



**ANNUAL REPORT
2019 - 2020**



THEME OF THE YEAR

**FARM SKILL DEVELOPMENT
FOR A SUSTAINABLE FUTURE**



ANNUAL REPORT 2019 - 2020

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Letter from the Managing Trustee



This Annual Report marks the culmination of 20 years of a remarkable journey of National Agro Foundation (NAF) an organization, a brainchild of the great visionary Late Shri C Subramaniam (Bharat Ratna Awardee). His vision and futuristic thinking about the welfare of the farming communities had laid the foundation to many new experiential learning and progressive growth factors in the agriculture and rural development sector in India.

From its humble beginning based on small practical approaches to sustainable development, NAF has grown to a fully fledged professional organization providing cutting edge services creating large scale impact in the rural areas and changing lives of scores of farmers in the country. Joining hands with the Union Government, state Governments and corporate houses to implement its core programs, NAF has been successfully addressing local and global challenges of agriculture and rural development space through multi-pronged approaches and targeted interventions.

While continuing with its 4E development model through multi-pronged interventions, ***Farm Skill Development for A Sustainable Future***, has been the central theme of NAF initiatives for the year 2019 - 20.

Skill development in general sense has been focusing predominantly on non farm sector, whereas, agriculture sector which employs about 60% of the country's population, needs focused approach to enhance the skill sets of the practicing and new age farmers to enable them cope up with the changing trends in agriculture and agri-business sector. There has been general shift in focus from mere "production" to "post-harvest" including value addition, processing, supply chain and marketing. An increased application of digital technologies also calls for urgent need to educate the farmers on the recent trends such as Artificial Intelligence, IoT (Internet of Things), online marketing, digital payments etc. for better decision making and realization of profits. Agriculture being a core area of focus for NAF and a common thread linking almost all the sustainable development goals, the need of the hour calls for, investing in farm skill development both on-farm and off-farm technologies, to cope up with the changing trends of agriculture and agri-business in India. We have tried to mobilize scientific know-how, coupled with technological inputs in keeping with complex social structures, ground realities of the farm organization and activities, creating impact on livelihoods, agriculture production systems, soil and water conservation etc. NAF has been remarkably successful at emphasizing use of resource-conserving technologies such as lean farming, soil and water conservation, nutrient recycling, multiple cropping, water harvesting, and waste recycling through all its projects. In all, there has been action by groups and communities at the local level, with farmers becoming experts at managing farms as ecosystems and at collectively managing the watersheds or other resource units of which their farms form a part. This collective action and empowerment process is what sets NAF's intervention a unique one.

NAF strongly believes that with the impact of climate change, severe food crisis and poverty rising up the global agenda, identifying and creating the opportunities for rural India, especially in agriculture sector to be part of the solution is critical. It is crucial to increase productivity in agriculture, agri-business and other related rural industries while maintaining synergy with the ecosystem, for which appropriate knowledge and skills are indispensable.

Training on Good Agricultural Practices (GAP), hard and soft skills in agriculture supply/value chain, training on post harvest and processing, market connect etc.

are vital to empower farmers to increase their income per unit of production which forms the basis for achieving the goal of Doubling Farmers' Income (DFI). This will not only increase farmers' ability to test, try, and adopt new technologies in agriculture but will also improve employability and livelihood opportunities. It is heartening to note that these knowledge and skill sets imparted through farm sector skill development is being put into practice by lead farmers and reaping handsome benefits in terms of increased yield, reduced cost of production and increase in income thereby enhancing the overall farm efficiency.

In addition to the above, NAF has also focused on bridging the digital divide in rural communities by strengthening its communities with knowledge and skills leveraging IT platforms for large scale information sharing.

My sincere thanks to the Board of Trustees and the Governing Council of NAF for their unconditional support, cooperation and guidance for the past 20 years especially during testing times to put the vision of the organization into a reality. But for their support, NAF would not have spread its wings across 8 major states of India. I would like to place on record my appreciation to the entire team at NAF, who have contributed to the growth of the organization through their dedicated service and commitment.

My special word of gratitude to all the donors, supporters, well wishers, various institutions, corporate companies and the Government who have contributed immensely to the growth and journey of NAF for the past 20 years and reposing faith in us to march forward through their continued support.

This Annual Report brings to you, many new inroads in the field of sustainable agriculture and rural development through various projects of NAF.

We will strive to keep the flame of courage and commitment of our Founder Shri C Subramaniam alive, through these challenging times ahead and let our efforts continue to create ripples of change and impact in the lives of the rural communities.

Happy Reading!

S.S. Rajsekar

Managing Trustee

About the Founder



Shri C. Subramaniam was first and foremost a patriot devoted, in pre-independence days to the cause of freedom; and later to the development of the country; and the preservation of its rich cultural heritage. With his courageous attitude, strategic decision-making abilities and innovative approach; he has left his mark on almost every field of national significance may it be agriculture, finance, science & technology, education, policy-making, steel & heavy industry or national defense. Among all his significant contributions to our nation-building, he will be gratefully remembered as the Architect of India's Green Revolution, which transformed the country from a precarious "ship-to mouth" existence to food surplus nation.

Mr. Subramaniam was awarded with the nation's highest civilian honor of the 'Bharat Ratna' for his contribution to Green Revolution in India. He is a recipient of Y.B. Chavan Award for National Integration and as well as International honors such as the 'U Thant Peace Award' and 'Borlaug Award' among others. As a parting gift to his nation on his 90th birthday, he founded the National Agro Foundation (NAF), with the vision to create a prosperous rural India through rural innovations.

About the Organisation



National Agro Foundation (NAF) was set up as a Public Charitable Trust in 2000 by Mr. C Subramaniam, Architect of India's Green Revolution and Bharat Ratna Awardee to revive rural India through rural innovations. After his demise Dr. A P J Abdul Kalam was the Chairman and he held this post till he became the President of India.

Inspired by the opportunity to deliver innovative and replicable solutions to the complex and interlinked socio-economic- environmental challenges of today's rural India we have articulated an agile strategy with prime focus on advancing and strengthening the interdependent and mutually reinforcing pillars of sustainable development – Education, Economy, Environment & Empowerment.

Vision:

“ To create a Healthy, Literate and Prosperous Rural India ”

Mission:

“ Creating replicable models of prosperous rural clusters through ecologically safe, environmentally sustainable farm and non-farm sector activities, natural resource management, rural enterprises and human resource development by networking various stakeholders through mutually beneficial partnerships. ”

The 4E Approach

NAF believes that sustainable development is about recognizing, understanding and acting on the interconnections, between the thematic areas of Education, Environment, Economy and Empowerment.



The Strategy

NAF has aligned its internal policies; to regional and national policies relating to agriculture, social development, water and sanitation and other sustainable development goals. In an effort to tackle various developmental challenges and address the complex issues of various vulnerable communities, NAF has opened up to a more collaborative strategy roping in corporates and the Government in implementing various programs for scalability and sustainability.

Key Strategies

- Adopting an Innovative and inclusive approach
- Cultivate and nurture partnerships and collaborations between private sector and Government agencies for implementation of Projects
- Incorporating the MLM principle, moving from less to more
- Evolving more participatory development models which are sustainable
- Integration of Information , Communication Technology for Development (ICT4D)
- Encouraging knowledge sharing amongst partners
- Strengthen institutional and human capacity for professional engagement in the development sector
- Support & promote R&D in NAF's core working areas in collaboration with various research Institutions
- Technology transfer to support farmers on soil and crop management

Sustainable Livelihood Approach

The idea of assets is central to the sustainable livelihoods approach. Rather than understanding poverty as simply a lack of income, the sustainable livelihoods approach considers the assets that poor people need in order to sustain an adequate income to live.



Natural Assets	Watershed Management, Natural Resource Management, Flood Mitigation etc.
Physical Assets	Food Processing centres, Resource centres, Rural Infrastructure, Training Centres etc.
Social Assets	Watershed Management Committees, Farmers Organisations, SHGs & JLGs, Farmers Club etc.
Human Assets	Training & Capacity Building, Frontline Demonstrations, Village Resource Persons, Training Students and Professionals etc.
Financial Assets	Access to credit, Bank Linkages, Grants, Revolving Funds etc.

Celebrating 20 years of NAF

Milestones Achievements over the Years

2000

NAF registered as a Public Charitable Trust

State-of-the-art Soil Testing Laboratory commissioned with support from TIFAC, DST, Govt. of India



First computer based Adult Literacy Program launched at Chunampet village in collaboration with Tata Consultancy Services (TCS)

First Cattle Development Centre at Gummidipoondi inaugurated

First Demonstration Farm set up at Karumbakkam village - yield of Maize improved by 150%

2001

2002

Collaboration with Anna University for Joint Research Program



2003

Formation of first Self Help Group facilitated by NAF



NAF Center for Rural Development (CFRD) - a Comprehensive Training Center Complex for Agriculture and Rural Development was inaugurated

2004



NAF Research and Development Centre
inaugurated

2005

2006

President of India Dr A P J Abdul
Kalam visited NAF Research &
Development Centre



NAF Food Microbiology Laboratory
was established

2008

2009



NAF - IGNOU Community college registered
and inaugurated



NAF recognised as Nodal Training Institute for training for agriculture
graduates and diploma holders under Agri-Clinic and Agri-Business
Center (ACABC) scheme of Govt. of India and program launched

NABARD - NAF FTTF project on "Farm Productivity
Improvement" launched

2010

NAF reaches out to the rural communities in Andhra Pradesh

NAF recognized as Resource Institution for conducting residential
training program for office bearers of Panchayat Level Federation (PLF)
by Tamil Nadu State Non Governmental Organisations and Volunteer
Resource Centre (TNVRC) supported by Tamil Nadu Corporation for
Development of Women, GoTN

Sirunagar Farmers Club promoted and nurtured by NAF
receives the coveted State Level Best Farmers Club Award
from NABARD



2012

2013



BNY MELLON

NAF join hands with Tamil Nadu Agriculture University (TNAU) for Agriculture Development Initiatives

NAF empanelled as a field partner by BNY Mellon

NAF empanelled with National CSR Hub coordinated by Tata Institute of Social Sciences

NAF Laboratory Services Division granted accreditation for soil, food and water testing; as per ISO/IEC 17025:2005 International standard by National Accreditation Board for Testing and Calibration Laboratories (NABL), GOI

NAF R & D Centre empanelled by IGNOU as a Program Study Centre (PSC) for PG Diploma in Food Safety and Quality Management program

2014



2015

NAF's First CSR project on "Integrated Community Development Program" launched in Coimbatore under support from Larsen & Toubro Limited

NAF empanelled as Resource Institution by SFAC and NABARD for promoting and nurturing Farmers Producer Organizations (FPO)

CSR project on "Watershed and Natural Resource Management program" commenced in Odisha state supported by AVH Chemicals Private Limited

NAF commenced its operation in **Maharashtra**

2016

2017

NAF's initiatives started in Uttar Pradesh as knowledge partner to HCL Foundation

NAF received its Award of Appreciation from Mr. Bill Gates for its innovative digital platform KANCHI in Global AgriTech Pitch Competition



NAF and BNY Mellon received runner up award from MCCI for their project on Flood Rehabilitation in Tamilnadu

KANCHI Digital Platform formally launched by Hon'ble Governor of Tamilnadu

NAF's Nugumbal Watershed awarded the first prize by NABARD as Best Watershed

NAF commenced its operations in Haryana, Karnataka and Telengana states

NAF empanelled as Training Partner with FSSAI under FoSTaC program

2018

The logo for FSSAI (Food Safety and Standards Authority of India) features the word 'fssai' in a stylized, lowercase font with a green leaf icon above the 'i'.The logo for FoSTaC (Food Safety Training & Certification) features the word 'foSTaC' in a bold, sans-serif font with a green leaf icon above the 'a'. Below the text, it says 'Food Safety Training & Certification' in a smaller font.

2019

The Best Watershed Award by NABARD was awarded to Kotteri, Narumanam and Kuppachiparai watersheds of NAF

Impact 2019 - 2020

Overall 40,000 rural families from over 420 villages across 9 states have benefited from NAF's interventions

Environment

5000

acres of smallholders' farm benefited from direct agri-tech knowledge transfer

25-57%

increase in productivity levels of various crops

89-106%

substantial increase in family income

115

villages across India and

33354

families benefitted by various Watershed Develepoment Programs

16000

hectares of farmland irrigated through watershed intervention

1564

hectares of fallow-land brought under cultivation

41118

hectares of total surface
area treated.

5939

soil and water
management interventions
completed

1400+

toilets built under total
sanitation program

2.3-4

metres increase in
water table level

13 lakhs

litres of increase in water storage
capacity.

Economy

22 FPOs

promoted with a share capital
to the tune of

7.08 Crores

Resulting in
a total annual turnover of

2000+

Self-Help Group members
benefited through various
income generation projects

2.4 Crores

in Tamil Nadu

Education

128

training
programs

3490

beneficiaries

More than
70% successfully
employed.

30

rural children
learning through play-way method
in NAF Model Playschool

6000

mahila kisan were trained on
indigenous know-how technologies,
IPM , INM strategies

Empowerment

2270

rural communities covered
under social security scheme
LIC Jana Bima Yojna

Encouraging
WOMEN

participation in development
activities

36

women farmers trained
and facilitated with

100000

INR each as revolving fund
to undertake farming activities

44

village watershed
committees formed

Working divisions

and various associated activities of NAF

Watershed Development Division

Natural Resource Management, Watershed Development, Soil and Water Conservation, Climate Change adaptation and mitigation, Promotion of Agro Forestry, Rehabilitation of areas affected by flood disaster etc.

Agricultural Development Division

Farm Mechanization, Sustainable Climate Smart Agriculture, Knowledge and Technology Partner, Implementation of Projects, Action Research etc.

Agri-Business Development Division

Formation & Development FPOs, Agri-business trainings, Digitization of FPO Business Operations, FPO Credit & Market Linkages, Rural Entrepreneurship etc.

Training and Capacity Building Division

Training and Capacity building for adoption of Sustainable Agriculture practices, Organic farming, Lean Farming, Climate Smart Agriculture, Agri Clinic and Agri Business training, Agricultural Technology training, Micro Enterprise Development, Awareness programmes etc.

Social Development Division

Community Mobilization, Financial Inclusion, Livelihoods, Entrepreneurship, Promoting formation and Supporting Self-help Groups etc.

Laboratory Services Division

Technology and analytical services for food and agriculture development covering soil, food quality & safety analysis, training research and academic programmes etc.

Research & Development Division

Conducting R&D on best agri-practices, front line demonstrations in paddy, groundnut and other crops, assisting research scholars under various academic programs etc.

Watershed Development Division



In a trail blazing effort, NAF has been in the forefront on watershed projects as a part of its Natural Resource Conservation program which is an important component in its comprehensive rural development initiatives. The watershed Program is strategized on a comprehensive community development approach integrating areas such as soil and land management, water management, afforestation, pasture land development, agriculture development, livestock management, livelihood support and enhancement, community empowerment to target effective overall sustainable development in rural communities.

Following is the summary of the projects that are being implemented in different states of India. These projects are being implemented with the support of NABARD and Corporate sectors. Watershed projects are implemented in the following modes:

- » Grant assistance from NABARD and Corporate agencies on the basis of 50:50 fund sharing.
- » 100% funding support by corporate agencies.

Development Indicators and *Watershed Intervention Areas*

NAF's Watershed team along with the support from our corporate partners effectively manages the bio-physical, socio-economic and institutional components of the watersheds through a multi-disciplinary & multi-sectoral approach, using scientific knowledge from different fields and a combination of traditional wisdom and modern technologies, strategies, and techniques to create maximum possible benefit for the primary stakeholders.

Integrated Watershed Development Projects (IWDP) aim to balance the conservation, regeneration and use by humans of land and water resources within a watershed. Common benefits from successful Integrated Watershed Development projects include improvement in ground water leading to sustaining agricultural yields and increased access to drinking water. The overall attributes of the Integrated Watershed Development approach, by and large, are three fold, viz. promoting economic development of the rural area, employment generation and restoring ecological balance.

The problem of depletion of ground water as well as potential threat to water security could be addressed only through a comprehensive approach with participation from multiple stakeholders. Details of the watershed projects supported by various corporates are to the right.

Ongoing CSR supported watersheds *at a Glance*

Name of the Watershed	District	No. of Villages covered	Total Area covered (Ha)	No. of Families Benefited	Funding support
Edaiyur	Kancheepuram	5	1526	1655	TATA Capital
Vandavasi	Tiruvanamallai & Kancheepuram	9	2177	1318	TATA Capital
Kokkaranthangal	Chengalpattu	4	1381	1327	LTTS
* Kolwadi	Pune	5	1505	577	LTTS
Kathwadi WS+	Pune	5	290	121	LTTS
Rohtak	Rohtak	3	10819	3532	APL
Kasna	Kasna	3	1886	1235	APL
Nanjangudu	Mysore	4	6680	245	APL
* Patencheru	Hyderabad	1	4336	839	APL
Solinganallur	Chennai	1	1100	750	BNYM
Vedanthangal Sanitation Complex	Kancheepuram	1	NA	NA	BNYM
Vallakottai Water body Rejuvenation	Kancheepuram	3	50	1150	RNAIPL
* Gummidipoondi Water body rejuvenation	Tiruvallur	2	600	250	HPCL
Chettipalayam WS+	Coimbatore	4	1277	2514	L&T
Pappampatti WS+	Coimbatore	4	1220	2212	L&T
		54	34847	17725	

* Projects commenced in 2019-20.

Development Indicators and Areas of Intervention

Development Indicators	Areas of Intervention
Social Development	Formation of Village watershed Committees, promoting women participation and leadership roles by strengthening social institutions, promoting inclusive development, encouraging participatory decision making processes.
Economic Development	Increased level of agri-production and yield through improved agri-practices, lean farming techniques, providing market linkages and enhanced production through proper farm management techniques.
Environment Development	Increase green cover in the region by plantation activities such as agro-forestry and agro-horticulture, seed ball program, plantation across water harvesting structures to prevent surface run off and improve soil conditions, soil testing facility for farmers, better pest and disease management practices in the region, increase ground water table level and water harvesting in all structures under NRM, villages have reached sustainable water management practices and have excess for additional cropping leading to larger household income, reduced open defecation due to construction of household toilets for the community, access to safe and hygienic drinking water for the community household and animal requirements.
Education & Empowerment	Skill development through trainings on various income generation activities, exposure programs to raise the level of awareness and facilitate peer learning across communities, encouraging women to participate in development activities, women representation in the VWC, involvement of students in green initiatives, health awareness and improved sanitation status in the villages.

Edaiyur Watershed, Tamil Nadu

Jal Aadhar Project

TATA CAPITAL

CSR Partner: TATA Capital Housing Finance Limited

This project has been implemented in Thirukazhukundram block of Kancheepuram district (now Chengalpet District) since 2017. Edaiyur is a medium size village located in Thirukazhukundram of Kancheepuram district, Tamil Nadu with total 188 households and a total population of 759 residing in the village. Prior to the joint intervention of Tata Capital Housing Finance and NAF, Edaiyur suffered from severe water scarcity during the extreme summer months and both animals and people suffered from various diseases due to lack of access to safe drinking water, this non availability of water also impacted other areas of their life and livelihood such as agriculture their main source of income.

Due to concerted efforts from the team and cooperation of the village community, Edaiyur, today, shows all round improvement and visible increase in surface and ground water, change in cropping pattern of the farmers, who now opt for multiple crop cycles due to increased availability of water, thereby increasing yields through adaptation of modern agricultural practices and best techniques, also impacting the level of income of the entire community. Increase in fodder availability and milk yield, benefiting those involved in the dairy business. Construction of various water harvesting structures in the village has led to the overall conservation and proper storage of water, making this vital resource available to the farming community and thereby benefiting the community living in the project area. The outcome of the project are as follows.

Outcome of activities agreed upon under the project

Activity	UoM	Units	Achievement	Area Benefited
Training and exposure visit to watershed projects	Nos	8	2	300 Nos
Field Bund 0.42	Rm.	7297	3055	52.5 Ha
Water bodies (WB)	Cu.m	16625	3100	174.8 Ha
Agro-Forestry (AF)	No.	9071	6971	101 Ha
Agro-Horticulture (AH)	No.	7871	7071	156.5 Ha
Cattle pond	Cu.m	18250	52	263 Ha
Check dam	Nos	3	2	150 Ha
Kitchen garden	HH	3350	2850	194 Ha
Preseason camps	nos	6	2	60 Nos
Green manuring	nos	150	75	25 Ha
Cattle camp	nos	6	3	75 cattle
Vermi compost, azolla unit	nos	10	5	5 Nos
Agri Advisory - Expert visits from NAF	nos	28	5	NA
Micro irrigation and poly mulching	nos	10	5	2.5 Ha
Fodder kit	nos	500	300	300 Nos

Efforts and activities achieved through Edaiyur project



Vandavasi Watershed, Tamil Nadu *Jal Aadhar Project*

CSR Partner: TATA Capital Housing Finance Limited

Enthused by the ongoing successful project activities and the positive impact created by the project on the community, Tata Capital Housing Finance Limited sanctioned another watershed project in Vandavasi cluster of Thiruvannamalai district.

Sustainable village project was designed to cover 11 village hamlets covering a geographical area of 2774.55 hectares, in Acharapakkam block; of Kanchipuram district and Vandavasi block of Thiruvannamalai district.

Efforts and activities achieved through the project



The following are the activities that were carried out during the year 2019 – 20. These activities were implemented at an outlay of INR 45.58 lakhs during the year 2019 – 2020.

Outcome of activities agreed upon under the project

Activity	UoM	Units	Achievement	Area Benefited
Productivity improvement - Paddy	Nos	30	10	7.5 Ha
Productivity improvement - Pulses	Nos	30	10	10 Ha
Productivity improvement - Vegetable	Nos	30	10	8 Ha
Inter cropping	Nos	30	10	10 Ha
Organic formulations	Nos	6	3	55 Nos
Seed treatments	Nos	6	4	68 Nos
Soil health management	Nos	6	4	80 Nos
Water management	Nos	6	2	32 Nos
Weed management	Nos	6	2	45 Nos
Post-harvest management	Nos	6	2	30 Nos
Supply channel	Cu.m	15300	8011	225 Ha
Check Dam	No	3	2	110 Ha
Cattle pond	Cu.m	7300	7300	200 Ha
Veterinary Camp	Nos	36	7	150 Nos
Pasture development	Nos	300	100	100 Nos
Integrated nutrient management	Nos	6	1	30 Nos
Integrated pest management	Nos	6	4	52 Nos
Tree planting	Nos	6	1	24 Nos
Sports equipments	No	4	4	430 Nos
Exposure visit	Nos	3	1	60 Nos

Impact of Intervention in Edaiyur and Vandavasi, Tamil Nadu

Impact on water conservation

- » 7297 Cu.m of field bunds were created to promote water conservation through infiltration and help reduce surface run off covering 20 ha.
- » A total of 11 water bodies were excavated to harvest rainwater. 15,170 Cu.m of land has been excavated with a water harvesting capacity of approximately 151.7 lakh litres of water. These water bodies are in the form of farm ponds, village ponds, cattle ponds to service various requirements of the farming community
- » During the period 214.01 lakh litres of water harvesting potential has been created. Actual water harvested is 160.5 lakh litres of from south west and north east monsoon. Details of water harvested during FY 2019-20 are given below.

Activity	Potential of water harvesting <i>in litres</i>	Actual Water harvested <i>in litres</i>
Village pond Ammanampakkam	3000044	2250000
Village pond Veliyampakkam	1600022	1200000
Village pond Eyipakkam	4800070	3600000
Village pond Gunangaranai	5200076	3900000
Check dam Veliyampakkam	3200000	2400000
Check dam Salavedu	3601000	2700000
Total	21401212	16050000

Productivity Enhancement Measures

- » Farming is becoming increasingly unviable due to poor profitability. One of the reasons for poor profitability is the low productivity. Low productivity in farming is attributed

to several factors, but the primary reason among all is the lack of knowledge of scientific farming techniques and the necessary skill sets to adopt the same. Frontline demonstration's and field trials are the ways to communicate to farmers about the measures to be taken for enhancing the productivity. In this project, 40 trials were established till date on various crops like paddy, groundnut, pulses and vegetables.

Impact on Livestock Management

- » A total of 14 veterinary camps were organized in Edaiyur and Vandavasi
- » Almost 220 cattle were brought for the camp, provided with free medical advice and checkup, de-worming etc.
- » 200 cattle were insured as part of this camp in Vandavasi

Skill Development & Community Empowerment through Trainings

In order to create awareness among the community regarding the watershed management project and to inculcate the attitude of natural resource management, awareness and Capacity building trainings were provided for the benefit of community.

- » 27 trainings and 2 exposure visits were organized for 82 farmers from 9 villages on different agricultural technologies to enhance their skill in farming operations in Vandavasi
- » 18 training and 8 exposure visits were organized for 700 farmers from four villages in Edaiyur.
- » 4 trainings on seed treatment and organic input preparation were conducted and 60 women farmers and 42 men farmers participated in these trainings in Vandavasi.
- » A nursery unit has been established in Edaiyur to produce disease free seedling for the benefit of the farmers in the area.

- » Agri-advisories have been initiated for the benefit of the farming community to address various pest and disease related queries. A total of 28 such visits have been completed by onsite inspection and quick and effective solution provided to famers in need.
- » Village Watershed Committee (VWC) has been formed in Edaiyur in 4 villages with 72 members from the communities. They meet once a month to discuss village issues and take up NRM activities in relation to watershed management.
- » 57 SHGs have been formed with a total membership of 842 people. They have been engaged in various income generation activities such as mushroom cultivation, small enterprises, backyard poultry, and vegetable seed production.

Intergated Watershed Management Programme

Kolwadi Watershed Project

CSR Partner: Larson & Toubro Technology Services Limited

Kolwadi watershed lies in the Western Ghats of Maharashtra spanning an area of 1505 hectares



L&T Technology Services

in Velhe Taluk, Pune. Five villages were selected for treatments in the Kolwadi watershed namely; Kolwadi, Katavadi, Mangdari, Ketkavane and Nigade with a total population of 622 households.

Like most hilly terrains, the villages face severe soil erosion and heavy surface runoff during the monsoons, making the dry months almost drought prone. People have to walk long distances to fetch water for their domestic needs and cropping has been significantly reduced due to lack of catchment areas. The catchments are very poor without any water harvesting structures.

This project has been completed as on March 2020. The activities for the year 2019 – 2020 were implemented at an outlay of INR 13.11 Lakh. All the Target activities have been completed as presented below.

Outcome of activities agreed upon under the project

Activity	UoM	Achievement 2019 - 2020
Trainings & Capacity building		90
Health Awareness & Sanitation Camps		10
Field Bund	Cu.m	6
Water Absorption Trenches	Rm	1035
Gully Plug	Cu.m	150
Loose Boulders Structures	Cu.m	84

Activity	UoM	Achievement 2019 - 2020
Check Dam -11.5	Nos	6
Check Dam -12.5	Nos	6
Repairing Check Dam-12	Nos	1
Channel Cleaning	Cu.m	2409.6
Farm Pond	Cu.m	15279
Sunken Pond	Cu.m	45.9
Village Pond	Cu.m	1515
Agro Forestry plants	Nos	2500
Agro Horticulture plants	Nos	7336
IPM	Nos	5
INM	Nos	5
Kitchen Garden	Nos	120
Kitchen Garden- traditional variety	Nos	100

Impact of the Watershed Interventions

- » There is a significant increase in the ground water table which is now at 10 feet.
- » 58.4 million litres of water was harvested from various NRM activities such as 67 farm ponds, 13 check dams, de-silting of well, 207 Water Absorption Trench(WAT) .
- » 420 acres of land has witnessed a second crop due to availability of water and improved agri practices.
- » 58 Mahila Pani Samiti members are additionally earning a min 500 INR to max 5000 INR per month through Income Generation activities.

Efforts and activities achieved through Kolwadi Project



Intergated Watershed Management Programme *Kokkaranthangal Watershed*

CSR Partner: Larson & Toubro Technology Services Limited

Kokkaranthangal watershed is situated in Kancheepuram district, Tamilnadu. The watershed covers four villages namely Kokkaranthangal,

Arcadu & Bhudhur. The delineated area of the Kokkaranthangal Watershed is 1578.1 hectares with 1327 households.

The following activities in the table on the right were carried out during the year 2019 – 20. This project will be completed by June 2021

The activities for the year 2019 – 2020 were implemented at an outlay of INR 24.79 lakh.

Outcome of activities agreed upon under the project

Activity	UoM	Units	Achievement
Training	Nos	2	2
Field Bund	Rm	14547	
Water Absorption Trenches	Rm	4250	2000
Gabion Check Dam	Cu.m	18	18
Loose Boulder Structures	Cu.m	15	8
Check Dam	Nos	8	3
Channel Cleaning	Cu.m	11670	1300
Farm Pond	Cu.m	2260	1460
Sunken Pond	Cu.m	1150	225
Agro Horticulture	Nos	4040	3697

Activity	UoM	Units	Achievement
Agriculture Development			
Productivity enhancement demonstration-Vegetable	Nos	20	8

Impact of Kokkaranthangal Watershed Activities

- » The most tangible impact has been felt in the increase in the ground water table to 10 feet.
- » 85 lakh litres of water has been harvested in one fill from the NRM activities such as; 3 farm ponds, 7 check dams, de-silting of water bodies, 150 Water Absorption Trench(WAT).
- » Due to the construction of check dam- 36 acres of land have not become cultivable, 15 open wells, have been recharged and 6 acres of barren land was converted to agricultural field.
- » Farm pond – Pisciculture was encouraged and has been a steady source of additional income for the farmers, in addition to increasing the ground water level.
- » The farmers are now able to engage in second crop due to availability of water in the areas.
- » Excavation of WAT has benefited 150 acres of land.
- » A total of 192 acres of land has been benefited through various NRM interventions in this time period.

Efforts and activities achieved through the project



Integrated Watershed Management Programme

Kolwadi Watershed+

CSR Partner: Larson & Toubro Technology Services Limited

The project focuses on providing support to uplift the socio-economic status of the Katavadi village community located in Kolwadi watershed area, Pune district in Maharashtra. The people residing in Katavadi village has been facing many problems related to safe drinking water, improper health facilities, poor sanitation facilities, lack of marketing linkages, interrupted electricity network, lack of Government entitlements and unavailability of secondary income generation source.

With the collective years of field experience and through the extensive baseline study, significant gaps have been identified in the Kolwadi WS area covering five villages. Among the five villages, Katavadi has several unaddressed issues for decades. To address the major gaps, several interventions have been planned with proper delivery mechanism to ensure the sustainability of the project.

The project components focus on addressing the community's needs by providing adequate and safe drinking water through proper pipeline network, restructuring the improper sewage drainage line, providing sanitation facilities, renewable energy solution, promoting income generation activities and improvising the agricultural production system. Gender mainstreaming is also the part of project delivery mechanism by strengthening and involving the Village Watershed Committee (VWC) and Mahila Pani Samithi (MPS) in implementation. Capacity building the community at various levels and institutionalizing the community will help them to achieve sustainable growth.

The following are the activities that were carried out during the year 2019 – 2020. The activities for the year 2019 – 2020 were implemented at an outlay of INR 53.48 lakh.

Outcome of activities agreed upon under the project

Activity	UoM	Units	Achievement
New well for drinking (dimension are in meter)	No	1	1
Solar pump support for pumping (measurements are in Hp)	No	1	1
Water purification system - UV Filter	No	1	1
Value addition unit - Rice and flour mill, minimum economic size, including aspirator, sheller, huller, de-stoner, seiver, shed roof etc.	No	1	1
Smokeless chulla	No	148	148
Biogas plant - model	No	3	3
Awareness program on kitchen garden, importance on balanced diet and women health	No	4	1
Awareness on safe drinking water	No	3	1
Awareness on improved sanitation	No	3	1
Exposure visit to agricultural related institutes	No	4	1
Animal Health Camp	No	2	1

Outcome of Kolwadi Watershed plus Project Activities

Project Activities	Outcomes
Water provision	Availability of 100% safe drinking water to entire village
Sanitation	100% toilets and Open Defecation Free Status
Renewable energy	Promotion of smokeless Chula and appropriate technology
Income generation program	Livelihood support to land less poor
Institutions & allied services	Institutionalize VWCs and MPS for project sustainability
Agricultural production system	Enhance agriculture knowledge on best practices, crop productivity improvement etc.
Awareness program on kitchen garden, importance on balanced diet and women health	No

Efforts and activities achieved through Kolwadi watershed plus project



Water Resource Augmentation Project *Rothak, Haryana*



CSR Partner: Asian Paints Limited

Kharawar is a village in Rohtak district of Haryana with agriculture as the predominant occupation of the villagers. Wheat and paddy are the major crops cultivated by the farmers in the village. The main sources of irrigation are canal water from western Yamuna canal and the individual tube wells. Most of the channels constructed to carry irrigation water are unlined, and hence, a large part of irrigation water is lost in percolation and absorption. The seepage losses can be avoided or minimized by lining of irrigation channels.

In order to encourage the farmers to efficiently utilize the canal water and reduce their dependency on tube wells, Asian Paints Limited, Rohtak had taken up the channel lining project for the village through its implementation partner - National Agro Foundation. The total cost of the project is INR 67.06 lakhs for the year 2019 -2020.

Details of Project Activities for the FY 2019 - 2020

Activity	Particulars	Status
Project Planning		Completed
Detailed Surveying	65 m x 34 m	Completed
Boundary Marking	Manual Means	Completed
Bifurcation of Pond by Embankment	Length - 27 m Top Width - 1.2 m Bottom Width - 4 m	Completed
Embankment Alignment	Alignment of uneven sides	Completed
Embankment Strengthening	Initial Compaction - Manual Final Compaction - Machine	Completed
Toe Wall Formation	Length -202 m Material - Plain Cement Concrete	Completed
Brick Lining for Embankments	Running Length - 202 m Slope length - 3.8 m	70 % Completed
Inlet/Outlet Arrangements	Water drains with Collection chambers	40 % Completed
Project Exit	Project to be handed over to the temple authorities	Pending

Outcome of the project

- » Total of 32 farmers have benefited from the above intervention 680m length of Channel lining completed
- » Increased supply of river water to the directly irrigated 21 acres of agricultural fields.
- » Reduced maintenance cost (de silting and removal of weeds) from INR 2500/- to INR 500/- per acre per annum.
- » Reduction in the annual utilization of ground water by an average estimate of 55,670 kl.
- » Increase in ease of supplying irrigation water by using cemented shutters in place of labor-intensive tasks.
- » Reduction in fuel consumption of pumps in tube well due to its reduced usage.
- » Increase in yield (kg/acre) of crops using good quality river water instead of saline tube well water.



Water Resource Augmentation Project *Kasna, Uttar Pradesh*

CSR Partner: Asian Paints Limited

Gautam Buddh Nagar is an important industrial district of Uttar Pradesh. It is a part of Ganga-Yamuna Doab in the vicinity of River Ganga and Yamuna. People in the region are largely dependent on agriculture as their only source of livelihood and are heavily dependent on irrigation from the river

Continuous drawing of water for irrigation over a period of time without proper replenishment has led to a declining trend of the groundwater level in the region. To prevent the loss of soil and water and to conserve and sustain the natural resources, Water Resource Development program has been taken up in the region Under the CSR of APL in Kasna. The project activities include de-silting, deepening and embankment strengthening of two water bodies in Pachayatan villages of Kasna block of Gautam Buddh Nagar district of Uttar Pradesh.

The total project outlay is INR.68.97 lakh. The project activities commenced only in the month of December 2019 and activities worth INR 32 lakh have been completed so far.

Outcome of the Project

- » Increase in the capacity of Pond by 2400 kl
- » Indirect benefit to 12 farmers at the proximity in terms of increase in ground water level
- » Restoration of Pond Ecosystem
- » Enhanced strength of Pond Embankments
- » Involvement of community and participation in promoting water conservation activities
- » Awareness on water conservation and management were organized for the communities.

Water Resource Augmentation Project *Patanchervu, Telengana*

CSR Partner: Asian Paints Limited

Kopuchervu Tank in Chinnakanjerla Village in Patanchervu block of Sangareddy district of Telangana, has been used for irrigation, domestic uses and for conducting festivals and rituals in the locality. It was reported that the practice of irrigation using the tank water had diminished in the recent decades due to improper maintenance of the tank. At this juncture, National Agro Foundation, Chennai initiated the Water Body Rejuvenation Project in order to rejuvenate this tank with the funding received from Asian Paints Limited, Patanchervu, as a part of its CSR programme.

The Project focused mainly on reviving the tank, Creating awareness among the community and building and strengthening the local institution to actively participate in conserving their resources.

The total budget for the project was 78.31 lakhs INR. Though the project was sanctioned in 2018 – 19, it was initiated only in March 2019 and hence the work was carried out during the year 2019 – 20.

Project Outcome for FY 2019 – 2020

- » Restoration of the Kopuchervu tank and its inlet channels
- » De-silting and Deepening of the tank to the tune of 18413 Cu.m
- » Increase in the capacity of the tank by 19805 kl
- » Strengthening of the embankments of the Tank up to 700 m
- » Increase in ground water recharge by means of silt removal

Water Resource Augmentation Project *Nanjangudu, Karnataka*

CSR Partner: Asian Paints Limited

Siddaiahna Katte Pond, Badanavalu

The Siddaiahna Katte pond at Badanavalu village of Nanjangud taluk in Mysore district of Karnataka, was formed by the villagers mainly for the purpose of animal rearing in the past, but, due to improper maintenance the pond became unfit for cattle rearing. This also resulted in the decreasing depth of the pond hence making the pond shallow, high in silt deposits and shrub growth. In addition to this, the weak embankment would breach and posed serious issues during monsoons affecting the downstream villages leading to loss of water.

The water body was undertaken for rejuvenation under the CSR of APL, Mysuru for the FY 2018-19 and implemented in March 2019. The rejuvenation activity included clearing of bushes, de-silting & deepening of the water body, strengthening of its embankment with random rubble stone masonry work. The deepening and de-silting were carried to the tune of 4000 cu.m and embankment strengthening to a length of 211 m (0.211 km). The total budget for the project was 14.54 lakhs INR.

Hongalagare Pond, Badanavalu

The Hongalagare Pond at Badanavalu village of Nanjangud taluk in Mysore district of Karnataka was formed 20 years ago and due to improper management and lack of maintenance, the pond was in a deteriorated stage.

The water body was undertaken for rejuvenation under the CSR of APL, Mysuru for the FY 2018-19, but commissioned in March 2019. The rejuvenation activity included clearing of bushes, de-silting & deepening of the water body, strengthening of its embankment with random rubble stone masonry work and clearance of Inlet and outlet channels.

The deepening and de-silting were carried out to the tune of 36,700 cu.m and the embankment strengthening to a length of 277 m (0.277 km). The total budget for the project was 49.83 lakhs INR.

Gudikatte Pond, Sindhuvelli

The Gudiekatte Pond at Sindhuvelli village of Nanjangud taluk in Mysore district of Karnataka was formed by the people of Sindhuvelli and water was used for domestic purposes, cattle rearing and agricultural purposes in the past. But, the improper management of the pond led to its abandoning in the recent past, as a result of which, the necessity for its rejuvenation was highly emphasized by villagers of Sindhuvelli.

The water body was undertaken for rejuvenation under the CSR of APL, Mysuru for the FY 2018-19 and commissioned in March 2019. The rejuvenation activity included clearing of bushes, de-silting & deepening of the water body, and clearance of Inlet and outlet channels.

The deepening and de-silting were carried out to the tune of 4,500 cu.m. The total budget for the project was 20.01 lakhs INR.

Bilikerekatte Pond, Basavatige

The Bilikerekatte Pond at Basavatige village of Nanjangud taluk in Mysore district of Karnataka was traditionally used to collect the water from the surrounding agricultural fields and used for irrigation during water stressed conditions and for cattle. But, the improper management of the pond led to its abandoning in the recent past, as a result of which, the necessity for its rejuvenation was highly emphasized by villagers of Basavatige.

The water body was undertaken for rejuvenation under the CSR of APL, Mysuru for the FY 2019-2020. The rejuvenation activity included clearing of bushes, de-silting & deepening of the water body, embankment formation by soil and clearance of Inlet and outlet channels.

The deepening and de-silting were carried out to the tune of 14,478 cu.m. The total budget for the project was 33.69 lakhs INR.

Boraiahna katte Pond, Nerale

The Boraiahna katte Pond at Nerale village of Nanjangud taluk in Mysore district, Karnataka was an abandoned pond which was widely used for the traditional ceremonies during festivals. Due to mishandling of the pond soil and improper usage of the pond, the pond had lost its elegance and significance and become a place of misuse. Hence, the water body was undertaken for rejuvenation under the CSR of APL, Mysuru for the FY 2019-2020. The rejuvenation activity included clearing of bushes, de-silting & deepening of the water body, embankment formation and its alignment, strengthening with random rubble stone masonry work and clearance of Inlet and outlet channels.

The deepening and de-silting were carried out to the tune of 8526 cu.m. The total budget for the project was 32.99 lakhs INR.

Outcome of the project

- » Restoration of the three proposed ponds and its inlet/outlet channels
- » De -silting and Deepening of the ponds – 8526 Cu.m
- » Increase in the capacity of the ponds by 68,204 kl
- » Strengthening of the embankments of the ponds

Efforts and activities achieved through the project



Water Body Rejuvenation Project

Gummidipoondi, Tamil Nadu



CSR Partner: Hindustan Petroleum Corporation Limited

Three water bodies have been identified near Gummidipoondi in Thiruvallur district for deepening and de-silting under CSR support from Hindustan Petroleum Corporation Limited. Two water bodies in Gumbli village and one water body in Appavaram village was selected for implementation of the project. The project was executed at an outlay of INR 38 lakh. The project was initiated in August 2019 and completed in November 2019.

Name of the Water body	Quantum of work carried out	Additional water holding capacity created
Gumbli Pond – 1	7096 cu.m	57.5 lakh litres
Gumbli Pond – 2	2086 cu.m	58.5 lakh litres
Appavaram Pond	13262 cu.m	108 lakh litres

The following are some of the important features and outcomes of the project.

Impact Areas	Cumulative Outputs
Additional area of pond expanded (acres)	2.33
Additional water stored (Lakh/Litres)	224
Additional area brought under first season cultivation(acres)	480
Additional area brought under second season cultivation (acres)	69
No. of bore wells benefited	59
Rise in water level in Observatory well (Feet)	Minimum 13, Max 33
Total Community Contribution in kind (mandays)	252

Augmentation of Water Resources in Enhancing the Productivity and Profitability of Farming Systems

This is a pilot project carried out as a part of the proposal to rejuvenate 3 common property water bodies in 2 villages in Gummidipoondi Block of Thiruvallur district of Tamil Nadu. The project was funded and supported by Hindustan Petroleum Corporation Limited's (HPCL) Corporate Social Responsibility (CSR) management. A MoU was signed on 30th August 2019 by Mr. Natarajan, General Manager, HPCL and Mr. Rajsekar, Managing trustee, National Agro Foundation (NAF).

The objective of this project is to rejuvenate water bodies which come under the ambit of the Farmer Producer Company (FPC) promoted villages facilitated by NAF with shareholder membership of more than 1000 small and marginal resource poor farmers (predominantly women farmers). The rejuvenation process is linked directly to doubling farmers income through innovative LEAN FARMING practices promoted by NAF based on value chain analysis. The FPC will also motivate its members to monitor and maintain the assets created. The village Panchayat will ensure that there is equitable sharing of water within the village for various utilities. Thus, this project is the connect between Water – Sustainable Agriculture – FPC resulting in resilience building of the small farm holders affected by climate change.

This is an INCLUSIVE DEVELOPMENT project where everyone benefits in sharing common resources and develops a model of Public – Private Partnership (PPP) for ensuring water and food security at the National and local level and globally achieving the sustainable development goals by 2030.

Appavaram Village Pond

Appavaram was one of the villages where the project was implemented. A major village pond was rejuvenated under the project. After acquiring the NOC from Government Authority, the work commenced on 9th September, 2019 and was completed on 15th November, 2019. The rejuvenation work included clearing the bushes, de-silting of water body, deepening, strengthening, trimming and sectioning of the same. Total area of the pond is 13,262 sq.mt. The entire water body has been de-silted and deepened to 1-meter depth.

Outcome of efforts in Appavaram Village Pond

- » Water holding capacity of the pond increased 5.5 times from 24 lakh litres to 132 lakh litres.
- » Farming area supported by the pond increased about 2.5 times from 189 acres to 473 acres.
- » Second crop farming area increased about 3.5 times from 17 acres to 59 acres.
- » There was a raise of 33 ft. in the groundwater table level.
- » The increased availability of water benefited cattle rearing in the area.
- » 22 bore wells benefited from the project as opposed to 4 bore wells benefiting before the project.
- » The accessibility and availability of water for drinking also increased.

Recognition

On February 24th, 2020, Mr. Jothi Prem Kumar, Plant Head, HPCL-Gummidipoondi and Dr. S.V. Murugan, Director, NAF received the award of appreciation from the District Collector of Thiruvallur Tmt. Mageswari Ravikumar I.A.S., for the commendable job demonstrated at the Appavaram village.

It was a moment of joy and pride for both NAF and HPCL CSR Management to continue to strive to serve the community with dedication and integrity.



Water Body Rejuvenation Project *Sholinganallur, Tamil Nadu*



CSR Partner: BNY Mellon Technology Private Limited

This water body rejuvenation initiative is an outcome of a tri partite partnership between Madras Chamber of Commerce and Industry (MCCI), BNY Mellon (Financial Partner) and National Agro Foundation (Implementing Partner).

This project has been completed including deepening and de-silting for 1500 cu.m, establishment of pathway around the water body, fencing and safety gate establishment around the water body to prevent trespassing and beautification with solar lights along the walk way. The total project has been completed at an outlay of INR 15 lakh.

Construction of Sanitation Complex *Vedanthangal, Tamil Nadu*

CSR Partner: iNautix India Foundation

iNautix India Foundation, had requested NAF to undertake renovation of existing sanitation units and construction of a new sanitation complex in Vedanthangal Bird Sanctuary. This was necessitated with the request from Department of Forest, Government of Tamilnadu as the visiting public did not have adequate and hygienic sanitation facility. About 86% of the proposed project activities have been completed. The total project outlay is INR 10.45 lakhs.

Water body Rejuvenation Project *Oragadam, Tamil Nadu*



CSR Partner: Renault Nissan Automotive India Private Limited

Over the years, water is proving to be a precious resource facing many challenges and much shortage in both urban and rural areas due to over exploitation, improper conservation and climate change, thereby impacting lives and livelihoods across the country. One of the major reasons, for this acute shortage; has been the poor water holding capacities of

the existing water bodies such as tanks and lakes, many of which have disappeared due to poor management or diversion of that land for other purposes.

This joint venture with Renault Nissan Automotive India Private Limited (RNAIPL) has helped to augment the water resources viz. the water bodies like tanks and panchayat lakes through de-silting and deepening, creation of effective water ways and channelizing them through construction of suitable water harvesting structures in order to support the people. Thus NAF has been able to effectively address this water crisis using a “Catalytic Strategy” to enhance the productivity and profitability of the farming systems and livelihood security.

Activities Undertaken	Cumulative Outputs (Cu.m)
Earth work excavation	15750
Lead Charge	12600
Breaking Clods	15750
Trimming the bed and side slope	590.625
Sectioning and consolidation	15750
Bush Clearance	78750

Proposed Project Outcomes

- » The embankment will be strengthened and this will help prevent flooding in the area due to heavy monsoons.
- » Additional water holding capacity will be increased to 15,750 kl of water.
- » Ground water table will increase substantially due to water retained in the lake.
- » The surrounding has been cleaned and plantations Introduced to enhance aesthetic value of the location as well as encourage a pollution free environment thereby increasing the livelihood of the neighboring community.

Watershed+ Projects

Coimbatore, Tamil Nadu



CSR Partner: Larson & Toubro Limited (L&T)

With the success across multiple previous watershed projects, some corporates have requested for expansion of new integrated watershed projects leading to large scale replication of the watershed interventions in most needed areas of rural India, supported by various corporates.

This project has been sanctioned as a new add – on project as the previous integrated community development project (ICDP) was completed by March 2019. This project aims at creation of water harvesting structures which were left uncovered in the previous project as well as to promote sanitation as WASH initiative. The project activities include de-silting and deepening water bodies, construction of check dams, and clearance of channels which were over and above the watershed activities carried out during 2015 – 19 period. This was aimed at creating additional water holding capacities through various structures mentioned above. Apart from the above, construction of 146 units of individual household toilets is also an integral part of the project. These were constructed in those households which do not have toilet units. Awareness creation on improved water use efficiency, personal hygiene, need for discontinuance of open defecation etc. are also carried out. These activities have been carried out at an outlay of INR 1.08 crore.

Over the past 5 years, NAF has made successful inroads into achieving the various SDGs in the Chettipalayam watershed area by focusing on overall development in social, economic and environmental dimensions and have impacted the lives of the rural community.

Chettipalayam WS+ Activities for the Year 2019 - 2020

Activity	UoM	Achievement
De-silting of water bodies in adjacent areas in watershed villages	Cu.m	5000
Channel rejuvenation	Cu.m	2000
Channel Revetment adjacent to watershed village	Nos	Under progress
Check dam - 10.0 m	Nos	1
Check dam - 8.5 m	Nos	3 (Under progress)
Recharge structure for ponds	Nos	4
Awareness programme on importance of sanitation and its environmental Impact	Nos	4
Awareness programme on social Impact of improper sanitation on women and health	Nos	6
Conducting awareness programme on Ill effects and Diseases caused by defecation and individuals' social responsibility	Nos	6
Individual Household Toilet Construction in Chettipalayam village	Nos	76

(at different stages of completion)

Activities carried out at Chettipalayam



Paappampatti WS+ Activities for the Year 2019 - 2020

Activity	UoM	Achievement
De-silting of water bodies within watershed area	Cu.m	25000
Channel Revetment adjacent to watershed village	Nos	Under progress
Awareness Programme on importance of sanitation and its environmental Impact	Nos	6
Awareness Programme on social Impact of improper sanitation on women and health	Nos	9
Conducting awareness programme on Ill effects and Diseases caused by defecation and individuals' social responsibility	Nos	9
Individual household Toilet Construction in Pappampatti Village	Nos	70
(different stages of completion)		

Activities carried out at Pappampatti



Impact of these Watershed Interventions

The Impact of the Integrated Watershed Intervention has been felt across all development parameters and has already gained community participation and acknowledgement across various intervention areas.

Impact on Water Conservation

- » The target for recharging the ground water level by upto 200 ft in Chettipalayam and 120 ft in Pappampatti has been more than met, as the recharge in the watershed area has improved by 340 ft in Chettipalayam and 332 ft in Pappampatti.
- » 6 dry wells in Chettipalayam and 7 dry wells in Pappampatti are now showing signs of water, which are being utilized for agriculture and other domestic animal use.
- » The earlier dependence on paid water sources has reduced drastically and now the entire community has access to safe and hygienic drinking water within the village.
- » The total water harvest potential created under the ICD is 70,000 kilolitres of water in Chettipalayam and 85,000 kilolitres of water in Pappampatti, in a year.
- » During the FY 2019-20, 67850 kiloliters of water have been harvested from 97% of average rainfall. Cumulative water harvested in Chettipalayam is 206400 kiloliters of water.
- » During the FY 2019-20, 79429 kiloliters of water have been harvested from 97% of average rainfall. Cumulative water harvested in Pappampatti is 281200 kiloliters of water.
- » In Chettipalayam, total of 2514 families from 4 villages, benefited from access to safe drinking water, water for cattle and agriculture within the village.
- » In Pappampatti, total of 2212 families from 4 villages, benefited from access to safe drinking water, water for cattle and agriculture within the village.

Impact on Agriculture

- » The amount of arable land has increased to 250 ha in Chettipalayam and 450 ha in Pappampatti, post-intervention, due to the improved water resources.

- » A total of 140 ha of land have come under irrigation due to various water harvesting structures.
- » 65 farmers in Chettipalayam have returned to agriculture that had earlier left their land fallow due to non-availability of water.
- » Around 747 hectares in Chettipalayam and 215 hectares of fallow land in Pappampatti has been converted successfully into cultivable land, allowing farmers to expand and diversify their agricultural activities.
- » There is an increase in the coconut crop over the seasons from 5000 nuts per hectare to 6750 nuts (135% achievement) in both watershed areas.
- » Improvement in crop yield (millet production) from 1.2Q/h to 1.6 Q/ ha. (133% achievement) in both watershed areas.
- » There is positive Increase in the area under agro-horticulture from 5 hectares to 34 ha in Chettipalayam and from 8 hectares to 43ha in Pappampatti, over the 5 years project period.
- » The crop productivity before the project was 70% of Tamilnadu average. Now, the overall crop productivity in the region has risen considerably from just 130 % to over 170% of average. This happened due to improved farming techniques, soil and water management practices, timely pest and weed management, lean farming technologies etc.
- » Farmers have confidently begun engaging in agri-activities and expanded their farms to include newer and more diversified activities such as vegetable cultivation and milch animal rearing which consumes less water.
- » Farmers have progressed from sustenance farming to productive farming, being able to sell their excess in the local markets and add to their overall family income. The average income improvement per household is INR 57,000 per year.
- » The past few years have seen a drop in the sale of agri-land in these villages for commercial purposes, as most farmers are benefiting from their productive farms due to watershed interventions in the area.

Impact on Livestock Management

- » Dependence on fodder from external paid sources has reduced and there is 100% production of fodder for self-sustenance within the village and an additional 15% production in Chettipalayam and additional 36% production in Pappampatti for sale to others, and an added income to the households.
- » Construction of farm ponds or Cattle Ponds for water requirement of the community cattle has reduced the stress of animal – people conflict over water resources across both watershed areas.
- » Promotion of Veterinary services at the doorstep has facilitated proper livestock management practices in the villages

Impact on Sanitation & Health

- » 76 Sanitation complexes or household toilets in Chettipalayam and 70 household toilets in Pappampatti, have been constructed for the benefit of the community.
- » 24 health awareness and sanitation awareness programs each, have been conducted with the health service providers in the community in both areas.
- » Open defecation has reduced in both areas and with continued health awareness and focused intervention; both these areas will be declared as open defecation free soon.

Impact on Institution & Capacity Building

For any community to be considered truly developed and sustainable, it requires that its members are aware and active participants in the course of their own development. The need for leadership within the village, ownership of activities, involvement in the day to day management of activities of various development programs are required to truly empower any community.

NAF has ensured that the process of community empowerment and ownership through various group meetings and the formation of village watershed committee, self-help groups etc. Strengthening these institutions to take informed decisions and get involved in identifying various activities for development and managing their finances etc. has truly seen an ocean of difference in the community who now actively participates in every

facet of their development and is more proactive in promoting sustainable development in their village.

- » In Chettipalayam, a total of 4 villages watershed committees have been formed and sustained over the past 5 years, with member contribution of over 12.43 lakhs INR and a healthy bank balance of 1.16 lakhs INR.
- » In Pappampatti, a total of 4 villages watershed committees have been formed and sustained over the past 5 years, with member contribution of over 7.22 lakhs and a healthy bank balance of 1.59 lakhs INR.
- » Regular meetings are conducted every month and minutes of the meetings are noted in the register for records.
- » Exposure visits and training programs are conducted for the members to facilitate peer learning and motivate them to undertake progressive activities for their village.
- » Regular training programs, skill up-gradation, and knowledge enhancement sessions are conducted for the VMC members to ensure that all members are empowered with knowledge and skills to successfully manage their watershed activities and effect behavioral change in their communities.

Watershed Projects

NABARD & CSR Collaboration

In recent years, there has been a positive shift in the approach and policies; especially the watershed development approach which has resulted in the holistic and integrated development of the people along with soil, water and the flora. National Agro Foundation, in its efforts to help the poor and the farmers, collaborated with NABARD and many like-minded Corporates under CSR in taking up watershed development projects.



The interventions across the watershed projects include afforestation, creation of water conservation structures (e.g. dams, ponds, trenches and bunds), soil conservation measures (e.g. land leveling, check dams, silt traps, live hedges), horticulture and agro-forestry plantations. Apart from the above organic farming, agriculture development activities (SRI, precision farming, and alley cropping), animal husbandry (dairy, goat rearing, and fisheries) and livelihood development for the landless are done through the watershed development projects. The projects are designed to specifically address the problem of poverty cycle established over the years in the region due to the degradation of the natural resources on which the poor and the rural mass are dependent on for their livelihood.

NAF has been undertaking watershed project with the grant assistance from NABARD and Corporate agency under CSR on 50:50 fund sharing basis. The first phase of Capacity Building was completed in 2018-2019. The following is the list of watershed projects being undertaken by NAF under NABARD & CSR partnership, totally eight projects are being implemented as detailed in the table to the right.

NAF undertaken list of projects

Under NABARD-CSR Partnerships

Name of the Watershed	District in Tamil Nadu	No. of Villages covered	Total Area covered (Ha)	No. of Families Benefited	Funding Support (in partnership with NABARD)
KN Palayam	Erode	5	2072	1500	Bannari Amman Sugars
Melpennathur	Thiruvannamalai	4	1497	2550	Bannari Amman Sugars

Name of the Watershed	District in Tamil Nadu	No. of Villages covered	Total Area covered (Ha)	No. of Families Benefited	Funding Support (in partnership with NABARD)
Kuppachiparai	Krishnagiri	8	1673	1350	The Rotary Club of Madras Coromandel
Pulleri	Chengalpattu	11	1480	1560	VA Tech WABAG
Kotteri	Cuddalore,	5	1232.9	1150	TITAN
Thandakarankuppam	Cuddalore	5	1254.7	1250	TITAN
Kolathan kurichi	Cuddalore	5	1084.7	1300	TITAN
Narumanam	Cuddalore	4	1119.9	1250	TITAN

Kondappanaickenpalayam – Farmers Leading the Show

CSR Partner: Bannari Amman Sugars Limited & NABARD

Kondappanaickenpalayam is a typical watershed located in the Sathyamangalam block of Erode district. It falls under the cauvery basin and sub catchment of Bhavani. The



villages covered under this project include Kondappanaickenpalayam, Malaiyadiputhur, Dhasaripalayam, Kembanayakanpalayam, and Sathyamangalam. The undulated hilly terrain does not hinder the hard work and efforts of the farmers of the watershed who continuously attempt to succeed in making the land more fertile and profitable. This watershed is a typical example for community participation and community leadership. The farmers and the Village Watershed Committee members lead from the front and execute the activities with enthusiasm and vigour.

The Full Implementation Phase (FIP) was formally inaugurated On 7th August 2019, Mr. T. Balakrishnan, DGM – Bannari Amman Sugars and Mr. R. Kandasamy,

JVP – Bannari Amman Sugars Mr. Abuvarajan, AGM – NABARD Erode graced the occasion. The farmers were so enthusiastic and completed the activities within the stipulated time and demanded for next installment of funds. Mrs. Padma Ragunathan, CGM Nabard, Mr. Abuvarajan, AGM – NABARD Erode and Mr. Nagarajan Monitoring Officer NABARD visited the watershed for monitoring and evaluation and commended the activities carried out by the farmers and National Agro Foundation.

Project Activities for the Year 2019 – 2020

Name of the activity	UoM	Achievement
Field bund	Cu.m	1700.16
Chisel Plough	Ha.	58.22
Agro Horticulture	Nos	3025
Agro forestry(AF)	Nos	4000
Well Recharge Pit	Nos	2
Masonry Check Dam	Nos	1

Apart from the structural activities in the watershed; training and enterprise development was a major success in this watershed, the landless were trained on various aspects of agriculture and allied activities. Exposure visits were arranged to the technical institutions like KVK and Veterinary University. Mushroom cultivation has been a great success among the women who had started using it for their household purpose at the first level.

Efforts and Activities carried out under the project



Melpennathur – Launching ground for Government schemes

CSR Partner: Bannari Amman Sugars Limited & NABARD

Melpennathur watershed is located in the Chengam block of Thiruvannamalai district. The project includes four villages namely, Melpennathur, Melmudiyanur, Eraiyur and Uchimalaikuppam. The FIP was officially launched on 30th August 2019, Tiruvannamalai district collector Mr. K.S. Kandasamy I.A.S, Government officials from all the major Government departments, Mr. T. Shanmugasundharam, (GM) and Mr. Magendhiran, (DGM) of Bannari Amman Sugars and Mr.V.Sriram, DDM NABARD Thiruvannamalai graced the occasion. The project received limited grants during the year however it did not stand behind in other development activities, many other Government initiatives were brought to the project villages mainly due to the support of DDM NABARD, Mr.V.Sriram and even the launch of Jal Shakthi Abhiyan scheme was done within the watershed. Additional activities such as channel formation and channel clearance were done with the support of DDM NABARD and funding support from Bannari Amman Sugars Limited.

Project Activities for the Year 2019 – 2020

Name of the activity	UoM	Achievement
Field Bund	Cu.m	954
Cattle Pond	Cu.m	4000
Percolation tank	Cu.m	1455
Channel Formation	Cu.m	1845
Sunken Pond	Cu.m	1834.50
Water Absorption Trenches	Cu.m	750.69
Fodder Development	No.	12

Efforts and Activities carried out under the project



Benefits realized due to Water Absorption Trenches (WAT)

Melpennathur watershed is surrounded by small hillocks and NAF team proposed to include WAT at the foothills, there was not much support from the farmers claiming that it would obstruct the path to the hillock especially for the livestock. After convincing the villagers, NAF team excavated Water Absorption Trenches as the first activity during the Full Implementation Phase before the onset of North East monsoon and the total sanctioned quantity of 750 Cu.m was completed at one go. The rain commenced and water was collected in the trenches and also infiltrated into soil. The farmers nearer to these hillocks witnessed that the water level in their open wells have suddenly risen to unexpected levels than the earlier monsoon years. They also witnessed that the water availability in their wells also sustained for a prolonged duration of time. After seeing the difference, the farmers and the watershed committee members have taken it up as a task to regularly maintain these trenches. Mr. Krishnamoorthi, President of the VWC expressed his gratitude for insisting upon this activity and he is now determined to lead the farmers in maintaining the trenches.

The VWC took up the initiative of renovating a channel to bring water for irrigation and were successful in completing the same within the monsoon and have realized the benefits of being together.

Kuppachiparai – From Watershed to Watershed Plus

CSR Partner: The Rotary Club of Madras Coromandel & NABARD

Kuppachiparai is located in the Veppanapalli block of Krishnagiri district. It comes under the Ponnaiyar sub basin and includes villages Kuppachiparai, Gundhapalli, Lakapathanapalli, Marachandiram, Chinnakottur, Chennasandiram, Kondappanayakanapalli and Madhinayanapalayam.



The official inauguration of FIP was on 17th August 2019, Officials from The Rotary Club of Madras Coromandel, NABARD Mr.Balasbrahmanian, Mr. Sahaya Raj, President Rotary Club of Krishnagiri, Dr. Natesan, District Governor Rotary Club, Mr. Arogyasamy and Mr.Pramod from Rotary club of Krishnagiri, Mrs.Nasreen, DDM Nabard Krishnagiri graced the occasion. Rotary international assessed the ground realities and demands from the local villagers and accepted to support additional activities uncovered in the watershed project under Watershed Plus activities. Support for purchase of 50 milch animal cows was funded by Rotary international. Training for dairy was provided and a tailoring training centre has been established with the watershed plus funds from Rotary international.

Project Activities for the Year 2019 – 2020

Name of the activity	UoM	Achievement
Field bund	Cu.m	1021.44
Chisel Plough	Ha.	19.55
Farm Pond	Cu.m	844.30
Agro Horticulture(AH)	Nos	2678
Agro forestry	Nos	1300
Check dam	Nos	2
Fodder Development	Nos	10

Efforts and Activities carried out under the project



Other activities under watershed plus project includes Solar street lights installed in 20 deserving places making the life easier for the local people and Solar powered UPS has been installed in the Kuppachiparai school benefiting the students of the village and also demonstrating the renewable energy usage to the villagers and to the young minds.

Cuddalore watersheds – Creating Community Assets for Generations

CSR Partner: Titan Company Limited & NABARD

Kotteri and Narumanam watersheds are located in Virudachalam block of Cuddalore district while Kolathankurichi and Thandakarankuppam watersheds are located in Kattumannarkoil block of Cuddalore district making two clusters of watersheds in the district. All the four watersheds in the district are funded jointly by NABARD and TITAN. The inauguration of FIP was officially done on 9th August 2019 for all the four watersheds, Officials from CII Mr.Simeon Joshua and Mr.Jeyaelvan, and Mr.Hariharaputhiran, DDM NABARD graced the occasion. Ms.Uma Krishnan visited the watershed on 23rd October for monitoring the activities carried out in the watersheds. The activities in all the four watersheds were completed ahead of the sanctioned time.



Channel formation was a major impactful activity carried out in Kotteri watershed. Before the intervention, the rainwater was flowing through the agricultural fields due to shallow and narrow channels and at places no channels due to lack of maintenance. It caused lots of damage to the crops in all the villages, incurring huge economic loss to farmers, further the rain water was not able to reach its proper destination like pond, lake or its higher order stream. Hence, the revival and renovation of existing channel and deepening of the channel was done in Kotteri watershed for a quantity of 4435 Cu.m.

Efforts were taken to follow the natural passage of rainwater. The encroachments along the drainage lines were removed with the help of local VWC members and Government officials wherever the conflict occurred. This season witnessed no flooding in the lands and flow of water as desired in the channels. The farmers have assured to maintain the channel in its original shape henceforth.

Similar to Kotteri watershed Narumanam watershed villagers also attempted the channel formation, sunken pond and field bunds on a large scale. They also attempted on catch

pits to support their cashew trees. Apart from these activities the livelihood development and fodder development has been a great success in Narumanam watershed.

Kolathankurichi watershed though implemented all major watershed treatments the eye catching success came mainly on individual farm ponds and cattle ponds which yielded great results.

Thandakarankuppam watershed invested most of its activities in common land treatments especially channel formation, percolation ponds and plantations. The common land activities have yielded good results and have created great impact on the watershed.

Project Activities for the Year 2019 – 2020

Name of the activity	UoM	Achievement
Field Bund	Cu.m	10672.62
Cattle Pond	Cu.m	11832.91
Chisel Plough	Ha	20.6
Catch Pit	Cu.m	865.42
Farm Pond	Cu.m	3282.5
Sunken Pond		2904.4
Channel Formation	Cu.m	14416.39
Percolation Pond	Cu.m	9979.52
Agro Horticulture	No	14700
Agro Forestry	No	9600
Fodder development	10 Cent Unit	45

Efforts and Activities carried out under Kotteri project



Activities carried out under the Narumanam



Activities carried out under the Thandakarankuppam



Pulleri watershed – Improving Ground Water Table

CSR Partner: VA Tech Wabag Limited & NABARD

Pulleri watershed is located in the Thirukazhukundram block of Kanchipuram district. This watershed is a good example of changing land use from rural to urban. Parts of the watershed falls under municipal limits (where watershed treatments were not proposed) and the villages covered include Pulleri, Azhagusamuthiram, Thunjam, Nemeli, Melaripakkam, Sogandi villages. FIP was officially inaugurated on 18th September 2019, Mr. Subburaj, DDM, NABARD – Kancheepuram graced the occasion. Field bunds, channel formation, farm pond, fodder development was carried out, however the major impactful activity was the water absorption trenches along the hillock near the ridge in the common lands.



Project Activities for the Year 2019 – 2020

Name of the activity	UoM	Achievement
Field Bund	Cu.m	341.46
Agro Forestry	No	3900
Agro Horticulture	No	3200
Farm ponds	Cu.m	1211.20

Project Activities for the Year 2019 – 2020

Name of the activity	UoM	Achievement
Water absorption trench	Cu.m	2142.67
Channel formation	RM	1179.44
Fodder Development	No.	11

Efforts and activities carried out under the Pulleri



Summary of Impact Indicators across all *NABARD Supported Watershed Projects*

Impact Indicators	Total
Quantity of water harvested in lakh litres	6079.48
Total man days directly generated	19247.29
People contribution (INR)	1423651.00
Project grant utilized (INR)	7886317.00
Total cost (INR)	9078938.00
Maintenance fund collected (INR)	2073645.00

Overall the communities are very happy about the implementation of the project in their watershed and are willing to support the activity in future for the benefit of the local environment and livelihood of the people. There is huge demand for the activities to be replicated within the watersheds and outside the existing watershed projects. NAF prides itself on its success rate and meticulous outreach strategies, thereby impacting the lives of the most vulnerable communities by integrating various interventions and also providing technical support for improving agriculture productivity and production and thus improving the livelihood of the watershed members.

Agriculture Development Division



NAF's Agricultural Development Division functions with the goal to enable our farming communities to adopt the latest technological practices in agriculture and up skill themselves to adapt to the fast changing environment.

NAF focuses on up skilling through enabling farmers to practice Climate Smart Lean Farming technologies and simultaneously empowering them with necessary business skills, to overcome the challenges posed by global forces and to become profitable. With the latest advancements in farming technologies such as Artificial Intelligence enabled Smart Farms, Integrated Farming Methodologies, Poly-house, Farm Drones etc. the potential of agriculture becoming the most profitable business in the country is not an exaggerated vision.

NAF has been promoting sustainable agriculture through Lean Farming which is a combination of organic, bio and inorganic approach with climate change adaptation and mitigation measures which is economically viable, environmentally safe and ecologically sustainable. These initiatives are undertaken with support from various stakeholders including the Government and Corporate sector agencies. In addition, every effort of our implementation team strives to involve the targeted beneficiaries from the project-planning phase to the project exit phase creating and nurturing a sustainably lasting model.

NAF has implemented the following agriculture development projects.

Project on Sustainable Agriculture

CSR Partner: Apollo Tyres Foundation

NAF in collaboration with Apollo Tyres Foundation is implementing a project on Sustainable Agriculture in Vallam village of Kancheepuram District. The project component includes establishment of frontline demonstrations, establishment of model vermi composting units, training on Lean Farming as well as de-silting of water bodies.



Impacts

- » Front line demonstrations showed an average increase in yield by 21.6% and profit by 60.6% when compared to control.
- » Cost of production of paddy per Kg in demo was INR 9.6/-, while the cost of production in the control plot was INR 11.7/- per Kg.
- » FLD has successfully demonstrated the ability to keep cost of production low, yet increase yield and thereby profits for the farmers involved.

Activities carried out



Tree Farming and Carbon Sequestration

CSR Partner: Apollo Tyres Foundation

Apollo Tyres Foundation had in the past promoted afforestation in Vandavasi block of Thiruvannamalai district with a group of farmers. They were keen in engaging NAF to promote sustainable agriculture including intercropping, compost making and tree maintenance among few lead farmers as part of carbon sequestration initiative. NAF has been providing support to the farmers for survival and establishment of these plots. NAF has established three model pilot plots, one for teak and two for red sanders in three locations. Soil test based nutrient management, green manuring, mulching, training and pruning for trees and intercropping are the important activities executed in all the pilot plots.

Activities carried out



Watershed and Agriculture Development Initiatives (WADI)

CSR Partner: Oerlikon Friction Systems (India) Limited

Four villages namely Adavali, Karanjawane, Askavadi and Kodavadi of Pune district, were selected to implement water and agriculture initiatives. First phase of the project commenced in April 2018 and was for a period of 1.5 years, completed in September 2019. Seven front line demonstrations were established for paddy as major crop in Kodavadi village of Velhe taluk in Pune district. Soil tests have been done in all FLD fields and critical inputs were provided. The yield and economics have been documented. Some of the models on vermi composting, kitchen garden were also established.

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Impact

- » FLD results show incremental increase in yield upto 26% and profit upto 21%.
- » Having seen good results of the first phase, Oerlikon extended the project for another 2.5 years. The important activities under this extended project upto March '20 are training and capacity building, channel de-silting, check dam construction, frontline demonstrations in vegetables and providing revolving fund for IGP.

Activities carried out



WADI in Walajabad Block, Kancheepuram District

CSR Partner: Oerlikon Frictions Systems (India) Limited

After witnessing the success of WADI projects and the impact created by NAF in Pune and Thiruvallur districts, Oerlikon has sanctioned a new WADI project in Wallajabad block of Kancheepuram district. The project activities include de-silting of water bodies, creation of check dam, intensive training on Lean Farming, establishment of FLDs, creation of bio input models, Institution building, cattle development, introduction of machineries. All the activities have been successfully completed.

In addition, Oerlikon has provided an additional budget for three years in which we have distributed 745 horticulture seedlings for planting in the backyard of the individual households. This is to improve the nutrient uptake and promote nutrition diversity and security at the household level in villages.

Impact

Front line demonstrations on paddy crop showed an average increase in yield by 11.86% and profit by 53.61% when compared to control. Cost of production of paddy per Kg in demo was INR 9.29/- while cost of production in the control plot was INR 11.55/- per kg.

Front line demonstrations in bhendi crop, showed an average increase in yield by 12.71% and profit by 46.34% when compared to control. Cost of production of bhendi per Kg in demo was INR 11.19/- while cost of production in the control plot was INR 12.56/- per Kg.

Rehabilitation of Livelihood of Households affected by Cyclone Gaja

CSR Partner: San Francisco Bay Area Tamil Manram, USA & BNY Mellon Technology Private Limited & KLA-Tencor Ltd

In November 2019, the state witnessed wide spread destruction and devastation due to cyclone Gaja, which severely impacted the delta districts. The coconut orchards which form the main source of livelihood for the farming community had been completely devastated. Various relief measures were undertaken by NAF with support from the CSR Partners.



Impact of Various Interventions Supported by BNY Mellon

Interventions	Outputs	Outcomes
Formation of Farmers club	One farmers club with 20 volunteers was formed	Due to this common platform, farmers' coordination has improved and Savings habit was inculcated.
	6 nos. of awareness training programs were conducted	Corpus fund of INR 1,32,000/- has been collected and used for internal lending to meet various farm expenses
Establishment of Demo farms	8 FLDs established and handheld	Yield improvement upto 21.2%
		Increase in profit upto 23.4%
		Conviction of farmers on Lean farming Technologies
Kitchen garden kit	75 units of Kitchen Garden established	Increase in intake of vegetables from kitchen garden. Traditional varieties of 14 types of vegetables introduced

Interventions	Outputs	Outcomes
Training on livestock management	3 training programs on Livestock management conducted 3 Cattle camps were conducted. Free goats provided for 30 beneficiaries @ 2 each	Farmers understood cattle feed management, clean milk production, selection of breeds, preparation of sidhdha formulations for animal treatments etc. Income generation from goat rearing
Fodder kit	100 units of fodder kits distributed	Seven types of fodder varieties introduced which increases fodder availability to the farmers, thus reducing costs
Provision of chain saw	15 chainsaw machines distributed	Used to remove the trees fallen due to cyclone which favored cultivation of other crops
Restoration of farm ponds	Salt water pumped out from 121 farm ponds	The quality of irrigation water got improved which is useful for the standing crop to save their life
Restoration of farm lands	40 acres of land restored	Removal and clearance of root portions of fallen trees, leveling and ploughing made fields ready for farming
Distribution of saplings	Distributed 8500 coconut saplings, 6000 cashew nut saplings, 5500 Mango, 1750 Guava saplings,	Gap filling with new saplings done at devastated coconut orchards and renewal of livelihood option for the community
Agri advisory service	NAF Experts visited fields and provided need based advisories to farmers	Timely field advise was very helpful in managing their crop and addressing various issues
Revival of solar drier unit	The damaged solar drier unit revived with UV film	People have started to dry their produces and fish in the drier
Installation of solar power unit for drinking water	3 units of automated solar power motor system installed.	Assured power supply even during power cuts due to heavy winds and cyclones and access to safe drinking water

In continuation with relief operations, NAF submitted proposals for rehabilitation of cyclone affected areas in Nagappatinam and Thanjavur districts. BNY Mellon Technologies and KLA-Tencor came forward to support the rehabilitation project with grant assistance as part of their CSR.



Impact of Various Interventions Supported by KLA-Tencor Limited

Interventions	Outputs	Outcomes
Distribution of coconut saplings	3500 quality coconut saplings distributed	New coconut saplings have been planted in the place of dislodged coconut trees. Livelihood option has been restored
Distribution of goats	50 goats distributed to 10 beneficiaries	A viable and sustainable source of income stream has been initiated for the women through goat rearing units
Distribution of fodder kit	Fodder kits for 10 goat beneficiaries has been distributed	Subabul, Velimasal, Fodder sorghum, Agathi (Sesbania), Stylo and Fodder cowpea have been introduced in the project village. Due to increase in available fodder source, cattle health has improved and costs to farmers have reduced.
Training and Capacity Building	Conducted four Technical Training programs	Improvement of Technical knowledge of the people on coconut orchard management, goatery management, Livestock Management and disaster preparedness has impacted their livelihoods. Positive change in attitude of farmers towards scientific cattle management.

Bay Area Tamil Manram (BATM) who had earlier supported flood rehabilitation project in 2015 had once again come forward to support rehabilitation of cyclone affected areas.



Impact of Various Interventions Supported by BATM

Interventions	Outputs	Outcomes
Distribution of coconut saplings	2800 quality coconut saplings distributed	New coconut saplings have been planted in the place of dislodged coconut trees as gap filling, plant population is being maintained
Distribution of goats	50 goats distributed to 10 beneficiaries	Initiated a sustainable source of income through goat farming in the villages
Distribution of fodder kit	Fodder kits for 20 goat beneficiaries were distributed	Subabul, Velimasal, Fodder sorghum, Agathi (Sesbania), Stylo, and Fodder cowpea have been introduced in the project village. Due to increase in available fodder source, cost have been reduced and cattle health has improved
Training and Capacity Building	Conducted one Training program on Livestock Management	Positive change in attitude of farmers towards scientific cattle management. Increased awareness on clean milk production, cattle health management and fodder management has impacted their livelihood.

Environmental Sustainability and Natural Resource Management as Climate Change Adaptation Strategy in Select FPO Villages of Tamilnadu

CSR Partner: Pershing India Operational Services Private Limited

This project was undertaken to make the farmers aware on ill effects of climate change and preparing them for mitigation and adaptation strategies, a project on “Environment sustainability and Natural Resource Management as Climate Change Adaptation strategy in select FPO villages of Tamilnadu” was sponsored by Pershing India Operational Services Private Limited. The project is being implemented in Orathi, Anaikattu and Soorai villages of Madhuranthakam, Lathur and Acharapakkam blocks of Kancheepuram District. Under this project, the major activities are Management of water bodies, Green manuring, and Awareness creation on climate change, Afforestation and Institution building.

**BNY MELLON****PERSHING**

Promoting Lean Farming Technologies

In a new initiative, NAF has entered into an agreement with Department of Agriculture, Andhra Pradesh to create sensitization on concept of Lean farming technologies to farmers of Andhra Pradesh in Kakinada mandal. A comprehensive training on best agri-practices was delivered to 37 farmers who visited CFRD for a three day training program, they were trained on various aspects such as importance of comprehensive soil testing and test based soil recommendations, soil health management, IPM, INM, use of organic formulations, traps, bio fertilizers etc., .

Activities carried out



Intensive Technical Training on Lean farming technologies

CSR Partner: Apollo Tyres Foundation

National Agro Foundation and Apollo Tyres Foundation have partnered to enhance the livelihood of farmers in 3 villages of Vandavasi Block through Tree Farming and Sustainable Agriculture. As a first step in this direction, a 3 day residential Intensive technical training was organized for the farmer's at Center for Rural Development, NAF campus, Illedu. About 30 farmers participated in the residential training program and benefited from the exposure and learning experience. The farmers received knowledge and skills on Comprehensive soil health management, IPM/INM, Farmers Club, Farm Machinery etc. Apollo Tyres Foundation has partnered with NAF in implementing a Front Line Demonstration plot on Lean Farming Practices to benefit knowledge transfer for the farming community, they have also supported to established Farmers club, Tool bank etc. in the project area.

Activities carried out



Lean farming for Environmentally Safe Crop Productivity Improvement

CSR Partner: Oerlikon Friction Systems (India) Limited

Oerlikon has partnered with NAF for creating awareness on “Lean farming for Environmentally Safe Crop Productivity Improvement” through FLD – Front Line Demonstration in 4 villages of Walajabad, Kanchipuram District. The promotion of lean farming practices will in turn enhance the productivity of crops at reduced cost of cultivation. As a part of this, 2 technical training programs were conducted in CFRD in which 45 farmers from 4 villages participated. They were provided thorough knowledge on the importance of soil testing, soil health management, INM & IPM, demonstration on preparations of organic insecticides, nutrient supplement etc. Thirty farmers were selected for implementing field level demonstration.

Impact

Due to regular trainings and skill development, It has been observed that there has been a reduction of upto 40% usage of fertilisers and pesticide in the farms compared to the earlier conventional method of farming.

Activities carried out



Climate Smart Agri Initiative - ITNRM Project

CSR Partner: BNY Mellon Technology Private Limited

Climate change has impacted every walk of life and has become more perceivable in recent times, due to uncontrolled exploitation of natural resources. We have changed the earth atmosphere to an irreversible level and its consequences are impacting our lives, especially those of the farming community. Being a largely agrarian economy, farmers are facing crisis due to impact of climate change and global pressures pushing them over the brink. In this context, it is necessary to provide climate resilient technologies to the farmers for reducing the climate risks and ensure sustenance in productivity.



Knowledge and technical know-how; from “Lab to Land” has to be strengthened and promoted, in order to achieve climate resiliency over a period of time. NAF has been focusing on addressing climate smart agri-practices to meet the growing challenges of farmers in rural India today.

In a country like ours, it is very difficult to cater to the information needs of farmers with a limited number of extension functionaries. This has resulted in a huge gap in knowledge and technological transfer in rural areas. Information Technology platforms have been effectively used to promote knowledge and climate smart technologies to the farmers for enhancing effective agri-production, improved knowledge on farm practices and providing critical information on pest and disease management through appropriate agri-related advisories connecting farmers and experts via mobile phones.

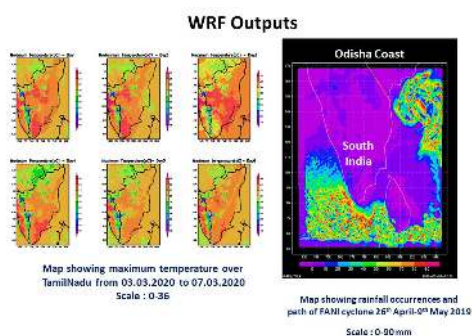
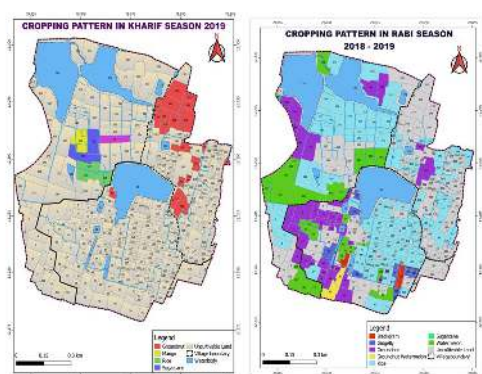
IT-NRM project has aimed to provide and collect various information viz., weather-based agro-advisory services to farmers, land use land cover map provides the changes over the period of time, cropping pattern map provides changes in the crops over period of time, fertility map provides fertility status of the soil, well water sensor provides information on the water level, also aimed to provide pollutant status of the project location, and amount of soil loss would be calculated by GIS method.

Given below are the some of the services and activities carried out under the ITNRM project:

» ***Pollution level indicator (Pollution Study conducted at CFRD)***



» ***GIS mapping - Mapping of land use, land cover dynamics, cropping pattern and fertility status***



» ***Quantification of soil erosion***



» ***Ground water level monitoring sensor at CFRD***



» ***Crop Protection Application – Field Experiment with Soil Moisture Sensor***



» ***Development of village level forecast and agro-advisory***

Automatic Weather Station (AWS) has been installed in our project location at Mampattu and weather parameters viz., maximum temperature, minimum temperature, relative humidity, rainfall, wind speed, wind direction, baro pressure and solar radiation are being observed and recorded on a daily basis. This daily observed data is used for forecast verification.



» ***Establishment of Climate lab***

For modeling, forecast and advisory development Climate lab was established in CFRD, Illeedu



- » Under NRM activities, two farm ponds were excavated in Soorai village of Madhuranthagam FPO and Orathi village of Acharapakkam FPO. The capacity of these farm ponds are 250 m³ which can hold 2, 50,000 litres of water and 50 m³ which can hold 7.5 Lakh litres of water respectively. In Anaikattu village of Lathur FPO, one village pond was de-silted to a quantity of 2000 m³ which can hold 20 Lakh litres of water. The banks were also strengthened.
- » To enhance soil nutrient status, green manure seeds of sun hemp were distributed to 40 farmers.
- » To make the people aware on climate change and its mitigation and adaptation measures, awareness training was conducted in two villages namely Anaikattu and Orathi. In these awareness trainings, the attributes of climate change like green house gases (carbon dioxide, methane, ozone, CFCs, water vapour), Climate change effects on human being, animals, nature & agriculture viz., Global warming, ozone layer depletion, ocean acidification, melting of snow, outburst of diseases, impact on soil, water & air were discussed in detail. Tree planting being the most important climate mitigation measure, 600 agro-forestry seedlings and horticulture seedlings were planted.

Agri-Business Division

In pace with the recent trends in agri-business development sector and new and upcoming challenges, faced by agripreneurs across the country, NAF has re oriented its approach and strategies to focus on Agri-business Development with the key focus on formation, nurturing and strengthening of the FPOs as a profitable and sustainable business model through the application of scientific management principles such as branding, marketing, setting up a supply chain, operations management, financial management, value addition, processing, market linkage, digitization etc.

NAF's successful strategy increasingly focuses on equipping the FPOs with knowledge and skills; and considers these collectives as a strategic tool to achieve the Government's vision of doubling the farmers' income. With a vision to convert agriculture into a profitable business venture for every farmer in a responsible and eco conscious manner, thereby contributing to ecosystem services for the farmers as well as the consumers.

NAF has been empanelled as a Resource Institution by Small Farmer Agri Business Consortium (SFAC), Ministry of Agriculture, Government of India as well as NABARD for promotion of Farmers Producer Organizations (FPOs) in Tamilnadu state. Under this, FPOs have been promoted as part of promotion of agri-business activities for the farming community. As a part of the agri-business activities, NAF has been promoting Farmer Producer Organizations with support from Small Farmer Agribusiness Consortium (SFAC), Central & State Government and NABARD. 4 FPOs were promoted with support from SFAC in the first phase beginning April 2015. Subsequently 6 more FPOs were promoted from 2017 onwards in Phase II.

NAF has also been empanelled as Producer Organizations Promoting Institution (POPI) by NABARD. Recently, Tamilnadu Irrigated Agriculture Modernization Project (TNIAMP) signed an agreement with NAF for promoting 20 FPOs in 16 districts of Tamilnadu. It has also been empanelled as a resource institution for promoting 33 FPC under Collective Farming Project through Dept. of Agri Business and Agri marketing.

NAF has promoted / been promoting and providing handholding services to 72 FPOs across Tamil Nadu with one exclusively working for promoting Women Farmer Producer Company.

NAF not only promotes FPOs but also imparts relevant training for FPOs which includes training on governance, financial literacy and management, business development and marketing aspects as well as technical training on various aspects of farm and allied sector activities. It also facilitates efficient forward & backward linkages for credit, product aggregation, value addition & marketing among others. This enables FPOs to handle variety of business activities and also to tap growth-oriented opportunities for attaining commercial viability and organizational sustainability. This further encourages rural entrepreneurship for offering service linkages with medium and larger commodity buyers and input sellers, thereby eventually creating a more integrated value chain.

The following are the major business activities carried out under each of the FPOs.

Small Farmer Agri Business Consortium (SFAC), Ministry of Agriculture, Government of India - SFAC – Phase II

Under the second phase, 6 new FPOs were sanctioned to NAF for promotion and handholding, of which

4 FPOs have mobilized and enrolled 1000 share holders. 2 FPOs have mobilized around 700 farmers and efforts are being made to enroll 300 more farmers. These 2 FPOs are yet to commence business operations and are currently in the initial stage of formation.



District Wise Distribution of FPOs, FIGs & Shareholder Details in Tamilnadu

District	No of farmers enrolled	No. of villages covered	Share capital Collected till date
Krishnagiri	1000	12	7 lakh
Thiruvallur	1000	17	10 lakh
Salem	1000	8	10 Lakh
Nilgiris	1000	30	7 Lakh
Kanchipuram	1000	40	10 lakh
Vellore	1000	12	10 lakh

The business activities undertaken by these FPOs are as follows:

Name of the FPO	Business Activities	Status	Annual Turn Over
Uthiramerur	Oil Processing, Input Sales,	Units fully operational	27.58 Lakh INR
Ponneri	Processing Center for Pulses, Seed Sales	Input center just commenced. Produce aggregation planning is being done	30.76 Lakh INR
Alangayam	Oil Processing, Input Sales, Country Sugar	Input center just commenced. Oil expeller unit also started.	9.75 Lakh INR
Jarugamalai	Input Sales, Flower Marketing & Sales	Business just commenced. Marketing of flowers done at Salem	52 Lakh INR
High hills tea	Primary Processing Center has been sanctioned by GoTN	Activities yet to commence	2.36 Lakh INR

Handholding Support to FPOs Established in Phase-1 of the SFAC Project

NAF continues to support and hand hold these FPOs established in the first phase of the SFAC project and after successful initiation of business activities, SFAC continues to rely on NAF for support in strengthening the FPOs in Tamilnadu through its various training and exposure programs for FPOs.

Status of Phase-1 FPOs

- » Rajadesingu FPCL has started processing Urad Dhal at 30 tons per month. The capacity is slowly increasing. They have established market connect through Purple Patch Agro Solutions thereby supplying to various food manufacturers.
- » ThangaThamarai FPCL is working on mobilizing working capital assistance for commencing dhal processing.
- » ValwilSudesi FPCL is engaged in the business of millet based snacks and is currently operating well.
- » Kallakurichi FPCL is engaged in input supply and edible oil business.

Activities carried out



Collective Farming FPOs

Based on the excellent performance with FPOs allotted earlier, Tamil Nadu Small Farmers Agri-Business Consortium (TNSFAC) had allotted 23 more FPOs in First Phase (on 29th November, 2018) & 8 more FPOs in the second phase (on 29th October, 2019) under Collective Farming project. This was a project promoted by Department of Agri Business and Marketing, Government of Tamilnadu (GoTN) with an aim to form commodity groups and federating them as a FPO.

The role of NAF was to complete the task of FPO registration and to capacitate them on knowledge and skills relating to areas such as governance, financial management, business plan promotion, forward and backward linkages with market and service providers. Promotion of value addition and processing units based on the commodity and capacities of the FPOs will also be an area of focus by NAF, for the welfare of the FPOs. However, NAF does not exercise direct control over these FPOs and are predominantly under the guidance of department of Agribusiness and Marketing.

FPOs have been incorporated in all selected districts of Tamilnadu; with an overall membership of 7500 members across all districts. Share Capital to the tune of 37.90 Lakh has been raised across the FPOs in Tamilnadu with the annual membership consistently increasing across all FPOs in the State.

Details of Collective Farming FPO Membership in Tamilnadu

Name of District	No of Villages	No of Blocks	No of FIGs	No of Shareholders
Kanchipuram	63	10	150	3000
Tiruvannamalai	37	6	140	2800
Vellore	58	7	145	2900
Cuddalore	27	5	135	2700
Villupuram	19	3	100	2000
Krishnagar	10	2	55	1100
Salem	35	3	50	1000
Nilgiris	29	4	80	1600
Thiruvallur	10	4	50	1000

Collective Farming FPOs - Institution Building Activities for the year 2019 – 2020

Collective Farming (CF) FPO Name	Credit Linkages Available	Schemes and Subsidy Available	Subsidy in INR
Arcot CF FPCL	-	MSDA/Oil Expeller Unit & Oil Filter	10,00,000
Uthirakanchi CF FPCL	-	-	-
Thurinjapuram CF FPCL	--	MSDA/Oil Expeller Unit & Oil Filter	10,00,000
Anakkavur CF FPCL		-	-
Virudhagireeswarar CF FPCL	Crop loan for 10 members, Milch animal loan for 25 members	MSDA/Oil Expeller Unit -3	-
Sholinghurshree Yoga Narashimmhar CF FPCL	-	MSDA/Oil Expeller Unit & Oil Fiter	10,00,000
Tiruthani CF FPCL		MSDA/Oil Expeller Unit & Oil Fiter	10,00,000
Kelamangalam vegetables CF FPCL	-	-	-

Collective Farming FPOs - Institution Building Activities for the year 2019 – 2020

Collective Farming (CF) FPO Name	Credit Linkages Available	Schemes and Subsidy Available	Subsidy
Sri Ramanujar CF FPCL	-	-	-
Yelagiri CF FPCL	-	-	-
Vanmugil CF FPCL	-	-	-
Keerapalayam CF FPCL	-	-	-
Pallava CF FPCL	Loan availed from Canara Bank in Sept 2019	-	10,00,000
Thillainatrajar CF FPCL	-	-	-
Kosasthalai CF FPCL	-	NADP	-
Marutham CF FPCL	-	MSDA/Oil Expeller Unit & Mini Dhall Mill	10,00,000
Kollimalai CF FPCL	-	-	-
Neelagiri CF FPCL	-	-	-
Rathinasabai CF FPCL	-	-	-
Melmalayanurangalamman CF FPCL	-	MSDA/Oil Expeller Unit	10,00,000
Sankarapuram CF FPCL	-	MSDA/Cattle feed unit & Flour Mill Unit	10,00,000
Chetpet CF FPCL	-	MSDA/Oil Expeller Unit -4 & Oil Fitter	10,00,000

Activities carried out



Marutham FPCL receiving 5 Lakhs Startup Grant cheque from ED TNSFAC @ Thalaivasal Programme

Training & Exposure Visits for FPOs



Based on the performance of the existing FPOs of NAF, SFAC has sanctioned 8 more FPOs under Collective Farming Scheme during 2019.

Details of Collective Farming FPO Membership in Tamilnadu

District	No. of Members	Inc. Status
Villupuram	1000	Incorporated
Kallakurichi	800	Incorporated
Chengalpattu	1000	Incorporated
Chengalpattu	1100	Incorporated
Thiruvallur	1000	Incorporated
Thiruvallur	1000	Incorporated
Vellore	1000	Incorporated
Thiruvannamalai	600	Incorporated

NABARD Farmer Producer Organizations (FPOs)

NAF as a Producer Organization Promoting Institute (POPI) had promoted 10 FPOs with support from NABARD and successfully established them by year 2018. However, NAF continued to handhold and extend its support to those 10 FPOs in institution building activities and training and capacity building over the last 2 years.

Out of the 10 FPOs promoted, 7 FPOs are fully functional with varied business operations as follows:

Name of the FPO	Business activity	Turnover (in INR)
Lathur&Chithamur	Input center, Oil expeller unit	7.5 lakhs
Marakanam watermelon	Input centre and cattle feed	28.5 lakhs
Olakkur	Vegetables grading and collection, Input centre, grocery shop.	5.5 lakhs
Thellaru	Input center, Loan	4 lakhs
Gummidipoondi good luck	Input centre and cattle feed	2 lakhs
Sholavaram	Vegetable grading and collection and marketing, input centre	8 lakhs
VeeraRajendrachoathan	Milk collection center, Mushroom	1.2 lakhs

NABARD FPO Training and Business Activity Details

NAF plays a significant role in training and handholding the FPOs during each stage of development from inception till maturity and acts as a moderator to ensure that activities and the business plan is progressing as planned. In this context, NAF had organized a total of 36 exposure visits for the FPOs on various thematic areas of business development and a total of 45 trainings for Board of Directors of the various FPOs. Details of the same are given in the following table.

Details of Business Activities of the FPOs

Name of the FPO	Business Activity	Credit Linkage (in INR)
Madurantakam & Acharapakkam	Input Centre	-
Lathur& Chithamur	Input center, Oil expeller unit, SP Unit was sanctioned.	12.25 Lakh
Marakanam watermelon	Input centre and cattle feed	15.00 Lakh
Olakkur	Vegetables grading and collection, Input centre, grocery shop.	-
Thellaru	Input center, Loan	14.45 Lakh/Repayment Completed
Gummidipoondi good luck	Input centre and cattle feed	-
Puratchideepam	Input center	-
Sholavaram	Vegetable grading and collection and marketing, input centre	-
Veera Rajendrachoathan	Milk collection center, Mushroom	33 Lakh/28 lakh Repayment Completed

Activities carried out



Kurinjipadi Women Farmers Producer Organization (A CII – Bluestar – NAF Collaboration)

Women producers, who are often excluded or have their participation restrained in organizations, face additional challenges such as cultural and legal discrimination that prevent them from accessing productive assets, finance, education and technology. Establishing their own organizations or becoming more active in integrated



Confederation of Indian Industry

organizations can help them overcome these constraints, increase their economic and social power and improve access to needed services. With this background, Women Farmer Producer Organization was started in kurinjipadi, Cuddalore Dist with only women farmers as shareholders. This will become the first All Exclusive Women Farmer Producer Organization in the state of Tamil Nadu. This project was launched on 17th June 2019 at Kurinjipadi. This project is being supported by Blue Star Ltd, a leading Cold Storage Company through arrangements with CII.

Total No of Panchayat in block	59
No of villages covered for FPO formation	25
Name of the Villages covered so far under FPO	15
Identified Crops / activities	Dairy, Ground nut, Paddy and Vegetables
No. of FIG formed	20
Share Amount received	160000
No of Shareholders	400

Progress on Various Activities

- » 37 awareness meetings have been conducted and 200 members have been mobilized into 7 Farmer Interest Groups.
- » Share capital of INR 2 lakhs has been mobilized.
- » Bank accounts for 5 FIGs have been opened and 2 more are in the process of account opening. Four women directors have been identified (selected by the members themselves) and the mandatory procedures for registration of Company have been initiated.
- » The lead members have been taken on an exposure visit to well-functioning FPOs like Lathur and Chitamur as well as Raja Desingu FPCL for them to gain confidence in FPO movement.
- » It is planned to mobilize 500 women farmers in total as share holders for this company.
- » The women farmers are also interested in dairy business and blue star has expressed interest in supporting this FPO with establishment of chilling unit (cold storage) for milk based on the feasibility study.
- » Establishment of demonstration farms as immersion sites has also been commenced.



Vermi Compost Unit



Azolla pit

FPOs under Tamilnadu Irrigated Agriculture Modernization and Water bodies Restoration and Management Project (TNIAMWARM)

This project has been implemented predominantly in river basin areas of Tamilnadu wherein modernization of irrigated agriculture, promotion of water saving technologies etc. were focused. This project has been in place since 2006. As a part of sustainability of IAMWARM project, the Government is focusing on community strengthening and business development through promotion of Commodity Groups and federating them as FPOs. NAF has been selected as Technical Support Agency by TNSFAC for handholding support to FPOs (formation, training and capacity building of FPOs on Governance, statutory compliances, business promotion and supply chain management activities) for those FPOs that are being formed under TN IAMWARM Project through tender process.

NAF has won the bid for 6 Regions out of eight Regions. Accordingly, NAF will be extending technical support to 20 FPOs in 15 districts of Tamilnadu state. The total budget outlay is INR 2.76 crores for a period of three years commencing from November 2019. Six Experts have been inducted into NAF team for this project. This project is a World Bank assisted project.

Activities carried out



DDAB valedictory at Awareness meeting at Thanjavur



Awareness meeting at IAMWARM FPO of Villupuram Dt

District Wise TNIAMWARM Project Details At a Glance

Name of the District	Membership	No of FIG Formed	No of Meeting conducted	Name of the FPC approval received	FPO Registration Status
Kancheepuram	1000	50	33	TNIAMP 2019-2020 Mamallan Farmers Producer Company Limited	Incorporated
Chengalpattu	1000	50	33	IAMP 2019-2020 Sri Garuda Farmer Producer Company Limited	Incorporated
Cuddalore	1000	50	28	TNIAMP Kammapuram Lower Vellar sub basin farmers producer company Limited	Incorporated
Cuddalore	1000	50	33	TNIAMP Vikatakavi Farmers Producer company Limited	Incorporated
Kallakurichi	660	33	29	TNIAMP Lower Vellar Farmer Producer Company Limited	Incorporated
Perambalur	660	33	30	TNIAMP 2019-20 PerambalurVellar Farmer Producer Company Limited	Incorporated
Krishnagiri	800	35	33	TNIAMP Kallavi Farmer Producer Company Limited	Incorporated
Dharmapuri	900	45	30	IAMP Pambar Farmer Producer Company Limited	Incorporated
Erode	900	45	33	IAMP Lower Bhavani Farmer Producer Company Limited	Waiting for Approval
Coimbatore	900	35	32	TNIAMP 2019-2020 Sri Aranganthar Farmers Producer Company Limited	Incorporated
Dindigul	500	25	33	IAMP 2019-2020 Dhanya Farmer Producer Company Limited	Incorporated
Dindigul	500	25	32	TNIAMP 2019-2020 Manjalar Farmer Producer Company Limited	Incorporated
Theni	500	25	33	IAMP 2019-2020 Mullainaathi Farmer Producer Company Limited	Incorporated
Theni	500	25	31	TNIAMP 2019-2020 Southuparai Farmer Producer Company Limited	Incorporated
Thanjavur	1000	50	33	TNIAMP Pragatheeshwarar Farmer Producer Company Limited	Incorporated
Thanjavur	1000	50	33	TNIAMP Kumbakonam Farmer Producer Company Limited	Incorporated
Tiruvarur	1000	50	30	South India Farmer Producer Company Limited	Incorporated
Tiruvarur	1000	50	33	IAMP PonnaiNadhi Farmer Producer Company Limited	Incorporated
Trichy	780	39	30	TNIAMP 2019-20 Trichy Farmer Producer Company Limited	Incorporated
Pudukottai	730	36	31	TNIAMP 2019-2020 ViralimalaiPonnaniyar Farmer Producer Company Limited	Incorporated

Tamil Nadu Rural Transformation Project (TNRTP)

Tamilnadu Rural Transformation Project (TNRTP) has appointed NAF for Capacity Building for Development and Strengthening of Producer Collectives. The proposed project development objective is to “Promote rural enterprises, access to finance and employment opportunities”. This is envisaged through business eco system development, enterprises promotion, and business plan financing and skilling and employment generation in 120 blocks across 16 districts of Tamil Nadu. NAF has been assigned 6 districts under Region II including Salem, Erode, Tirupur, Coimbatore and Nilgiris. The project period is for 3 years with a contract value of INR 2.35 crores.



The enterprise promotion component would aim to promote individual and group enterprises by building effective market and institutional linkages. The members would be Enterprise Groups (EGs), Producer Groups (PGs) promoted at the village level and Producer Collectives (PCs) promoted at the block, sub-district or district level. EGs would be collective enterprises with maximum of 30 members promoted at village level, PGs would be primary level aggregation of producers who would be involved primarily in production activities, aggregation of produce and may be in the first level of processing.

Annual Turnover of the Farmer Producer Organizations in Tamilnadu for the year 2019 - 2020

Name of the FPOs	Business Activity	Approx. Annual Turnover in Lakh INR
Raja Desingh Farmers Producer Company Limited	Dall Mill, Seeds	128
Thangathamarai Producer Company Limited	Dall Mill, SP Unit	50
ValwillSudesi Farmers Producer Company Limited	Millets Processing Unit	92
Uthiramerur Farmer Producer Company Limited	Input Centre, Purchase & Sales Groundnut	27.58
Ponneri Farmers Producer Company Limited	Input Centre	30.76
Jarugumalai Farmers Producer Company Limited	Flower Trading	50.3
Alangayam Farmer Producer Company Limited	Cattle feed	9.7
Resahe Farmer Producer Company Limited	-	2
High Hill Tea Farmers Producer Company Limited	Tea Leaf Trading	2.36
Lathur And Chithamur Farmers Producer Company Limited	Oil Unit-2	10.95
Madurantakam And Atchirupakkam Farmers Producer Company Limited	Seeds	3.15

Annual Turnover of the Farmer Producer Organizations in Tamilnadu for the year 2019 - 2020 (Contd.)

Name of the FPOs	Business Activity	Approx. Annual Turnover in Lakh INR
Gummidipoondi Goodluck FPCL	Milk Centre, Input Centre, Cattle feed	12.95
Sholavaram FPCL	Input Centre	35.5
Puratchideepam FPCL	Nil	.68
Marakanam Watermelon Producer FPCL	Input Centre	13.92
Olakkur FPCL	Input Centre	12.2
Thellaru FPCL	Input Centre	3.85
VeerarajendraChozhan FPCL	Milk Centre,	7.2
Pallava Collective FPCL	Input Centre	46
UthiraKanchi FPCL	Input Centre	8
Sri Ramanujar Collective FPCL	Input Centre	5.4
Kosasthalai Collective Farming FPCL	Input Centre	20.12
Rathinasabhai Collective Farming FPCL	Input centre	1.41
Tiruthani Collective Farming FPCL	Input Centre	5
Vanmugil Collective Farming FPCL	Input Centre	15.3
MelmalayanurAngalamman Collective Farming FPCL	Oil Unit	4.6
Sankarapuram Collective Farming FPCL	Input Centre	4.6
Marutham Collective Farming FPCL	Input Centre	.5
ThillaiNatrajar Collective Farming FPCL	Purchase & Sales Paddy	2.7
Virudhagireeswarar Collective Farming FPCL	Input Centre	9.16
Keerapalayam Collective Farming FPCL	Purchase & Sales Paddy	1.5
Thurinjapuram Collective Farming Producer Company Limited	Groundnut trading	2.5
Anakkavur Collective Farming FPCL	Animal feed	3.9
Chetpet Collective FPCL	Seeds	3.56
Yelagiri Collective FPCL	Input Centre	15.37
Sholinghur Shree Yoga Narashimhar Collective FPCL	Input shop	1.5
Arcot Collective FPCL	Input Centre	3.85
Kelamangalam Vegetables Collective FPCL	Input Centre	6.08

Market Linkage Arrangement

As mentioned earlier, NAF plays a critical role in facilitating market linkages for various FPOs across the state and enables a sustainable market environment for farmers. NAF has also arranged for market tie-up agreements with the following retail companies who have agreed to procure produce / commodity from FPOs promoted by NAF, thereby encouraging transparent market channels and ensuring right price reaches the farmers.

WayCool Foods and Products Private Limited

WayCool, a company which is working on B2B and B2C models of vegetables and fruits supply as well as food grains and other agro-commodities. Sholavaram FPO, promoted by NAF under NABARD assistance has already been linked with this company and the FPO is supplying vegetables and greens worth INR 15000/- to 20000/- on a daily basis. This is expected to expand to other vegetable-based FPOs shortly. Thangathamarai FPO has processed 40 Tonnes of Dhall to WayCool & Rajadesingh FPO has processed 15 Tonnes of dhal during 2019 - 2020.

Purple Patch Agro Solutions Pvt Limited

Purple Patch Agro Solutions are a company who accept produce through FPOs in order to support the local economy. NAF has tied up with them to promote various produce through FPOs in Tamilnadu.

The company has procured an amount of 105 MT amounting to 113 lakh of Urad dhal from the Rajadesingh Farmers Producer Company Ltd's Dhall Processing Unit.

The Jarugamalai FPO has supplied flowers (nerium) worth INR 70 lakh to various flower traders in Tamilnadu.

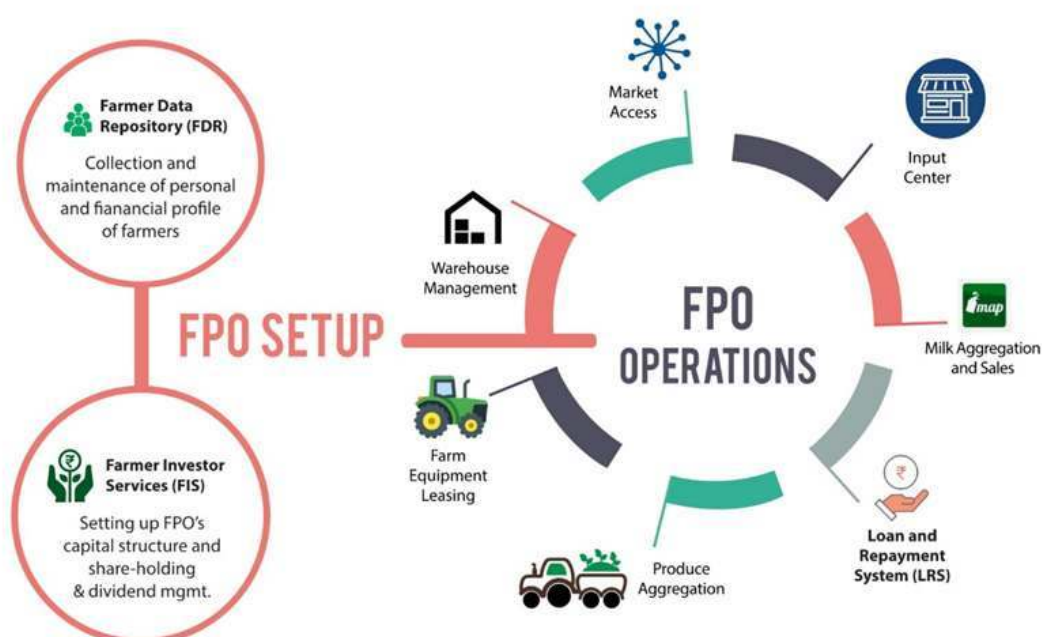


Project – KANCHI - Kisan Advancement through Cashless Innovation

NAF in collaboration with Center for Digital Financial Inclusion (CDFI) is implementing a project KANCHI (Kisan Advancement through Cashless Innovation). Under this several modules are available such as, Farmer Data Repository (FDR), Farmer Investor Services (FIS), Milk Aggregation Portal (MAP) and Lending and Recovery System (LRS), Input Center Digitization (ICD), Farm Lease, Produce Aggregation and warehousing (PA & WHS), were developed.



Schematic diagram describing FPO Operations



Milk Aggregation Portal enhancement

In addition to the above, Milk Aggregation Portal (MAP) has been upgraded to suit the requirement of milk aggregators of AAVIN wherein automatic milk analyzer and weighing machines are used. The enhanced system will capture data directly from the milk analyzer and facilitates aggregators to generate payment advice from the daily collection report and thus they can consolidate the report in a single click, which was started with just 6 centers, however now over 15 Centers are running successfully and the live data is being consolidated on a daily basis.

Over the last one year from April 2019 till March 2020, a total of 23,05,113 lakh litres of milk data has been procured through our KANCHI MAP portal in Kanchipuram district, and recorded a transaction history of 7.25 Crores of payment to the aggregators through cashless mode.

Kattupakkam & Ilanagar Milk Collection Centre at Uthiramerur using digital platform to aggregate milk



Input Center Digitization (ICD)

In order to capture the business operations of input centers run by FPOs, ICD module has been devised and has been rolled out. This creates a stock management and invoicing system. This will also facilitate cashless payment system through integrated machine linked with Apna Pay, A total of 78.38 Lakh INR has been transacted through KANCHI's ICD platform during the past year.

Produce Aggregation (PA), Warehousing System (WHS)

In order to facilitate digital transactions of FPOs, additional modules such as Produce Aggregation, Warehouse Management system, on line marketing portal as well as revenue and expenses management system of FPOs are being developed. These modules will help track the businesses as well as strengthen the business processes besides facilitating compliances for FPOs in the longer run.

Centre for Agriculture and Bioscience International Plant Wise

Plant wise is a platform to help farmers address crop pest and disease through effective and early diagnosis. It is an effective tool to effectively address pest and disease related issues in crops and provide effective and timely solutions to farmers in need, Plant clinics have been scheduled twice in a month at the registered place in which NAF has 55 Plant Clinics operating all over Tamilnadu and from these 1782 clinical data has been reported in the POMS of CABI during 2019. plantwise online management system

CABI – IFPRI – Picture Based Insurance

In collaboration with CABI & IFPRI (International Food Policy Research Institution), NAF has started a field based trial & survey for picture based insurance through smart phone based mobile application. The farmers are being trained to take photos and then they are submitting those images on a timely basis, from which farmers are given insurance claims based on the pictures that they have taken. The first season of the trial has been completed successfully.





*Farmers taking images in the field
& NAF Staff giving training to the
farmers in the field*

Training & Capacity Building Division

There is a need for speedy reorganization of the ecosystem of skill development and entrepreneurship promotion in the country to suit the needs of the rural economy and enable a decent quality of life to its population.

NAF has been focusing its energies on skill development in rural areas to improve employment opportunities for rural youth and communities, reduce poverty, provide livelihood opportunities, enhance productivity and promote environmentally sustainable development

NAF - Center for Rural Development was established to provide training and capacity building for farmers on technology based agriculture to transform the direction of the Indian agriculture from “production-oriented” to “market-oriented. We have strived to achieve this, by developing an integrated and innovative rural development model to equip farmers with technology which in turn increases the productivity per unit area. The prime objective is not only to increase the ability of farming community to innovate and adopt new technologies in agriculture but also to ensure continuous improvement in economic, environmental and social performance of the rural community. Training is imparted on “technology-oriented” and “participant-oriented” modes to various stakeholders of agriculture and rural development including farmers, youth, agripreneurs, women, socially excluded, functionaries of NGOs, water users, producer groups, input suppliers, bankers and students among others.

In CFRD training center, 4539 farmers were given training including farm women, young farmers, entrepreneurs on various aspects of sustainable agriculture through 128 training programs during the FY 2019-20 as against 4127 farmers trained the previous year. Apart from these trainings, under the Corporate Mega Volunteerism program, 1103 employees from BNYM had joined hands with NAF to carry out various green ventures in the intervention villages.

Agri-Clinic & Agri-Business Centre (ACABC) Training Program

Agri-Clinic and Agri-Business Center is a Government of India (Ministry of Agriculture and Farmers Welfare) unique program to tap the expertise of available agricultural graduates, agri-diploma holders, veterinarians etc. to offer professional extension service to farmers, thus enhancing the overall development of the agricultural sector in India.



Out of the total 82 Nodal Training Institutes (NTI's) in India and 6 in Tamilnadu, NAF is one of the NTI that provides professional services promoting entrepreneurial skill to agri-graduates and also enables them as best extension providers in the rural agri-landscape.

In FY 2019-20, NAF has trained 3 batches of 105 agripreneurs, equipping them with skills, knowledge and the right attitude to succeed in the field and become catalysts of change. These trainings have proven to be very successful and NAF has conducted 26 ACABC training programs for 808 agripreneurs since 2010, in which 98 have started business successfully with their own investment.

NAF - BNYM – Skill Development Training For Rural Women Entrepreneurs

BNYM through their CSR Initiative initiated a women skill development training to improve the livelihoods and wellbeing of disadvantaged women working in farm related activities in villages by empowering them to develop a collective voice, to access services, and increase and diversify their sources of income. The key objectives of the women Skill development training program are as follows.



BNY MELLON

- » To promote Livelihood Enterprise Business Development Programme for the matured SHGs in rural areas.
- » To encourage and help the women to enhance their skills and start their own business

- » Networking with the banks, markets, and other Government agencies to promote trade activities to facilitate income generation

A total of 203 women were trained on various On farm and Off farm related activities like Jute bag training, Ethno-veterinary practices, Backyard poultry etc. and encouraged to take up various entrepreneurial ventures.



BNYM - Economic Empowerment Of Small Farm Holders Through Building Their Entrepreneurial Abilities Including Soft Skills

To be successful at market-oriented farming, the farmer needs greater farm management and entrepreneurial skills. An entrepreneurial farmer is well capacitated to take farming decisions in a complex competitive and collaborative environment. With this focus, NAF had organized trainings that would enhance the entrepreneurial abilities of farmers. Till date, about 133 farmers were trained on various themes such as marketing and branding of their farm produce, digitization of farm income and milk income, tractor repair and maintenance etc.



BNYM – United Way Worldwide (UWW) Farm Sector Skill Development to Promote Agri-entrepreneurship

NAF works towards capacity building by bridging gaps and upgrading skills of farmers in agriculture & allied sectors. It has been transforming the lives of farmers through skill up gradation programs in emerging areas of agriculture like farm mechanization, nursery management, dhal mill operations, poly-house management etc. Under the support of BNYM and UWW.



BNY Mellon – Women Skill Development project

One of the components of the project was Food Safety & Hygiene training for the Women entrepreneurs.

- » Under this project, 5 training programs have been conducted in Street food vending and basic catering (Level 1) under FoSTaC covering 157 women entrepreneurs.
- » The training focused creating awareness on Hygiene and Sanitary practices to be followed by the Food Vendors during preparation and serving of the food to ensure safe food to the consumers.

DRP- Village Resource Person Training

Ministry of Rural Development in collaboration with Government of Tamilnadu conducted SHG- VRP Training programme on Social Audit under MGNREGA in the CFRD Training Centre. This initiative aims to create a community cadre of Village Resource Persons (VRP) who will be engaged in conducting social audits at the Gram Panchayat level.

In addition to the above trainings, 978 women from 25 villages, have been trained on organic formulation, Around 500 women were recruited as Village Social auditors during the year 2019 - 2020



NAF – TNSRLM Master CRP Training Program

NAF has been selected as a resource institution to train 40 Krishisakhi (Agri CRP's) and 40 Pasusakhis (Animal Husbandry) who were all selected as Master CRP's from 5 districts – Salem, Ariyalur, Perambalur, Villupuram and Cuddalore district. In each district, 5 agri CRP and 5 pasusakhis were appointed after this training.



NAF – TNCDW Project Directors, APOs – FPO Exposure Visit

Project Directors from 11 districts of Tamilnadu visited CFRD on two day program to understand the functioning of FPO, governance, compliances, business activities, equity grant, selection of BOD's, management of FPOs etc. They were taken to our two FPOs Raja Desingh and Lathur/Chitamur FPO as part of the exposure visit to interact with the teams. During the training program, many Government officials had shared that they were unaware of the functioning of the FPOs, but have gained much knowledge on FPOs after the exposure and training at CFRD. After this visit, TNSLRM implemented 18 women based PO's in different districts with pottery, handicraft, animal husbandry, dairy and weaving as entrepreneurial activities.



NAF – NABARD: Sustainable Development Project Arasur Watershed

In a continuation of the Watershed development project, NABARD has sanctioned SDP project for Arasur watershed which focuses on capacity building and skills development of the community.



The SDP, aims at achieving the following objectives through trainings and exposure visits organized by NAF

- » To strengthen VWC members and enable them to continue vibrantly
- » To ensure 100% financial inclusion in the watershed village, to have access to crop loans, and other financial assistance for entrepreneurial initiatives.
- » To ensure that each of the beneficiary is a part in any one of Farmer's club, Joint liability Group, Self Help Group, Farmer Producer Organizations etc.
- » To establish a link with the technical agencies to facilitate technology transfer
- » To strengthen the Village Watershed Committee and other Community Based Organizations for effective functioning.
- » To educate about the Government schemes and subsidies available for the community.
- » To establish access with the line departments of Government, Krishi Vigyan Kendras, Research stations and Universities to facilitate technology transfer to achieve sustainable development of agriculture and allied professions.
- » To accommodate appropriate crops, according to water budgeting and water use efficiency practice micro irrigation like drip and sprinkler irrigation to utilize water resource judiciously and to solve the issues related to irrigation water and through rain water harvesting.
- » To protect the soil fertility and its productivity by the adoption of cover crops, mulching, inter cropping, nutrient use efficiency, organic Farming and smart climate practices.
- » To promote millets, pulses cultivation and sustainable land use practices and providing training for preparation of value added products.

In the FY 2019 – 2020, NAF had organized 12 trainings in CFRD engaging with 240 trainees. Apart from this, selected VWC members and community members were taken on exposure visits to different institutions to strengthen their skills and engage in peer learning experiences. They have visited the following FPOs in Tamilnadu; Raja Desingh FPO, Thangathmarai FPO, Lathur/ Chitamur FPO, TNAU Coimbatore, KVK, Tanuvas Campus, Milk value addition processing center, Alamathi, Chennai, Suvasam Organic farmer producer Company.

NAF - NDLM Center – NASSCOM Foundation – BNY Mellon National Digital Literacy Mission

Empowering youth in this digital era, NAF has initiated the Digital literacy program for adolescents and youth. It has the potential to raise the literacy levels in rural areas and give young people the functional knowledge to be aware of various services and contribute responsibly to society.



The first of its kind, a computer training centre in rural areas, NDLM Centre, a new arrival to CFRD was inaugurated on Feb 20th 2019 by Regional Manager, NDLM and BNY Mellon dignitaries. NDLM centre will provide computer need based literacy to about 1000 women, school children in and around 20 villages of NAF CFRD centre annually. It was started with the objective of providing need based computer literacy to rural students, women and community youth. Within 11 months, we have trained 1200 beneficiaries including women (16-60 years of age) from disadvantaged communities and below poverty line house holds. The rural community has shown a keen interest and willingness to learn new computer based skills.



Corporate Volunteerism Program

NAF has been implementing many community development programs through Corporate Volunteerism. Corporate volunteering is the encouragement and facilitation of volunteers in the community through the organization which involves the employee donating their time and expertise either during official work hours or on their own time with some facet of company support. Volunteer programs organized by NAF are highly recognized and valued programs that can help the corporate company work with community more effectively, that deepen the engagement among employees, and contribute to the company's visibility and reputation in key markets. We help to provide deep immersion experiences for the corporate employees and most often, volunteers go back with a sense of achievement of contributing in a meaningful manner to the rural society.

As a new initiative, BNYM Technology Limited, a group company of Bank of New York Mellon - a leading financial services provider has joined with NAF for Corporate mega Volunteerism engaging 396 of its employees. They engage their valuable time by providing services like tree planting, seed ball preparation, seedling preparation, strengthening of canals, digging of farm ponds etc. Through these programs, employees are provided with an opportunity to interact and learn from rural communities, as well as contribute in a meaningful manner to various causes promoted and as supported by NAF.



Overview of Training Programs held at CFRD during 2019 – 2020

Training Particulars	Training Programs	Program Partner	Total Beneficiaries
Apollo Project - Sustainable Agriculture Intensive Technical Training	3	Apollo	63
BNY Mellon Volunteers Program	9	BNY Mellon	483
BNY Skill Development Program	23	BNY Mellon	1787
CABI Training	2	CABI	22
Climate Proofing Knowledge Enhancement Training	3	Climate Proofing	149
Collective Farming & FPO Trainings	14	FPOs	486
DWDA Training	26	Government	1011
Farmers Skills Development Training	2	L&T	87
ACABC Training & Watershed review meetings	6	NABARD	181
Intensive Technical Training	2	Oerlikon	45
Sustainable Development Program Trainings	5	NABARD	147
RAWE	1	Local Colleges	13
UWW Project Skills Development Training	2	BNY Mellon	65
Total	98		4539

Social Development Division

Social Development is at the core of every project or intervention that NAF undertakes, creating dynamic, vibrant and sustainable rural communities who work in the spirit of cooperation, equity, equality and collective ownership. NAF strongly believes that rural prosperity can be achieved through effective participation of rural communities in the management of their own social, economic and environmental needs.

Most rural communities are in transition, taking on the new globally inflicted challenges and are at cross roads of development. Despite the many constraints of lack in infrastructure, growth and opportunities, rural communities have proven to be resilient in times of challenges and have come together to display skill and leadership.

NAF has adopted an inter disciplinary and inter sectoral approach to address the diverse social dynamic in play in rural India, by, organizing the rural people into grass-root level community-based institutions, and encouraging informed decision making, equal participation by women and demand driven development.

NAF is promoting and nurturing various community-based institutions like Farmers Clubs, Self Help Groups, Joint Liability Groups, Farmers Producer Organizations, Farmer Producer Companies, Water User groups, Watershed committees etc. for inclusive decision-making and collective-action.

These institutions has helped the communities in achieving a sense of ownership for the development interventions, accumulation of capital & resource mobilization for institutional growth, ease-of-access to Government schemes, gender equality and other social benefits.

Focus Areas:

- » Promotion of Community Based Institutions
- » Common Resources Management
- » Awareness Generation
- » Women Empowerment

NAF – HPCL Awareness Campaign against Single Use Plastics

Hindustan Petroleum Corporation Limited expressed their commitment to cut down on single use plastics and to create awareness to rural communities, and has partnered with NAF to create awareness against use of single use plastic and promote eco-friendly measures as a part of their corporate social responsibility and focus on sustainable development.



The collection drive for single use plastics began from 25th of September & ended on 3rd of October 2019. 79 villages across 2 districts viz: Thiruvallur and Kanchipuram were selected for the collection drive. A total of 7585 households across both the districts have been a part of this collection drive and have helped to collect single use plastics. A total of 9 tonnes of plastic waste was collected from 79 villages and handed over to recycling unit and the BDO. The community people who participated were rewarded with a cotton cloth shopping bag in return for the plastic waste provided. Awareness against single use plastic was created through use of short films, rallies for school children, women and community meetings to encourage participation and involvement in the campaign.



NAF – Mahila Kisan Sashaktikaran Pariyojana (MKSP)

MKSP is a Government of India program implemented by TNCDW (Govt. of Tamilnadu). In the context of farming, men are increasingly moving away from farming and other agricultural activities for better paid jobs in the non-agricultural sector, the face of agriculture is changing and becoming more for women. Mahila Kisan Shashakthikaran Pariyojana (MKSP) is a project exclusive for women in agriculture. To improve the status of women engaged in agriculture and to address the food security at a micro level, the Government of India has initiated MKSP, as sub component of National Rural Livelihood Mission (NRLM). The project aims to empower women in agriculture by making systematic investments to enhance their participation and productivity, to create and sustain agriculture based livelihoods of rural women. The main aim of the project is food security and empowerment of women through agriculture. CRP – technical training, Mahila kisan training, Labour army, WFO formation, Producer's group formation, RF fund, Formation of Organic cluster & Customer Hiring Centre (CHC) are the main components of the project. As a pilot project, 3 districts Viz: Kanchipuram, Thiruvallur and Villupuram districts were selected to launch MKSP with the aim of improving the livelihood of women engaged in agriculture by imparting intensive training on sustainable agriculture. NAF has been identified as a Technology Transfer partner facilitating capacity building to CRP's and Mahilakisans in Thiruvallur and Kancheepuram districts. Of the total 16800 beneficiaries identified across 3 districts, 8000 beneficiaries are being facilitated by NAF.



Till date under this project 172 community resource persons, 4000 women through 44000 training heads in Kanchipuram district and 2000 women through 19500 training heads were trained in Thiruvallur.

Enhancement of Women Safety

CSR Partner: BNY Mellon Technology Pvt. Ltd. + BNY Mellon International Operations (India) Pvt. Ltd.

The project aimed to make women feel empowered and confident when they commute in the important IT areas of Chennai (i.e. around Tidel Park, Ascendas IT Park and DLF IT park) by constant surveillance by Chennai Police through installation of CCTV cameras at strategic locations.



A total of 80 CCTV cameras were installed. The total budget of the project is INR 19 lakhs which includes an Annual Maintenance Cost for 5 years from the date of installation.



Disaster Relief Work

CSR Partner: BNY Mellon group - BNY Mellon Technology Pvt. Ltd., BNY Mellon International Operations (India) Pvt. Ltd. & Pershing India Operational Services Pvt. Ltd.

Fani Cyclone Relief

On 5th May, 2019, Cyclone Fani, classified as an Extremely Severe Cyclonic Storm, dissipated over the state of Odisha. Though the loss of life was contained to a minimal number (64) compared to the past cyclones, the loss in terms of wrecked-havoc was nothing like anything the nation has witnessed since its inception.

National Agro Foundation (NAF) with the financial assistance of BNY Mellon group companies has pro-actively engaged in relief activities. As the part of relief measures, need analysis was conducted in 15 villages of two districts (Kordha & Puri), in Odisha. The need analysis covered a population of about 13200 people belonging to 1729 households.

Based on need analysis and baseline study, our field officer came-up with a comprehensive

list of resources and support needed by the population including repairing or reconstruction of damaged houses, restoration of electricity, basic sanitation & hygiene materials etc.

Since the need for shelter is a basic necessity for the people to safe-guard themselves from the adverse effects of the weather, as a part of our initial relief activity, tarpaulins were distributed to over 160 households in 4 villages (Nambilo, Seulakhala, Talaandia & Hansapada) from Puri district.

Also, it was estimated that it would take weeks before the electricity supply was restored in most of the affected rural areas. Hence, as an immediate solution to their safety and multi-purpose livelihood needs, the solar lanterns were distributed to the villagers. About 705 solar lanterns were distributed.

The relief work were carried out to the tune of about 5 lakhs INR. The beneficiaries list has been prepared after carefully considering the community level strata and the economic well-being of the villagers based on the baseline study.



Kerala Floods 2019 Relief

During the month of August 2019, heavy rainfall hit the states of western coast. Kerala was among the worst affected state with 121 people losing their lives and facing an estimated economic loss of over 40,000 crores INR.

NAF team visited K.M. Colony, a severe flood affected area in Calicut district, Kerala during the month of September 2019.

K.M.Colony is a low lying area of Calicut district where paddy was being cultivated under submerged conditions in earlier days. K stands for KatcheriKuzhi (Kuzhi means shallow area) and M for MundakaPadam (Mundakapadam means paddy field) and these are the two regions of K.M. Colony. There are 196 households with a population of 1000 people.

During flood, water was stagnated from 5 to 8 feet height and there is no proper drainage. Due to this water stagnation, the entire belongings of all households like groceries, beds, dress materials, furniture's, doors, etc. got dumped and ruined. Most of their cook wares were lost. House walls got cracked.

They were using well water for drinking. But due to rain water stagnation, well water got contaminated. Well water was already having more iron and some other trace metals. Now E.coli also got mixed with the water which causes the well water completely unfit for drinking, cooking and bathing. Corporation water is being supplied for drinking but it is not regular and also not in sufficient quantity. People are bringing water one kilometer away from their area.

In the upper ridge, adjoining to this colony, there is a Municipal Solid Waste Management Plant where all the city wastes are being dumped. These wastes are segregated and then composted and supplied to the farmers. But, inflow is many times more than outflow and hence, huge mountains of wastes are heaped inside the yard. Rain water leaching through these heaps are flowing to the same colony which adds fuel to the fire. It increases the contaminants load and acidity of underground water. People's health was also affected by chronically.

To provide safe drinking water to the community, a scientific assessment was taken in the area. Water samples were collected from the wells and other water sources and were tested in the lab for the detailed chemical and biological parameters to check their potable status. Out of the 175 houses in the locality with severe contamination problem, RO units were installed for water purification in 100 households with most contaminated water based on their water test report.

Based on assessment of NAF team following relief activities to the tune of INR 23.06 Lakhs were undertaken from September to December 2019 under the support of BNY Mellon:

- » Utensils and other cooking home appliances were given to approx. 100 households as immediate relief.
- » Coir mattresses were provided to 40 households in the flood affected area.
- » Plywoods for cots were provided to 60 households.
- » RO units were installed in 100 households



R&D and Laboratory Services Division

The R&D and Laboratory Services Division was established to provide technical expertise to the farmers and the key stakeholders. Adaptive research are being pursued in the fields of environment and biodiversity, climate change, natural resource management, food safety and security, agri-business and supply chain management. State of the art laboratory services such as soil and water testing, food quality and safety testing etc. are being extended for the welfare of the community. It is meant to compliment the on-field interventions by scientific knowledge and technology transfer for the best development practices in the rural areas.

The NAF R&D Centre is

- » Registered Program Study Centre for IGNOU's PG Diploma in Food Safety and Quality Management program.
- » Empanelled training partner for Food Safety Training and Certification (FOSTAC) by FSSAI.

The R&D division strives to keep abreast of the latest dynamics in the development sector and propels scientific research in fields of food, agriculture and environment, thereby contributing to the knowledge domain as well as pioneering the dissemination of this knowledge in palatable form to the drivers of development across the country. Of the many functions, that the division plays, its core being able to translate scientific know how into practical and functional inputs for the farmers, thereby being able to customize best farming practices, encapsulate best agri technologies for progressive farmers, promote technology update and motivate behavior change through impactful learning methodologies. It also undertakes field oriented research projects on integrated remediation of contaminated soil using phytotechnologies, soil health and climate smart agriculture etc.

DST-SERB funded ECRA Project on Phytoremediation of contaminated soils

- » Project titled “An Integrated Remediation Approach for Chromium Contaminated Soil and Waters in Vellore District, Tamil Nadu” is being implemented at an outlay of Rs, 46,29,800/-
- » The purchase of instruments such as HPLC and Centrifuge has been completed and the training on HPLC analysis was also given to NAF lab team.
- » The Student JRF has been recruited from Department of Environmental Sciences, TNAU after signing the MoU with them.
- » A field survey was undertaken to collect the soil and water samples from chromium contaminated areas of Vellore District. The collected soil and water samples were analyzed for chromium contamination and other parameters. Thus, the hotspots of Chromium contamination have been identified.
- » The laboratory batch experiment for studying the transformation of Cr (Adsorption/ Desorption) in soil has also been completed.
- » Initiated laboratory incubation and pot culture experiment to study the impact of bio-amendments on Cr bioavailability in soil.
- » PI has attended the Group Monitoring Meeting conducted by DST-SERB at IIT, Guwahati during June 6-7, 2019 and presented the work progress of the project. It was rated as good by evaluation panel.
- » The extension for the project period was requested to DST-SERB and it has been sanctioned for three months (upto June 30, 2020).



NAF - CLRI Collaborative Project on Studies on Characterization of Fur Compost and Organic supplement

NAF has entered into an agreement with CLRI in association with CPCL to conduct adaptive research trials on various food crops using the fur compost and Organic supplement developed by CLRI. As an initial step and as a pilot project, field investigations were carried out by National Agro Foundation in 3 locations viz: Acharapakkam, Marakanam and Chitamur blocks, to



study the characterization of fur compost and its efficacy on rice crop. Test trial during Jan -2017 to May -2017 and Confirmatory trial during Dec-2017, Mar-2018 in randomized block design with four treatments and three replications by using the rice variety ADT 37 were conducted. In continuation to these two trials in the first phase, another four phases of trials were successfully completed during 2019-20.

During the 2nd phase, three field demonstration trials in three villages of Chithamur block were conducted. During the 3rd phase, Test trial Efficacy of Organic supplement in Greens was conducted in CFRD Campus, Illedu. During the 4th Phase, confirmatory trial on Efficacy of Organic supplement in Greens was conducted in CFRD Campus, Illedu, along with demonstration trial on Efficacy of Fur compost in Bhendi and demonstration trial on Efficacy of Organic supplement in Paddy. During the 5th Phase, Fur compost and Organic compost trial in Chilli crop was conducted in Ramnad district of Tamilnadu and Fur compost and Organic compost trial in Bhendi crop was conducted in Sholavaram of Thiruvallur District. Results of the experiments are being collated.

New Product Development from Moringa Leaves

- » Moringaoleifera (commonly known as drumstick) is widely considered as the tree of miracles as its leaves, roots, flowers, pods and seeds have been consumed by people traditionally as food and medicine. The leaves are inexpensive and abundantly available, but are largely underutilized and are often discarded.
- » The study was undertaken by NAF Food Testing Laboratory to explore the possibilities of using dehydrated moringa leaf powder to enrich variety of instant food products which can increase their nutritional profile.
- » Moringa leaves were processed and dehydrated Moringa leaf powder (MLP) was prepared. Instant value added products such as Moringa peanut chutney powder, Moringa chutney powder, Moringa rice powder, Moringa sambar powder, Moringa plain spread and Moringa spread with seasoning were prepared by mixing the dehydrated Moringa leaf powder with suitable combination of spice powders and salt.
- » Six different instant value-added products were evaluated in comparison to the control samples for the proximate composition. Sensory analysis was carried with 50 semi-trained panelists, using a 5 point hedonic scale. The protein content was about 23% in MLP. The MLP was a rich source of calcium, iron (8616 mg and 659 mg), including other micronutrients. The products prepared with addition of MLP were well accepted.

» The study indicates that the abundantly available and highly nutritious but largely underutilized *Moringaoleifera*, can be used in various food formulations to enhance the nutritional value and wider acceptance and consumption.

» Research article on this research titled “Development of ‘Ready to Use’ Value Added Products from Moringa Leaves” has been published in a peer reviewed journal “International Journal of Food Science and Nutrition”.

Other Research Activities

Following research articles were published during the year in prestigious national and international journals:

- » Kalpana Palani, Selva Preetha Paneerselvam, Sathya Velusamy and Ramasubramaniyan Ramanathan. 2019. Assessment of Soil Fertility Status for Sustainable Agricultural Production in Chithamur Block, Kanchipuram District, Tamil Nadu, India. Indian Journal of Pure & Applied Biosciences. 7(6), 340-350
- » Sathya, V., Mahimairaja, S., Bharani, A., and Krishnaveni, A. 2019. Influence of Soil Bioamendments on the Availability of Nickel and Phyto extraction Capability of Marigold from the Contaminated Soil. International Journal of Plant & Soil Science. 31(5), 1-12.
- » Saibaba Jagadeesan, Akshaya Sarangharaajan, Nithya Ravikumar, Kalpana Palani, Ramasubramaniyan Melmangalam Ramanathan, 2020. Development of ‘ready to use’ value added products from Moringa Leaves. International Journal of Food Science and Nutrition, Volume 5; Issue 2; 60-62.
- » A research proposal on “Biochar assisted immobilization technique for the reduction of bioaccumulation of heavy metals in green leafy vegetables grown in tannery waste contaminated soil of Vellore, Tamil Nadu” has been submitted for DST-INSPIRE Faculty Scheme.
- » A research proposal on “Development of fortified baked food products by novel microencapsulation with the bioactive compounds from *Bacopamonnieri* and *Withaniasomnifera*” has been submitted to DBT in collaboration with Anna University.

- » A research proposal on “Development of sustainable keratin based nanocomposite for enhancement of soil fertility and crop productivity” has been submitted to DBT in collaboration with CLRI and University of Madras.
- » Work for DSIR–SIRO recognition to NAF, R&D Centre with the consultancy services of Scinnovation Consultants Pvt. Ltd., Mumbai has been initiated during Feb 2020.

The Research theme of “Safe Food from Clean Environment” has been formulated for the year 2020-21 and different research experiments on the above theme will be undertaken by NAF R&D Division during the year 2020-21.

Laboratory Services

The Laboratory Services Division has been widely recognized and is accredited with ISO/IEC 17025:2017 standard by NABL, Quality Council of India. It is actively engaged in providing quality and affordable soil, food, water and organic fertilizers testing services to various stakeholders and also extends services to research scholars and students from various departments of agriculture, food technology, bio technology etc from different universities.

Soil Testing Lab

Analytical Services

- » NAF Soil Testing Lab has been providing comprehensive soil health diagnostic services for agriculture development for the past 19 years. During April 2019 to March 2020, 1645 Soil samples, 221 water samples, 106 compost samples, 444 samples for metal analysis and 108 other samples (plant samples, soil for texture and any other biological parameters etc.) have been tested.
- » Apart from samples from Tamil Nadu, soil and other samples from other states – Kerala, Maharashtra, Andhra Pradesh, and Karnataka were tested during this period.

Trainings/Internships

- » Two students from Anna University and one student from Kalasalingam University underwent Internship program on the modern techniques in soil and water testing at NAF soil Testing Lab.

- » B.Sc Horticulture students of SRM University and two batches of Shishya (OMR) School students and officers of Vegetable and Fruit Promotion Council of India, Kerala visited NAF R&D Centre.

Food Testing Laboratory

National Agro Foundation, Food Testing Laboratory was conceptualized with the aim to provide analytical services to the small and medium scale food industries; help in providing quality to the consumers and raising the general standards of quality particularly in the small-scale sector.

Analytical Services

- » Accredited with ISO/IEC 17025:2017 for the Chemical Scope, the food testing lab has been carrying out Analysis of Food products for compliance to FSSAI Standards and Nutritional Analysis for labeling purposes. 287 food samples were analysed during the year.
- » The analytical services are also being extended to FPOs for testing food grains and cold pressed vegetable oils.

Academic Services

Anna University:

NAF Food Testing Lab is the Adjunct Laboratory for Anna University's B.Tech and M.Tech Food Technology Programs since 2007 and B.E Agri & Irrigation Engineering Programs since 2014.



- » Lab session for B.Tech Food Technology (33 students) have been conducted from August 2019 to October 2019.
- » Lab session for B.E. Agri Irrigation (47 students) have been conducted from December 2019 to February 2020.
- » 23 Students of M.Tech Food Technology from Anna University attended 2 days Practical Sessions in Advance Food Analysis in the month of July 2019.
- » The lab facilities are utilized by students of Anna University for carrying out proximate analysis of samples for their projects. 16 students utilized the facilities during this period.

IGNOU

- » NAF Food Testing Lab is registered Learner Support Centre (P) for IGNOU's PG Diploma in Food Safety and Quality Management since 2013.
- » Chemical and Microbiological Lab counseling sessions are being conducted for 26 students of IGNOU PGDFSQM program - 2019 batch.

Students' Internship, project and training

- » Three students of M.Sc Food Technology and Management from MOP Vaishnav College for Women have done their Internship including mini project during May 2019 to June, 2019.
- » One student has undergone 2 weeks Hands on training in Food Analysis during September 2019.

FSSAI Food Safety Training and Certification (FOSTAC) Training

National Agro Foundation is empanelled as a Training Partner (TP) for Food Safety Training and Certification (FOSTAC) by FSSAI since 2018. Food Safety Supervisor training programs are conducted at three levels – basic, advanced and special. Target participants are food handlers, food safety supervisors, students, professionals and other persons intending to enter the food industry.



During this year, 18 Food Safety Supervisor (FSS) training programs have been conducted in Basic Manufacturing (Level1), Advance Manufacturing (Level 2), Special training (Level 3) in Milk & Milk products, Special training (Level 3) in Bakery, Basic Catering (Level1), Advance Catering (Level2) covering 589 candidates from various food industries and food science/technology students.



Witnessing Development - Success Stories

Renewable Energy Initiative

Lighting the Way using Solar Lights

Katavadi is a remote village located in Velhe Taluka of Pune district, Maharashtra with 121 families residing in it with a total of 542. As of most rural India, Katavadi is not new to the scores of problems relating to lack of electricity, dark evenings, frequent power outages etc., thus making life of the remote community even more difficult. In the absence of electricity board office or the workers, the community bears the brunt of these difficulties especially women, who fear to venture out after dark and children whose studies are affected due to no lights. In order to support the community under Watershed Plus project, L&T Technology Services and National Agro Foundation decided to install 10 solar based street lights, as per the community requirements and based on their recommendation.



L&T Technology Services

Special Features

- » Automatic switches ON at Dusk and Switches OFF at dawn.
- » Built in motion sensor and 50% permanent lighting when presence is detected with in the radius of 8 M power turn to 100%.



Benefits to Katavadi Community

- » The installed solar lights have not only lighted the streets of the village, but have brought a new scope of life among the villagers. It is encouraging to see; children use the light post to complete their studies in the evenings. Women and men feel safer to venture out after dark in the remote areas due to available lighting. Most religious services in the village begin at dawn or dusk and this lighting helps the community to get involved without fear of any untoward incident happening.
- » The difficulties and safety issues related to the daily routine of collection of milk from every household by the collection agents at the street junction have been addressed by the installation of these street lamps at the potential spots for milk collection which has been widely welcomed by the public of the village.

The village is slowly moving from external dependence to being self reliant through adoption of various green technologies and increased awareness and participation in their own development process. This has been possible only through the financial and technical support provided by LTTS and NAF, whose primary focus has been on delivering quality and need based sustainable solutions to the rural communities.

Mahila Pani Samiti Successfully Owns and Runs *A Water ATM in their Village*

Katavadi is a remote village located in Velhe Taluka of Pune district, Maharashtra with 121 families residing in it with a total population of 542 members. The water demand of the village is approximately 35,000 litres per day amounting to an average of 235 litres of water per household per day. The people of the village have been witnessing shortage of drinking water every now and then due to various causes attributed to climate and season. In addition to water shortage and inadequate supply of safe drinking water, various health issues also plague the village such as dysentery, fever, vomiting, typhoid and cholera during monsoon seasons because of consumption of untreated water.

It is in this backdrop of a water cum health crisis that, Katavadi village was chosen by L&T Technology Services and National Agro Foundation, Chennai, for Integrated Watershed Development initiatives. Both the organizations were intent on helping the community through its targeted approach to solve their water related and health issues and hence initiated the Watershed Plus Project which addressed the basic needs and demands of the villagers.

As a measure to address the issues related to drinking water, one new well was constructed and a water filter system installed for meeting out the drinking water demand of the village. The UV filter system installed in the village is the first of its kind to be installed in the village for the common good. The treated drinking water is distributed to the public at a nominal fee of INR 5 per 20 litres of water through automatic dispensing unit or a Water ATM as is commonly known among the villagers. Each household was provided a Water ATM card for the purpose of accessing safe drinking water. Ever since the water ATM has been installed, women are much relieved as it has alleviated their stress levels to find portable drinking water for their children and families. It has also reduced drudgery of women who used to travel long distances to collect water for their families. It has also been observed that common health problems arising out of drinking untreated water such as diarrhoea and dysentery have also reduced in the village.

The NAF team on ground ensures that regular health and sanitation awareness programs are organized for the community to ensure that knowledge is sustained and translated into practice by the women who are the primary caretakers of the family's well being.

This initiative has also empowered the women in the community to take this up as a community owned initiative and run it as an income generating activity. There are 12 Mahila Pani Samiti members who are responsible for various activities to run and maintain the water ATM such as recharge of water ATM cards, operation and maintenance of the unit, peer education on safe drinking water, sanitation and hygiene of the community.

The water ATM has been running successfully since and has begun generating income. It is also being used as a model to encourage nearby villagers to adopt a similar initiative to meet their water requirements and become self sufficient and sustainable.



Livelihood Training - Providing *Sustainable livelihoods for Women*

Mariamammal aged 36 years is an agricultural laborer and hails from Thirukazhukundram block, Kanchipuram District. Her spouse also works as an unorganized labour earning INR 400 per day for barely 10 to 12 days in a month. They have 3 young school going children. As they have migrated from another other district, in search of better livelihood options, they do not have ration card or MNREGA card and cannot avail any benefit from Govt of Tamilnadu. So their livelihood is entirely dependent working as daily wage laborers. Due to lack of any Government ID, she is unable to participate in the local SHG as well. Under these circumstances, she took part in the Backyard poultry farming training in CFRD training center in the hope of learning something and fending for her family.

Within ten days of finishing Backyard poultry farming training in CFRD training center, Maraiammal started country chicken rearing unit and constructed shed by herself with locally available material. She bought 10 chicks from the resource person who handled the training class in Kadapakkam of Kanchipuram district. Now she has developed her unit with 50 hens. She is earning INR 1000 per week by selling eggs and country chicken at her doorstep.

Hers is a story of determination and survival, with little help and proper opportunities, provided by NAF, she has found a secure livelihood option within the village, thus being able to provide a decent income to the family and support the education of her young children. She now plans to slowly expand, her business by increasing the numbers and enabling a higher income for her family.



A Model FPO - *Raja Desingh Farmer Producer Company Limited (RDFPCL)*

India, being a largely agriculture dependent nation, has a very long way to go, in terms of the plight of its farmers across the country. Despite various interventions and Government policies, the plight of the farmers is still a sorry state as most of them face severe losses and the entire sector is at risk of global competitive factors, thus adding further stress to farmers.

The Government has however, attempted to change this scenario, by introducing the concept of FPO – Farmer Producer Organization which makes agriculture a profitable venture by involving farmers along the entire agricultural value chain. FPO is one of the important initiatives undertaken by the Department of Agriculture and Farmers welfare, Government of India by mainstreaming the idea of promoting and strengthening member-based Institutions of farmers. Collectivization of 1000 small and marginal farmers to form an effective alliance to collectively address their challenges they face in investment, technology, inputs and markets etc.

RDFPCL was started and incorporated as a company on Sep 14th 2015 under Indian Companies Act, with 50 farmers as its shareholders. It slowly progressed to reach 1000 farmers by the end of 2015. At that time, farmers as shareholders invested INR 1000 as share money, they never imagined that it would grow up to Lakh within three years of time. NAF has played an instrumental role in nurturing the Raja Desingh Farmer producer company from 2015 onwards which has grown to an unbelievable height within 3 years with annual turnover of 70 Lakh. NAF has identified Raja Desingh FPO from a rocky terrain of Gingee Block in Villupuram District of Tamilnadu, India, with a vast stretch of waste land where farmers are heavily dependent on the monsoons to grow pulses and millets. Now it is a role model for millions of farmers in Tamilnadu, India.

The first initiative was with collected share money of 3 Lakh, they started an “Agro Input Centre” with the sole purpose of making available the right input at the right time and at a right price. Today, its turnover is 18 Lakh per month.

As a second initiative, they circulated the seed money among farmers as a “crop loan” investing 5 Lakh, now it has grown to 23 Lakh, thus earning the FPO some serious income and profits. To cater to the needs of the village people who suffer in buying daily groceries at very high rate, they started a Provision store to deliver quality goods at nominal price. It was a big success too and reigned in good profits and was very beneficial to the community at large. The FPO has got a 10 Lakh equity share by SFAC in the development of the business activities against the Share money available in the Bank Account. RDFPCL has now spread its growth in all spheres of agri-business. It serves as a role model FPO for the entire Tamilnadu. Farmers from different parts of the state are coming to learn the business model of RDFPCL and take inspiration from its success.

Apart from all this, the FPC got sanctioned for Dhall Mill for Processing the produce, they have initiated the process of production and the FPC was successfully running their dhall processing unit in the gingee block in which around 250 mt of raw material was processed and in which they have earned a turnover of INR 78 Lakh during 2018-19 & INR 1.28 Crores during 2019-20. Their journey has been tough and very challenging, however, with enormous hand holding support from NAF, they have been able to maneuver this difficult tide and emerge successful in every business venture undertaken so far and have become a true inspiration for scores of famers not just in Tamilnadu , but across the country as well.

Raja Desingh Farmer Producer Company Mill



Dall Mill -Raja Desingh FPO located at Gingee



Journey from *Polluted wasteland to Productive Farmlands*

National Agro Foundation (NAF), is implementing Water and Agriculture Development Project with the financial support of **oerlikon** Oerlikon Friction Systems India Pvt Ltd in three villages namely Neikuppam, Kidiripettai and Poosivakkam in Walajabad block, Kancheepuram district of Tamilnadu.

The agriculture lands in these villages were polluted by dye effluents released from dye factories of Kancheepuram, thereby contaminating the water sources and aggravating soil pollution, impacting cropping in the area.

During April 2019, NAF started implementation of the project in these three villages, through focused training programs on Lean farming Technologies including soil health and water management practices, targeting the transformation of the landscape in the region.

Soil test was done for the progressive farmers and Front Line Demonstrations were established on these farmers' fields. Sunhemp green manure was raised in the fields and incorporated in to soil which favored soil organic content and reduced salinity of soil which was caused by dye effluents. Bio fertilizers were applied to these fields which in turn increased the fertility of soil. Based on soil test results, prescriptions were made for judicious



application of primary, secondary and micronutrients to facilitate balanced nutrition. Site Specific Nutrient Management and Integrated Pest and Disease Management was implemented in all the FLDs. There was a drastic improvement in yield and profit in FLDs when compared to conventional methods.

An excellent example of the impact of the above interventions is detailed .

Mr. Sadhasivam, a progressive farmer from Neikuppam village, established FLD in his one acre land and kept another one acre land as control. Soil sample was taken in the FLD

plot and recommendation was prescribed based on soil test result. As per the recommendation of soil test, the farmer applied 50 kg DAP, 50 kg Urea and 50 kg Potash as basal just before transplanting. Paddy seedlings of Co 51 were transplanted on 28.09.2019 on both the FLD and control plots.

400g of Azospirillum and 1 kg of Phospobacteria biofertilizers were mixed in 20 kg of Farm Yard Manure and broadcasted over FLD. On third day after transplanting, he applied 2 kg Manganese sulfate, 2 kg Ferrous sulfate, 5 kg Copper Sulfate and 6 kg borax. During tilling phase, he applied 50 kg Urea and 25 kg Potash and during ear head emergence, 25 kgs each of Ammonium sulfate, 17:17:17 Complex and Potash were applied as top dressing.

To adopt IPM practices, the farmer installed bird perches, yellow traps and pheromone traps in the FLD plot. As prophylactic pest control measure, neem based pest repellent and bio fungicide were sprayed over demo plot. To improve crop growth, organic growth promoter Panchakavyam was sprayed two times. NAF Experts visited FLD on regular basis and provided



need based crop advisory services. In comparison to the above measures undertaken on his demo plot, the farmer practiced conventional methods of cultivation on his control plot.

Harvesting was done with machine, where the demo plot recorded a yield of 25 bags (1875kgs) while control plot yielded only 20 bags (1500 kgs).

The following table presents the expenses and income statement.

Particulars	Demo (1 acre)	Control (1 acre)
Yield	20 bags	15 bags
Sale price	18	18
Income	33750	27000
Expenses	15120	16100
Profit	18630	10900

The results of the impact of lean farming technologies were established and were tangible, as the farmer got 25% increase in yield and 71% increase in profit in demo plot as compared with control plot.

Prior to NAF intervention in this area, the farmers got an average yield of only 12 bags per acre, however after perceiving the benefits of Lean Farming, they are getting 20 bags yield under FLDs and in the forthcoming years, the yield will increase further due to increase in soil health and reduction in the adverse effects of dye effluents.

NAF has been successful in transformation of the polluted low agricultural lands into fertile and highly productive fields for the farmers, thereby impacting not only the livelihoods of those farmers, but also contributing to restoration and conservation and sustainable use of the natural resources in the region.

East Godavari

Farmer Fetches Best Yield in Paddy

National Agro Foundation implemented Lean Farming Project in East Godavari District of Andhra Pradesh during Rabi 2019. Paddy is the major crop in East Godavari.

Mr. Adappa Lakshmana Rao of Vemulavada village, Karappa Mandal is a traditional farmer, cultivating paddy in his 1.5 acres of land. Normally, he cultivates paddy using more chemical fertilizers without knowing the actual requirement for paddy and use more chemical pesticides to control pest and disease.

Mr. Lakshmana Rao participated in the intensive technical training conducted by NAF in Tamil Nadu. He learnt the latest agricultural technologies to be followed in paddy cultivation including soil health management, comprehensive soil analysis, integrated nutrient management, integrated pest management etc.

He wanted to test the technologies he learnt and requested NAF to establish Front Line Demonstration in his 50 cents of land and planned the rest of one acre with conventional method. Soil sample was taken in his 50 cents land and sent to NAF lab for analysis. Based on soil test report, he incorporated 250 kg lime to reclaim his demo plot.



As per NAF experts recommendation and guidance, he did quality seed separation followed by seed treatment. As per soil analysis recommendation, he applied 4 kg Zinc and 3 kg Borax on seven days after sowing. He also applied 25 kg DAP, 38 kg Urea, 12.5 kg Potash and 25 kg 17:17:17 complex as split doses as per the recommendation.

He followed prophylactic pest control measures in demo like installation of bird perches, pheromone traps, yellow sticky trap, spraying of Azadirachtin (organic pest repellent) and Pseudomonas. fluorescence (bio-fungicide). As per the need, he sprayed two spays of chemical pesticide. He also sprayed Panchakavyam (organic growth promoter) in demo.

In his control plot, the farmer followed conventional practices where he applied more chemical fertilizers and six rounds of chemical pesticide sprays.

The yield and expenditure were converted into per acre basis for comparison and the following are the results.

Particulars	Demo (1 acre)	Control (1 acre)
Yield	20 bags	15 bags
Sale price	18	18
Income	33750	27000
Expenses	15120	16100
Profit	18630	10900

The total expenditure was INR 27,412 and INR 31,420 in his 0.5 acre demo and 1 acre control plots respectively. The yield was 3750 kgs in demo (0.5 ac) and 3000 kgs in control (1 acre).

While comparing the demo and control, the farmer availed yield increase by 25 % and profit increase by 89% in demo plot. In addition, he has reduced chemical pesticides drastically in demo which reduces chemical contamination of soil, water and the produces.

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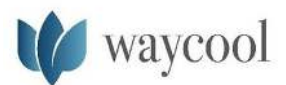
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