

# Sustainable Agriculture and Diversified Livelihoods in AP



## PROGRESS REPORT

For the period 01.04.2014 to 30.09.2014



Submitted  
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## **1. OUR VISION :**

All people in rural areas lead a respectable and decent life with economic security, social equity, gender equity and human dignity, in an atmosphere of democracy, peace, cooperation and community support.

People and Nature live in harmony with each other showing due care for sustainable ecology, environment and bio-diversity.

## **2. OUR MISSION :**

AFs mission is to organize and strengthen the organizations of distressed farmers and rural poor for their economic security, empowerment, self-reliance, food and nutritional security.

AF is committed to work with drought affected farmers in general and rainfed and small and marginal farmers in particular and committed to promote drought resistant Integrated and Sustainable Farming Systems, with low external input and eco-friendly. (as against high cost, high-tech, chemical based).

AF is committed to combat desertification and promote sustainable ecology, healthy environment and bio-diversity, where people and nature live in harmony and support each other.

AF is committed to work with poor and disadvantaged women and youth and promote Diversified Livelihoods including agri-processing, marketing and non-farm skill based employment.

AF is committed to work for gender, social equality, human dignity, and to create a responsible social environment with peace, democracy mutual cooperation and community support.

AF is committed to work with Government, like minded NGOs, CBOs Civil Society Organizations and individuals. In this process it is committed to strengthen and coordinate the role of different organizations, intellectuals, experts and individuals in the interest of social well being.

AF is committed to being a strong, dynamic, dedicated and sustainable organization. It builds itself into an organization, learning from experiences and always working for people's well being. It strives to be positively influencing the society and changing itself to be relevant to the changing needs and contexts.

Our organization is an integral part of people of Anantapur District. We are not alone in this endeavour. There are several organizations, institutions and individuals working towards achieving the above aims and objectives – like Government, NGOs, CSOs, Media, Judiciary, Scientists, Intellectuals etc. Each one is playing its role individually and collectively. AF is committed to play a pro-active role in this endeavour.

### **3. OUR DHARMA:**

AF adopts the Dharma of RDT, as its guiding principles and a code of conduct for itself and its staff.

- Concern for others
- Work beyond duty
- Pursuit of excellence in work
- Reaching as many needy people as possible

### **4. OUR CORE VALUES**

#### **1. Basic human values of compassion, concern, honesty, hard work, sincerity etc.**

We are committed to practice and promote the basic human values of love, compassion, concern, honesty, hard work, sincerity etc driven by the vision, Mission and values of AF.

#### **2. Social Equality and gender sensitive**

We believe in social equality of all people and are particularly committed to the treatment of women, the disadvantaged and the poor with equality, respect and human dignity. We are committed to being socially equitable and gender-sensitive both within AF and in all our programs and interactions with people.

#### **3. Concern for Sustainable environment**

We ensure that all our policies and programmes have due consideration for sustainable environment and ecological balance.

#### **4. Work together with Govt., NGOs, CBOs and CSO.**

We are committed to working with Government and like-minded NGOs, CBOs & CSOs in order to produce the best synergies in our combined and co-ordinated efforts.

#### **5. Influencing Govt., policies and programmes**

We are committed to influencing Government policies and programmes for maximizing impact in favour of the poor, disadvantaged and sustainable environment.

#### **6. Pursuit of highest quality in work**

We are committed to the pursuit of excellence and highest quality in our work.

#### **7. Relevant and learning**

We are committed to being a relevant and learning organisation through participatory planning, monitoring and evaluation; and open to change, new ideas and new concepts, which are likely to improve the lives of poor and disadvantaged.

#### **8. Participation and Team work**

We are committed to the ethos of Participation and Teamwork and these will be central in our approach to work within AF and with people.

#### **9. Transparent and Accountable**

We are committed to be transparent and accountable to all our stakeholders.

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## LIST OF ABBREVIATIONS

Sl.No.	Abbreviation	Expansion
1	AEO	Agricultural Extension Officer
2	AFEC	Accion Fraterna, Ecology Centre
3	ANGRAU	Acharya NG Ranga Agricultural University
4	ASMS	Apex Sasya Mitra Samakhya
5	ATL	Area Team Leader
6	BIFSRA	Bio-intensive Farming System in Rain fed Areas
7	CBO	Community Based Organization
8	CSO	Civil Society Organization
9	DLH	Dry Land Horticulture
10	FFS	Farmer Field School
11	GSMS	Grama Sasya Mithra Samakhyas
12	Ha.	Hectare
13	HMV	Heavy Motor Vehicle
14	ICRISAT	International Crop Research Institute for Semi Arid Tropics
15	IFS	Integrated Farming System
16	IKG	Integrated Kitchen Garden
17	IWMP	Integrated Watershed Management Program
18	LCF	Low Carbon Farming
19	LMV	Light Motor Vehicle
20	MACS	Mutually Aided Cooperative Societies
21	MFTC	Multiple Fruit Tree Cropping
22	MGNREGS	Mahatma Gandhi National Rural Employment Guarantee Scheme
23	MSMS	Mandal Sasya Mitra Samakhyas
24	NABARD	National Bank of Agriculture and Rural Development
25	NGO	Non-Governmental Organization
26	NRM	Natural Resource Management
27	PGS	Participatory Guarantee Systems
28	PME	Planning Monitoring & Evaluation
29	PPIME	Participatory Planning Implementation Monitoring & Evaluation
30	RARS	Regional Agriculture Research Station
31	SA	Sustainable Agriculture
32	SC	Scheduled Caste
33	SMGs	Sasya Mitra Groups
34	ST	Scheduled Tribe
35	STO	Socio-Technical Organizer



## GENERAL INFORMATION

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## 1. DIRECTOR'S REPORT

### 1.1 Introduction

Once again the monsoon played havoc with farmers this season. Only 50% of the cultivable land in the district was sown in July and by September it looked a severe drought on the cards this year. The rural economy dwindled to its lowest affecting all forms of rural livelihoods, not only farmers. Meanwhile the Telangana region was separated in June 2014 and the new Governments sworn in around the same time were still settling down both at Centre and at Andhra Pradesh level. The process of actual separation of Telangana is still in progress with lots of matters unsettled and uncertain. It will take a year or two to complete the process and the new states settle down. However, during this difficult period of very little rain fall, AF continued its efforts of enabling the farmers and farm labourers in coping with the severe drought conditions through promoting drought mitigation technologies and practices involving CBOs.

### 1.2 Relevance and importance of promoting Sustainable Agriculture & Rural Livelihoods proved once again:

AF Ecology Centre has been consistently working with small & marginal rain-fed farmers and farm labourers in order to stabilize their livelihoods and achieve food security through enabling them to cope up with droughts and effects of climate change. In this endeavor, the past 6 months' period has been very challenging and proved once again the need for sustained efforts on drought mitigation to secure livelihoods of small & marginal rain fed farmers and wage seekers. The rain fall recorded during the monsoon season starting from June to September 2014

is the lowest in 10 years with only 172.4 mm against 338.4 normal that too distinctly marked with prolonged dry spells. The harsh monsoon conditions left more than 40% of the rain-fed farmers leaving their land fallow and many migrated in distress to nearby towns and cities to eke out a living. Still worse was the fate of farmers who had sown and invested on sowing and land preparation, as it too failed. The situation once again proved the relevance and importance of AFEC's (Accion Fraterna Ecology Centre) efforts on developing and popularising drought mitigation technologies and practices for timely sowing and for protecting the crops during prolonged dry spells for securing the income from rain-fed farming.

AFEC extensively tried and demonstrated the technologies and techniques on how sowing can be done even under inadequate soil moisture conditions using Aqua Planter & techniques like dry sowing, pot watering & sowing etc, and on how to protect crops during prolonged dry spells with protective irrigation using mobile micro irrigation units, cement lining of farm ponds etc. The efficiency of these technologies and practices on the



Apart from people, cattle were seriously affected due to severe fodder scarcity

field are very encouraging and scaling up of these technologies is the next big challenge for AFEC.

### **1.3 Strengthening the CBOs and their role in the programme:**

AFEC strongly believes that the CBOs (Community based Organisations) have pivotal role to play in sustainable development particularly at village level. AF has been striving to strengthen the CBOs by encouraging their participation in project planning, implementation, monitoring and evaluation. AF conducted intensive trainings on their role and responsibilities to the CBOs at all levels i.e SMGs, GSMS, MSMS and ASMS.

#### **1.3.1 Formation of sub groups in the SMGs and promotion of mutual cooperation & savings:**

AF felt that SMGs can be strengthened by promoting mutual cooperation in agricultural operations particularly at the juncture of severe distress. Mutual cooperation, on one hand would strengthen the group relations and on the other it would reduce the cost of cultivation through exchange of labour, bullocks, implements etc. Starvation for cash was most severe during this season as the farmers could not avail any Bank loans for some policy reasons. Hence AF's efforts to promote mutual cooperation and savings increased quality interactions saved costs in agriculture and reduced the need for cash



**CBOs strengthening mutual cooperation**

transactions among the families. Five sub groups of five members each were formed in each SMG to encourage mutual cooperation among the families. These sub groups were formed based on the affinity of the families or living as neighbours or neighbouring land holdings. The sub groups were encouraged to pool together their resources like labour, implements, bullocks etc and to mutually cooperate with each other with informal bartering in their farming activities. In a large number of thus formed sub groups the members began to exchange labour, implements, bullocks and reduced cash transactions in their farming activities. This also facilitated the members to start small saving of money with the SMGs for internal lending among the members. During the reporting period 132 SMGs comprising of 3300 families began monthly savings @Rs. 50/- to 100/- per member per month. The savings amount was lent to needy members to tide over smaller cash needs like children's school fees, health needs, purchase of food grains from fair price shop etc. These transactions improved the members' attendance and participation at the SMG meetings which is important aspect of participatory approach. AF would continue these efforts more vigorously in the next 6 months.

#### **1.3.2 Participatory planning, Implementation, Monitoring and Evaluation (PPIME) by CBOs at village level and at mandal level::**

GSMS and MSMS were involved in village level planning, implementation, monitoring and evaluation. During the reporting period MSMS constituted (from among the MSMS members) monitoring committees and monitored the qualitative and quantitative aspects of implementation of the programme activities in randomly selected villages. The



feedback of the monitoring committees was of great help in improving the functioning of GSMS. The quality of implementation of the activities improved considerably with active participation of GSMS and MSMS. It is heartening to note that the women participation is increasing in the functioning of CBOs at all levels which was also revealed in the External Evaluation conducted very recently.

These results encouraged AF to concentrate more on further strengthening the CBOs which is one of the major focus areas in the coming phase.

### **1.3.3 Participation of ASMS (Apex Sasya Mitra Samakhya) in the planning for 2015-18 phase:**

As the current project phase ends by 31<sup>st</sup> March 2014, AF started working on proposal for 2015-18 phase. *Apex Sasya Mitra Samakhya* (ASMS), the apex body of all the CBOs at project level, which was initiated in the previous year, played important role in planning for the coming project phase 2015-18. A consultative work shop was conducted with ASMS to draw lessons from the current phase and to reflect on the objectives, activities and achievements and to seek their inputs into the planning for 2015-18 phase. It ensured that the project activities are in alignment to the needs of the communities as their own experiences formed the basis for the planning.



**ASMS playing active role in PPIME**

They provided an objective feed-back on the current phase. For the next phase, they felt the need to continue the project emphasis on drought mitigation while integrating further animal husbandry, alternate livelihoods and cooperatives.

### **1.4 Demonstrations intensified during crop season to disseminate knowledge on drought mitigation technologies & practices**

The crisis thrown by failed monsoon was also seen as an opportunity to experiment and demonstrate sustainable technologies and practices for drought mitigation. AF, in collaboration with farmers and their SMGs, has been conducting on-farm experiments and demonstrations for timely sowing and protecting rain fed crops to cope with low and erratic rainfall (drought conditions) and to reduce cost of cultivation.

AF during the past six months focused on of the drought mitigating technologies and practices like drought resistant intercropping models, timely sowing in the absence of sufficient soil moisture, protective irrigation during prolonged dry spells, promoting multiple tree cropping systems, cement lining of farm ponds for storing water for protective irrigation during dry spells etc.

#### **1.4.1 Timely Sowing of rain fed crops in the absence of rains during sowing season:**

AFEC developed intercropping models including millets and pulses which are reasonably drought tolerant. These models reduced cost of cultivation (compared to groundnut which is the mono crop in the area) and also provided food security to the farmers' families. However, the farmers were unable to sow the crop models on time in July due to

insufficient rains. Failure to sow in time is one of the two main causes for crop failures in Anantapuram district. The other cause for crop failure is prolonged dry spells after sowing resulting in drying up of standing crops. To overcome this situation AFEC developed suitable technologies and techniques.

**Ananta Planter, Aqua Planter and Mobile Micro Irrigation Units** were designed and tested extensively for the past one year. Ananta Planter is 4 times more efficient than traditional planters, hence very helpful in low rain fall conditions in which the soil moisture dries up very quickly in just 2 or 3 days only. The planter was first designed by RARS of Anantapuram for sowing groundnut. Ananta Planter was improved by AF to sow millets and pulses and was successfully tested on the farmers' fields. This is a significant improvement for timely sowing of different crop models before the soil moisture dries up. The use of Ananta Planter was extensively demonstrated to the farmers in the project area on how they can quickly complete the sowing operations before the moisture evaporates. During the crop season about 500 acres were sown covering 200 families and about 4000 farmers participated as observers. They all opined that the instrument is 4 times faster than the traditional planters and also maintains optimum spacing between the plants.

**Aqua Planter** is an extended version of Ananta Planter in which two water tankers are fitted to the implement. It was designed to sow simultaneously the seed and adequate water in order to help in germination and to grow crop for three or four weeks. The Aqua planter was demonstrated on a small scale in the previous year.

There was hardly any rain in June & July this year. It left thousands of hectares of dry land fallow. During such conditions Aqua Planter was extensively demonstrated in the project area to show how to sow with insufficient soil moisture during sowing season i.e June – July. It was proved that sowing with Aqua planter guarantees germination and the seedlings can survive for two to three weeks without rain after sowing. Aqua Planter proved to be very useful in rain-fed farming under low and erratic rain fall conditions. And even when it rains, the soil moisture lasts only for 2-3 days within which the sowing needs to be completed. Aqua Planter is also 4 times more efficient than traditional planters. An Aqua Planter can sow 20 acres of land in a day as against 5 acres by traditional planter. Small and marginal farmers in the district are not equipped with required implements for sowing and the ever haunting drought conditions and fodder crisis had taken away their bullocks. However, the equipment could not be owned by farmers, particularly the rain-fed farmers as they are unaffordable at individual level. So the equipment can be rented by farmers along with the tractors. During the sowing period 50 demonstrations were conducted in 50 villages using Aqua planter which involved over 1500 farmers, various Govt officials etc.



**Aqua planter in action during insufficient rains**

AFEC plans to increase farmers' access to these technologies in two ways. One, by way of encouraging small entrepreneurs, farmers cooperatives and CBOs to own and rent to

farmers on commercial basis which could create a win-win situation for the enterprise as well as the small and marginal farmers. Two, AFEC demonstrated these technologies and lobbied with the Government Officials and policy makers including the Chief Minister of Andhra Pradesh for favourable policy environment mainstreaming them through farmers' cooperatives or women Self Help Groups in order to increase farmers' access to the proven drought mitigating technologies.

In addition to using Aqua Planter, some more simple techniques also were tried for timely sowing like row water sowing and dry sowing followed by light irrigation.

**Row Water Sowing** is a technique followed for sowing lesser plant density crops like castor and redgram. One tanker containing 5000 litres of water was needed for sowing castor and redgram on one acre of land. Shallow plough furrows were opened and seeds were dibbled in the furrow. Water from tanker was added in the furrow using pipes and the furrows were closed with a plank. This kind of demonstrations were conducted on 40 acres of land belonging to 40 rain-fed small farmers in the project area. The survival rate of plants on these plots was more than 80 per cent and normal yield can be expected. The results of these experiments proved that there are technologies to sow the seed in time despite failure of rain in sowing season.



Farmer using row water sowing technique in the absence of timely rain

#### 1.4.2 Saving crops during prolonged dry spells by providing Protective Irrigation

The next problem after sowing is the prolonged dry spells causing droughts. The efforts to protect crops during prolonged dry spells were continued during the last *kharif* season using Mobile Micro Irrigation Unit (truck with a water tanker and micro irrigation system) developed by AFEC as well as hiring local tractors with water tankers. During the current season the onus was more on simplifying the design with the local tractor owners and to enable more and more small and marginal farmers access protective irrigation at low cost.

As a part of the effort the local tractors in the villages were fitted with water tankers of 5000 liters capacity and extensively demonstrated protective irrigation on small plots. As the dry spells during the season were prolonged it came in as a *blessing in disguise* to demonstrate the effectiveness of the practice.

During the reporting period protective irrigation was demonstrated on about 300 acres belonging to 300 families. Over 1500 farmers participated as observers. AF persuaded Government officials and policy makers to participate in the demonstrations as observers in order to sensitise them on the need for such drought mitigation technologies and practices at policy level. The demonstrations were conducted systematically leaving a control part to measure the efficacy of the practice. The results would be known after the harvesting season i.e by February 2015.



The continued droughts resulted in severe water crisis in the villages and availing drinking water for the villages became a herculean task. In such circumstances farmers of some villages found it difficult to provide protective irrigation to the crops. AFEC collected and analysed the rain fall data of season for the district years and found that rain water if captured and stored in a farm pond on rainy days could be used to irrigate during prolonged dry spells to protect the crop from failure. This was tested using existing farm ponds dug as part of watershed programmes and MGNREGS.

#### 1.4.3 Demonstration of 10 types of diversified annual crop models:

AFEC continued promoting and propagating through demonstrations of the 10 intercrop models with millets and pulses on farmers' fields with active participation of the farmers and their *SasyaMitra Groups*(SMGs). During the *kharif* season 2014, 10,000 demo plots were planned with 10,000 farmers with one acre per farmer. Severe drought conditions during sowing season i.e in July led to lesser sowing by 50%. However AF put in lot of efforts on the demo plots to show case the effectiveness of drought mitigation technologies and practices wherever sowing was possible. Failure of timely rains also created the need for short term contingency crops with horsegram and Jowar. AF encouraged the farmers to go for horse gram and jowar in August and September, mainly for producing fodder if not grains. By reporting time (September 2014) green gram + sorghum and foxtail millet + red gram models look optimistic with the hopes of reasonable yield and better market prices. The actual yields will be known by December 2014.



**Farmers picking vegetables in rainfed demo plot**

**1.4.4 Perennial Rain-fed Tree Crop Models:** Rain-fed tree crops are highly recommended in securing stable income for the rain-fed farmers in drought prone districts like Anantapuram. However, the greatest challenge is to water the plants for the first 3 to 4 years for initial establishment and survive a long gestation period of about 5 years before they see any income from trees. AFEC designed four tree crop models and tested on farmers fields under rain-fed conditions. Among the four models MFTC (Multiple Fruit tree Crop) model became popular with the farmers. This model includes Mango, Sapota, Custard Apple and Indian Goose Berry along with border plants for fodder and green manure. These trees are selected based on their drought tolerance and the seasonality of fruits to provide income to the farmers throughout the year whereas in mono crop like mango could be susceptible to complete crop failure and or high market uncertainties.



**Woman farmer caring her newly planted fruit plants**



Rain fed farmers were sensitised on the importance of other tree crop models i.e BIFSRA (Bio-Intensive Farming Systems in Rain-fed Areas), IFS (Integrated farming Systems) and Multiple Tree Crops in Waste Lands. These are very relevant and important in the project area both economically and ecologically, as the models include bio mass plants and fodder plants in addition to fruit plants. Severe fodder crisis made farmers selling off their animals and consequently deteriorating land fertility with lack of farm yard manure in the soil also made the lands less productive. The tree crop models promoted by AFEC are aimed at overcoming these issues of fodder crisis and increasing soil fertility in the long run.

**In-house experimentation for testing innovations:** AFEC also tried to test the technologies and to experiment for innovative practices on a 6 acre farm taken under lease. This effort enables AF to get first-hand experience of farmers and to innovate with courage. All the technologies and practices promoted with the farmers were tried on this farm under the supervision of Head, Sustainable Agriculture of AFEC.

The efficiency of liquid bio-fertilisers and jeevamritham was tested on this farm. This was done on demonstration and control plot mode. The initial results revealed that jeevamritham and liquid bio-fertilisers were not so effective, though more field trials are needed before concluding on the efficacy of liquid bio-fertilisers. These kinds of experiments help us to evolve better practices.

### **1.5 Severe Drought leading to distressed migration:**

This kharif season received the lowest rain fall in the past 10 years which increased the stress on farmers and farm labourers' livelihoods. Unable to make ends meet, many families left the villages in search of some employment in the cities like Bangalore. Thousands of families in the project area migrated temporarily to Bangalore during the reporting period. Men are mostly working as security guards, gate watchman and *hamalis* (truck loaders) and women as home maids. They lived in cities under miserable living conditions. They all hope to return to home by next June (2015) in time for next sowing season. Their children and aged people were left behind in the villages.

AFEC has been consistently representing to the District Administration and the Government at the State level about the need to provide continuous employment under MGNREGS, but fell short due to uncertain and unsettled new Governments.

AFEC's efforts on imparting job oriented skills to rural youth and women proved significant and relevant under severe crisis in agriculture and farmers' distress.

### **1.6 External Evaluation for the 2012-15 phase, appreciated our efforts and increased our responsibilities**

As per the terms agreed upon by the BftW and AFEC, an external evaluation was conducted during August & September 2014. A team of experts consisting (1) Mr. Khilesh Chaturvedi, an Organisational Development expert, (2) Ms. Shylaja Rao, Sustainable Agriculture Specialist and (3) Mr. Kamath, Chartered Accountant conducted the External Evaluation.

The evaluation focused on Organisation Management, relevance of the programme, quality of implementation, effectiveness & impact of the programme, gender & social equity, quality of functioning of CBOs, Financial Management systems followed at the organisation as well as at CBO level. The evaluation was conducted using participatory methods and assessing the villages and CBOs based on stratified random sampling.



**External Evaluator Ms.Shylaja  
interacting with Sasya Mithra Members**

The findings of the external evaluation highlighted the sincere efforts of AFEC and the impact in improving the lives of the highly distressed rural communities in an arid and chronically drought hit project area. The evaluation team appreciated the participatory approach of AF and the transparency followed at every level, particularly in the value based Organisation Management and Financial management. The evaluation appreciated the innovations in methods and technologies for drought mitigation and the active role played by the women in the CBOs. The important observation of the evaluation is the compelling need for continuous and constant search/experimentation/trial and error to develop technologies, practices and systems to address the gigantic problems of frequent droughts and farmers' distress. It also stressed on the need for further strengthening of CBOs for increasing the pace and scope of the drought mitigation technologies and practices. These important findings brought into light the learning character of the organization and participatory approach in Planning, Implementation, Monitoring & Evaluation (PPIME). The evaluation also observed that there is need to increase women at the middle and top level management, though overall the number of women in the organization increased significantly over 3 years.

The findings of the external evaluation and the feed-back of the CBOs were considered as basis for planning 2015-18 project phase.

### **1.7 Rain-fed Farmers Cooperatives (RFCs), a pilot initiative towards livelihood security of rain-fed farmers:**

The Pilot Project initiated during the last year by promoting 8 Rain-fed Farmers Cooperatives covering 200 rain fed farmer families. The objective of this pilot activity is to ensure rain-fed farming sustainable and remunerative for small & marginal farmers. The cooperative model, if successful in creating livelihood security, will be replicated in more villages in a phased manner.

The cooperative strategy includes synergizing on (a) reducing cost of cultivation by encouraging mutual cooperation among the members (b) enhancing farm productivity by promoting drought mitigation technologies & practices (c) by promoting eco-friendly Sustainable Agriculture practices (d) diversifying livelihood portfolio of the rain-fed farmers by integrating off-farm and non-farm livelihood activities on collective basis for generating additional income to the farmers.

Members of 7 RFCs started monthly savings and internal lending during last year. 175 members of 7 cooperatives so far saved about Rs. 120,000/-. In 7 cooperatives 3 to 4 member functional committees were set up from the leaders of the cooperatives to identify feasible supplementary livelihood opportunities. The committees, with support from area teams of AF, conducted a detailed market study on ram lamb rearing, leasing-in of tamarind trees for selling deseeded tamarind. It was ensured that the members have adequate experience/knowledge of the activities being chosen. The collective livelihood activities would be initiated in the next 6 months.

### **1.8 Watershed Projects improving livelihoods and natural resources:**

AF is implementing watershed projects under two schemes funded by Government, 1) Watershed Development funded by NABARD, 2) Integrated Watershed Management Program (IWMP) funded by Govt of India.

Both the watershed programmes resulted in significant positive impact in 3 important aspects.

- All the watershed villages did show visible impact on groundwater recharge and are able to cope with the groundwater crisis and the bore wells started to perform better.
- The land use significantly changed from seasonal crops to perennial fruit tree crops with hundreds of thousands of fruit, fodder and bio-mass plants were planted. It brought a lot of green cover in the watersheds.
- The off-farm and non-farm livelihood opportunities created with livelihood fund for the landless and poor farmers are generating additional incomes to the families.

**1.8.1 NABARD WATERSHEDS:** 6 NABARD watershed projects are implemented in 6 villages of Kalyandurgmandal of Anantapuram district. All these watersheds reached to Full Implementation Phase (FIP) and expected to be completed by March 2015. Soil and moisture conservation measures, rain water harvesting structures, dry land horticulture were intensified during the past 6 months as the phase fast approaching completion.

In view of post programme sustainability and long term impact, AF concentrated on strengthening the MACS (Mutually Aided Cooperative Societies) as the proper utilisation of livelihood fund and protecting the watershed structures from deterioration. There was a visible need for improving the quality of functioning of the MACS as some hardships were faced towards the end of previous year in livelihood fund utilization and repayment by members in many of the watershed villages. The elected leaders of MACS were sensitized and oriented on possible consequences of any drift in livelihood fund utilization. Education and awareness on cooperatives, trainings to elected representatives of MACS on cooperative governance, financial management and livelihood security were the key focus areas during the reporting period. Drought mitigation technologies like Aqua Planter and Protective Irrigation were also demonstrated in NABARD watershed villages.

During the reporting period 400 acres of dry land was brought into horticulture. A total of 64000 fruit plants were planted in the 6 watershed villages. In addition thousands of

fodder and bio-mass plants were planted on the farm bunds. Cumulatively over 1000 acres of dry land was brought into horticulture with more than 160,000 of trees coming into existence would mitigate drought, help in combating desertification and in reducing the effects of climate change in the years to come.

**1.8.2 IWMP WATERSHEDS:** Three IWMP mega watersheds are being implemented by AF Ecology Centre covering 12 villages in 3 mandals. AF's reputation with the Government, as the best Watershed Implementing Agency continued with high quality of project management.

The watershed activities under IWMP slowed down during the past 6 months due to formation of new Government both at State and Central level at the same time. There were delays in approvals and fund releases as the Governments were settling down. Muttala Watershed under IWMP completed all the phases and got recognition as the best performing model watershed in the state.

During the reporting period AF's focus was on strengthening the watershed committees and promoting Dry Land horticulture. Intensive trainings were conducted for all village level Watershed Committees on the aspects of climate change, water conservation, drought mitigation technologies and practices, livelihood security, drought tolerant rain-fed farming practices etc.

During the past 6 months Dry land Horticulture was promoted on 1500 acres of land in 3 mega watershed villages. In addition to the fruit plants, thousands of bio-mass plants like pongamea, cassia, glyricidia etc and high value timber yielding varieties like teak, red sander wood etc were planned in common lands as well as in private farm lands. Cumulatively more than 2200 acres of dry land was planted with tree crops and over 400,000 plants came into existence in the project area.

### **1.8 Sahajeevan Trust, a new initiative of AF:**

AF Ecology centre has been renting out training facilities like training halls, canteen, guest rooms etc and earning some income every year. In June 2014 AF Ecology Centre decided to drop such income fetching activities from its fold. Consequently a separate trust was founded called "Sahajeevan Trust" (SJT) as a social enterprise for managing such incidental income generating activities. It was founded by Dr. Y.V. Malla Reddy and 4 other like-minded eminent persons with social work background and was registered under Indian Registration Act 1909. Dr. Y.V. Malla Reddy serves as the Managing Trustee of SJT. RDT, which is the legal owner of AF campus including all training facilities, entrusted the responsibility of managing the training facilities (training halls, guest rooms, dining hall etc) to SJT.

### **1.9 Policy Advocacy and Public Opinion Building:**

AF Ecology Centre, in collaboration with other NGOs, CSOs, progressive writers, cultural groups and farmers' organizations, has been working on public opinion building and policy advocacy on important issues in Anantapuram district like water crisis, rain-fed



agriculture, gender policies, MGNREGS, crop insurance, community seed systems and input subsidy including long term issues of drought and desertification in the district.

- **Lobbying for short term measures:** During the past 6 months of reporting period AFEC has been consistently representing to the District Administration to enhance the outreach of MGNREGS in view of severe drought in order to prevent distress migration. Further AF has been advocating and lobbying for taking up contingency cropping at least to ease the problem of fodder if not grain yield. Consequently the Government did supply the seed of Jowar and Horse gram for contingency crop. However, unfortunately even the late rains also failed and the crops were not sown in most of the villages.
- **Lobbying for long term measures:**
  - (a) **10 Point Programme to combat drought & desertification in Anantapuram District:** AF Ecology Centre developed a “Ten point program” aiming at combating drought & desertification and strongly lobbied for its implementation. The 10 point programme included creating “Ananta Water Grid” for mitigating agricultural crisis on sustainable basis, through protective irrigation and climate resilient sustainable agriculture which would provide assured income, food & nutritional security, particularly to rain fed farmers. Further it improves the endowment of environmental resources and fights the desertification process by adding tree cover, bio-diversity, rain water harvesting and enhanced ground water.

The 10 point programme was presented to various stakeholders including over 1200 farmers, representatives of CBOs, CSOs, NGOs, Government officials etc on the occasion of “World Day to Combat Drought & Desertification” conducted on 17<sup>th</sup> June 2014 at Anantapuram.

The participants resolved to send a representation to the policy makers for implementing “10 point programme” and “*AnantaJalaValayam*” (Ananta Water grid), a proposed program of creating a water grid by filling traditional water bodies of Anantapuram district with *Handri-Neeva* Project. “Ananta Water Grid” concept was designed by AFEC and was extensively shared in various forums with wide range of stakeholders.

*(please see the annexed detailed report on World Day to Combat Drought & Desertification)*

#### **(b) Demonstrating & sensitising policy makers on Drought Mitigation Technologies**

Up scaling the drought mitigation technologies is beyond the capacity of farmers themselves and NGOs. It requires a favourable policy environment and Government support to make these technologies reach large number of hapless rain-fed farmers. To sensitise the policy makers in this regard, AFEC conducted demonstrations of Aqua Planter, Protective Irrigation, Cement lining of farm ponds etc.

During the past 6 months these technologies were demonstrated to the District Collector, Anantapuram and district heads of various Government Departments like Agriculture, Horticulture, Micro Irrigation etc at Raminipalli village of Raghunatha mandal. These drought mitigation technologies are gaining acceptance from both the farmers as well as the Government authorities.

Persistent efforts of AFEC on building strong public opinion through wide spread demonstrations and campaigns involving farmers, policy makers and bureaucrats and other stakeholders on water crisis, droughts and desertification in Anantapuram district yielded in positive influence. During the Assembly Sessions held in August 2014, a debate came up on filling up of traditional water bodies in Anantapuram with available river water and Government support in digging and cement lining of farm ponds.

### **1.10 Low Carbon Farming, Bio-gas Project and Special Initiatives:**

**1.10.1 Low Carbon Farming:** AFEC is continuing LCF pilot work in a cluster of 24 villages in Rappthadu and Dharmavaram mandals with 1500 farmers in about 1500 acres (607 ha). LCF protocols were followed with required rigor and quality. AF ensured that all the protocols of LCF were followed rigorously in order to stand the test of third party verification.



**Farmers following LCF protocols**

The focus during the past 6 months was on preparing ground for third party verification and validation for accessing the carbon markets which would take place in the coming year.

### **1.10.2 Bio-gas Project under CDM:**

On behalf of AF Ecology Centre, Fair Climate Network has been negotiating with Indian Corporates for financing the CDM Bio-gas project, which would be repaid through carbon credits to be generated by the farmers through use of bio-gas replacing the fire wood. There are fair chances that Indigo Airlines might come forward to pre-finance the project and purchase carbon credits.

**1.10.3 Ground Water Sharing Project:** Repeated failure of monsoons and indiscriminate exploitation of ground water through bore wells resulted in enormous depletion of ground water table in the district. Thousands of bore wells dried up in the past few months due to failure of rains on one side and over exploitation of ground water on the other side. To stop this uncontrolled exploitation and to enable more rain-fed farmers access ground water to save rain-fed crops, AF, together with Government (Department of Agriculture) and RRA (Revitalising Rain-fed Agriculture) Network designed “Ground Water Sharing Project” which is being piloted in Anantapuram district.

AF, as Project Facilitating Agency for this project, started the program in Korrakodu village of Kudair mandal in the project area. In the program, farmers with bore wells and neighbouring rain-fed farmers having lands contiguously are grouped together to share ground water through underground water sharing pipe lines built as part of the programme. The main objective is to ensure that the rain-fed farmers are provided with protective irrigation to save crops during dry spells and no new bore wells are dug by the rain-fed farmers adjoining the existing bore wells. Thus it would be a win-win situation for both the farmers with bore wells and farmers without bore wells.

The program is funded by the Department of Agriculture, Government of AP. The Ground Water Resource Centre of WASSAN provides technical support and capacity building to

the project. Initially there were some problems in bringing together the bore well owners and their neighbouring farmers. However, the problems were overcome and the project is nearing the completion. Water sharing would begin in a couple of months.

The success of the pilot initiative in Korrakodu village will be expanded to other villages of the project area.

#### 1.10.4 Collaborative research projects with ICRISAT:

**(a) Agriculture for Improved Nutrition & Health** is also called “Aflatoxin project” of ICRISAT, which aims at increasing farmer and consumer awareness on aflatoxin hazards and propagating crop management systems that reduce aflatoxin contamination. The activities taken up include developing integrated pre & post-harvest management strategies to reduce aflatoxin contamination, developing database of aflatoxin prevalence along the groundnut value chain and capacity building of stakeholders.



**Multi Layered Bags – for  
aflatoxin free storage of grains**

As part of the program three layered bags were designed for storing groundnut for longer periods without developing aflatoxin. These bags were put to field trials with the farmers by storing groundnut and other grains. The bags proved effectively that the groundnut and other grains could be protected from Aflatoxin. This method gained popularity among the farmers and are being used for other commodities like pulses and millets for increased shelf life.

**(b) Resilient Dry land Systems of ICRISAT** aims at improving the livelihoods of rural poor in fragile dry land areas, on sustainable basis, by enhancing productivity and resilience of dry land production systems through science based development intervention. The project is just initiated in 4 villages in Anantapur and Kurnool Districts. The villages are Yerraguntla and V.Bonthiralla in Dhoni Taluk of Kurnool district and Mallapuram and Kurlapalli in Kalyandurg Taluk of Anantapur district. More about the activities under this project would be explained in next report.

#### 1.11 Visitors from ICCO, the Netherlands:

ICCO (Innovative Change Cooperation) has been a committed development funding partner of AF for more than three decades. ICCO, undergoing an organisational transition phase noticed the need for revisiting its historical partnership with Indian development partners and their contribution during the past.

Three of the ICCO-India officials Mr. Alay Barah, President, Ms. Mousumi Sarangi, Programme



**Ms.Mousumi & Ms Iona from ICCO  
understanding demo plot  
economics through farmers diary**

Officer, Ms. Iona Bondoloi, Management Trainee visited AF Ecology center on 12th and 13th of Aug 2014.

The visitors were briefed by the Director, AF on the historical evolution of AF Ecology Centre and its partnership with ICCO. The activities pertaining to current phase of the project were elaborated and the relevance of the activities was explained through field visits and demonstration of drought mitigation technologies and practices.

A one day field visit was organized in Kudair area and demonstration of timely sowing, providing protective irrigation using mobile micro irrigation units were demonstrated to the visitors. The CBO leaders and members explained the visitors on how they participated in planning, implementing and monitoring the programme activities at village, mandal and project level.

The visitors appreciated the committed efforts of AFEC in helping the hapless small & marginal farmers and wage labourers to enable them come out of the vicious cycle of poverty.

They expressed their concern for unable to continue partnership with AFEC for their own financial issues. They expressed their optimism in getting a chance in the future once the ICCO's organizational transition settles down and financial position improves.

They felt that the learning from AF activities was worth sharing with other partners in the states of Jharkhand and Odisha where the conditions are similar with the panel at Netherlands.

### **1.12 Important Lessons learnt**

- The internal monitoring brought out that the attendance at SMG level was low and adequate emphasis was not given to SMGs compared to GSMS. To overcome this problem AF decided to promote mutual cooperation among members, savings and internal lending in SMGs. During the reporting period the mutual cooperation, savings and internal was started in 132 SMGs covering about 3300 members. It enhanced the members' attendance in the meetings which also improved the participation
- The decision of discontinuing Karyakartha system brought in a positive change and better flow of communication & decision making among SMGs and their federations started to improve significantly.





## 2. OUTCOME & IMPACT

### PROJECT GOAL:

To enhance the quality of life of 62,000 resource poor farmer and farm labor families with dignity, gender equality and social equity.

### 2.1 PROJECT OBJECTIVE:

To increase and stabilise the income levels of the target families and improve their access to basic needs like employment and food and nutritional security by promoting; (a) sustainable agriculture, (b) natural resource management, (c) alternate livelihoods for rural women and youth d) Public opinion building and lobbying with the Government for pro- LEISA policies.

### 2.2 Objectives of project components (specific objectives) and their indicators:

OBJECTIVES	INDICATORS
1) To reduce the cost of cultivation and mitigate drought (by diversified cropping) in 11200 ha of land belonging to 5600 farmer families through SA practices by 2015.	1.1 35% of 16000 farmer families practicing atleast 3 of 5 main sustainable agriculture practices. 1.2 856 SMGs of 21400 farmers and farm workers and their federations work in a collective manner in order to adopt sustainable agriculture.
2) 1500 famers introduce Low Carbon Farming in their 1500 acres of land (607 ha of land) in order to gain access to the Indian CO2 market by 2015.	2.1 The method of low Carbon Farming is introduced in 1500 acres of land (607 ha of land) and is validated and certified for the Indian Co2 market. 2.2 The certificates are offered at the Indian carbon market.
3) The livelihood of approx. 3200 women and youth from the target families is diversified through alternate off farm/ nonfarm livelihoods by 2015.	3.1 Approx. 3200 women and youth are trained to contribute additional livelihood to the family with skill based employment.

### 2.3 Achievement of Project Component Objectives:

Objectives	Indicator (or) Desired End Result by March 2015	Achieved during 1 <sup>st</sup> April 2014 –30 <sup>th</sup> September 2014	Remarks / Reasons for Variance
1) To reduce the cost of cultivation and mitigate drought (by diversified cropping) in 11200 ha of land belonging to 5600 farmer families through SA practices by 2015.	1.1) 35% of 16000 farmer families practicing atleast 3 of 5 main sustainable agriculture practices.	<p>Of the 16000 small and marginal farmer families enrolled into AF's SA program:  <b>During the reporting period October 2013 – March 2014</b></p> <ul style="list-style-type: none"> <li>• 5790 rain fed farmers sowed diversified crops on 4554 ha of land</li> <li>• 4342 rain fed farmers and 3064 irrigated families (8724 of 16000) had applied bio-pesticides to their crops covering 1225 ha.</li> <li>• 2800 farmers used border crops, trap crops and mechanical pest traps covering 1120 ha</li> </ul> <p><b>7406 farmer families practiced any 3 of 5 SA practices by September 2014 covering 5100 ha.</b></p>	<ul style="list-style-type: none"> <li>• Only half of the project area received rains during sowing period i.e June and July. Only 66% of the 11500 rain fed farmers could sow their crops, those too could not be protected during the prolonged dry spells and crops of 1890 farmers dried up by September 2014.</li> <li>•</li> </ul>
	1.2) 856 SMGs of 21,400 farmers and farm workers and their federations work in a collective manner in order to adopt sustainable agriculture.	<ul style="list-style-type: none"> <li>• Out of 856 SMGs formed 790 (96%) groups are effectively functioning.</li> <li>• Mutual Cooperation in farming activities and savings were started in 132 SMGs covering 3300 members</li> </ul>	<ul style="list-style-type: none"> <li>• Discontinuing Karyakartha system and new staff at grass root level settling down after turbulence needed 66 SMGs to be reorganized and strengthened which is under progress during the reporting period</li> </ul>

2) 1500 famers introduce Low Carbon Farming in their 1500 acres of land (607 ha) in order to gain access to the Indian CO2 market by 2015.	2.1) The method of low Carbon Farming is introduced in 1500 acres of land (607 ha of land) and is validated and certified for the Indian Co2 market.	<ul style="list-style-type: none"> <li>LCF protocols are being practiced by 1500 farmers in 1500 acres (607 ha).</li> </ul>	Uncertain market conditions in Indian Carbon market is getting the things delayed. However, AF continued to encourage farmers in following the LCF protocols and in taking necessary measures for third party verification like data collection, consolidation, record keeping, laboratory maintenance etc.
	2.2) The certificates are offered at the Indian carbon market.	<ul style="list-style-type: none"> <li>Preparing ground for third party verification was started during the reporting period</li> </ul>	
3) The livelihood of approx. 3200 women and youth from the target families is diversified through alternate off farm/ nonfarm livelihoods by 2015.	3.1) Approx. 3200 women and youth are trained to contribute additional livelihood to the family with skill based employment.	<ul style="list-style-type: none"> <li>425 girls were enrolled for garment making trainings. 163 girls completed the course by September 2014 and 46 of them started earning a minimum monthly income of Rs 2000/-</li> <li>57 boys were enrolled during the reporting period for training on driving skills 24 of them completed the course by the reporting period end. 16 of the trained youth started earning a minimum monthly income of Rs. 6000/-</li> </ul>	

		<ul style="list-style-type: none"> <li>• One job fair was conducted involving 150 youth and 50 potential employers. 90 of the attended youth were hired during the reporting period.</li> <li>• 44 youth were sent to skill development centers like TTDC, RUDSETI etc and trained on trades like Embroidery, Electrician etc. 31 of them were employed/self employed during the reporting period.</li> </ul>	
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**2.4. What other observations did you make? Please mention any thing that may be enlightening for the progress of the project, provide case stories if any in the annexure.**

Some important observations:

- Millet and pulse based intercropping systems and Integrated Kitchen Gardens (IKGs) are providing food and nutritional security to families, particularly women and children. But unable to sow on time due to failure of rains in sowing season and prolonged dry spells during the crop season were found to be key factors for crop failures. Hence AF realized that promoting suitable technologies and practices on large scale for timely sowing of crops and protecting them during prolonged dry spells are of utmost importance in drought prone areas like Anantapuram.
- Lack of adequate rains and indiscriminate digging of bore wells resulted in fast depletion of ground water. Ground Water Sharing project (*Please refer to brief description in special initiatives*) offered a potential solution to more judicious and equitable use of ground water.
- More number of farmers started to adopt drought resistant diversified crop models developed by AF and following cost saving measures like usage of bio fertilizers, bio-pest management, composting etc on their own outside the demo plots.



All these observations indicate a positive movement towards the achievement of AF's development goal.

## **2.5 In case that you observed any negative outcome, please describe.**

No negative outcome was observed.

## **2.6. Could any impact (positive or negative) be observed in the wider context of the project that might be related to the project interventions? Do those observed facts contribute to achieving the development goal?**

**Distress migration on the increase:** The rain fall during the reporting period was the lowest in the past 10 years (with only 50% of the normal rain fall) and only 50 per cent of the sowing could take place. This led to distress seasonal migration of farmers as well as wage labourers' families to cities in search of some meager employment. In most of the villages in the project area it was a common picture with active members of tens of families in each village temporarily left for Bangalore leaving behind the elderly and children. Their plan is to return home by end of May or early in June 2015, in time for next years' agricultural season.

However, there was no such distress migration in watershed villages as there was adequate employment created by taking up watershed development measures. And promoting contingency crops with Jowar and Horsegram also reduced distress sale of cattle as well as reduced cattle migration to other areas.

The living conditions for migrating labourers in the cities like Bangalore appear to be miserable where the distress migrants find no proper place to sleep. The unskilled nature of their employment provided them very small wages like Rs. 200/- per day for men. Most of the men found jobs like truck loading, unskilled construction work, gatemen, security guards etc. Women mostly worked as home maids. The women worked as house keepers in 4-6 houses in a day for about 2 hours in each house and earned Rs. 100/- to 200/- per day.

**Unprecedented ground water depletion:** Frequent failure of rains and indiscriminate use of ground water through bore wells resulted in depletion of ground water at alarming rate. An estimate suggested that about 150,000 bore wells dried up by September 2014 out of 200,000 bore wells which were functional last year. This made even the irrigated farmers' lives more pathetic with increased debt burden and had to leave their lands fallow during the reporting period.

The situation highlighted the relevance and importance of AF's work in promoting Drought mitigation technologies, Sustainable Agriculture, imparting skill based trainings to rural youth, promoting water & soil conservation activities through watershed projects and special initiatives like Ground Water Sharing. This kind of challenges never can be met with at farmers or NGO level and a favourable policy environment needs to be created to support the distressed on large scale and in the long run. Hence AF EC has been advocating and lobbying constantly with the Government and other stake holders on a continuous basis. A strong effort on public opinion building and sensitisation of

Government officials and policy makers was done by AF EC through demonstrations, campaigns, publishing literature, personal contacts etc.

## **2.7. Which methods did you use for assessing outcome and impact?**

The output data was collected from village level records maintained in each of the 230 villages. Impact chain was discussed with CBOs and thus oriented them to assess the impact of program activities. The action learning cycle was used to reflect, learn and put the learning's back into the action plan.

The use of output, effect and outcome was measured using the indicators set against objectives in a participatory process involving the target groups. The tools required for assessment of outputs, use of output and outcomes were designed taking into account the control groups or control crops. The outcome was measured periodically or at the end of every crop season as the case may be. Appropriate sampling like Random Sampling, Purposive Sampling and research methods like Random Physical Verification, Focused Group Discussions, Individual and Group Interviews etc., were followed.

## **3. ACTIVITIES:**

### **3.1 Awareness on Sustainable Agriculture and facilitation of CBOs:**

AF developed 10 models of annual crops which include inter crops of millets, pulses and vegetables in order to reduce cost of cultivation while also providing food & nutritional security to the farmer families, 4 models of perennial tree crops which include multiple fruit trees, bio mass and fodder plants and also developed technologies and practices to mitigate drought All these activities were designed and developed keeping in view the agro climatic and socio-economic conditions of Anantapuram district with great emphasis on gender & social equity. AF has been promoting them through demonstrations and awareness campaigns. AF has been intensively spreading awareness and building farmers' knowledge and attitude on LEISA practices through CBO meetings, trainings and exposure visits. **Campaigns on; (a) Sustainable Agriculture, (b) Gender and (c) Adaptation to Climate Change:**

The mass campaigns play important role in reaching out to large number of stake holders. AF has also been creating awareness on climate change and its consequences on the agriculture and livelihoods; and the ways for mitigation and adaptation to climate change & droughts.

These campaigns were organized at different levels like village level, mandal level, area level and project level. At Mandal and Project level, the farmers, the agriculture scientists, the human rights activists, NGOs, government agencies, media and elected representatives were brought together in these campaigns. The farmer groups (GSMS and SMGs) at village level and federations (MSMS at mandal and area level) played an active role in organizing these campaigns. In these campaigns awareness was created on; (a) suitable crop models and SA practices including crop diversification with intercrops of millets, pulses & vegetables and multiple tree crops, (b) technologies and practices required for timely sowing of crops in absence of sufficient soil moisture/before the soil

moisture dries up (*Please refer to 3.2 demonstration of drought mitigation technologies and practices for detailed description*) and protecting the standing crops during prolonged dry spells through protective irrigation, (c) Adaptation measures to cope with droughts and effects of climate change like changing rainfall patterns etc. The successful practicing farmers of SA were invited to share their experiences with other farmers. Good cropping practices, preparation of low cost indigenous bio-fertilizers, bio-pesticides were demonstrated to the farmers in these campaigns. Special efforts were made to increase the role of women in making decisions on farming activities right from choosing a crop variety to the level of marketing the produce.

**During the reporting period April 2014 to September 2014, 4 area level campaigns were conducted.**

- **198 village level campaigns on sustainable agriculture** and gender were conducted covering 17820 families of which 9088 (51%) were women and 5168 (29%) were from SC/ST.
- **4 Mandal level SA campaigns (crop wise campaigns)** were conducted. 1195 CBO leaders attended the campaigns (75% of the planned 1600) of which 536 (45%) were women farmers and 334 (28%) farmers were from SC/ST communities.
- **One area level campaign on productivity enhancement in fruit tree crops** was conducted at Kalyanadurgam covering 450 fruit tree crop farmers among which 214 were women from Kundurpi and Kalyanadurgam areas.
- **One project level campaign on combating drought & desertification** was conducted involving over 1200 small & marginal farmers, Government officials, NGOs, CBOs, CSOs etc during “World day to combat Drought & Desertification. (Please see annexure for detailed report)
- **Cumulative Achievement (April 2012 to September 2014) of Village level campaigns:** Since inception of the project phase (2012-15), 894 Sustainable Agriculture Campaigns were conducted (105% of the planned 850) covering about 22,000 farming families.

### **3.1.2 Trainings on (a) Sustainable Agriculture, (b) Gender and (c) Group dynamics & leadership development**

- a) **Sustainable Agriculture:** Trainings on Sustainable Agriculture were imparted mainly through **Farmer Field Schools (FFS)** and crop based Farmer Conferences at cluster, mandal and area level. FFSs were conducted from seed selection to harvesting of the crop, so that the farmers were able to observe, analyze and learn the life cycle of crop ecology throughout the crop season. The topics dealt in FFSs during the period included importance of diversified cropping, intercropping, trap cropping, pest and disease management, preparation and application of bio-fertilizers and bio-pesticides, understanding farmer friendly & enemy insects and their life cycles, prevention and protection from various pests diseases using local botanicals and adherence of the farmer members to PGS protocols.

During the FFS sessions, importance was given to demonstrate and sensitise the farmers on the drought mitigation technologies and practices like Ananta Planter, Aqua Planter, Row Water Sowing Protective Irrigation, Cement lining of farm ponds for harvesting and storing rain water for protective irrigation etc. The STOs facilitated the sessions with support of GSMS leaders and Subject matter Specialists of AF. The inputs like FFS curriculum, reading material and FFS kits were provided by the Subject Matter Specialists in Sustainable Agriculture.



An FFS session typically starts at 7 am in a selected plot of a farmer in each village. A group of about 15 to 30 farmers are expected to attend the sessions. Women are encouraged to participate in FFS. The farmers are further formed into small groups according to their sown crop. After a recap session the small groups go to their respective selected crop plots, keenly observe, perform Agro Eco System Analysis (AESA) and note the findings. After that all the small groups come together and present their observations in the large group. The decisions for follow up actions are taken in the FFS group.

These FFS groups follow some kind of Participatory Guarantee Systems (PGS) in order to ensure that all the group members followed the planned practices of Sustainable Agriculture. PGS is also a good participatory monitoring tool. Each farmer pledges to follow a calendar of operations/practices of sustainable agriculture for the crop sown. The small groups review whether each farmer followed the practices as per the calendar or not. If any farmer does not follow the protocols the group will discuss with the farmer and explain the relevance and importance of following them and motivate him/her to follow protocols.

Formation of sub groups in SMGs improved the quality of FFS as the affinity of members increased through mutual cooperation and savings. These sub group members helped each other in exchange of labour, bullocks, implements etc and also collectively prepared the bio-fertilizers and bio-pesticides time to time.

Severe drought conditions during sowing season and prolonged dry spells afterwards left about 50% of the lands unsown in the project area and about 30% of the sown crops dried up during prolonged dry spells. This situation resulted in farmers' distress and only 536 FFS sessions were conducted as against the planned during the reporting period in which 7769 farmers participated cumulatively. Among them 3806 (49%) were women and 1892 (24%) were from SC/ST.

- b) & c) **Trainings on gender, leadership development of women:** The gender and leadership trainings for GSMS members were organized at cluster level, wherein the women were oriented and trained on gender issues like gender division of

labor, sharing of work load by men, prevention of domestic violence, girl child education, economic freedom to women, household food security, nutritional security, participation for women in decision making at family level as well as in farming activities like cropping choices, SA practices, marketing etc, alternate/supplementary livelihood activities, women and child health, personal hygiene etc. Experiential learning on group dynamics such as participation, conflict resolution, mutual cooperation, monthly savings and qualities and role of leadership also were imparted through these trainings.

**During the reporting period April 2014 to September 2014,**

- 30 cluster level trainings (73% out of the 42 trainings planned for the year) were organized. 1559 GSMS leaders participated in these trainings out of which 795 (51%) were women. Of the total participants 452 members (29%) were from SC/ST communities.

**Cumulative Achievement (April 2012 to September 2014):** Since inception of this project phase (2012-15),

- 123 cluster level, mandal and area level trainings were organized (98% of the planned 135) covering 1600 GSMS leaders.
- 5,592 FFS sessions were conducted (82% of the planned 6851) in 214 villages covering 12,000 farmer families.

**3.1.1 CBO Meetings (SMG, GSMS, MSMS, User groups and WDCs):**

**SMG, UG, GSMS, and WDC:** There are 4 SMGs and 1 GSMS functioning in each of 214 project villages. In 16 Watershed Villages, 16 Watershed Development Committees (WDCs) and 187 User Groups (UGs) are functioning. Each SMG and UG meets once a month and every GSMS and WDC meet twice a month. During the crop season they meet more times in a month due to intensity of activities. The STOs facilitate the meetings and functioning of SMGs, UGs, GSMS and WDCs.

During the current period SMG meetings were conducted separately for each SMG to focus on the specific needs of each group which would be consolidated at GSMS level. Earlier 4 SMGs in the village used to conduct a combined meeting. These joint meetings proved to be ineffective particularly in addressing the needs of labour groups. Hence, it was decided to organize separate meetings at each SMG level.

Special need based meetings were conducted for GSMS during the sowing season to discuss about drought mitigation technologies & practices and to chose cropping models for demonstrations. With these intense efforts the number of village level CBO meetings went beyond planned at the beginning of the phase.

During the reporting period AF concentrated on strengthening the SMGs as the earlier *karyakratha* system led to lesser member participation at SMG level. As part of improving the participation and strengthening of SMGs sub group formation, mutual cooperation among members and members' savings with SMGs was treated as the topics of utmost importance in the SMG meetings and trainings conducted at cluster level.



In each SMG 5 member sub groups were formed based on the affinity in order to promote mutual cooperation and enable access to each other's resources like land, bullocks, implements, labour etc. These sub groups were encouraged to cooperate with each other by exchanging labour, sharing bullocks, implements etc. This reduced the cash transactions in the farming activities thereby reducing the stress on the farmer families and helped to come out of cash crunch. It also facilitated in completing the operations like sowing, weeding, inter cultivation etc in time.

The regular topics discussed in the village level meetings were planning and implementation of various activities of Sustainable Agriculture, Watershed programs and practice of mutual cooperation, monthly savings, selection of deserving and eligible beneficiaries for incentive based activities considering Gender & Social equity etc. The implementation and monitoring of all the activities on day to day basis was the responsibility of SMGs and GSMS with the help of STOs. The management of the common equipment and services like sprayers, sprinklers etc was done by GSMS and WDC in each village.

**MSMS (Mandal Sasya Mitra Samakhya):** There are 8 MSMSs functioning in 8 mandals in the project area. The MSMS meetings were facilitated at Mandal level by Area Team Leaders (ATLs) and Agriculture Extension Officers (AEOs). The MSMS members played an important role particularly in organizing mandal and district level awareness campaigns such as Drought and Desertification Day and campaigns on Sustainable Agriculture, International Women's Days etc. MSMS members also were formed as monitoring committees and participated in participatory monitoring process conducted during July 2014. The teams of MSMS members visited randomly selected villages, and monitored the progress in implementation of the activities against village level yearly action plans. The feed back of the MSMS monitoring teams was very helpful for the GSMS in improving the implementation of the planned activities. There was visible improvement in the villages where the MSMS monitoring was done in terms of participation of GSMS members in management & utilization of GSMS owned equipment like sprayers, sprinklers etc.

**ASMS (Apex Sasya Mitra Samakhya):** The Apex Sasya Mitra Samakhya (ASMS) which was constituted with 5 leaders from each of 8 MSMSs 5 from WDCs and 5 progressive farmers with a passion for SA started to play an important role in PPIME (Participatory Planning, Implementation, Monitoring and Evaluation) of Project. Generally ASMS meetings are held once in a quarter to review the progress and plan for the next quarter. During the reporting period 3 ASMS meetings were conducted as against planned 2 meetings. There was a special meeting conducted in September for involving them in planning for the next phase of the project. During the meeting held in April, ASMS proposed to increase the number of rain fed demo plots in order to sensitise more number of farmers about the benefits of drought resistant inter cropping models of millets and pulses. Hence the number increased to 10000 demo plots as against previous year's 6400. Unfortunately the plan did not work out due to severe drought conditions during sowing period. During the meeting held in July 2014, ASMS discussed about the drought conditions, distressed migration and proposed contingency crops like jowar, horsegram, greengram, blackgram, field beans etc which are of short duration crops and provide

animal fodder if not grains. At the time of reporting i.e 30<sup>th</sup> September 2014, green gram, field beans and horse gram looked optimistic at least in providing fodder.

A special ASMS meeting was held in September 2014 and was used as a participatory forum for the planning process of next project phase i.e 2015-18. ASMS provided inputs in the planning process and provided feedback on the implementation of various programme activities of the current phase and on the outcome and impact of program activities; which were also used as inputs for the next phase planning. Further it also discussed about need for advocacy and lobbying for favourable policies for scaling up the proven drought mitigation technologies and practices.

**During the reporting period April 2014 to September 2014,**

- 4600 SMG meetings (97% of the revised plan of 4740) were conducted.
- 800 UG meetings (88% of the planned 910) were conducted in 16 villages.
- 1340 GSMS meetings (104% of the planned 1284) were conducted in 214 villages.
- 192 WDC meetings (100% of the planned 192) were conducted in 16 villages.
- 48 MSMS meetings (100% of the planned 48) were conducted for 8 MSMS in 8 mandals.
- Two ASMS meetings (including a special meeting for planning for the next phase) were organized in April, July and September 2014

**Cumulative Achievement:** Since inception of this project phase (2012-15),

- 15144 SMG meetings (118% of the planned 12840) were conducted in 214 villages.
- 8632 GSMS meetings (112% of the planned 7704) were conducted in 214 villages.
- 233 MSMS meetings (% of the planned 288) were conducted for 8 MSMS in 8 mandals.

### **3.2 DEMONSTRATIONS ON SA CROPPING SYSTEMS, DROUGHT MITIGATION TECHNOLOGIES AND PRACTICES IN ANNUAL CROPS:**

During the reporting period the efforts were continued to promote the diversified intercropping models developed by AF. But it was a very harsh sowing season with half of the project area did not receive any rains during June & July (Right time for land preparation & sowing). However AF put in efforts to continue the demonstrations in villages wherever it rained in the project area.

During the reporting period, annual demonstrations of 10 models of rain fed cropping systems were planned on a big scale with 10,000 farmers on 10,000 acres under rain fed conditions. In rain-fed demo plots women were encouraged to actively participate in deciding the crop models suitable for them as they tend to prefer food crops compared to men who tend to prefer cash crops. Special meetings were conducted with SMGs for selecting the eligible and willing farmers to take up demo crop models. The cropping systems were designed not only based on agro climatic conditions but also keeping in view the objective of food and nutritional security at household and at project level. The models of intercrops were a mix of pulses, millets and vegetables like red gram, pearl millet, sorghum, foxtail millet, field beans, cow pea, castor, cluster beans, ladies finger, bitter gourd, ridge gourd etc. The important eco-friendly SA practices included were use of botanicals, pheromone traps, border crops, trap crops etc for pest management. A

handbook on cultivation of the 10 models of cropping systems and SA practices was printed and circulated widely among the target group farmers.

AF supplied High Yielding Varieties (HYV) of seed (pulses, millets and vegetables) needed for these crop demonstrations the rain fed farmers who came forward to take up demo plots. The major costs such as ploughing, sowing, bio-fertilizers and bio-pesticides, weeding, harvesting etc were borne by the farmers themselves. Social equity was considered as very important aspect in selecting the demo farmers so as to involve socially vulnerable groups in taking up Sustainable Agriculture practices under rain fed conditions.

With severe drought conditions during the sowing period only 5790 farmers could be facilitated to sow the seed in time. Each demo plot was sown in 1 acre. Among the 5790 farmers who opted for demo plot, 2084 (36%) families belong to SC/ST, 198 families were of woman headed, and 2547 (44%) families belong to BC communities.

### **3.2.1 Timely Sowing of rain fed crops in the absence of rains during sowing season:**

In the villages where sowing on time was not possible for want of rain, AF, in collaboration with farmers and their SMGs conducted experiments and demonstrations on the farm for sowing on time using technologies and practices like Aqua Planter, Manual Water Sowing etc.

**Ananta Planter** was designed by RARS (Regional Agriculture Research Station) designed and was tested extensively by AF for the past one year. Ananta Planter is 4 times more efficient than traditional planters. It is a tractor drawn implement and can be used during night times also. Hence it is very helpful on the lands of Anantapuram district where the soil moisture gets evaporated within 2-3 days and the sowing operations need to be completed that time, which is not possible with traditional planters. Ananta Planter is handy in such circumstances with 4 times increased efficiency and the facility to use it round the clock. It was originally designed for sowing groundnut but was improved by AF to sow millets and pulses. This proved to be a significant improvement for timely sowing of crop models promoted by AF before the soil moisture dries up.

During the crop season we organized demonstration of the use of Ananta planter in the project area covering about 420 acres of land covering 200 families and 4000 farmers participated as observers. They expressed their happiness over such technological intervention as it saves time and cost. Many of the small & marginal farmers do not own the implements for sowing. And generally the demand for hired implements will be very high and availing them on time for small farmers becomes a herculean task during the sowing season.

**Aqua Planter** was also designed by RARS to sow simultaneously the seed and adequate water (when the soil moisture is inadequate or absent) in order to help in germination and to grow crop for three to four weeks. The Aqua planter was demonstrated on a small scale in the previous year.

During the sowing season this year, 50 demonstrations were conducted in 50 villages using Aqua planter which involved over 1500 farmers, various Government officials and Agriculture Researchers.

**Manual watering techniques for sowing :**

Some simple techniques, which can be easily practiced by small farmers were also tried for timely sowing like manual water sowing and dry sowing followed by light irrigation. **Row Water Sowing** is a technique followed for establishing lesser plant density crops like castor and redgram. One tanker containing 5000 litres of water was needed for sowing castor and redgram on one acre of land. Shallow plough furrows were made and seeds were dibbled in the furrow. Water from tanker was added in the furrow using pipes and the furrows were closed with a plank. This kind of demonstrations were done on 40 acres of land belonging to 40 marginal rain-fed farmers in the project area. It rained on 20 plots after 20 days from sowing. Another 10 plots received rain after 30 days from sowing. The germination and survival rate of plants on these plots was more than 80 per cent and normal yield is expected provided timely rains subsequently. On the remaining 10 plots there was no rain and crops were dried up. However, red gram could survive for about 45 days after sowing without water. On 5 demo plots where the rains failed, protective irrigation was given after 30 days from sowing and the crops are growing well. The results of these experiments proved that there are technologies and practices to sow in time despite drought conditions during sowing season. Some of the practices have greater potential for small and marginal holders as they can be done manually by family labour.

**Pot Watering** is one more technique of manually providing moisture for seed germination. This was tested on 15 acres covering 15 marginal farmers on a pilot basis. This technique was used for castor + redgram crop model in which plant density is lesser. The farmer families dibbled the seed in the land and added about 500 ml of water per dibble exactly where the seed was dibbled. Germination in this method was also encouraging.

**3.2.2 Protective Irrigation during prolonged dry spells:**

In the villages where the sowing operations were completed in time, prolonged dry spells of 30 to 50 days followed the sowing. AF conducted demonstrations on protecting the crops during such dry conditions by providing protective irrigation using mobile micro irrigation methods, cement lining of farm ponds etc.

AF simplified the protective irrigation technology by using locally available tractors at village level. The tractors were fitted with water tankers of 5000 liters capacity and extensively demonstrated protective irrigation on small plots. In crops with lesser plant density like castor and red gram furrow watering technique was used for protective irrigation. A furrow was made adjoining the row of plants using a plough. Water was released from the tanker along the furrow in order to provide moisture to the root zone of the plants. The experiments were conducted by providing irrigation to rows of plants while leaving one row for control without providing irrigation in order to test the efficiency of the practice in terms of increase in the yields. Rows of plants provided with protective irrigation survived whereas the survival on un-irrigated came down to about 35% that too with stunted growth. Providing protective irrigation was carried out in two modes viz (a) flood irrigation through the furrows which took 1 hour per acre to make furrows using bullocks and 40 minutes to irrigate the plants, (b) using drip irrigation system which took 2 hours for 2 persons per acre to set up the drip system and 20 minutes

to irrigate the plants. Both the methods were found to be practically feasible but the choice depends upon the human & material resources available with the farmers at individual level. The actual yield increase due to protective irrigation will be measured at the time of harvest in January/February 2015.

**Cement lining of Farm Ponds for storing rain water for protective irrigation:**

AF collected and analysed the rain fall data of the district for the past 100 years. It revealed that prolonged dry spells during crop season were very common despite normal amount of rain fall in the years. Hence water harvesting in the farm ponds and storing without seepage during rainy days can help the farmers in providing irrigation during dry spells. Under Watershed programs and MGNREGS thousands of farm ponds were dug in Anantapuram district. The original intention behind digging of farm ponds was to recharge the ground water table by letting the water to percolate in. But AF, after analyzing the rain fall data, realized that retaining the water in farm pond without allowing to percolate can be used for protective irrigation during prolonged dry spells. Hence cement lining of such farm ponds in order to prevent percolation was tried and tested during the past 6 months.



**Cement lined farm pond for protective irrigation**

During the reporting period 16 farm ponds were lined using a low cost method with 1:6 ratio of cement and clay. 10 ponds out of the 16 were completely filled during rains in September and were used for protective irrigation on 25 acres and the crops were protected. It had not rained up to September 2014 in villages where the other 6 farm ponds were cement lined.

**3.2.3 Annual Field Demonstrations of kharif irrigated crops:**

During the reporting period thousands of bore wells dried up leaving even the irrigated farmers unable to sow crops. For the kharif season 2014, 5050 demo plots were planned under irrigation to demonstrate on reducing the cost of cultivation by following SA practices like avoiding chemical fertilisers & pesticides, including border crops, trap crops, pheromone traps for pest management etc, promoting judicious use of ground water using technologies and equipment like sprinklers, drip irrigation etc.

Out of the planned 5050 plots, only 3064 plots were sown during the reporting period. AF ensured that all the farmers on demo plots were following the suggested SA practices which were monitored through FFS and PGS. The results of the demonstrations will be revealed in January 2015.

**3.3 Perennial Rain-fed Tree Crop Models:**

Propagating and promoting the 4 tree crop models developed by AF was continued despite poor rains during the reporting period. Rain-fed farmers were sensitized and oriented during SMG meetings and village level awareness campaigns on the importance



of tree crops in drought prone areas like Anantapuram district. Area level trainings were organized for those farmers who had shown interest in going for tree crops.

#### **During the reporting period April 2014 to September 2014**

- 44 plots of 1 ha each were planted under MFTC (Multiple Fruit Tree Crops) with 2540 fruit plants and 3453 bio-mass plants covering 44 rain fed farmer families
- 3 IFS (Integrated Farming Systems) plots of 1 ha each were planted with 2900 fruit plants and 1400 bio-mass plants
- 2 plots of 1 ha each were planted on Waste Land with 1800 multiple fruit, fodder and bio-mass plants.
- 6 plots of 1 ha each BIFSRA (Bio- Intensive Farming Systems in Rain fed Areas) were planted with covering 6 rain fed farmer families.

**3.4 Back yard activities:** AF has been promoting back yard activities like Integrated Kitchen Gardens, Kitchen gardens, Back yard horticulture to improve health & nutritional security of small rain fed farmers and wage labourers.

**3.4.1 Integrated Kitchen Garden Units (IKG):** IKG unit is a system of back yard kitchen gardening which includes a drum for storing water and micro drip irrigation system to provide water to the vegetable plants. The objective of the IKG is to improve health & nutritional security to the families of small farmers and wage labourers through back yard production and consumption of vegetables on daily basis at a very low cost. During the previous year AF provided 300 IKG units to 200 GSMS which were distributed to the landless and other poor families who have enough back yard space, water and interest to look after the kitchen gardening activities. The families who took the units increased their vegetable consumption and also shared the vegetables with relatives, neighbours and other SMG members.

During the reporting period in many of the villages water availability, even for drinking purpose became very difficult with thousands of bore wells drying up including those of Government which supplied drinking water to the villages. Hence only 150 of the IKG units were functioning during the reporting period. GSMS took back the non- functioning units from the beneficiaries with a view to give them to other villages where water crisis is not so severe or use them once the water is available.

**3.4.2 Kitchen Gardens:** All the households do not have adequate space in their back yards. Hence IKG is not possible for families with very small back yard space. Hence AF has been promoting small kitchen gardens in a small space available which could be sufficient to the household level.

During the reporting period AF provided seeds of multiple vegetables like chilli, tomato, cluster beans, bitter gourd, bottle gourd etc to 1400 landless and other poor families out of which 408 (29%) were from SC/ST communities.

**3.4.3 Back yard Horticulture:** Fruits are a must in nutritional diet. But the price of fruits like citrus, mango, sapota, custard apple etc are increasing very rapidly. Having two or

three fruit plant in the back yard helps in providing the families seasonal fruits on regular basis.

During the reporting period AF promoted back yard horticulture with two to three fruit plants covering 2425 landless families out of which 1100 (45%) belong to SC/ST communities

### **3.5 Piloting Rain fed Farmers' Cooperatives for securing the livelihoods:**

The Pilot Project of promoting 8 Rain-fed Farmers Cooperatives in order to explore how small & marginal rain-fed farmers can achieve livelihood security in the drought prone Anantapuram district took momentum during the reporting period.

The leaders of 8 RFCs were trained on the concept of farmers' cooperatives, diversified livelihoods, bylaws and essential elements in functioning and managing cooperatives. A total of 41 (21 leaders and 20 members) from 6 villages were trained on the concept and practice of farmers' cooperatives by a consultant. With this training leaders and members realized the significance of mutual trust and Cooperation in effective functioning of cooperatives.

Members of 7 RFCs out of 8, started savings and internal lending during last year. At the end of the reporting period an amount of Rs. 120,000 was saved by the members which was used for internal lending among the members. The members of RFC at Palabavi village agreed to start savings very soon. The RFCs expressed their keen interest in taking up collective off-farm and non-farm livelihood activities to diversify their livelihood portfolio. In this regard, an annual plan was discussed and developed separately with each RFC based on the needs, resources and opportunities available with each group. Plans also included long term goals of earning additional income from alternate livelihoods like rearing of small ruminants, rain fed tree crops etc. The RFCs also discussed about the immediate needs for the crop season and set the activities like sharing/hiring implements, labour exchange and collective marketing as priority for the current crop season. Efforts were put in involving the members of RFCs in planning and executing small tasks by delegating the responsibilities among themselves.

Three to Four member functional committees were set up from the Boards of Directors of the cooperatives to explore supplementary livelihood opportunities within their resources, knowledge and skill sets. The committees, with support from area teams of AF, conducted a detailed market study on sheep rearing, leasing-in of tamarind trees for selling deseeded tamarind. It was ensured that the members have adequate experience/knowledge of the activities chosen.

Four of the cooperatives [Yerraborepalli, Devadulakonda, Konampalli, Kurlapalli] opted for collective rearing of ram lambs and one [Seegalapalli] to pursue leasing Tamarind trees as most suitable to take up on collective business mode.

### **3.6 Alternate Livelihoods:**

Severe drought conditions during the reporting period led to farmers' distress and many of the active family members temporarily migrated to Bangalore in search of employment.

All of them were involved in unskilled activities like truck loading, construction labour, home maids etc. This situation once again proved that the AF's claim for skill based trainings to rural youth and consistent policy advocacy on the need for industrial development in the district as the agriculture sector under drought prone conditions can not provide sufficient employment to the lakhs of needy families.

**3.6.1 Driving skills for rural youth:** Two state of the art Driving Schools set up by AF at Anantapuram and Kalyanadurgam trained youth on LMV (Light Motor Vehicles) and HMV (Heavy Motor vehicles). Professional drivers are in great demand in cities which provides a decent and dignified living outside the villages. During the reporting period 144 boys were trained out of which 85 (59%) were from SC/ST families of the project area. By the end of the reporting period 73 youngsters got employment as drivers. They were able to earn a monthly income of above Rs. 6000/- .

**3.6.2 Training for women in garment making:** In order to train women on garment making, training centres were set up in the villages on temporary basis. During the reporting period 425 girls enrolled for the training. Among the 425 girls, 208 (49%) belong to SC/ST communities. By the end of the reporting period 163 girls completed the course while the remaining were still under training. They were also trained on personality development, gender issues and personal hygiene. 49 trained girls (About 30%) of the trained girls started to earn an income of about Rs. 2000 per month by working at home. These girls also improved their self confidence levels with newly acquired skills and improved social awareness. A lot needs to be done in making the garment making activity a sustainable source of income for the rural women. AF started to build linkages with garment manufacturers in the nearby towns and cities. This can be beneficial for the trained women as well as the manufacturers. The manufacturers can reduce their cost of production by decentralising the production at low cost in rural areas.

**3.6.3 Collaborating with Vocational Training Institutions & Job Fairs:** AF collaborated with agencies like TTDC and RUDSETI to train youth on skill based livelihood activities. During the reporting period 44 youth were trained on embroidery, electrician etc in these institutions and 31 of them started earning an income ranging from Rs. 3000/- to Rs. 6000/-. AF also conducted one job-fair at district level to link the unemployed youth with potential employers from cities and towns. 150 educated/semi educated youth and potential employers were involved in this job fair. 90 of the attended 150 youth were selected by the employers with a monthly salary ranging from Rs. 6000/- to Rs. 8,000/- based on the skills and qualification of the selected youth.

### **3.7 ADAPTION TO CLIMATE CHANGE:**

#### **Low Carbon Farming practices by Farmers:**

During the reporting period, LCF was continued by 1500 farmers. The coverage of the acres came down due to drying up of bore wells. Regular meetings were conducted in all the LCF villages so that all the LCF farmers attained good understanding about the program. Women farmers actively participated in these meetings. Farmers are following the LCF norms and protocols on their selected 1 acre plot. Detailed demographic data was collected in these villages. GPS survey work was continued during the reporting period.

**LCF Research:** The research is going on with measuring the emission reductions in Paddy and groundnut crops with different package of practices in the laboratory set up on AFEC campus. The research needs to be continued for another 2 to 3 seasons to see the trends in emission reductions. EDF is providing financial support, scientific input and monitoring this highly scientific research project.

### **3.8 Policy advocacy & Public Opinion Building on Sustainable Agriculture and Drought Mitigation Technologies & Practices:**

During the past 6 months AF conducted demonstrations of technologies for timely sowing of crops in the absence of sufficient rains and protecting the crops by providing protective irrigation during prolonged dry spells involving stake holders like farmers, CBOs, CSOs, public representatives like MLAs and MPs, State & District level Government Officials from Revenue, Agriculture, Horticulture, Ground Water, Irrigation departments etc for sensitising the stakeholders and for building strong public opinion on the relevance, importance and the need for promoting them on large scale.

During the reporting period demonstrations of Aqua Planter on timely sowing of crops and Protective Irrigation using mobile micro irrigation unit were conducted involving the District Collector and heads of various government departments.

A large campaign was conducted on 17<sup>th</sup> June 2014, the “World Day to Combat Drought & Desertification” involving more than 1200 farmers, representatives of CBOs, CSOs, NGOs, Government Officials including the District Collector, Scientists etc.

The 10 point programme designed by AF was presented to the participants and the participants unanimously resolved to send a representation demanding implementation of the “10 Point Programme” and “Ananta Water Grid”, (a concept proposed by AF on filling the traditional water bodies in the district with river waters from outside the district) to the Chief minister through the District Collector.

## **4. CHANGES IN THE ORGANIZATION:**

### **4.1.1 Related to Management structure:**

There is no change in management structure.

### **4.2 Related to Planning system**

There is no change in planning system.

### **4.3 Related to Staff Composition:**

- During the reporting period i.e. from April 2014 to September 2014, 9 staff members at grass root level resigned for various reasons and 13 were newly recruited (10 men and 3 women) were newly recruited.





## **6. CONCLUSIONS FOR THE FUTURE WORK**

### **6.1 Do you see a need for changing the planned activities in order to achieve the project objective?**

No.

### **6.2 Any need of updating the project planning?**

No.

### **6.3 In case of need for consultancy: In what area?**

Yes, there is need for consultancy support in gender capacity building of staff, documentation and impact monitoring process using scientific methodologies.

### **6.4 What are the lessons learned? Please refer to gender equality issues.**

- There is a need for improving MIS for better flow of information in project management.
- Strengthen PPIME processes for improved organizational efficiency and achieving project objectives.
- AF understood the Karyakartas are not allowing the CBO to take responsibility. Discontinuing Karyakartha system though initially caused some disturbance, ultimately proved right with increased participation of CBO members in Project activities.
- The gender aspect needs reinforcement both at the organization and at the program level. The written gender policy was improved and we are planning to hire a competent consultant to guide the organization on gender issues.
- Staff turnover at grass root level was alarming at one stage. Educational qualification required for STOs was lowered from graduation to 12<sup>th</sup> class level which proved a good decision as the graduates look for better opportunities in towns and cities and many of them do not like to work in villages.

## Annexure

### A Brief Report on

### Building Public Opinion on the occasion of

### “World Day to Combat Drought & Desertification (17-06-2014)”

#### 1. Introduction:

Anantapuram district, due to its geographical location of being at the centre of rain shadow area in Peninsular India, has been experiencing low rain fall (522 mm) and long dry spells causing successive droughts, eventually leading to desertification. The prevailing conditions compel to quote drought & desertification invariably whenever issues related to Anantapuram are discussed.

The declaration given by the UNO in the year 1994 to observe 17<sup>th</sup> of June as the “World day to combat drought & desertification” and also the decade 2010-20 dedicated for this cause is highly relevant to the context of Anantapuram district. Hence, AF Ecology Centre, working with thousands of rain fed farmer families, conducted a massive multi stakeholder campaign on this issue on 17<sup>th</sup> of June 2014.

#### 2. The objective of the Campaign:

The objective of the campaign was to upfront and highlight the issues of drought and desertification and its consequences on the people, particularly the farmers; and to generate public opinion to prevail on policy makers. It is also intended to propagate the availability of technological advancements in combating long dry spells and coping with drought conditions and build a strong public opinion towards a congenial policy environment.

#### 3. The Participants:

The primary invitees for the event were rain fed farmers who are susceptible to harsh climatic conditions during crop seasons. The campaign successfully drew over 1200 small and marginal farmers from 8 mandals among which about 500 were women. Assembling such large number of farmers is quite a difficult task but AF could efficiently handle it with its strong presence at grass roots and rapport with farmer families in the project area. Government officials, opinion leaders, progressive writers, cultural activists, human rights activists, social activists, NGOs, CSOs etc also participated to discuss and propose best possible solutions for addressing drought & desertification in the district.



Government officials and experts among the special invitees were Sri Lokesh Kumar, IAS, the District Collector, Dr. Raghavaiah, District Forest Officer, Dr. Hemachandra Reddy,

Registrar, Jawaharlal Nehru Technological University-ATP, Dr. Sahadeva Reddy, Principal Scientist- Regional Agriculture Research Station, Rekulakunta, Sri Dhanunjay, Asst. Director, Dept. of Horticulture, Sri. Thippeswamy, Asst. Director, Dept. of Ground Water, Sri. Lakshmikantham, Rtd. D.F.O, Dr. Yellamanda Reddy, Rtd. Dean, ANGRAU & Chief, Sustainable Agriculture at AFEC, Sri. Panyam Subrahmanyam, Expert in Water Resource Management.

Representatives of NGOs, Smt. Bhanuja, REDS, Sri Kristappa, RIDS, Sri Balaram, Jana Jagruthi, Sri rajan, SEDS, Sri Premachandra, VOICE, Social & human rights activists Sri Basha, Sri Imam, Sri Singamaneni Narayana, a renowned writer and Print & Electronic media people also participated in the campaign.

#### **4. Opening Remarks:**

President of the event, Dr. Y. V. Malla Reddy, in his opening remarks highlighted the worsening drought & desertification conditions and their impact on the farmers & rural livelihoods and stressed on the urgent need for long term strategy and plan together with a favourable policy environment for mitigating the droughts and combating desertification. He requested the Scientists, Government officials and other stakeholders to share their views & ideas and to propose their remedial actions particularly focusing on Anantapuram district.

Very interesting and useful observations and recommendations came out from the speeches and discussions on fighting drought & desertification.

#### **5. Excerpts from the Speeches:**

Some of the attended farmers described the crisis in Agriculture and their condition of distress in view of the frequent droughts in the district. They urged on the officials and policy makers to provide them water for drinking and irrigation purposes. They shared their bitter experiences of drying up of bore wells and their inability to continue with agriculture under severe crisis. Some women farmers described how their grown up children discontinued their education and left for Bangalore in search of some unskilled wage employment.

Moved by the woes of the farmers, the experts and activists, through their speeches made a plea to the Government to come out with appropriate policies and procedures for mitigating droughts and combating desertification in the district.

#### **Desertification, a result of not only harsh natural & climatic conditions but human actions also contribute – Dr. Sahadeva Reddy, Principal Scientist, ARS**

Dr. Sahadeva Reddy felt that possible desertification in arid Anantapuram district is not only the result of natural & climatic conditions of low rain fall, high wind speed and high rate of evaporation of soil moisture. He also stressed on the man-made factors like poverty, deforestation, indiscriminate use of ground water, anti-environmental farming patterns etc which also are contributing to the problems. He called upon to address the man-made factors on priority. He suggested a spineless cactus recently developed by Scientists can be of immense help in arresting soil erosion which also is a better fodder

source. He recommended that promoting common grazing lands can provide fodder for millions of small ruminants which would improve the rural livelihoods and help to cope with drought situation.

- **Protecting trees is a social responsibility – Dr. Raghavaiah, Divisional Forest Officer**  
Dr. Raghavaiah revealed that the forests in the district have very little vegetation and less bio diversity and about 5 million live stock depend on the rocky, denuded and eroded forests of the district. He urged on the need to feel protecting the grasses and trees as a social responsibility and people need to come forward to act in this regard along with the Government.

- **“Solar Farming” could be a possible option for assured additional income to farmers – Dr. Hemachandra Reddy, Registrar, JNTU**  
Dr. Hemachandra Reddy came out with an innovative idea of tapping solar energy for income generation. He suggested Government should support the farmers in “solar harvest” by providing infrastructure to farmers collectives, which would be a great income source for farmers.

- **Fill up of traditional water bodies of the district with river water – Er. Panyam Subrahmanyam, Water Resource Management Expert**  
Sri Panyam Subrahmanyam revealed that the traditional rain water bodies in the district can hold 35 TMC of water. Filling up of these water bodies with river water will improve the irrigation underground water and also the drinking water availability in the district. And further the water in the traditional water bodies could be used for protecting the vast areas of rain fed crops with protective irrigation.

- **Join hands for building pressure on the Government – Singamaneni Narayana, Renowned Writer on farmers’ issues**  
Singamaneni made a passionate effort for raising the spirit of the farmers towards a collective effort to build pressure on the Government towards a favourable policy environment to protect the district from successive droughts. He expressed his concern that there should be a humanistic approach in distribution of water resources among the regions. He quoted the example of Polavaram project on river Godavari aimed at bringing 0.72 million acres of land under irrigation in prosperous region of coastal Andhra Pradesh. He said that drought prone districts like Anantapuram should be given priority, which is key factor in combating desertification. He suggested various measures like providing water from Tungabhadra damn, providing 10 TMC of water from Guru Raghavendra Lift Scheme etc to provide the required 104.9 TMC of water to Anantapuram district to overcome severe agriculture crisis. He called upon the farmers in joining hands to build pressure on the Government in providing water for the district. The participant farmers showed their willingness to come together through resounding applause.

- **Drought mitigation technologies and practices make rain fed agriculture more viable – Dr. T. Yellamanda Reddy, Retd. Dean, ANGRAU & present Head-Sustainable Agriculture, AFEC**

Dr. Yellamanda Reddy explained about the technologies and practices available for timely sowing of crops and protecting them during prolonged dry spells like Ananta Planter, Aqua Planter, Protective Irrigation, Cement lined farm ponds etc.

## 6. A 10 point programme proposed by AF Ecology Centre to mitigate drought & combat desertification:

Dr. Y. V. Malla Reddy, Director, AF Ecology Centre proposed a “Ten Point Program” for drought mitigation in Anantapuram district. This Ten point program designed and developed included all the proposals & recommendations after considering the needs of the district holistically and aiming for a long term sustainable solution for the problems of drought & desertification

### 10 points.

- Provide Protective irrigation to rain-fed crops during dry spells through Ananta Water Grid for drought mitigation
- Promotion of rain-fed horticulture and agro forestry in 33% of cultivated area; tree crops are more drought tolerant and improve environment
- Increase fodder availability through afforestation and common lands development; vegetation improves environmental endowment and combats desertification
- Promote integrated farming systems (IFS) at each rain-fed household level; each rain-fed farmer to own at least 100 fruit trees and 2-3 cows/10 sheep in order to supplement income from annual crops
- Promote mixed/intercropping with millets and pulses and ensure food & nutritional security; provide locally grown food in ICDS, Mid-day meals and PDS; reduce food miles
- Shift green revolution model (HEIDA) to LEISA
- Processing and Value addition of agri-produce and provide remunerative prices
- Health security to all villages
- Education support to all rural students
- A time bound comprehensive 5 year action plan for development of Anantapuram district



The Director, AF-EC presenting the “10 Point Programme”

Each and every point of the ‘Ten point program’ was explained to the participants. It was submitted to the District Collector as declaration of the day while over 1200 farmers approved it with big applause. The District Collector, Sri. Lokesh Kumar acknowledged the effort of AF Ecology Centre in bringing the farmers representation backed by assessing and coming out with practical solutions and sincere effort. He assured that the declarations would be brought to the notice of the State Government.



## **7. Cultural Events:**

Short theme based skits were performed by cultural teams depicting the conditions of rural communities of Anantapuram district, significance of Sustainable Agriculture, watershed activities, rain fed tree crops which inspired the farmers, Government officials and the public. The show sent a strong message to all that over exploitation of natural resources by mankind leads to adverse climate change and every stakeholder should take part in reviving the conditions.

## **8. Stalls and Exhibitions:**

Several stalls were set up at the venue educating the farmers, media and public on issues related to drought and desertification. Miniatures of Ground water sharing program, rain-fed crop demonstration plots, Integrated Kitchen Garden model, Ananta Planter and the photos of various water & soil conservation structures attracted the visitors attention. These stalls helped in propagating the activities being implemented by AF Ecology Centre to public, media and Government officials. Media also took active role and helped in spreading the message that drought mitigation technologies & practices, rain fed multiple crop models and Ground water sharing arrangement as some of the solutions for the agriculture crisis in the district.

## **9. Conclusion:**

Unlike any public gathering, meeting of large number of small farmers is a rare occasion. Because of this, Government officials, Civil Society Organisations and media paid stern attention to this event. This event stood out as a forum for effective sharing of experiences, expertise, knowledge & information and getting an unbiased feedback and solutions which further were forwarded to policy makers and important stakeholder through the media.

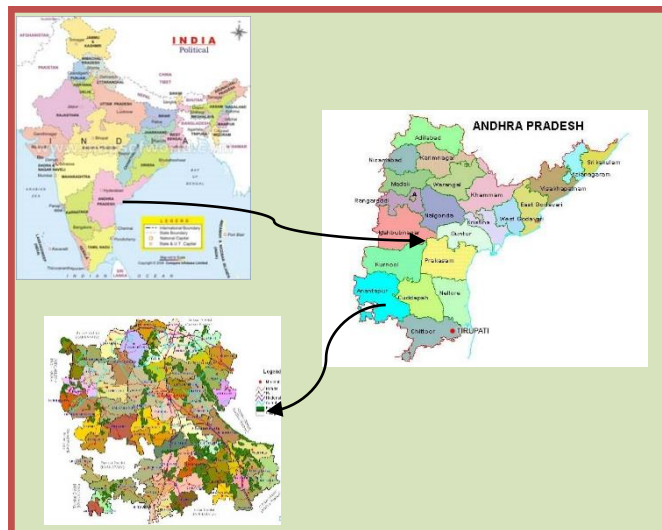
Media coverage spread the message to the entire district and the public were also sensitized. This campaign helped the farmers in trying and adapting different programs, activities recommended by experts and it also provided a platform for lobbying and influencing the state policies.

## Our Brief History

AF Ecology Centre was founded by Father Vincent Ferrer in 1982. Since then we have been involved in Rural Development. The programmes included watershed development, agriculture, drought management, non-farm livelihoods, gender and policy advocacy. We have made a substantial contribution since 1986 in Anantapur district with our Participatory Watershed Development Programme supported by EED (Germany) & ICCO (Netherlands). It was perhaps the largest participatory watershed programme by an NGO in India spread over about 300 villages, covering about 1.35 lakh ha of farm land and 60,000 farmers. We're known for our participatory approach and very high quality in watershed development on a sizable scale. The major interventions under the watershed programme included Soil and Moisture Conservation, Rain Water Harvesting, Horticulture, Rainfed Agronomical Practices, Farm Forestry, Bio-gas and Peoples Institutional Development.

Since 2007, we Shifted our programme to promoting Sustainable Agriculture. It was due to the Government initiating watershed activities in all villages in the District under MGNREGS. So we decided not to duplicate what Government is extensively implementing. However, we continue to implement participatory watershed development projects with the support from NABARD and IWMP (Integrated Watershed Management Project) & MGNREGS under Ministry of Rural Development, Government of India. We have been also contributing substantially to the effective implementation of MGNREGS by way awareness raising and empowering the labour to assert and access their right to employment and utilize the same effectively to improve productivity of their lands by undertaking soil and moisture conservation, farm ponds, rainfed horticulture, plantation etc.

We have made a significant contribution in influencing a favourable and enabling policy conditions for a people centred watershed development, rural livelihoods, gender, poverty alleviation, and rural employment (MGNREGS) in the State of Andhra Pradesh. We have been actively involved in various policy making bodies like Andhra Pradesh Water Conservation Mission, Andhra Pradesh State Commission on Farmers Welfare, APRLP, APREGS and Advisory Committee on Watershed Development Programme of Andhra Pradesh. Further AF has been actively involved in various consultations by the Ministry of Rural Development at National level.



### About Anantapur District and relevance of Sustainable Agriculture, Watershed Development & Alternative Livelihoods

Located in south-western corner of Andhra Pradesh, Anantapur District is the centre of rain shadow area in South India. It receives the least rainfall in the state of Andhra Pradesh, and the second lowest in India, after Jaisalmer in Rajasthan, averaging at 552 mm annually. It is one of the poorest districts in the country.

Anantapur farmers are largely dependent on chronically drought-prone, rain-fed agriculture; and mostly a single crop of groundnut in a year is sown in about 9 lakh ha under such harsh and agro climatic conditions. Of its geographical area of 19,00,000 ha, (largest in AP) totally 11,00,000 ha is the cultivated land; a vast 10,00,000 ha are rain-fed while only about 1,00,000 ha are irrigated, that too mostly under undependable tube wells and surface water bodies. This is the only drought-prone district with a tiny 10% of cultivated area under irrigation and a large 90% under rainfed farming.

With virtually no other non-farm livelihoods, Anantapur backwardness and poverty are well indicated in its severe rural indebtedness, high turn up of labour under MGNREGS, farmers' migration, seasonal migration and highest number of farmer's suicides in the country. The District has predominantly i.e., 6.3 lakh rainfed small and marginal farmers (93%) of the 7 lakh total farmers, mostly belonging to Dalits, Tribals and other Backward communities. About 20 per cent of the population comprises dalits and tribals, and 60 per cent comprises of backward communities. Malnutrition, illiteracy, illhealth, deprivation, caste and gender discrimination are predominant. Added to these social divisions, crime and discord between various factions and groups are common in the district.

Green Revolution model of agriculture, which is high-tech, high cost and chemical intensive is highly hazardous for Anantapur due to small holdings and frequent droughts. High pressure on groundwater resources and over exploitation is leading to undependable and unsustainable even to the meager irrigation of about 10%.

The above harsh agro-climatic and socio-economic conditions warrant an urgent and high priority for Sustainable Agriculture, Watershed Development and Diversified Rural Livelihoods.

AF sees it as challenging opportunity to make a difference. We believe that success in Anantapur district is a recipe for any other region.



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