



# **An Impact Assessment Report for CSR Initiatives of Holistic Environmental and Agriculture Development Project**

Tiruvannamalai and Krishnagiri Districts, Tamil Nadu

Implementation partner:

National Agro Foundation Research and Development Center, Chennai, Tamil Nadu



Study conducted by



Indian Institute of Forest Management, Bhopal



## Summary

The Titan Ltd. CSR initiative spearheaded by the National Agro Foundation Research and Development Center is designed to enhance food security, avert environmental degradation, and foster sustainable living. This is achieved through the incorporation of comprehensive strategies such as agro-ecology, biodiversity conservation, and active community involvement. The Holistic Environmental and Agriculture Development Project aims to develop resilient and thriving communities that harmoniously coexist with the environment by synergizing human needs with ecological preservation through collaborative and innovative methods.

This project specifically targets rural populations in two clusters: Thazhaiyuthu in Tiruvannamalai and Beemandapalli in Krishnagiri, employing an integrated approach to village development that focuses on both environmental sustainability and livelihood enhancement. The project employs a thorough strategy for natural resource conservation and augmentation, alongside promoting livelihoods through the development of grassroots institutions, involving extensive participation from local communities and households. This tailored approach is particularly well-suited to the needs of the project villages.

While the water harvesting structures are still in the early stages of providing benefits, certain site-specific installations have begun showing promising results, contingent upon adequate rainfall to fill the tanks. Additionally, initiatives such as agroforestry and farm forestry are being promoted to mitigate the effects of climate change, leveraging their resilience to fluctuating weather patterns.

Furthermore, initiatives aimed at enhancing livelihoods through skill development and capacity building have started to show positive outcomes. As the project is just in its first year, there is optimism that with the full and enhanced implementation of its components, it will successfully meet its objectives and deliver substantial results.

The project implementation agency has successfully mobilized the community and engaged thematic specialists in every activity of the project. The ultimate success of the project, however, hinges on the community's ability to leverage more government schemes and projects, facilitated by local leaders and the panchayat.

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IIFM, Bhopal

## Table of Contents

Summary .....	ii
Acknowledgement.....	iii
Introduction: .....	0
Brief about the project .....	0
Objectives .....	0
Study approach.....	0
Major development activities .....	1
Natural resources management.....	1
Training and demonstration .....	1
Technical Training.....	1
Livelihood Support for Women .....	2
Impact assessment .....	4
Water resources creation .....	4
Percolation pond.....	4
Sunken pits.....	6
Farm pond.....	7
Masonry check dams.....	10
Channel clearance.....	11
Borewell recharge .....	13
Soil and moisture conservation .....	14
Field bunds and field bund with outlets.....	14
Agro Forestry, Agro-horticulture.....	17
Fodder development .....	20
Home Garden .....	22
Livelihood Support for Women .....	23
Household dairy development .....	24
Goatery .....	27
Organic farming input.....	29
Backyard Poultry .....	30
Solar dryer .....	32

# Holistic Environmental and Agriculture Development Project



Training and demonstration .....	33
Agriculture Technical Training .....	34
Health camps for Livestock .....	35
Exposure Visits .....	37
Overall suggestions for future development.....	38
Annexure – I Data collection format .....	41

## List of tables

<b>Table 1. Progress in Thazhaiyuthu cluster, Tiruvannamalai district</b>	2
<b>Table 2 Progress Checklist of Beemandapalli cluster, Krishnagiri Dist.</b>	3

## Introduction:

At the nexus of environmental preservation and agricultural progress, the Holistic Environmental and Agriculture Development Project represents a complete approach to sustainable development. The initiative seeks to ensure the preservation of natural resources while boosting agricultural productivity and resilience by fostering harmonious interactions between agriculture, ecosystems, and communities through integrated techniques. The initiative aims to improve food security, prevent environmental deterioration, and generate sustainable lifestyles by integrating holistic principles like agro-ecology, biodiversity conservation, and community participation. The goal of the Holistic Environmental and Agriculture Development Project is to create resilient and prosperous communities that live in peace with the environment by balancing human needs with environmental care through cooperative efforts and creative approaches.

## Brief about the project

The three-year project (implementation period from 2022 to 2025) is being implemented the NAF in two clusters of Tirunnamalai and Krishnagiri Districts of Tamil Nadu. The Project

**Objectives** of the project is to:

- Conservation of environment especially soil and water leading to improved quality of life of resource poor families.
- Sustainable Income generation by promotion of agro-horti; agr-forestry tree combinations.
- Enhancing agricultural productivity and farm based green livelihoods through organic farming technology.
- Improving the socio-economic condition of women and other socially challenged sections to reduce poverty

The project target to benefit the rural communities of two clusters, namely, Thazhaiyuthu (villages: Porasapattu, Arattavadi and Thazhaiyuthu), Tiruvannamalai and Beemandapalli (villages: Beemandapalli, Puliyanchery and Gollapalli), Krishnagiri with their integrated village development approach while addressing the environment and livelihood aspects of the project villages.

## Study approach



## Holistic Environmental and Agriculture Development Project

The methodology employed in this study was participatory, focusing on the identification of impact indicators derived from secondary data provided by the project implementation agency and through interactions with beneficiaries. These indicators were organized into three main categories: socio-economic, economic, and environmental/ecological, each with its specific impact parameters measured in various units.

To assess these impacts, a questionnaire was developed, which was then reviewed by the project implementation agency to incorporate their insights and additional secondary data. Based on this refined information, the selection of sample villages and beneficiaries was finalized in collaboration with the project implementation agency (PIA). The villages selected for the study were those where numerous sub-components of the project were implemented, allowing for a comparative analysis of the levels of impact.

Although the sample size remained within the target range of 5-10% of the total project scope, considerations were also made regarding the unique characteristics of the beneficiaries and the extent of impact, to gain a deeper understanding of the nuances associated with project implementation and its effects.

Ultimately, from the three clusters originally considered, two were selected for visits. In total, 4 villages were included in the study for detailed beneficiary-level data collection, ensuring a comprehensive evaluation of the project's impacts.

**Major development activities** during study reference period, 2022-2023 were:

### **Natural resources management:**

Water Resources development: Farm Pond, Farm Pond Inlet, Well (Bore well) recharge, and recharge pits, Percolation pond, Channel clearance, Masonry Check Dam, Sunken pits

Soil and Moisture conservation: Field Bund Outlet, Grass seeding/ Vettiver slips

Plantation & Sustainable Agriculture: Agroforestry (Individual and common), Fodder development and home garden (vegetable cultivation)

**Training and demonstration:** Orientation Training for individuals and CBOs, Agriculture

**Technical Training,** Livestock Health camps, Exposure Visits

## Holistic Environmental and Agriculture Development Project

**Livelihood Support for Women:** Backyard Poultry, Dairy (cattle unit), Goatery, Organic farming (vermicomposting, compost, other waste to fertilizer, e.g. Amino acid, fish pond as a result of training and capacity building programs) and solar drier

Table 1. Progress in Thazhaiyuthu cluster, Tiruvannamalai district

S. No	Activities/ Treatments				
<b>A</b>	Natural Resources Management	Units	Qty	Cost (Rs)	Achievement (%)
	Water Resources development				
<b>I</b>	Farm Pond	Cum	9382	684000	164.60
	Farm Pond Inlet (No)	No.	19	125286	100
	Well (Bore well) recharge pit	Nos.	6	195000	100
	Percolation pond	Cum	2304	276504	99.99
	Channel clearance	Cum	11900	1071000	100
	Masonry Check Dam	Nos.	2	1040000	100
	Sunken Pits	Cum	500	45000	100
	<b>II</b>	Soil and Moisture conservation			
Field Bund Outlet (structure dimension)		Cum	11555.28	739800	140.58
Field Bund Outlet		Nos.	60	46800	100
Grass seeding/ Vettiver slips		Nos.	70000	325000	107.69
<b>III</b>		Plantation & Sustainable Agriculture			
	Agro Forestry (No), individual, village common	Nos.	8000	1240000	100
	Agro Horticulture (No), individual	Nos.	8000	2400000	100
	Fodder development(1 unit=10 cent), individual	Nos.	60	165000	200
	Home Garden	Nos.	200	70000	100
	<b>B</b>	Training and demonstration			
Orientation Training for Villagers/ CBOs		Nos.	14	100000	140
Agriculture Technical Training		Nos.	20	195000	153.85
Health camps for Livestock		Nos.	7	60000	233.33
Exposure Visits		Nos.	2	150000	100



<b>C</b>	Livelihood Support for Women				
	Backyard Poultry	Nos.	45	945000	100
	Dairy cattle unit	Nos.	45	2250000	100
	Goatery	Nos.	40	800000	100
	Organic farming input production unit	Nos.	70	1015000	100

*Table 2 Progress Checklist of Beemandapalli cluster, Krishnagiri Dist.*

<b>Water resource development</b>	Unit	Planned	Cost (Rs)	Beneficiary (Nos)	Achievement (%)
Farm pond-inlet	cum	316.4	37968	1	100
Well/ recharge pit	Nos	4	195000	4	100
Channel clearance	cum	3037.77	273399.3	2	100
Field bund cum outlet	cum	2666.4	239976	18	100
<b>Vegetative interventions</b>					100
Agroforestry	No. of plants	4669	723695	47	100
Agro-horticulture.	No. of plants	2302	690600	44	100
Home garden	No. of HH	70	24500	70	100
Fodder development.	HH	16	88000	16	100
<b>Training/ capacity building</b>					100
Orientation Training for Villagers/ CBOs	Nos	7	70000	209	100
Exposure visit	Nos	1	75000	24	100
Azolla cultivation&Vermi-compost Preparation training.	Nos	4	60000	83	100
Panchagavya (Organic manure) Preparation Training	Nos	1	15000	29	100
Health camps for Livestock	Nos	2	40000	325	100
<b>Livelihood</b>					100
Dairy cattle unit	Nos	6	300000	6	100

Goatery	Nos	10	200000	10	100
Organic farming input	Nos	10	145000	10	100
Poultry	Nos	10	210000	10	100
Solar Dryer	Nos	1	120680	1	100

## Impact assessment

### Water resources creation

The construction of water resources infrastructure in the rural Tamil Nadu is an innovative endeavour meant to improve agricultural sustainability and tackle the urgent problems of water scarcity. The project intends to enhance groundwater recharge in rural regions and increase water availability, especially during dry seasons, by building water collecting facilities such farm ponds, check dams and percolation tanks, stream bed modification and clearing, etc. These measures, which capture surface runoff and rainwater, improve agricultural output while also lessening the negative effects of climatic unpredictability and drought on rural people. Additionally, the programme encourages community ownership and engagement, enabling locals to actively participate in water management techniques and sustainably use this priceless resource for their livelihoods. In the end, the development of water resources in rural villages of the project districts.

### Percolation pond

In the dry areas of the project area, percolation ponds are an essential component of the water management system. During times of precipitation, these structures are essential for collecting and storing rainfall runoff, which helps to maintain nearby ecosystems and replenish groundwater supplies. During arid periods, water seeped through these formations to create groundwater. This serves as an essential supply of water for irrigation, allowing farmers to grow crops even in the absence of precipitation. Additionally, percolation ponds guarantee fair access to water resources for rural people and lessen conflict connected to water scarcity. Overall, the use of percolation ponds in the project's arid areas promotes environmental sustainability and socioeconomic growth in the area in addition to increasing the amount of water available for agricultural use.

Percolation pond, Golapalli village, S.F. No. : 62

Geographic location: Constructed in the transition zone of the watershed, and structure is strategically located, having adequate catchment area to fill the tank. Further, the structure is constructed in the village common land.

## Holistic Environmental and Agriculture Development Project

Design and volume created: berm, top and bottom width of the bund is based on the soil, slope and structure dimension and created total volume of 2300 cum.

Level of community participation in the activities, including creation or support of the village grassroots institution, institution savings (if any), benefit sharing mechanism?



User group or village development committee took the responsibility of creation of the structure. The committee has supported in excavation of percolation pond and contributed their share as work, hiring of tractors, support in supervision during the excavation etc.

The tank is yet to be filled, however community expressed that it will benefit them in terms of

- It is expected to improve groundwater level in the area and may impact 4 villages.
- Prevent loss of water due to runoff,
- Improves Groundwater recharge and water level in the wells,
- Extended water supply (period) to support the livelihood creation
- Help to irrigate and bring more land under cultivation
- Better cropping pattern, including introduction of cash crops

### General observations and suggestions

Percolation ponds, in the project villages play a crucial role in water conservation and management. Observations suggest that effective implementation of percolation ponds requires a comprehensive understanding of local hydrology, soil characteristics, and community involvement. In the project villages this percolation ponds serve as vital reservoirs for capturing and retaining rainwater, mitigating the impacts of drought, and replenishing groundwater levels. This pond going to impact more than 35 wells and 4 village of the command areas. However, the actual impact would be known when it fills with rainwater. Specific recommendation is to create few feed in channels looking at the size of the pond created, this will increase the catchment areas. Regular maintenance to ensure functionality of the pond, which include the silt flow, etc. Moreover, community participation and awareness programs are essential for sustaining these initiatives, fostering a sense of ownership, and promoting long-term water security in the region. Additionally, integrating modern technologies like remote sensing and GIS mapping can aid in better planning and monitoring of percolation pond projects, optimizing their effectiveness in water resource management amidst the challenges of arid environments.

### Sunken pits

Sunken pits, frequently established in rural villages, represent innovative solutions to combat water scarcity and foster sustainable agriculture. Strategically dug in areas prone to water accumulation during the rainy season, these pits facilitate rainwater infiltration into the ground, effectively replenishing groundwater levels and enhancing soil moisture retention. Primarily used for rainwater harvesting, these pits collect rainfall during the monsoon, gradually percolating water into the soil to recharge underground aquifers. This stored water serves multiple purposes during dry spells, including irrigation, livestock watering, and household needs, thereby reducing dependence on erratic rainfall patterns. The increased groundwater recharge from sunken pits helps rural communities withstand the adverse impacts of droughts and water shortages, bolstering their resilience against climate variability. Furthermore, the construction of sunken pits encourages community participation and collaboration, fostering social cohesion and collective responsibility among villagers. Through shared management and maintenance efforts, communities develop a sense of ownership over their water resources, promoting sustainable practices and equitable distribution.

i. Sunken pits, Gollapalli, S.F. No.: 57

Geographic location: A cost effective structure created near the villages, Transition Zone of the watershed, strategically located in the river channel, sufficient length and width of the river channel, where slope is slight or negligible and sunken pits have been made in succession in the river bed.

Quantity excavated: 500 cum

Level of community participation in the activities, including creation or support of the village grassroots institution, institution savings (if any), benefit sharing mechanism?

Village development committee has been the responsible institute for the structures, which is being created in common land. The committee had supported in the excavation of pits/ trench through the people's contribution. Hiring of tractors, support in supervision during the excavation for easy and smooth implementation, etc. have been the major contribution and community participation in the project work.



Benefit due to the activities: It acts as a silt detention pit and prevents siltation in the waterbodies located in downstream area. Slows down the runoff, and helps to prevent damage on the bunds and structures. These pits also increase the resident time and contact area rainwater, which eventually increase the bank infiltration and groundwater level in the surrounding and downstream areas. It is expected that these pits will improve groundwater augmentation and water discharge from the wells and support irrigation and other livelihood activities.

### Suggestions:

Sunken pits are invaluable assets for rainwater harvesting, especially in arid regions like the project villages. To maximize their effectiveness and locate them appropriately, understanding the aquifer and recharge potential is paramount. This involves conducting hydrological mapping and carefully selecting sites, prioritizing those with high runoff potential and close proximity to catchment sources. Proper sizing based on anticipated rainfall and local water needs ensures efficient water retention without the risk of overflow or wastage. Moreover, exploring additional locations for such structures beyond the river channel in the project villages presents further opportunities. Incorporating inlet structures like surface channels or gutters directs rainwater efficiently into the pit, thus enhancing collection efficiency. Regular maintenance, including desilting and debris removal, is essential to prevent clogging and maintain optimal storage capacity for sustained water availability.

### Farm pond

An essential part of agricultural water management is a farm ponds, which acts as a reservoir to collect and hold runoff or rainfall from the surrounding area. Typically, these ponds are built on agricultural property to alleviate water scarcity, improve irrigation capacities, and support other sources of income like fish farming, etc. Because they offer a consistent supply of water for crops, livestock, and other agricultural activities—especially in dry spells or dry seasons—farm ponds are essential to sustainable farming methods. Farm ponds enhance soil moisture content, boost agricultural output, and lessen the negative consequences of water scarcity by collecting and storing precipitation.

i. Farm pond, Thazhaiyuthu village S.F. No. 108

For water storage constructed with a design, square or rectangle depending on the availability of land. It is excavated at the low-lying areas across the slope with the supply source of water in agricultural land. Though the prime utility of the pond is to support rain fed farming operations at the critical period of crop production, it also helps in retaining soil moisture and improves ground water table.

Name of the farmer: Mr. Boopathy

Quantity excavated: 315 cum.

Designing aspects: The length, breadth and depth of the pond depends on the site condition whereas the overall design aspects like berm, top and bottom width of the bund, etc. followed standard engineering design.

Individual beneficiary of the component, hence he is responsible for the maintenance of the structure. He contributed for the activity in terms of support during the excavation work, bush clearance, etc.

Benefit due to the activities. The rainfall since the construction of the structure is not negligible and the following benefits is envisaged by the beneficiary.



construction

- Improves Ground water recharge.
- Availability of water for additional period of time.
- Increase water availability and helps in irrigation of water for raising crops.
- Prevents run off loss and wastage of water.
- Can be used to do fish farming activity.
- Received labour/ wages during

### Observations and Suggestions:

Farm ponds represent a crucial tactic for water conservation and management within study clusters. Employing high-resolution topographical surveys assists in pinpointing ideal sites for constructing these ponds, ideally within natural depressions or low-lying areas where rainfall runoff naturally accumulates. Encircling these farm ponds with indigenous vegetation serves to fortify soil stability, thwart erosion, and amplify groundwater replenishment, with deep-rooted trees and grasses proving particularly advantageous. Furthermore, integrating water harvesting structures such as rooftop rainwater collection systems, contour trenches, and percolation pits with farm ponds bolsters their water storage capacity and recharge potential, thereby optimizing their efficacy in sustaining water resources.

ii. Farm pond Beemandapalli, Beneficiary Shivaji and Ratna

Farm pond is serving and helping to irrigate as well as fish farm. Due to water availability, cattle has been procured and getting alternate livelihood. Cow dung is being used for compost and vermi composting, and being used in the cultivation. They believe that the fish crop may value about Rs. 3.00 lakh with a profit of Rs. 1 lakh. The fodder crop has helped to save money and now the fodder crop only saving them Rs. 1200.00 per day.

They are now motivating and sharing their experiences with the fallow farmers and neighbouring villages, which resulted into more land brought under fodder crops in the village by 15 more farmers.

Observation and suggestions:

Farm ponds serve as crucial reservoirs for rainwater, essential for various activities such as fishery, irrigation, and livelihood generation. According to Varada Raj, he constructed a pond measuring 45 x 100 feet with a depth of 1.5 meters. He fills the pond using water from the river as well as groundwater sources. Varada Raj stocked the pond with approximately 3000 fish fingerlings, of which 50% survived. He anticipates a yield of about 500 kilograms of fish after a gestation period of 4-5 months. The monthly input cost for maintaining the pond is approximately Rs. 2500. However, in instances where rain is scarce or negligible, farmers resort to pumping groundwater to fill fishponds created on their farmland. This practice, while common in areas with ample water availability like coastal regions, exacerbates the strain on limited groundwater resources. To alleviate this pressure and ensure sustainable water usage, alternative solutions must be explored.

One such solution involves collaborating with nearby municipalities to access partially treated wastewater for recharging these ponds. This approach is already being practiced in peri-urban and surrounding villages of major cities. By utilizing treated wastewater, farmers can supplement the water supply for their ponds without overreliance on groundwater extraction. This not only conserves precious groundwater resources but also supports local livelihood activities such as fishery, contributing to the economic well-being of the community.

By adopting innovative water management practices and fostering collaboration between agricultural communities and municipal authorities, it's possible to alleviate the strain on groundwater reserves while promoting sustainable agricultural practices and livelihoods.



### Masonry check dams

Masonry check dams are essential constructions found in micro-watersheds that are used to control water flow, stop soil erosion, and encourage groundwater recharge. For these soft engineering buildings to endure the test of time and the power of flowing water, they are usually constructed from sturdy materials like stone, bricks, or concrete. Masonry check dams, when placed strategically in streams, aid in lowering water velocity, allowing silt to settle and minimising erosion downstream. They improve soil fertility and aid in groundwater replenishment by retaining sediment and delaying the flow of water. Additionally, during dry spells, brick check dams produce little reservoirs behind them that can be used for residential purposes, livestock watering, and irrigation.

i. Masonry check dams, Arattavadi village, S.F. No. 113

Masonry check dams are constructed across the channel or gullies where the expected flow velocity of the gully is very high and the bed of the gully is deeper enough to harvest rainwater. It helps in reducing the velocity of the water considerably, allowing the deposition of soil particles and increasing the ground water level through percolation.



## Holistic Environmental and Agriculture Development Project

The structure is constructed in the community land, situated in the transition zone of the watershed and the length of the structure is about 8 m.



Village development committee is the responsible institute for the structures created in common land. The committee had supported in the excavation of percolation pond through the people's contribution. Hiring of tractors, support in supervision during the excavation for easy and smooth implementation, labour arrangement support, etc. are few community participation aspects of the

component.

Benefit due to the activities. Since the construction of the structure, the rainfall is negligible and actual benefit would be document once they receive good rain. However, the beneficiaries, expressed the following envisage benefits:

- It is a water harvesting structure constructed in the selected nulla (stream) in the project villages
- It helps in improving the ground water level in the nearby areas.
- Availability of water for irrigation in the due course of time.
- Prevents rain water loss from the watershed villages.

Observation and suggestions:

Check dams prove to be highly effective in the project villages, particularly within the transition zone of the watershed. This effectiveness stems from considerations of the catch land cover, which is poorly stocked, and the sandy-silt soils prone to erosion in the area. Determining the optimal number of such structures along the entire nulla/streams is crucial to maximizing their impact within the watershed. Visiting a check dam revealed notable improvements in the water level within the command area of 20 wells, consequently increasing irrigation capacity by 4 acres of land. Exploring alternative design considerations such as gabion structures or loose boulder check dams is essential to reducing the construction cost of check dams. These cost-effective structures can be seamlessly integrated with masonry check dams to enhance their efficiency further.

### Channel clearance

The primary goal of channel clearance is to improve water resources by clearing debris and impediments from natural streams. This procedure entails clearing silt, weeds, and other invasive species that block water movement in drainage channels and streams.



## Holistic Environmental and Agriculture Development Project

Water may flow more easily through cleared channels, which lowers the possibility of floods during periods of high rainfall and improves the quality of the water by preventing sedimentation and stagnation. Additionally, clearing channels contributes to the restoration of watercourses' natural flow patterns, which is necessary to preserve aquatic ecosystems' health and biodiversity. Better water distribution for irrigation, drinking water supplies, and other human requirements is also made possible by increased water flow.

i. Channel clearance, Porasapattu village, S.F. No. : 11 to 19; 91, 105, 129, 160: Channel Clearance is one of the important drainage line treatments that helps to divert and organize the storm water runoff into the water bodies or higher order streams located in downstream area. If there is no proper runoff channel, then the agricultural and residential area will get flooded during the heavy rainfall which will cause severe damage to the crop and property.

Quantity excavated: 8069 cum.

Designing aspects: Channel with proper contour level has been excavated.

Village development committee is the responsible institution for the structures created in common land. The committee had supported in the excavation of percolation pond through the people's contribution. The community have extended their support in hiring of tractors, support in supervision during the excavation for easy and smooth implementation, etc.

Following are the benefits expressed by the community due to this activity.

- Proper flow of rainwater to the downstream areas facilitating water storage.
- Connect the waterbodies to optimise the benefit of the village ponds.
- It prevents any damage may cause by the flash floods to the crops.

Observation and recommendation:

Channel clearance should duly consider the fluvial morphology, because the natural deposition and erosion morphology will also serve the biodiversity of the area. Instead of channel clearance, one can ideal work-out for box trench and half levees in the broad river channels.

When considering channel clearance, it's essential to take into account the fluvial morphology of the area. This is because the natural processes of deposition and erosion not only shape the landscape but also play a crucial role in supporting the biodiversity of the region. Rather than solely focusing on traditional channel clearance methods, an ideal approach involves exploring alternatives like box trenches and half levees, particularly in broad river channels.

Box trenches and half levees offer distinct advantages over conventional channel clearance techniques. By creating box trenches, it's possible to manage the flow of

## Holistic Environmental and Agriculture Development Project

water more effectively, minimizing erosion while promoting sediment deposition. This can be especially beneficial in areas where erosion poses a significant threat to the stability of riverbanks and surrounding habitats. Additionally, box trenches can provide habitat diversity by creating varying water depths and flow patterns, which can support a wider range of aquatic species.

Half levees, on the other hand, serve as natural barriers that help control the movement of water within river channels. By strategically placing half levees along the banks, it's possible to redirect flow and reduce the risk of erosion in vulnerable areas. This not only helps maintain the integrity of the riverbanks but also preserves the surrounding ecosystem by preventing sediment runoff and habitat degradation.

Overall, by incorporating these innovative approaches into channel management practices, it's possible to achieve the dual objectives of mitigating erosion and supporting biodiversity. This ensures that the natural processes responsible for shaping fluvial morphology continue to thrive, thereby sustaining the ecological health of the area for future generations.

### Borewell recharge

Bore-well recharge initiatives are critical strategies for replenishing groundwater levels, particularly in regions facing water scarcity like project villages. These initiatives involve redirecting rainwater or surface runoff into existing borewells to recharge the aquifer.

Beneficiary: Rajkumar, Beemandpalli

A borewell, reaching a depth of 450 feet, now benefits from diverted field water to recharge its reserves. Employing a double-layered, 2-meter filter system guards against potential groundwater contamination. With an investment of Rs. 32,500, the initiative has proven fruitful, elevating the water level in the well by 20 feet and facilitating irrigation across approximately 2 acres of land.

Buoyed by this success, there are plans to embark on agro-forestry and agro-horticulture ventures, aiming to enhance cultivation practices and yield returns.



### Observations and suggestions

To ensure the effectiveness of borewell recharge projects, careful planning and implementation are essential. Site selection should consider factors such as



## Holistic Environmental and Agriculture Development Project

hydrogeological conditions, borewell depth, and proximity to recharge sources.

The borewell is located in the transition zone of the watershed, there are possibility of rapid base flow from the beneficiary landscape. These structures should be extended to the discharge areas of the watershed to increase its impact and improve groundwater in the intensive cultivated areas. Techniques such as constructing recharge pits or trenches near borewells, installing recharge wells, or utilizing recharge shafts facilitate the percolation of rainwater into the aquifer. Proper filtration systems and sedimentation tanks are often incorporated to prevent debris and contaminants from entering the groundwater system.

### Soil and moisture conservation

Under the site specific intervention, various innovative designing of structures suite to the geographical location can be seen in the project villages. Following structures were created with the community participation in the project villages to demonstrate the impact of such structures and replicate the same in the other areas also.

### Field bunds and field bund with outlets

In order to address soil erosion and water shortage, field bund and correct outlet development are essential components of watershed management measures performed in the project's dry zones. In order to collect rainfall runoff and stop soil erosion, modest embankments or ridges are created along the contours of agricultural fields to create these bunds. Field bunds help infiltration by retaining rainwater, which enables water to seep into the soil and replenish groundwater aquifers. These structures aid in raising soil moisture levels and encouraging vegetation development, which raises agricultural production and strengthens crops' resistance to drought. Field bunds also support sustainable agricultural practices by preventing nutrient loss, lowering surface runoff, and preserving soil moisture.

- i. Field Bund with outlet, Beemandapalli, S F No. : 66, Farmer- Mr. Thimmaranan

Field Bund (Cum): 119.4 Cum and Field Bund Outlet (No): 1

Justification given by the beneficiary for the construction of the structure and their location:

- Field bund is one of the basic and economical way of groundwater recharge,
- It will increase moisture in the field also help to stop the soil and fertility loss from the cultivated land
- They are formed across the slope of the field to harvest rain water and to reduce soil erosion.

## Holistic Environmental and Agriculture Development Project

- It is also used to channelize the rain water into the downstream area in a proper manner which helps in mitigation of rainwater drainage issues.

Field bund cum trenches is created in the private agricultural land and the beneficiary farmers are contributing in terms of labour or payment for the creation of field bund. Village Development committee is very supportive to resolve any issues that arise during the implementation of activity.

Though the rainfall is negligible, benefit due to the activities are explained as below:

- Increase in water harvest potential of the land is 1.19 lakh litres in single fill.
- Prevention of top soil from leaving the agricultural land
- Excess runoff was arrested and made to available for infiltration.
- Ensuring the availability of soil moisture helps in reviving the barren land to cultivable land.
- Improved soil moisture helps to increase the yield.
- Availability of water in open well/ bore well can be prolonged.

- ii. Field Bund with outlet, Oddur village, Survey No. : 202, Farmer – Mr. Varadharaj

Field bund cum trenches is created in the private agricultural land. Farmers are contributing in terms of labour or payment for the creation of field bund. Village Development committee is very supportive to resolve any issues that arise during the implementation of activity.

Following benefits have been reported by the beneficiaries:

- Increase in water harvest potential of the land is 3.03 lakh litres in single fill.
- Prevention of top soil from leaving the agricultural land
- Excess runoff was arrested and made to available for infiltration.
- Ensuring the availability of soil moisture helps in reviving the barren land to cultivable land.
- Improved soil moisture helps to increase the yield.
- Availability of water in open well/ bore well can be prolonged.



- iii. Field Bund with outlet, Village:Aratavadi Sf: 107, Farmer – Mr. Vijayakumar



## Holistic Environmental and Agriculture Development Project

Field bund cum trenches is created in the private agricultural land. Farmers are contributing in terms of labour or payment for the creation of field bund. Village Development committee is very supportive to resolve any issues that arise during the implementation of activity.

Following benefits have been shared by the beneficiaries of the component:

- Increase in water harvest potential of the land is 2.32 lakh litres in single fill.
- Prevention of top soil from leaving the agricultural land
- Excess runoff was arrested and made to available for infiltration.
- Ensuring the availability of soil moisture helps in reviving the barren land to cultivable land.
- Improved soil moisture helps to increase the yield.
- Availability of water in open well/ bore well can be prolonged

iv. Field Bund (Cum): 307 CumField Bund Outlet– 1 Nos.

Name of the Farmer: Pushpa,Village:Porasapattu, Sf: 140/2B

Field bund cum trenches is created in the private agricultural land. Farmers are contributing in terms of labour or payment for the creation of field bund. Village Development committee is very supportive to resolve any issues that arise during the implementation of activity.

Following benefits of the component has been shared by the beneficiary.

- Increase in water harvest potential of the land is 3.07 lakh litres in single fill.
- Prevention of top soil from leaving the agricultural land
- Excess runoff was arrested and made to available for infiltration.
- Ensuring the availability of soil moisture helps in reviving the barren land to cultivable land.
- Improved soil moisture helps to increase the yield.
- Availability of water in open well/ bore well can be prolonged.

v. Field Bund (Cum): 133.56 CumField Bund Outlet –1 Nos.

Name of the Farmer: Vanapathy ,Sf: 112; Village : Thazhaiyuthu

Field bund cum trenches is created in the private agricultural land. Farmers are contributing in terms of labour or payment for the creation of field bund. Village Development committee is very supportive to resolve any issues that arise during the implementation of activity.

Following benefits have been reported by the beneficiary:

- Increase in water harvest potential of the land is 1.33 lakh litres in single fill.
- Prevention of top soil from leaving the agricultural land
- Excess runoff was arrested and made to available for infiltration.
- Ensuring the availability of soil moisture helps in reviving the barren land to cultivable land.



## Holistic Environmental and Agriculture Development Project

- Improved soil moisture helps to increase the yield.
- Availability of water in open well/ bore well can be prolonged.

Observation and suggestions:

Field bunds with outlets play a crucial role in agricultural land management by combating soil erosion, conserving water, and effectively managing runoff. To optimize their effectiveness, it's imperative to conduct soil erosion susceptibility assessments of cultivated land, coupled with high-resolution slope mapping. This data aids in strategically designing field bunds, considering factors such as base and top width along with slope ratio, and locating them in key areas. This strategic approach not only saves money but also optimizes land utilization.

Installing outlets at regular intervals along the bunds is essential to facilitate controlled drainage, preventing waterlogging and erosion. Additionally, planting grasses, shrubs, or other vegetation on the bunds enhances soil structure, reduces erosion, and promotes water infiltration. It's crucial to select native species that are well-adapted to the local climate and soil conditions, ensuring their resilience and effectiveness.

Regular assessment of field bunds' performance in reducing erosion, conserving water, and enhancing soil fertility is vital for informed management decisions. This evaluation process helps in identifying areas for improvement and refining strategies for future implementation. By prioritizing strategic design, proper maintenance, and ongoing assessment, field bunds with outlets can continue to serve as invaluable tools for sustainable agricultural practices.

### **Agro Forestry, Agro-horticulture**

Agroforestry is a sustainable method of land management that establishes beneficial linkages between crops, trees, and livestock by incorporating trees and shrubs into agricultural systems. Improved water retention, higher biodiversity, improved soil fertility, and diverse revenue streams for farmers are just a few advantages of this strategy. Alley cropping, windbreaks, silvopasture, and forest gardens are a few examples of agroforestry systems that can be customised to fit certain environmental and socioeconomic circumstances. Agroforestry, which involves planting trees in agricultural settings, enhances ecological resilience, lessens the effects of climate change, and improves food security and rural populations' standard of living. All things considered, agroforestry is a comprehensive strategy for sustainable agriculture that strikes a balance between economic growth, productive land usage, and environmental preservation.

## Holistic Environmental and Agriculture Development Project

Agro horticultural crops like Mango, Guava, Pomegranate, etc. can be planted in agricultural field where there is little scope of irrigation. Fruit trees and crops are grown together in varying ways. Intercropping agricultural crops are normally grown between



rows of fruit trees planted at spacing of 5 – 7 m apart. The agricultural crop provides seasonal revenue while fruit trees that are managed for few years will provide income through fruits, fuel wood and timber.

Plantation of Agro forestry sapling is a suitable land management system which increases the yield of the land and its productivity. It always has two or more outputs (fuel, fodder, fruit, fiber, herbal, timber and other raw materials). It is necessary to provide greater attention on agro forestry for the utilization of unproductive and under productive land available within the project area. Various agro forestry saplings are provided to the farmers under the project, which includes Mahogany, Jamun, *Pongamia pinnata*, Neem, wild neem, etc.



i. Name of the farmer: Thimmaranan, Sf no: 66, Village: Beemandapalli, Three hundred (300) plants Mahogany of 1-year age was provided to the beneficiary to plant in his own land. Plantation and post planting care is being taken by the beneficiary himself. The survival percentage is more than 95% and growth is also good. During interaction the beneficiary expressed that the trees planted can be harvested from 10 years onwards, however he mentioned that he will be able to fetch good cost for timber after 20 years of cultivation or more. Because in 20 to 30 years, these trees can grow upto a height of 60 to 65 ft and around 3 to 4 ft in diameter. He also expressed that it is a long-term investment and can be used for the future household expenses. It has been observed that looking at the change in weather pattern and failure of monsoon rain, it is one of the most profitable land use practice, because trees to grow in the project villages with less maintenance.

ii. Name of the farmer: Nagaraj, Sf no: 113/1; Village: Puliyanchery,





## Holistic Environmental and Agriculture Development Project

One hundred (100) plants Mahogany of 1-year age was provided to the beneficiary to plant in his own land. The response of the beneficiary was similar to the above beneficiary.

iii. Name of the farmer: Nagaraj, Sf no: 39/1B; Village: Puliyanchery, Horticulture species of Mango: 5, Guava: 5, Sapota: 2, Lemon: 2 was provided to the farmer to practice agro-horticulture. This activity is being implemented in individual land along with regular crops like black gram. The farmer is taking care of the activity on his own.

It has observed that all the horticulture tree saplings had survived and growth is also adequate. As expressed by the beneficiary that these fruit bearing trees will start to produce fruits after 3 years of maturity. From then on, the tree will produce fruits during every season. This will fetch him a regular income every season.

iv. Name of the farmer: Venketappan, Sf no: 45/1, Village: Puliyancheri,

Horticulture species of Mango: 30, Guava: 20, Sapota: 15 was provided to plant in his land along with seasonal agriculture crops. The farmer is taking care of the activity on his own, since it is associated with the seasonal crops. It has been noted that all the horticulture tree saplings survived and attained good growth. These trees may start producing fruits after 3 years of maturity. It is expected by the beneficiary is that this activity will fetch him an additional income every season of fruiting

v. Name of the farmer: Indhumathy, Village: Porasapattu, Sf no: 79/2c

Horticulture species of Mango: 5, Guava: 5, Sapota: 2, Lemon: 2 was provided to practice agro-horticulture. Response of the beneficiary is more or less similar. She mentioned that the fruits have better market in the area and may help him to sell it easily.

vi. Name of the farmer: Valarmathi, Sf no: 171/1; Village: Thazhaiyuthu

Tree species of Mahogany 300 plants of age 1 year was provided to the beneficiary to plant in their land.

The response to the envisaged benefit, the beneficiary is in the opinion that looking at the survival percentage and growth, it may yield him good return after attaining the age of 20 years. He is also in the opinion that the land used is marginal and the shade and improvement in the soil may help him to go for intercropping in the future. He is not able to name the exact crop he is planning to grow along with the trees.

Observations and suggestions:

In the project villages, there exists significant potential for integrating trees with agricultural crops to bolster sustainability and productivity. A prominent observation

## Holistic Environmental and Agriculture Development Project

in these areas is the prevalent water scarcity and arid conditions, necessitating the adoption of resilient tree species capable of thriving in such environments. Additionally, traditional farming methods often lack diversification, potentially resulting in soil degradation and diminished yields. According to Rama Murthy, he has planted 100 mango trees, with 85% of them surviving, and he plans to replace the ones that didn't make it this year. During the summer months, he spends Rs. 750 per month on irrigation. Additionally, he is also engaged in horticulture, cultivating horse gram. He anticipates that after three years, each mango tree may yield at least 10 kilograms of produce per year.

To address these challenges, promoting the cultivation of drought-tolerant tree species alongside cash crops emerges as a viable solution. This approach offers numerous benefits, including enhanced soil fertility and diversified income streams from timber, fruits, flowers, or herbal products. Furthermore, the implementation of water-saving techniques such as drip irrigation, mulching, and rainwater harvesting systems can significantly improve water use efficiency within agroforestry systems. Employing conservation tillage methods further aids in retaining soil moisture and mitigating erosion, particularly during dry spells.

Effective collaboration between farmers, local governments, research institutions, or KrishiVigyanKendras (KVKs) is crucial for developing tailored agroforestry models tailored to the specific needs and conditions of the project villages. By leveraging collective expertise and resources, these collaborative efforts can drive the adoption of sustainable agroforestry practices, fostering resilience and prosperity within the community.

### Fodder development

Feed and forage production at farm levels is the priority tasks for expediting dairy development since the availability of common grass land is in shortage. The shortage of quality feed and fodder is one of the major reasons for low productivity in dairy cow. To overcome this problem, Fodder stems will be planted in the land of individual farmers as a part of this project. It requires only minimum effort to grow and it will become a perennial source of feed for cattle mainly dairy cow. Under the project beneficiary was given a unit meet their fodder requirement. Fodder development (1 unit=10 cent).



i. Name of the farmer: Smt. Saroja, SF No.: 189; Village: Oddur

1500 freshly cut fodder slips was distributed to the beneficiary. The slips were planted in 10 cents of agricultural land at spacing of less than 60 cm apart. This activity is being implemented in individual land, hence the beneficiary is taking care of the activity on his own.

Benefit from the component is good and the beneficiary started cutting the fodder grass from second month of cultivation. She was cutting the fodder grass every day to meet her fodder requirement. She has also expanded the crop area to additional 5 cents of land to meet the additional demand. She is also distributing the fodder stems to other beneficiaries in the locality and helping in meeting green fodder requirements in the area. The beneficiary expressed that due to the green fodder the quantity of the milk produced has been increased from 8 litres per day to 9.5 to 10 litres per day. And also the fat content of the milk has increased from 2.88 to 3.2 percent and getting her better return. This increase in quality and quantity is helping her to fetch additional income by 1800 to 2300 per month depending on the milk production.

ii. Name of the farmer: Vaiyapuri, Village: Thazhaiyuthu

1500 freshly cut fodder slips was given to the beneficiary. The slips were planted in 10 cents of agricultural land at spacing of less than 60 cm apart. The beneficiary expressed that cutting the fodder grass from second month of cultivation helped to meet the green fodder requirement and reduction in the purchased fodder. After seeing the benefit, the farmer has also expanded the crop area to additional 7 cents of land. He reported that the quantity of the milk produced has increased from 10 litres per day to 11 litres per day and there has been improvement in the fat content of the milk from 2.9 to 3.3 percent, which is getting him good return. This increase in quality and quantity of the milk is helping the beneficiary to fetch additional income by 2200 to 2500 per month.

### Observations and suggestions

Promoting local dairy development and increasing returns from cattle through innovative fodder cultivation is a promising idea. However, it necessitates careful consideration of drought-resistant species such as pearl millet (bajra), sorghum (jowar), cowpea, and certain grass varieties like Guinea grass or Napier grass, coupled with water-efficient cultivation techniques like drip or sprinkler irrigation in project villages. Mulching aids in retaining soil moisture and suppressing weed growth. Intercropping fodder crops with existing crops or rotating them maximizes land utilization, enhances soil fertility, and reduces pest and disease risks. Agroforestry systems, integrating fodder crops with drought-resistant trees, offer additional fodder sources and enhance

## Holistic Environmental and Agriculture Development Project

overall resilience. Providing knowledge on silage making preserves fodder quality for longer durations. Exploring value addition opportunities like processing fodder into pellets or supplementary feed products and establishing market linkages ensures fair prices for fodder produce, incentivizing farmers to embrace fodder cultivation as an alternative livelihood.

### Home Garden

The main aim of this activity is to provide highly nutritive chemical free vegetables and fruits to the villagers. They depend on local market for daily usage of vegetables and greens. Home garden saplings have been provided to the landless villagers to grow these plants in their backyard. The kitchen garden could supply vegetables of high in nutritive value and also helps to save expenditure on the purchase of vegetables and fruits.



Twenty native seed varieties including five types of green leafy vegetables, bhendi, brinjal, chilly, broad bean, tomato, red gram, bitter gourd, snake gourd, bottle gourd, ridge gourd, ash gourd, etc. was provided to each of beneficiary. Most of the selected beneficiaries are women.

Preference was given to the families with pregnant women, children and adolescent girls.

i. Name of the beneficiary: Sivagami, SF No. : 43; Village Name: Puliyanchery  
Envisaged benefit due to the activities: Though the component is gradually progressing, but the beneficiary expressed her satisfaction. She was in the opinion that it is improving the nutritional intake of the family. Money spent on market bought vegetables has reduced. Home garden was completely cultivated without any chemical inputs now. So, the vegetables produced are free from harmful chemicals. Fresh produce is readily available for consumption as and when it is needed. There is a behavioural change in the children to consume more vegetables since they are also being a part of it for raising the plants. The quantity produced is only meeting her household requirement, hence not able to report the exact monetary benefit due to the activity.

ii. Name of the beneficiary: Kowsalya; Village Name: Arattavadi  
Like the other beneficiary she was also provided seedlings of vegetable species. Now she is able to meet her day to day vegetable demand. The produce not enough to sell in the market and hence it is not possible for her the exact monetary return. Based



## Holistic Environmental and Agriculture Development Project

on expenditure on the vegetable before the activity at her level can be estimated that about Rs. 350.00 per month has been saved due to the activity.

Observations and suggestions:

In project clusters, the implementation of home garden projects among small landholding farmers holds immense potential for enhancing nutrition, income generation, and food security. K Vinod Kumar exemplifies this potential through his 20-cent home garden, where he has invested Rs. 2000 in inputs to cultivate a variety of crops including onion, tomato, brinjal, ladyfinger, radish, spinach, corn, and chilli. With already two crops harvested, Kumar has found self-employment opportunities through this venture, which has become the primary source of livelihood in his village.

Promoting crop diversification and cultivating a wide array of fruits, vegetables, herbs, and spices can contribute to a balanced diet and reduce reliance on external markets. Encouraging the adoption of native and locally adapted crop varieties enhances resilience to climate variability. In areas with limited land availability, vertical gardening techniques can effectively utilize space. Training farmers in water-efficient practices such as drip irrigation and rainwater harvesting can optimize water usage, especially in regions facing water scarcity.

Additionally, implementing composting and organic farming practices can enhance soil fertility and productivity. Access to high-quality inputs, resources, and market connections is crucial for the success of recipients. By providing support in these areas, such as access to seeds, tools, and training, farmers can maximize the potential of their home garden projects and improve their overall livelihoods.

### Livelihood Support for Women

Supporting women's livelihoods is an essential part of the region's CSR initiatives, which encourage gender equality, economic empowerment, and sustainable community development. These initiatives aim to improve women's access to opportunities, resources, and skills in recognition of the critical role that women play in rural economies and societies. Initiatives to assist women's livelihoods may involve training, skill development, entrepreneurial development, access to credit and financial services, and capacity building in a range of income-generating activities, including small-scale, agriculture-related, dairy, poultry, and goat farming businesses. These initiatives support social inclusion, poverty reduction, and general community resilience by giving women the tools to earn a living and take part in decision-making. Additionally, supporting women's livelihoods benefits society as a whole by enhancing

## Holistic Environmental and Agriculture Development Project

family and community well-being, education, and health. Thus, it is crucial to incorporate women's livelihood support into village development programmes in



order to achieve development outcomes that are both equitable and sustainable. Livelihood support for Women was targeted mainly for the benefit of women Self-help group members. A separate federation for the cluster has been formed by including the representatives from all the project villages.

### Household dairy development

In order to promote the livelihood activities for the women living in the project area, dairy cattle support activity was planned by the agency in consultation with project villagers. For this purpose, revolving fund assistance of Rs. 50,000 was provided to the SHG members on pay-back basis so that the same can be extended to other members of the SHG. Each beneficiary had purchased a cow and a calf from this amount. In Beemandapalli Cluster, total sanctioned dairy cattle unit was 20 Nos, whereas in Thazhaiyuthu Cluster it was 25 beneficiaries.



i. Name of the Beneficiary: Rani, Home maker belongs to the SHG, TNSRLM Thamarai Muthiyor SHG  
Loan Amount: 50,000  
Repayment of principal amount: Rs. 27500  
No. of instalments repaid: 11  
Total interest paid: Rs. 4125

Balance due amount: Rs. 22500

Benefit due to the activities

- Income generated at Rs. 8,400 per month by the beneficiary.
- Repayment of the loan amount is consistent.
- Increase in the consumption of milk leading to various health benefits of her children.
- Gradually become financially independent.
- Empowered and in a position to influence the family's decision making.

## Holistic Environmental and Agriculture Development Project



ii. Name of the beneficiary: Amsa, Beemandapalli cluster

Loan amount:Rs. 50,000

Repayment of principal amount:Rs. 27500

No. of instalments repaid: 11

Total interest paid : Rs. 4125

Balance due amount:Rs. 22500

Benefit due to the activities:

- Average Income generated Rs. 7,800 per month by the beneficiary.
- Repayment of the loan amount is consistent.
- Increase in the consumption of milk leading to various health benefits of her children
- Empowered

iii. Name of the Farmer: Annammal, Thazhaiyuthu Cluster

Loan Amount: 50,000

Repayment of principal amount: Rs. 27500

No. of instalments repaid: 11

Total interest paid: Rs. 4125

Balance Due amount: Rs. 22500

Benefit due to the activities:

- Income generated Rs. 8,800 per month by the beneficiary.
- Repayment of the loan amount is consistent.
- Increase in the consumption of milk leading to various health benefits of her children.
- Empowered and helping others to get loan, etc.

iv. Name of the Beneficiary: Mahamaimanju,

Amount: 50,000

Repayment of principal amount:Rs. 27500

No. of instalments repaid: 11

Total interest paid : Rs. 4125

Balance Due amount:Rs. 22500

Benefit due to the activities

- Average Income generated Rs. 9,300 per month by the beneficiary.
- Repayment of the loan amount is consistent.
- Increase in the consumption of milk leading to various health benefits of her children.

### Overall benefits from the household dairy development



## Holistic Environmental and Agriculture Development Project

- Easy access to loan
- On an average 10 lit/ day and Milk sold to society @ Rs. 35.00
- Time spent: 6 hrs/ day
- Veterinary support: Available
- Motivation: The beneficiary influencing others
- Health condition: Improved
- Economic condition: Helping to pay school fees, purchase seeds,
- Sustainability: Regular re-payment, extended to the new members, Up-scaling to 2 more cows
- Requirements: Insurance
- Allied activities: Azolla cultivation, fodder cultivation

### Observations and Suggestions for household dairy development

A cow and calf pair yield approximately 10 liters of milk per day, with 9 liters sold to the local milk society at Rs. 35 per liter. Around 6 hours are dedicated daily to cattle dairy work. The cow dung is utilized effectively in farming activities, including manure preparation and the creation of Panchagavya (organic manure), thus enhancing the productivity of the 10-acre land.

Looking to expand, there is a plan to motivate fellow villagers and potentially purchase two more cows. Despite access to veterinary support, securing insurance for the cow and calf is deemed beneficial. This initiative has already influenced others, with 10 more landless women members expressing interest in starting backyard poultry.

In another case, Annamma, a member of the Poresupeta Self-Help Group (SHG), has also ventured into cattle rearing. With a dedicated effort of 7 hours daily, her cow yields 5 liters of milk per day for 7 months annually. Despite a feed cost of Rs. 6.90 per day, she sells the milk to a private collector at Rs. 38 per liter. Additionally, cow dung serves as a valuable resource for cultivating 1.5 acres of land, primarily used for growing paddy. An unintended yet beneficial outcome of this endeavour is the improved health of children, who consume approximately 1 liter of milk per day, contributing to their overall well-being.

Household dairy development stands as a crucial micro-level livelihood initiative, significantly contributing to rural livelihoods and food security. Its potential can be further realized through upscaling with the support of bank loans and other financial mechanisms. Encouraging smallholder farmers to venture into dairy farming by providing training, technical assistance, and access to quality breeds and inputs is essential for enhancing productivity and profitability. Additionally, implementing improved management practices such as ensuring proper nutrition, housing, and



## Holistic Environmental and Agriculture Development Project

healthcare for dairy animals can elevate milk production and quality. Supporting value addition activities, such as processing milk into dairy products like yogurt, cheese, and butter, offers an avenue for generating additional household income. All the cattle should be insured through government programs is must to reduce the risk associated with the component.

Establishing linkages with markets and cooperatives is crucial for ensuring fair prices for dairy products and strengthening the dairy value chain, especially in areas lacking stable markets. Investing in dairy infrastructure, such as milk collection centers and chilling facilities, improves milk handling and storage, thereby increasing returns for producers. Furthermore, raising awareness about the nutritional benefits of dairy consumption and promoting milk as a vital component of a balanced diet can foster greater consumption within communities, potentially leading to the emergence of more women entrepreneurs in the study villages. Through concerted efforts to address these various aspects, household dairy development can emerge as a sustainable and impactful avenue for rural economic empowerment and food security enhancement.

### Goatery

Total - 20 Nos. in Beemandapalli cluster and 20 Nos. in Thazhaiyuthu cluster was sanctioned.

Under the component, women were targeted mainly for the benefit of women Self-help group members. Revolving fund assistance of Rs. 20,000 was provided from the seed money. Each beneficiary purchased three female and one male goats from the amount received.



i. Name of the Beneficiary: Ms. Sathya, home maker, Sri Ellammal SHGmember  
Loan Amount:RS. 20,000

Repayment of principal amount:Rs. 20000.00

No. of instalments repaid: 10

Total interest paid: Rs. 980.00

Balance Due amount:Nil

Benefit due to the activities

- Income generated Rs. 22500.00 in the last six months by the beneficiary.
- Repayment of the loan amount and its interest was completed.
- Now, she is raising four more goats.
- Become financially independent.
- Empowered and able to influence others to start the similar livelihood activity.

ii. Name: Maarimuthu ,

Loan Amount :20,000

Repayment of principal amount :Rs. 20000

No. of instalments repaid: 10

Total interest paid : Rs. 980

Balance Due amount :Nil

Benefit due to the activities

- Income generated Rs. 18000 in the last six months by the beneficiary.
- Repayment of the loan amount and its interest was completed.
- Now, she is raising 3more goats.

Observations and suggestions

The potential of goat farming is alluring, especially considering the current high market prices for meat and the easy access to local markets. Mari Muttu, a member of the Self-Help Group (SHG) in Porosupet and a landless individual, along with her daily-wage-earning husband, has ventured into goat farming by purchasing 3 goats and 1 calf. With plans to sell them as they mature, she anticipates fetching Rs. 800 per kilogram in the market. The goats are allowed to graze freely, supplemented with limited feeding at home. In addition to goat farming, Mari Muttu also manages 10 cattle, with 3 of them being milking cows yielding 8 liters of milk per day, which she sells for Rs. 43 per liter. Despite open grazing opportunities in the village commons, about half of the milk sold is allocated for cattle feed. However, the practice of allowing goats to graze freely in natural landscapes may exert undue pressure on these ecosystems. To mitigate potential environmental impacts, it is imperative to designate specific grazing areas and implement controlled grazing methods to preserve the health and biodiversity of these ecosystems. By carefully managing grazing practices, Mari Muttu and other farmers can sustainably balance their livestock rearing activities with environmental conservation efforts.

In addition to controlled grazing, cultivating fodder crops such as legumes, grasses, and browse species can supplement the goats' diet, reducing their reliance on natural grazing. Consideration should also be given to supplementing natural grazing with stall feeding systems, providing a balanced diet comprising concentrates, green fodder, and dry fodder.

To improve the productivity and efficiency of goat farming, engaging in selective breeding programs is paramount. Prioritize traits such as fast growth rate, high meat yield, and milk productivity to enhance profitability. Moreover, prioritizing goat health and disease management through regular vaccination schedules, deworming programs, and proper hygiene practices is crucial.

To empower goat farmers, provide comprehensive training and capacity-building programs covering various aspects of goat rearing, including breeding, feeding, health management, and marketing. Additionally, offer support and guidance on financial management, budgeting, and accessing credit facilities or government schemes tailored to goat farming needs. By implementing these measures, goat farming can become a sustainable and lucrative venture, benefiting both farmers and the environment.

### Organic farming input

Organic inputs are derived from the processing of plant and animal products like cow' milk, urine, ghee, etc. to improve the productivity of a crop. It can be used as fertilizers, soil health enhancers, pest controllers, repellents, etc. Organic input production unit can be used as a business model for landless also. Establishment of Vermicompost unit, Panchakavya unit and Azolla unit in the project area will help in introducing organic farming inputs throughout the area. Most of the farmers in the locality is dependent more on chemical fertilizers and pesticides before the project interventions. After the training and capacity building, farmers are now willing to take up less chemical agriculture. So, these organic farming input production units motivates the farmers to do organic farming. Total number of beneficiary 30 and 65 in Beemandapalli and Thazhaiyuthu Cluster, respectively under this initiative. Each beneficiary was provided with the inputs for preparing three organic farming input production like Panchakavya, Vermicompost and Azolla bag and all the inputs given was provided as grant.

- i. Name of the beneficiary: Mr. Dhasarathan, S.F. No. 15; Village: Gollapalli

Beneficiary is skillful in successful in propagation of Azolla and vermicompost units, and farmers are sharing the earthworms and azolla for the multiplication of unit to others.

The component is being helpful in reviving the soil fertility because of the consumption of less chemical inputs in the cultivation. Cost spent on purchased chemical inputs like pesticides, fertilizers are minimized. The quality of crop produced is expected to be good and have high nutritional content. The benefit of growing plants in healthy soil with adequate pH and nutritional status helps strengthen the immune system of the plant. The produce has higher health benefits in comparison to the chemical based input in cultivation.

- ii. Name of the beneficiary: Mr. Anbalagan, S.F. No. 112; Village –Arattavadi  
Similar kind of benefits have been noticed.

### General observation and suggestions

In the project villages, farmers have benefitted from inputs that facilitated the establishment of compost and vermi-compost units. The provided inputs are cost-effective, with waste containers from local industries procured and modified for use in vermi-composting. Though the activity is relatively new, it is steadily gaining momentum. Farmers have begun utilizing the vermi-compost in various agricultural practices, including vegetable cultivation, orchards, and regular crop cultivation. One beneficiary noted a significant cost saving of about Rs. 1500 per acre due to the application of organic manure.

Saravanan from Porasuputtu shared his experience of using a 1000-liter tank to produce compost in 4-5 batches annually. Initially investing Rs. 4000, he now reaps benefits of about Rs. 10,000 per year by applying the manure to his paddy fields and vegetable crops. With 8 cattle at his disposal, Saravanan has an ample supply of cow dung for vermi-composting. He has successfully reduced fertilizer inputs by half and anticipates further reductions in the future. Additionally, there has been an increase in production from 20 to 25 bags (each weighing 75 kg) per acre.



Saravanan's success has inspired fellow villagers to approach him for understanding composting and its benefits. While water usage has not significantly changed, Saravanan believes that over time, water consumption will also decrease. Farmers have reported the effectiveness of vermi-compost in vegetable cultivation, with some earning up to Rs. 10,000 per half-acre plot in a single season.

### Backyard Poultry

i. Name of the Farmer: Gowrammal

No. of chicks distributed: 20 with poultry cage.

This activity was provided as a grant to the beneficiary.

Beemandapalli cluster SHG federation has helped in the selection of deserving beneficiaries. Most of the beneficiaries are landless women. Preference was given to single woman. So, the community had supported the decision to provide the backyard poultry to women beneficiary only.

## Holistic Environmental and Agriculture Development Project

It is mainly raised for egg production. These chicks started to lay eggs from the fourth to fifth month. It is capable of laying up to 280 eggs per year. The average egg weight is 61 to 63 grams. The beneficiary has now collected around 90 eggs from each chick in the past six months. After the self-consumption, she is selling the remaining eggs to her neighbours and local shops. She is able to make a minimum of Rs. 1500 every month.

ii. Name of the Farmer: Vennila

No. of chicks distributed: 20 with poultry cage. This input was provided as a grant to the beneficiary.

The beneficiary has now collected around 90 eggs from each chick in the past six months. After the self-consumption, she is selling the remaining eggs to her neighbours and local shops. She is able to make around Rs. 1200 every month.

### Observations and Suggestions:

Introducing an innovative approach to bolster community engagement and livelihood opportunities within our project villages has sparked significant interest among beneficiaries. There is a growing desire to expand this endeavor by increasing the number of chicks involved. Notably, the Poultry bird (BV 380) exhibits promising characteristics, living for 3 years and potentially yielding up to 300 eggs per year.

The initial establishment cost per unit stands at Rs. 16,000, with careful consideration given to an innovative cage design that enhances resilience against external threats.

However, for successful scaling-up, further deliberation and proactive involvement from the local community are indispensable. Active participation in the decision-making process ensures that the initiative aligns closely with community needs and preferences, thereby enhancing its sustainability over the long term. Additionally, exploring partnerships with relevant stakeholders, including government agencies, NGOs, and private sector organizations, holds promise for securing additional resources, expertise, and





## Holistic Environmental and Agriculture Development Project

networks crucial for facilitating the scaling-up process.

Furthermore, fostering a culture of knowledge sharing and learning exchanges among neighbouring villages or organizations engaged in similar initiatives can yield invaluable insights, strategies, and best practices. By leveraging collective wisdom, we can effectively navigate the complexities of scaling up and maximize the positive impact of this innovative approach on community livelihoods and well-being.

### Solar dryer

An important initiative to mitigate the climate change and also to address the NDC target and SDG targets of the country. One demonstration unit in the Beemandpalliwas visited and found to



be effective in meeting aspiration of the beneficiaries.

Observations and suggestions: Solar dryers have the potential to significantly enhance agricultural productivity and bolster food security within the project village community, especially considering the favorable climate of the project area. To effectively leverage this potential, a comprehensive study is required to identify the key agricultural products grown in the region that necessitate drying, as well as to assess the market demand for the dried products. Additionally, careful consideration should be given to selecting solar dryers that align with the local context. This could entail adopting simple, cost-effective designs crafted from locally available materials or opting for more sophisticated models, depending on the specific needs and resources of the community. To ensure equitable access, it may be beneficial to explore the deployment of multiple small-scale dryers distributed across various villages. Providing training and education to local farmers on the proper utilization and maintenance of solar dryers is essential for their effective implementation. Furthermore, connecting the dryers to community-run cooperatives or farmer groups for collective utilization and management can optimize their impact and sustainability within the project villages.

## Holistic Environmental and Agriculture Development Project

### Training and demonstration



**Beemandapalli Cluster** (Villages: Beemandapalli, Puliyanchery, Gollapalli, Oddur)

Quantity and Objectives of training programs, including training need assessment:

Orientation Training for Villagers/ CBOs: 4

Objectives: To create awareness about the roles and responsibilities of Capacity building organisations like Village Development Committee and SHG cluster federation.

Places of training activity/ visits

Orientation Training for Villagers/ CBOs: Beemandapalli, Puliyanchery, Gollapalli, Oddur

Orientation Training for Villagers/ CBOs: 2.5 Hrs per

training

Level of community participation in the activities, including gender equity: There are two primary Community Based Organisations promoted through the project. They are Village Development Committee and Cluster based SHG federation.

A separate Village Development Committee has been formed exclusively for the project to seek the involvement of local community in the planning, implementation and maintenance of the project activities. This committee consists the representations from all different categories in terms of Gender, Caste, financial and social hierarchy, etc.

SHG federation has been combined to represent the SHG women from all the villages. So, the involvement of women in the implementation of the project is inevitable.

Benefit due to the activities:

Orientation Training for Villagers/ CBOs:

- Understanding the roles & responsibilities of the office bearers and the members.
- CBO members are trained to undertake their roles and responsibilities.
- Helps to take ownership of the project.
- Empowering administrative ability.
- Conflict resolution and management.

### **Thazhaiyuthu Cluster**

Total program 4 numbers4



## Holistic Environmental and Agriculture Development Project

Objectives: To create awareness about the roles and responsibilities of Capacity building organisations like Village Development Committee and SHG cluster federation.

Orientation Training for Villagers/ CBOs: Beemandapalli, Puliyanchery, Gollapalli, Oddur and duration was 2.5 Hrs per training

There are two primary Community Based Organisations promoted through the project. They are Village Development Committee and Cluster based SHG federation.

A separate Village Development Committee has been formed exclusively for the project to seek the involvement of local community in the planning, implementation and maintenance of the project activities. This committee consists the representations from all different categories in terms of Gender, Caste, financial and social hierarchy, etc.

SHG federation has been combined to represent the SHG women from all the villages. So, the involvement of women in the implementation of the project is inevitable.

Benefit due to the activities

- Understanding the roles & responsibilities of the office bearers and the members.
- CBO members are trained to undertake their roles and responsibilities.
- Helps to take ownership of the project.
- Empowering administrative ability.
- Conflict resolution and management.

### Agriculture Technical Training

**Beemandapalli cluster**, Total – 16 No. of Agri technical training was held.

Topic: Training on Fish farming

Objectives: To provide detailed knowledge about the methods and techniques related to Fish farming. To support farmers in convert the farm pond into fish pond.

Agriculture Technical Training:KrishiVigyan Kendra, Krishnagiri(Topic: Fish Farming)

Agriculture Technical Training: One full day

Totally 25 beneficiaries were taken to the training cum exposure visit on Fish farming. All the Farm pond beneficiaries in the cluster was provided with the training in KVK Krishnagiri. After the training, the beneficiary is planning to do Fish farming on his own.

Benefit due to the activities

- Improved knowledge on the procedure of Fish culture.





## Holistic Environmental and Agriculture Development Project



- Additional Income generation through fish farming.
- Better health benefits because of the consumption of fish by the local community.

### Thazhaiyuthu Cluster

Total – 16 number of Agri-technical training was held on the topic fish farming and duration was one full day

Training Objectives: To provide detailed knowledge about the methods and techniques related to Fish farming. To support farmers in convert the farm pond into fish pond.

Resource person/ organization: Tamil Nadu Fisheries Development corp. ltd

Totally 25 beneficiaries were taken to the training cum exposure visit on Fish farming.

All the Farm pond beneficiaries in the cluster was provided with the training in Tamil Nadu Fisheries Development Corp. Ltd near Sathanur reservoir.

After the training, the beneficiary is planning to do Fish farming on his/ her own.

Benefit due to the activities

- Improved knowledge on the procedure of Fish culture.
- Additional Income generation through fish farming.
- Better health benefits because of the consumption of fish by the local community.

Observations and suggestions

The community and young beneficiaries have shown positive reception towards the training and demonstration activities conducted thus far. Take Nandakumar, for instance, who has embarked on the endeavour of producing amino acids from fish waste to be utilized in floriculture. With a total input cost of Rs. 150, he expects to save approximately Rs. 2000 thanks to the resulting product. While some examples of economic activity initiation have been observed, it is anticipated that with time, more self-initiative will be demonstrated by the beneficiaries. During interactions, villagers have expressed interest in specific capacity-building and skill development projects aimed at meeting market demands and enhancing cultivation practices. These projects include System of Rice Intensification, mushroom cultivation, value addition to agricultural produce, and the establishment of small and medium enterprises. Given the low capacity of the community, conducting a training needs assessment is crucial to identify areas for skill development. Additionally, linking this component with government programs can ensure sustainability by facilitating market linkages and providing strong back-end support such as financial aid and technical assistance.

### Health camps for Livestock

**Beemandapalli cluster**, Total camps: 3



## Holistic Environmental and Agriculture Development Project

Health camps for Livestock held in Beemandapalli, Puliyanchery, Gollapalli villages and duration was 3 hrs per camps

Local community is supportive for conducting health camp activity. Local veterinary doctor appointed in the state government was invited to conduct the health camp for livestock. Necessary medications and supplements were provided based on the diagnosis. Artificial insemination of milch animal, deworming for all the livestock was done in the health camp. Women beneficiaries are actively participating in the camp since they are the one who is taking care of the livestock. Also, each health camps are conducted in the local village enabling the women to bring their livestock to the camp. Benefit due to the activities

- Improved livestock health.
- Production of milk, meat and other animal products from cow, goat, poultry are expected to increase.
- Income generated through these agri-allied activities are increasing.
- Regular health check-ups prevent the severe illness of the livestock.

### Thazhaiyuthu Cluster

Total number of camp: 3 and 3 hrs each per camp.

Health camps for Livestock was held in Thazhaiyuthu, Aratavadi, Porasapattu villages. Local community is supportive for conducting health camp activity. Local veterinary doctor appointed in the state government was invited to conduct the health camp for livestock. Necessary medications and supplements were provided based on the diagnosis. Artificial insemination of milch animal, deworming for all the livestock was done in the health camp. Women beneficiaries are actively participating in the camp since they are the one who is taking care of the livestock. Also, each health camps are conducted in the local village enabling the women to bring their livestock to the camp.

Benefit due to the activities

- Improved livestock health.
- Production of milk, meat and other animal products from cow, goat, poultry are expected to increase.
- Income generated through these agri-allied activities are increasing.
- Regular health check-ups prevent the severe illness of the livestock.

Observation and suggestions:

Attending veterinary camps tailored for cattle can significantly enhance animal health, boost productivity, and uplift the livelihoods of rural livestock owners. The positive response from beneficiaries underscores their satisfaction with the support provided by the veterinary department. However, there is a desire for additional skills in disease identification and treatment to address early-stage ailments effectively. Furthermore,



## Holistic Environmental and Agriculture Development Project

knowledge about fodder selection and preparation using locally available resources could aid in optimizing cattle feeding practices and economizing resources.

To meet these needs, it is advisable to collaborate with seasoned veterinarians or reputable veterinary organizations capable of delivering specialized services and insights during the camp. These services should encompass a comprehensive array of veterinary care, encompassing general health check-ups, vaccinations, deworming, treatment for prevalent diseases, and nutritional guidance.

Moreover, educational sessions tailored for cattle owners are crucial. These sessions should cover essential topics such as preventive care, nutrition, disease management, and best breeding practices. By equipping farmers with the requisite knowledge and skills, they can effectively care for their livestock in-between veterinary visits, thereby fostering sustainable animal husbandry practices.

### Exposure Visits

**Beemandapalli cluster**, Total visit: 3 Nos.

Visit to Krishi Vigyan Kendra- Krishnagiri, Krishi Vigyan Kendra – Virinjipuram, Agri Expo conducted at Krishnagiri, Paddy Research station - Paiyur, Centre for cut flowers – Thally and total duration of the visit was Two-days

Local farmers were actively participating in the exposure visit. All the farmers including women are given preference for the training cum exposure visit.

Benefit due to the activities: Exposure visits to an already established farm helps the farmers in better understanding of the concept and procedure. The farmers will be able to replicate the techniques learned through the exposure visit on their own. Best crop varieties were cultivated in the project location. The participant farmers become an expert on the technique and disseminates the benefits of the technique.

### Thazhaiyuthu Cluster

Exposure visits were arranged for the farmers to nearby renowned agri-related institution like KVK, TANUVAS, training centers, etc. or to the fields of progressive farmers who is involved in the implementation of agri-related innovative farming methodologies. These visits will help the farmers to explore the methods followed outside the project area and bring in the new farming methodologies to their field. Duration of each visit was two-days.

Places of training activity/ visits

1. Centre for Rural development, NAF, Chengalpattu
2. Ezhilsolai Organic Farm, Uthiramerur.

### 3. Nursery raising and Tree farm, Uthiramerur

Local farmers were actively participating in the exposure visit. All the farmers including women are given preference for the training cum exposure visit.

Benefit due to the activities: Exposure visits to an already established farm helps the farmers in better understanding of the concept and procedure. The farmers will be able to replicate the techniques learned through the exposure visit on their own. Best crop varieties were cultivated in the project location. The participant farmers become an expert on the technique and disseminates the benefits of the technique. SundarRajan, a beneficiary, has established a compost unit to utilize cow dung effectively. This initiative has enabled him to save Rs. 1500 per acre. Additionally, the use of vermicompost has proven to be beneficial, resulting in savings and earnings of about Rs. 10,000 from vegetable cultivation. Furthermore, the cultivation of Azolla serves as a cost-effective alternative for cattle feed, reducing expenses by 500 grams per day.

General observations and suggestion to the component:

Exposure trips can be extremely beneficial for the local community in terms of knowledge expansion, experience sharing, and adoption of cutting-edge farming techniques. Plan visits to a variety of agricultural locations, such as productive farms, research facilities, and agribusinesses, in order to get the most out of these visits. Farmers can learn important lessons about contemporary technologies, market trends, and sustainable farming practices by being exposed to a range of farming techniques, crop varieties, and value-added processes. Facilitating conversations with specialists, researchers, and other farmers throughout these visits also promotes collaborative learning and the sharing of ideas. It is essential to customize the schedule to the unique needs and interests of the farmers and to offer sufficient assistance in order to guarantee the efficacy of exposure trips.

### Overall suggestions for future development

- The project has been successful in drawing community participation and successful in implementation of the planned activities under different components of the project activities. All the project activities are relevant to the project villages, while looking at the climatic conditions and socio-economic conditions of the villagers. The beneficiaries endorsed the PIA's active involvement and commitments in the successful implementation of the project work. Further, it has been observed that there is harmonious relationship between the community and PIA staff.

## Holistic Environmental and Agriculture Development Project

- The larger rainwater harvesting structures are suitable in the recharge zones, but the smaller structures are more suitable in the discharge areas. To initiate this, community mobilization and awareness need to be built through exposure visits or demonstrations. Suggested structures at household scale are a plastic sheet-laid tank or a sub-surface masonry tank for rainwater to store roof-top rainwater harvesting and soak pits for greywater.
- Fish ponds are found to be beneficial, but ponds are also filled with groundwater, which may stress the groundwater condition in the study villages. To overcome the same, the pond is to be lined with plastic to reduce the stress on the groundwater and shade the pond to reduce evaporation. These ponds can also be filled with partially treated sewage water from nearby urban settlements. For that, the agency may approach urban bodies.
- Organic cultivation is to be extended further by linking it with government schemes and programs. Value-added organic manure and supplements, which are already in practice, can be enhanced (scale) and brought under the organic manure supply chain to enhance livelihood opportunities.
- Agro-horticulture proves advantageous and warrants expansion, especially through alignment with government initiatives, including the newly introduced green credit programs.
- Skill development programs beneficiary needs continuous monitoring and backhand support to convert the skill into economic activities. Hence, linking them with government programs is essential.
- Field bund is very essential in the project area, looking at the torn nature of rain and silty soil. The Bund Plus program can also be launched. The bund can be stocked with early crops or intercrops such as gram, castor, and pulpwood species to increase the return on investment. Further, it goes well with horticulture and other agricultural crops.
- Poultry, goatery, and household dairy have been well received. Time to convert them into enterprise mode. For that, link the SHG credit system with the banking credit system. Extending insurance to the livestock will transform the risk; hence, this should be incorporated into the package.
- The revolving fund presents an added advantage, offering easy accessibility, with self-help groups (SHGs) assisting members in accessing various benefits. On average, each cow yields 12 liters of milk per day, which is sold to the milk collection center at Rs. 35 per liter. Additionally, providing insurance coverage for cattle and other livestock can help mitigate the risks associated with this component of the project. This can be achieved by linking it with state programs or securing loans to meet the demand for insurance.
- There is a further need to provide community-based, market-linked economic skills. Example: Mushroom cultivation and marketing

## Holistic Environmental and Agriculture Development Project

- Regarding precision irrigation techniques, SRI has been found to be more effective and has been identified by the community. Because the System of Rice Intensification (SRI) has proven to be profitable, there is a growing need for further knowledge and understanding of its practices. This method has resulted in an increase in yield by 10 bags per acre. In addition to SRI, vermicomposting has also been identified as beneficial to the villagers. Furthermore, the implementation of power tillers in cultivation has been recommended, and for that, there is a need to link the community with government schemes and programs, along with demonstrations.
- The introduction of dry land cultivation in the area is essential, which includes the interdiction of new climate-resilient varieties, etc. For that, the involvement of KVKs is suggested to arrive at the crops and varieties effective in the area.
- Expand on the potential benefits and impacts of upscaling the activity, such as increased income generation, improved food security, and empowerment of community members. This will emphasize the importance and relevance of the initiative for the project villages.
- Incorporate a cost-benefit analysis to demonstrate the economic feasibility and potential returns on investment of adding more chicks. This will help stakeholders make informed decisions about scaling up the activity.
- Acknowledge any potential challenges or barriers to upscaling the livelihood activity and propose strategies for overcoming them. This demonstrates foresight and proactive planning, instilling confidence in stakeholders about the project's viability.



**Holistic Environmental and Agriculture Development Project**  
**Annexure – I Data collection format**



Component: **Water resources Development**

Sub-component: 1-2. Catchment Area Protection - Recharge

Date:

Name, designation and contact number of the informer:

\_\_\_\_\_

\_\_\_\_\_  
Name of the cluster/ watershed/ others \_\_\_\_\_

Note: use separate questionnaire for each cluster

List of villages/ Gram Sabha/ Panchayat: \_\_\_\_\_ (if required may use separate page)

Number of PIA person involved in the implementation of this sub-component

\_\_\_\_\_

Name and contact number of the sub-component lead

\_\_\_\_\_

A. Watershed treatment (general):

- i. Criteria/ basis for Identification of watershed for treatment,
- ii. Beneficiary Village water budget/ need assessment have done & outcome
- iii. Catchment planning:
- iv. Total area treated/ to be treated with soft engineering and vegetative measures:
- v. Watershed development components
  - a. Soft engineering measures



b. afforestation/ reforestation (area)

c. biodiversity conservation (species)

d. Plantation/agroforestry/ horticulture/ tree outside forest related activities,

e. Creation of watershed grassroots institution for project planning and implementation, monitoring, etc.

f. Functioning of grassroots institutions in the project

B. Watershed treatment infrastructures:

i. Increase in the vegetation cover - NR, ANR, AR, Agroforestry

ii. Soil and moisture conservation measures (quantify, along with village/ nala name)-

a. Contour trench, bund,

b. gully plugging,

c. brushwood, check dam,

d. terracing/ land levelling,

e. soak pit/ trench, etc.





## Holistic Environmental and Agriculture Development Project



f. plantation

g. Others (please specify)

iii. Rainwater harvesting structures (quantify along with village/ nala name)

a. stop dam,

b. roof-top rainwater harvesting,

c. diversion channel, etc.

d. Others (please specify)

iv. Aquifer modification: Induced recharge, basin recharge, headwater recharge, etc. (please quantify along with village/ nala name)





## Holistic Environmental and Agriculture Development Project



Impact of the catchment area treatment:

- i. Groundwater and surface water –
  - a. increase in well discharge,
 

Number of days before	Number of days present
-----------------------	------------------------
  - b. river flow duration,
 

Number of days before	Number of days present
-----------------------	------------------------
  - c. Runoff from catchment response to rainfall, etc.
 

Number of days before	Number of days present
-----------------------	------------------------
  
- ii. Soil erosion:
  - Control in soil erosion, river bank erosion, gully erosion, landslide, vegetation loss, silting in the river, agriculture field, etc.
  
- iii. Soil productivity:
  - Reduced field soil loss
  - Increased in the cultivated land,
  - Increase in irrigated land,
  - Change in cropping pattern,
  - Per acre agricultural productivity,
  - Number of additional man-days (agriculture related) created
  - Improvement in horticulture, agroforestry, etc.
  
- iv. Vegetation:
  - Appropriateness in terms of its location,
  - Species election, planting,
  - Plantation Survival, growth and



**Holistic Environmental and Agriculture Development Project**  
Natural regeneration in the plantation and protected sites

C. Sustainability of the project:

Creation and functioning of Village watershed committees,

Community participation,

Status of watershed development/ maintenance fund (savings),

Equity, gender participation,

Optimum number of physical structures created,

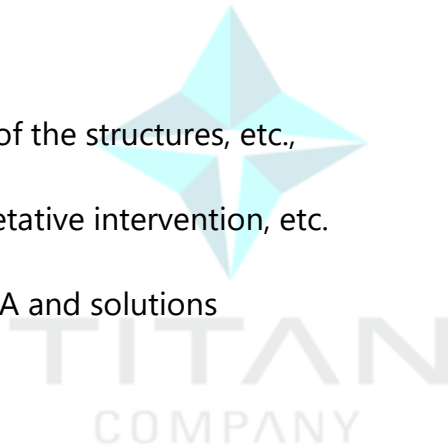
Suitability of physical structures: design, location characteristics, effectiveness,

Level of impacts,

Physical conditions of the structures, etc.,

Progress of the vegetative intervention, etc.

Challenges to the PIA and solutions





**Holistic Environmental and Agriculture Development Project**

Component: **Natural resources management**



Sub-component: 2 Soil and Moisture conservation

Date:

Name, designation and contact number of the informer:

\_\_\_\_\_

Name of the cluster/ watershed/ others \_\_\_\_\_

Note: use separate questionnaire for each cluster

List of villages/ Gram Sabha/ Panchayat: \_\_\_\_\_ (if required may use separate page)

Number of PIA person involved in the implementation of this sub-component

\_\_\_\_\_

Name and contact number of the sub-component lead

\_\_\_\_\_

A. Quantity and Objectives of creation of following structures:

Field Bund (No)

Field Bund Outlet (No)

Grass seeding/ Vettiver slips (No)

B. Geographical location, land ownership

Field Bund Outlet

Field Bund Outlet

Grass seeding/ Vettiver slips

C. Designing aspects

Field Bund Outlet

Field Bund Outlet

Grass seeding/ Vettiver slips



## Holistic Environmental and Agriculture Development Project



D. Level of community participation in the activities, including creation or support of the village grassroots institution, institution savings (if any), benefit sharing mechanism

E. Envisaged benefit due to the activities

Field Bund Outlet

Field Bund Outlet

Grass seeding/ Vettiver slips

F. Optimization of the activities (sub-component soil moisture conservation)





**Holistic Environmental and Agriculture Development Project**

Component: **Livelihood Support for Women**



Sub-component:

Date:

Name, designation and contact number of the informer:

\_\_\_\_\_

Name of the cluster/ watershed/ others \_\_\_\_\_

Note: use separate questionnaire for each cluster

List of villages/ Gram Sabha/ Panchayat: \_\_\_\_\_ (if required may use separate page)

Number of PIA person involved in the implementation of this sub-component

\_\_\_\_\_

Name and contact number of the sub-component lead

\_\_\_\_\_

A. Quantity and Objectives of livelihood activities, including need assessment:

Backyard Poultry (No of beneficiaries)

Dairy cattle unit (No of beneficiary)

Goatery (No of beneficiary)

Organic farming input production unit (No of beneficiary)

B. Background of the beneficiary and average size and cost of the unit

Backyard Poultry

Dairy cattle unit

Goatery

Organic farming input production unit

C. Pay-back mechanism and status of pay-back

Backyard Poultry

Dairy cattle unit



## Holistic Environmental and Agriculture Development Project



Organic farming input production unit

D. Level of community participation in the activities, including SHGs an SHG federation

E. Envisaged benefit due to the activities

Backyard Poultry

Dairy cattle unit

Goatery

Organic farming input production unit

F. Optimization of the livelihood support activity





**Holistic Environmental and Agriculture Development Project**

Component: **Training and demonstration**



Sub-component: \_\_\_\_\_

Date: \_\_\_\_\_

Name, designation and contact number of the informer: \_\_\_\_\_

Name of the cluster/ watershed/ others \_\_\_\_\_

Note: use separate questionnaire for each cluster

List of villages/ Gram Sabha/ Panchayat: \_\_\_\_\_ (if required may use separate page)

Number of PIA person involved in the implementation of this sub-component \_\_\_\_\_

Name and contact number of the sub-component lead \_\_\_\_\_

A. Quantity and Objectives of training programs, including training need assessment:

Orientation Training for Villagers/ CBOs

Agriculture Technical Training

Health camps for livestock

Exposure Visits

B. Places of training activity/ visits

Orientation Training for Villagers/ CBOs

Agriculture Technical Training

Health camps for Livestock

Exposure Visits

C. Duration of the training and Involvement of resource persons

Orientation Training for Villagers/ CBOs

Agriculture Technical Training





## Holistic Environmental and Agriculture Development Project

Health camps for livestock

Exposure Visits (places of visit)



D. Level of community participation in the activities, including gender equity

E. Envisaged benefit due to the activities

Orientation Training for Villagers/ CBOs

Agriculture Technical Training

Health camps for Livestocks

Exposure Visits

F. Optimization of the training activities/ visits



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