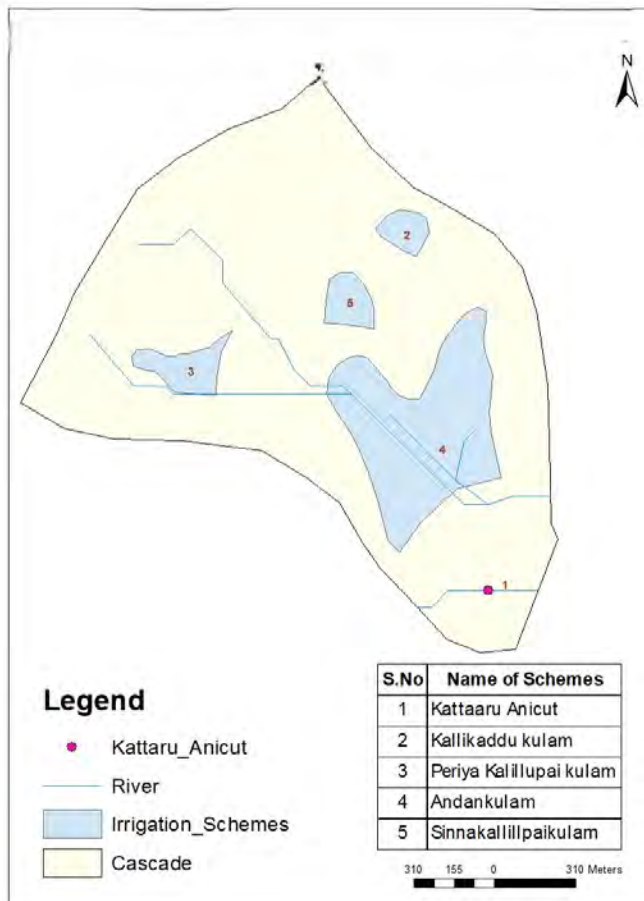




Kattaru

Cascade Profile & Basic Development Plan



Climate Smart Irrigated Agriculture Project (CSIAP)
Yan Oya River Basin
Kuchchaveli Divisional Secretariat Division
Trincomalee District

Table of Content

1. Introduction.	4
1.1.Cascade Management Committees (CMCs) for sustainable management	5
1.2.Necessity of a Cascade Management Committee	7
1.3.Objectives of preparation of a cascade profile and a Cascade Management Plan (CMP)	7
1.4. Importance of preparation of profile and the Cascade Management Plan	8
1.5 Brief introduction to the cascades situated in the area.	8
1.6 Kattaru cascade system.	9
1.7 Map of the Kattaru cascade system.	10
1.8 Information of the small tanks within the cascade system.	12
1.9. Importance of managing the Kattaru cascade for its sustainability.	13
1.10.Necessity of preparing a profile for Kattaru cascade.	13
1.11Preparation of Kattaru cascade profile.	14
02. Methodology applied in preparation of the Cascade Management Profile and the Basic Cascade Management Plan (CMP).	16
03. Details of the current profile of the Kattaru cascade.	17
3.1. Details of geographical aspect.	17
3.2. Details of Geological aspect.	17
3.3. Details of hydrological aspect.	20
3.4. Details of Environmental aspect.	21
3.5. Details of Human livelihood activities occurring within the cascade.	22
3.6. Details of the socio-economic aspect.	22
3.7. Details of construction activities withing the cascade system.	23
3.8. Details of crop pattern within the cascade system.	24
3.9. Details of irrigation management within the cascade system.	26
3.10. Details of the current situation of the command area.	26
04. Major Challenges face by the cascade system.	26
4.1 Critical Issues of the cascade system.	27
4.2 Proposed strategic interventions plan by the CMC to resolve/mitigate Critical issues of the cascade system.	28
4.3 Key activities suggested by the CMC to address or mitigate critical issues.	29
05. Cascade Management (Basic) Plan.	32
5.1. Total estimated cost for implementing interventions and contribution expected from the stakeholder agencies.	32
5.2. Interventions and major activities expected to be implemented by the CSIAP within its project period.	40
5.3Implementation Methodology of Cascade Development Plan	43

Annexures

Annexure 1: Circular No 6 of 2023 issued by the Department of Agrarian Development on 03 rd August 2023 to establish Cascade Management Committees.	44
Annexure 2: List of stakeholder agencies participated in Transect Walk To learn the Kattaru cascade system.	49
Annexure 3: List of officials and members of the CMC.	52
Annexure 4: Guidance Format for preparation of subproject proposals to raise funds to implement interventions and major activities.	53
Annexure 5: Any other appropriate information	56

Tables

Table 01: The general information of the cascade system.	09
Table 02: Capacity of tanks and beneficiaries of tanks	12
Table 03: Tanks and coordinates	12
Table 04: Monthly mean Temperature (2002- 2022)	16
Table 05: Monthly Rainfall (20002 -2022)	17
Table 06: Vulnerable families in the Puliyanikulam cascade	22
Table 07: FOs functioning in the Puliyanikulam cascade	22
Table 08: Farm families and others	23
Table 09: Construction activities under implementation of CSIAP	24
Table 10: Tank wise cultivation before and after rehabilitation	25
Table 11: Critical issues identified	27
Table 12: Proposed key activities to overcome the identified issues	29
Table 13: Gantt chart for proposed activities and responsible entities for implementation	33
Table 14: Total estimated cost for implementing interventions and contribution expected from the Stakeholder agencies	40

Maps

Map 1: The map of the Kattaru cascade system – Old	10
Map 2: The map of the Kattaru cascade system – New	11

Figures:

Figure 1: Major stakeholder agencies currently involve in managing the affairs of the Kattaru cascade system.	06
Figure 2: Mean annual Temperature year 2022	18
Figure 3: Rainfall year 2022	19

Introduction:

Small water storages are recognized as a key invention that facilitated the colonization of the dry zone of Sri Lanka. These small reservoirs are referred to as ‘tanks. In the dry zone of Sri Lanka, natural or man-made tanks have served for the collection, storage and distribution of rainfall and runoff and provided irrigation water for the cultivation of paddy and OFC for 2000 years. During the two main rainy seasons in April - May and September - December, surface runoff is collected and stored in these tanks and successively distributed during the dry periods to the fields located in the downslope.

The tanks are arranged in a cascade-like fashion along shallow valley courses. They are connected by canals, natural drains and spillways and build a complex system of floodwater harvesting, water storage and water distribution. The tank cascade system (wewa-ellangava in Sinhala or viluneer kulathodar in Tamil) is an ancient Sri Lankan irrigation infrastructure. The system is a network of small tanks draining to large reservoirs that store rainwater and surface runoff for later use.

Besides irrigation, the stored water is used for domestic purposes, desiccated tank beds serve as pasture for the cattle and deposited sediments are used as raw material for brick production. Thus, the tanks have characterized the cultural landscape and have become an identity-generating factor for the rural culture.

The main principle behind the Tank Cascade System is recycling and re-using of water through a network of small to large-scale tanks. The advantage of such system is that excess water flowing from a reservoir along with the water used in its command area is captured by the next downstream reservoir and, thus, put to use again in the command area of the second reservoir. This water is continuously filtered and recycled in subsequent tanks. Tank Cascade Systems buffer the effects of climatic fluctuations and work as a cornerstone in coping with future climate change in the dry zone of Sri Lanka.

The management of Tank Cascade Systems is intimately associated with their sociological setting and the evolution of rural settlements. Therefore, the overall objective of cascade management is to enhance the living standards of rural communities and the environment through the restoration and improvement of the system on a sustainable basis.

The World Bank Funded Climate Smart Irrigated Agriculture Project (CSIAP) implementing under the Ministry of Agriculture has formed Cascade Management Committees consisting of the project beneficiaries, government officers and other community-based organizations in the cascade area. In order to maintain sustainability of the development of the “Climate Smart Irrigated Agriculture Project” by protecting and conserving the cascade system, which is one of the most magnificent creations of the irrigation management. The primary responsibility of the Cascade Management Committees is to bring together all the stakeholders in the cascade and manage all the resources well, and to facilitate that task.

A Cascade Profile is prepared for each Cascade in the province to collect the necessary information to prepare a Cascade Management Plan. Through the Cascade Management Committee, the Cascade Management Plan has been prepared with a participatory approach with the aim of protecting the Cascade and the watershed area.

1.1. Forming of Cascade Management Committees (CMCs) for sustainable management

Small tank cascade systems (STCS) are part of Sri Lanka's hydraulic civilization. These systems interconnected small man-made reservoirs which capture seasonal rainwater for agriculture, household, and environmental purposes are considered the lifeblood of communities in the Dry Zone of Sri Lanka. These time-tested drought and flood mitigation systems are now increasingly being seen as excellent community resilience systems for adaptation to climate change in the Dry Zone of Sri Lanka. Somewhat neglected by the authorities, the systems are now being revived, and restoration of degraded STCS is being recognised as a viable option for adaptation in the National Action Plan for Climate Change Adaptation in Sri Lanka as well as articulated as adaptation actions in the Nationally Determined Contributions (NDCs) under the Paris Agreement. This chapter brings out the unique features of these systems and discusses how the systems have been helpful in addressing drought and flood mitigation historically; in building climate change resilience in small-scale farming communities in the Dry Zone in the present context in; how they were managed over time and what future they hold in climate change adaptation planning in the country.

Role and responsibilities of the Cascade Management Committee

- The committee should take necessary decisions to manage the resources of the cascade with a joint approach of all agencies and beneficiaries of the cascade and follow up the implementation of those decisions and make the necessary corrections accordingly.
- The committee should discuss the maintenance work to be carried out in the cascade by respective farmer organizations.
- It should organize participatory activities of the development programs at the cascade level
- The committee should discuss the outcomes of cultivation committee meetings and issues that can be solved at the cascade level.
- They should plan cultivation, water issues, input supply, training programs, and other production activities and make arrangements for the marketing of products.
- They should bear the overall responsibility of the development and production programs within the cascade and the management of water and associated resources (including ecosystems) in the cascade.
- Through integrated management, ensure drinking, agricultural, livestock, and inland fisheries requirements are equitably met.
- Promote climate-smart agriculture practices and technologies.
- Prepare/ update an agriculture development plan for the entire cascade.
- Facilitate market access to the production from the agriculture plan implementation.
- Facilitate the community to access the weather and agriculture advisories.

During the Participatory Rural Appraisal (PRA) time, number of cascades identified in Eastern Province. Cascade system is new concept of Eastern area. Therefore, the necessity of cascade management committee formation and development of cascade management plan is identified by the CSIA Project. It will be a route map of the future investors and planners as well as the government and non-government officers who are interested to the cascade system development.

Major stakeholder agencies currently involve in different level for managing the cascade system.

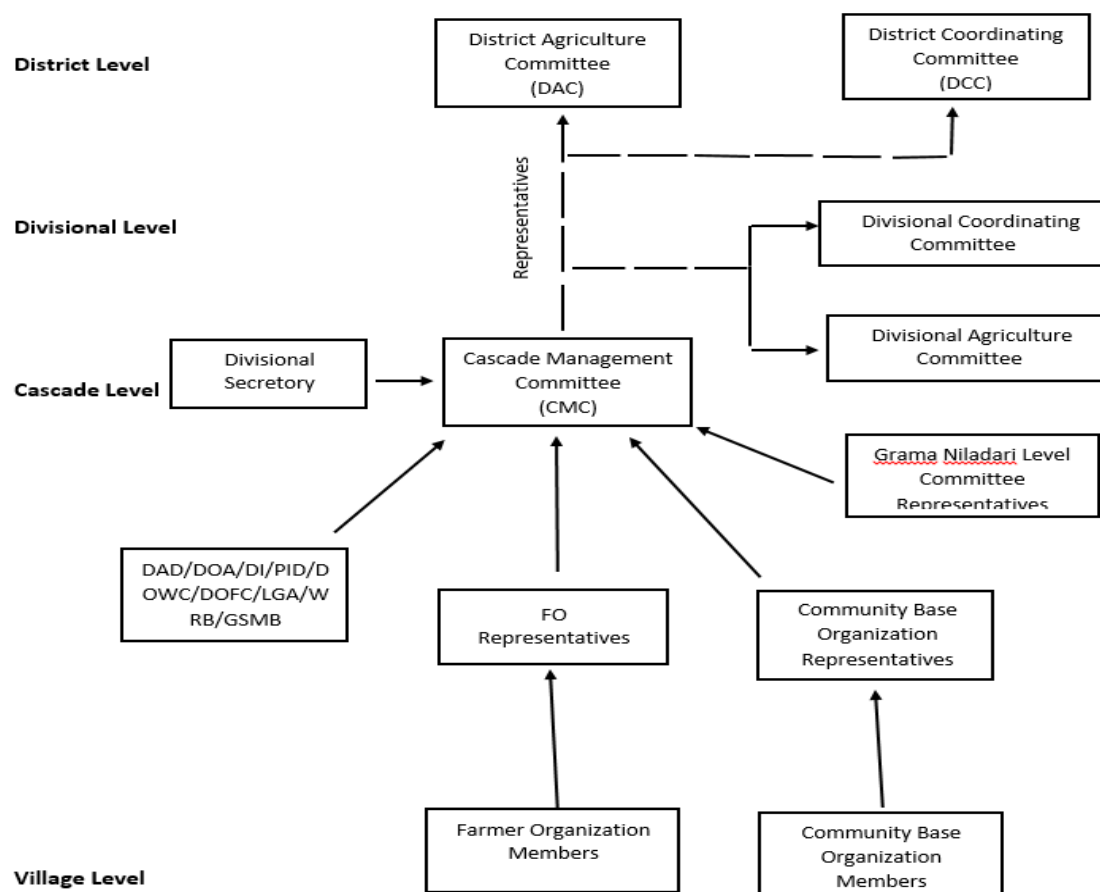


Figure I: Major stakeholder agencies currently involve the CMC

Composition of the Cascade Management Committees

- i. Representative of the Divisional Secretary (DS) - Chairman
- ii. Divisional officer of Department of Agrarian Development (DAD) - Secretary
- iii. Agriculture Instructors (AIs) in the cascade
- iv. Representative of the Department of Irrigation (DOI)
- v. Representative of the Department of Wildlife Conservation (DOWC)
- vi. Representative of the Provincial Irrigation Department (PID)
- vii. Representative of Department of Forest Conservation (DOFC)
- viii. Representative of Geological Survey and Mines Bureau (GS & MB)
- ix. Representative of Water Resources Board (WRB)
- x. Representative of the Local Government Authority (Pradesha Saba)

- xi. Representatives of the Grama Niladhari level Committee
- xii. Representatives of Department of Land Use Planning
- xiii. Representatives of NACTA
- xiv. Department of Police
- xv. Representative of Farmer Organizations (FOs)
- xvi. Representative of Community Base Organizations (CBOs) in the cascade

The Co-Chairman of the CMCs must be a representative of the farmer organization.

1.2. Necessity of a Cascade Management Committee

The established of Cascade Management Committee is essential to ensure the coordinated and effective management of a series of interconnected tanks. This committee would oversee critical aspects such as tank maintenance, operational protocols, safety measures, and resource allocation, optimizing the functionality, water sharing, water safety and maintaining ecosystem of the entire cascade system. The appointed CMC concluded the representative from each and every tank for centralizing decision-making and fostering collaboration among relevant stakeholders, the committee would help prevent disruptions, minimize downtime, and enhance the overall efficiency and reliability of the tank cascade

A Cascade secures the surface and ground water level of the catchment area and as a result provides water for domestic and agricultural activities. According to the above Figure 1, there are public, private stakeholders involving with farmer and other community-based organization's representatives have responsibilities to protect the Cascade. However, the Cascade has been seriously degraded due to the lack of attention of the stakeholders and natural and human activities. Therefore, a coordinating body like the Cascade Management Committee has become more necessary to take action to protect the Cascade.

1.3. Objectives of preparation of a Cascade Profile and a Cascade Management Plan (CMP)

The main objective of the cascade profile is facilitating to learn the cascade status and issues that affect negatively to it, which enables to develop a pragmatic cascade management plan to ensure the sustainability of the cascade and the water productivity of the tank system in the area.

The specific objectives are:

- To identify the water-sharing mechanism of the cascade
- To reduce vulnerability to climate change
- To enhance the restoration of the watershed of the system to enhance biodiversity (Flora & Fauna, Wild animals, etc.) through integrated management
- To address the water scarcity faced by rural communities living in the cascade (addressing the farming, drinking and environmental water requirements of the area)
- To manage water and associated natural resources in a sustainable manner.
- To promote crop zoning programmes and facilitate marketing.
- To enhance the living standards of rural communities on a sustainable basis.

1.4. Importance of preparation of profile and the cascade management plan

A cascade management plan is urgently needed to protect the resources and ensure sustainability of the cascade system. Also, cascade should be managed with an integrated approach through an appropriate institutional structure with the participation of all stakeholders in cascade. For that purpose, a cascade profile and a cascade plan will be prepared to achieve the objectives.

Preparation of a basic plan (Cascade Management Plan) that includes the elements of strategic interventions to solve the critical issues and the monitoring system, tentative cost estimates, expected implementation time period and responsible organizations to be involved in the implementation of the plan.

A detailed Cascade Profile including information on damage to the cascade system mainly due to geographic, hydrological, ecological, cropping patterns and human activities and a map prepared using of Geographical Information System (GIS) for the use of stakeholder organizations and Facilitating stakeholder organizations to save the environment.

The need for a well-designed cascade profile arises due to several reasons. Firstly, it enables equitable water distribution, ensuring that all agricultural fields within the system receive their required share. By following the natural contours of the land, the cascade profile helps in minimizing water wastage and reduces the risk of waterlogging or erosion. Secondly, the cascade profile helps manage the gravity-driven flow of water. By constructing the channels and structures at appropriate elevations, the system can take advantage of the natural force of gravity to move water from higher to lower elevations, reducing the need for pumping and energy consumption. Additionally, the cascade profile allows for the regulation of water flow and storage. By incorporating storage reservoirs at different levels, excess water can be stored during periods of high rainfall or low irrigation demand, ensuring a steady water supply during dry spells.

Overall, the Kattaru cascade profile plays a vital role in maximizing water conveyance efficiency, minimizing losses, and promoting Climate Smart Agricultural practices in water-scarce regions. It allows for the optimal utilization of available water resources and helps farmers to meet their irrigation needs while minimizing environmental impact.

1.5 Brief introduction to the cascades situated in the area

The hotspot area of Trincomalee District was selected mainly based on the “Yan Oya” river basin. CSIAP has selected five cascades in Morawewa, Gomarangadawela and Kuchchaweli DS Divisions for rehabilitation namely, Rambawewa, Kattaru, Kadawaththa, Bakmeega and Puliyankulam cascades which are linked with Yan Oya river basin.

Tank cascade systems were identified from the Participatory Rural Appraisal (PRA), Hydrology studies, engineering surveys, and Preliminary Investigation Report (PIR) reports during the project period. There were five tanks and an Anicut have identified in Kattaru Cascade according to the consultation with all stakeholders, including farmers and officers. Finally, it was declared as a cascade by Department of Agrarian Development (DAD).

1.6 Kattaru cascade system

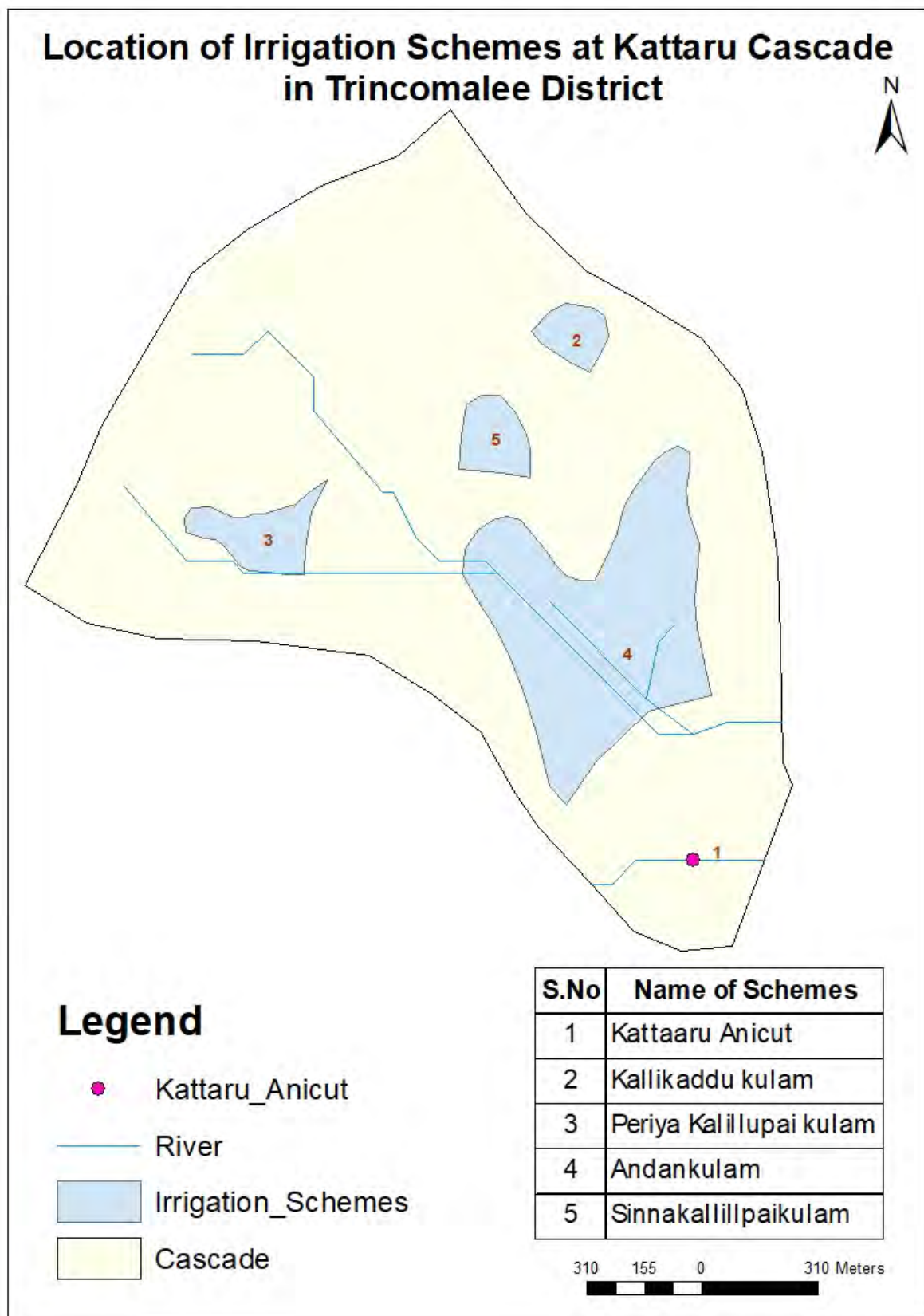
The Kattaru cascade is situated in Kuchchaveli Divisional Secretariat's administrative Division. This cascade consists of four tanks and an anicut namely; Kallikattu Kulam, Aadankulam, Periya kalliluppai Tank, Sinnakalliluppai Tank and Kattaru Anicut are under the Kuchchaveli Divisional Secretariat division. This cascade coming under the 31/1 Pulmoddai GN Division. The existing capacity of the cascade is 723.03ac. Ft. and the designed capacity is 1079.30 ac. Ft

The general information of the Kattaru cascade is given in Table 1.

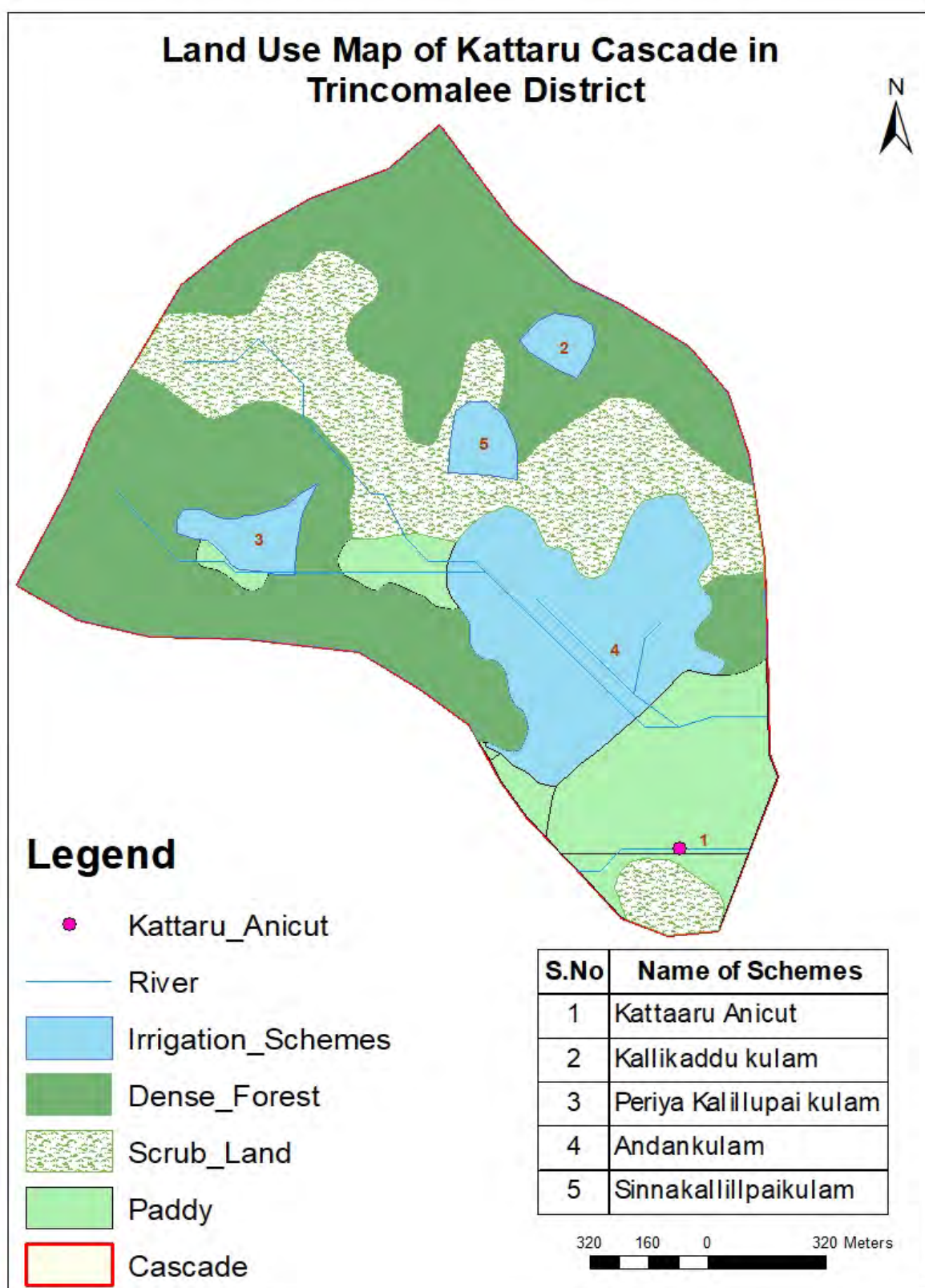
Table 1: The general information of the Kattaru cascade

Information	Details
Name of the District	Trincomalee
Name of the Divisional Secretariat/s	Kuchcheveli
Name of the electorate	Trincomalee
Name of the river basin	Yan Oya
Name of the Cascade:	Kattaru Cascade
Name of the Agrarian Development Center/s.	Pulmoddai
Name/s of Grama Niladari Division/s	31/1 Pulmoddai
Extent of the cascade in hectares	431.66
Number of sub watersheds	
Number of clear catchments	,,,,,,, acres
Number tanks used for agriculture	05
Restricted forest areas, if any	No
Number of families living in the command area	,,,,,,,,,
Number of tanks located within the forest	,,,,,,,,,

1.7 Map of the Kattaru cascade system



Map 1:Location Map of the Kattaru Cascade
Source: Climate Smart Irrigated Agriculture Project



Map 2: Land Use Map of the Kattaru Cascade
Source: Climate Smart Irrigated Agriculture Project

1.8 Information of the small tanks within the Kattaru cascade system

There are four tanks and an Anicut under the Kattaru cascade system namely Kallikattu kulam, Periya Kalliluppai kulam, Sinna kalliluppai kulam, Andan kulam and Kattaru Anicut. There are 195 farm families with 147 ha extent of paddy land has directly benefited by this cascade. The all four tanks and an anicut belong to the Agrarian Development Department Pulmoddai . As the inadequate fund allocation, last three decades there were made any rehabilitation activities for the tank development handled by the department.

The tank wise details are given in the table 2.

Table 2: Details of Capacity of tanks and Beneficiaries of tanks

No	Tank name	GND	Capacity (Acre feet)	Command area (Hectares)	No of farmer families
1	Kallikattu kulam	31/1-Pulmoddai	217.88	26	30
2	Periya kalliluppai kulam	31/1-Pulmoddai	110.15	53	80
3	Andan kulam	31/1-Pulmoddai	326.90	52	65
4	Sinna kalliluppai kulam	31/1-Pulmoddai	68.10	16	20
5	Kattaru Anicut	31/1Pulmoddai			
			723.03	147	195

Details of tank coordinates of Kattaru cascade is given as below in Table 3

Table 3: Details of tanks and coordinates

No	Tank name	GND	Coordinate	
1	Kallikattu kulam	31/1-Pulmoddai	8.9101562	80.9730474
2	Periya kalliluppai kulam	31/1-Pulmoddai	8.9016665	80.9531949
3	Andan kulam	31/1-Pulmoddai	8.9071451	80.9686826
4	Sinna kalliluppai kulam	31/1-Pulmoddai	8.8966623	80.9505755
5	Kattaru Anicut	31/1Pulmoddai		

Kallikattu kulam

This tank located in the Trincomalee district under the cascade Kattaru. Cropping pattern dominated by the paddy both Maha and Yala cultivation. There are about 30 nos of farm families living under this tank.. Before rehabilitation 38 acres of Maha and 20 acres of yala was cultivated. After rehabilitation 60 acres and 40 acres are being cultivated respectively. Any how other field crops cultivated only in the high land. Irrigation facilities has not available to the high land. Through Agro well facilities can be feed around more than 15 acres where home garden and maize, cowpea and ground nut is being cultivated for both seasons.

Periya Kalliluppai kulam

This tank located in the Trincomalee district under the cascade Kattaru. Cropping pattern dominated by the paddy both Maha and Yala cultivation. There are about 80 nos of farm families living under this tank. The Maha Cultivation has not carried out before rehabilitation, but 70 ac Maha and 66 ac yala paddy is being cultivated after rehabilitation. Any how other field crops cultivated only in the high land. Irrigation facilities has not available to the high land. Through Agro well facilities can be feed around more than 45 acres where home garden and maize, cowpea , green gram and black gram and ground nut is being cultivated for both seasons.

Andan kulam

This tank located in the Trincomalee district under the cascade Kattaru. Cropping pattern dominated by the paddy both Maha and Yala cultivation. There are about 65 nos of farm families living under this tank. Before rehabilitation 70 acres of Maha and 30 acres of yala paddy crop were cultivated. Now After rehabilitation 110 acres of Maha and 80 acres of yala paddy is being cultivated. Any how other field crops cultivated only in the high land. Irrigation facilities has not available to the high land. Through Agro well facilities can be feed around more than 20 acres where home garden and maize, cowpea and ground nut are being cultivated for both seasons.

Sinna Kalliluppai kulam

This tank located in the Trincomalee district under the cascade Kattaru. Cropping pattern dominated by the paddy both Maha and Yala cultivation. There are about 20 nos of farm families living under this tank. Before rehabilitation only 20 acres of Maha was cultivated, but not yala was done. But after rehabilitation 30 acres of Maha and 22 acres of yala paddy was cultivated. Any how other field crops cultivated only in the high land. Irrigation facilities has not available to the high land. Through Agro well facilities can be feed around more than 10 acres where home garden and maize, cowpea and ground nut is being cultivated for both seasons.

In this cascade cropping pattern of Kattaru, people life is little change because they cultivate both paddy and other field crops. They watering from the common well as well as individual well. They have maintaining the sustainability of their livelihood by cultivating both crops according to the season. Marketing also done by individuals and through societies.

1.9 Importance of managing the Kattaru cascade for its sustainability

The Kattaru cascade refers to a system of interconnected irrigation channels and downstream water flows that are strategically designed to provide water to agricultural fields and ensure efficient water distribution. This system is often employed in areas where water scarcity is a challenge and where there is a need to optimize water usage for agricultural purposes.

The management of the Kttaru cascade system holds immense importance across various dimensions. The 431.66 ha extent of the cascade area directly influences water availability, enhancing agricultural productivity and food security. The four number of tanks and an Anicut within the cascade system amplifies its significance as a reliable water source for paddy cultivation and OFCs necessitating careful maintenance to ensure consistent supply. Moreover, the 195 number of farmer families' dependent on this cascade system underscores its role in supporting to the entire rural livelihoods and uplift economic conditions of the GND. In this context, the four number of minor tanks assumes significance as they regulate water distribution, impacting equitable access for all users. Effective management strategies are crucial to sustainably harness the potential of the tank cascade system, ensuring optimal agricultural output, livelihood support, and water resource equity.

1.10 Necessity of preparing a profile for kattaru Cascade

Preparing a profile for Kattaru Cascade system is essential as it provides a comprehensive overview of the system's design, components, and operational parameters. This profile serves as a valuable reference for engineers, operators, stakeholders and layman farmers involved in the system's installation, maintenance, and management. By detailing factors such as tank specifications, interconnections, control mechanisms, safety features, critical issues and fluid transfer dynamics, the profile enables a

clear understanding of how the cascade system functions and how it fits within the entire command and catchment areas. Ultimately, this profile facilitates effective decision-making, troubleshooting, and optimization, ensuring the tank cascade system operates reliably and efficiently to meet its intended purpose.

The sustainable existence of cascade was established due to the rural institutional structure and socio-economic practices, traditions and customs of the past to maintain the cascade and gradually with the change of these conditions, the cascade system deteriorated and at present it is deteriorating very rapidly. It is very important to identify the current situation and existing problems of the cascade and the critical issues among them in order to restore the cascade systems, prevent resource degradation and manage them properly.

1.11 Preparation of Kattaru Cascade Profile

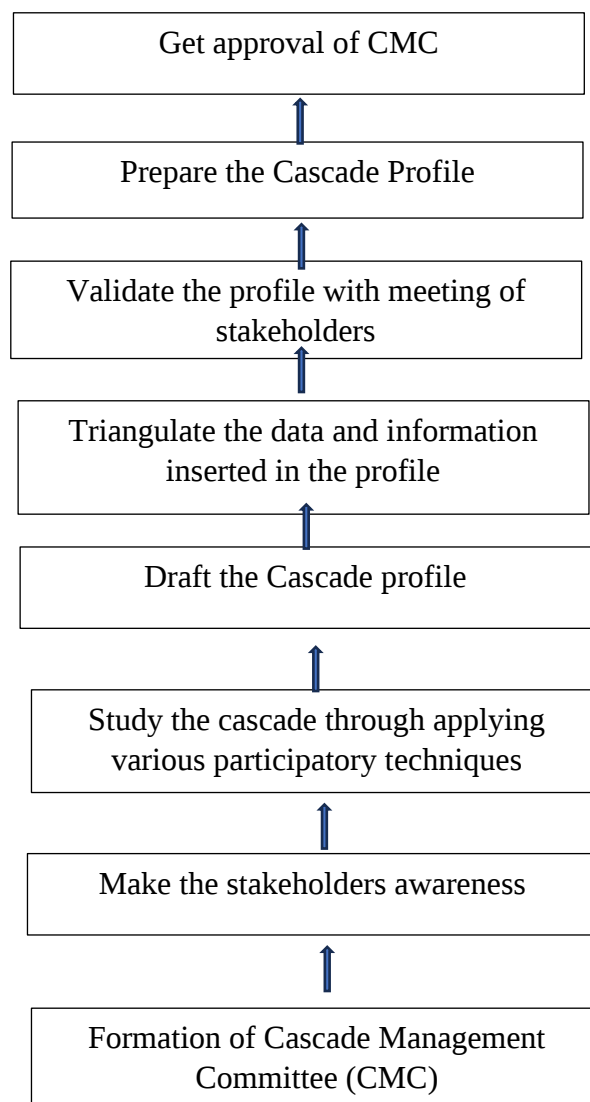
Information was obtained from several sources to develop the Cascade profile. Secondary data, group discussions and Transact Walk were the main tools for the data collection. The secondary data was obtained from the hotspot area Agriculture Development Plan prepared for the hotspot areas of the project, engineering survey, hydrological survey and other statistical information of the Divisional Secretariat, Wildlife and Forest Conservation Department. Apart from this, the Transect Walk was conducted with the participation of all stakeholder organizations to generate primary data. The participants were grouped into two groups. These two groups were covering all the main water catchment areas of cascade. The Information was collected at 100 by 100 meters of the road and the geographical information, geological information, hydrological information, ecological information, socio-economic information about resource degradation and severity of resource degradation were collected through observations and discussions. Beneficiaries, farmer organization members and officials of all government agencies participated in the transact walk and after the walk, a workshop was held with the participation of all the parties involved to further verify the accuracy of the information.

In particular, the information contained in this cascade profile is very important for the preparation of the basic plan for cascade management and will be very helpful for those who study cascade in obtaining information about cascade and planning future development of cascade.

The participatory assessment process is the basic methodology for developing the cascade profile, and appropriate tools were used to identify the bio-physical condition of the cascade area. Focused group discussion, matrix ranking, and transect walk were the main tools. Participants living in the hotspot area and members of Cascade Management Committees (CMCs), members of farmer organizations, and representatives of Government Organizations have participated in this assessment process.

After completion of the transect walk, all participants met together at a point and validated the collected information. This validated information was compiled as a report and shared among the CSIAP officers who participated in the transect walk. Finally, the report was developed and submitted to the PMU for further improvement

The process of preparation of cascade profile includes the following major activities



The objectives of the cascade profile development and how needful data is to be collected and generated during the interactive and iterative process have been conducted in Focus group discussions. The main intervention was identified and ranked during the discussion.

02. Methodology applied in preparation of the Cascade Management Profile and the Basic Cascade Management Plan (CM)

After the Situation Analysis of Kattaru Cascade, the CSIA Project has confirmed the need of institution called Cascade Management Committee to protect the cascade in future. The Cascade Management Committees' stakeholders will prepare a formal Cascade Profile and Cascade Management Plan.

The participatory assessment process is the basic methodology for developing the Cascade basic development Plan, and appropriate mechanisms were used to identify the bio-physical condition of the cascade area. The primary and secondary data collection techniques applied to fulfil the cascade management profile and basic cascade management plan. The main were focused group discussion, key informant interview and transect walk.

The Cascade Management Plan preparation is a multifaceted task that includes field-based activities. For that, before preparing the Cascade Management Plan, Cascade Profile should be prepared, where participatory and multi-stakeholder methods are used to assess the geological, ecological, hydrological and social aspects of cascade. Data generation, data analysis, report writing, plan preparation and stakeholder validation required multi-skilled personnel. All these tasks were carried out by the Climate Smart Irrigated Agriculture Project officials with guidance of the World Bank staff. For setting up, the Climate Smart Irrigated Agriculture Project and partner institutions have come together and followed the following steps:

- (i) Conduct the meetings
- (ii) Collect the secondary data
- (iii) Generate the primary data using participatory techniques such as transact walk
- (iv) Validate the data
- (v) Developing cascade profile
- (vi) Identifying issues using participatory techniques like problem tree analysis and pairwise comparison
- (vii) Identifying the critical issues
- (viii) Formulating the cascade plan
- (ix) Validating the correctness of the cascade management plan with stakeholders' participation
- (x) Identifying proposed strategic interventions and key activities to address or mitigate the critical issues in a special meeting of the Cascade Management Committee and preparation of tentative estimates for the implementation of the proposed strategic interventions and implementation periods divided into short term, medium term and long term have been included in the cascade management plan so that the cascade management committee can easily implement them.

03. Details of the current profile of the Kattaru cascade

3.1. Geographical aspect

The areal extent of Kuchchaveli DS Division where the Hot Spot area located is 504.23sq Km of which land area accounts for 413.47 sq Km and the balance 90.76 sq Km is identified to be under water bodies. Topographically, the Kuchchaveli Division is consisted with undulating terrains, and flat to nearly flat areas including coastal plains and natural flood plains.

The most widely distributed soil group is alluvial soils especially in the Mahaweli delta and on the flood plain. The radish brown earths are really as abundant. This soil group contains red – brown soil with low humic clay, solodized solonates and non – calcic brown soils. Low humic clay is most widespread on the undulating terrain.

The geographical setting of DL1d agro ecological region is such (adjacent to sea coast) that low rainfall during first inter monsoon period resulting from weak convective activities is the main reason for weak yala rains (Punyawardane). DL1e agro ecological region too follows the same rainfall pattern of distribution but because of its location towards the inland, away from the coastal belt receives a little more rain during first inter monsoonal periods, but not at all adequate for successful yala cultivation

3.2. Geological aspect

By virtue of its geographical location this division receives major portion of annual Rainfall during the period of North East Monsoon. The occasional rainfall experienced during South West Monsoon is not at all adequate to meet crop water demand and hence leads to regular crop damages during yala season. According to Agro Ecological Map compiled by Natural Resource Management Centre of the Department of Agriculture, entire division falls within Low Country Dry Zone (DL), covering 05 Agro Ecological Regions (AER), each with its unique climatic characteristics however, all of which with total annual rainfall of less than 1750mm.

The division lies within the intermediate zone and the climate is characterized by high Temperature and seasonal high rainfall. Temperature ranges from 25°C to 39°C. The mean annual temperature is 28.5 degrees Celsius and the highest temperatures are normally recorded during the month of April and May. Average monthly temperatures vary by 4.5 degrees Celsius. The average annual rainfall over 30 year's period amounted to 1340 mm. within January to December for every year. Nearly 80 percent of the rainfall was recorded during the North East monsoon months from October to January. The months from February to July are dry with very little rainfall during the months of June, July and August. Most of the areas are affected by seasonal drought and flood. Total annual average precipitation is 1569 mm.

A huge variation was observed in the monthly rainfall pattern compared with the last twenty years (from 2002 to 2022). (Table 4 and Fig 3)

Table 4: Monthly mean Temperature (2002- 2022)

Year	January	February	March	April	May	June	July	August	September	October	November	December	Annual Total
2002	26.2	27.1	28.6	29.1	30.4	30.4	30.6	30.8	30.7	27.5	26.9	26.1	28.7
2003	26.3	26.8	28.3	30.3	31.4	30.5	30.9	29.7	30.2	28.8	27.2	26.5	28.9
2004	26.3	26.7	29.0	28.7	31.7	29.9	30.6	30.4	30.2	28.8	27.5	26.6	28.9
2005	26.8	27.6	28.8	29.5	31.0	31.2	31.7	31.1	32.4	28.4	26.8	26.2	29.3
2006	26.4	27.3	28.4	29.5	30.6	31.4	30.4	30.7	30.8	29.1	26.2	27.0	29.0
2007	27.1	27.4	28.8	30.2	29.8	30.9	30.2	30.6	28.9	27.6	26.7	26.2	28.7
2008	26.5	27.8	28.7	28.8	30.8	31.2	30.7	30.8	30.7	28.7	26.1	26.1	28.9
2009	25.8	27.3	28.4	29.7	30.5	31.4	30.9	26.3	27.1	-9.9	-9.9	-9.9	12.9
2010	-9.9	26.7	27.5	28.2	30.8	30.1	30.6	30.4	30.2	28.4	26.9	26.3	25.5
2011	26.3	27.1	27.4	28.9	31.1	30.5	30.4	29.2	30.4	28.4	27.2	26.3	28.6
2012	26.4	27.1	27.7	29.3	30.3	30.8	31.0	30.3	30.6	29.5	27.0	26.2	28.9
2013	27.0	27.8	29.1	30.8	30.9	31.3	30.4	30.0	29.2	-9.9	-9.9	-9.9	19.7
2014	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9	-9.9
2015	-9.9	26.9	27.9	29.3	31.5	31.2	31.1	31.5	30.7	27.5	26.7	26.2	29.1
2016	26.4	27.1	27.7	29.3	30.3	30.8	31.0	30.3	30.6	29.5	27.0	26.2	28.9
2017	27.0	27.8	29.1	30.8	30.9	31.3	30.4	30.0	29.2	29.9	27.1	25.8	19.7
2018	25.9	26.6	27.8	29.6	30.2	29.9	29.6	29.4	29.8	29.9	27.1	25.8	341.6
2019	26.5	27.1	28.5	29.0	30.5	31.1	30.7	30.3	30.0	28.5	27.0	26.7	28.8
2020	26.8	27.2	28.3	29.7	32.0	29.6	30.4	29.8	29.3	28.2	26.9	26.2	28.7
2021	26.3	27.1	27.6	28.6	29.9	26.9	30.7	30.6	29.1	27.5	26.9	27.1	18.6
2022	26.3	27.1	27.6	28.6	29.9	26.9	30.7	30.6	29.1	27.5	26.9	27.1	18.6

-9.9= denotes that data is not available Source:- Department of Meteorology

Figure 2 : Mean annual Temperature year 2022

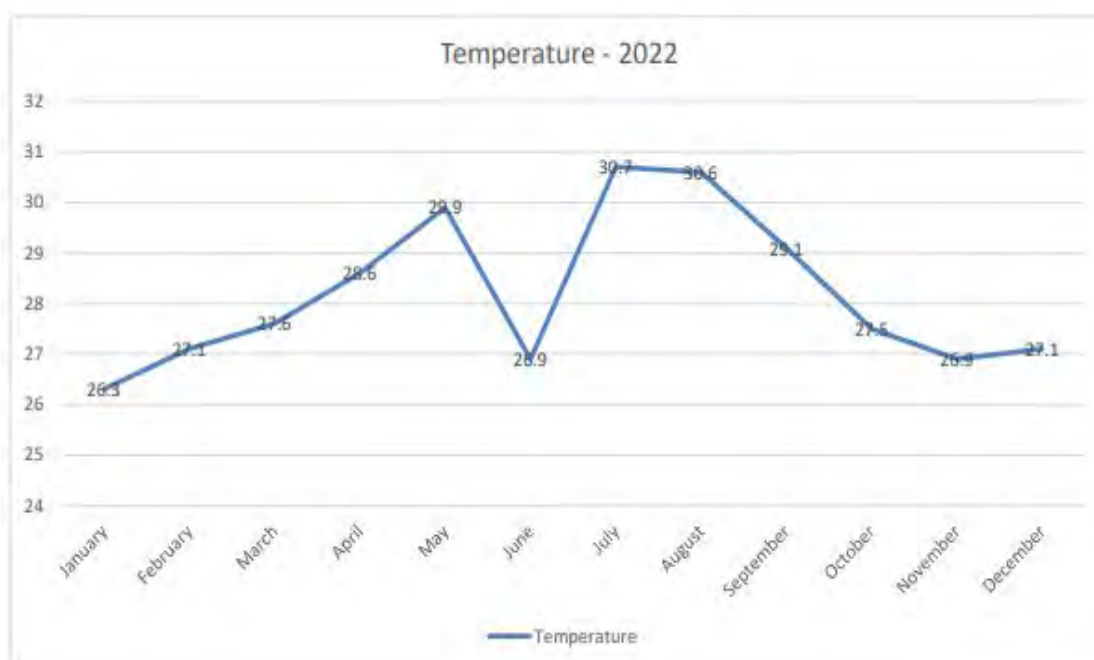
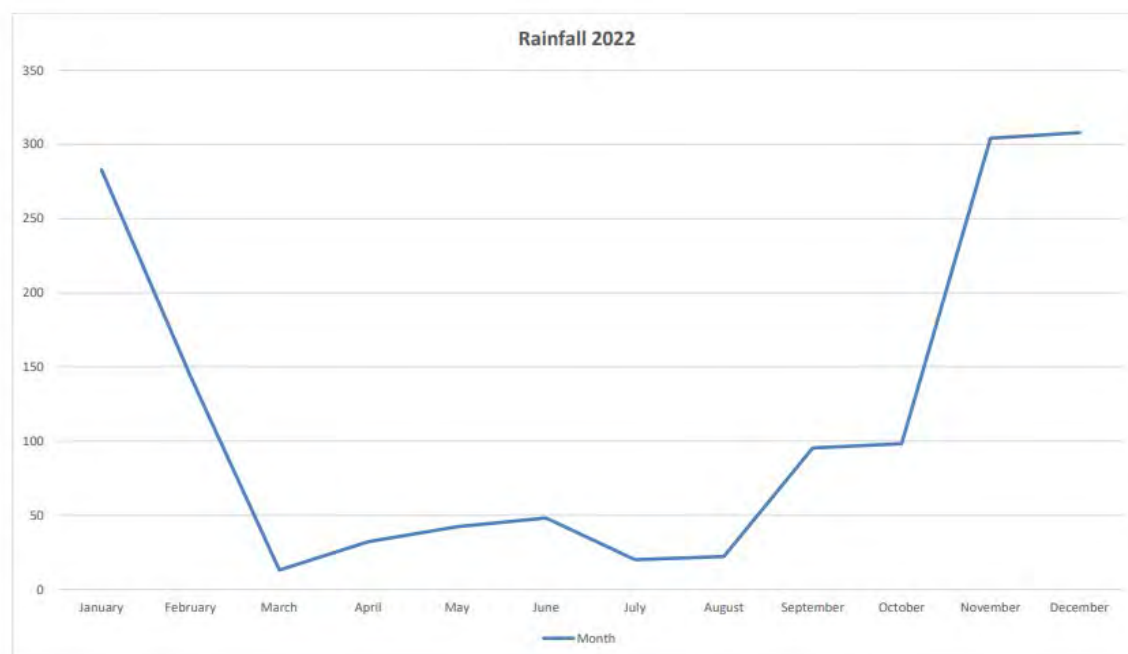


Table 5: Monthly Rainfall (20002 -2022)

Year	January	February	March	April	May	June	July	August	September	October	November	December	Annual Total	Average
2002	332.6	164.3	-	104.7	0.1	49.9	6.9	29.5	160.4	379.0	201.6	211.0	1,640.0	136.7
2003	282.9	143.7	13.1	32.2	42.3	48.2	20.0	22.2	95.4	98.3	304.6	308.0	1,410.9	117.6
2004	182.3	14.8	-	135.1	6.7	88.5	108.4	16.5	89.0	269.1	262.3	458.6	1,631.3	135.9
2005	98.7	30.4	14.0	5.1	64.3	37.5	11.6	2.1	71.2	367.8	452.1	562.7	1,717.5	143.1
2006	215.3	140.0	61.6	14.9	43.3	11.7	66.4	21.2	138.9	61.3	602.4	57.8	1,434.8	119.6
2007	46.8	28.3	7.3	30.7	165.3	-	139.2	141.9	158.2	500.3	274.4	460.7	1,953.1	162.8
2008	280.3	-	15.0	211.7	68.1	-	17.8	85.7	6.0	235.2	731.8	140.0	1,791.6	149.3
2009	9.9M	12.8	25.9	9.9M	9.9M	4.3	34.6	9.9M	9.9M	9.9M	9.9M	9.9M	77.6	19.4
2010	9.9M	45.1	7.4	136.2	107.3	11.0	27.9	122.6	5.6	309.6	103.1	294.5	1,170.3	106.4
2011	133.5	150.1	345.6	28.7	-	68.5	27.5	148.9	(-)4.5	104.9	508.2	313.2	1,829.1	166.3
2012	171.1	-	254.4	203.3	17.2	3.6	15.8	58.2	1.1	133.0	400.8	610.0	1,868.5	155.7
2013	48.4	3.8	2.6	2.0	42.2	19.0	23.2	96.3	197.3	71.1	292.1	621.5	1,419.5	118.3
2014	817.0	481.5	43.6	196.9	0.9	0.5	34.0	80.4	31.8	548.0	351.6	320.5	2,906.7	242.5
2015	817.0	156.2	21.1	13.5	0.6	-	15.8	4.4	231.2	596.8	180.7	590.1	2,627.4	151.9
2016	332.6	164.3	-	104.7	0.1	49.9	6.9	29.5	160.4	379.0	201.6	211.0	1,640.0	136.7
2017	282.9	143.7	13.1	32.2	42.3	48.2	20.0	22.2	95.4	98.3	304.6	308.0	1,410.9	117.6
2018	200.4	355.2	239.3	2.5	132.3	1.2	64.8	93.0	2.1	34.8	177.4	189.5	1492.5	124.4
2019	417.0	11.7	0.4	66.7	42.8	1.8	89.1	54.0	151.8	203.3	198.5	117.3	1,155.9	105.1
2020	52.5	100.5	43.6	32.1	62.6	157.9	20.8	169.7	95.3	190.7	467.5	119.7	1,469.3	122.4
2021	7.9	1.3	51.0	9.3	61.2	14.0	113.3	162.7	139.0	104.5	486.6	346.9	1,497.7	124.8
2022	282.9	143.7	13.1	32.2	42.3	48.2	20.0	22.2	95.4	98.3	304.6	308.0	1,410.9	117.6

9.9M - denotes that data is not available

Figure 3: Rainfall year 2022



(The data were gathered from the Annual Resource Profile of Kuchchaveli Divisional Secretariat Division 2022. The sources were the Department of Metrology).

3.3. Hydrological aspect

The water collected in minor tank cascade systems by direct rainfall and water available from Yan Oya scheme as a main sources of water supply in this area. The livelihood of village communities entirely dependent upon water availability from the Yan Oya river basin.

During the Focus group discussion and transect walk, some hydrological concerns and issues were observed in Kattaru cascade.

This cascade experiences significant water scarcity due to limited water resources and irregular rainfall patterns. The region relies heavily on monsoon rains, and any deviation from normal precipitation levels can lead to water shortages, especially during the dry season.

The effects of climate change, such as rising temperatures and variation in precipitation patterns, further exacerbate hydrological concerns in the cascade system. Erratic rainfall, increased frequency of droughts and intense storms.

Limited infrastructure for water storage and distribution hampers effective water management in the area. Insufficient river paths, irrigation systems, and canals lead to inefficient water management, hindering agricultural productivity and economic development.

Hydrological Character	Current Status
Mahawewa or Pahala wewa , which is situated in the village for using water for agriculture activities.	Observed all four tanks in the villages are using for agriculture activities, those tanks are being under reconstruction works in CSIA Project.
Kuluwewa (forest tank) constructed in the upper catchment to capture rain water, provide water for animals and filter debris and silt.	Sinna kaliuppai kulam is situated in upper catchment area and capture rain water but paddy lands are available under these tanks.
Kayan wewa built in degraded or cleared upper catchment to trap sediments and control salinity.	Sinna kaliuppai kulam is functioning as Kayan wewa in this cascade
Olagam wewa situated closed to village and provide water for seasonal cultivation	Andan kulam is situated closed to villages.
Goda wala (Water hole): constructed for the trapping and deposition of silt, to avoid siltation and sedimentation of the main village tank.	NA
Ihala Wewa (Storage tank): constructed for the storage of water, and is associated with paddy cultivation and other community activities.	Andan kulam is the storage tank of water and this tank was selected for rehabilitation under CSIAP, construction activities are ongoing

3.4. Environmental aspect

Environmental aspect focusing on current status of the environment in the Cascade. Ecological services and their values will assess whilst gaining an in-depth understanding of forests and biodiversity in the cascade and its surroundings. Special consideration given to border areas between protected and sensitive areas.

This cascade exhibits a remarkable biodiversity. There were several species of flora (plant/vegetation) & fauna (animal) observed on or around the cascade during the transect walk. Forest area of this cascade is enriched with different plants. The forest area is the habitat of a wide range of animals and birds. The contractor will take reasonable precaution to prevent workmen or any other persons from removing and damaging any flora and fauna including fishing in any water body and hunting of any animal.

The water holding capacity of cascade tank is largely affected by siltation. The significant siltation was observed in this cascade area. This would have been due to mass scale land clearing for cultivation. The rehabilitation of the cascade system will mitigate these impacts.

There is a high chance of inducing soil erosion due to the rehabilitation of this cascade system by clearing vegetation, excavation activities, and developing bunds, barrow pits, and soil piles. However, rehabilitation works are proposed to be carried out in the dry season with the aim of controlling soil erosion.

The elephant fence has been constructed, as the wild animals have become a major problem in these cultivated areas. Local residents says that the poor condition of fence, the elephants often break the fence and enter the residential areas and damage the paddy field and some properties. There are opinions from farmers, that wild elephants from other parts of the island are brought to the forest area located in Horawapatana area and those elephants invade these areas. Farmers say that the elephant population has increased by past years. In addition to this, crops are damaged by monkeys, squirrels, woodpeckers, peacocks and wasps.

The stability of tank bunds and water filtering functions are affected by the encroachment of the kattakaduwa farming purposes.

Kattakaduwa is the land area between tank bund and the downstream paddy field, and this has been reserved mainly to safeguard the tank bund. As each minor tank has a kattakaduwa habitat it can be developed as Kattakaduwa agro-forestry systems in Sri Lanka. Kattakaduwa ecosystem consists of three land categories: downstream side of the tank bund, a marshy land and an upland. Due to this three fold nature there is a wide diversity in the plant composition in this ecosystem from aquatic plants to tree species found in the dry forest. Importance of existing a land of this nature is laudable for its ability to reduce tank seepage, prevent entering salt and ion polluted water seeping through the bund to paddy field, and to provide various needs of the community such as timber, fuel wood, medicine, fencing materials etc

3.5. Human livelihood activities occurring within the cascade

Several practical issues affect human livelihoods in this cascade area. These issues impact on the local economy and infrastructure.

After the civil war, the cascade area has faced significant economic challenges that, the many people lost their livelihoods, and the local economy suffered. Rebuilding of infrastructure, creating employment opportunities, and fostering economic development remain crucial concerns.

Cascade area is primarily an agricultural area, with paddy cultivation and other crops being major sources of income for the local population. Rehabilitation efforts are necessary for safe and sustainable farming practices

The civil conflict has disrupted access to basic services, such as healthcare, education, and clean water supply. Rebuilding and improving infrastructure in these areas is crucial to ensure the local population access essential services and improve their overall well-being.

The cascade requires significant infrastructure development to support economic growth and improve living standards. This includes roads and culvert etc, Developing and upgrading infrastructure will enhance connectivity and provide opportunities for agricultural marketing.

The Cascade area has limited access to markets and employment opportunities is a challenge. Encouraging entrepreneurship, promoting local industries, and improving transport links to connect the area with larger markets can help to boost economic activities and create jobs.

3.6. Socio-Economic aspect

Table 6: Details of vulnerable families in the Kattaru cascade

Name of the GND	Total Number of Families	Total Number of Farm Families	Total Number of Vulnerable families			
			Woman headed	Elders	Samurdhi	Disable
Pulmoddai- I	1522	592	6	482	761	26

Table 7: Farm families and others

GN Division	GN number	No of Villages	Total Families	Farm families	Fishing families	Women Headed families	Widows
Pulmoddai I	31 I	6	1522	592	401	6	174

The table 6&7 reveals the GN division wise basic details in the Pulmoddai GN Division. There are 1522 number of families living in Pulmoddai Grama Nilathari divisions . In which, 6 families are women headed families, 761 families are getting Samurdhi assistants and 401 families are engaged in fishing. The 592 numbers of farm families are engaged in agricultural activities under the Kattaru cascade. Farm families in the cascade system typically reside in rural areas, and their livelihood primarily revolves around in agriculture. These families have inherited their farming knowledge and practices from their ancestors and work collectively to manage and maintain the irrigation system during

planting, harvesting, post harvesting, protecting from wild animal at night, etc. Farming is often a family affair, even today, different members contributing to various tasks throughout the cropping period.

Table:8 displays the Functioning FOs in the cascade. There are two farmer organizations are functioning in the cascade area. The cascade system requires close collaboration and collective effort among farmer organization members . They work together to ensure the proper maintenance and functioning of the irrigation infrastructure. Regular meetings and discussions are held to resolve any issues, plan agricultural activities, and share knowledge and experiences. Farmer organizations & Community-based organizations often play a vital role in coordinating and facilitating these collaborative efforts.

Table 8: Details of FOs functioning in the Kattaru Cascade

Tank	CBO Name
Kallikaatu kulam	‘Adankulam’ Farmer Organization
Periya kaliluppei kulam	Kaliluppei’ Farmer Organization
Andankulam	‘Adankulam’ Farmer Organization
Sinnakaliluppai kulam	Kaliluppei’ Farmer Organization

In the cascade system, agricultural land is modified as different terrain, with each terrain at a slightly higher elevation than the previous one. The water flow is regulated by a series of bunds, that redirect water from one terrain to the next. Farm families collectively manage these bunds and ensure the proper distribution of water to all fields.

Kattaru cascade is a region known for its diverse income-generating activities like Paddy and other field crops play a significant role in income generation. It's important to note that the specific income generation patterns may vary depending on individual farmers, land availability, market demand, and other local factors. The extent of land under cultivation determines the overall income potential. The larger the cultivated area, the higher the potential income, assuming favourable crop yield and market conditions.

In addition to crop production, farmers in the cascade system may have other income sources, such as livestock farming or other agricultural activities. These additional sources of income should be considered when calculating total income.

3.7. Construction activities within the cascade system

Last thirty years there was no rehabilitation activities in the cascade tank’s upstream and downstream, only few maintenance works done by the DAD.

The table 9 describes the rehabilitation works CSIA Project. During the Participatory Rural Appraisal those tanks were identified for the rehabilitation by the participants. Further Engineering and Hydrological surveys completed and estimates prepared by the implementing agencies based on the previous studies. Total estimated cost for the tank upstream and downstream development works is Rs.211.94mn.

Table 9: Constructions activities under implementation of CSIAP

Nos	Kattaru Cascade Tanks	Work Details	Civil Cost (Rs.Mn.)
1	Kallikattu kulam	Improvement Tank Bund; Construction of CO Spill; Re Construction of Sluice-(0+474m), Re Construction of Sluice-(0+721.7m), Re Construction of Sluice-(0+797.7m). Improvement of Main earth channel-LB-257.2m; Construction of Concrete Lining channel-96.3m; Improvement to Farm Road-588m.	42.06
2	Periya kalliluppai kulam	Improvement Tank Bund; Construction of CO Spill; Renovation of Sluice-LB & RB; Improvement of Main channel-LB475m, Improvement of Main channel-RB-425m.	41.27
3	Andan kulam	Improvement Tank Bund; Construction of CO Spill; Re Construction of Sluice-(0+490m); Construction of Sluice-(1+000m); Improvement of Main earth channel-LB-482.5m; Construction of Concrete Lining channel-123.7m; Improvement to Farm Road-500m.	59.60
4	Sinna kalliuppai kulam	Improvement Tank Bund; Construction of CO Spill; Renovation of Sluice-LB & RB; Improvement of Main channel-LB & RB; Improvement of Farm Road-850m.	29.47
5	Kattaru Anicut	Demolishing and Clearing Work; Construction of Coffor Dam; Construction of River Bund; Construction of Anicut, Upplay and fixing Hand Rails; Construction Gate; Construction of Head wall type sluice; Construction of Channel System; Construction of Regulator, Construction of Diversion Structure; Construction of Retaining wall, Access Road; Construction of Hume Pipe Culvert.	39.54
TOTAL			211.94

3.8. Crop pattern within the cascade system

During the transact walk, the cropping pattern of the area has discussed with the farmer leaders. It was found that Paddy cultivation is the primary agricultural activity in the Kattaru cascade system. Farmers are cultivating paddy for a long time historically and it is being continued.

The soil type is more suitable for paddy as it is regosol soil type which is only suitable for paddy.

Based on the water availability in each tank in the cascade extent of cultivation is decided and water level in the tanks are carefully managed. Fields are prepared using appropriate machineries and cultivated with OFCs and suitable vegetables. The cropping pattern is coupled with livelihood of the people because when Maha or cultivation begins, they cultivate paddy and other field crops. But in between the main season (Yala and Maha) inter seasonal cultivation done with other field crops like cowpea, green gram. Vegetable like brinjal, Bandakka, bitter gourd and snake gourd also cultivated for their livelihood purpose

Farmers cannot change cropping pattern other than paddy. Because soil contents more clay percentages. At the same time water is only sufficient to paddy cultivation. And also continues ploughing done by tractor in the paddy field for over the long period the paddy field develop hard pan and hence it is only suitable for paddy and not for other crops.

Some tanks have some beneficiaries surrounded by the tanks having high land crops. It is consists of fruit tree like mango, pomegranate and banana which are perennial and they do cultivate vegetable cultivation during season too.

To maintain soil fertility and minimize pest and disease problems, farmers often practice crop rotation and crop diversification. This practice helps maximize land productivity and provides farmers with a diverse range of produce for consumption and sale.

In the cascade system the name of the tanks and Farm families benefitted under each tank, cultivable area now and proposed cultivable area after rehabilitation is shown separately for Maha and Yala in the below table: 10 below.

Table 10: Tank wise cultivation area before and after rehabilitation of tanks

No	Name of Tank	No of Farm families	Cultivation area before (Acres)		Cultivation area after (Acres)	
			Yala	Maha	Yala	Maha
1	Kallikattu kulam	30	20	38	40	60
2	Periya kalliluppai kulam	80	12	-	66	70
3	Andan kulam	65	30	70	80	110
4	Sinna kalliluppai kulam	20	-	20	22	30
5	Kattaru Anicut	-	-	-	-	-
	Total	195	62	128	208	270

3.9. Details of irrigation management within the cascade system

Irrigation management in the Kattaru cascade area for ensuring sustainable agriculture and water resource utilization. The identified issues and potential solutions related to irrigation management in this area are given below.

The total production of water (Total water storage of tanks) of this Kattaru cascade system is not enough to cultivate all the land in Yala seasons. Around 30% of land are being cultivating in Yala season. The person called Velvedanai, who nominated by the farmers organisation is the responsible person for supplying water to the paddy land. Each of tank has one Velvedanai for this water management purposes. Water supplied to the paddyland ones 10 – 15 days intervals. There is no flow measuring gauges to measure the channel discharges. Therefore, the water losses are very high.

Climate change poses additional challenges to irrigation management in the cascade area. Erratic rainfall patterns, increased temperatures, and prolonged dry spells can affect water availability and crop water requirements. Developing some irrigation strategies, such as implementing micro-irrigation systems, using drought-tolerant crop varieties, and practising conservation agriculture, can help mitigate the adverse impacts of climate change and ensure the sustainability of agriculture in the area.

The effective irrigation management requires strong collaboration among various stakeholders, including farmers, government agencies, water authorities, and community organizations. Establishing participatory irrigation management systems that involve all relevant parties in decision-making processes can lead to more inclusive and sustainable water resource management.

Most of the farmers adopt surface irrigation methods during their cultivation of OFC, fruit crops and perennial crops. Considering the soil and weather conditions of the cascade, the introduction of micro irrigation can help to optimize water usage and reduce wastage of water.

By addressing these key issues and implementing sustainable irrigation management practices, the cascade area, can enhance water efficiency, increase agricultural productivity, and ensure the long-term sustainability of water resources.

3.10. Current situation of the command areas

Water flowing through the cascade system can cause soil erosion, particularly in areas where the sandy type soil. This erosion can lead to the loss of fertile topsoil, affecting the long-term productivity of the land.

As water moves through the cascade system, it can carry sediment, which may accumulate in lower-lying areas or reservoirs. Sedimentation can reduce the water storage capacity and hinder the effective functioning of the irrigation infrastructure. Regular maintenance and sediment removal are essential to ensure the efficient operation of the cascade system

04. Major Challenges face by the cascade system

The following are the major challenges faced by the Kattaru Cascade:

- Unauthorized chena cultivation in the catchment areas and watersheds.
- Destruction of traditional ecosystems like Kattakaduwa.
- Depletion of forest population due to chena cultivation and deforestation.

- Improper maintenance of tanks, irrigation canals and structures
- Destruction of tank ecosystem due to non-performance of farmer organizations established for irrigation and maintenance of irrigation systems,
- Increase in siltation of tanks due to lack of tank reserves in almost all the tanks in cascade.
- Due to insufficient rainfall, due to the severe water shortage, it is not possible to cultivate yala under the tanks.
- Crop damage by the elephants is a significant problem faced by farmers in this area.
- Farmers have poor knowledge regarding water Management,
- Stakeholder collaboration.
- Land issues
- Operation and maintenance
- Unexpected weather
- Access road/ Farm road
- Cascade Infrastructures
- Grazing land

4.1 Critical Issues of the cascade system

Issues and interventions addressed to be urgently to protect the cascade were identified as critical issues. They were identified among the main challenges of the cascade and related to be the data and information mentioned in the Cascade Profile. Using the key stakeholders, critical issues were identified in a participatory and realistic manner. These critical issues are summarized in Table no 11 below.

Table 11: Details of critical issues identified

S.No.	Critical Issue	Specific area
01	Crop damage by wild animals specially Elephants	Wild animal problem
02	Shortage of water in the tanks of cascade - it leads to the reduction in Yala season cultivation and Highland cultivation	Water scarcity for agriculture
03	Facilitate to Improvement of tanks Infrastructure(Farm roads, Agriculture roads, Tank access roads, bridges etc)	Infrastructure Development
04	Contribute to develop routine tank system maintenance mechanism	Technical knowledge
05	Non availability of quality seeds for Highland cultivation on time	Quality seeds promotion
06	Facilities to reduce the water scarcity for highland cultivation	Water scarcity for agriculture
07	Land encouragement at the catchment area of tanks in the cascade	Land demarcation

08	Space has not been allotted for ‘Kattakaduwa’(the land area between tank bund and the downstream paddy field)	Land demarcation, Agro Eco system
09	Lack of knowledge in water management techniques and irrigation scheduling leads to poor irrigation efficiency (Water Conveyance Efficiency and Water Use Efficiency)	Lack of awareness and Training
10	Lack of stakeholder collaboration and governance - prominent hindrance in implementing cascade management plan for creating resilient environments for communities against climate-induced risks.	Participatory approach
11	In adequate facilitate of Dry floor and Bathing step	Infrastructure Development
12	Promotion of livelihood activities- Inland fishing	Livelihood
13	Limitation of grazing land during cultivation time.	Cattle rearing/ Goat rearing
14	Facilitate to solve Land related issues	Land issues

4.2 Proposed strategic interventions plan by the CMC to resolve/mitigate Critical issues of the cascade system

1. Contribute to reduce crop damage by elephants
2. Improve the tank reservation areas for reduce the water scarcity
3. Facilitate to Improvement of tanks Infrastructure(Farm roads, Agriculture roads, Tank access roads, bridges etc)
4. Contribute to develop routine tank system maintenance mechanism
5. Facilitate for the quality seeds availability on time in Highland cultivation
6. Provide facilities to reduce the water scarcity for highland cultivation
7. Contribute to reduce land encouragement in the tank reservation area
8. Promote the traditional eco systems in cascade area
9. Facilitate to establish sustain cascade system
10. Facilitate to produce quality yield in cultivation.
11. Facilitate to promote livelihood for income generation
12. Facilitate cattle/ goat raring during the cropping time
13. Facilitate to solve Land related issues

4.2.1. Goal

The goal of the Cascade Management Plan of Kattaru cascade is improved access to water and efficient water management of sustainable cascade system

4.2.2. Objectives

The objectives of the CMP, Kattaru cascade are as follows

- To address the water scarcity faced by rural communities living in the cascade & provide improved and reliable water accessibility

- To manage water and associated natural resources in a sustainable manner.
- To enhance the restoration of the watershed of the system and to enhance biodiversity (flora & fauna, wild animals, etc.) through integrated management
- To give awareness & knowledge in water management techniques, irrigation scheduling, and operation and maintenance of tank cascade area, tank bed, feeder canals, and drainage networks.

4.3 Key activities suggested by the Cascade Management Committee to address or mitigate critical issues

Critical issues are the issues that need to be solved by policy makers, the cascade management committee and stakeholder organizations need to addressed urgently. Critical issues can be solved or minimized through the implementation of strategic interventions. Critical issues can be solved/minimized through the realistic action plan through the key activities including technical interventions in collaboration with the stakeholders and community-based organizations. They are shown in Table below.

Table 12 - Proposed key activities to overcome the identified issues

Sub No.	Objective	Proposed Activities
01	Contribute to reduce crop damage by elephants	1.1.Establishment of seasonal elephant fences in the selected area Periyakalliluppai kulam-4km; Sinnakalliluppai kulam-3.5km
		1.2.Farmer awareness program for deforestation
		1.3.Make arrangement for the repairing of damaged elephant fences
02	Improve the tank reservation areas for reduce the water wastage	2.1 Rehabilitation and maintenance of proper canal system of all tanks
		2.2 Construction and Repair of spills, sluice, sluice canal and bund of tanks Sinnakalliluppai kulam Periyakalliluppai kulam & Kallikattukulam - increase the hight, Repair the LB leakage Andankulam- new sluice
		2.3 Introduction of climate smart agriculture practices, modern as well as improved agro-technical methods

		2.4 Cleaning of catchment areas of tanks - remove salvinia weeds
03	Facilitate to Improvement of tanks Infrastructure(Farm roads, Agriculture roads, Tank access roads, bridges etc)	3.1 Construction of new Bridge. Kallikattukulam
		3.2 Construction/ reconstruction/repair of farm road, agriculture road, tank access road Periyakalliluppaikulam-1km ; Kallikattukulam 0.5 km; Sinnakalliluppai kulam
04	Contribute to develop routine tank system maintenance mechanism	4.1 Conduct awareness, training in water management techniques, irrigation scheduling, and operation and maintenance of tank cascade area, tank bed, feeder canals, and drainage networks to officers, members of CBOs and farmers
		4.2 Prepare an action plan for the O & M system of tanks in the cascade
		4.3 Create fund raising mechanism for O & M system of tanks in the cascade
		4.4 Provide basic assistance/ equipment to FOs for tank O & M activities
05	Facilitate for the quality seeds availability on time in Highland cultivation Periyakalliluppai kulam Sinnakalliluppai kulam Kalliluppai kulam Andankulam	5.1 Make awareness for the importance of seeds production for highland cultivation
		5.2 Establish seed growers for OFC in the cascade area
		5.3 Organize technical training programs on seed production of OFC
		5.4 Assist to link Producer Societies with Department of seed production in the area
06	Provide facilities to reduce the water scarcity for highland cultivation Periyakalliluppai kulam Sinnakalliluppai kulam Kalliluppai kulam Andankulam	6.1 Make arrangement for demarcation of highland area and levelling before cultivation.
		6.2 Construct/repair the Agro wells in cascade area
		6.3 Introducing solar water pump system for highland cultivation
07		7.1. Make arrangement for demarcation of tank reservation area for all tanks in the cascade

	Contribute to reduce land encouragement in the tank reservation area	7.2 Make awareness of land ownership and land management
		7.3. Facilitate to get agricultural lands for the promotion of agriculture production
08	Promote the traditional eco systems in cascade area	8.1 Make arrangement to establish Agro-Forestry system in Kattakaduwa site in all tanks
		8.2 Make arrangement to Tree planting
09	Facilitate to establish sustain cascade system	9.1. Aware among stakeholders regarding benefits of cascade management
		9.2. Strengthening of Cascade Management Committee (CMC)
		9.3. Assist to prepare cascade profile and cascade development plan
10	Facilitate to produce quality yield in cultivation	10.1 Construction of Dry floor at the cascade area for cascade farmers Andankulam;
		10.2 Construction of Bathing steps at the cascade tank area for cascade farmers Periyakalliluppai kulam; Sinnakalliluppai kulam
11	Facilitate to promote livelihood for income generation- Inland Fishing Periyakalliluppai kulam; Kallilattu kulam; Sinnakalliluppaikulam; Andankulam	11.1 Make awareness and training for the important of Inland Fishing to fishing farmers
		11.2 Organize the technical training for Inland Fishing
		11.3 Ensure the availability of fingerlings and link with fishing farmers
		11.4 Ensure the marketing of Inland Fishing
12	Facilitate cattle/ goat raring during the cropping time	12.1 Establish the pasture land for free grazing Andankulam; Periyakalliluppai kulam
13	Facilitate to solve Land related issues	13.1 Review the legal land ownership for the command area
		13.2 Attempt to get the land release from the relevant department

05. Cascade Management (Basic) Development Plan

The participatory assessment process is the basic methodology for developing the Cascade Management (Basic) Development Plan (CMBDP), and appropriate tools were used to identify the bio-physical condition of the cascade area. CMBDP leads to more appropriate actions to protect the landscape of the cascade. All stakeholders have been re-intervened and identified the acute cases.

5.1: Total estimated cost for implementing interventions and contribution expected from the stakeholder agencies

Table 13: Gannt Chart for proposed activities and responsible entities for implementing

No.	Proposed Activities	Budget (Rs. Mn.)	Time Frame												Responsibility of Implementation
			From July 2024 to June 2025												
			Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June	
1	1.4.Establishment of seasonal elephant fences in the selected area														DAD, DF &FO
	1.1.Periyakalliluppai kulam-4km; Sinnakalliluppai kulam-3.5km	20.00													
	1.2.Farmer awareness program for deforestation	0.05													
	1.3.Make arrangement for the repairing of damaged elephant fences	1.00													DW&FO
2	2.1 Rehabilitation and maintenance of proper canal system of all tanks	2.00													DAD & FO
	2.2 Construction and Repair of spills, sluice, sluice canal and bund of tanks Sinnakalliluppai kulam Periyakalliluppai kulam	5.00													DAD &FO

	& Kallikattukulam - increase the hight, Repair the LB leakage Andankulam- new sluice													
	2.3 Introduction of climate smart agriculture practices, modern as well as improved agro-technical methods	3.00												CSIAP &DAD
	2.4 Cleaning of catchment areas of tanks -remove salvinia weeds	1.00												DAD & FO
3	3.1 Construction of new Bridge. Kallikattukulam	10.00												DAD & PID
	3.2 Construction/ reconstruction/repair of farm road, agriculture road, tank access road Periyakalliluppaikulam- 1km ; Kallikattukulam 0.5 km; Sinnakalliluppai kulam	5.00												DAD & FO

[illegible]

11	Fishing to fishing farmers														
	11.2 Organize the technical training for Inland Fishing	0.50													Fis D &CSIAP
	11.3 Ensure the availability of fingerlings and link with fishing farmers	0.05													Fis D &CSIAP
	11.4 Ensure the marketing of Inland Fishing	0.05													Fis D &CSIAP
12	12.1 Establish the pasture land for free grazing Andankulam; Periyakalliluppai kulam	5.00													DAP &CSIAP
13	13.1 Review the legal land ownership for the command area	0.05													DAD ,DS &FO
	13.2 Attempt to get the land release from the relevant department	0.05													DAD, DS &FO

No.	Stakeholder Agency / Implementation Agency	
1	Divisional Secretariat	DS
2	Department of Agrarian Development	DAD
3	Provincial Department of Irrigation	PID
4	Provincial Department of Agriculture	PDA

5	Department of Forest	DF
6	Department of Wildlife	DW
7	Department of Local Government	DLG
8	Department of Archaeology	DA
9	Farmer Organizations	FO
10	Community Based Organizations	CBO
11	Fisheries Department	Fis D
11	Climate Smart Irrigation Agriculture Project	CSIAP

5.2. Total estimated cost for implementing interventions and contribution expected from the stakeholder agencies

Table 14: Interventions and contribution expected from the stakeholder agencies

No.	Proposed Activities	Est. Cost (Rs. Mn.)	Expected budget contribution (Rs. Mn.)			
			Private	Line agencies	Farmer	CSIAP
1	1.5.Establishment of seasonal elephant fences in the selected area 1.1.Periyakalliluppai kulam-4km; Sinnakalliluppai kulam-3.5km	20.00				
	Farmer awareness program for deforestation	0.05				
	Make arrangement for the repairing of damaged elephant fences	1.00				
2	2.1 Rehabilitation and maintenance of proper canal system of all tanks	2.00				
	2.2 Construction and Repair of spills, sluice, sluice canal and bund of tanks Sinnakalliluppai kulam Periyakalliluppai kulam & Kallikattukulam - increase the hight, Repair the LB leakage Andankulam- new sluice	5.00				
	2.3 Introduction of climate smart agriculture practices, modern as well as improved agro-technical methods	3.00				
	2.4 Cleaning of catchment areas of tanks -remove salvinia weeds	1.00				
3	3.1 Construction of new Bridge.	10.00				

	Kallikattukulam					
	3.2 Construction/ reconstruction/repair of farm road, agriculture road, tank access road Periyakalliluppaikulam-1km ; Kallikattukulam 0.5 km; Sinnakalliluppai kulam	5.00				
4	4.1 Conduct awareness, training in water management techniques, irrigation scheduling, and operation and maintenance of tank cascade area, tank bed, feeder canals, and drainage networks to officers, members of CBOs and farmers	3.00				
	4.2 Prepare an action plan for the O & M system of tanks in the cascade	0.50				
	4.3 Create fund raising mechanism for O & M system of tanks in the cascade	0.10				
	4.4 Provide basic assistance/ equipment to FOs for tank O & M activities	5.00				
5	5.1 Make awareness for the importance of seeds production for highland cultivation	0.30				
	5.2 Establish seed growers for OFC in the cascade area	0.50				
	5.3 Organize technical training programs on seed production of OFC	0.10				
	5.4 Assist to link Producer Societies with Department of seed production in the area	9.00				
6	6.1 Make arrangement for demarcation of highland area and levelling before cultivation.	0.05				
	6.2 Construct/repair the Agro wells in cascade area	5.00				
	6.3 Introducing solar water pump system for highland cultivation	10.00				
7	7.1. Make arrangement for demarcation of tank reservation area for all tanks in the cascade	1.00				

	7.2 Make awareness of land ownership and land management	1.00				
	7.3. Facilitate to get agricultural lands for the promotion of agriculture production	5.00				
8	8.1 Make arrangement to establish Agro-Forestry system in Kattakaduwa site in all tanks	5.00				
	8.2 Make arrangement to Tree planting	3.00				
9	9.1. Aware among stakeholders regarding benefits of cascade management	0.05				
	9.2. Strengthening of Cascade Management Committee (CMC)	0.05				
	9.3. Assist to prepare cascade profile and cascade development plan	0.50				
10	10.1 Construction of Dry floor at the cascade area for cascade farmers Andankulam;	2.00				
	10.2 Construction of Bathing steps at the cascade tank area for cascade farmers Periyakallippai kulam; Sinnakalliluppai kulam	2.00				
11	11.1 Make awareness and training for the important of Inland Fishing to fishing farmers	0.50				
	11.2 Organize the technical training for Inland Fishing	0.50				
	11.3 Ensure the availability of fingerlings and link with fishing farmers	0.05				
	11.4 Ensure the marketing of Inland Fishing	0.05				
12	12.1 Establish the pasture land for free grazing Andankulam; Periyakalliluppai kulam	5.00				
	13.1 Review the legal land ownership for the command area	0.05				
13	13.2 Attempt to get the land release from the relevant department	0.05				

5.3. Implementation Methodology of the Cascade Management Plan

CMBDP should be submitted to the Divisional Agriculture Committee and the District Agriculture Committee for approval. After getting the approval, it will be implemented.

The sub project proposals (Attachment No. 04) will be prepared by CMC with the support of the relevant implementing agencies for obtaining capital assistance

Major partner institutions are committed to implementing the proposed activities, preparing and supporting existing investment plans, budget reports and implementation plans, and assisting CMC in submitting grant funding proposals to be provided.

Social Audit Committees of sub-project implementation effectiveness. CMC appoints Social Audit Committees and gives active contributions to the beneficiaries to enhance the quality of work performed by the CMC



ගොවිජන සංවර්ධන දෙපාර්තමේන්තුව
கமநல அபிவிருத்தித் திணைக்களம்
DEPARTMENT OF AGRARIAN DEVELOPMENT

මගේ අංකය
எனது இல.
My No.

7/3/9/CMC/2023

ඔබේ අංකය
உமது இல.
Your No.

දිනය
திகதி
Date

2023.08.03

වික්‍රමේ අංකය - 06/2023

සියලුම දිස්ත්‍රික් ලේකම්වරුන් සහ ප්‍රාදේශීය ලේකම්වරුන් වෙත,

එල්ලංගා පද්ධති කළමනාකරණ කමිටු පිහිටුවීම හා පවත්වා ගෙන යාම.

Cascade Management Committee (CMC) Establishment & Continuity

රට අභ්‍යන්තරයේ සිට මුහුදට ගලා බසින ප්‍රධාන ගංගා (Rivers) කෘතිමික ජල මාර්ග ලෙසත්, එම ප්‍රධාන ගංගා වලට එකතුවන අතු ගංගා (Tributarite) ද්විතීක ජල මාර්ග ලෙසත්, එම අතු ගංගා වලට ජලය සපයන කුඩා ජල මාවත් (Small water ways) ප්‍රාථමික ජල මාර්ග ලෙසත් හැඳින්වේ. ග්‍රාමීය වැව් හා අමුණු වැඩි ප්‍රමාණයක් ප්‍රාථමික ජල මාර්ග හරහා ඉදිකර ඇති අතර භූමිය මතුපිට ජලය ගබඩා කර පහළට ගලා යාමට සැලැස්වීමට සකස් කර ඇති වැව් ද මීට ඇතුළත් වේ.

02. මෙරට අභ්‍යන්තරයේ පවතින ප්‍රාථමික ජල මාර්ගයක් හෝ ප්‍රථමික ජල මාර්ග ජාලයක පිහිටා ඇති, ජල විද්‍යාත්මක වශයෙන් එකට බැඳුණු කුඩා හා මධ්‍යම ප්‍රමාණයේ වැව් පද්ධති හෝ වැව් හා අමුණු පද්ධති හෝ අමුණු පද්ධති වලින් සමන්විත, මධ්‍යම ප්‍රමාණයේ ජල පෝෂක ප්‍රදේශයක් (Meso-catchment) එල්ලංගා පද්ධතිය ලෙස හැඳින්වේ.

03. ශ්‍රී ලංකාවේ එල්ලංගා පද්ධති 1166 ක් දැනට හඳුනාගෙන ඇත. මෙම එල්ලංගා පද්ධති ආශ්‍රිතව භූ විද්‍යාත්මක, ජල විද්‍යාත්මක, පරිසර විද්‍යාත්මක සහ සමාජ ආර්ථික ප්‍රගමණය උදෙසා සම්පත් භාවිතය කාර්යක්ෂමව හා නිරසරව පවත්වාගෙන යාම ඉලක්ක කරගනිමින් 1968 අංක 48 දරන වාරිමාර්ග (සංශෝධන) ආඥා පනතින් සංශෝධිත 1946 අංක 32 දරන වාරිමාර්ග ආඥා පනතේ 1 (අ) 1, 2, 3, 4 වගන්ති ප්‍රකාරව ගොවිජන සංවර්ධන කොමසාරිස් ජනරාල් වෙත පැවරී ඇති බලතල අනුව සහ උක්ත පනත යටතේ පවත්වනු ලබන දිස්ත්‍රික් කෘෂිකර්ම කමිටුවේදී වාරි කර්මාන්ත ආශ්‍රිත වී වගාව ඇතුළු කෘෂිකර්මයට බලපාන හෝ අනුෂාංගික සියලු කරුණු සම්බන්ධව කටයුතු කිරීමට උක්ත පනතෙන් ඔබ වෙත පැවරී ඇති බලතල අනුව එල්ලංගා පද්ධති කළමනාකරණ කමිටු [Cascade Management Committee (CMC)] පිහිටුවීම හා පවත්වාගෙන යාම සම්බන්ධයෙන් කෘෂිකර්ම කමිටුවේදී සමාලෝචනය කරන ලෙසත් ඊට පහත සඳහන් කරුණු මාර්ගෝපදේශ වශයෙන් යොදාගන්නා ලෙසත් කාරුණිකව දන්වා සිටිමි.

3.1. එල්ලංගා පද්ධති කළමනාකරණ කමිටු පිහිටුවීමේ පරමාර්ථ

- එල්ලංගාවක පිහිටි සියලු ස්වාභාවික සම්පත්, එනම් පස, ජලය, වන සම්පත, ජෛව පද්ධති, ඉඩම් හා වාරිමාර්ග පද්ධති කළමනාකරණය කිරීම සඳහා ප්‍රතිලාභීන් සහ අදාළ රාජ්‍ය නිලධාරීන් ඒකාබද්ධ ප්‍රවේශයකින් කටයුතු කිරීම සඳහා ආයතනික ව්‍යුහයක් සකස් කිරීම.
- වාරි කෘෂිකර්මය, පශු සම්පත් කටයුතු සහ මිලිදියා ධීවර කර්මාන්තය, සඳහා ජලය සැපයීම, වන සම්පත හා වන ජීවී අවශ්‍යතා තුලනාත්මකව පවත්වාගෙන යාම, භූගත ජල මට්ටම ප්‍රශස්ත ලෙස පවත්වාගෙන යාම, ගෙවතු වගාව ඇතුළු ගෘහස්ථ ජල අවශ්‍යතාවයන් විධිමත් ලෙස කළමනාකරණය කිරීම.

ගොවිජන සංවර්ධන දෙපාර්තමේන්තුව, පංත 42, ශ්‍රීමත් මාර්කස් ප්‍රනාන්දු මාවත, සැ. පො. 537, කොළඹ 07.
 கமநல அபிவிருத்தித் திணைக்களம், இல: 42, சீர் மார୍କஸு பெர்னாந்து மாஸ்த்ளத, அ. பெ. 537, கொழும்பு 07.
 DEPARTMENT OF AGRARIAN DEVELOPMENT, No. 42, SIR MARCUS FERNANDO MAWATHA, P. O. BOX 537, COLOMBO 07.

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- iii. කෘෂිකාර්මික කටයුතු සඳහා ජලය භාවිතා කරන්නන් ඇතුළුව එල්ලංගා පද්ධතිය නඩත්තු කිරීම සඳහා අවනතුන් පරිශීලකයන්ගේ සහ පාර්ශ්වකරුවන්ගේ ආයතනික ලබාගැනීම.

3.2. එල්ලංගා පද්ධති කළමනාකරණ කමිටු පිහිටුවීමේ අරමුණු

- i. එල්ලංගා පද්ධති කළමනාකරණය හා තිරසර පැවැත්ම සඳහා නීතිමය පිළිගැනීමක් සහිත ආයතනික ව්‍යුහයක් ඇති කිරීම.
- ii. එක් එක් එල්ලංගා පද්ධති වලට අදාළව එහි ක්‍රියාකාරීත්වයට හා තිරසර පැවැත්මට අදාළ වන ගැටළු හා යෝජිත විසඳුම් ඒකාබද්ධ ප්‍රවේශයකින් යුක්තව සාකච්ඡා කර නීතිමය වශයෙන් පිළිගත් ක්‍රමවේදයක් ඇති කිරීම.
- iii. එල්ලංගා පද්ධතිය තුළ පිහිටි වාරි කෘෂිකාර්මික, ජල කළමනාකරණ, පාරිසරික, සමාජ ආර්ථික හා භූ විද්‍යාත්මක සාධක පද්ධතියේ මනා ක්‍රියාකාරීත්වය සඳහා අඛණ්ඩව හා සක්‍රීයව පවත්වාගෙන යාමට ක්‍රමවේදයක් ඇති කිරීම.
- iv. එල්ලංගා පද්ධතියේ සංවර්ධන කටයුතු වලදී, මුළු පද්ධතියට සිදුවන හානියෙන් වලක්වා ගනිමින් අවශ්‍යතා තහවුරු කිරීම, ජල සම්පත් කාර්යක්ෂමව පරිහරණය සඳහා වගා කන්න පදනම් කර ගනිමින් සැලසුම් සකස් කිරීම.
- v. එල්ලංගා පද්ධතිය සඳහා ඒකාබද්ධ කෘෂිකාර්මික නිෂ්පාදන සැලැස්මක් සකස් කිරීම හා එම සැලැස්මේ ක්‍රියාත්මක තත්ත්වය පසුපරම් කිරීම.
- vi. එල්ලංගා පද්ධතියක පැවතිය යුතු අංශෝපාංග ප්‍රතිස්ථාපනය සඳහා අවශ්‍ය කටයුතු කිරීම.
- vii. එල්ලංගා පද්ධති හා බැඳුණු සමාජ ආර්ථික සම්බන්ධතා ආරක්ෂා කිරීම හා ඒ පිළිබඳව පාර්ශ්වකරුවන් දැනුවත් කිරීම.

3.3. එල්ලංගා පද්ධති කළමනාකරණ කමිටුවේ කාර්යභාරය

- i. එල්ලංගා පද්ධතිය සඳහා වන සැලසුම් සකස් කිරීම, ක්‍රියාත්මක කිරීම හා පසුපරම් කිරීම.
- ii. එල්ලංගා පද්ධති කළමනාකරණ කමිටු සාමාජිකයන් විසින් ඉදිරිපත් කරනු ලබන ගැටලු, යෝජනා සහ සැලසුම් සඳහා විසඳුම් ලබාදීම සහ විසඳිය නොහැකි ගැටලු අදාළ වන පරිදි ප්‍රාදේශීය / දිස්ත්‍රික් කෘෂිකර්ම කමිටුව වෙත යොමු කර විසඳා ගැනීම.
- iii. එල්ලංගා පද්ධති කළමනාකරණයට අදාළ වාර්තාවක් අවස්ථානුකූලව ප්‍රාදේශීය / දිස්ත්‍රික් කෘෂිකර්ම කමිටුව වෙත ඉදිරිපත් කිරීම.
- iv. ග්‍රාමීය වැව් එල්ලංගාවක් තුළ පිහිටි සියලුම ජල මූලාශ්‍ර හා ජල පාරිභෝගිකයින් එක්ව එල්ලංගාව අයත් මධ්‍යම ජල පෝෂක ප්‍රදේශය (Meso-Catchment) සඳහා ඒකාබද්ධ කෘෂිකාර්මික සැලැස්මක් පිළියෙල කොට ක්‍රියාත්මක කිරීම.
- v. එල්ලංගාවක් තුළ කටයුතු කරන සියලුම ජල පාරිභෝගිකයන්ගේ අවශ්‍යතා අනුව ජල පෝෂක ප්‍රදේශය තුළ පවතින ස්වභාවික සම්පත් කළමනාකරණයට අදාළ තීරණ ගැනීම හා ක්‍රියාත්මක කිරීම.
- vi. ස්වභාවික ආපදා, වාසන හා භෞතික මානව ක්‍රියාකාරකම් අවම කරගැනීමට හැකිවන පරිදි සියලු ජල මූලාශ්‍ර කළමනාකරණය කිරීම.
- vii. එල්ලංගාව තුළ පිහිටි සියලු ජල මූලාශ්‍ර ආශ්‍රිත ජල පාරිභෝගිකයන් අතර කාර්යක්ෂම තොරතුරු සන්නිවේදන ක්‍රමයක් ස්ථාපිත කිරීම.
- viii. එල්ලංගාව තුළ ඇති පරිසර පද්ධති වලට අදාළ යෙදවුම් හා නිමවුම් ප්‍රශස්ත ලෙස කළමනාකරණය සඳහා විධිමත් ක්‍රමවේදයක් ස්ථාපිත කිරීම.
- ix. පවතින හා ඉදිරියේදී ඇතිවිය හැකි බවට අනාවැකි පල කරන දේශගුණික විචලනයන් සඳහා යෝග්‍ය වූ දේශගුණික සුහුරු උපායමාර්ගික සැලසුම් ක්‍රියාවට නැංවීම සහ ජල පාරිභෝගිකයන් එවැනි දේශගුණික අනුගත වීම් වලට හුරු කිරීම.
- x. එල්ලංගා පද්ධතිය තුළ ජල පාරිභෝගිකයන් අතර දැනුම, ආකල්ප, කුසලතාවයන් සහ සම්පත් එලදායි ලෙස හුවමාරු කරගැනීම.
- xi. ජල පාරිභෝගිකයන්ගේ ඉඩම්, ජලය හා පරිසර පද්ධතිවල එලදායිතාවය ඉහළ නැංවීමට කටයුතු කිරීම.

- xii. කෘෂිකර්මයට හා ජල පරිභෝජනයට අදාළ වන පරිසර පද්ධති හා සම්බන්ධ සාම්ප්‍රදායික නීති හා පනවන ලද නීති බලාත්මක කිරීමට අවශ්‍ය සහය ලබා දීම.
- xiii. ඉඩම් හිමි ගොවීන්ගේ හා බුක්කිකරුවන්ගේ රැස්වීම් (වගා කන්න රැස්වීම්) පැවැත්වීම සඳහා අවශ්‍ය මූලික තීරණ ගැනීමට ගොවීන්ට සහාය වීම, ඊට අදාළ සම්බන්ධීකරණ කටයුතු සිදු කිරීම සහ පසුපරම් කිරීම.
- xiv. එල්ලංගා පද්ධති බල ප්‍රදේශය තුළ සියලු ජල මූලාශ්‍ර සහ ඊට අනුබද්ධ අනිකුත් පරිසර පද්ධති වල තීරසර බව සඳහා අදාළ රාජ්‍ය ආයතනවල මහ පෙන්නිරීම හා උපදෙස් අනුගමනය කරමින් සංරක්ෂණය කරවීමට ක්‍රියාමාර්ග ගැනීම.
- xv. එල්ලංගා පද්ධතියට හානිකරන පාර්ශවයන්ට එරෙහිව නීතිමය පියවර ගැනීමට අවශ්‍ය කටයුතු කිරීම.
- xvi. එල්ලංගා පද්ධතියේ සෑම සංවර්ධන ක්‍රියාවලියකදීම ඒ සඳහා ක්‍රියාකාරී ලෙස දායකත්වය ලබාදීම හා ප්‍රගති සමාලෝචනය කිරීම.
- xvii. එල්ලංගා පද්ධතියේ වාරි කර්මාන්ත වල කන්න රැස්වීම් තීරණ ක්‍රියාත්මක කිරීමේ තත්ත්වය පසුපරම් කිරීම.
- xviii. එල්ලංගා පද්ධතියේ වාරි කර්මාන්ත වල මෙහෙයුම් හා නඩත්තු වැඩසටහන පසුපරම් කිරීම.

3.4. එල්ලංගා පද්ධති කලමනාකරණ කමිටුවේ සංයුතිය

3.4.1 ප්‍රාදේශීය මට්ටම

මෙම කමිටුව අදාළ ප්‍රාදේශීය ලේකම් බල ප්‍රදේශයේ පහත නිලධාරීන්ගෙන් සමන්විත වේ.

- i. ප්‍රාදේශීය ලේකම්
- ii. ගොවිජන සංවර්ධන ප්‍රාදේශීය නිලධාරී
- iii. කෘෂිකර්ම උපදේශක
- iv. පළාත් වාරිමාර්ග දෙපාර්තමේන්තුව නියෝජනය කරමින් ඉංජිනේරු / තාක්ෂණික නිලධාරී
- v. ගොවිජන සංවර්ධන දෙපාර්තමේන්තුව නියෝජනය කරමින් ප්‍රාදේශීය ඉංජිනේරු / තාක්ෂණික නිලධාරී
- vi. කෘෂිකර්ම පර්යේෂණ හා නිෂ්පාදන සහකාර
- vii. ග්‍රාම නිලධාරී
- viii. සමෘද්ධි සංවර්ධන නිලධාරී
- ix. ආර්ථික සංවර්ධන නිලධාරී
 - x. ඉඩම් පරිහරණ හා ප්‍රතිපත්ති සැලසුම් දෙපාර්තමේන්තුවේ නියෝජිතයෙකු
 - xi. පළාත් ධීවර දෙපාර්තමේන්තුවේ නියෝජිතයෙකු
 - xii. ජලජීවී වගා සංවර්ධන අධිකාරියේ නියෝජිතයෙකු
 - xiii. පරිසර අධිකාරියේ නියෝජිතයෙකු
 - xiv. පොලිස් පරිසර ඒකකයේ නියෝජිතයෙකු
 - xv. සත්ත්ව නිෂ්පාදන හා සෞඛ්‍ය දෙපාර්තමේන්තුවේ නියෝජිතයෙකු
 - xvi. කෘෂිකාර්මික හා ගොවිජන රක්ෂණ මණ්ඩලයේ නියෝජිතයෙකු
 - xvii. වාරි මාර්ග ඉංජිනේරු/තාක්ෂණ නිලධාරී
- xviii. වන ජීවී සංරක්ෂණ දෙපාර්තමේන්තුවේ නියෝජිතයෙකු
- xix. වන සංරක්ෂණ දෙපාර්තමේන්තුවේ නියෝජිතයෙකු
- xx. භූ විද්‍යා හා පතල් කැණීම් කාර්යාංශයේ නියෝජිතයෙකු
- xxi. ජාතික ජල සම්පාදන හා ජලපවාහන මණ්ඩලයේ නියෝජිතයෙකු
- xxii. පුරාවිද්‍යා දෙපාර්තමේන්තුවේ නියෝජිතයෙකු
- xxiii. සිවිල් ආරක්ෂක දෙපාර්තමේන්තුවේ නියෝජිතයෙකු
- xxiv. පළාත් පාලන ආයතන නියෝජනය කරමින් බලයලත් නිලධාරියකු
- xxv. ගොවි සංවිධාන, කාන්තා ගොවි සංවිධාන, නිෂ්පාදන ගොවි සංවිධාන නියෝජනය කරමින් එක් එක් ගොවි සංවිධානයේ සභාපති හෝ ලේකම්
- xxvi. ප්‍රජා ජල සංවිධානයක නියෝජිතයෙක්

3.5. එල්ලංගා පද්ධති කළමනාකරණ කමිටුවක නිලධාරී මණ්ඩලය - ප්‍රාදේශීය මට්ටම

- i. එල්ලංගා පද්ධතියට ප්‍රාදේශීය ලේකම් කොට්ඨාස එකකට වැඩි ගණනක් පවතින අවස්ථාවක දී සහභාගී වන සෑම ප්‍රාදේශීය ලේකම්වරයෙක්ම කමිටුවේ සම සභාපති ලෙස නිල වශයෙන් කටයුතු කළ යුතුය.
- ii. එල්ලංගා පද්ධතියට අදාළ ගොවිජන සේවා බල ප්‍රදේශයේ ගොවිජන සංවර්ධන ප්‍රාදේශීය නිලධාරී කමිටුවේ ලේකම් ලෙස නිල වශයෙන් කටයුතු කළ යුතුය. එල්ලංගා පද්ධතියට ගොවිජන සේවා බල ප්‍රදේශ එකකට වැඩි ගණනක් පවතින අවස්ථාවන්හි දී වැඩි පෝෂිත අක්කර ගණනක් පවතින බල ප්‍රදේශයේ ගොවිජන සංවර්ධන ප්‍රාදේශීය නිලධාරී ලේකම් ලෙස කටයුතු කළ යුතුය.
- iii. කමිටුවේ සභාපතිවරයාගේ උපදෙස් පරිදි ලේකම්වරයා විසින් රැස්වීම කැඳවීම සිදු කළ යුතුය.

3.6. එල්ලංගා පද්ධති කළමනාකරණ කමිටුවක නිලධාරී මණ්ඩලය - දිස්ත්‍රික් මට්ටම

- i. එල්ලංගා පද්ධතියට දිස්ත්‍රික් එකකට වැඩි ගණනක් පවතින අවස්ථාවක දී සහභාගී වන සෑම දිස්ත්‍රික් ලේකම්වරයෙක්ම කමිටුවේ සම සභාපති ලෙස නිල වශයෙන් කටයුතු කළ යුතුය.
- ii. එල්ලංගා පද්ධතියට අදාළ දිස්ත්‍රික් නියෝජ්‍ය / සහකාර කොමසාරිස්වරුන් කමිටුවේ ලේකම් ලෙස නිල වශයෙන් කටයුතු කළ යුතුය. එල්ලංගා පද්ධතියට ගොවිජන සේවා බල ප්‍රදේශ එකකට වැඩි ගණනක් පවතින අවස්ථාවන්හි දී වැඩි පෝෂිත අක්කර ගණනක් පවතින දිස්ත්‍රික් නියෝජ්‍ය / සහකාර කොමසාරිස්වරුන් ලේකම් ලෙස කටයුතු කළ යුතුය.
- iii. කමිටුවේ සභාපතිවරයාගේ උපදෙස් පරිදි ලේකම්වරයා විසින් රැස්වීම කැඳවීම සිදු කළ යුතුය.

04. ශ්‍රී ලංකාවේ කෘෂිකර්මාන්තයේ නිරසර බව රඳා පවතින ප්‍රධාන අංගයක් වන ජෛව පද්ධති කළමනාකරණය සඳහා එල්ලංගා වාරිමාර්ග කළමනාකරණය විධිමත් කිරීම සඳහා පිහිටවනු ලබන එල්ලංගා පද්ධති කළමනාකරණ කමිටු [Cascade Management Committee (CMC)] තුළින් අපේක්ෂිත කාර්යභාරය ඉටුකරගැනීම සඳහා ඒකාබද්ධ ප්‍රවේශයකින් කටයුතු කරනු ඇතැයි අපේක්ෂා කරමි.


 ඒ.එම්.එම්.එල්.අබේරත්න
 ගොවිජන සංවර්ධන කොමසාරිස් ජනරාල්

පිටපත් :-

- i. ලේකම්, රාජ්‍ය පරිපාලන, ස්වදේශීය කටයුතු, පළාත් සභා හා පළාත් පාලන අමාත්‍යාංශය
- ii. ලේකම්, කෘෂිකර්ම අමාත්‍යාංශය
- iii. සියලුම පළාත් ප්‍රධාන ලේකම්වරුන්
- iv. විගණකාධිපති, ජාතික විගණන කාර්යාලය
- v. පොලිස්පති, ශ්‍රී ලංකා පොලිස් දෙපාර්තමේන්තුව
- vi. අධ්‍යක්ෂ ජනරාල්, කෘෂිකර්ම දෙපාර්තමේන්තුව
- vii. අධ්‍යක්ෂ ජනරාල්, වාරිමාර්ග දෙපාර්තමේන්තුව
- viii. අධ්‍යක්ෂ ජනරාල්, සමෘද්ධි සංවර්ධන දෙපාර්තමේන්තුව
- ix. අධ්‍යක්ෂ ජනරාල්, වනජීවී සංරක්ෂණ දෙපාර්තමේන්තුව
- x. වන සංරක්ෂක ජනරාල්, වන සංරක්ෂණ දෙපාර්තමේන්තුව

- xi. අධ්‍යක්ෂ ජනරාල්, සත්ත්ව නිෂ්පාදන හා සෞඛ්‍ය දෙපාර්තමේන්තුව
- xii. අධ්‍යක්ෂ ජනරාල්, ඉඩම් පරිහරණ හා ප්‍රතිපත්ති සැලසුම් දෙපාර්තමේන්තුව
- xiii. අධ්‍යක්ෂ ජනරාල්, පුරාවිද්‍යා දෙපාර්තමේන්තුව
- xiv. අධ්‍යක්ෂ ජනරාල්, සිවිල් ආරක්ෂක දෙපාර්තමේන්තුව
- xv. අධ්‍යක්ෂ ජනරාල්, ජලජීවී වගා සංවර්ධන අධිකාරිය
- xvi. අධ්‍යක්ෂ ජනරාල්, මධ්‍යම පරිසර අධිකාරිය
- xvii. අධ්‍යක්ෂ ජනරාල්, භූ විද්‍යා හා පතල් කැණීම් කාර්යාංශය
- xviii. සභාපති, කෘෂිකාර්මික හා ගොවිජන රක්ෂණ මණ්ඩලය
- xix. සමාන්‍යාධිකාරී, ජාතික ජල සම්පාදන හා ජලපවාහන මණ්ඩලය
- xx. සියලුම පළාත් ලේකම් වරුන්, පළාත් කෘෂිකර්ම අමාත්‍යාංශය
- xxi. ලේකම්, පළාත් වාරිමාර්ග අමාත්‍යාංශය
- xxii. සියලුම පළාත් කෘෂිකර්ම අධ්‍යක්ෂකවරුන්, පළාත් කෘෂිකර්ම දෙපාර්තමේන්තුව
- xxiii. සියලුම පළාත් සත්ව නිෂ්පාදන හා සෞඛ්‍ය අධ්‍යක්ෂකවරුන්, පළාත් සත්ත්ව නිෂ්පාදන හා සෞඛ්‍ය දෙපාර්තමේන්තුව
- xxiv. ව්‍යාපෘති අධ්‍යක්ෂකවරුන් - CSIAP/ CRIWMP/ SARP
- xxv. සියලුම ගොවිජන සංවර්ධන නියෝජ්‍ය/සහකාර කොමසාරිස් වරුන්

(කාරුණික දැනගැනීමට සහ අවශ්‍ය කටයුතු සඳහා)

Annexture 2

Attendance of Transact walk

MINISTRY OF MAHAWELI, AGRICULTURE, IRRIGATION AND RURAL DEVELOPMENT
CLIMATE SMART IRRIGATED AGRICULTURE PROJECT (CSIAP)
PROVINCIAL DEPUTY PROJECT DIRECTOR'S OFFICE, EASTERN PROVINCE

Date: 22/05/2024
Subject: Transact walk - Kattana Canal, Palmeddai ASC area

Time: 09:00 AM
Venue: Palmeddai ASC area

අ.අ.කය මුල.	සහභාගිවන්නාගේ නම පෙරුම	ස්ත්‍රී/පුරුෂ යුනි/පෙරුම	පිළිගත මුකාවලි	ජාතික හැඳුනුම්පත් අංකය අ.අ.මුලකර්ම	දුරකථන අංකය දුරකථන අංකය	අත්සන කෙටුම්පත්
1	A.M. Mubeen	M	Doa Card	902013572V	0762101234	
2	K.A. Mubarek	M	APPO Palmeddai ASC	198502502785	0716817140	
3	J.A.S. Jayakody	M	CSIAP-Bo	602190153V	0718298117	
4	N. Mubarek	M	Doa Card	6429517651	0766801111	
5	M.M.M. Sigan	M	Palmeddai - 01	853141321V	0751441759	
6	S.J.C. Pheluan	M	303, Court Rd Tew	601662410V	0773868552	

MINISTRY OF MAHAWELI, AGRICULTURE, IRRIGATION AND RURAL DEVELOPMENT
CLIMATE SMART IRRIGATED AGRICULTURE PROJECT (CSIAP)
PROVINCIAL DEPUTY PROJECT DIRECTOR'S OFFICE, EASTERN PROVINCE

Date: 22/05/2024
Subject: Transact walk - Kattana Canal, Palmeddai ASC area

Time: 09:00 AM
Venue: Palmeddai ASC area

අ.අ.කය මුල.	සහභාගිවන්නාගේ නම පෙරුම	ස්ත්‍රී/පුරුෂ යුනි/පෙරුම	පිළිගත මුකාවලි	ජාතික හැඳුනුම්පත් අංකය අ.අ.මුලකර්ම	දුරකථන අංකය දුරකථන අංකය	අත්සන කෙටුම්පත්
7	M.B. Ishaov	M	Andankulam fo president	770794490V	0712534432	
8	M.S. Iqbal	M	Palmeddai - 01	733324212V	0711633616	
9	A.L. Manaf	M	Palmeddai - 02	631453430V	0717214895	
10	S.A. Nafar	M	Palmeddai - 01	730763104V	0713056776	
11	K.M. Subar	M	Palmeddai - 01	631983014V	0717296623	
12	K.T. Paleel	M	Palmeddai - 01	860892625V	0715877797	

අංකය இல.	සහභාගිවන්නාගේ නම பெயர்	ස්ත්/පුරුෂ ஆண்/ பெண்	ලිපිනය முகவரி	ජාතික හැඳුනුම්පත් අංකය அ.அ.இலக்கம்	දුරකථන අංකය தொலைபேசி இல.	අත්සන கையொப்பம்
13	P.G.L.Maheshika	F	CSIAP - EP	896171925V	0715633122	<i>Sekmi</i>
14	R.m. Alwshad	M	CSIAP - EP, Pulmodalai ASC	841361903 V	0718939944	<i>Alwshad</i>
15	S.Naveendran	M	CSIAP - EP	702751810 V	0775283013	<i>S.Naveendran</i>
16	S.T.Kayalaly	F	CSIAP - EP		0774149370	<i>S.T.Kayalaly</i>
17	ARM Muthu	M.	Dahmed CSIAP			
12						
13						

අංකය இல.	සහභාගිවන්නාගේ නම பெயர்	ස්ත්/පුරුෂ ஆண்/ பெண்	ලිපිනය முகவரி	ජාතික හැඳුනුම්පත් අංකය அ.அ.இலக்கம்	දුරකථන අංකය தொலைபேசி இல.	අත්සන கையொப்பம்
18	K.M. Alwshad	M	Kalikeettukkulam	199122303901	0778092291	<i>K.M. Alwshad</i>
19	A.S. Muthu	M	Kalikeettukkulam	198026505584	0715897893	<i>A.S. Muthu</i>
20	U.m. Missalar	M	Pulmodalai		0717063390	<i>U.m. Missalar</i>
21	A.S. Alwshad	M	Yakkalam		0717464082	<i>A.S. Alwshad</i>
18						
19						
20						



MINISTRY OF AGRICULTURE
CLIMATE SMART IRRIGATED AGRICULTURE PROJECT (CSIAP)
PROVINCIAL DEPUTY PROJECT DIRECTOR'S OFFICE, EASTERN PROVINCE

Date

Time

Venue

Sub: Transact walk - Kattaru Cascade

No	Name of the Officer	Male/ Female	Designation & Institution	Phone No	Signature
22	M. Mubaser	M	AI/Opt of Agriculture	077-9092291	Mub
23	P. M. Nazem	M	EDO/DS Office	0751629978	P. M. Nazem
24	S.H.M. Aswath	M	Secdy - (FO) Odda	0710591999	Aswath
25	A.K. Ameen	M	Treasurer - (FO) Odda	0717874047	A. K. Ameen
26	A. Priyatharshan	M	FA Forest Dept	077 3330080	A. Priyatharshan
27	T. Suthakaran	M	CSIAP - T.D	0791093637	T. Suthakaran
28	Fm. Saheer	M	Treasurer (FO) Al-Safi	0717203392	Fm. Saheer
29	—	—	—	—	—
30	—	—	—	—	—

MINISTRY OF AGRICULTURE
CLIMATE SMART IRRIGATED AGRICULTURE PROJECT (CSIAP)
PROVINCIAL DEPUTY PROJECT DIRECTOR'S OFFICE, EASTERN PROVINCE

Date

Time

Venue

Sub: Transact walk - Kattaru Cascade

No	Name of the Officer	Male/ Female	Designation & Institution	Phone No	Signature
29	H.B. Salmen Faris	M	President AL Soffi	0713320305	H.B. Salmen Faris
30	A. C. Manjula	M	Farmer		A. C. Manjula
31	S. Haseen	M	Farmer	0715800222	S. Haseen
32	M.M. Thawfeek	M	Farmer	0701644099	M.M. Thawfeek
33	R.W. Mohamed	M	Farmer	0715119202	R.W. Mohamed
34	—	—	—	—	—
35	—	—	—	—	—
36	—	—	—	—	—
37	—	—	—	—	—

Annexure 3: List of officials and members of the first CMC.

Climate Smart Irrigated Agriculture Project (CSIAP) Deputy Project Director's Office – Eastern Province			
District: - Trincomalee		ASC: - Pulmottai	
Name of the Cascade Management committee: Kttaru Date of Formation:			
Position	Nominated Person	Position & Department/ Organization	Conduct No
Secretary (ADO)			
Chairman (Rep. of DS)			
Treasurer			
CO- Chairman (Rep. of FO)			
Vice Secretary (Rep. of FO)			
Committee Members 1			
2			
3			
4			
5			
6			
7			

Annexure 4: Guidance format for preparation of subproject proposals to raise funds to implement interventions and major activities

Format for preparing a Subproject Proposal (SPPs) to obtain funds for implementation of interventions.

1. Administrative Details:

No	Matters	Details
1	Contact details of proposal submitting agency: (postal, e-mail, telephone etc	
2	Contact Details of the implementing agency: (postal, e-mail, telephone etc.)	
3	Contact details with the position of the person responsible for providing information of the proposal (e-mail, telephone – land/mobile:	
4	Sector of the proposal (rehabilitation of tanks/catchment treatment/agriculture practices/ marketing/ institutional development/technology transferring/training/other (specify etc.).	
5	Ref. no of the concurrence of the Divisional Agriculture Committee (DAC).	

2. Sub-Project Details:

2.1. Title of the Sub-Project (Please note that the name may be very similar to that of the project development objective, but not in all time):

.....

2.2. Summary of the sub-project (please give a very brief paragraph answering the questions of what it is, why it is, who it is, where it is and when it is implemented? The estimated total cost is also needed).

.....

2.3. Project Location (details such as cascade, Agrarian Service Centre, Local Government Ward, GN Division etc. If the project location is considered as a highly vulnerable area to flood or drought, please indicate that too).

.....

2.4. Project issue/rational/justification (This is very important and is considered as the main part of the proposal. Therefore, please highlight what the issue, how it is impacted on the farmers, how it was identified and what bad effects would happen, if it is not resolved).

.....

2.5. How the critical issue was identified? (through community consultations, requests from farmer organisations, cascade management plan etc.).

.....

2.6. Objective of the sub-project (please formulate this in very rational manner since it is important for the monitoring purpose).

.....

2.7. Specific Objectives (Specific objectives need to be developed according to SMART form and this is also very important for the monitoring purpose).

1.

2.

2.8. Proposed sub- project activities (This part needs to be described very rationally and what actions the implementing agency proposed to address the critical issue and how it contributes to achieve the project objective?

.....

2.9. Expected results (these may be economic, political, social, environment, cultural, nutritional etc.).

1.

2.

2.10. Beneficiaries (The nature of the beneficiaries – In addition to number of male and female, please indicate other characteristics also such as belonging to low-income or indigenous groups, affected by war etc.).

.....

2.11. Who of the beneficiaries will participate in implementation?

2.12. How do women get benefited?

.....

2.13. Who will be responsible for operation and maintenance (O&M) including estimated cost for O&M?

.....

2.14. Potential Risks and strategies propose to minimize the risks

2.15. Does the project fall either under the negative list or prescribed list?

(a) If, Yes, please explain whether IEE or EIA is required.

.....

(b) If No, IEER/EIS format will be required.

2.16. Name/names of the proposed farmer organizations or producer organizations that could be got involved in implementing the sub-project (if applicable, details need to be annexed).

.....

3. Implementation methodology

3.1. How the project is planned to be implemented and with what stakeholders etc? (describe with adequate details).

.....

3.1. Tendering process (explain how it is planned to procure required materials).

3.2. Activity plan (describe the activity plan with the time frame and the responsible agencies/persons in implementation. This need to be describe using a Gantt chart).

4. Subproject Monitoring Mechanism: (This is very important. Therefore, please describe how the monitoring activities are taken place providing adequate details).

.....

5. Subproject Evaluation Mechanism: (please indicate how the implementing agency plans to evaluate the project and at what intervals).

.....

6. Reporting arrangement (please describe who will take the responsibility of making both financial and progress reporting and also the expected time period).

7. Estimated Cost:

No	Major Activity	Total estimated cost in LKR	Community Contribution (LKR)	Other sources(spe cify) (LKR)	Amount expected from donor agency (LKR)
1					
2					

8. Submission

8.1. Authorized person to submit the sub-project proposal on behalf of the Cascade Management Committee (CMC).

8.2. Position, contact details, frank, date of submission

09. Annexes:

(please annex all relevant additional details to provide adequate information to justify the subproject proposal and thereby to expedite the approval process.

Annex 5: Any other appropriate information

Pictorial Perspective of Transact walk



