

SECTION 9

Impact of interventions on Livelihood – Socio-economic

CIRHEP started working in the Kadavakurichi watershed from 2017. During 2017, around 70% of the families depended on agriculture and related activities for their livelihood. Other 10 % of the families were going to Tiruppur and other regions for employment as non-agricultural labours in the baniyan factories, etc.

After the introduction of watershed activities, the agriculture employment within the watershed has increased and as a result, now more than 90 % of the families are employed in agriculture and allied activities within the watershed itself.

Impact Assessment - Employment opportunities and migration

During and after implementation of watershed activities in the area, with treatment of all private lands and common lands, the natural resources in the area improved – there was increased water available as result of improvement in the yields of bore wells. More area was brought under cultivation and the production of various crops in the watershed has improved. This changed the economic condition of the farmers.

Table 37: Change in employment opportunities and migration level

Scenario before 2017	Scenario after 2020
All small and marginal farmers went for labour work outside the village for almost 10 months in a year	Only 10% families migrate to towns. Few families go for agriculture work in nearby villages for 2 months in a year.
>10% of the male migrated to towns like Thirupur and Kerala for most part of the year as labour in textile industry or for construction work	Only families of marginal farmers go for migration. Due to NREGA programme more work available in village itself.
	More water availability in the watershed has paved way for more agriculture related works in the watershed itself.

Impact on income from agriculture and allied activities

Table 38: Increase in income from milk production.

Watershed	Animal	2017	2018	2019	2020
Kadavakurichi	Cross bred cows	112	90	140	482
	Average Milk yield /day	3.5	4	5	5.5
	Net income	2279280	2091400	5608000	25142990
	Income per animal per year	20351	23238	40057	52164
	% increase over 2012	-	14.1	96.8	156.3

Farmers opinion on various activities.

Field bund is useful in harvesting rain water and checking soil erosion. It also helps in retaining soil moisture on the farmland for a longer period. This is useful to ensure availability of soil moisture and contributes towards better crop growth and yields. Grass is grown on the field bunds which controls the erosion of top soil, increases the fertility of soil and provide fodder for livestock.

Well recharge pit: It is established for recharge of water into the well during the monsoon season (North-east monsoons). Well recharge pit increased the water level of the well. It also retained the moisture in the farmlands around the wells for a longer period up to 2 months. It is pivotal in saving the water running out of the farmlands.

Vermicompost is used as manure in crops grown on Kitchen garden such as seasonal vegetables. Vermicompost is prepared using agricultural crop residues and organic matter available in the farmland. Cow dung is applied on the beds, sprinkled with water and earthworm (*Ecinea foetida*) is used for the decomposition and production of vermicompost. Water is sprinkled on the beds to maintain temperatures and humidity crucial for survival of earthworms. Temporary shed is also required to provide shade especially during summer months. Vermicomposting has proved to be beneficial for enhancing the soil fertility and yields of crops.

Organic farming: It protects the fertility of the soil. Organic manure can be produced using local organic matter and crop residues available on the farmland with low investment costs. *Panchakaviya* – a type of organic manure having pesticide properties is produced and organic pesticide is prepared with the combination of urine, cow dung, ghee and milk. This preparation is successful in pest control and improvement of soil fertility. Organic farming protects the soil and the environment without causing pollution. Cost for purchasing chemical fertilizers is very high and its efficacy on crop growth, protection and yields is not very encouraging. It adversely affects the health of the soil and people. Sometimes, overuse of chemical fertilizers in the fields goes wasted.

Benefits realized due to different interventions

- Integrated farming system utilizing local resources and improved agricultural practices and technologies resulted in better adaptation to and resilience of farmers under increased climatic variability.
- Increased soil and water conservation.
- Increased soil fertility.
- Optimal water use for irrigation.
- Increased crop and fodder production and productivity.
- Increased ecological diversity.
- Increased household nutritional security.
- Increased use of waste to energy systems - Biogas

SECTION 10

Impact of interventions on Livelihood – Capacity building and access to information

Following activities undertaken to build the capacity of the farmers

- A. Enhancing knowledge on crop production techniques
 - a. Capacity building programmes
 - b. Exposure visits
 - c. Weather based agro Advisory Services
 - i. Mobile voice messages
 - d. Linking the farmers with Iffco Kissan Call Centres

Enhancing the knowledge level of the farmers on crop production techniques

Scenario before 2017	Current scenario	Reason
Farmers were practicing traditional way of cultivation. Very low agricultural activity due to non availability of enough water. Farmers were seeking off-farm employment and migrated to near by towns for construction work and textile mills as labours	Farmers knowledge on crop production techniques enhanced. They are making farming decisions based on the weather forecast to minimise inputs and maximize the yield of crops.	Various capacity building programmes, awareness campaigns and exposure visits have enhanced the knowledge level of the farming community in the watershed.

Kadavakurichi

Table 39: Community capacity building trainings and related outcomes -Kadavakurichi

S. no	Training details	Location	No. of Beneficiaries	Outcomes
1.	Creating Awareness on Climate change	CIRHEP Training Centre	60	Increased understanding on Climate Adaptation technique.
2.	Awareness Programme on Soil test , soil health & Issue of soil health card.	CIRHEP Training Centre	41	Increased understanding on Soil test & soil health card. And importance of soil test.
3.	Awareness training on Nutrition management & Pest management	CIRHEP Training Centre	63	Increased understanding on Need based micro nutrient & applied pest.
4.	Awareness on seed treatment & Vermi composting	CIRHEP Training Centre	85	Created awareness and interest among farmers on organic farming. Cow dung is converted in to decomposed manure.
5.	Awareness training on green fodder cultivation techniques	CIRHEP Training Centre	67	Created awareness and interest among farmers on new technology of fodder cultivation

6.	Training on animal husbandry	Watershed village	69	Created awareness among farmers on animal health, fodder management, cow shed management and prevention of diseases. Productivity of the farms enhanced.
7	Training on crop insurance	Watershed village	63	Created awareness and interest among Farmers on crop insurance schemes.



Table 40: Staff capacity building trainings and related outcomes - Kadavakurichi

	Training details	Location	No. of benefici aries	Outcomes
1.	Climate Adaptation Training	TNAU, Coimbatore	8	Increased understanding on Climate Adaptation technique.
2.	Exposure visit	KVK - Ariyalur	6	Increased understanding on Pest Control methods.

ICT interventions

Information and Communication Technologies (ICT) in agriculture and mobile linked information: In the agro-advisory information such as “Weather Forecast, Weather based crop management advisories and market information” are provided through mobile phone to the registered farmers.

Linkage with Iffco Kissan Call Centre on Agriculture (KCCA): IKCCA is based on learning by doing concept. For the Kharif season for the year 2018-19, 100 nos. of progressive farmers from different hamlets of Kadavakurichi watershed and more than 200 farmers from Kadavakurichi watershed registered themselves in the KCCA and got benefitted by the information given on crop production technology.

Impact on weather based Agro Advisory Services

Weather based agro advisory is provided to the farming community every week. Farmers have learnt to use the weather information and agro advisory for their farm decision making. Case studies have indicated that the decision based on weather based agro advisory has increased the yield of crops by 8 % on an average and increase in net profit by 13.5 % due to input saving and yield increase.



SECTION 11

Project Spin-offs and Co- benefits

Convergence with Government schemes

Table 41: Convergence with government and other linkages - Kadavakurichi

	Name of Resource Agency / Donor / Government / Others / Agricultural University	Name of the project / initiative / Government Schemes and programmes	Funds mobilized (INR)	Remarks
1.	Government of India	Antyodaya Anna Yojana (AAY) 25 poorest families benefited by receiving 35 Kg of food grains per month.	1,26,000	
2.	Department of Animal Husbandry Government of Tamil Nadu	40 beneficiaries linked with Rs. 2 Paddy straw scheme	48,000	
3.	Horticulture department Government of Tamil Nadu	Drip irrigation	45,00,000	Installation on 150 ha of private farm lands for cultivation of Vegetables
4.	Government of Tamil Nadu	3 Women SHG Members received Charka (Rattai)	Rs. 6000	3 families benefited.
5.	Government of Tamil Nadu (Puthuvalvu thitam)	180 beneficiaries linked with toilet construction Scheme.	21,60,000	180 families benefited
6.	Agri. department Government of Tamil Nadu	100 farmers beneficiaries linked - Black gram, Red gram and micro nutrients..	1,00,000	100 farmers benefited
7	Government of Tamil Nadu (Puthuvalvu thitam)	75 women benefited with revolving funds (Land less people and below poverty families)	7,00,000	75 families benefited
8.	Government of Tamil Nadu (Puthuvalvu thittam)	10 poorest students were linked to study computer course free of cost	18000	Access to computer education.



Good down



Local farmers involvement Kadavakurichi

1. Village watershed Committee (VWC) was created with 11 members including 4 women members and legally registered for Kadavakurichi watershed: Society No. 60/2005.dated 27 May 2005)
2. Out of total labour payment of Rs. 1,79,140, an amount of Rs. 36,460 was contributed by the local farming community in terms of Shramadan, which is 16.91%

Women Development Activities:

Kadavakurichi Watershed Women SHG Federation was formed with 350 women members and legally registered for Kadavakurichi watershed: Society No. 60/2012.dated 15 June 2012). The grant amount of Rs. 2, 50,000 received from NABARD was deposited in Kadavakurichi Watershed Women SHG Federation (Account Number: 09461010223293) in the Canara Bank, Batlagundu, funds used for women development activities in the watershed.

The project has consciously mainstreamed gender and empowerment processes for both women and men in all project activities. Special needs and roles of both women and men are addressed during all stages of project cycle management. Women SHG members are more active and have accessed institutional finance for undertaking income generation activities and entrepreneurship development. Agricultural production and biomass has increased with enhanced incomes and savings from purchase of fodder. Social cohesion aspects have improved including the gender relations between women and men. Women are now more vocal and participate in meetings and are also involved in the decision making processes. Women now discuss social issues and help other women and families in distress. Distress sale of cattle has reduced. Special meetings and awareness programmes with women have been facilitated on socio-economic and political issues. Women in villages at the Kadavakurichi watershed villages have been organized into self-help groups.

Women are now participating in local panchayat elections and hold key positions such as Panchayat President and ward member. These women, along with the VWC will form an integral part in the decision-making process for watershed development activities. Landless women will be given priority in all the development programmes planned. Some of these group members have come forward to take up small scale ventures financed by banks, such as petty shops, teashops, agriculture-related activities and floriculture on lease basis. They are interested in taking up micro enterprises that will boost their economic status. Nursery raising (trees, shrubs and herbals), dairy farming, animal feed processing units have been deliberated. The micro processing units are designed based on the availability of raw materials in the watershed area. There is a heavy demand for quality seedlings for many of the afforestation activities both in and out of watershed areas. Women groups will be trained to take up activities that will add to their income. Training, exposure visits and awareness programmes are in built as a part of this action.



Women Self Help Group programmes



Capacity building initiatives were organized on various issues like gender equality, legal aid, health, personality development, financial management, book keeping and entrepreneurial skill development. In addition, skill development training has been organized for women on organic fertilizers and pesticides along with marketing strategies. The trained women are linked with banks for assistance to set up micro enterprises.

Strengthened community organization:

The project has facilitated the formation and strengthening of 20 women SHGs and 5 Joint Liability Groups (JLG) and 4 Farmer's clubs. Various trainings and capacity building initiatives such as book keeping, revolving fund management, etc are provided. The Village Watershed Development Committees were oriented on their roles and responsibilities and engagements with various stakeholders for smooth implementation of the project. Bank linkages were facilitated between the SHGs and the nationalized banks for access to institutional finance. Social issues like child marriage, alcoholism, personal hygiene, nutrition, water and sanitation are being discussed within the SHG meetings..

Common Asset Created

A Rain gun was purchased from the allocated project funds and kept in the watershed for the use of all the farmers as a common property.

Loan support for agriculture and allied activities

Table 42: Fund flow for agriculture activities – Kadavakurichi

S. no	Year	Type of loan	Purpose	Amount in Rs.	Source	Annual total
1.	2017	Federation loan	IGP Activities	95000	Kadavakurichi watershed women SHG Federation (KWSHGF) and Siruthuli peruvellam women federation.	3985000
		Agri loan	Agriculture Purpose	965000	PACB – Koovanuthu, Nilakottai, Canara bank –Nilakottai	
		Dairy loan	Milk Produce		PACB – Koovanuthu, Nilakottai, Canara bank –Nilakottai	
		Education loan	Education Purpose	1200000	PACB – Koovanuthu, Nilakottai, Canara bank – Nilakottai and Uthayam women federation, Nilakottai.	
2.	2018	Federation loan	IGP Activities	70000	KWSHGF and Siruthuli peruvellam women federation.	3001000
		Agri loan	Agriculture Purpose		PACB – Koovanuthu, Nilakottai, Canara bank –Nilakottai	
		Dairy loan	Milk Produce		PACB – Koovanuthu, Nilakottai, Canara bank – Nilakottai	
		Education loan	Education Purpose	1240000	PACB – Koovanuthu, Nilakottai, Canara bank –Nilakottai and Uthayam women federation, Nilakottai.	
3.	2019	Federation loan	IGP Activities	78000	KWSHGF and Siruthuli peruvellam women federation.	3015000
		Agri loan	Agriculture Purpose		PACB – Koovanuthu, Nilakottai, Canara bank – Nilakottai	
		Dairy loan	Milk Produce		PACB – Koovanuthu, Nilakottai, Canara bank – Nilakottai	
		Education loan	Education Purpose	1500000	PACB – Koovanuthu, Nilakottai, Canara bank –Nilakottai and Uthayam women federation, Nilakottai.	
4.	2020	Federation loan	IGP Activities	30000	PACB – Koovanuthu, Nilakottai, Canara bank – Nilakottai	1145000
		Agri loan	Agriculture Purpose		PACB – Koovanuthu, Nilakottai, Canara bank – Nilakottai	
		Dairy loan	Milk Produce		PACB – Koovanuthu, Nilakottai, Canara bank – Nilakottai	
		Education loan	Education Purpose	1500000	PACB – Koovanuthu, Nilakottai, Canara bank –Nilakottai and Uthayam women federation, Nilakottai.	
					Total	1,11,46,000

SECTION 12

Conclusions

Project Highlights

Key areas	Results and Outcomes
Enhanced understanding of climate change, its science, impact, and adaptation option, amongst the policy makers and the community	- Increased knowledge of communities on Climate change and natural resource management. - Increased community actions to conserve and manage natural resources. - Increased community adaptation and resilience to climatic and non-climatic variability's.
Implementation and monitoring of recommended adaptation option in the watershed	- Improved soil and water conservation practices. - Improved cropping patterns - Increased social cohesion and community based actions on alternate sustainable livelihoods - Increased biomass availability. - Increased incomes and livelihood security. - Increased access to institutional credit and finance.
Reframed IGWDP guidelines with incorporating climate change adaptation strategies, based on impact assessment	Policy suggestions can be provided from the project. However, it will be the responsible of the Government to reframe the IGWDP guidelines.

Table 43: Project achievements in terms of outputs, outcomes and results from NABARD supported activities - Kadavakurichi

	Project activity	Outputs	Outcomes	Results
1	Well Recharge pit	71 well recharge pits completed	Increased rainwater harvesting, storage and ground water recharge.	Improved ground water management.
2	Sunken pond	1 sunken pond – completed	More rain water harvested and increased open well water recharge.	Improved water management.
3	Bund planting	1000 Plants planted	Increased biomass cover, conservation of soil and moisture.	Increased availability of fodder and fuel wood.
4	Agro Horticulture	3500 Fruit saplings planted	Increased biomass cover, conservation of soil and moisture.	Increased crop yields and incomes.
5	Backyard fruit plants	1000 Fruit saplings planted	Increased biomass cover, conservation of soil and moisture.	Increased crop yields and incomes.

6	Fodder trees for gully stabalation	2000 Plants planted	Increased biomass cover, conservation of soil and moisture.	Increased availability of fodder and fuel wood.
7	Soil testing and issuing soil health card	100 Soil samples completed.	Increase awareness to watershed farmers.	Increased knowledge of need based fertilizer & pesticides.
8	Summer ploughing	140 ha. Summer ploughing done during summer months on private farm lands	Increased better availability of soil moisture for crop production.	Increased soil nutrient availability, Soil borne pests controlled.
9	Deep Tillage	40 ha. deep tillage done during summer months on private farm lands	Increased pulverization of soil leading to better availability of soil nutrients for crop production.	Increased soil nutrient availability, Soil borne pests controlled.
10	Azolla cultivation	20 units of private farmers fields.	Increased availability of grasses and biomass (green fodder) for livestock.	Increased availability of green fodder especially during the summer months.
11	Vermi compost	30 units completed on private farm lands.	Increased availability of vermin compost for crops leading to better organic content and soil fertility, savings on purchase of manures and fertilizers.	Increased crop yields.
12	Alternate verities – demo	100 units completed on private farm lands.	Increased availability of food grains and biomass (dry fodder) for livestock.	Increased availability of minor millets and good income.
13	Alternate crops – demo	100 units completed on private farm lands.	Increased availability of food grains and biomass (dry fodder) for livestock.	Increased availability of minor millets and good income.
14	Intercropping	200 units completed on private farm lands.	Increased availability of pulses and biomass (dry fodder) for livestock.	Increased availability of minor millets and good income.
15	Crop rotation	100 units completed on private farm lands.	Increased availability of food grains and biomass (dry fodder) for livestock.	Increased availability of minor millets and good income.
16	Seed treatment	300 units completed on private farm lands.	Increased availability of micro nutrient for crops leading to better and soil fertility, root savings.	Increased crop yields.

17	Kitchen Garden/Nutritional garden	201 units completed on private houses.	Increased biomass cover, conservation of soil and moisture.	Increased vegetables yields and incomes.
18	Poultry unit (20 units of desi chicken)	215 units completed on private beneficiaries.	Increased no of Poultry populations.	Increased meet yields and additional incomes.
19	Green manure cultivation	8 units completed on private farm lands.	Soil fertility increased.	Increased levels of soil fertility and crop yields.
20	Bio fertilizer	121 units completed on private farm lands	Soil fertility increased.	Increased levels of soil fertility and crop yields.
21	Bio control agents	120 units completed on private farm lands	Increased availability of micro nutrient for crops leading to better and soil fertility, root savings.	Increased crop yields. Reduce cost of cultivation.
22	Egg cards	120 units completed on private farm lands	Increased availability of micro nutrient for crops leading to better and soil fertility, root savings.	Increased crop yields. Reduce cost of cultivation
23	Pheromone traps	120 private farm lands	Increased availability of micro nutrient for crops leading to better and soil fertility, root savings.	Increased crop yields. Reduce cost of cultivation
24	Tank silt Application	Applied on 200 units completed of farm lands	Soil fertility increased.	Increased levels of soil fertility and crop yields.
25	Honey bee keeping demo	4 units completed on private farm lands	Increased availability of micro nutrient for crops leading to better and soil fertility, root savings.	Increased crop yields. Additional income.

Major Challenges

Following are the major Challenges encountered:

- Community organization and strengthening processes including rapport building and engaging with women and most vulnerable families.
- Capacity development and up gradation of technical and social skills of project staff.
- During the period September to December 2018. MGNREGS works affected the physical progress of the project. However, project work was speed up there after. This involved enhanced work load on project staff and community representatives and their associations.
- Due to insufficient rain, the tree planting works have delayed in the first two years. Rain during planting time affects the roots of the newly plated plants.

Summary and future implications

Direct benefits of climate proofing interventions

The major activities of climate proofing project in the study watersheds were oriented to achieve the outcome on prevention of soil erosion, retain the water in the land to increase percolation rate of the soil, recharging the ground water and increasing soil fertility and green cover on the lands. Some of the direct benefits are listed below:

a) Increase in ground water level: Ground water level has considerably increased which ensure water for irrigation and drinking to the watershed communities, by preventing soil erosion in the lands of the farmers. Rain water is retained in the soil where it falls, which increased soil moisture. Drainage treatment works done in the watershed also helps to retain the run-off water from the catchments at different places through various conservation structures created.

b) Increased green cover with agro-forestry and grass seeding: Increased green cover along the field bunds with the agro-forestry and grass seeds sown in the rain-fed lands as well as the irrigated lands helped in binding the soil, prevents erosion and also provides fodder to the cattle. In terms of Planting of indigenous tree saplings in the waste lands as well as in the agricultural lands as shelter belts are enhancing the microclimatic conditions in the region and are favoring in increasing the green cover in the region. Soil erosion is also considerably reduced.

c) Increase in Net sown area: Due to the implementation of climate proofing technological interventions, soil erosion is prevented by controlling the rain water run-off, thus rate of percolation and the sub soil water table are increased. The net sown area in the watershed region considerably increased.

d) Increased crop biodiversity with the production of food grains: Implementation of climate proofing activities has improved the utilization of abandoned lands in the study watersheds. The productivity of rain-fed lands have increased in the last two years. Farmers of rain-fed lands are cultivating multi crops like millets, pulses and cereals, instead of the monoculture of maize, which has increased the crop biodiversity and provides fodder to the cattle. Irrigated lands productivity also got enhanced and the farmers are now cultivating vegetables like tomato, brinjal, radish, Ladies finger, onion, drum stick to enhance the farm productivity.

e) Adaption of new technologies: The farmers are practicing new irrigation technologies like drip irrigation, micro-sprinklers and rain-gun along with fertigation, to irrigate the crop plants to increase the water use efficiency. This has helped in using the irrigation water in sustainable way, in addition to bringing in more area under irrigated agriculture.

f) Horticulture development: With the increase in ground water level and the water level in the open wells, farmers are cultivating horticultural crops like Mango, Amla, Lemon, Guava with the adaptation of drip irrigation in between the agriculture crop lands. The farmers for additional income, practice intercropping of cereals and fodder crops in the horticulture plantations.



g) Increase in yield of crop plants: After the implementation of the climatic proofing project, the yield of crops cultivated in the lands has increased. Organic farming practices have increased the soil fertility and biomass of the land, thereby increased the yield of crop plants.

i) Increase in fodder availability: The green fodder, Gilirisadiya -CO4 was established by providing cuttings of the grass to the farmers who have enough water to maintain the grass. Grass seeds such as Stylo hemata are sown in the field bunds, farm pond bunds and pasture land. Different types of Cereals, pulses, millets and grass varieties are sown in dry land field.



Azolla has been grown as alternative fodder especially for milch animals. The fodder availability rate has considerably increased from the field bunds, pond bunds, dry land fields and pasturelands. Free grassing is prevented.

j) Increase in cattle population: With the micro credit supports through banks as well as cost free calves provided by the Tamil Nadu Government, the number of cattle is increased. The women now maintain the increased population with increased availability of fodder. The population of work animals is considerably decreased because of mechanization to save time and to plough the soil in fast manner before the moisture in the soil is dried. The population of sheep, goat and poultry are also being increased in the watershed area. By increasing the population of cattle the milk production, meat, egg is also increased. By consuming the products from the cattle the health of the people is improving and by selling the products the income and the socio economical status of the people also enhanced.

Indirect benefits of climate proofing interventions

a) Conservation of natural resources: Minimized exploitation of natural resources of Kadavakurichi Catchment and increase in the regeneration of species. The basic objective of promoting Bund planting is to extract more carbon dioxide, one of the chief environment-damaging gases, from the air and convert it into plant matter - a process technically called carbon sequestration. As such, the advantages of agro-forestry go beyond environment improvement, extending to the conservation of land and amelioration of soil health and its fertility even while keeping the land under agricultural production. Hence, intensive agro-forestry is promoted in the study watersheds.

b) Improvement in soil conservation: Soil erosion in the watershed regions are controlled through appropriate soil and water conservation measures in terms of bunding, sowing of grass seeds, trenches. As the result of it, even with high intense rainfall, the rain water is retained in the soil where it falls.

c) Enhancement in the livelihood of the communities: Voluntary Community involvement is ensured through the Village Watershed Committee in outreaching the proposed climate proofing project activities for sustaining agriculture and thereby adopting to cost-effective farm management technologies, improving the farm income, livelihood of the communities in the region. Enhanced fodder availability for livestock from the lands also increased the income of the family. The recycling of the farm waste material has helped in enriching the soil as manure through vermin-composting. Economic empowerment of women is ensured through income generation activities with the utilization of local resources.

Visitors our Watershed Area

Visit by GM NABARD Chennai



Visit By DGM NABARD



Visit by AGM NABARD Dindigul



Visit by NABARD Consultant



Visit by Gandhigram University Students



Visit by TNAU Madurai Agri Student



Visit by AGM NABARD Dindigul



Visit by DWDA



Visit by KFI School - Chennai



Transformations in the study region

Following change have occurred in the study watersheds:

- Change in cropping pattern in the watershed – Mixed cropping, summer cropping, and winter cropping patterns.
- New food crops, vegetables and fruit crops cultivated.
- Farmers are practicing organic farming methods
- Increased cultivation of vegetables contributing to better nutrition and enhanced incomes.
- Significant increase in soil treatment measures in the watershed agriculture land developed and used for crop production.
- Increased availability of biomass and fodder crops in the watershed.
- Increased involvement of women and men in agricultural development and entrepreneurship.
- Women leadership emerging to take up local development and social issues.

Major lessons learnt

Following are the major lessons learnt through the study:

- Community contribution/ Shramdhan in watershed physical activities are crucial for ensuring ownership and sustainability.
- Participation of reference communities at all stages of project cycle is important to ensure greater participation, ownership, transparency and accountability.
- Promotion of improved watershed treatment measures and crop production systems with a holistic approach is necessary for the overall development of the communities and the environment.
- Formation and strengthening of community groups and associations is essential for ensuring the smooth implementation of project activities.
- Working with women and their collectives can lead to accelerated social development in the area.
- Understanding of technical and social aspects of watershed development is crucial for ensuring smooth project implementation.
- Training, exposure and capacity development initiatives both for community representatives and project implementing partner staff are important for the success of the project. Budget for capacity building to be earmarked to support the capacity development processes.
- Working with government, nationalized banks and other development actors is important for greater synergy and convergence.
- Targeting the most vulnerable individuals and households for project interventions and linking them with Government development schemes and programmes will play key role for ensuring sustainability aspects.
- Media liaisoning and advocacy is important for issues of visibility and outreach to a larger audience and civil society. However, care to be taken for ensuring all quality checks and compliance issues as per donor communication/visibility guidelines/standards.

Major outcomes of the project

Major outcomes of the project include:

- Awareness created on conservation of land and water among various sections of the watershed community such as farmers, women & children

- Implementation of soil & water conservation measures and utilization of land according to its capability, led to effective conservation of soil and water.
- Increase in vegetative cover in the watershed due to appropriate afforestation programme.
- Sustainable farming through optimum utilization of natural resources like land, water & vegetation that lead to increased farm productivity
- Increased livestock productivity through pasture land development and fodder production programmes.
- Increased income through alternate livelihood sources and agro-based industries like bee keeping & honey processing, mushroom cultivation etc.

Sustainability of the programme and way forward

The Village Watershed Committee (VWC) in convergence with local Government bodies and institutions did successful implementation of Climate Proofing programme in the selected watersheds. The sustainability of the Climate Proofing project in the coming years could be ensured in the following ways:

- a. Enhancing the capacity of Village Watershed Committee to involve in developmental activities, conducting regular meetings and organizing capacity building trainings: The watershed communities on realizing the impacts of the Climate Proofing components like agriculture development and area and drainage treatment works their participation level will have been considerably increased to promote agricultural practices with the methods and technologies and conserve the soil, water and natural resources. This had been made possible with their volunteer involvement in the programmes and activities which incurred their attitude to involve in further outreaching and replicating the project components
- b. Continuing capacity building programmes by the Tamil Nadu Government Extension Agency in the Department of Agriculture for the farmers on the technologies to cope with climate variances, delayed monsoon, drought, etc.
- c. Conducting on farm trails and field demonstrations jointly by VWC and the Department of Agriculture, Government of Tamil Nadu in the farmers field to motivate, sensitize and enhance outreach of climate proofing technologies
- d. Replicating the acquired skills of the progressive farmers to other farmers to outreaching the project components as community based initiatives
- e. Developing corpus funds to continue capacity building activities
- f. Promoting crop and cattle insurance and credit accessibility
- g. Organizing to get the Government support for repairing the drainage structures like de-silting check dams,
- h. Motivates and involves beneficiaries to undertake the drainage and area works collectively.
- i. Promoting Women Self help Groups: The economical development of the women in the watershed villages has created considerable impacts and changes on the lives, livelihoods and life standards of the family as well as the community. With the flourishing of agricultural, women involve in utilizing agricultural products as the means of income generation activities like, tailoring, Charka unit, and milch animal rearing with the increased fodder availability.

The project will continue its engagement with the reference communities even after the completion of the project period. Information on Government development schemes and programmes and linkages of eligible community members with schemes, programmes and entitlements will be continued. The climate proofing tool was used to identify and prioritize adaptation options and also to customize the treatment measures according to the climate change

analysis. These recommended adaptation options have been integrated in the planning process of WDF and IGWDP programmes. Climate proofing for development can be applied to a variety of different schemes and is a highly potential tool for replication to mainstream adaptation into development planning.

Signatories

NGO: CIRHEP

VWC: Kadavakurichi Village Watershed Committee

Signature: _____

Name: P.M.Mohan

Designation: Secretary

Signature: _____

Name: C.S.Palpandi.

Designation: Chairman

Enclosure:

- i) Sanction copy the Climate Proofing Project
- ii) Xerox copy the updated VWC Bank Account jointly operated by VWC
- iii) Certificate / Document to show the closer of the Account (Audit Report of VWC / NGO joint Account and NGO Project Management Account)

