# Climate Adaptation Initiatives

Adhapadakki Micro Watershed
Kalayarkovil Block
Sivagangai District

## Yearly Report: Submitted to Jephcott Charitable Trust

Partner Organisation:
Association for Sarva Seva Farms (ASSEFA)

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# Introduction

The project, called 'Resilient Livelihoods: From Poverty to Prosperity, ' aims to help 500 farmers and their families in the dry Sivagangai District of Tamil Nadu, southern India. It combines ways to improve jobs, strengthen the community and protect the environment. The project uses local knowledge and works with local partners to solve different problems the community faces. It also teaches new skills and helps manage natural resources in a way that will last for the long term. Now in its second year, this three-year project knows that strong, united communities are important for real and lasting change. The project builds water conservation structures and offers training to help people work together and feel like they are part of a group. It uses the community's knowledge and effort to build things everyone can use. The farmers are also giving money to the project which helps them feel responsible and proud of their work.

## Three Year Objectives

- Implement effective water conservation and management interventions to increase cultivable land and agricultural production in the context of climate change.
- Undertake various initiatives to improve soil health practices by actively involving the farming community.
- Promote sustainable natural resource management (NRM) to maintain the ecosystem and support both agricultural and animal husbandry activities.
- Provide capacity-building support to the farming community to help them cope with climate-related risks.
- Create livelihood opportunities that improve the living standards of communities in watershed areas while mitigating climate change risks.

## Partner Organisation

The Association for Sarva Seva Farms (ASSEFA) is a well-known grassroots group in India. For more than 50 years, it has worked to improve life in rural areas.

ASSEFA helps small and marginalised farming families in Tamil Nadu through programs that support sustainable farming, women's empowerment, education and community health.

Because ASSEFA has long-standing relationships in the villages, it encourages people to become self-reliant and to take part in planning their own development. Their approach is holistic and closely connected to local needs and creates long-term change through community action, fairness and care for the environment.

## Overview of Initiatives

This project supports farming communities to adapt to climate change through improved water management, soil health, sustainable agriculture and livelihood diversification.

To strengthen water security, interventions included the deepening and desilting of village tanks, reclamation of water channels and sluices, and the construction of field bunds to improve rainwater harvesting, groundwater recharge and irrigation efficiency.

Soil health was enhanced through soil testing, organic fertiliser application, vermi-compost production, traditional livestock-based soil enrichment practices, and crop rotation with pulse cultivation. These activities helped improve soil fertility, reduce reliance on chemical inputs and support sustainable agricultural production.

The project also promoted sustainable natural resource management and livelihood security through afforestation, backyard fruit cultivation, goat rearing and fodder production. These interventions strengthened household incomes, improved nutrition and increased resilience to climate-related shocks.

To encourage climate-smart farming, farmers participated in training programmes, exposure visits and practical demonstrations, including the use of agricultural drones for precision fertiliser application and training on Integrated Farming Systems. Livestock health camps and veterinary support further strengthened agricultural productivity and livelihood resilience.

Together, these activities are helping farming households improve water conservation, enhance soil health, diversify livelihoods and build long-term resilience to the impacts of climate change.

# 1. Reclaiming Water Channels

During the reporting period, water channel reclamation works were undertaken at multiple sites to improve water conservation and strengthen irrigation systems. In addition to the reclamation of the water channel at Karumanthagudi Kanmai in Karumanthagudi village, further reclamation work was carried out at Kadiyavayal Kanmai in Kadiyavayal village.

The total grant allocated for the Kadiyavayal intervention during the second year was utilised alongside contributions from local farmers.

The main objective of these interventions was to remove accumulated sand deposits, bushes, and invasive vegetation from the water channels, allowing rainwater to flow freely into the kanmais (village tanks) from multiple directions. By restoring these channels, the storage capacity of the kanmais was increased, ensuring greater availability of water for paddy cultivation.

These improvements help reduce water shortages during critical stages of crop growth and contribute to raising groundwater levels in nearby open wells and borewells. The interventions also enabled more efficient irrigation management and improved drainage across the surrounding agricultural lands.

Water channel reclamation sites completed during the project period:

- Karumanthagudi Kanmai, Karumanthagudi village (North, South and Middle channels)
- Kadiyavayal Kanmai, Kadiyavayal village

This activity was completed before the onset of the rainy season to maximise water capture and storage. Throughout the process, local community leaders and farmers were consulted to ensure that the interventions addressed the most pressing water management challenges in each village.

## Deepening of Kanmai/Tank

The village water tanks (Ooranis) in the project area had not been cleaned or de-silted for many years and had become overgrown with bushes and Prosopis juliflora. To restore their water-holding capacity and improve groundwater recharge, three Ooranis were deepened during the reporting period:

- Veeramma Kaliyamman Kovil Oorani, Karumanthagudi village
- Maruthupandi Oorani, Adhappadakki village
- Ayyanar Kovil Oorani, Kadiyavayal village

These activities were completed before the rainy season, helping the tanks capture and store larger quantities of rainwater for community and agricultural use.

## Field Bund Construction

Field bunds, also known as earth embankments, were constructed to improve soil and water conservation in rain-fed agricultural areas.

The total grant allocated for this activity during the second year was Rs. 22,500, supporting the construction of 500 metres of field bunds. Four farmers benefited from this intervention in:

- Panagudi
- Karumanthagudi
- Ettiyandral
- Navathavu

Field bunds provide several important benefits:

- Prevent fertile topsoil from being washed away during heavy rainfall.
- Store rainwater within agricultural fields, reducing the need for additional irrigation.
- Improve soil moisture retention.
- Support rain-fed agriculture by maximising the use of limited water resources.
- By strengthening water retention and reducing soil erosion, field bunds contribute to improved agricultural productivity and climate resilience for smallholder farmers.

# 2. Soil Health Improvements

Healthy soils are fundamental to sustainable agriculture, improved crop yields and long-term climate resilience. During the reporting period, the project supported a range of interventions designed to enhance soil fertility, improve nutrient management and reduce dependence on chemical inputs. Activities included soil testing and nutrient analysis, the promotion of bio-fertilisers and organic manure, vermi-compost production, traditional livestock-based soil enrichment practices, and crop rotation with pulse cultivation. Together, these interventions helped farmers improve soil health, strengthen agricultural productivity and adopt more sustainable and environmentally friendly farming practices.

## Soil Testing and Soil Health Cards

To better understand soil conditions and support sustainable agricultural practices, soil samples were collected from participating farmers and sent for laboratory analysis. The tests assessed both macro and micro nutrients present in the soil.

Once the Soil Health Cards are received, project staff will work closely with individual farmers to explain the results, including which nutrients are present in high or low quantities. Farmers will also receive guidance on suitable crops, nutrient requirements, and appropriate fertiliser applications based on the specific conditions of their fields.

In the next reporting period, farmers receiving Soil Health Cards will continue to receive support through integrated nutrient management approaches tailored to the nutrient needs of their land.

## Integrated Nutrient Management

As part of efforts to improve soil fertility and reduce dependence on chemical inputs, 50 farmers from Kadiyavayal, Karumanthagudi, Ettiyandral and Adhappadakki villages received SPIC VONDER MAX, a bio-fertiliser based on Vesicular Arbuscular Mycorrhiza (VAM) technology.

The granular bio-fertiliser penetrates the plant root system and enhances nutrient absorption from the soil. Farmers applied one 4 kg packet per acre, mixed with sand, approximately 15–20 days after paddy transplantation.

Benefits reported include:

- Increased root biomass and stronger plant development.
- Improved absorption of nutrients such as phosphorus, nitrogen, calcium, zinc and magnesium.
- Enhanced plant immunity and natural defence mechanisms.
- Stronger root and shoot growth.

Following harvest, farmers reported improved crop performance and higher paddy production in fields where the bio-fertiliser had been applied.

## Vermi-Compost Demonstration Units

To promote organic soil management practices, vermi-compost demonstration units were established with selected farmers who combined livestock rearing with farming activities.

The intervention involved:

- Selection of suitable beneficiaries with milch animals.
- Construction of vermi-compost beds measuring 10 feet long, 3 feet wide and 4 feet high.
- Filling beds with cow dung and regular watering.
- Introduction of 8 kg of earthworms into each unit.
- Ongoing maintenance for approximately 45 days.
- Harvesting and application of nutrient-rich organic compost.

The first harvest produced approximately 15 bags (around 750 kg) of vermi-compost, which farmers applied to coconut trees and other crops. Beneficiaries expressed great satisfaction at being able to produce high-quality organic fertiliser directly on their farms.

AVI partners visited one of the vermi-compost units in Karumanthagudi village during a field visit on 31 January 2026.

Key benefits include:

- Increased microbial activity and improved soil aeration.
- Enhanced water retention capacity.
- Supply of essential macro and micro nutrients in forms readily available to plants.
- Improved plant growth and crop productivity.

## Crop Rotation and Pulse Cultivation

To maintain soil fertility and improve nutrient cycling, farmers were encouraged to adopt crop rotation practices following the harvest of dry-land paddy crops.
Twenty farmers participated in this intervention, each contributing Rs.375 towards a unit cost of Rs.1,500.

Farmers planted Vamban 8 black gram after harvesting paddy. Pulse cultivation helps replenish soil nutrients naturally, particularly nitrogen, while reducing pest and disease pressures associated with continuous monocropping. The practice also provides an additional source of income and food security for farming households.

## Kidai Amaithal (Traditional Livestock-Based Soil Enrichment)

Kidai Amaithal is a traditional soil enrichment practice widely used across the project area. The method involves temporarily fencing harvested farmland and keeping large numbers of goats and sheep overnight so that their dung and urine naturally fertilise the soil.

During the reporting period, 40 farmers benefited from this intervention.

Typically, groups of farmers jointly organise Kidai Amaithal activities. For example, around 550 sheep and 50 goats may be kept on one acre of land for five days, providing substantial organic nutrient inputs. Temporary shelters are also established for young animals, and livestock are monitored throughout the night.

Benefits include:

- Improved soil fertility through natural organic fertilisation.
- Reduced dependence on chemical fertilisers.
- Lower cultivation costs, with fertiliser expenses reduced to approximately one-third of previous levels.
- Reduced incidence of pests and diseases in paddy crops.
- Increased earthworm activity and improved soil structure.

This traditional practice continues to play an important role in maintaining soil health while preserving local agricultural knowledge.

## Supply of Cow Dung Manure Powder

Originally planned as a tank-silt application activity, this intervention was adapted to provide cow dung manure powder to farmers as an effective and locally available soil amendment.

A total of 40 farmers each received ten 50 kg bags of cow dung manure powder.

The process involved:

- Identifying areas with sufficient cow dung availability.
- Collecting and transporting material by tractor.
- Drying, crushing and sieving the manure.
- Employing local women farmers in processing and packaging activities.
- Distributing the finished manure powder to participating farmers.

Benefits of the intervention include:

- Improved soil nutrient levels through a rich source of nitrogen, phosphorus and potassium (NPK).
- Reduced expenditure on chemical fertilisers.
- Use of a low-cost, locally available organic resource.
- Long-term benefits, with soil improvements expected to last for up to five years.
- Improved soil texture and easier ploughing of agricultural land.

Farmers reported that the manure powder was both practical and highly beneficial for improving soil fertility and supporting sustainable farming practices.

# 3. Sustainable Natural Resource Managerment and Livelihood Security

Sustainable livelihoods depend on healthy natural resources, resilient farming systems and access to diverse income-generating opportunities. During the reporting period, the project supported a range of interventions designed to strengthen both environmental sustainability and household economic security. Activities included afforestation, backyard fruit cultivation, the introduction of innovative farming technologies such as drone-based fertiliser application, livestock-based livelihood support through goat rearing, and improved fodder cultivation. Together, these interventions helped farming families diversify income sources, enhance agricultural productivity, improve nutrition, strengthen climate resilience and promote the sustainable management of natural resources for future generations.

## Afforestation

To improve environmental sustainability and strengthen natural resource management, 25 farmers received a range of tree saplings, including Neem, Pungan, African Kaya, Eluppai (Mahua), Mahogany and May Flower trees. These were planted on common land and around temples across the project villages.

Tree plantation activities contribute significantly to climate resilience and environmental protection.

Benefits of Tree Plantation:

- Trees absorb carbon dioxide and release oxygen, helping to mitigate climate change and reduce global warming.
- Tree cover improves water conservation and reduces soil erosion.
- Trees provide habitat and food sources for insects, birds, fungi and other organisms that support healthy ecosystems.
- Afforestation improves biodiversity and contributes to long-term environmental sustainability.
- Tree planting helps create greener and healthier village environments for future generations.

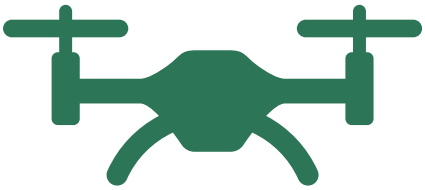
## Backyard Fruit Cultivation

To strengthen household nutrition and diversify livelihood opportunities, 20 farmers from Adhappadakki and Karumanthagudi villages received fruit tree saplings, including Mango, Sapota, Lemon, Guava and Jackfruit.

The initiative encourages families to establish backyard fruit gardens that provide both nutritional and economic benefits.

Benefits of Backyard Fruit Cultivation:

- Families gain access to fresh, nutritious and locally grown fruits.
- Surplus produce can be sold, providing an additional source of household income.
- Fruit trees create habitats for birds, bees, butterflies and other important pollinators.
- Fallen leaves contribute organic matter to the soil, improving fertility.
- Gardening activities help strengthen people's connection with nature and promote wellbeing.



## Application of Fertiliser through Drone

As part of efforts to introduce innovative and climate-smart agricultural practices, an experimental demonstration of drone-based fertiliser application was conducted in Karumanthagudi village following a training programme on drone technology.

The drone, generator and supporting equipment were transported to the village and used to apply Nano Urea and Liquid Potash mixed with water. Spraying was carried out during the early morning to maximise effectiveness.

Drone-based liquid fertiliser application is a precision agriculture technology that uses unmanned aerial vehicles (UAVs) to deliver nutrients directly to crops.

Benefits of Drone-Based Fertiliser Application:

- Enables targeted, uniform and efficient nutrient
- Reduces labour requirements and associated costs.
- Lowers water consumption during fertiliser application.
- Delivers nutrients directly to plant leaves for rapid absorption.
- Covers large areas quickly, with approximately one acre treated in 15 minutes using a 10-litre tank.
- Reduces farmers' exposure to chemicals and minimises health risks during application.

The demonstration generated considerable interest among local farmers and highlighted the potential of modern technologies to improve agricultural productivity and resource efficiency.

## Goat Rearing

Goat rearing support was provided to 25 women farmers as a livelihood enhancement activity. Each participant contributed Rs.3,000 towards the unit cost of Rs.12,000.

Beneficiaries were selected based on their ability to rear goats and the availability of suitable goat-shed facilities at their homes.

Benefits of Goat Rearing:

- Provides an additional and reliable source of household income.
- Requires relatively low initial investment compared with other livestock enterprises.
- Goats are easy to manage due to their small size and adaptable nature.
- Offers financial support to families during times of economic hardship.
- Produces manure rich in nitrogen and potash, contributing to improved soil fertility.
- Supports women's economic empowerment through ownership of productive assets.

The activity strengthened livelihood security while helping women build income-generating opportunities within their own communities.

## Fodder Cultivation

To support livestock development and improve the availability of quality animal feed, fodder cultivation was introduced as a new activity within the project areas.

Ten farmers benefited from the intervention. Participants received rooted slips of the high-yielding CO-6 fodder variety for cultivation.

CO-6 is a Cumbu Napier hybrid grass developed by Tamil Nadu Agricultural University (TNAU) and is recognised for its high productivity and nutritional value.

Benefits of CO-6 Fodder Cultivation:

- Produces exceptionally high green fodder yields of approximately 385–400 tonnes per hectare per year.
- Contains around 10.2% crude protein and 30.5% crude fibre, providing excellent nutrition for cattle, goats and sheep.
- Supplies continuous fodder for three to four years after establishment.
- Ensures reliable year-round access to green fodder.
- Soft stems and leafy growth make it highly digestible for livestock.
- Supports improved livestock productivity and reduces feed shortages.

By strengthening feed availability, the activity contributes to improved livestock health, increased milk production and greater livelihood resilience for farming households.

# 4. Capacity Building and Institutional Development for Reducing Climate Risks

Building the knowledge, skills and adaptive capacity of farming communities is essential for strengthening resilience to climate change. During the reporting period, the project supported a range of learning opportunities, including training programmes, exposure visits, practical demonstrations and livestock health services. These activities helped farmers gain a better understanding of climate-smart agriculture, integrated farming systems, emerging technologies and improved livestock management practices. By enhancing local knowledge and encouraging the adoption of sustainable farming approaches, the project is supporting communities to reduce climate-related risks, improve agricultural productivity and strengthen long-term livelihood security.

## Exposure Visit on Climate-Smart Agriculture

On 21 and 22 March 2026, farmers from the project villages participated in an exposure visit to RVS Agriculture College, Sengipatti, near Thanjavur, to learn about Climate-Smart Agriculture and Integrated Farming Systems (IFS).

The visit provided participants with an opportunity to observe a range of innovative agricultural technologies and practices, including:

- Integrated Farming Systems
- Mushroom cultivation units
- Shade-net cultivation
- Orchard management
- Agro-meteorological observatories

Farmers also learned about the Government of India's emerging voluntary carbon credit initiatives and explored how climate-smart agricultural practices can contribute to environmental sustainability while generating additional economic opportunities.

The exposure visit enabled participants to exchange experiences with farmers from other districts across Tamil Nadu and gain practical insights into technologies that can be adapted within their own farming systems.

## Training on Integrated Farming Systems and Climate Adaptation

A training programme on the formation and management of Integrated Farming Systems (IFS) was conducted on 23 January 2026 at the Punjab National Bank Training Centre in Pillayarpatti, Sivagangai District.

Integrated Farming Systems combine crop cultivation, livestock rearing, aquaculture and agroforestry into a single interconnected system that maximises productivity while minimising waste. Resources generated by one component are used by another, creating a more efficient and sustainable farming model.

Key topics covered during the training included:

- Sustainable resource management
- Recycling of farm waste
- Integration of crops and livestock
- Improving farm productivity and profitability
- Climate resilience and adaptation strategies
- Food and nutrition security

Farmers recognised Integrated Farming Systems as an important climate-resilient approach that can help reduce risks associated with changing weather patterns while improving household income and agricultural sustainability.

Benefits discussed during the training included:

- Increased agricultural productivity
- Diversified and year-round income sources
- Enhanced employment opportunities within farming households
- Improved soil fertility and resource efficiency
- Greater resilience to climate-related shocks
- Improved nutrition security

## Training on Drone Technology for Agriculture

As part of efforts to introduce innovative agricultural technologies, a practical training programme on the use of drones in agriculture was conducted on 31 October 2025.

The training, supported through a grant allocation of Rs.20,000, was held directly in farmers' fields and included live demonstrations of drone operations for agricultural applications.

The training focused on:

- Selection of appropriate liquid fertilisers
- Determining suitable application rates
- Safe handling and operation of agricultural drones
- Precision nutrient management techniques

Following the training, farmers decided to utilise drone technology for the application of liquid fertilisers across approximately 60 acres of standing paddy crops where crop growth stages were similar. The programme demonstrated how modern precision agriculture technologies can reduce labour requirements, improve efficiency and support climate-smart farming practices.

## Livestock Care and Animal Health Training

Recognising the importance of livestock as a key livelihood asset for rural households, a Livestock Care Camp was organised on 21 February 2026 at Ettiyandral village with financial support from Action Village India.

Farmers from Ettiyandral and neighbouring villages attended the camp and received guidance from qualified veterinary professionals on animal health management and scientific livestock rearing practices.
Services provided during the camp included:

- Health check-ups for cows, goats and sheep
- Distribution of free medicines, de-wormers and nutritional supplements
- Artificial insemination services for cattle
- Diagnosis and treatment of common livestock illnesses
- Advice on nutrition and animal husbandry practices

The camp helped farmers improve livestock health, productivity and reproductive performance while reducing the financial burden of accessing veterinary services. Improved livestock management contributes directly to household income, food security and resilience during periods of climate and economic stress.

Through these capacity-building activities, farmers gained practical knowledge of climate adaptation, sustainable agriculture, livestock management and emerging technologies. Together, these interventions are helping communities strengthen their resilience to climate risks while improving agricultural productivity and livelihood security.

# Climate Risk and Adaptation Initiatives During the Reporting Period

During the monsoon period (October to December) in the project areas, paddy was planted with the expectation of regular rainfall. Initially, the North East Monsoon performed well. However, in the middle of the monsoon season, there was a prolonged dry spell with no rainfall. As a result, paddy crops in the project areas began to dry up.

During this period, the water conservation interventions undertaken under the project before the monsoon season—including farm ponds, field bunds, pond deepening, sluice reclamation works, and water channel reclamation works—proved extremely valuable in protecting standing paddy crops in the project areas. After a long wait for rainfall, the rains finally arrived during the third week of December 2025 and the first week of January 2026. Consequently, paddy crops in the project areas recovered and grew well, while crops in some nearby areas were adversely affected by the dry spell.

During the third and fourth weeks of January, farmers harvested their paddy using harvesting machines, making the labour-intensive process simpler and more efficient. Paddy straw was collected from the fields and transported to farmers' homes over the following two to four days for use as livestock fodder.

During a field visit by AVI partners on 31 January 2026, the team interacted with farmers and enquired about crop yields. Farmers reported that yields were significantly better than in the previous year due to the water conservation activities implemented through the project, which provided timely support to paddy cultivation. They expressed their gratitude to AVI for its support through the project, Climate Resilient Initiatives at Adhappadakki Mini Watershed Areas.

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Following discussions with farmers, the AVI partners' team visited the harvested paddy fields. Paddy straw collected from the harvest remained in the fields during the visit. Farmers across the project areas expressed great satisfaction with the positive changes brought about by the project.

Farmers are increasingly experiencing the impacts of climate change on agriculture. In this context, the Climate Resilient Initiatives project has had a positive impact on the lives of agricultural labourers, marginal farmers, and smallholder farmers across the project areas.

# Proposed Action Plan for the Next Reporting Period (April 2026 to September 2026)

The following activities will be undertaken during the next reporting period:

**Water Conservation Structures and Techniques**

- Field bund construction
- Farm pond construction
- Deepening of ooranis
- Reclamation work of madais

**Soil Health Improvement**

- Supply of cow dung manure powder
- Application of bio-fertilisers and micronutrients to soil

**Sustainable Natural Resource Management and Livelihood Security**

- Palm tree promotion

**Capacity Building and Institutional Development for Reducing Climate Risks**

- Training on climate adaptation techniques

# Action Village India

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