajanganaya	M	900833121 V	1	Yes	Yes	yes	Yes	Surface water	Irrigation Canal
61	K. Mathusena	789797841	Fc 5 Canal, Track 5, Rajanganaya	M	520706828 V	2	Yes	Yes	yes (Boundaries)	Yes	Surface water	Irrigation Canal
62	L.G. Karunarathna	711516148	Lakmal, Track 5, Rajanganaya	M	552291190 V	3 1/2	Yes	yes	yes (Boundaries)	Yes	Upland Irrigation Scheme	Irrigation Canal
63	W. Lasanatha Premathilaka	762652620	No.154, Bathala Mawatha, Rajanganaya	M	873323019 v		No	Mortgage Land	yes (Boundaries)	Yes	Surface water	Irrigation Canal
64	K.B. Priyantha Kalu Bandara	702746943	No.267, Track 5, Rajanganaya	M	711712021 V	1	Yes	Yes -owned by motherr	yes (Boundaries)	Yes	Surface water	Irrigation Canal
65	A.K.A. Sandhya Sandamali	776872282	FC 9 Canal, Track 5, Rajanganaya	F	996560090 V	3/4	Yes	Yes - owned by the father	yes (Boundaries)	Yes	Surface water	Irrigation Canal
66	T.G. Geetika Sandya Kumari	724413014	No.169, Track 5, Rajanganaya	F	19796010088	2	Yes	yes	yes	Yes	Surface water	Irrigation Canal
67	W.N. Nimalsiri	714077916	No.123, Track 5, Rajanganaya	M	610893309 V	1/2	Yes	Yes	yes	Yes	Surface water	Irrigation Canal
68	G.K. Podi Mahaththaya	775119755	No.148, Track 5, Rajanganaya	m	582513283 V	1/2	No	Yes - owned by the brother	yes	Yes	Surface water	Irrigation Canal

Track 05												
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69	N.G. Samantha Priyadarshana	723943974	Tekka Waththa, Track 5, Rajanganaya	M	732830049 V	1	Yes	Yes - owned by the father	yes (Boundaries)	Yes	Surface water	Irrigation Canal
70	H.A. Sunil Shantha	713552336	No.17, Upland Irrigation, Track 5, Rajanganaya	M	850981612 V	2 1/2	No	Mortgage Land	yes (Boundaries)	Yes	Surface water	Irrigation Canal
71	K.A.A. Sunil	781213579	No.28, Track 5, Rajanganaya	M	542011009 V	2	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
72	J.A. Chaminda Kumara	724372162	No.17, Track 5, Rajanganaya	M	197610303767		No	Yes - land owned by the father	Yes	Yes	Surface water	Irrigation Canal
73	D.P. Lasantha Samaranayaka	781059190	No.76, Upland Irrigation, Track 5, Rajanganaya	M	773234353 V	2	Yes	Yes	yes (Boundaries)	Yes	Surface water	Irrigation Canal
74	P.H. Dayananda Karunathilaka	786035396	No.8, Track 5, Rajanganaya	M	6834460820 V	1	Yes	Yes	Yes	Yes	Surface water	Irrigation Canal
75	D.D. Kalinga Bandara	719743737	No.5, Track 5, Rajanganaya	M	813494175 V	2 1/2	No	Mortgage Land	Yes	Yes	Surface water	Irrigation Canal
76	K.P. Nimalathunga	7002810805	No.16, Upland Irrigation, Near the Hospital, Track 5, Rajanganaya	M	5634932316 V	2	No	Mortgage Land	yes	Yes	Surface water	Irrigation Canal
77	L.R. Podi Manike	764002650	No.228, Track 5, Rajanganaya	F	195159010112	2	Yes	yes	yes	Yes	Surface water	Irrigation Canal
78	W.P. Sujith shantha Kumara	703738909	No.63, Track 5, Rajanganaya	M	821403898 V	1	Yes	yes	yes (Boundaries)	Yes	Surface water	Irrigation Canal
79	P.C.I. Pathirana	775638085	No.180, Track 5, Rajanganaya	M	198730902025	2	Yes	yes	yes	Yes	Surface water	Irrigation Canal
80	W. Dinushika Iroshani	783135454	Near the second double bokku, Track 5, Rajanganaya	F	837831075 V	1/2	Yes	Yes - owned by the father	yes	Yes	Surface water	Irrigation Canal
81	D.M. Nalika Dasanthi	712481453	No.249, Track.5, Rajanganaya	F	847112760 V	1/2	Yes	Yes - owned by the father	yes	Yes	Surface water	Irrigation Canal
82	S.D. Deepamal Nanda Kumara	770808146	No.30/B	M	790040481	3	Yes	yes	yes (Boundaries)	Yes	Surface water	Irrigation Canal
83	S.A. Samarathunga		Near the second double bokku, Track 5, Rajanganaya	M	195231701070	1/2	Yes	Own	Yes	Yes	Surface water	Irrigation Canal
84	K.D. Yonath Prenandu	773109939	No.109, Track 5, Rajanganaya	M	460302765 V	1	Yes	own	yes	Yes	Surface water	Irrigation Canal
85	W.M. Karunawathi	788575309	Near the Coop city, Track 5, Rajanganaya	F	196362710051	1 1/2	Yes	own	yes	Yes	Surface water	Irrigation Canal
86	W.G. Ajith Kumara	710702711	No.177/A, Track 4, Rajanganaya	M		3/4	No	Mortgage Land	Yes	Yes	Surface water	Irrigation Canal
87	I.P. Chatnura Pradeep Jayaweera	711892188	No.111, Track 5, Rajanganaya	M	783261790 V	1	Yes	Yes - land owned by the father	yes (Boundaries)	Yes	Surface water	Irrigation Canal
88	S.A. Karunadasa Perera	763657530	No.90, Track 5, Rajanganaya	M	470121084 V	1 1/2	Yes	own				

Track 05												
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89	V.Thalatha Damayanthi	728464710	Near the second double bokku, Track 5, Rajanganaya	F	197655502192	1	Yes	Yes - land owned by the father	yes (Boundaries)	Yes	Surface water	Irrigation Canal
90	D.W. Chaminda Dehiwaththa	789618607	No.98, Upland Irrigation, Behind the Hospital, Track 5, Rajanganaya	M	743171462 V	2	Yes	yes	yes	Yes	Surface water, Upland Irrigation	Irrigation Canal
91	K.A.D. Layanal Gunathilaka	713055958	No.102, Track 5, Rajanganaya	M	195025201470	1	No	Mortgage Land	yes (Boundaries)	Yes	Surface water	Irrigation Canal
92	P.A.N.P. Kalum Siri	724124090	No.95, Track 5, Rajanganaya	M	840420035 V	6	No	Mortgage Land	yes (Boundaries)	Yes	Surface water	Irrigation Canal
93	M.A. Chamara Madushanka	714641024	No.93, Track 5, Rajanganaya	M	872013776 V	3 1/2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
94	W.P. Jagath Kumara Piyatissa	760277882	No.186, Track 5, Rajanganaya	M	713421839 V	2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
95	W. Jayantha Wikkramasiri	726020334	No.260, Track 5, Rajanganaya	M	197125103896	3 1/2	Yes	Mortgage Land	yes (Boundaries)	Yes	Surface water	Irrigation Canal
96	W.A. Shantha Kumara	768656629	No: 6/1l, Track 5, Rajanganaya	M	197403702475	3 1/2	No	Mortgage Land	yes (Boundaries)	Yes	Surface water	Irrigation Canal
97	K. Wayomi Nirasha Bandara	779442868	Near the second double bokku, Track 5, Rajanganaya	F	905682660 V	6	No	Mortgage Land	yes	Yes	Surface water	Irrigation Canal
98	D.A. Premarathna	710575302	No.197/1, Track 5, Rajanganaya	M	570634534 V	2	Yes	Own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
99	R.G. Priyangani Amitha Rajapaksha	715603054	No.199, Track 5, Rajanganaya	F	717211995 V	2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
100	S.P. Nishshanka Premalal	762406142	No.114, Track 5, Rajanganaya	M	671201698 V	3	Yes	Own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
101	V.Indika Udaya Vitharana	717645279	No.147, Track 5, Rajanganaya	M	833252860 V	2 1/2	No	Mortgage Land	yes (Boundaries)	Yes	Surface water	Irrigation Canal
102	W. Prema Jayakodi	713482500	No.106, Track 5, Rajanganaya	F		1	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
103	S.P. Suneth Nisantha	781780015	Fc 12/13, No.174, Track 5, Rajanganaya	M	712142898 V	1/2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
104	K.P. Aruna Senarath	786058752	Fc 12/13, No.174, Track 5, Rajanganaya	M	831815000 V	1	No	Yes - land owned by the father	yes (Boundaries)	Yes	Surface water	Irrigation Canal

Track 05												
No	**Name of the farmer**	**Contact No**	**Address**	**Gender**	**NIC**	**Agreed quantity for proposed crop with the ASMP**	**Presence of land**	**Ownership**	**Available of security fence**	**Availability of water annually**	**irrigation System**	**Water Resource**
105	W.K.A. Nimal Chandrasiri	712314802	No.106/1, Track 4, Rajanganaya	M	196708703790	1	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
106	K.G. Layanal Piyatissa	725355656	No.159, Bathala Mawatha, Track 5, Rajanganaya	M	650512847 V	1	Yes	Own	yes	Yes	Surface water	Irrigation Canal
107	D.P.G. Pushpa Ranjani	718205799	No.155, Bathala Mawatha, Track 5, Rajanganaya	F	615932817 V	1	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
108	K.A.D. Layanal Gunathilaka	713055958	No.102, Track 5, Rajanganaya	M	195025201470	1	No	Mortgage Land	yes (Boundaries)	Yes	Surface water	Irrigation Canal
109	S.D. Senarath Ruwan Gunasena	773770935	No.317, Track3, Rajanganaya	M	198235500787	1	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
110	K.A. Jayarathna	779947910	near the 2nd Dubble Bokkuwa, Track 5, Rajanganaya	M	195222410039	1 1/2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
111	S.P. Pemarathna	255734696	Bathala Mawatha, Track 5, Rajanganaya	M	543580376	1/2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
112	S. Chamindh Sisira Kumara	718963968	No.152B, Atala Mawatha, Track 5, Rajanganaya	M	197927100247	1/2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
113	M.W. Rasika Gunawaradana	779907353	No: 148, Fc15, Track 5, Rajanganaya	F	816372372 V	1	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
114	M.W. Karunarathana	779907353	No: 148, Randenigama, Track 5, Rajanganaya	M	503605317 V	1/2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
115	R.A. Dinesh	782580176	near the 2nd Dubble Bokkuwa, Track 5, Rajanganaya	M	762043386 V	1	Yes	Own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
116	W.A.A. Chithra Gayathri	726728282	near the 2nd Dubble Bokkuwa, Track 5, Rajanganaya	F	835172996 V	2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
117	W.P. Karunathilaka	716684510	No.63, Track 5, Rajanganaya	M	702845114 V	1	No	Mortgage Land	yes (Boundaries)	Yes	Surface water	Irrigation Canal
118	M.K. Chalat	716281413	No.194, Track 4, Kanatha Rd, Rajanganaya	F		1/2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
119	M.P. Nandawathi	779947918	near the 2nd Dubble Bokkuwa, Track 5, Rajanganaya	F	545391473 V	1	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
120	B.A. Chandrasiri	71397669	Behind the School, Track 4, Rajanganaya	M	650690877 V	1 1/2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
121	P.R. Priyantha	771586332	No.79, Track 4, Rajanganaya	M	760902195 V	1 1/2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
122	K.A.D.A.T. Kariyakperuma	71884025	near the 2nd Dubble Bokkuwa, FC 18, Track 5, Rajanganaya	M	792071686 V	1	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal

Track 05												
No	**Name of the farmer**	**Contact No**	**Address**	**Gender**	**NIC**	**Agreed quantity for proposed crop with the ASMP**	**Presence of land**	**Ownership**	**Available of security fence**	**Availability of water annually**	**irrigation System**	**Water Resource**
123	A.G. Biso Manike	779390213	Near the 2nd Dubble Bokkuwa, Track 5, Rajanganaya	F	607093199 V	1/2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
124	I.P. Jayarathna	725152166	No.61, Track 5, Rajanganaya	m	6217703382 V	2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
125	I.Piyasiri Atalugama	767219146	No.65, FC 18, Track 5, Rajanganaya	M	197215203691	1/2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
126	S.P. Susil Chaminda	770229845	Fc 14, Near the 2nd Dubble Bokkuwa, Track 5, Rajanganaya	M	7614519014	3/4	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
127	NH.M. Sepali Dinushika	78218019	No.5, Track 4, Rajanganaya	F	886322992	1/2		Rent	yes (Boundaries)	Yes	Surface water	Irrigation Canal
128	W.A. Thamara Kumari	719473777	No.12, FC 12 Canal, Track 5, Rajanganaya	F		1/2	No	Mortgage Land	yes (Boundaries)	Yes	Surface water	Irrigation Canal
129	K.S. Geethani Chandrika	770342648	Fc 14 Canal, Track 5, Rajanganaya	F	776802301 V	1/2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
130	M.W. Deepika Kumuduni	786668601	Fc 16 canal, Track 4, Rajanganaya	F	198176002827	2	No	Mortgage Land	yes (Boundaries)	Yes	Surface water	Irrigation Canal
131	K.R. Aberathna	720200875	No.54, Track 4, Rajanganaya	M	522285552 V	1/2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
132	G. Gunatilaka	254349040	No.235, Track 5, Rajanganaya	M	593053202 V	1/2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
133	M.Wikkramasinghe	781718576	No.114, Track 5, Rajanganaya	M	612510580 V	1	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
134	I.A. Nishantha Ajith Kumara	779772290	Near the 2nd Dubble Bokkuwa, Track 5, Rajanganaya	M	730430442 V	1	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
135	R.G.G. Chandrasiri	765361450	No.146, Track 3, Rajanganaya	M	751833563 V	1/2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
136	V.Udaya Kalyana	785525448	Behind the School, Track 4, Rajanganaya	M	196828003290	1/2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
137	R.G. Diasnayaka	765351878	No.116/B, Track 3, Rajanganaya	M	5411412371 V	1	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
138	S. Ishan Udaya Kumara	775099220	No.179 /A, Track 4, Rajanganaya	M	831074574 V	2	Yes	own	Yes	Yes	Surface water	Irrigation Canal
139	V.R. Nishshanka Bandara	788887243	No.57, Track 3, Rajanganaya	M	720673762 V	1	Yes	own	Yes	Yes	Surface water	Irrigation Canal
140	S. Thushara Sampath Subasinghe	725514497	No.179, Track 4, Rajanganaya	M	197901705522	1 1/4	Yes	own	yes	Yes	Surface water	Irrigation Canal
141	G.G.A. Ruwan Aberathna	713582324	Bakery Junction, Temple Rd, Rajanganaya	M	833232169 V	2	Yes	own	yes	Yes	Surface water	Irrigation Canal

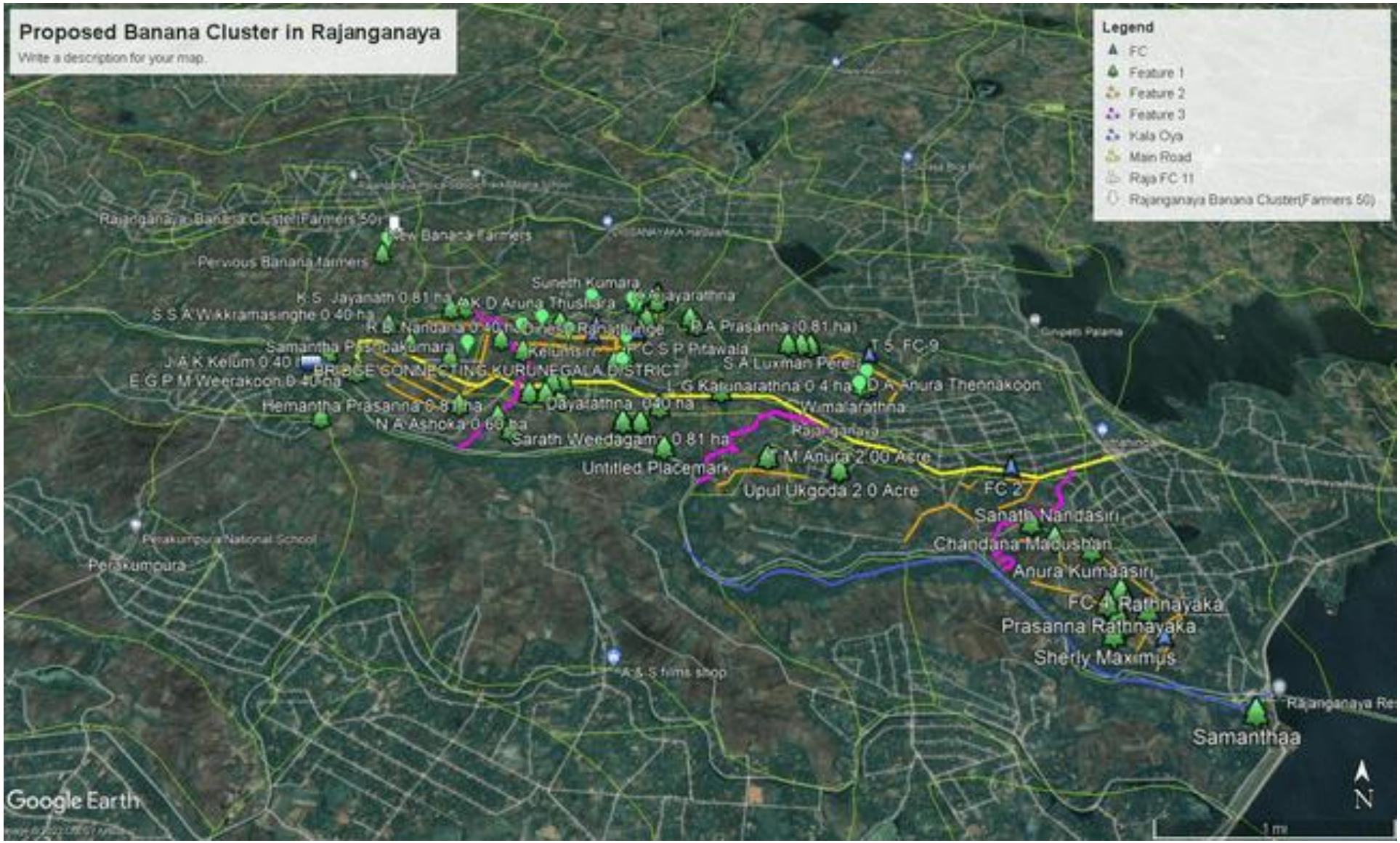
Track 05												
No	**Name of the farmer**	**Contact No**	**Address**	**Gender**	**NIC**	**Agreed quantity for proposed crop with the ASMP**	**Presence of land**	**Ownership**	**Available of security fence**	**Availability of water annually**	**irrigation System**	**Water Resource**
142	K.R. Ananda Bandara Disanayaka	788262727	No.40, Track 5, Rajanganaya	M		2	No	Rent	yes	Yes	Surface water	Irrigation Canal
143	D.M.G. Chamindha Pushpa Kumara	789039670	Near the 2nd Dubble Bokkuwa, Track 5, Rajanganaya	M	821103207 V	1/2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
144	D. Gunasenanasena	719614792	No.301 /B, Track 5, Rajanganaya	M	491400480 V	1/2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
145	W.A. Piyaseeli	728727447	Near the 2nd Dubble Bokkuwa, Track 5, Rajanganaya	F	608358542 V	1/2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
146	J.N. Disnayaka	718018615	No.52, Track 4, Rajanganaya	M	793300026 V	2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
147	S.M. Karunarathna Bandara	763429942	Track.05, Rajanganaya, FC 17 canal	M		3/4	Yes	Own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
148	T.G. Chandrasena	766264559	Near the 2nd Dubble Bokkuwa, Track 5, Rajanganaya	M	541952802 V	1	Yes	own	yes	Yes	Surface water	Irrigation Canal
149	I.D. Chaminda Udayanga	701617320	No.161, Track 3, Rajanganaya	M	798512348 V	2	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
150	L.M. Karunawathi	719079190	Near the 2nd Dubble Bokkuwa, Track 5, Rajanganaya	F	19707682868	1	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
151	R.K. Nimal Gunasesana	717071156	Near the 2nd Dubble Bokkuwa, Track 5, Rajanganaya	M	195703805062	1	Yes	own	yes (Boundaries)	Yes	Surface water	Irrigation Canal
152	V.Kithsiri Dayananda	785306299	No.149, FC 15 Canal, Track 5, Rajanganaya	M	631224938 V	1	Yes	i	yes (Boundaries)	Yes	Surface water	Irrigation Canal

ANNEXURE 3: INSTITUTIONAL ROLES IN RAJANGANAYA BANANA CLUSTER

Agency/committee	Officers responsible	Official functions assigned	Expected role in cluster development programme
DOA (Inter Provincial)	Assistant Director (Ext) Anuradhapura	Provide extension support through Field Staff and maintain data system	Coordinate all the extension activities on new technology and crop management
	Agriculture Instructor (Rajanganaya RB)	Carry out extension field programmes with technical assistance and Agriculture Research and Production Assistant (ARPA)	Implement extension activities on new Ag, technology and crop management -
	4 Technical Assistants (Rajanganaya RB)	Carry out extension field programmes ARPA under the guidance of Assistant Director of Agriculture (ADA) and Range Agriculture Instructor (AI)	Implement extension activities on new Ag, technology and crop management and organise farmer meetings
Irrigation Management Division of Ministry of Irrigation	Resident Project Manager Rajanganaya Major Irrigation Scheme	Coordinate and facilitate to make decisions as the Chair of Project Management Committee (PMC) which DIE, ADA, Agricultural Development Officer (ADO) and all DCO Chairs are participating. Irrigation management functions and issues are discussed at this monthly meeting	Develop relationship with banana farmers with PMC and extend fullest cooperation to banana farmers and FPO in the process of decision making on water issues and issues related to lands under banana
	Development Officer attached to Residential Project Manager (RPM) Office	Involvement in coordinating of field Programmes with DCO in the banana cluster area	Develop data base on banana cultivation (extent and farmers) and strengthen links with DCO and banana farmers
Agrarian Development Department	Agrarian Development Officer Rajanganaya	Administering of ARPA attached to Agrarian Service centre. Agric. Input supplies, manage Paddy land Act and FPO registration under 56A and 56B	Coordinate activities related to input supplies and make relevant ARPA involvement more active in the Programme. Extend cooperation to convert paddy lands into banana lands as banana is a short-term crop
	ARPA	Assist ADO and AI to implement field programmes. Maintain data and information on Agriculture and communicate with DCO and farmers on issues	Communicate with DCO members including banana farmers and keep records of updates on each banana farmer. Organise farmer meetings when requested by AI, ADO or Senior Officer
Divisional Secretariat. Rajanganaya	Divisional Secretary/Asst. DS Rajanganaya	Administrative head of the Secretariat area and Chairman of the Divisional Agriculture Committee holding monthly which all the Divisional Heads, FPO leaders are participating	Extend cooperation to get the involvement of Grama Niladaris, Development Officers and Samurdhi Niladari in the cluster area. Assist to settle land ownership issues and disputes of banana farmers

Agency/committee	Officers responsible	Official functions assigned	Expected role in cluster development programme
	Grama Niladari (Village Administrator)	Deal with key functions such as poverty alleviation, conflict resolution at village level and maintain population data of people in his area	Extend village level cooperation to mobilise banana farmers and assist farmers to select their Representatives with good personnel qualities
	Land Officer	Land management under Land Development Ordinance in Rajanganaya Scheme,	Assistance to settle land tenure issues and encroachments. Proper information on legal land ownership and nominated successors
Irrigation Department, Rajanganaya	Divisional Irrigation Engineer Rajanganaya	All the technical and management functions related to Irrigation under Rajanganaya system,	Make an opportunity to provide year-round irrigation water to banana fields on rotational basis and guide to carry out effective operation and maintenance (O&M) of the canal system for supply of water to the bananas through PMC
	Engineering Assistant	Monitor water issues, carry out O&M programme of canal system in the area, Settlement of irrigation disputes assuring availability of water availability for the crop	Provide guidance to FPO and Farmers for water management and O&M of the canal system. Assist farmers to overcome the situations of water shortages
	Work Supervisor	Closely work with water users in water allocation and management. Also assist to maintain the irrigation canal system	Provide guidance to FOs and farmers operated gate system as per the rotational issue and O&M of the canal system. Assist farmers to overcome irrigation difficulties
PMC Rajanganaya	Members of PMC (including RPM, DIE, ADA, ADO and Chairmen of all 34 DCO)	Making decision on Irrigation management, Seasonal Kanna meeting related to Agriculture production plan. O&M Implement problem solving mechanism through participatory approach	Pay special attention in supplying irrigation water to banana fields as this has become an economic crop and require less water. Also consider to include banana cluster area into agenda of PMC to discuss relevant issues

ANNEXURE 4: RESIDENTIAL/SENSITIVE LOCATIONS



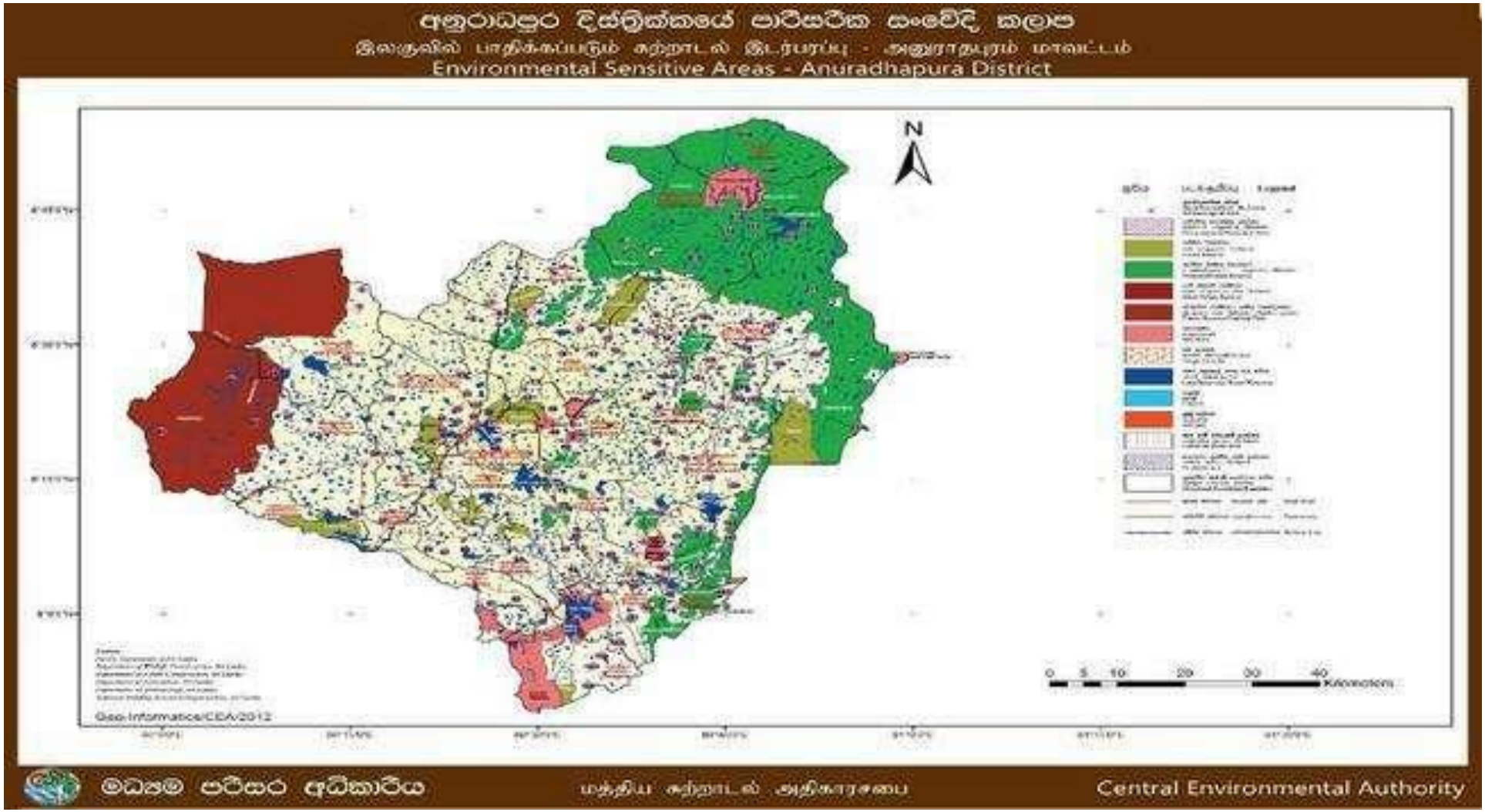
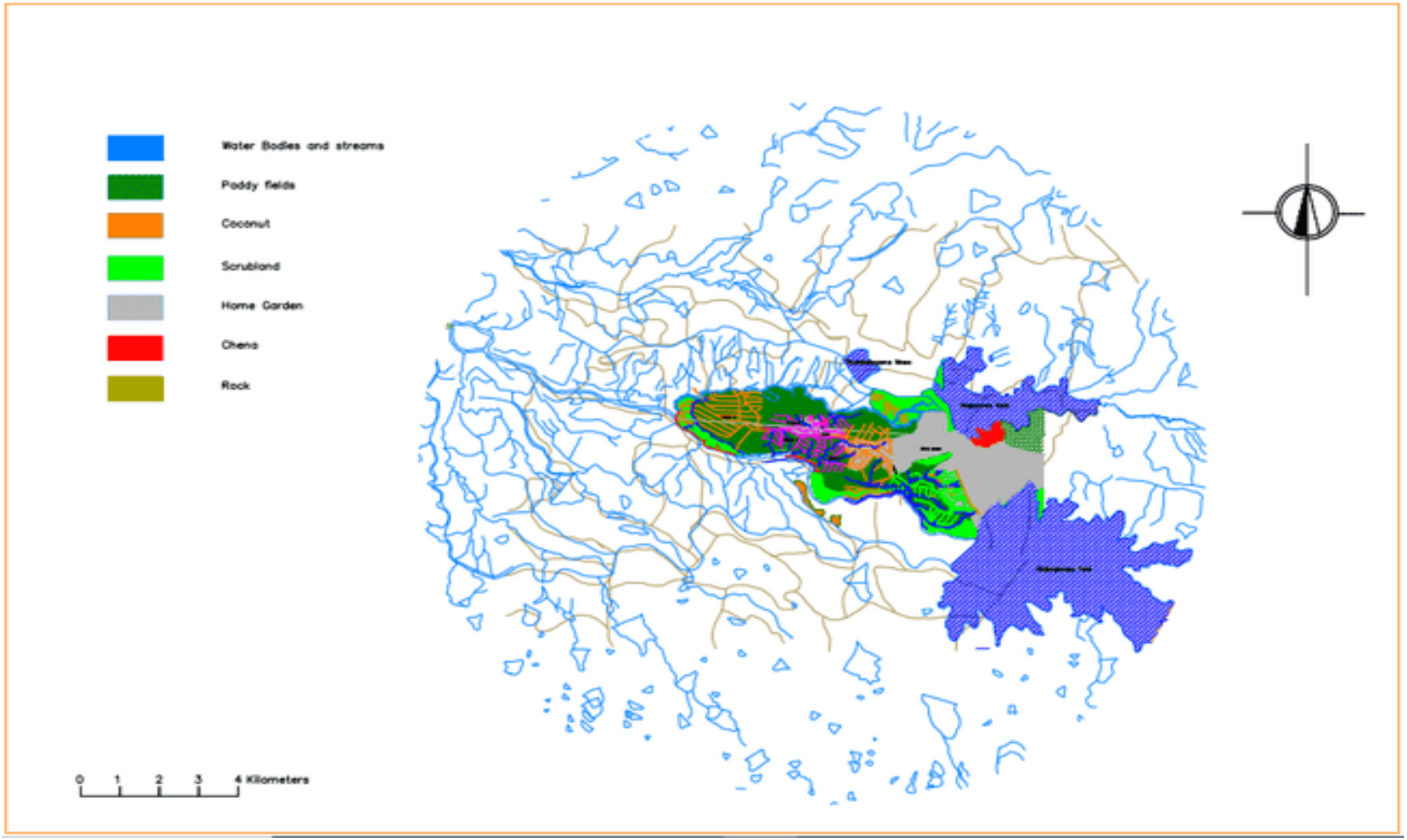

අනුරාධපුර දිස්ත්‍රික්කයේ පාරිසරික සංවේදී කලාප
இலங்கையில் பாதிக்கப்படும் சுற்றாடல் இடர்பரப்பு - அனுராதபுரம் மாவட்டம்
Environmental Sensitive Areas - Anuradhapura District
N
Geo-Informatics/CEA/2012
මධ්‍යම පරිසර අධිකාරිය
மத்திய சுற்றாடல் அதிகாரசபை
Central Environmental Authority

Figure 8: Rajanganaya Reservoir provides an important habitat for migratory birds and waterfowl, etc



The area has not been identified as a special habitat area as per the sensitive areas map of CEA. However, the reservoir provides important habitats for a wide range of species including migratory birds and waterfowl, amphibians and fish.

Figure 9 : Sites of tanks and reservoir that provide important habitats for a wide range of species

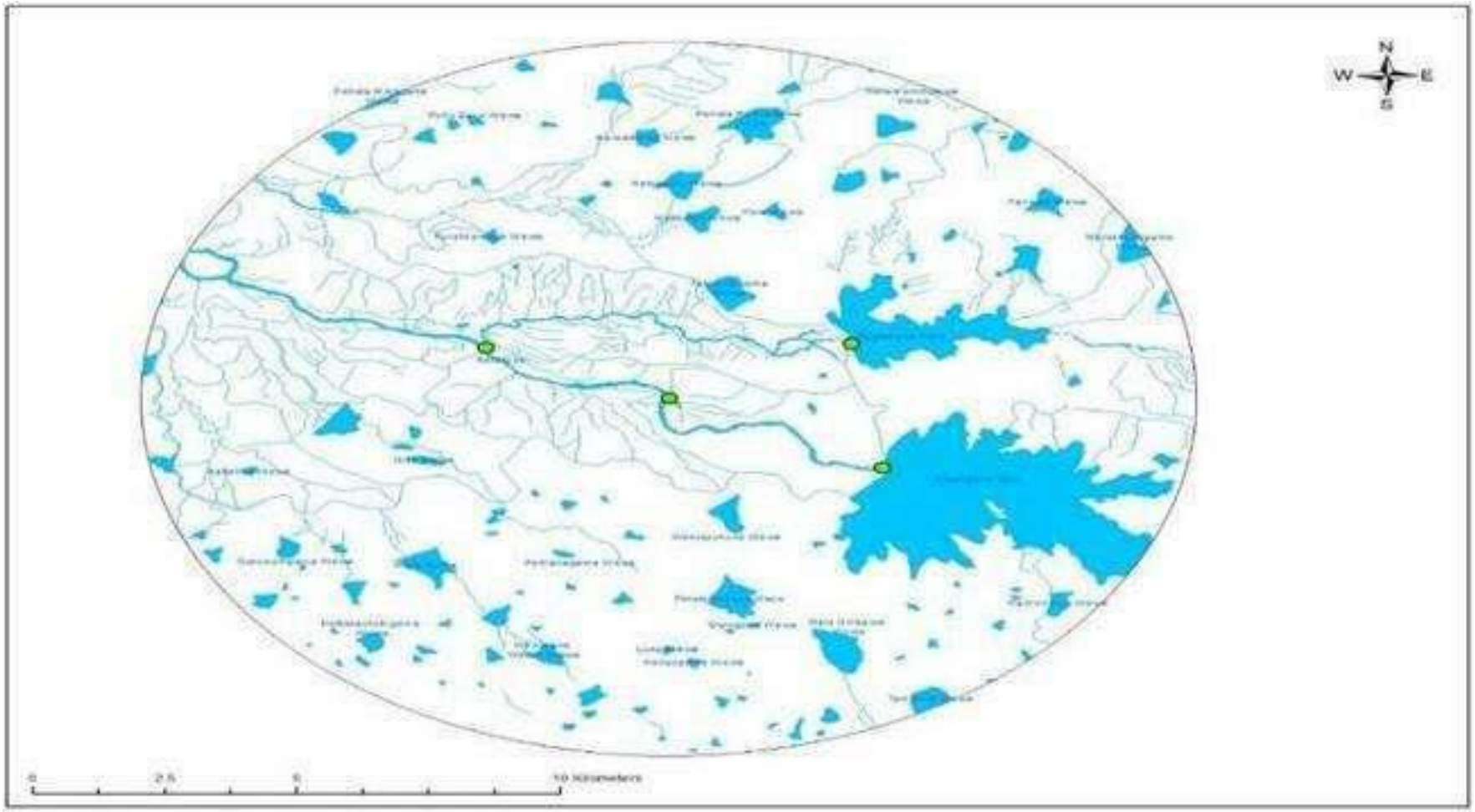
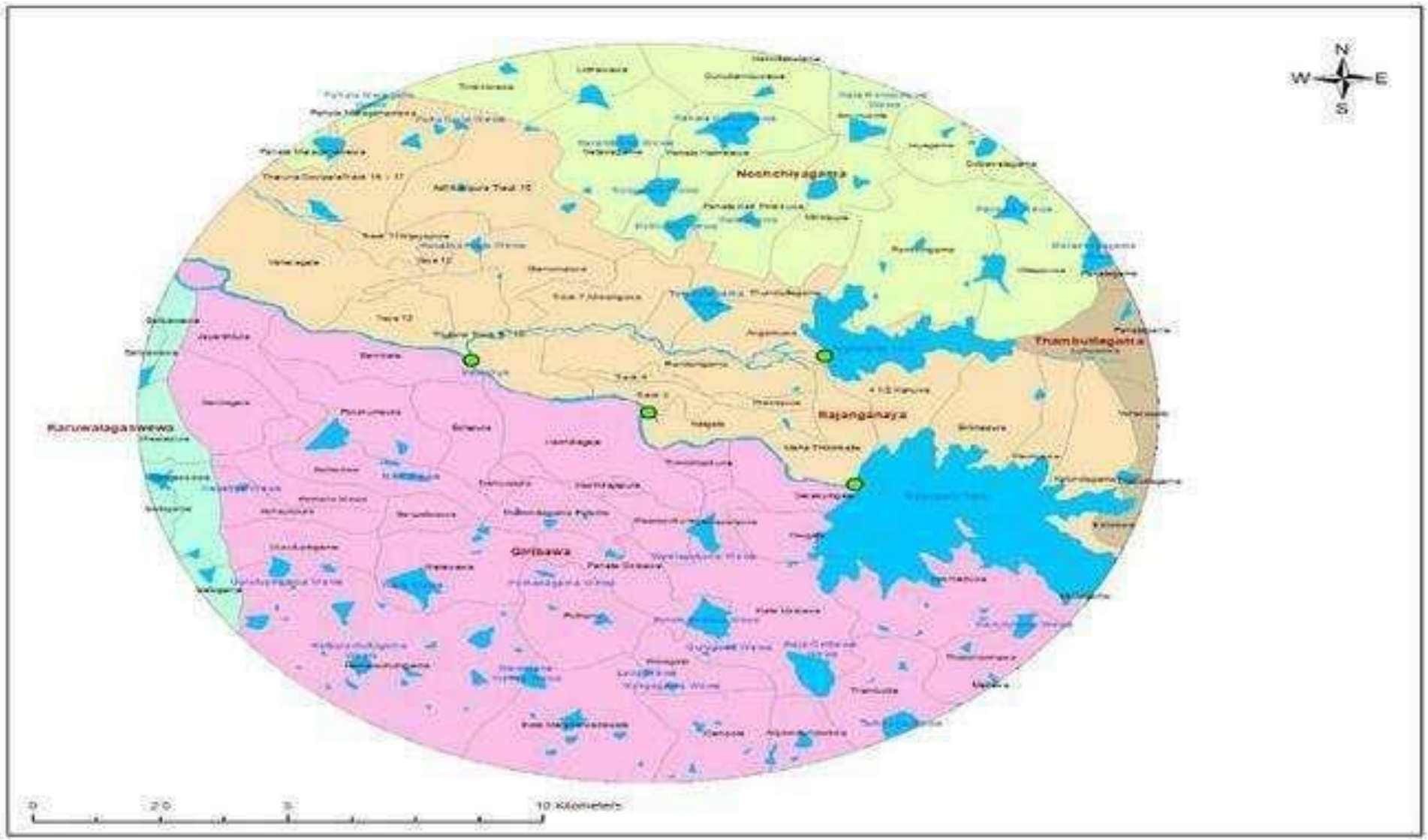


Figure 10: Rajanganaya and Angamauwa tanks



Both Rajanganaya and Angamauwa tanks are closer to the selected tracts and maps show the existing irrigation system across the tracts. Small-scale canals are distributed within the selected area and it shows that all the selected tracts are fed enough for the cultivation.

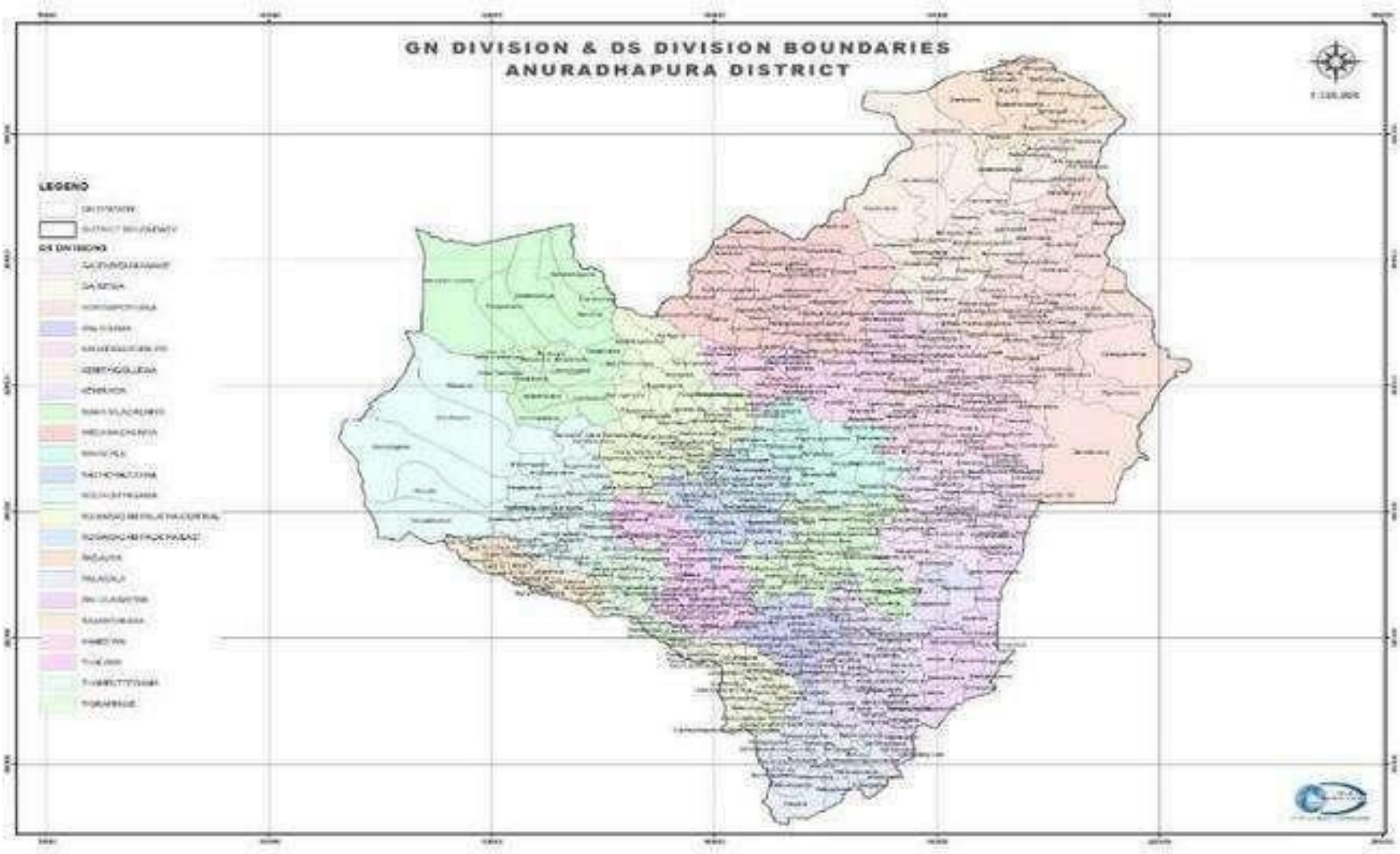
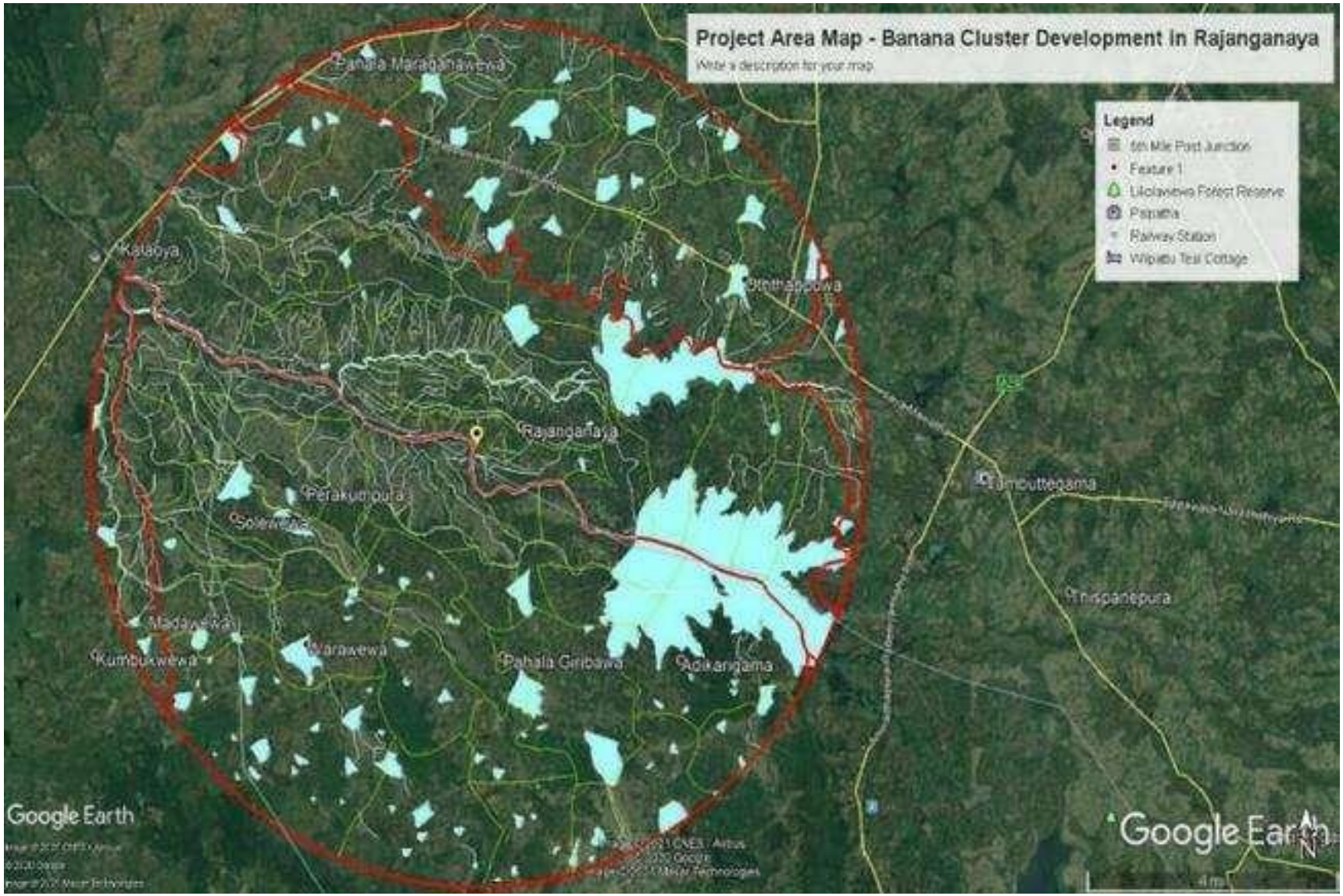


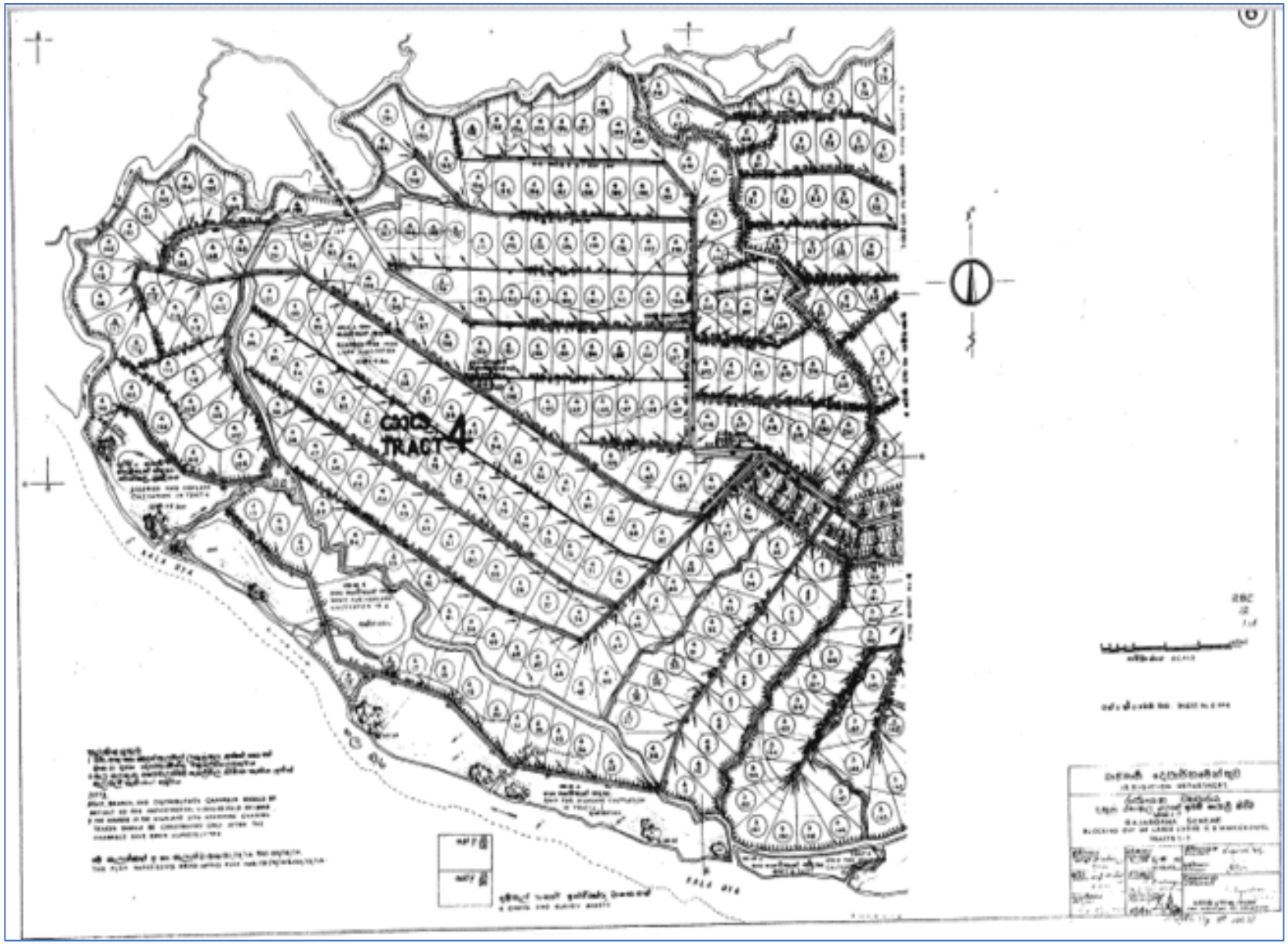
Figure 11: Project area for CDP № 1 - Anuradhapura (Rajanganaya) - Small Banana (Ambul)




TRACT I


5
TRACT No1
TRACT No2
TRACT
CUT LINE A-B
RAJANGANA SCHEME
R.D.P. OF LANDS UNDER
R.B. MAIN CHANNEL
TRACTS 1-7
APPROVED

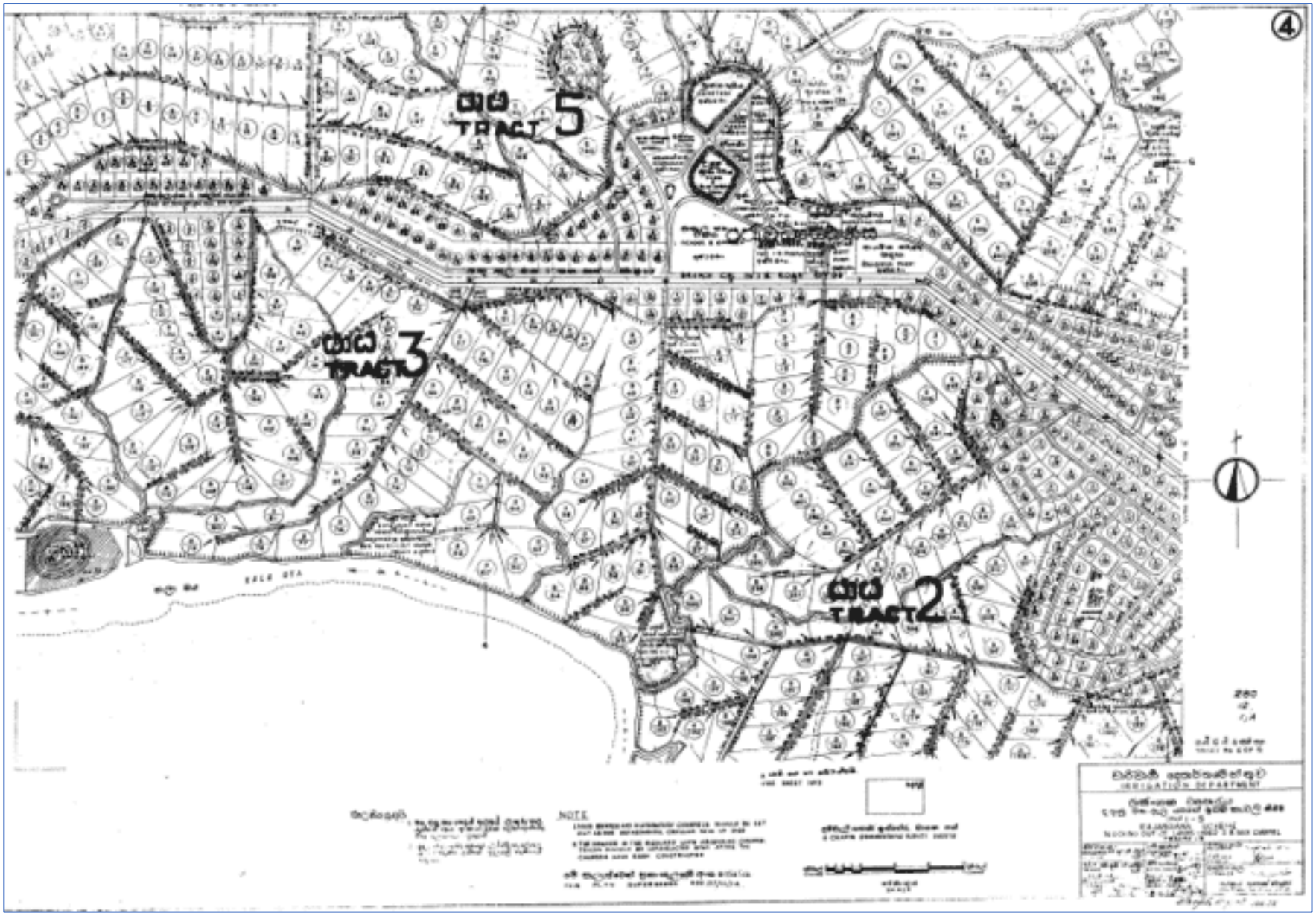

6
TRACT 3
TRACT 2


TRACT 4


TRACT NO 4
HIGHLAND TRACT
No 4
FODDER
PASTURE
4 CHS. ENG. SURVEY SHEETS
SCALE. 4 CHAINS TO AN INCH
RAJANGANA SCHEME
TRACTS 1-7
APPROVED


8
TRACT 4
KALA OYA
KALA OYA


7
KALA OYA
TRACT No 3
MAIN CANAL
SCHOOL & GARDEN
4 CHS. CHD. SURVEY SHEETS
SHEET No 7 OF 9
RAJANGANA SCHEME
R.O.R. OF LANDS UNDER R.B. MAIN CHANNEL
TRACTS 1-7


TRACT 5
TRACT 3
TRACT 2
NOTE

ANNEXURE 5: COMPOST PLANT PROPOSAL

1. Rationale

Soil productivity and environmental concerns have revived global interest in organic recycling practices such as composting. Composting considered as an attractive option for turning on-farm organic waste materials into a valuable farm resource. However, at present quality of organic fertilisers could be considered as one of the most limiting resources in crop production. In this respect compost plays an important role to mitigate and solve the problem of inadequacy of suitable organic fertilisers in crop production.

Over- all decline of soil fertility is a major problem associated with crop production in Sri Lanka. Decline of soil fertility is mainly due to depletion of soil organic matter, loss of plant nutrients, etc. Organic matter decline takes place due to soil erosion, decomposition due to high soil temperatures and low attention to organic fertiliser added to soil. Low organic matter content in soil has created several problems such as yield decline and yield stagnation even in all crop sectors. It is a well-known fact that the cation exchange capacity of many Sri Lankan soils is low chiefly due to low organic matter content. Under such conditions, retention of plant nutrients is low and subsequently chemical fertiliser efficiency will decrease. Thus, many agricultural farming systems are becoming non-profitable to farmers even though heavy investments in many other farming activities. Hence, application of organic fertilisers such as compost will be a beneficial effect on crop yield as well as on over all soil fertility. In addition, compost could be considered as the most suitable organic fertiliser for crop production when compared to many other organic fertilisers due to its number of characteristics such as presence of decomposed organic materials, ready availability of plant nutrients, absence of weed seeds and pathogens, high efficiency, low volume etc. One of the important contributions of compost is the high organic matter fraction, which improves the physical conditions of poor soils such as soil structure, texture, tilth, water holding capacity etc. In addition, compost also improves the chemical and biological properties of soils. Compost carries small quantities of growth promoting substances similar in nature to hormones. The application of organic fertilisers such as compost to soil will be useful for reducing the incidence of plant diseases. Addition of organic fertilisers suppressed the numbers of plant parasitic nematodes. However, in the recent past, most people were unaware that using composts is an effective way to increase healthy plant growth; help to save money by reduce the use of chemical fertilisers, and conserve natural resources while helping to recycle wastes.

2. Integrated plant nutrition system

The complementary role which organic and chemical fertilisers play in crop production is a popular fact. In order to improve soil fertility, it is important to follow environmentally friendly plant nutrition management practices under what has been termed the Integrated Plant Nutrition System (IPNS). This concept advocates the balanced use of both organic and chemical fertilisers for crop production. IPNS is considered as the most suitable plant nutrient management system to increase the crop yield while maintaining the good soil fertility. Since compost is one of the most important components of the IPNS technology production of compost will be an immense benefit for the development of the country. Therefore, ISP will undertake following steps in all clusters:

1. Promote manufacturing of compost using available raw materials in cluster areas.
2. Promote utilisation of compost and liquid organic fertilisers and reduce the use of chemical fertilisers through IPNS.

Farmers in Sri Lanka are used to apply only chemical fertiliser for their cultivations which has been a contributory factor towards gradual decline of fertility in soil. This situation is adversely affecting crop production in all clusters. Hence, the utilisation of organic fertiliser in addition to the chemical fertiliser is essential for successful crop production in clusters. In this regard, it is necessary to increase the overall organic fertiliser production in all clusters as well as in throughout the country. The objective of this programme is to encourage farmers to produce total requirement of compost within the cluster areas because transport of compost from long distance is not economical. Therefore, it is expected to encourage some producers to make large scale productions on commercial basis.

3. Objectives of the compost production programme

- Utilise freely available organic materials for crop production
- Creation of a favourable environment through recycling of organic waste materials
- Reduce chemical fertiliser use through compost production and use
- Popularise use organic fertiliser in addition to chemical fertilisers for crop production
- Increase chemical Fertiliser Use Efficiency
- Improve soil fertility and maintain sustainability
- Popularise quality compost production
- Minimise environmental pollution
- Economical crop production
- Minimise chemical fertiliser use
- Popularise proper waste management system
- Introduce compost production on commercial scale
- Emergence of a market for compost
- Initiate a compost sale as a viable business

At present the amount of waste materials which are freely available in clusters could be considered as important resources for successful compost production. They are rich in plant nutrients. In general, banana waste materials available in Rajanganaya and Jaffna are high in potassium. Waste minimisation is a very important aspect in banana crop production to minimise pest and diseases. Therefore, ISP will undertake compost production in all clusters as an important intervention. This action will ensure increase the soil fertility in clusters as well as increase crop production and subsequent sustainability of agricultural crop production.

4. Site selection

Generally, well-chosen site can speed up the composting process. In this regard, well-drained area of the location is suitable for compost production. Similarly, shadier spot is more suitable so it does not dry out too quickly. Preparation of compost over soil or grasses is better than concrete floor, to take advantage of microbes and other decomposers. Site should be selected from reasonable distance of houses. The selected location should have access roads, electricity, water sources (well), area for unloading raw materials and loading final product, parking access, production area, processing area, storage facilities, small management room, changing room, lunch room, bathroom etc.

5. Steps of compost production process

1. Collection of raw materials
2. Production of compost
3. Drying
4. Crushing
5. Sieving
6. Packaging
7. Distribution
8. Marketing

6. Main activities under the compost production programme in clusters:

- Selection of farmers or FPOs those who can do compost production
- Registration of compost production in relevant authorities
- Collection of information on raw- materials availability in each cluster areas
- Selection of suitable sites in each cluster
- Establishment of compost production units in each cluster
- Training of farmers in groups through field demonstrations on complete package of the compost production
- Educate farmers on quick compost production technologies, maintenance of the quality, storage, stocks, run as a business etc.

- Arrange compost production with individuals or FPOs
- Laboratory testing of produced compost samples for quality testing
- Design bags with brand names and other relevant details
- Guide for marketing of compost

7. Buildings, Tools and Equipment Required for Compost Production Unit (100 t/month)

Table 15: List of structures, implements and equipment Required for the Compost Production Unit

No.	Item	Number	Estimated Cost (LKR)
1.	Shovel	5	
2.	Pitch fork	5	
3.	Wheel barrow	5	
4.	2 wheel tractor	1	
5.	Boots	10 pairs	
6.	Water pump 1”	1	
7.	1” hose pipes	200m	
8.	Chipper/ Shredder	1	
9.	Black polythene (Gauge 750, 3ft width and double)	500kg	
10.	Compost turner	1	
11.	Rotary Sieve	1	
12.	Weighing machine up to 100kg	1	
13.	Manual Bag closer/ stitcher machine	2	
14.	Small truck (Optional)	1	
15.	Printed bags 25kg and 50kg	10,000 each	
16.	Compost Aerator (Optional)	1	
17.	Compost thermometer (Optional)	1	
18.	Drying, processing and sieving hut 15m x 20m	1	
19.	Storage building with basic office room, changing room and toilet 20m x40m	1	
20.	Miscellaneous items		

8. Method of compost production by the heap method

Heap method is more advantageous than any other methods for commercial compost productions. Under heap method aerobic composting takes place in the presence of Oxygen. In this process, aerobic microorganisms break down organic matter and produce carbon dioxide, ammonia, water, heat and humus, the relatively stable organic end product. The heat generated accelerates the breakdown complex compounds such as proteins, fats, cellulose and hemi-cellulose in raw materials. In heap method the processing time is shorter. In addition, this process destroys harmful pathogens; as well as weed seeds due to undergo sufficiently high temperature. Therefore, aerobic composting is considered more efficient and effective than anaerobic composting for agricultural production.

The aerobic composting process starts with the formation of the pile. First, mesophilic organisms multiply rapidly with the temperature of 20 - 45^{0}C on the readily available sugars and amino acids. Under such

conditions, they generate heat by their own metabolism and raise the temperature to a point where their own activities become suppressed. Then some thermophilic fungi and several thermophilic bacteria under the temperature range 50 - 70^{0}C or more continue the process, raising the temperature up to 65^{0}C or higher. In many cases, the temperature goes up to 70 - 80^{0}C and this peak heating phase is important for the quality of the compost as the heat kills pathogens and weed seeds.

The general process of producing compost involves piling the organic waste in long rows. The heap is usually started with 20-30 cm layer of different raw materials. Alternate layers should be placed with different raw materials available in the area in the heap. The manure, dung and animal urine are excellent for composting due to high nitrogen content and less C/N ratio. The application of Eppawala rock phosphate is also an important step in compost production. It is well-known fact that quality of compost could be improved when rock phosphate is added. Different raw materials are placed until the pile is 1.5 - 2.0m high. It is advisable to maintain the width about 2 - 2.5m at the base for successful aeration. The sides are tapered so that the top is about 0.5m narrower in width than the base. The substrates should be piled loosely in a compost heap to provide better aeration within the heap. After 3-4 layers of raw materials normally apply sufficient quantity of water and compost activator/inoculant. After formation, the pile is covered with black polythene to retain heat and moisture but leave a sufficient space at the bottom for ventilation. The active composting stage is followed by turning stage, and the pile temperature decreases gradually with the time. Therefore, turning/mixing should be done every 3 - 4 weeks interval to activate the decomposition of raw materials. However, maximum three turning/mixing steps are recommended during the whole period of the composting process due to high labour involvement for this process. At each turning, the material is mixed thoroughly and moistened with water and apply compost activator/inoculant such as the Trichoderma spp. of fungus. In general, the C/N ratio should be maintained with carbonaceous and nitrogenous materials for successful decomposition. Under such conditions, compost can be typically produced within 8-12 weeks depend on raw materials used. In reasonably mature compost contains a wide range of particle sizes from fine grains to partly decomposed twigs and un-compostable fragments from refuse. Therefore, compost may need sieving by 4mm sieve before sending to the market. Mature compost should have a crumbly texture, an earthy smell and be dark brown or black in colour.

Compost has high market share in a growing market. Produced compost in the cluster has the option to sell directly to the end users such as cluster farmers and other farmers in the area. The government's stance on promoting local, organic fertiliser is a favourable signal for businesses venturing into the industry. Since, organic fertiliser is a major requirement for high productivity of crops and can be considered an essential product. Disposal of banana waste is a major challenge for many banana farmers, due to the costs and logistics involved; with almost all farmers just dumping it inside their farms. Inefficient disposal of crop waste and other waste materials has a severe impact on the crop and the environment. Hence, production of compost using waste materials can mitigate the disposal problem as well to obtain useful organic fertilisers for crop production. In addition, this will be an additional venture for FPOs and cluster farmers.

9. Management of compost production unit

a. Approvals

Before initiating the compost facility, the person or FPO shall obtain the approval from relevant authorities of the area. A number of regulatory regimes come into play prior to initiate compost production.

b. Manage composting

Managing the composting process involves the balancing of a number of different variables, all of which impact on the others. These interactions therefore need to be managed. Operators need to encourage the right conditions to aid microbial growth and activity. A careful balance of these variables results in a quality product, in minimum time, and considerably reduces the potential environmental impacts from the composting activity.

c. Compost quality

Quality Management systems play a fundamental part in good processing and product. Hence, person or FPO responsible for compost production in clusters shall produce compost that meets the standards established by Sri Lanka Standards Institution in 2019. In this regard, regular testing of compost samples should be undertaken.

d. Record keeping

The person or FPO responsible to establish and maintain an operating record for the compost facility. Records are needed in relation to: waste acceptance and disposal, validation and on-going assessment of process monitoring and sample testing, traceability, environmental monitoring and dispatched material.

10. Marketing

The marketing strategy has to be prepared to market the compost in various market segments such as farmers, nurseries, institutions, home garden etc. The strategy includes product design, pricing, distribution and promotional strategies. The strategy will be used to market compost in order to ensure that activity is sustainable.

Overall, this activity has the success in demonstrating the application of composting technology to process the market waste. Both technical and financial feasibility of the application of this technology on a large scale will be demonstrated. Since, compost has high demand in many crop sectors it indicates that the production can be done in a sustainable manner which has additional advantages for the community.

The compost marketing and distribution system in Sri Lanka is a free enterprise mainly in the hands of the private sector. The present marketing channels through, which compost flow from the producer to the farmers and end users throughout the country consist of three main levels of handlers namely: Producers, Distributors and Dealers/ Retailers.

Establishing a price for a product is one of the most important marketing decisions. In a developing market or in a competitive market pricing is an important element in a marketing strategy. The pricing system should cover the cost of the product and the cost of marketing the product. However, it should be noted that price and quality of compost in local market is vary drastically. The sales promotion and market development activities should be done to stimulate demand and thus increase sales of the product. In marketing terms, compost has to compete with the chemical fertilisers in an effort to grab a part of the latter's market. Therefore, promotional activities should be done to show the importance of usage of organic fertiliser in combination with chemical fertilisers as basal dose for annual crops and for perennial crops basal as well as for top dressings.

The means of promoting the sales of organic fertilisers include the followings:

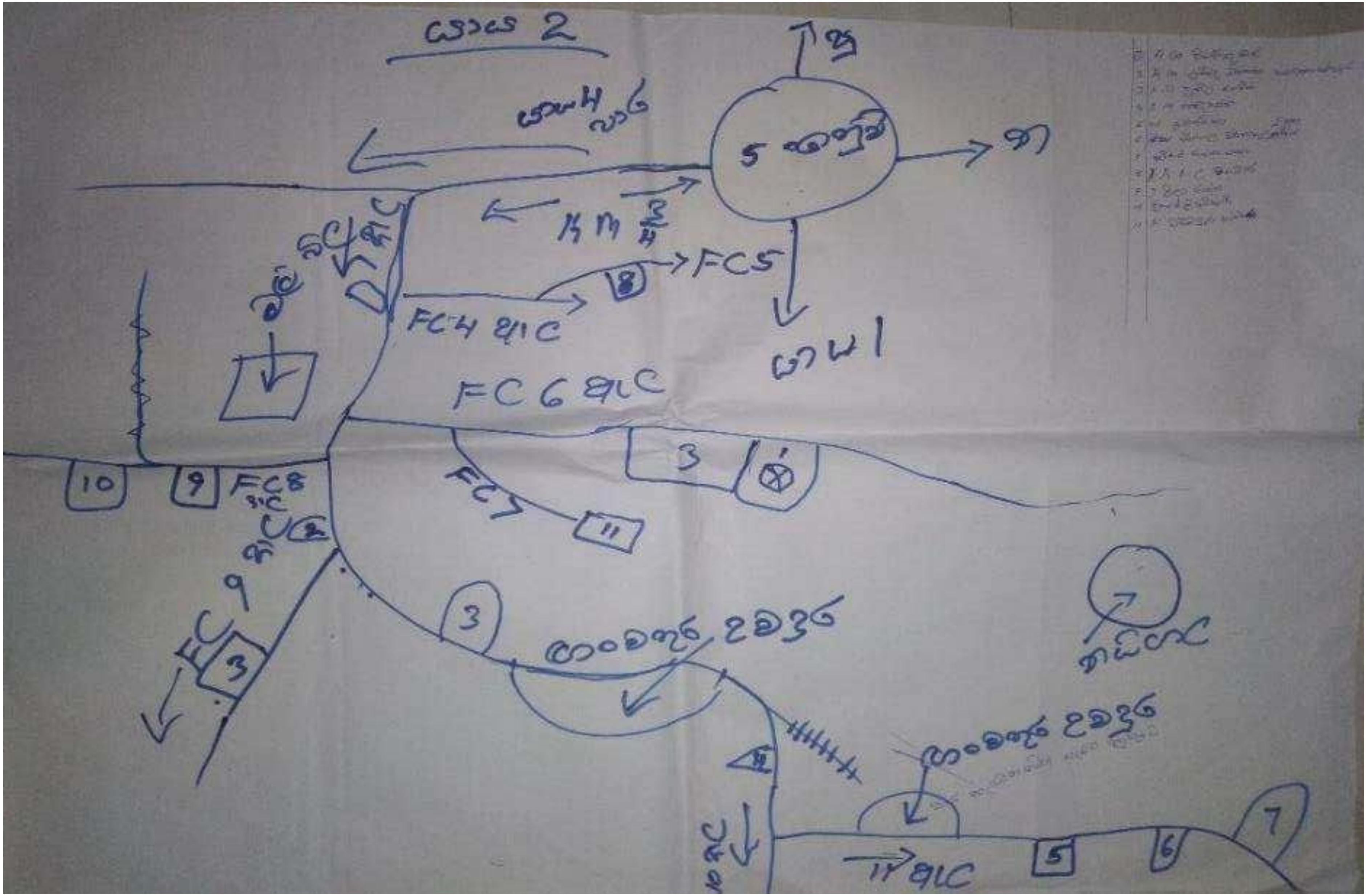
- Training farmers, extension officers, traders and other relevant target groups
- Field demonstrations, field days, field tours etc.
- Outdoor advertising / Billboards
- Use mass media for various promotional activities
- Poster displays in strategic places
- Distribution of samples for trial use
- Granting of promotional discounts on purchases
- Arrange credit facilities

11. Environmental impact

The unit will be established to minimise the environmental impact. In order to reduce the environmental impact, measures will be taken to minimise odour, dust, leachate etc. Breakdown of organic matter by aerobic oxidation produces no odours. It is important therefore, to supply sufficient air during the composting process. Another important aspect of some of the materials that can be used in composting is their attractiveness of flies. To avoid the problem, the

suggestion is to maintain higher temperature. Fly larvae are unlikely to survive if temperature is above 55^0C. In addition, by turning the heap and placing the outer material in the hot central region many of the larvae will be destroyed; satisfactory fly control is possible by proper turning. Similarly, maintain the high temperature is the most significant factor in causing the death of pathogens too. In addition, steps should be taken to avoid release of leachate to the environment by avoiding excess water use, construction a place to collect leachate and reuse for compost production etc. As a further safety measures, it is recommended that no compost unit be set up close to drinking water source. This should prevent any liquid percolating from the compost heap into the water supply, particularly during the rainy season.

ANNEXURE 6: OUTCOMES OF COMMUNITY MAPPING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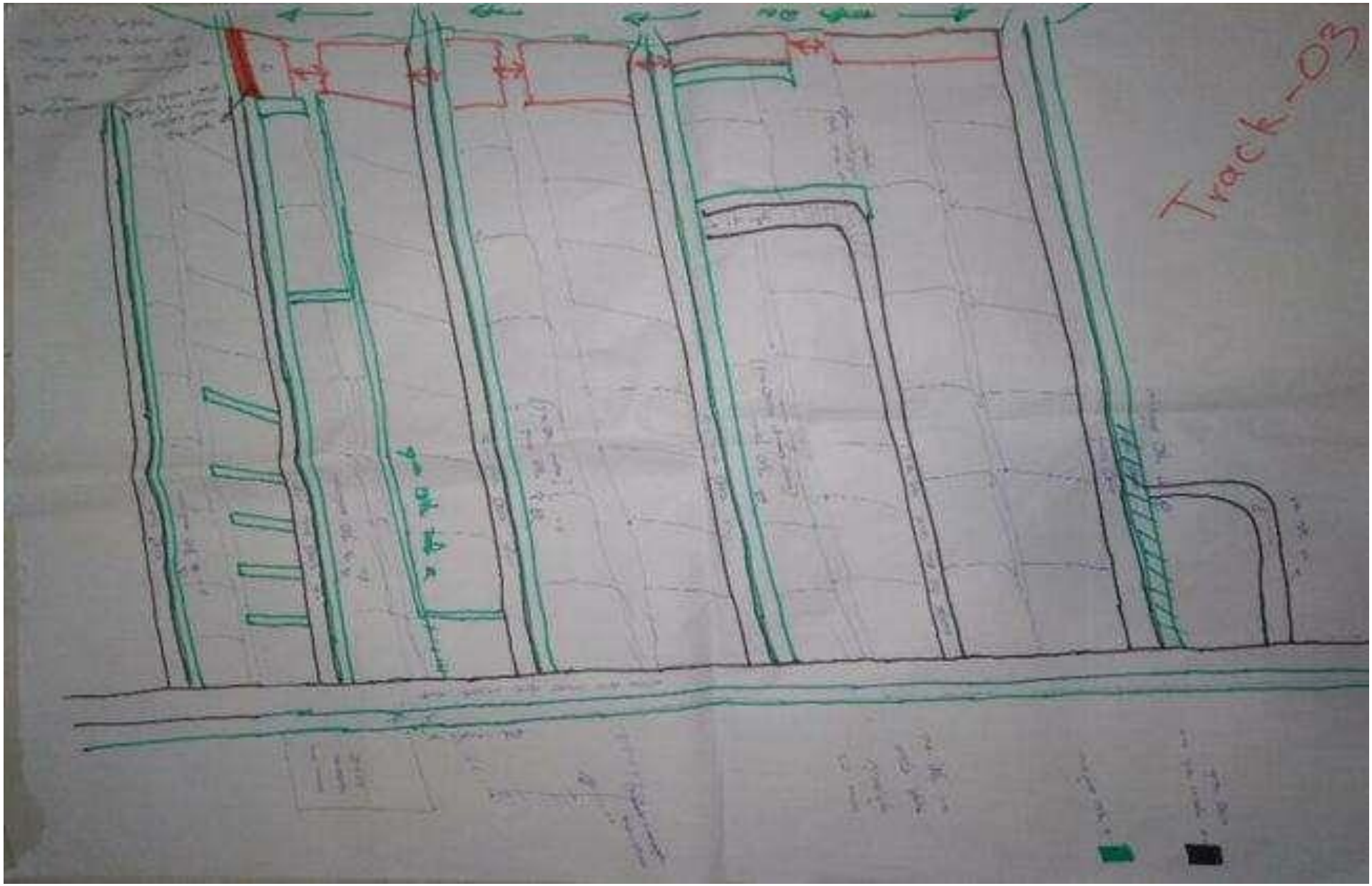
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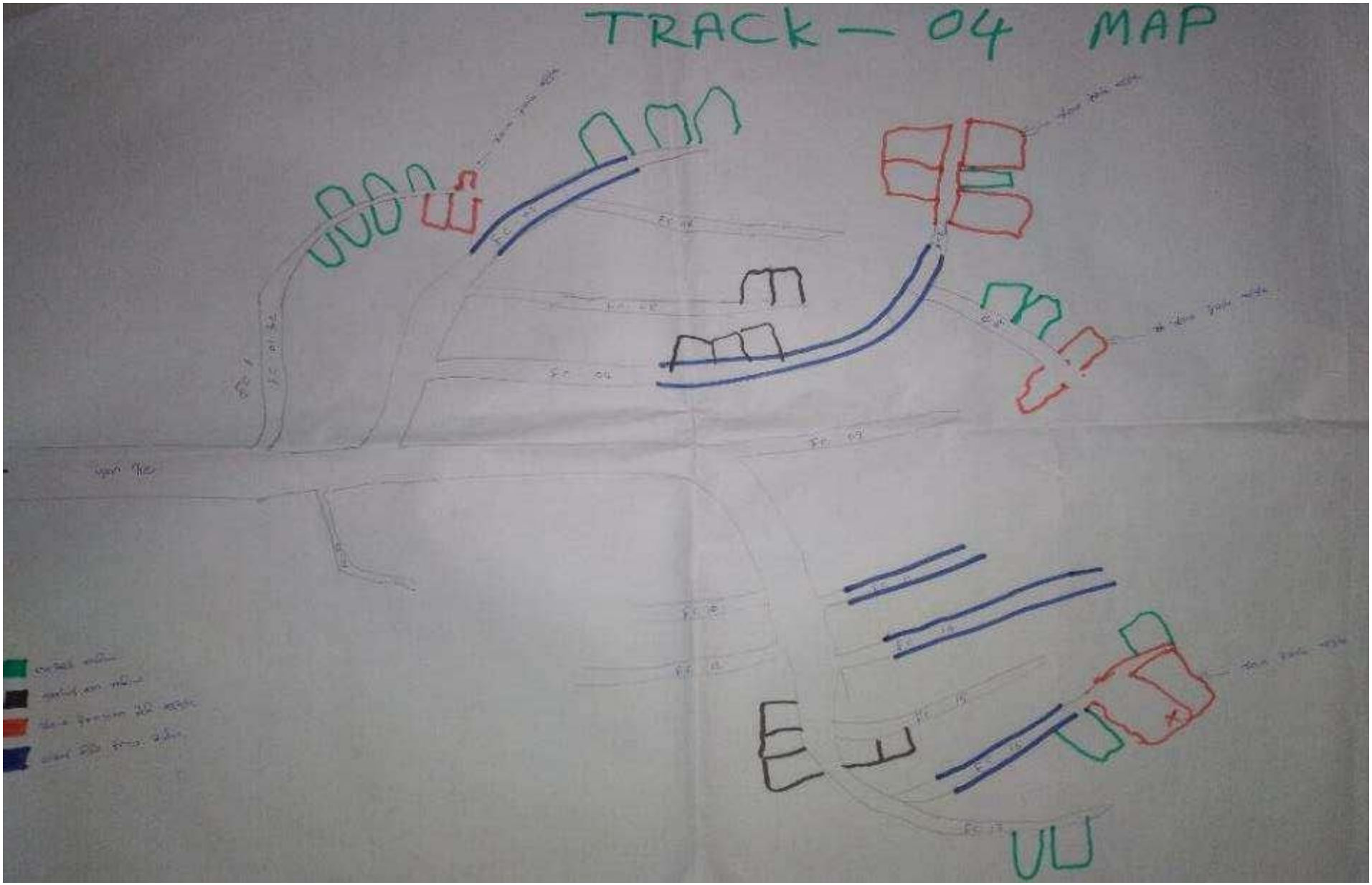
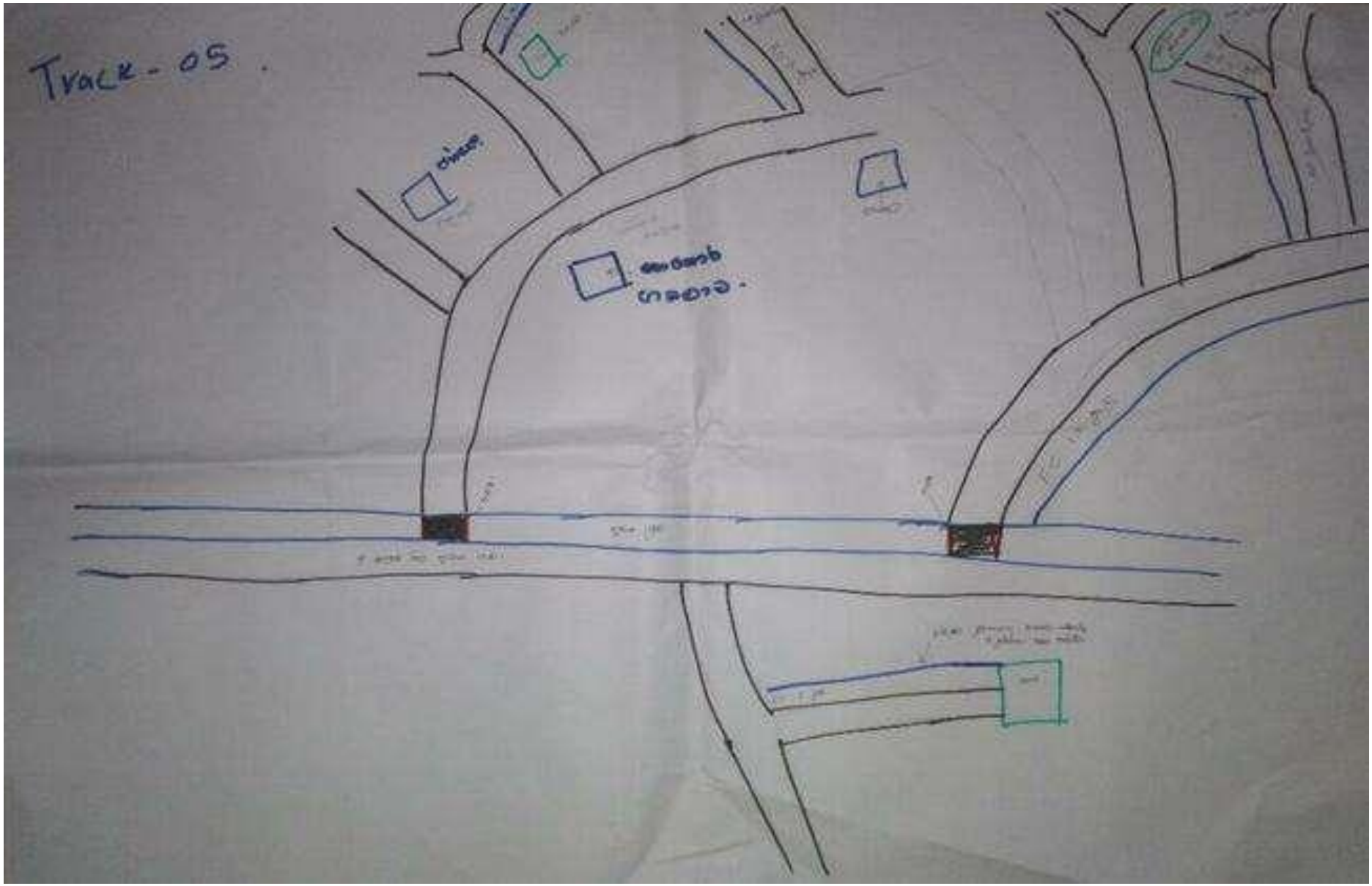

TRACK – 04 MAP


Track - 05

ANNEXURE 7: CONCEPT NOTE OF WASTE MINIMISATION, INCOME GENERATION AND EMPOWERMENT


INTRODUCTION


The Pilot project will address the following for introduced ASMP techniques in Guava and Banana Clusters in Anuradhapura North Central Province
OBJECTIVES
1. Reduce Plastic and Hazardous Waste Generated
&
2. Value Addition for Farm By-products
Sourcing Alternative Materials
Income Generation through Circular Supply Chains
Women & Youth Empowerment


OUTPUTS
The Pilot Project will produce the following outputs focusing on the interplay between three verticals: Cluster, Community and Market
CLUSTER
Waste generated per introduced modernisation method reduced
Tracking journey of waste per practice
Quantity of waste generated per farm replaced/reduced/diverted
Quantity of waste generated per cluster replaced/reduced/diverted
Additional income generated from crop per farm
Additional income generated from crop per cluster
Alternatives meet competitive costing of current methods introduced by ASMP restrictions
Connecting to existing value chains (surplus & shortages) and filling need gaps in the waste ecosystem
COMMUNITY
Increased participation by indirect beneficiaries in additional income generating activities
Clear understanding on waste and environmental issues
Increased participation in inclusive collectives
Additional income covers cost of caring for dependents of participating members
Efficient utilisations of resources otherwise seen as unavailable or inaccessible (i.e transport, stay-at-home mothers, unemployed youth)
Increased willingness of farmers to include other modes of income related to their farming activities
Greater understanding of the cultural and systemic barriers for women to participate in FO's and the necessary systems interventions to address them
Community benefits from income generated and activities by formed inclusive collectives
MARKET
Route to market of value added waste products mapped and implemented
Competitive logistics costs met
New products and material feature requirement met
INPUTS
The Pilot Project will demonstrate income generating opportunities from waste and farm by-products generated by the ASMP and develop an implementation plan to create circular supply chains and increase self-employment of women and youth within the clusters.
ALTERNATIVE MATERIALS
Introduce low-cost, local, scalable alternative materials to replace proposed single use plastic technologies
Implementing circular supply chains to reduce waste streams
Reversing degradation and depletion of natural environment (i.e soil and water) by transitioning to materials that are regenerative i.e compostability
Providing skills training to women to produce alternative products from within clusters (intra cluster) and regionally (inter cluster)
Raising awareness among farmers and community about plastic pollution and the benefits of environmental stewardship
INCOME GENERATION THROUGH EXISTING SUPPLY CHAINS FOR EMPOWERED COMMUNITY ECONOMIES
Introducing additional revenue streams through existing supply chains i.e collection for recycling or compostability, buyback schemes, deposit schemes, banana fiber end products etc.
Increasing women's participation, representation, decision making in FO's to tap into unutilised potential of community members by introducing additional revenue
Addressing underrepresentation of demographics involved in FO's (i.e women and youth) in Collectives with inverse demographic ratios
Defining highly productive, functional management structures within collectives for shared ownership (horizontal ownership and management structures)
Improving critical thinking skills and design capabilities through Workshops equipping them to discern inadequate methods, conceptualize and implement solution-oriented ideas

APPROACH

SYSTEMS APPROACH | Making supply chains more responsible, efficient and sustainable, by analysing social and environmental relationships and interactions to enable effective overall outcomes for the system as a whole.

Traditional approaches focus on outcomes of a supply chain in isolated parts. This can lead to outcomes that deplete the value and integrity of the whole supply network. Our approach aims to break down supply chains and their waste streams in order to holistically design, manage and integrate effective parts in a whole functioning system which will protect the natural environment and enhance the social bonds within a community.

HARNESSING EXISTING SUPPLY CHAINS | To establish income generation projects for women and youth, we will connect them to existing supply chains and create a more resource efficient economy

The development of new products and entry into new markets can be resource intensive. Alternatively, we will explore potential partnerships with existing SME's to promote and develop products based on their extensive market experience and data.

DESIGN THINKING | To empower the local community to understand their wants, needs and constraints, we will provide them with frameworks for creative problem solving with design thinking methodologies.

Local community members often best understand the situation on the ground. Providing frameworks for analyzing the root causes of the problems, rather than the symptoms, enables members of the collective to understand for themselves how best to address the problems and embed the solutions.

APPROACH

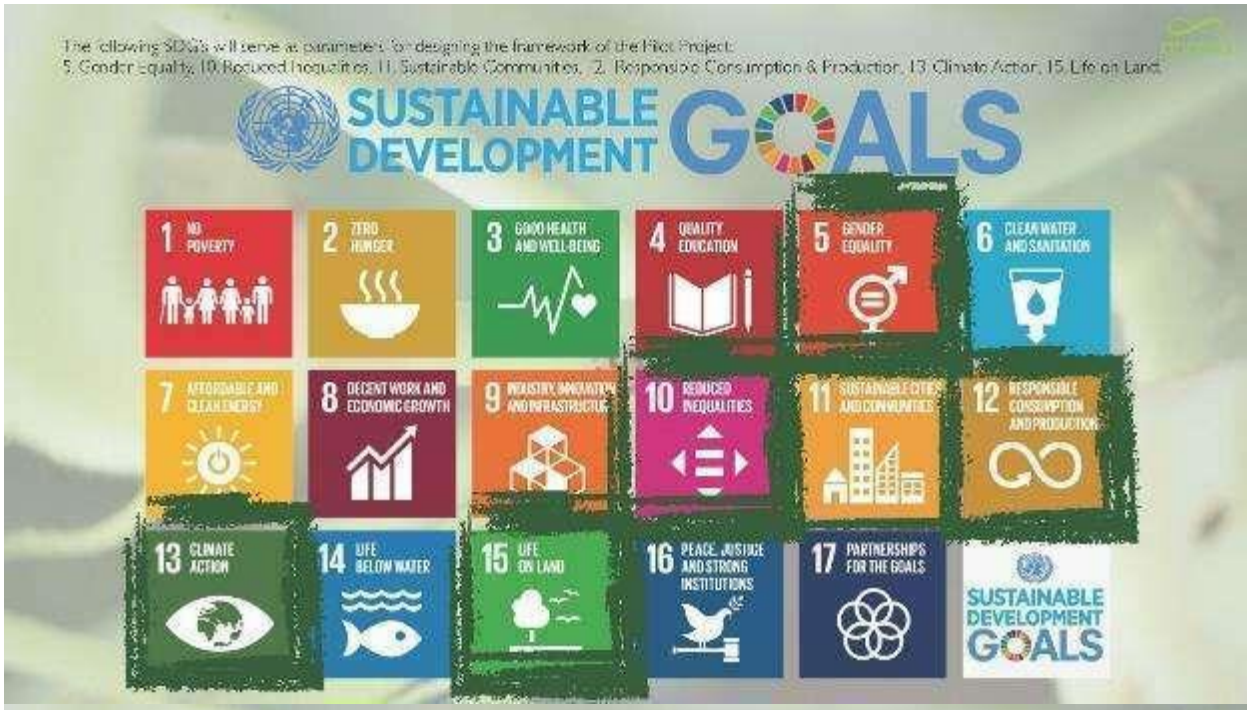
LEADERSHIP FOR INNOVATION | To create a sense of agency that enables creative problem seeking and solving, we will organize leadership workshops and trainings targeted at women and youth that will drive innovation with available resources, consensus building and crowdsourcing solutions.

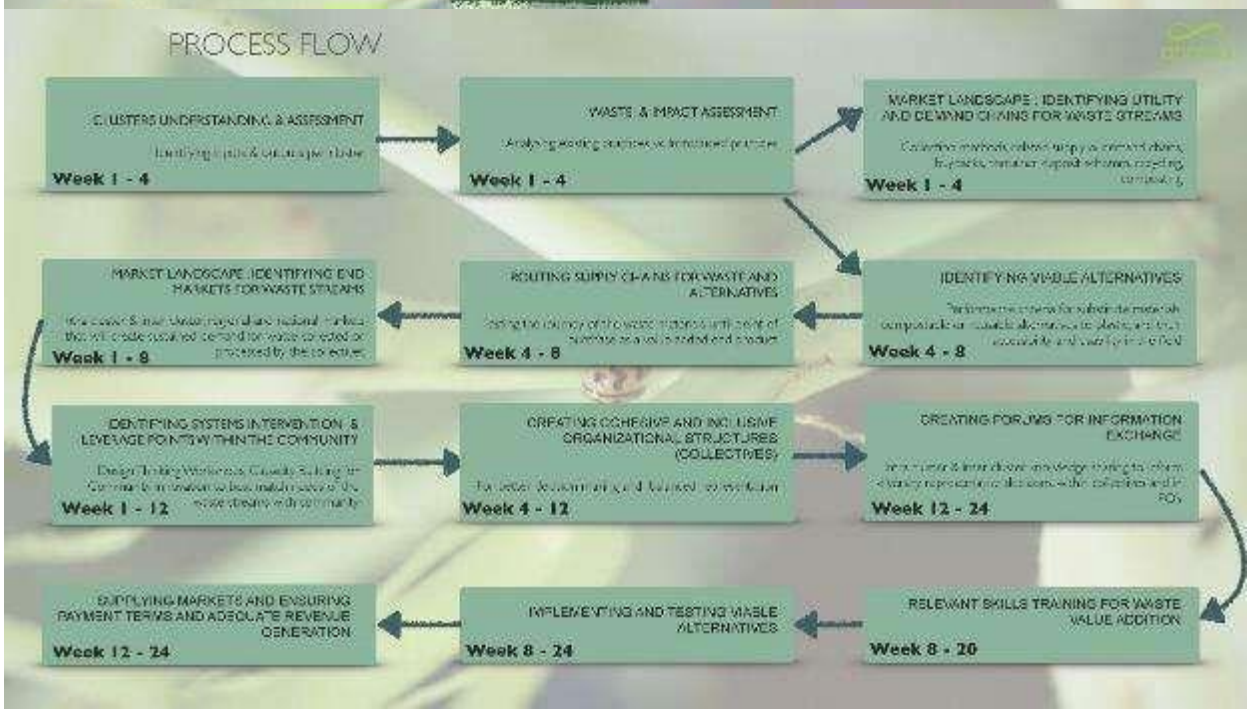
This will include creative visual techniques such as storytelling, theatre and video. This will facilitate innovating with the community, not for the community.

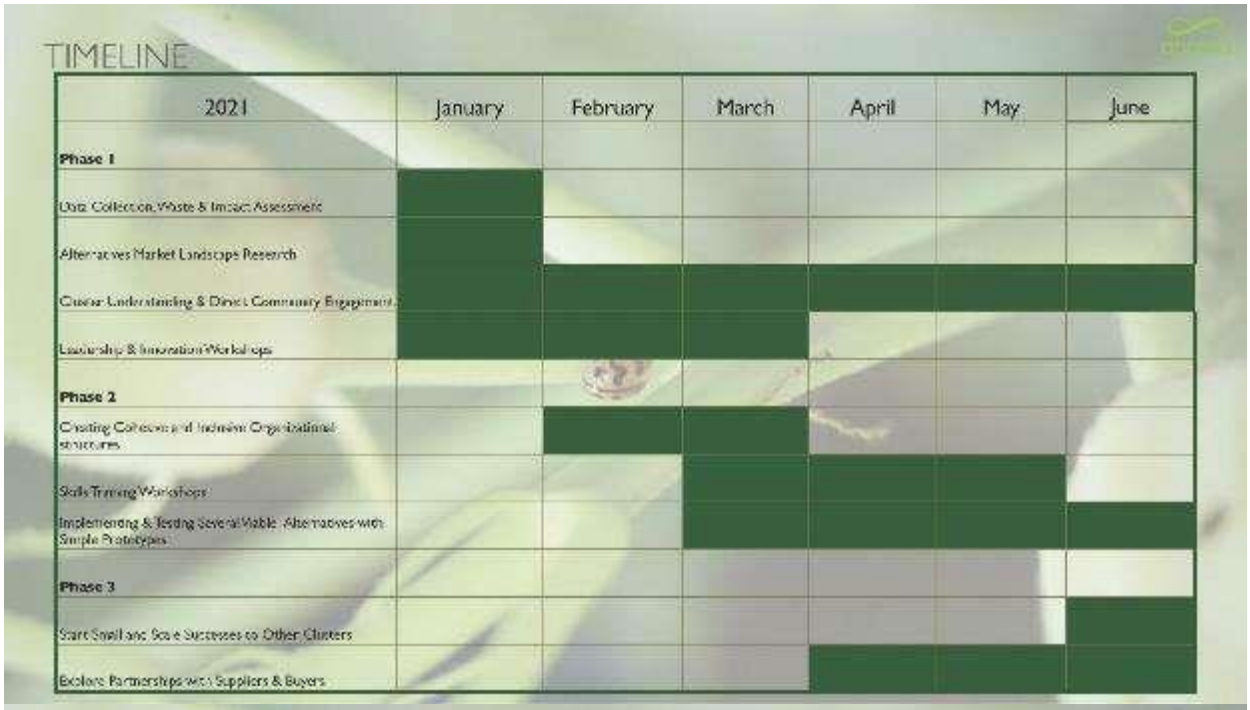
COMMUNITY BUILDING | To build more knowledgeable, skilled and connected communities, we will work with stakeholders to design and implement centrally guided, locally led organizational structures.

The collectives aim to facilitate communication, build trust, enhance transparency in decision making, and promote collaboration across supply networks both inter and intra-clusters. Community participation methods empower people to creatively develop skills and strengthen ties through collective activities for public works.

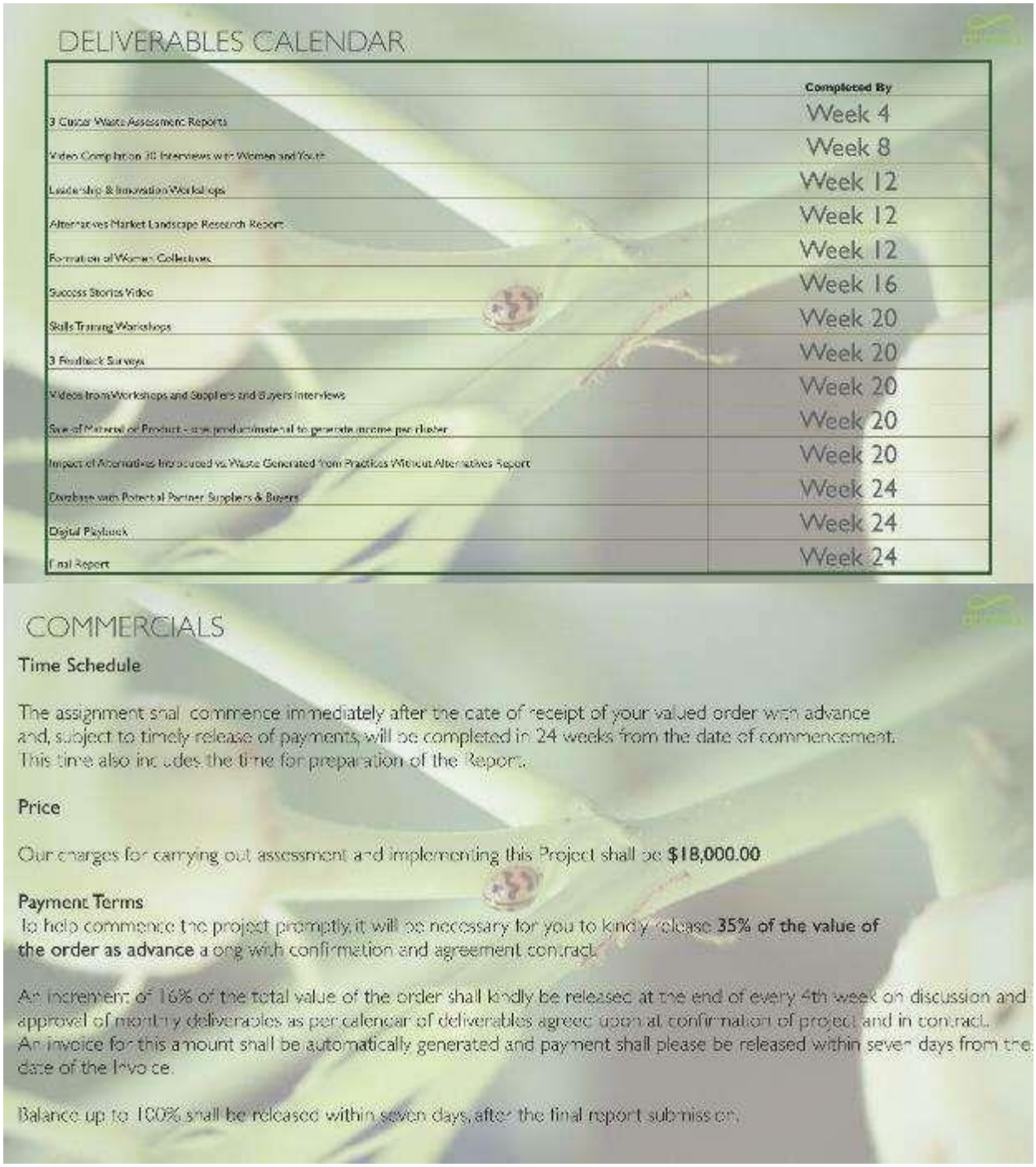



The following SDGs will serve as parameters for designing the framework of the Pilot Project:
5. Gender Equality, 10.Reduced Inequalities, 11. Sustainable Communities, 12. Responsible Consumption & Production, 13 Climate Action, 15 Life on Land
SUSTAINABLE DEVELOPMENT GOALS
1 NO POVERTY
2 ZERO HUNGER
3 GOOD HEALTH AND WELL-BEING
4 QUALITY EDUCATION
5 GENDER EQUALITY
6 CLEAN WATER AND SANITATION
7 AFFORDABLE AND CLEAN ENERGY
8 DECENT WORK AND ECONOMIC GROWTH
9 INDUSTRY, INNOVATION AND INFRASTRUCTURE
10 REDUCED INEQUALITIES
11 SUSTAINABLE CITIES AND COMMUNITIES
12 RESPONSIBLE CONSUMPTION AND PRODUCTION
13 CLIMATE ACTION
14 LIFE BELOW WATER
15 LIFE ON LAND
16 PEACE, JUSTICE AND STRONG INSTITUTIONS
17 PARTNERSHIPS FOR THE GOALS
SUSTAINABLE DEVELOPMENT GOALS


PROCESS FLOW
CLUSTERS UNDERSTANDING & ASSESSMENT
Week 1 - 4
WASTE & IMPACT ASSESSMENT
Week 1 - 4
MARKET LANDSCAPE : IDENTIFYING UTILITY AND DEMAND CHAINS FOR WASTE STREAMS
Week 1 - 4
IDENTIFYING VIABLE ALTERNATIVES
Week 4 - 8
ROUTING SUPPLY CHAINS FOR WASTE AND ALTERNATIVES
Week 4 - 8
MARKET LANDSCAPE: IDENTIFYING END MARKETS FOR WASTE STREAMS
Week 1 - 8
IDENTIFYING SYSTEMS INTERVENTION & LEVERAGE POINTS WITHIN THE COMMUNITY
Week 1 - 12
CREATING COHESIVE AND INCLUSIVE ORGANIZATIONAL STRUCTURES (COLLECTIVES)
Week 4 - 12
CREATING FORUMS FOR INFORMATION EXCHANGE
Week 12 - 24
RELEVANT SKILLS TRAINING FOR WASTE VALUE ADDITION
Week 8 - 20
IMPLEMENTING AND TESTING VIABLE ALTERNATIVES
Week 8 - 24
SUPPLYING MARKETS AND ENSURING PAYMENT TERMS AND ADEQUATE REVENUE GENERATION
Week 12 - 24


TIMELINE
2021
January
February
March
April
May
June
Phase 1
Data Collection Waste & Impact Assessment
Alternatives Market Landscape Research
Cluster Understanding & Direct Community Engagement
Leadership & Innovation Workshops
Phase 2
Creating Cohesive and Inclusive Organizational structures
Skills Training Workshops
Implementing & Testing Several Viable Alternatives with Simple Prototypes
Phase 3
Start Small and Scale Successes to Other Clusters
Explore Partnerships with Suppliers & Buyers


DELIVERABLES
ALTERNATIVES
Report: 3 Cluster Waste Assessment Reports
Report: Proposed alternative materials/waste solution per implementation method including life cycle and supply chain
Video: Success stories in the region for implementation of alternatives
Database: End markets and potential partners
Sourcing: Connecting farmers with sufficient supply of alternative materials
Report: Impact of alternatives introduced vs. waste generated from practices without alternatives
EMPOWERMENT
Workshops: Leadership and Innovation 6x3 hr
Workshops: Skills training workshops 6 per cluster by SME partners/specialists according to market needs
Videos: 3 (one per cluster) on Innovation and Leadership made with workshop participants
Organization: Formation of collectives per cluster with inclusive ownership models
Video: 30 interviews conducted with women and youth
Feedback Surveys: 3 conducted to assess community engagement
Digital Playbook: Guidelines on workshops and qualitative and quantitative results to be replicated in other clusters
INCOME
Report: Market landscape
Report: Buyers per cluster to purchase waste collected including price and KG's
Proof of Market Entry: one product/material to generate income per cluster
Payment Confirmation: for KG's collected and bought
Video: supplier and buyers interviews on implemented supply chain
Final Report



DELIVERABLES CALENDAR

	Completed By
3 Cacao Waste Assessment Reports	Week 4
Video Compilation 10 Interviews with Women and Youth	Week 8
Leadership & Innovation Workshops	Week 12
Alternatives Market Landscape Research Report	Week 12
Formation of Women Collectives	Week 12
Success Stories Video	Week 16
Skills Training Workshops	Week 20
3 Feedback Surveys	Week 20
Videos from Workshops and Suppliers and Buyers Interviews	Week 20
Sale of Material or Product - one product/material to generate income per cluster	Week 20
Impact of Alternatives Introduced vs. Waste Generated from Practices Without Alternatives Report	Week 20
Database with Potential Partner Suppliers & Buyers	Week 24
Digital Playbook	Week 24
Final Report	Week 24

COMMERCIALS

Time Schedule

The assignment shall commence immediately after the date of receipt of your valued order with advance and, subject to timely release of payments, will be completed in 24 weeks from the date of commencement. This time also includes the time for preparation of the Report.

Price

Our charges for carrying out assessment and implementing this Project shall be **$18,000.00**

Payment Terms

To help commence the project promptly, it will be necessary for you to kindly release **35% of the value of the order as advance** along with confirmation and agreement contract.

An increment of 16% of the total value of the order shall kindly be released at the end of every 4th week on discussion and approval of monthly deliverables as per calendar of deliverables agreed upon at confirmation of project and in contract. An invoice for this amount shall be automatically generated and payment shall please be released within seven days from the date of the Invoice.

Balance up to 100% shall be released within seven days, after the final report submission.

ANNEXURE 8: CONCEPTUAL DESIGNS OF INFRASTRUCTURE IMPROVEMENTS

1. Farm access roads

Almost all the fields have satisfactory access roads. Since these roads are lying along the irrigation canals, regular maintenance is done by the Department of Irrigation. However, a few access roads have been identified for renovation and estimates for renovation work have been done in collaboration with the Divisional Irrigation Engineer, Rajanganaya ()

Table 16: Farm access road repair

Location of road	Quantity (km)
Track - 1	5.45
Track - 2	6.32
Track - 3	5.80
Track - 4	7.10
Track - 5	5.80
Total length of the roads	3.05
Estimated 25 % of roads actually need repairs	**7.62**

2. Cluster scale or communal micro irrigation system

The ASMP pilot projects and some other earlier small projects funded by grants have found that farmers that were given drip irrigation systems do not manage them properly. Often, the systems are abandoned. In most cases, farmers use the systems sparingly, not supplying the amount of water required for optimum production by the crops of interest for example one farmer interviewed only applies water to his crop once per month. He feels is too expensive to turn on the petrol-fuelled water pump more than once a month.

Another common issue with drip systems given to farmers by the ASMP is a severe lack of maintenance. As a result, emitters clog easily. In addition, farmers were not trained properly to use the equipment for fertigation purposes. They do not know how to schedule irrigation cycles to maximise the efficiency of the systems and meet crop demands under different conditions of rainfall, evaporation and the stage in the crop's growth cycle.

Moreover, low pressure irrigation systems such as drip and mini-sprinklers are expensive to acquire for small plots of land by individual farmers, mostly because of the cost of the "head" or control centre necessary to operate these systems properly.

The advent of automated low pressure irrigation systems has provided an efficient way to easily manage such systems, even remotely, using laptop computers and/or cellular phones. Automation is capable of facilitating the management of these systems in large and small tracts of land. One control centre manages several hundred hectares of low pressure irrigation with very low manpower requirements. One individual is capable of such task with very little training. Different types of sensors and weather station equipment supplement the hardware necessary to execute many system functions automatically and at a high level of efficiency making the complexity of irrigation management by making it easier. The technology has, additionally, lightened the operational and managerial load for farmers on critical aspects of production such as watering and fertilising. Even the maintenance of the system can be programmed for execution by the control centre. In addition, by having one control centre for several hundred hectares of irrigation, the cost per farmer of these systems has also been decreased through economy of scale.

Such communal systems are ideal for the ASMP cluster and ATDP's development model. Perhaps one of the drawbacks is that a tailored made design is required for every location and every situation in order to maximise the communality of the systems. Nevertheless, the concept itself fits the cluster concept like a glove because it calls for a grouping of farmers working towards a common commercial goal.

To improve the irrigation system in for banana and priority food security crop demonstration areas (0.4 ha each), a communal pressurised micro irrigation system will be established with programmable

automatic control. The system will be established for 50 demonstration plots (10 per tract). The location of these demonstrations will be selected as farmers renovate their banana crop after two rice seasons to being a new banana cycle. Land preparation techniques, water saving irrigation techniques will be introduced in the demonstration plots.

Renovation to the present drainage system has to be done in consultation with the Divisional Irrigation Engineer, Rajanganaya. Irrigation water for the banana cluster area is from Rajanganaya Reservoir managed by Irrigation Department. Institutional aspects of irrigation water supply to the Rajanganaya system are coordinated by the Irrigation Management Division of Ministry of Irrigation through PMC of Rajanganaya Irrigation system. The water source is not Mahaweli canals, but drainage water from Mahaweli System H in addition to Kalaoya river and runoff rainwater from catchment area.

The mechanism for water distribution, O&M for each tract is with banana farmers DCO that is already functioning under the Resident Project Manager of Rajanganaya of Irrigation Management Division. According to the amended irrigation ordinance the DCO is responsible for water distribution, O&M in the particular Distributary canal and Field Canals on which farm outlets are located. Most of these banana farmers are members of DCO or successors of DCO members. As such easiest way to get the banana farmers' contribution for O&M is to establish special five groups as tract 1-5 Banana Water Users' Association only to deal with irrigation matters and make access to become members of PMC.

Figure 12: Cluster automated micro irrigation system

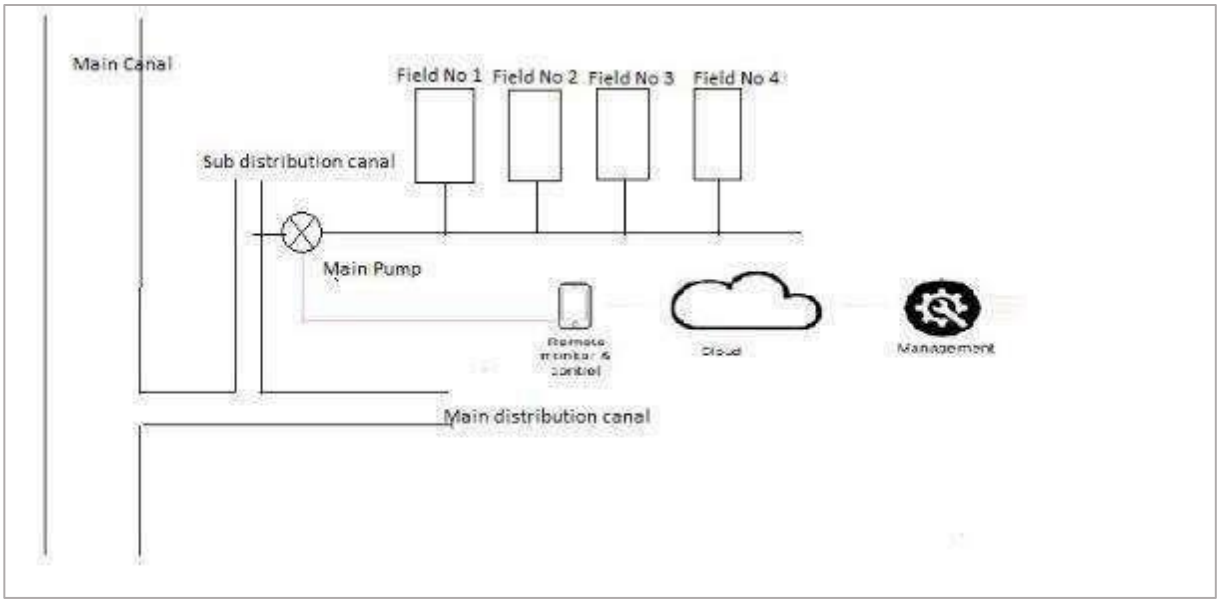


Figure 13: Field layout of micro irrigation system

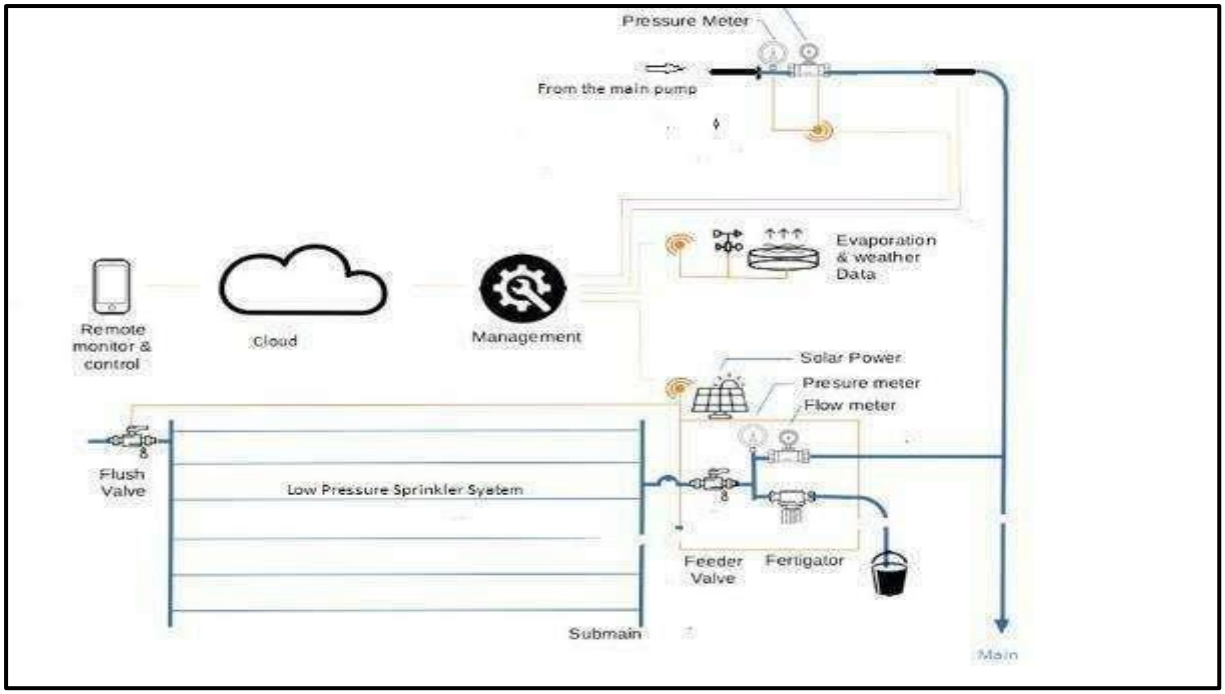


Table 17: Small-scale cluster infrastructure

Item	Activity	Schedule	Involvement with whom	Estimated cost
Access roads	Finalise survey; prepare tender documents	Soon after the approval of the CDP.	Divisional Irrigation Engineer, ISP Engineer, PPMU	Included in the CDP
Irrigation system	Design and implement the micro irrigation system	Soon after the approval of the CDP.	Divisional Irrigation Engineer, ISP Engineer, PPMU	Included in the CDP
Drainage system	To be included in the micro irrigation system itself	Soon after the approval of the CDP.	Divisional Irrigation Engineer, ISP Engineer, PPMU	Included in the CDP
Land preparation	To be carried out by agricultural machinery contractors fulfilling the crop requirement	Soon after the approval of the CDP.	Divisional Irrigation Engineer, ISP Engineer, PPMU	To be done in collaboration with the FPO or District Canal Organisations (DCO).

ANNEXURE 9: INTERIM GUIDELINES ON COVID-19 OF WORLD BANK

ESF/SAFEGUARDS INTERIM NOTE: COVID-19 CONSIDERATIONS IN CONSTRUCTION/CIVIL WORKS PROJECTS

This note was issued on April 7, 2020 and includes links to the latest guidance as of this date (e.g. from WHO). Given the COVID-19 situation is rapidly evolving, when using this note it is important to check whether any updates to these external resources have been issued.

1. INTRODUCTION

The COVID-19 pandemic presents Governments with unprecedented challenges. Addressing COVID-19 related issues in both existing and new operations starts with recognizing that this is not business as usual and that circumstances require a highly adaptive responsive management design to avoid, minimize and manage what may be a rapidly evolving situation. In many cases, we will ask Borrowers to use reasonable efforts in the circumstances, recognizing that what may be possible today may be different next week (both positively, because more supplies and guidance may be available, and negatively, because the spread of the virus may have accelerated).

This interim note is intended to provide guidance to teams on how to support Borrowers in addressing key issues associated with COVID-19, and consolidates the advice that has already been provided over the past month. As such, it should be used in place of other guidance that has been provided to date. This note will be developed as the global situation and the Bank's learning (and that of others) develops. This is not a time when 'one size fits all'. More than ever, teams will need to work with Borrowers and projects to understand the activities being carried out and the risks that these activities may entail. Support will be needed in designing mitigation measures that are implementable in the context of the project. These measures will need to take into account capacity of the Government agencies, availability of supplies and the practical challenges of operations on-the-ground, including stakeholder engagement, supervision and monitoring. In many circumstances, communication itself may be challenging, where face-to-face meetings are restricted or prohibited, and where IT solutions are limited or unreliable.

This note emphasizes the importance of careful scenario planning, clear procedures and protocols, management systems, effective communication and coordination, and the need for high levels of responsiveness in a changing environment. It recommends assessing the current situation of the project, putting in place mitigation measures to avoid or minimize the chance of infection, and planning what to do if either project workers become infected or the work force includes workers from proximate communities affected by COVID-19. In many projects, measures to avoid or minimize will need to be implemented at the same time as dealing with sick workers and relations with the community, some of whom may also be ill or concerned about infection. Borrowers should understand the obligations that contractors have under their existing contracts (see Section 3), require contractors to put in place appropriate organizational structures (see Section 4) and develop procedures to address different aspects of COVID-19 (see Section 5).

2. CHALLENGES WITH CONSTRUCTION/CIVIL WORKS

Projects involving construction/civil works frequently involve a large work force, together with suppliers and supporting functions and services. The work force may comprise workers from international, national, regional, and local labor markets. They may need to live in on-site accommodation, lodge within communities close to work sites or return to their homes after work. There may be different contractors

permanently present on site, carrying out different activities, each with their own dedicated workers. Supply chains may involve international, regional and national suppliers facilitating the regular flow of goods and services to the project (including supplies essential to the project such as fuel, food, and water). As such there will also be regular flow of parties entering and exiting the site; support services, such as catering, cleaning services, equipment, material and supply deliveries, and specialist sub-contractors, brought in to deliver specific elements of the works.

Given the complexity and the concentrated number of workers, the potential for the spread of infectious disease in projects involving construction is extremely serious, as are the implications of such a spread. Projects may experience large numbers of the work force becoming ill, which will strain the project's health facilities, have implications for local emergency and health services and may jeopardize the progress of the construction work and the schedule of the project. Such impacts will be exacerbated where a work force is large and/or the project is in remote or under-serviced areas. In such circumstances, relationships with the community can be strained or difficult and conflict can arise, particularly if people feel they are being exposed to disease by the project or are having to compete for scarce resources. The project must also exercise appropriate precautions against introducing the infection to local communities.

3. DOES THE CONSTRUCTION CONTRACT COVER THIS SITUATION?

Given the unprecedented nature of the COVID-19 pandemic, it is unlikely that the existing construction/civil works contracts will cover all the things that a prudent contractor will need to do. Nevertheless, the first place for a Borrower to start is with the contract, determining what a contractor's existing obligations are, and how these relate to the current situation.

The obligations on health and safety will depend on what kind of contract exists (between the Borrower and the main contractor; between the main contractors and the sub-contractors). It will differ if the Borrower used the World Bank's standard procurement documents (SPDs) or used national bidding documents. If a FIDIC document has been used, there will be general provisions relating to health and safety. For example, the standard FIDIC, Conditions of Contract for Construction (Second Edition 2017), which contains no 'ESF enhancements', states (in the General Conditions, clause 6.7) that the Contractor will be required:

- to take all necessary precautions to maintain the health and safety of the Contractor's Personnel
- to appoint a health and safety officer at site, who will have the authority to issue directives for the purpose of maintaining the health and safety of all personnel authorized to enter and or work on the site and to take protective measures to prevent accidents
- to ensure, in collaboration with local health authorities, that medical staff, first aid facilities, sick bay, ambulance services and any other medical services specified are available at all times at the site and at any accommodation
- to ensure suitable arrangements are made for all necessary welfare and hygiene requirements and for the prevention of epidemics

These requirements have been enhanced through the introduction of the ESF into the SPDs (edition dated July 2019). The general FIDIC clause referred to above has been strengthened to reflect the requirements of the ESF. Beyond FIDIC's general requirements discussed above, the Bank's Particular Conditions include a number of relevant requirements on the Contractor, including:

- to provide health and safety training for Contractor's Personnel (which include project workers and all personnel that the Contractor uses on site, including staff and other employees of the Contractor and Subcontractors and any other personnel assisting the Contractor in carrying out project activities)
- to put in place workplace processes for Contractor's Personnel to report work situations that are not safe or healthy
- gives Contractor's Personnel the right to report work situations which they believe are not safe or healthy, and to remove themselves from a work situation which they have a reasonable justification to believe presents an imminent and serious danger to their life or health (with no reprisal for reporting or removing themselves)
- requires measures to be in place to avoid or minimize the spread of diseases including measures to avoid or minimize the transmission of communicable diseases that may be associated with the influx of temporary or permanent contract-related labor
- to provide an easily accessible grievance mechanism to raise workplace concerns

Where the contract form used is FIDIC, the Borrower (as the Employer) will be represented by the Engineer (also referred to in this note as the Supervising Engineer). The Engineer will be authorized to exercise authority specified in or necessarily implied from the construction contract. In such cases, the Engineer (through its staff on site) will be the interface between the PIU and the Contractor. It is important therefore to understand the scope of the Engineer's responsibilities. It is also important to recognize that in the case of infectious diseases such as COVID-19, project management – through the Contractor/subcontractor hierarchy – is only as effective as the weakest link. A thorough review of management procedures/plans as they will be implemented through the entire contractor hierarchy is important. Existing contracts provide the outline of this structure; they form the basis for the Borrower to understand how proposed mitigation measures will be designed and how adaptive management will be implemented, and to start a conversation with the Contractor on measures to address COVID-19 in the project.

4. WHAT PLANNING SHOULD THE BORROWER BE DOING?

Task teams should work with Borrowers (PIUs) to confirm that projects (i) are taking adequate precautions to prevent or minimize an outbreak of COVID-19, and (ii) have identified what to do in the event of an outbreak. Suggestions on how to do this are set out below:

- The PIU, either directly or through the Supervising Engineer, should request details in writing from the main Contractor of the measures being taken to address the risks. As stated in Section 3, the construction contract should include health and safety requirements, and these can be used as the basis for identification of, and requirements to implement, COVID-19 specific measures. The measures may be presented as a contingency plan, as an extension of the existing project emergency and preparedness plan or as standalone procedures. The measures may be reflected in revisions to the project's health and safety manual. This request should be made in writing (following any relevant procedure set out in the contract between the Borrower and the contractor).

- In making the request, it may be helpful for the PIU to specify the areas that should be covered. This should include the items set out in Section 5 below and take into account current and relevant

guidance provided by national authorities, WHO and other organizations. See the list of references in the Annex to this note.

- The PIU should require the Contractor to convene regular meetings with the project health and safety specialists and medical staff (and where appropriate the local health authorities), and to take their advice in designing and implementing the agreed measures.

- Where possible, a senior person should be identified as a focal point to deal with COVID-19 issues. This can be a work supervisor or a health and safety specialist. This person can be responsible for coordinating preparation of the site and making sure that the measures taken are communicated to the workers, those entering the site and the local community. It is also advisable to designate at least one back-up person, in case the focal point becomes ill; that person should be aware of the arrangements that are in place.

- On sites where there are a number of contractors and therefore (in effect) different work forces, the request should emphasize the importance of coordination and communication between the different parties. Where necessary, the PIU should request the main contractor to put in place a protocol for regular meetings of the different contractors, requiring each to appoint a designated staff member (with back up) to attend such meetings. If meetings cannot be held in person, they should be conducted using whatever IT is available. The effectiveness of mitigation measures will depend on the weakest implementation, and therefore it is important that all contractors and sub-contractors understand the risks and the procedure to be followed.

- The PIU, either directly or through the Supervising Engineer, may provide support to projects in identifying appropriate mitigation measures, particularly where these will involve interface with local services, in particular health and emergency services. In many cases, the PIU can play a valuable role in connecting project representatives with local Government agencies, and helping coordinate a strategic response, which takes into account the availability of resources. To be most effective, projects should consult and coordinate with relevant Government agencies and other projects in the vicinity.

- Workers should be encouraged to use the existing project grievance mechanism to report concerns relating to COVID-19, preparations being made by the project to address COVID-19 related issues, how procedures are being implemented, and concerns about the health of their co-workers and other staff.

5. WHAT SHOULD THE CONTRACTOR COVER?

The Contractor should identify measures to address the COVID-19 situation. What will be possible will depend on the context of the project: the location, existing project resources, availability of supplies, capacity of local emergency/health services, the extent to which the virus already exist in the area. A systematic approach to planning, recognizing the challenges associated with rapidly changing circumstances, will help the project put in place the best measures possible to address the situation. As discussed above, measures to address COVID-19 may be presented in different ways (as a contingency plan, as an extension of the existing project emergency and preparedness plan or as standalone procedures). PIUs and contractors should refer to guidance issued by relevant authorities, both national

and international (e.g. WHO), which is regularly updated (see sample References and links provided in the Annex).

Addressing COVID-19 at a project site goes beyond occupational health and safety, and is a broader project issue which will require the involvement of different members of a project management team. In many cases, the most effective approach will be to establish procedures to address the issues, and then to ensure that these procedures are implemented systematically. Where appropriate given the project context, a designated team should be established to address COVID-19 issues, including PIU representatives, the Supervising Engineer, management (e.g. the project manager) of the contractor and sub-contractors, security, and medical and OHS professionals. Procedures should be clear and straightforward, improved as necessary, and supervised and monitored by the COVID-19 focal point(s). Procedures should be documented, distributed to all contractors, and discussed at regular meetings to facilitate adaptive management. The issues set out below include a number that represent expected good workplace management but are especially pertinent in preparing the project response to COVID-19.

(a) ASSESSING WORKFORCE CHARACTERISTICS

Many construction sites will have a mix of workers e.g. workers from the local communities; workers from a different part of the country; workers from another country. Workers will be employed under different terms and conditions and be accommodated in different ways. Assessing these different aspects of the workforce will help in identifying appropriate mitigation measures:

- The Contractor should prepare a detailed profile of the project work force, key work activities, schedule for carrying out such activities, different durations of contract and rotations (e.g. 4 weeks on, 4 weeks off).
- This should include a breakdown of workers who reside at home (i.e. workers from the community), workers who lodge within the local community and workers in on-site accommodation. Where possible, it should also identify workers that may be more at risk from COVID-19, those with underlying health issues or who may be otherwise at risk.
- Consideration should be given to ways in which to minimize movement in and out of site. This could include lengthening the term of existing contracts, to avoid workers returning home to affected areas, or returning to site from affected areas.
- Workers accommodated on site should be required to minimize contact with people near the site, and in certain cases be prohibited from leaving the site for the duration of their contract, so that contact with local communities is avoided.
- Consideration should be given to requiring workers lodging in the local community to move to site accommodation (subject to availability) where they would be subject to the same restrictions.
- Workers from local communities, who return home daily, weekly or monthly, will be more difficult to manage. They should be subject to health checks at entry to the site (as set out above) and at some point, circumstances may make it necessary to require them to either use accommodation on site or not to come to work.

(b) ENTRY/EXIT TO THE WORK SITE AND CHECKS ON COMMENCEMENT OF WORK

Entry/exit to the work site should be controlled and documented for both workers and other parties, including support staff and suppliers. Possible measures may include:

- Establishing a system for controlling entry/exit to the site, securing the boundaries of the site, and establishing designating entry/exit points (if they do not already exist). Entry/exit to the site should be documented.
- Training security staff on the (enhanced) system that has been put in place for securing the site and controlling entry and exit, the behaviors required of them in enforcing such system and any COVID - 19 specific considerations.
- Training staff who will be monitoring entry to the site, providing them with the resources they need to document entry of workers, conducting temperature checks and recording details of any worker that is denied entry.
- Confirming that workers are fit for work before they enter the site or start work. While procedures should already be in place for this, special attention should be paid to workers with underlying health issues or who may be otherwise at risk. Consideration should be given to demobilization of staff with underlying health issues.
- Checking and recording temperatures of workers and other people entering the site or requiring self-reporting prior to or on entering the site.
- Providing daily briefings to workers prior to commencing work, focusing on COVID-19 specific considerations including cough etiquette, hand hygiene and distancing measures, using demonstrations and participatory methods.
- During the daily briefings, reminding workers to self-monitor for possible symptoms (fever, cough) and to report to their supervisor or the COVID-19 focal point if they have symptoms or are feeling unwell.
- Preventing a worker from an affected area or who has been in contact with an infected person from returning to the site for 14 days or (if that is not possible) isolating such worker for 14 days.
- Preventing a sick worker from entering the site, referring them to local health facilities if necessary or requiring them to isolate at home for 14 days.

(c) GENERAL HYGIENE

Requirements on general hygiene should be communicated and monitored, to include:

- Training workers and staff on site on the signs and symptoms of COVID-19, how it is spread, how to protect themselves (including regular handwashing and social distancing) and what to do if they or other people have symptoms (for further information see WHO COVID-19 advice for the public).
- Placing posters and signs around the site, with images and text in local languages.
- Ensuring handwashing facilities supplied with soap, disposable paper towels and closed waste bins exist at key places throughout site, including at entrances/exits to work areas; where there is a toilet, canteen or food distribution, or provision of drinking water; in worker accommodation; at waste stations; at stores; and in common spaces. Where handwashing facilities do not exist or are not adequate, arrangements should be made to set them up. Alcohol based sanitizer (if available, 60-95% alcohol) can also be used.
- Review worker accommodations, and assess them in light of the requirements set out in IFC/EBRD guidance on Workers' Accommodation: processes and standards, which provides valuable guidance as to good practice for accommodation.
- Setting aside part of worker accommodation for precautionary self-quarantine as well as more formal isolation of staff who may be infected (see paragraph (f)).

(d) CLEANING AND WASTE DISPOSAL

Conduct regular and thorough cleaning of all site facilities, including offices, accommodation, canteens, common spaces. Review cleaning protocols for key construction equipment (particularly if it is being operated by different workers). This should include:

- Providing cleaning staff with adequate cleaning equipment, materials and disinfectant.
- Review general cleaning systems, training cleaning staff on appropriate cleaning procedures and appropriate frequency in high use or high-risk areas.
- Where it is anticipated that cleaners will be required to clean areas that have been or are suspected to have been contaminated with COVID-19, providing them with appropriate PPE: gowns or aprons, gloves, eye protection (masks, goggles or face screens) and boots or closed work shoes. If appropriate PPE is not available, cleaners should be provided with best available alternatives.
- Training cleaners in proper hygiene (including handwashing) prior to, during and after conducting cleaning activities; how to safely use PPE (where required); in waste control (including for used PPE and cleaning materials).
- Any medical waste produced during the care of ill workers should be collected safely in designated containers or bags and treated and disposed of following relevant requirements (e.g., national, WHO). If open burning and incineration of medical wastes is necessary, this should be for as limited a duration as possible. Waste should be reduced and segregated, so that only the smallest amount of waste is incinerated (for further information see WHO interim guidance on water, sanitation and waste management for COVID-19).

(e) ADJUSTING WORK PRACTICES

Consider changes to work processes and timings to reduce or minimize contact between workers, recognizing that this is likely to impact the project schedule. Such measures could include:

- Decreasing the size of work teams.
- Limiting the number of workers on site at any one time.
- Changing to a 24-hour work rotation.
- Adapting or redesigning work processes for specific work activities and tasks to enable social distancing, and training workers on these processes.
- Continuing with the usual safety trainings, adding COVID-19 specific considerations. Training should include proper use of normal PPE. While as of the date of this note, general advice is that construction workers do not require COVID-19 specific PPE, this should be kept under review (for further information see WHO interim guidance on rational use of personal protective equipment (PPE) for COVID-19).
- Reviewing work methods to reduce use of construction PPE, in case supplies become scarce or the PPE is needed for medical workers or cleaners. This could include, e.g. trying to reduce the need for dust masks by checking that water sprinkling systems are in good working order and are maintained or reducing the speed limit for haul trucks.
- Arranging (where possible) for work breaks to be taken in outdoor areas within the site.
- Consider changing canteen layouts and phasing meal times to allow for social distancing and phasing access to and/or temporarily restricting access to leisure facilities that may exist on site, including gyms.

- At some point, it may be necessary to review the overall project schedule, to assess the extent to which it needs to be adjusted (or work stopped completely) to reflect prudent work practices, potential exposure of both workers and the community and availability of supplies, taking into account Government advice and instructions.

(f) PROJECT MEDICAL SERVICES

Consider whether existing project medical services are adequate, taking into account existing infrastructure (size of clinic/medical post, number of beds, isolation facilities), medical staff, equipment and supplies, procedures and training. Where these are not adequate, consider upgrading services where possible, including:

- Expanding medical infrastructure and preparing areas where patients can be isolated. Guidance on setting up isolation facilities is set out in WHO interim guidance on considerations for quarantine of individuals in the context of containment for COVID-19). Isolation facilities should be located away from worker accommodation and ongoing work activities. Where possible, workers should be provided with a single well-ventilated room (open windows and door). Where this is not possible, isolation facilities should allow at least 1 meter between workers in the same room, separating workers with curtains, if possible. Sick workers should limit their movements, avoiding common areas and facilities and not be allowed visitors until they have been clear of symptoms for 14 days. If they need to use common areas and facilities (e.g. kitchens or canteens), they should only do so when unaffected workers are not present and the area/facilities should be cleaned prior to and after such use.
- Training medical staff, which should include current WHO advice on COVID-19 and recommendations on the specifics of COVID-19. Where COVID-19 infection is suspected, medical providers on site should follow WHO interim guidance on infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected.
- Training medical staff in testing, if testing is available.
- Assessing the current stock of equipment, supplies and medicines on site, and obtaining additional stock, where required and possible. This could include medical PPE, such as gowns, aprons, medical masks, gloves, and eye protection. Refer to WHO guidance as to what is advised (for further information see WHO interim guidance on rational use of personal protective equipment (PPE) for COVID-19).
- If PPE items are unavailable due to world-wide shortages, medical staff on the project should agree on alternatives and try to procure them. Alternatives that may commonly be found on constructions sites include dust masks, construction gloves and eye goggles. While these items are not recommended, they should be used as a last resort if no medical PPE is available.
- Ventilators will not normally be available on work sites, and in any event, intubation should only be conducted by experienced medical staff. If a worker is extremely ill and unable to breathe properly on his or her own, they should be referred immediately to the local hospital (see (g) below).
- Review existing methods for dealing with medical waste, including systems for storage and disposal (for further information see WHO interim guidance on water, sanitation and waste management for COVID-19, and WHO guidance on safe management of wastes from health-care activities).

(g) LOCAL MEDICAL AND OTHER SERVICES

Given the limited scope of project medical services, the project may need to refer sick workers to local medical services. Preparation for this includes:

- Obtaining information as to the resources and capacity of local medical services (e.g. number of beds, availability of trained staff and essential supplies).
- Conducting preliminary discussions with specific medical facilities, to agree what should be done in the event of ill workers needing to be referred.
- Considering ways in which the project may be able to support local medical services in preparing for members of the community becoming ill, recognizing that the elderly or those with pre-existing medical conditions require additional support to access appropriate treatment if they become ill.
- Clarifying the way in which an ill worker will be transported to the medical facility, and checking availability of such transportation.
- Establishing an agreed protocol for communications with local emergency/medical services.
- Agreeing with the local medical services/specific medical facilities the scope of services to be provided, the procedure for in-take of patients and (where relevant) any costs or payments that may be involved.
- A procedure should also be prepared so that project management knows what to do in the unfortunate event that a worker ill with COVID-19 dies. While normal project procedures will continue to apply, COVID-19 may raise other issues because of the infectious nature of the disease. The project should liaise with the relevant local authorities to coordinate what should be done, including any reporting or other requirements under national law.

(h) INSTANCES OR SPREAD OF THE VIRUS

WHO provides detailed advice on what should be done to treat a person who becomes sick or displays symptoms that could be associated with the COVID-19 virus (for further information see WHO interim guidance on infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected). The project should set out risk-based procedures to be followed, with differentiated approaches based on case severity (mild, moderate, severe, critical) and risk factors (such as age, hypertension, diabetes) (for further information see WHO interim guidance on operational considerations for case management of COVID-19 in health facility and community). These may include the following:

- If a worker has symptoms of COVID-19 (e.g. fever, dry cough, fatigue) the worker should be removed immediately from work activities and isolated on site.
- If testing is available on site, the worker should be tested on site. If a test is not available at site, the worker should be transported to the local health facilities to be tested (if testing is available).
- If the test is positive for COVID-19 or no testing is available, the worker should continue to be isolated. This will either be at the work site or at home. If at home, the worker should be transported to their home in transportation provided by the project.
- Extensive cleaning procedures with high-alcohol content disinfectant should be undertaken in the area where the worker was present, prior to any further work being undertaken in that area. Tools used by the worker should be cleaned using disinfectant and PPE disposed of.
- Co-workers (i.e. workers with whom the sick worker was in close contact) should be required to stop work, and be required to quarantine themselves for 14 days, even if they have no symptoms.

- Family and other close contacts of the worker should be required to quarantine themselves for 14 days, even if they have no symptoms.
- If a case of COVID-19 is confirmed in a worker on the site, visitors should be restricted from entering the site and worker groups should be isolated from each other as much as possible.
- If workers live at home and has a family member who has a confirmed or suspected case of COVID-19, the worker should quarantine themselves and not be allowed on the project site for 14 days, even if they have no symptoms.
- Workers should continue to be paid throughout periods of illness, isolation or quarantine, or if they are required to stop work, in accordance with national law.
- Medical care (whether on site or in a local hospital or clinic) required by a worker should be paid for by the employer.

(i) CONTINUITY OF SUPPLIES AND PROJECT ACTIVITIES

Where COVID-19 occurs, either in the project site or the community, access to the project site may be restricted, and movement of supplies may be affected.

- Identify back-up individuals, in case key people within the project management team (PIU, Supervising Engineer, Contractor, sub-contractors) become ill, and communicate who these are so that people are aware of the arrangements that have been put in place.
- Document procedures, so that people know what they are, and are not reliant on one person's knowledge.
- Understand the supply chain for necessary supplies of energy, water, food, medical supplies and cleaning equipment, consider how it could be impacted, and what alternatives are available. Early pro-active review of international, regional and national supply chains, especially for those supplies that are critical for the project, is important (e.g. fuel, food, medical, cleaning and other essential supplies). Planning for a 1-2 month interruption of critical goods may be appropriate for projects in more remote areas.
- Place orders for/procure critical supplies. If not available, consider alternatives (where feasible).
- Consider existing security arrangements, and whether these will be adequate in the event of interruption to normal project operations.
- Consider at what point it may become necessary for the project to significantly reduce activities or to stop work completely, and what should be done to prepare for this, and to re-start work when it becomes possible or feasible.

(j) TRAINING AND COMMUNICATION WITH WORKERS

Workers need to be provided with regular opportunities to understand their situation, and how they can best protect themselves, their families and the community. They should be made aware of the procedures that have been put in place by the project, and their own responsibilities in implementing them.

- It is important to be aware that in communities close to the site and amongst workers without access to project management, social media is likely to be a major source of information. This raises the importance of regular information and engagement with workers (e.g. through training, town halls, tool boxes) that emphasizes what management is doing to deal with the risks of COVID-19. Allaying fear is an important aspect of work force peace of mind and business continuity. Workers should be given an opportunity to ask questions, express their concerns, and make suggestions.

- Training of workers should be conducted regularly, as discussed in the sections above, providing workers with a clear understanding of how they are expected to behave and carry out their work duties.
- Training should address issues of discrimination or prejudice if a worker becomes ill and provide an understanding of the trajectory of the virus, where workers return to work.
- Training should cover all issues that would normally be required on the work site, including use of safety procedures, use of construction PPE, occupational health and safety issues, and code of conduct, taking into account that work practices may have been adjusted.
- Communications should be clear, based on fact and designed to be easily understood by workers, for example by displaying posters on handwashing and social distancing, and what to do if a worker displays symptoms.

(k) COMMUNICATION AND CONTACT WITH THE COMMUNITY

Relations with the community should be carefully managed, with a focus on measures that are being implemented to safeguard both workers and the community. The community may be concerned about the presence of non-local workers, or the risks posed to the community by local workers presence on the project site. The project should set out risk-based procedures to be followed , which may reflect WHO guidance (for further information see WHO Risk Communication and Community Engagement (RCCE) Action Plan Guidance COVID-19 Preparedness and Response). The following good practice should be considered:

- Communications should be clear, regular, based on fact and designed to be easily understood by community members.
- Communications should utilize available means. In most cases, face-to-face meetings with the community or community representatives will not be possible. Other forms of communication should be used; posters, pamphlets, radio, text message, electronic meetings. The means used should take into account the ability of different members of the community to access them, to make sure that communication reaches these groups.
- The community should be made aware of procedures put in place at site to address issues related to COVID-19. This should include all measures being implemented to limit or prohibit contact between workers and the community. These need to be communicated clearly, as some measures will have financial implications for the community (e.g. if workers are paying for lodging or using local facilities). The community should be made aware of the procedure for entry/exit to the site, the training being given to workers and the procedure that will be followed by the project if a worker becomes sick.
- If project representatives, contractors or workers are interacting with the community, they should practice social distancing and follow other COVID-19 guidance issued by relevant authorities, both national and international (e.g. WHO).

6. EMERGENCY POWERS AND LEGISLATION

Many Borrowers are enacting emergency legislation. The scope of such legislation, and the way it interacts with other legal requirements, will vary from country to country. Such legislation can cover a range of issues, for example:

- Declaring a public health emergency
- Authorizing the use of police or military in certain activities (e.g. enforcing curfews or restrictions on movement)
- Ordering certain categories of employees to work longer hours, not to take holiday or not to leave their job (e.g. health workers)
- Ordering non-essential workers to stay at home, for reduced pay or compulsory holiday

Except in exceptional circumstances (after referral to the World Bank's Operations Environmental and Social Review Committee (OESRC)), projects will need to follow emergency legislation to the extent that these are mandatory or advisable. It is important that the Borrower understands how mandatory requirements of the legislation will impact the project. Teams should require Borrowers (and in turn, Borrowers should request Contractors) to consider how the emergency legislation will impact the obligations of the Borrower set out in the legal agreement and the obligations set out in the construction contracts. Where the legislation requires a material departure from existing contractual obligations, this should be documented, setting out the relevant provisions.

KfW DEG COVID-19 Guidance for employers, issued on 31 March 2020

CDC Group COVID-19 Guidance for Employers, issued on 23 March 2020

INTERIM GUIDANCE ON COVID-19 **VERSION 1: APRIL 7, 2020**

ANNEX

WHO Guidance

Advice for the public

WHO advice for the public, including on social distancing, respiratory hygiene, self-quarantine, and seeking medical advice, can be consulted on this WHO website: https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public

Technical guidance

Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected, issued on 19 March 2020

Coronavirus disease (COVID-19) outbreak: rights, roles and responsibilities of health workers, including key considerations for occupational safety and health, issued on 18 March 2020

Risk Communication and Community Engagement (RCCE) Action Plan Guidance COVID-19 Preparedness and Response, issued on 16 March 2020

Considerations for quarantine of individuals in the context of containment for coronavirus disease (COVID-19), issued on 19 March 2020

Operational considerations for case management of COVID-19 in health facility and community, issued on 19 March 2020

Rational use of personal protective equipment for coronavirus disease 2019 (COVID-19), issued on 27 February 2020

Getting your workplace ready for COVID-19, issued on 19 March 2020

Water, sanitation, hygiene and waste management for COVID-19, issued on 19 March 2020

Safe management of wastes from health-care activities issued in 2014

Advice on the use of masks in the community, during home care and in healthcare settings in the context of the novel coronavirus (COVID-19) outbreak, issued on March 19, 2020

ILO GUIDANCE

ILO Standards and COVID-19 FAQ, issued on March 23, 2020 (provides a compilation of answers to most frequently asked questions related to international labor standards and COVID-19)

MFI GUIDANCE

IDB Invest Guidance for Infrastructure Projects on COVID-19: A Rapid Risk Profile and Decision Framework

KfW DEG COVID-19 Guidance for employers, issued on 31 March 2020

CDC Group COVID-19 Guidance for Employers, issued on 23 March 2020