PROGRESS REPORT

For the period 01.10.2013 to 31.03.2014

Submitted to

EED : Project No. : 20120225 G (2012-15)
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:

1. AF's 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.

2. 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).

3. 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.

4. 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.

5. 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.

6. 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.

7. 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

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<td>AEO</td>
<td>Agricultural Extension Officer</td>
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<td>Accion Fraterna, Ecology Centre</td>
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<td>BIFRSA</td>
<td>Bio-intensive Farming System in Rain fed Areas</td>
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<td>HEIDA</td>
<td>High External Input Destructive Agriculture</td>
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<td>HMV</td>
<td>Heavy Motor Vehicle</td>
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<td>ICRISAT</td>
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<td>MFTC</td>
<td>Multiple Fruit Tree Cropping</td>
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<td>Mahatma Gandhi National Rural Employment Guarantee Scheme</td>
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<td>System of Rice Intensification</td>
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<td>STO</td>
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GENERAL INFORMATION

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Project Title : Sustainable Agriculture & Diversified Livelihoods in AP (2012-15)

Project Number : BftW : 20120225 G
                 ICCO : 71-03-03-039

Project Period : 01.04.2012 to 31.03.2015

Reporting Period : 01.10.2013 to 31.03.2014

Date of the Report : 31.05.2014

Author of the Report : Dr. Y.V. Malla Reddy
1. DIRECTOR’S REPORT

1.1 Introduction
AF Ecology Centre has been consistently working with small and marginal farmers and farm labourers enabling them to cope up with droughts and effects of climate change. AF has been promoting Watershed Development, Sustainable Agriculture and Alternative Rural Livelihoods in its project area. It undertook various watershed development measures such as Soil & Moisture Conservation (SMC), Rain Water Harvesting (RWH), Common Property Resources (CPR) development, vegetation development, horticulture etc. Under Sustainable Agriculture, AF has been propagating diversified cropping models under rainfed conditions both for annual and tree crops. These cropping models, designed by AF, are drought resilient and cost-saving and also provide food and nutritional security for the families of small and marginal farmers. Further AF has been promoting off-farm and non-farm livelihoods activities for small & marginal farmers and for the landless. AF motivated and trained hundreds of youth in acquiring skills for alternative livelihoods and supported them in getting employment or in starting self employment activities.

AF strengthened the farmers groups called Sasyamithra Groups (SMGs) and their federations in project villages and provided capacity building support to their leaders at all levels. AF constituted this year a Apex Sasya Mitra Samakhy (ASMS), which is an apex body of all the CBOs at project level. ASMS is beginning to play an active role in planning, implementation and monitoring of the project activities. Further the learning and monitoring mechanisms like FFS and PGS are strengthened during the year. AF is promoting mutual cooperation among SMG members by facilitating them to exchange labour, implements, bullocks etc in order to save on costs. During the reporting period, AF organized a “Cooperative Mela” and also initiated 8 cooperatives in 8 villages.

1.2 Evolving as a Knowledge Based Organization
AF, with its team fortified with persons from different professional knowledge resources and hands on experience, is evolving more as a Knowledge Organization. AF, in collaboration with farmers and their SMGs, has been conducting farm based experiments for protecting rainfed crops to cope with low and erratic rainfall (drought situations) and to reduce cost of cultivation. Some of the innovative interventions taken up this year are Aqua Seed Drill, Anantha Planter, Multiple Crop Models, Bio-fertilizers, Bio-pest Management, Protective Irrigation, Bio-Intensive Farming, Low Carbon Farming, Soil Mulching, Moisture Retention in soil and Integrated Kitchen Garden. The outcome of these interventions were analyzed, documented, propagated and replicated. Further AF Ecology Centre has been actively collaborating with Regional Agricultural Research Bodies, Krishi Vignana Kendras, ICRISAT, Department of Agriculture in identification and dissemination of suitable technologies. With new, experienced and committed staff and with new innovative interventions aimed at mitigating droughts and sustained land productivity, AF is evolving more and more as a Knowledge Based Organization.
1.3 Anantapur district affected by severe ground water crisis:
Anantapur District has been facing consecutive hydrological droughts due to low rainfall and over exploitation of ground water. Almost all the surface water sources in the district had been dried up for many years. There are 192,000 deep bore wells in the district (As per Govt data), irrigating about 150,000 ha of land in the district. An estimated 80,000 bore wells out of 192,000 were dried up in the summer months of 2013. It resulted in wilting of irrigated crops including decades old tree crops like sweet orange causing severe economic blow to the farmers.

AF Ecology Centre’s response to water problem: AF Ecology Centre drew the attention of the Government and public on to the causes and consequences of the crisis, created awareness and suggested short term and long term remedial measures. The issue further was discussed with farmer groups i.e., SMGs, GSS, MSS and ASMS. AF emphasized in the campaigns and meetings about judicious and sustainable use of groundwater; the need for “groundwater sharing” and “social regulation in using groundwater”. AF organized a workshop with Scientists, District Authorities and Civil Society Organizations on Groundwater Management on 23rd November to highlight the crisis in the district. This workshop brainstormed to find a solution for Groundwater crisis in the district. (Please refer to Annexure 1: Workshop on Groundwater Management)

On March 22, 2014, the World Water Day, a major multi-stakeholder conference was organized by AF Ecology Centre with the central theme as “Water Crisis in Anantapur District”. The conference highlighted the causes and consequences of the water crisis, suggested remedial measures and stressed on the need for collective action. The World Water Day conference was attended by farmers, CSOs, media, water experts, the District Government Officers and elected representatives of the local bodies. (Please refer to Annexure 2 for a detailed report on the conference on World Water Day)

AF, by and large, succeeded in its efforts in a) creating awareness among farmers for minimizing the digging of new bore wells b) ensuring more judicious and responsible use of ground water as well as other natural resources by farmers, c) sensitizing and forcefully drawing the attention of Civil Society Organizations d) effectively drawing the attention of Government Agencies in general and Policy Makers in particular on the short-term and long-term measures needed in this regard.

1.4 The change in land use pattern and shift in cropping patterns continues:
The sowing area under mono cropping of groundnut in rainfed lands in the District is coming down gradually due to increasing costs of cultivation, continuous crop failure (droughs) and ineffective crop insurance for groundnut crop. Rainfed farmers are gradually losing interest in rainfed farming as it is getting increasingly vulnerable to droughts. So the land use pattern is gradually moving from drought vulnerable seasonal crops to perennial tree crops which are drought tolerant. The farmers are showing interest to go for perennial tree crops, particularly fruit tree crops in place of seasonal and annual crops. It is desirable change as it is not only beneficial to farmers economically but also
ecologically regenerative. Dry Land Horticulture (DLH) is extensively promoted under watershed programmes implemented by AF Ecology Centre. It is being scaled up by the Government under MGNREGA and other agencies like RDT. Mostly dry land fruit trees like mango, sapota, amla etc are being grown in rainfed lands. Rainfed farmers are getting financial support for pot-watering these plants for initial three years under MGNREGS. In the last 3 years, about 50,000 acres of land was brought under such tree crops in the district. Under the watershed projects implemented by AF Ecology Centre with support from NABARD and IWMP, 300 farmers with an extent of 950 acres of land took up tree cropping during the year. In the last 5 years nearly 5472 acres was brought under tree cropping in 18 villages covering 910 farmers through watershed projects.

A clear shift in seasonal cropping patterns is also now emerging from mono crop of groundnut to intercropping with food crops of millets and pulses. Though this trend is desirable from the point of food and nutritional security and sustainable land use, these crops are not yet economically attractive to rainfed farmers. AF started working on developing systems and models for sustainable and remunerative cropping designs suitable for dry lands of Anantapur.

1.5 Focus on innovative technologies and practices for drought mitigation:
AF Ecology Centre strives to try out and propagate innovative technologies and practices to mitigate drought in Anantapur district. During this year, AF initiated experiments with some more drought proofing technologies, like Ananta Planter, Aqua Seed Drill, Rakshaka Thadi and Productivity Enhancement Campaigns.

a) Ananta Planter: One of the main problems faced by rainfed farmers is their inability to complete sowing in time before the soil dries up. Generally in red-soils the moisture lasts only for 3 to 4 days after a good rain, by which time all the farmers would not be able to complete sowing for want of bullocks, tractors and implements. Ananta Planter is a tractor drawn implement developed by Agricultural Research Station, Anantapur. By using this implement, farmer can easily complete sowing much faster. The sowing can also be done during night time with this implement and one can sow 20 acres in a day as against about 5 acres with traditional equipment. With this implement farmers can sow Groundnut, Castor, Redgram, Jowar and other dry land crops. AF tested this implement on farmer’s fields in 2013 kharif season and the sowing could be completed in time, before the soil moisture dried up. The farmers felt very happy for finding such a highly useful implement. AF will extend this technology to more farmers in the coming season.

b) Aqua Seed Drill: This equipment was designed by Agricultural Research Station (ARS), Anantapur and was jointly tested on the field by AF and ARS. This equipment was designed to enable farmers to sow in time even in the absence of enough moisture in the soil. In Anantapur district when it fails to rain in July
(the sowing month), the farmers cannot sow resulting leaving majority of lands unsown. This equipment 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. AF and ARS tested this equipment during kharif 2013 crop season and found it working. AF tested this equipment with 5 farmers in 10 acres in Kuderu Mandal. The seed sown with this planter had 85% germination and survived for 20 days without any rain. Wherever there was inadequate moisture in the soil required for sowing, the Aqua Seed Drill added moisture and helped in better germination and a better growth of the plant. The farmers expressed their satisfaction and also suggested few improvements like the water flow rate should be regulated as per the soil condition. Some changes were made as per farmers’ feedback and with improved efficiency the equipment is ready to scale up in the coming crop season to other areas.

c) **Protective Irrigation:** Generally droughts occur due to missing of one or two showers (dry spells) particularly at the time of grain formation. A mobile micro-irrigation unit called Rakshaka Thadi (Protective Irrigation) was designed by AF Ecology Centre to provide protective irrigation to the crops during prolonged dry spells which threaten the crop. A water transport tanker (truck) fitted with micro-irrigation equipment (drip & sprinkler system) was tested successfully during 2013-14 on rainfed annual crops as well as tree crops. It was found to be beneficial in providing protective irrigation particularly to rainfed tree crops. The standards were fixed on how much irrigation needs to be given for various crops including tree crops. During this year protective irrigation was given to about 100 acres covering all the project mandals for groundnut, red gram and mango crops which yielded in very encouraging results in red gram crop. Protective irrigation was tested in 52 acres of red gram crop across the project. The cost of protective irrigation varied from farmer to farmer depending on distance of water source from the land. About 5000 liters of water was provided per acre spending Rs 500 on an average. There was an increase of 50 kilos of red gram yield per acre (each kilo priced Rs50/-) and farmer got Rs.2500/- as extra income per acre by investing an additional amount of Rs.500/- The farmer got a net additional income of Rs. 2000/- through 33% increase in yield. The demand from farmers is increasing for protective irrigation. AF started serious lobbying with the Government for its replication across the district.
d) Save Red Gram campaigns: In Anantapur District, Red Gram is sown as an inter crop along with groundnut in the months of June-July and is harvested in the month of February. After harvest of groundnut in November, the Red Gram crop is not given proper attention by farmers in protecting the crop from pests and diseases. So the yields of red gram crop are observed to be below optimum. AF Ecology centre did some field research and found that timely protection from pests and providing critical irrigation with small quantities of water (5000 litres/acre) would increase the productivity of red gram crop by 30% to 50%. The pest which causes high damage to the yields can be controlled by spraying neem leaves extract or vivax leaves extract at different intervals of the season. The preparation and usage of these leaf extractions is simple and very cost effective. As the extent of redgram was very huge, AF Ecology Centre initiated a mass campaign cum demonstration covering 214 villages across 8 mandals and named it ‘Save Red Gram Campaign’. In all the campaigns, rallies were organized with slogans, showing placards, thus attracting the entire farming community of the village. Awareness was created among farmers on the need for taking care of redgram and the simple measures needed to be taken for minimizing the yield losses. In addition to this, where ever there was prevalence of pest (Helicoverpa), demonstrations of spraying herbal concoctions were conducted. Farmers were encouraged to take up these immediate measures in small groups of 3 to 5 neighboring farmers jointly for saving on labour costs. AF directly demonstrated these practices with 148 farmers in 335 acres. The farmers groups such as GSSs, SMGs and PGS groups discussed about these campaigns in their meetings and campaigned intensively. In most of the cases, whole village gathered at one place; prepared the concoction and sprayed it on the redgram fields at a stretch. The entire cost involved was born by the farmers collectively. The results found were very encouraging. Approximately 2500 farmers participated in the campaigns and 1200 farmers sprayed the concoction covering 3000 areas of Red Gram crop. The mass spraying of vivax concoction controlled the sucking pest which causes flower drop, thus resulting in higher yields. This campaign could reinforce the good will, confidence and faith the farmers have on AF Ecology Centre.

1.6 Campaigns on enhancing crop productivity in Mango and Tomato:
In Anantapur District, there are large number of mango orchards in dry lands as well as under irrigation as a result of extensive promotion of dry land horticulture by AF Ecology Centre, RDT and the Government in last 15 years. Mango plantations were encouraged as they can withstand harsh drought conditions of the district. Though the extent of mango plantations had substantially increased, the farmers were not yet reaping optimum yields and market returns. The reasons for low yields of mango crop were studied by AF Ecology Centre and found huge potential to double the yields by adopting suitable crop management practices like mulching, pruning, pot watering at flowering, pest
management etc. AF conducted campaigns to educate the farmers on the low cost techniques and on the practices to obtain higher yields.

A huge campaign was organized at Kalyandurg on 21st December 2013 involving mango farmers. About 600 mango farmers participated in this campaign. Horticulture Officers from Dept. of Horticulture, experts on Sustainable Agriculture and progressive mango farmers were invited as resource persons by AF. Two of the eminent scientists in Horticulture Dr.G.Subbi Reddy, Rtd. Professor in Horticulture and Sri.Dhanunjaya, a dedicated Horticulture Officer were also brought as the resource persons for this campaign. In this campaign the resource persons suggested clear and simple measures to be taken up for various varieties of mango in the area in order to increase the yields substantially. They particularly emphasized on the need for watering at critical times like in winter for better flowering and in March for increasing fruit weight. Further the method of proper watering, remedies for most commonly encountered pests and diseases etc. were explained. The practices like land preparation, maintaining fertility, methods of enriching soil with organic manures, pruning techniques, measures to prevent spread of diseases, increasing the flowering and retaining the fruits, need of micro nutrients etc were discussed. The need for proper staking and mulching was also emphasized to protect from winds and to retain moisture. Many farmers enthusiastically exchanged their views and shared ideas like overcoming water shortage with innovative methods like using used water bottles for drip irrigation.

This campaign removed a myth from the minds of farmers that mango needs no management. Farmers were convinced that simple, proper and timely management activities would certainly enhance the yields. They learned about the grafting techniques, various mulching methods and planting models. This campaign benefitted most of the mango farmers in 4 neighboring mandals around Kalyandurg. AF Ecology Centre realizes that mango marketing is another area where farmers are losing heavily. This issue will be taken up with farmers in the coming years.

**Campaign on Tomato crop management:** Tomato crop is grown in the largest area under irrigation. A campaign was conducted for tomato farmers in Anantapur and in Atmakur covering about 800 farmers. The important management practices for higher yields of tomato were explained by the experts. There was a glut in the market at the time of campaign. This led to farmers loosing heavily on tomato crop. However, this situation created an opportunity to discuss with farmers to avoid growing en-mass a single crop and the need to go for diversified vegetable cropping for spreading the risk of glut in the market for a particular produce.

**1.7 Results of Rainfed crop demonstrations during 2013-14 crop season:**
Groundnut crop became less remunerative due to frequent crop failure, low yields and low market price. The natural shift moved from groundnut to other crop or even to keeping the land fallow. AF designed 9 alternate food based crop models suitable for Anantapur agro-climate with suitable mix of different millets, pulses and oil seed crops like Jowar, Bajra, Foxtail millet (Korra), Pigeon pea, Bengal gram, Green gram, Black gram and castor. All the crop models are diversified with inter crops along with vegetables keeping in view the food and nutritional security at the house hold
level and at the regional level. During the year, AF supplied all kinds of required seed to 6420 farmers. However, only 4241 farmers sowed the models in 4241 acres of rainfed lands due to lack of adequate rains during sowing season i.e June-July. The most accepted models were a) Red gram + castor, b) Korra + Redgarm, c) Green gram + Jowar. All these farmers practiced the AF Ecology Centre recommended LEISA practices. The natural enemies of pests were developed because of inter cropping and non usage of pesticides. These natural enemies controlled the pests and ultimately the farmers saved on cost of cultivation. The pest incidence was below threshold as the crop rotation broke the pest life cycle. One of the good things happened according to the women farmers was introducing vegetables in dry land agriculture. Consequently the farmers visited the land more often than before to collect vegetables for home consumption. With the introduction of intercropping system, farmers got more than two crops from same piece of land which not only served households nutritious food but also provided additional income. The results of these demonstrations this year looked very positive as the groundnut crop failed once again. Yields of the millets+pulses+vegetable inter crops were reasonably and provided some food grains for the households while fetching money from the markets. The cost of cultivation very much lesser compared to groundnut cultivation. All these crop models were climate friendly as they sequester carbon and enrich Soil Organic Carbon (SOC).

1.8 Results of Irrigated crop demonstrations:
Given depletion of groundwater, Rabi crops under irrigation came down by about 50% to 70% during this Rabi Season. In Irrigated crop demonstrations, AF concentrated on avoiding expensive and hazardous agro-chemicals and decreasing cost of cultivation through SA practices. AF introduced and demonstrated sustainable agricultural practices to break the life cycle stages of pests, thereby reducing pest incidence. Some of the practices adopted were trap cropping with castor for controlling tobacco caterpillar, trap cropping with marigold to control fruit borer, border crop with maize and jowar to arrest the movement of sucking pests and moths from field to field. AF extensively promoted spraying leaf extracts like neem, vitex, chilli and garlic extract etc for pest control in irrigated crops. These extracts are made from local resources, are cost effective and safe to beneficial insects. Inter cropping was encouraged to bring in natural enemies of pests which controlled pests. During the Rabi season this year, 3060 demo plots were taken up by 3060 farmers on irrigated lands. The crops sown in these plots were Groundnut, Paddy and Vegetables. The number of farmers practicing Sustainable Agriculture started to increase slowly, but steadily after getting positive results from the Sustainable Agriculture practices. The above results were shared in various group meetings and Farmer Field Schools. Education material on SA practices was prepared and circulated to all these farmers.

1.9 Strengthening of FFS and PGS:
Farmer Field Schools were conducted with about 30 selected farmers in all the 230 project villages around the principle of “learning by observing and practicing”. Some farmers enthusiastically participated in FFS and followed the decisions made in the sessions. There was a felt need to increase farmers’ participation in FFS, particularly of women. The cost effective and eco friendly SA practices were demonstrated in FFS
sessions. The participant farmers learnt preparation, usage and benefits of plant extracts for controlling the pests and diseases. Farmers were given choice in selecting plant extracts based on availability of material on their farm or in the village. The topics discussed in FFS sessions in this year included use of border crop for pest control, benefits of trap crop, identifying natural enemies of pests, suitable plant extracts, new sowing implements like Aqua Seed Drill, Anantha Planter etc. Ideal plant population, weed management, land preparation, correct seed rate, importance of mulching in retaining soil moisture, identification of nutritional deficiencies, growing crops without chemical fertilizers by using compost, identifying suitable crops for different soils, identifying different pests and diseases at an early stage, life cycles of insects etc were also discussed. The FFS sessions were found to be very helpful in understanding the crop cycles and propagating SA practices.

**Participatory Guarantee System (PGS):** AF encouraged and facilitated the FFS groups in following PGS protocols which helped in participatory monitoring of the SA protocols followed by the farmers. The PGS is a certification system done in participatory process by farmers themselves which enables the group members in taking up responsibility individually and collectively. PGS guaranteed that the appropriate sustainable agriculture protocols were followed by the farmers in the group and hence certified their produce as “organically produced”. This certified produce will definitely have better marketing opportunities in future. Orientation on PGS was given to the farmers. The staff were trained on facilitating the PGS. The process was initiated in all the 230 project villages and will be taken forward in the coming years.

**1.10 Rainfed Farmers Cooperatives:** AF-EC promoted 8 cooperatives of small rainfed farmers with an objective of achieving secured income for rainfed small and marginal farmers who are affected by consecutive droughts and are on the verge of giving up farming. The production in rainfed farming is very uncertain and uneconomical in Anantapur district. AF has been educating farmers on the need for mutual cooperation in reducing cost of cultivation and convergence between farmers in rainfed agriculture. In these rainfed farmers cooperatives, AF Ecology Centre would like to add and diversify the income opportunities like cattle grazing, dairy etc with cooperative spirit in order to benefit the small and marginal farmers through economies of scale. With this, their income sources would be diversified, their cost of cultivation would be reduced leading to livelihood security. With this objective, AF initiated the work with 8 cooperatives in 8 villages in the project area during the year. The 8 villages are 1) Kalagalla in Kuderu mandal, 2) Kurlapalli in Atmakur mandal, 3) Vasantapuram in Dharmavaram mandal, 4) Palabavi in Rapthadu mandal, 5) Devadulakonda in Kalyandurg, 6) Konampalli in Belguppa mandal, 7) Seegalapalli in Kundurpi mandal and 8) Yerraborepalli in Settur mandal. Each cooperative during the reporting period had about 25 families. The trainings and exposure visits to successful cooperatives were organized for all the members of the cooperatives. The preparation for registration of these cooperatives was started at the end of the year. The required information was collected. The draft bye laws were discussed and prepared in group meetings. The members were oriented on the requirements for registration like Share Capital, membership fee, Governance Structure, Board of Directors, roles and responsibilities of members and Directors.
etc. These cooperatives will be strengthened further and appropriate additional income generation and cost saving activities would be initiated during the year 2014-15.

1.11 Collaboration with Agricultural Research Institutes and Agricultural Universities: AF is collaborating with Acharya N.G.Ranga Agricultural University (ANGRAU) and ICRISAT for utilizing their services and for benefitting farmers in the following ways:

- AF is transferring the technologies developed by ANGRAU, KVKs to farmers with the support of ANGRAU & KVK.
- Scientists from the university were brought in as resource persons in various campaigns and training programmes and updated farmers with latest technology.
- AF is able to procure pure seed to farmers from Agricultural University which has qualities like pest and disease resistant, short duration to escape the drought and with stand in problematic soils.
- With these collaborations the farmer to scientist interaction became frequent and resulted in learning from each other. The needs and problems of farmers were fed into the research agenda. University is providing required information like weather rainfall data and forecasts of rainfall every day to us and we are transmitting the same to the farmers.
- AF is also facilitating ‘Groundwater Sharing Project’ in 2 villages with financial support from Dept. of Agriculture benefitting 30 farmers and irrigating 60 acres of rainfed lands without digging additional bore wells.
- AF is implementing two dry land agriculture projects with support from ICRISAT.
  a) **Agriculture for Improved Nutrition & Health** is also called “Aflatoxin project” which aims at increasing farmer and consumer awareness on aflatoxin hazards and also 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. During the reporting period, the crop systems for adaptation of aflatoxin project were continued with 10 farmers in 10 villages. The plant samples were collected periodically from these fields and were sent to ICRISAT for analysis. Storage of groundnut in multi layered, air-tight bags helped the farmers in safe storage of groundnut.
  b) **Resilient Dryland Systems** aims at improving the livelihoods of rural poor in fragile dryland areas, on sustainable basis, by enhancing productivity and resilience of dryland production systems through science based development intervention. The project is being implemented in 4 villages in Anantapur and Kurnool Districts. The villages are Yerraguntla...
and V. Bonthiralla in Dhone Taluk of Kurnool district and Mallapuram and Kurlapalli in Kalyandurg Taluk of Anantapur district. A retired Agricultural Officer is monitoring the progress of the project. Common Property Resources were identified in these villages and efforts were made to prepare these lands for pasture development. Soil samples were analysed for identifying the nutrient status of these soils.

1.12 Watershed Projects

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

Both the watershed programmes could result in significant positive impact in 3 important aspects. 1. All the villages did show visible impact on groundwater recharge and are able to cope with the groundwater crisis and the borewells started to perform better. 2) The land use is changing more from seasonal crops to perennial fruit tree crops, which is a good strategy for drought mitigation. 3) The livelihood opportunities created with livelihood fund for the landless and poor farmers are generating additional incomes to the families.

a) NABARD WATERSHEDS: 6 NABARD watershed projects are implemented in 6 villages of Kalyandurg mandal of Anantapur district. All these watersheds reached to Full Implementation Phase (FIP) and expected to be completed by March 2015. Soil and moisture conservation practices, rain water harvesting, dry land horticulture have been intensified as the project is nearing completion. Further under this watershed projects, a separate livelihood fund of Rs 7,349,950/- was provided as short term credit to 1048 families of landless and rural poor to take up various income generation activities. To ensure prompt recovery of loans 247 Joint Liability Groups (JLGs) were formed and members in groups provide mutual guarantee. All the 6 watershed development committees were converted into Mutually Aided Cooperative Societies and registered under 1995 APMACS Act 1995. This was done in view of future sustainability of watershed impact and management of livelihood fund in the post watershed implementation. Trainings were conducted to directors of all the 6 MACS on post-watershed management activities. Out of 1489 families, so far 1111 families became members of MACS by paying share capital of Rs 100/- and membership fee of Rs 10/- by each family. Thus an amount of Rs 122,210 was collected and deposited in respective bank accounts.

During the year 2013-14, dryland horticulture was taken up in 291 acres benefitting 175 farmers with a cost of Rs 501,137/-. Soil Moisture Conservation works like earthen and stone bunding, stone outlets, gully plugs, RFDS were taken up in 1342 acres benefitting 896 farmers with an expenditure of Rs. 9,168,000/-. Four water harvesting structures were constructed with expenditure of Rs 578,144/- benefitting 48 farmers through recharge of bore wells. Twenty four farm ponds and sunken pits were constructed benefitting 32 farmers with an expenditure of Rs 319,014.
b) **IWMP WATERSHEDS:** The 3 IWMP mega watersheds are being implemented by AF Ecology Centre covering 12 villages in 3 mandals. AF was rated by the Government of AP as the best performer for 3 consecutive years since 2010 in implementing IWMP watersheds. Muttala Watershed under IWMP completed all the phases and got recognition as the best performing model watershed in the state. During the year 2013-14, in IWMP watersheds, soil moisture conservation works like farm ponds, RFDS, trenches were taken up benefitting 168 farmers with an expenditure of Rs 5,927,000/-. Water harvesting structures like check dams, percolation tanks and dugout ponds were constructed with an expenditure of Rs 8,591,000/- generally benefitting the whole village by serving as Common Property Resources. Horticulture was taken up in 650 acres benefitting 154 farmers with an expenditure of Rs 15,100,000/-. 

c) **Treatment in reserved forest areas in watershed villages:** Normally the reserve forests exist in upland areas or ridge portions of the watershed. Treatment of watershed does not yield optimum result without treating reserve forests in uplands as per ridge to valley approach. As the reserve forests are under the control of Department of Forests and the Forest Conservation Act; it doesn’t permit other agencies to take up works in and the treatment of reserve forests. This was a policy issue AF EC and other NGOs across the country have been lobbying for long that enabling policy conditions must be created for treatment of RF areas. Finally it became possible atleast for IWMP Watershed Programme. AF in collaboration with other organizations like Centre for People’s Forestry held series of consultations with Forest Department to convince the Government. In the year 2013, the Principal Chief Conservator of Forests, AP Government issued circular permitting treatment of RF area existing in ridge of watershed villages through District Water Management Agency. AF EC pioneered treating reserved forest area in Muttala mega IWMP watershed. This is a big leap towards complete watershed management. AF along with other NGOs like Centre for Peoples Forestry pursued a policy change for positive impact.

AF EC is now collaborating with AP Forest Department to take up NRM activities in reserve forest uplands of Muttala village in 300 acres under MGNREGS. The Forest Department, Watershed Committee and AF EC prepared a detailed plan and budget for 3 years with an amount of Rs 16,000,000. An action plan was prepared for 2014-15 for Rs 320,000 which is under implementation. The water harvesting structures, Soil and Moisture Conservation activities proposed would increase vegetative cover, bio diversity, wild life and recharge of downstream groundwater table. *(Please refer to annexure 3 and 4 for summary of physical and financial achievements under NABARD and IWMP programmes)*

**1.13 Low Carbon Farming (LCF) project**

a) In collaboration with Environmental Defense Fund (EDF) and Fair Climate Network (FCN), AF established one GHG emission measurement laboratory and several small scale (< 1 acre) experimental farms that represented various baseline
and alternate farming practices for groundnut and paddy. AF developed alternate sustainable farm management practices for both crops with the goal of improving yield and farmer’s income, reducing annual GHG emissions as well as improving overall ecosystem services as compared with the baseline practices. The technical team in the lab completed the final analysis of 2012-2013 groundnut dataset and the results were submitted to a peer reviewed journal called “Agriculture, Ecosystems & Environment” for publication. After performing intensive sampling on ~40% crop growing days in order to establish seasonal N₂O emissions, it was found that there was a 35-50% increase in yield in a drought year and 50% reduction on GHG emission intensity (GHG emissions per unit yield) when farmers use sustainable farming practices as compared to mainstream high chemical input farming practices. The emission factor ranged from 1.5-3% and was much higher when compared to United Nations (IPCC) (1%) and Indian government (0.58%) estimates. The technical team was processing data from rice fields during the reporting period.

While long term monitoring might confirm the results, these technical studies did have important implications for the farmers in the Anantapur region. The alternate sustainable agriculture practices were found to be very effective in supporting farmer in the drought year of 2012-2013 and proved that alternate practices are better adapted to adverse climate change. By following jeevamrutha based farming practices, farmers increased their economic benefit by 70-120% with lower input cost and increased as compared to mainstream practices. However, a longitudinal research for about 5 years is necessary to arrive at firm conclusions on the subject. This technical work may offer potential that small scale farmers can contribute to climate change mitigation and when carbon offset methodologies are ready, farmers in the area can get carbon credits if their farming practices are properly aggregated, monitored, reported and verified by external parties.

**LCF extension with small farmers:** AF is continuing LCF pilot work in a cluster of 24 villages in Rapthadu and Dharmavaram mandals with about 1500 farmers in about 1500 acres (607 ha). LCF protocols were followed with required rigor and quality. The focus was on developing staff capacities, systems and practices on training the staff and farmers on LCF protocols. AF ensured that all the protocols of LCF were followed rigorously in order to stand against the testing by third party verification. AF will seek for a designated verification agency in the coming year to verify and validate LCF practices in 1500 acres (607 ha) of land. Once the prospects of carbon revenues seem clear, the program will be expanded to other SA farmers in the project.

**1.14 Policy Advocacy work of AF EC:**
AF Ecology Centre in collaboration with other NGOs and farmers organisations has been working on public opinion building and policy advocacy on important short term issues in Anantapur district like water crisis, crop insurance, community seed systems and input subsidy and also long term issues of drought and desertification in the district. Some of the policy issues pursued by AF during the year were:

a) **Crop insurance for groundnut crop:** The weather based crop insurance policy framework is still very uncertain. AF Ecology Centre has been lobbying for a transparent and effective policy framework for the crop insurance be it
weather based or yield based. Our argument with the policy makers has been that the “sum assured” under crop insurance should be equal to the “optimum yield” of a crop in a “good monsoon” year. Such changes in policy can encourage the farmers to go for cropping under rainfed conditions.

b) **Watershed activities in reserve forest areas:** AF Ecology Centre along with other organizations like Centre for People’s Forestry held series of consultations with Forest Department to convince the Government in allowing watershed activities in Reserve Forest lands. This effort has yielded result recently. (please refer to 1.12.c in this report)

c) **Anantha Jalavalayam (Anantapur water grid):** AF Ecology Centre has been advocating for filling the traditional water bodies of Anantapur with river waters of Handri-Neeva project which will benefit majority of farmers across the District.

d) Afforestation activities to be included activities in reserved forest areas and linking of rainfed agriculture activities under MGNREGS, so that farmers distress is eased to some extent.

e) AF has been demanding incentives for sustainable rainfed agriculture practices like compost making, bio-pest control and food & nutritional crops on par with conventional chemical intensive agriculture.

f) AF has been working for proper community managed seed systems, which is now being piloted by the Government of Andhra Pradesh

g) The input subsidy for farmers was one of the things lobbied by AF which was fortunately materialized and the amount was directly transferred to the bank account of farmers.

1.15 Visit of Directors from BfW to AF EC:

Mr. Ulrich Gundert, Continental Director of BfW and Dieter Pool, Communications Director, BfW, visited AF EC during 25 – 27 February 2014. They have visited both Watershed and Sustainable Agriculture activities of AF on the field and discussed with target communities about the impact of the earlier CRD funded programmes like watershed development, education, wealth etc., to understand the current project of sustainable Agriculture and Rural Livelihoods. AF also briefed them on how EEDs partnership contributed to the growth and development of AF and RDT for over 4 decades. The partnership did help in the evolution of various development approaches. AF detailed them on the evolution of the organization in the past 40 years and the present PME systems within the organization. The visitors appreciated the impact the organization has created in the lives of the poor people particularly Dalits & Tribals through earlier programmes as well as the present programme “Sustainable Agriculture and
Rural Livelihoods” and the organisation’s commitment to empower people and to mitigate drought and poverty in Anantapur District.

1.16 Lessons learnt from PME in the organization:
AF developed monitoring and feedback systems which helped in assessing the processes and progress of project activities, in drawing lessons and taking appropriate decisions. During this year, AF conducted 3 field monitoring visits during the months of October 2013, January and March 2014. The progress and processes for the specific activities for the specific period were collected from the field prior to the monitoring visit. The villages were selected randomly and monitoring was done by experienced core team members in a scientific way. The summary of findings and learning from this process are:

- The functioning of SMGs & UGs improved. The information regarding members, membership fee, decisions taken in meetings, attendance etc were available in 70% of SMGs. The level of awareness, participation, gender sensitivity and quality of meetings needed improvement. The concept of mutual cooperation did not take ground in SMGs.

- GSS and WDC functioning was far better than SMG and UGs. More meetings were conducted than planned. The attendance was found to be 70% but women participation was only 40% which needs attention.

- Equity is followed in all the activities of AF. Gender awareness and sensitivity is still low and needs to be strengthened.

- The financial transparency in CBOs improved drastically. All of them opened Bank Accounts and are maintaining records well. The recovery of loans and contributions was more than 95%.

- In SA program, increased farmer awareness was observed. About 30% of the farmers started to follow some or other protocols recommended by AF. The no of farmers shifting to SA practices is increasing slowly but steadily every year.

- In FFS and PGS programs, only 50% of the planned sessions were conducted as many farmers could not sow due to lack of timely rains. The quality of FFS needs improvement especially in AESA (Agro-Ecological System Analysis) and in implementing the group decisions. The attendance was only 50% and PGS process was in very initial stage.

- The farmer motivation for tree crops dwindled this year. This was mainly due to groundwater crisis as the farmers feared shortage of water for even pot watering.

- The outcome of AF activities varied from village to village and depending upon the functioning of CBOs in that particular village. In some villages it was only 30% while in some it was 80%. Most of sprayers supplied by AF were in need of repairs.

- The IKG emerged as one of the useful and successful activities. The community understood its usefulness. However, severe water scarcity this year restricted this activity to some extent.
Most of the field personnel are new untrained young graduates. There is need for orientation and training on AFs Vision, Mission, goals, objectives and activities and skills in implementation of activities

- KKs were found to be detrimental to development of community leaders from SMGs and GSS as in most cases they are not allowing CBOs to take responsibility. So, AF decided to discontinue the KK system and work directly with SMGs and GSS.

AF learnt from the above observations and took steps to strengthen systems on the field for better effect and impact.

1.17 The challenges ahead for next year.
The challenges in front of AF at present are the following:

1) To test and consolidate new technologies and practices for drought mitigation and sustainable agriculture.

2) To strengthen the CBOs and promote women leaders with training and capacity building. Enhance women participation in particular so that they assume higher responsibility in the program.

3) To improve the processes of PPIME in the field.

4) Retain and train grass root staffs who are mostly young and inexperienced youth. We need to orient, train and mould them as capable staff at cutting edge.

5) To stabilise systems of FFS and PGS in the field.

6) To stabilize the LCF protocol management.

7) We also have to look for the emerging opportunities in biogas CDM project and Low Carbon Farming Projects.
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:

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<th>OBJECTIVES</th>
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| 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 farmers 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:

|------------|------------------------------------------|------------------------------------------|------------------------------------------|
| 1) To reduce the cost of cultivation and mitigate drought (by diversified cropping) in | 1.1) 35% of 16000 farmer families practicing atleast 3 of 5 main sustainable | Of the 16000 small and marginal farmer families enrolled into AF’s SA program: During the reporting period October 2013 – March 2014  
- 3060 families (19%) | Of the 16000 small and marginal farmer families enrolled: During the reporting period April 2013 to March 2014  
- 4241 (27%) Farmers had adopted crop |
| 11200 ha of land belonging to 5600 farmer families through SA practices by 2015. | agriculture practices. | had applied bio-pesticides to their crops covering 1239 ha.  
- 3060 families (19%) had used bio-fertilizers like Jeevamritam to their crops covering 1239 ha.  
- 94 farmers had practiced alleys & Azolla in paddy in 48 ha and 9 families had practiced SRI in paddy covering 5 ha | rotation and diversified cropping covering 1717 ha.  
- 2820 families (13%) had used mechanical pest traps in their crops covering 1142 ha.  
- 5793 families (36%) had applied bio-pesticides to their crops covering 4639 ha.  
- 8180 families (50%) had used bio-fertilizers like Jeevamritam to their crops covering 5320 ha.  
- 268 farmers had practiced alleys & Azolla in paddy in 163 ha and 68 families had practiced SRI in paddy covering 34 ha. |
|---|---|---|
| The farmer families practicing any 3 of 5 SA practices by march 2014 were 3320 families in 1820 ha. | During the reporting period October 2013 – March 2014, Out of 856 SMGs formed 825 (96%) groups are functioning. | During the reporting period April 2013 to March 2014:  
- Out of 856 SMGs formed 825 (96%) groups are functioning.  
- Out of 856 SMGs 85 SMGs (10%) are practicing mutual cooperation in farming. |
| 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. | 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. | During the reporting period October 2013 – March 2014, LCF is being practiced by 1500 farmers in 1500 acres (607 ha). | During the reporting period April 2013 to March 2014, LCF is being practiced by 1500 farmers in 1500 acres (607 ha). |
| During the reporting period April 2013 to March 2014:  
- Out of 856 SMGs 85 SMGs (10%) are practicing mutual cooperation in farming. | | | |
2.2) The certificates are offered at the Indian carbon market. This activity has not yet started.

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.

During the reporting period October 2013 – March 2014
- 233 Girls have been trained in garment making
- 73 boys were trained in driving skills (63 in LMV and 10 in HMV)
- 70 youth were sent to skill development centers like APBIRED, TTDC, RUDSETI etc and trained on trades like Embroidery, Electrician etc.

During the reporting period April 2013 to March 2014
- 309 Girls have been trained in garment making and
- 212 Boys trained in motor vehicle driving.
- 70 youth were linked to other vocational training centers
- i.e 591 youth (79% of the planned 750) had acquired skills to diversify their occupation and of them, 222 youth (36%) have secured a job.

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:
- Tree crops programme in NABARD watersheds could bring in a change in land use pattern thus mitigating drought vulnerability and ensuring sustainable incomes. (Refer to case study 1)
- Groundwater sharing was practiced by small and marginal farmers in Korrakodu village. (Refer case study 2)
- The *Cooperative Seed Mela* created awareness on need of mutual cooperation and emphasized on the need for cooperatives (See report in Annexure 3)
- The FFS and PGS system were further consolidated.
- Millet and pulse based intercropping systems and Integrated Kitchen Gardens (IKGs) are providing food and nutritional security to families, particularly women and children. In some cases IKGs and food crops are providing an additional income to the farmer family.
- More farmers are now shifting to millets, pulses based multiple cropping system, rainfed tree crops, indigenous cost saving bio fertilizers, bio-pest management and composting.
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?

The sowing area of groundnut crop in rainfed lands is coming down and is replaced largely by castor, redgram, millets and other pulses. The dry land horticulture is increasing every year. Thus mono cropping of groundnut is changing (for better) towards a more diversified cropping; which AF Ecology Centre has been propagating and advocating vigorously.

The ground water depletion caused a severe crisis in irrigated agriculture in spite of dried up bore wells and loss of crops grown during the Rabi season. The ground water crisis is unprecedented in the last decade or so. Not only many short duration crops were affected but also the age old yielding tree crops were badly affected. The issue was highlighted and was taken to the notice of the Government by AF Ecology Centre, other NGOs and Media.

In general the cost of cultivation in agriculture is increasing every year while the productivity is coming down due to droughts and groundwater. Large patches of rainfed lands across the district are being left fallow. There is need for policy interventions both in the short term and long term in order to restore agriculture and redress farmers’ distress. However, AF’s program to strengthen the rainfed farming and small farmers with LEISA practices and through mutual cooperation is becoming more and more relevant.

2.7. Which methods did you use for assessing outcome and impact?
The output, 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. The outcome of the project indicators was measured periodically or at the end of every crop season as the case may be. These outcomes were assessed at regular intervals to understand the intended and unintended effects of project intervention. Appropriate sampling and research methods like Random Sampling, Purposive Sampling, Random Physical Verification, Focused Group Discussions, Individual and Group Interviews etc., were followed. The information was also 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.
3. ACTIVITIES:

3.1 AWARENESS ON SUSTAINABLE AGRICULTURE AND FACILITATION OF CBOS:
AF had developed suitable cropping systems and SA practices suitable for the agro climatic and socio-economic conditions of Anantapur district and has been promoting them through awareness campaigns. AF is intensively spreading awareness and building farmers’ knowledge and attitude on LEISA practices through campaigns, trainings, CBO meetings and exposure visits. AF is also creating awareness on climate change and its consequences on the agriculture and livelihoods; and the ways for mitigation and adaptation to climate change and droughts.

3.1.1 Campaigns on; (a) Sustainable Agriculture, (b) Gender and (c) Adaptation to Climate Change
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 (GSS, SMGs) and federations (MSSs) played an active role in organizing these campaigns. In these campaigns awareness was created on; (a) suitable cropping systems and SA practices including crop diversification with millets, pulses, and multiple tree crops, (b) Integrating cattle and livestock into the farming system and (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. Drought mitigation experiments in sustainable agriculture particularly under rainfed conditions and new initiatives to address drought were discussed in these campaigns.

- **During the reporting period October 2013 to March 2014**, 200 village level campaigns (93% of the planned 214) were conducted. 20,132 farmers attended (94% of the planned 21400) of which 10382 (51%) were women farmers and 6040 (30%) farmers were from SC/ST communities.

- **During the year April 2013 to March 2014**, 395 campaigns (92% of the planned 428) were conducted in 214 villages and in 8 mandals. 21,222 farmers attended (99% of the planned 21400) of which 10982 (52%) were women farmers and 5926 (28%) farmers were from SC/ST communities

- **Cumulative Achievement (April 2012 to March 2014)**: Since inception of this project phase (2012-15), 796 campaigns were conducted (94% of the planned 850) covering 21,560 farming families.

3.1.2 Trainings on (a) Sustainable Agriculture, (b) Gender and (c) Group dynamics & leadership development
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 sowing to harvest of the crop, so that the farmers were
able to observe, analyze and learn the dynamics of crop ecology throughout the season. The topics dealt in FFSs in 2013-14 included importance of diversified cropping, trap cropping, Jeevamrutham preparation and application, pest and disease management, understanding friendly & enemy insects and their life cycles, prevention and protection from various pests and diseases using local botanicals. The STOs facilitated the sessions with support of KK and GSS leaders. 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 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, 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 group.

These FFS groups are encouraged to follow Participatory Guarantee Systems (PGS) in order to ensure that all the farmers 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 has followed the practices as per the calendar or not. If any farmer does not follow the protocols the group will discuss with farmer and motivate him/her to follow protocols. The groups in some villages prepare Bio fertilizers & Bio pesticides on rotation for the whole group and use them by all group members.

**Crop based trainings:** Crop based trainings were organized for farmers on crop like groundnut, tomato, millet etc at cluster, mandal and area level in order to impart specific crop related SA practices.

**Trainings on gender, leadership development of women:** The gender and leadership trainings for GSS members were organized at cluster level, wherein 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 in family matters, cropping choices, livelihoods, women and child health etc were conducted. Experiential learning in group dynamics such as participation, conflict resolution, cooperation and leadership processes also were imparted through these trainings.

**During the reporting period October 2013 to March 2014,**
- 28 cluster level trainings (94% out of planned 30 trainings) were organized. 1200 GSS leaders (80% out of 1500) participated in these trainings out of which 688 (57%) were women. Of the total participants 350 members (29%) were from SC/ST communities.
• 950 Farmer Field Schools (55% of the planned 1712) were conducted in 214 villages. 4800 farmers (75% of the planned 6420) participated these FFS sessions. Out of them 2210 (46%) were women participants and 1320 (28%) farmers were from SC/ST communities. The achievement in FFS was low due to low percent of sowing in Kharif and due to non availability of water in bore wells during Rabi season.

During the year April 2013 to March 2014,
• 68 cluster level trainings (91% out of planned 75 trainings) were organized. 2900 GSS leaders and farmers (97% out of 3000) attended these trainings. Out of them 1600 (55%) were women. Of the total participants 836 members (29%) were from SC/ST communities.
• 2033 Farmer Field Schools (59% of the planned 3424) were conducted in 214 villages. 9820 farmers (76% of the planned 12840) attended these FFS sessions, out of them 4920 (50%) were women participants and 2725 (28%) farmers were from SC/ST communities.

Cumulative Achievement (April 2012 to March 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 3,000 GSS leaders and KKs.
• 5,056 FFS sessions were conducted (74% of the planned 6851) in 214 villages covering 12,000 farmer families.

3.1.3 CBO Meetings (SMG, GSS, MSS, User groups and WDCs):
SMG, UG, GSS, and WDC: There are 4 SMGs and 1 GSS 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 GSS and WDC meet twice a month. The STOs facilitate the meetings and functioning of SMGs and UGs and GSSs and WDCs. The topics discussed in the meetings were planning and implementation of various activities of sustainable agriculture, Watershed programs and practice of mutual cooperation. Selection of deserving and eligible beneficiaries for incentive based activities considering Gender & Social equity and their implementation was done by the SMGs and GSSs with the help of STOs. The management of the common equipment and services like sprayers, Sprinklers, NPM Shops etc was also done by GSS and WDC in each village.

MSS (Mandal Sasyamitra Samakhya): There are 8 MSSs functioning in 8 mandals in the project area. The MSS meetings were facilitated at Mandal level by Area Team Leaders (ATLs) and Agriculture Extension Officers (AEOs). The MSS members have been playing an important role particularly in organizing mandal level awareness campaigns such as International Women days, Drought and Desertification Days and Ecology Days. MSS members participate in participatory monitoring process conducted twice in a year. The teams of MSS members visit villages, selected randomly, and monitor the progress and impact of project activities. Gradually they are being involved in planning, implementation and monitoring of activities at
mandal level. The MSS discusses on policy issues in order to make farmer friendly and eco friendly agriculture policy environment.

**ASMS (Apex Saya Mitra Samakhya):** An Apex Saya Mitra Samakhya (ASMS) is constituted with 5 leaders from each of 8 MSSs 5 from WDCs and 5 progressive farmers who have passion for SA. This ASMS acts as an apex body of all farmers groups in the project. ASMS meet once in 3 months. ASMS provides inputs in the planning process and provides feedback on the implementation of various programme activities and on the outcome and impact of program activities. Further it also discusses about policy gaps and as an empowered body represents to Govt authorities on policy matters.

**During the reporting period October 2013 to March 2014,**
- 1248 SMG meetings (97% of the planned 1284) were conducted in 214 villages.
- 810 UG meetings (88% of the planned 912) were conducted in 16 villages.
- 1300 GSS meetings (101% of the planned 1284) were conducted in 214 villages.
- 192 WDC meetings (100% of the planned 192) were conducted in 16 villages.
- 48 MSS meetings (100% of the planned 48) were conducted for 8 MSS in 8 mandals.
- Two ASMS meetings were organized in October 2013 and February 2014
- 24 KK (Karyakartha) meetings (100% of the planned 24) were conducted.

**During the year April 2013 to March 2014,**
- 2490 SMG meetings (97% of the planned 2568) were conducted in 214 villages.
- 1368 UG meetings (75% of the planned 1824) were conducted in 16 villages.
- 2670 GSS meetings (104% of the planned 2568) were conducted in 214 villages.
- 384 WDC meetings (100% of the planned 384) were conducted in 16 villages.
- 93 MSS meetings (97% of the planned 96) were conducted for 8 MSS in 8 mandals.
- Four ASMS meetings were organized.
- 48 KK (Karyakartha) meetings (100% of the planned 48) were conducted.

**Cumulative Achievement (April 2012 to March 2014):** Since inception of this project phase (2012-15),
- 10544 SMG meetings (82% of the planned 12840) were conducted in 214 villages.
- 7292 GSS meetings (95% of the planned 7704) were conducted in 214 villages.
- 185 MSS meetings (96% of the planned 192) were conducted for 8 MSS in 8 mandals.
- 96 KK (Karyakartha) meetings (92% of the planned 96) were conducted.

**3.2 DEMONSTRATIONS ON SA CROPPING SYSTEMS AND PRACTICES IN ANNUAL AND TREE CROPS:**
In Anantapur District, mono cropping of groundnut for the past 40 years and increased climate variability together resulted in high incidence of pests and diseases, low yields, loss of bio diversity in crops and
turning more vulnerable to droughts. Breaking this mono cropping system and introducing eco friendly and farmer friendly and drought resilient cropping systems is the biggest challenge in the District.

Towards this objective, AF developed 9 diversified inter-cropping models of millets and pulses suitable for Anantapur agro-climate and demonstrated extensively these crop designs in the farmer fields with participation of farmers in all project villages in this kharif season. 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. AF supplied 15 varieties of seed (pulses, millets and vegetables) needed for these crop demonstrations to 6420 rainfed farmers who came forward to take up demo plots. Each demo plot was sown in 1 acre. 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 cropping systems were designed also keeping in view the objective of food and nutritional security at household and at project level. The important SA practices included were Jeevamritam application, use of botanicals, pheromone traps, border crops, trap crops etc for pest management. A handbook on cropping systems and SA practices for management of crop models was printed and circulated widely among the target group farmers.

**Seed Banks:** Seed Banks were managed in 127 villages by the respective GSSs. These seed banks were utilized in procuring and distributing quality millet and pulses seed to farmers based on their preference in addition to crop demonstrations. During the year 2013-14, a sum of Rs 600,000/- was utilized from these seed banks benefitting 2000 small farmers.

During the reporting period, Annual demonstrations of rainfed cropping systems were planned on a big scale with 6420 farmers in 6420 acres under rainfed conditions. Only seeds of millets, pulses and vegetable were provided to these small and marginal rainfed farmers to promote these cropping systems. The major costs such as ploughing, sowing, bio-fertilizers and bio-pesticides, weeding, harvesting etc were borne by the farmers themselves. During the Kharif 2013, these crop models were sown in 4241 acres by 4241 farmers. Remaining farmers could not sow these models due to lack of timely rains. Out of 4241 demo plots, millets crop were grown in 3099 acres and the rest of the models were groundnut inter cropped redgram. Selection of beneficiaries and the supply of seeds were done by SMGs and GSSs in all villages. These demonstrations created a lot of curiosity and lead to a continued debate on diversification of crops and SA practices in all the villages. Of the total plots sown, 28% were of SC community, 8% were of ST community and 3% were of women headed families.

During the Rabi season in this year, 3060 demo plots were taken up by 3060 farmers in irrigated lands. The crops sown in these plots were groundnut, rice and vegetables. AF provided extension services to these farmers on adopting SA practices. FFS were organized; education material on SA practices was prepared and circulated to all the farmers.
Cumulative Achievement (April 2012 to March 2014): Since inception of this project phase (2012-15), 12,420 farmers tried SA practices in 12,420 acres. Of them 6,420 are rainfed farmers and 6,000 farmers are irrigated farmers. Irrigated farmers had tried in 2 seasons.

3.2.1 Non-Pesticide Management (NPM)

The purpose of Non Pesticide Management (NPM) is to dispense with agro-chemicals which are expensive and hazardous and promote locally available cost effective and eco friendly practices of pest management. AF has been promoting NPM methods to reduce the cost of pest management and to grow healthy chemical free crops. The NPM practices are also demonstrated as part of demo plots.

AF helped GSSs in setting up 26 NPM shops in 26 project villages to provide low cost local made NPM inputs to farmers. These shops were managed by entrepreneurial rural youth trained in Sustainable Agriculture and in preparation of bio-manures and bio-pesticides with locally available resources. The Pest traps, Bio-pesticides, Herbal pest repellents and Jeevamritham were available in NPM shops for sale. At present only 10 NPM shops were functioning at different levels in 10 villages. While some of them are operating only in kharif season others are operating based on customer orders. Remaining shops were closed as the enterprises were too small and were not economically viable.

In villages where NPM shops are not present, AF encouraged small group of 4 or 5 farmers to prepare the bio-pesticides on rotation and share among themselves. The cost of such preparations ranged from Rs 5/- to 30/- per liter depending on the input costs. Thus the cost effective and safe bio-pesticide & bio-fertilizers are now available to small farmer in their own village.

Installation of Pest traps (Pheromone traps & Color boards).

Pheromone Traps and Color Boards were used to monitor and control the incidence of pests and to trap them mechanically before they are multiplied. Bird perches were set up for birds to sit on them and prey on pests in the fields. **During April 2013 to March 2014,** 2820 families (44% of the planned 6420) installed Mechanical Pest traps like pheromone traps, white & yellow boards and bird perches in their crops covering 1142 ha (44% of the planned 2600). Of them 875 farmers (31% of the farmers covered) were from SC & ST families. All the farmers installed bird perches with their own costs.

Application of Bio-pesticides:

Preparation and application of Bio-pesticides and pest repellants with locally available herbs, spices and cow urine were demonstrated to the farmers. The power sprayers were available with each GSS in all the 230 villages and were used by farmers for spraying Bio-pesticides. **During the reporting period October 2013 to March 2014,** 3060 families (19%) applied bio-pesticides (various decoctions) to their crops covering 1239 ha. Of them 1012 farmers (33% of the farmers covered) were from SC & ST families. **During the year April 2013 to March 2014,** 5793 families (54% of the planned 10700 families) applied various decoctions as Bio-pesticides to their crops covering 4639 ha (103% of the planned 4500 ha). Of them 1826 farmers (31% of the farmers covered) were from SC & ST families.
3.2.2 Promotion of Bio-fertilizers

During the reporting period October 2013 to March 2014, 3060 families (19%) used bio-fertilizers like Jeevamritam to their crops covering 1239 ha. Of them 1012 farmers (33% of the farmers covered) were from SC & ST families. Of these, 701 farmers started preparing compost to be used for the next season. AF provided part of the amount incurred for making compost like digging the pit, collecting organic material, filling it and maintaining it.

During the year, April 2013 to March 2014, 8180 families (76% of the planned 10700 families) used Bio-fertilizers like Jeevamritam to their crops covering 5230 ha (81% of the planned 6420 ha). Of them 3184 farmers (39% of the farmers covered) were from SC & ST families.

Cumulative Achievement April 2012 to March 2014: Since inception of this project phase (2012-15), the number of farmers using mechanical pest traps, indigenous Bio-pesticides and Bio-fertilizers had been changing from one crop season to another due to the nature of crops and factors like rainfall, crop rotation etc. However the number of farmers adopting these practices on their own has been growing gradually.

3.2.3 Promotion of Rain fed Farmer Cooperatives

AF – EC promoted 8 Rainfed Farmers’ Cooperatives in 8 villages across 8 mandals under MACS Act. After studying various models of farmer cooperatives, AF EC focused on organising a certain model of cooperative with rainfed farmers with an objective of creating livelihood security for rainfed farmers who are affected by consecutive droughts and are on the verge of giving up farming. An experienced staff member was recruited to take this activity forward.

An exploratory workshop was conducted on 8th July 2013 involving farmers and NGO leaders to understand the situation, explore current opportunities and to finalise a suitable model of cooperative. Following this in next 4 months, a series of small group meetings were conducted in about 20 villages to make the members understand current situation, need for a cooperative, benefits of cooperation, eligibility criteria for becoming members, contributions etc. Finally 8 Cooperatives were promoted in 8 villages with 25 members in each Cooperative. One village was selected from each of the 8 mandals. The 8 villages selected are 1) Kalagalla in Kuderu mandal, 2) Kurlapalli in Atmakur mandal, 3) Vasantapuram in Dharmavarm mandal, 4) Palabavi in Raphadu mandal, 5) Devadulakonda in Kalyandurg, 6) Konampalli in Belguppa mandal, 7) Seegalapalli in Kundurpi mandal and 8) Yerraborepalli in Settur mandal.

The activities like identification and capacity building of farmer groups, Need Assessment, Baseline Survey and Livelihood situation analysis were completed during the reporing period. The groups were further made into small sub groups of 5 members and a leader was selected for each sub group.

Training was organized for all the members of 8 cooperatives on principles and functioning of cooperatives and APMACS Act by Mr.Swamy Rao, an experienced consultant on cooperatives. A total of 134 members including 59 women from 6 villages attended this orientation programme from 6th to 8th Jan 14.
To understand the scope and impact of a successful cooperative, 172 members including 74 women were taken for an exposure visit to 3 successful cooperatives in Karimnagar, Waragal districts of A.P state during January 2014. This visit increased the motivation levels of the members very much.

In collaboration with CSA, AF organized a Cooperative Seed Mela on 6th & 7th Feb at Ananatapuram. Representatives from about more than 20 cooperatives, Govt. officials, CSOs and farmers participated in this Cooperative Mela.

The groundwork for registration of these cooperatives was completed during the reporting period. The formats required for information collection were circulated. Bye laws were prepared and circulated for discussion. The members were oriented on the requirements for registration like share capital, membership fee, structure, BoD etc.

3.2.4 Tree Cropping Models under rainfed conditions

AF believes that tree crops in rainfed lands provide sustainable income to the drought affected small farmers and thus provide better livelihood security to rainfed farmers of Anantapur. Hence AF is campaigning for rainfed tree crops extensively and advocating that every rainfed farmer should have at least 30% of their land under various economically viable tree crops as safety net against the annual crop failures due to droughts. AF designed some tree-based cropping models suitable for Anantapur agro climate and socio economic conditions, that are drought resistant, eco-friendly and remunerative. They are

a) **Integrated Farming System (IFS) for Rainfed Lands** is a tree crop model in which annual crops, fruit trees, biomass trees, fodder trees and small unit of dairy animals or small ruminants would be integrated in a complementary manner in one hectare of rainfed land.

b) **Bio-intensive Farming System in Rain fed Areas (BIFSRA)** is a model which aims at producing adequate bio-mass on farm for mulching the land particularly during summer months, to avoid exposure of soil to sun, rain and wind. This mulch also decomposes into the soil and improves the soil organic matter (SOM) and soil biotic life and minimizes the need of any additional manure. It holds the moisture for longer periods and thus the crop is less stressed for moisture under rain fed conditions.

c) **Multiple Fruit Tree Cropping (MFTC) plot** has multiple rainfed fruit tree crops, like mango, sapota, amla, custard apple etc. and a mix of bio-mass yielding trees in plots of a size of one to two and half acres. This model is expected to provide continuous income all through the year, perennially, and add tree diversity to the agro-ecology after 3 to 4 years.

d) **Multiple Tree Crops in wastelands**: Tree crops are designed for so called wastelands in order to make the ‘Wasted Land’ into an economically and ecologically productive one. AF developed a tree cropping model suitable for wastelands with a mixture of fruit bearing, fodder, fiber and biomass yielding trees which will grow well in rain fed conditions and as well in problem soils.
like saline soils, rocky soils etc. This turns wastelands into green and productive lands and enhances farmer incomes and livelihood security.

**During the reporting period October 2013 to March 2014,** 80 new tree crop plots were initiated with 80 farmers in 200 acres. These farmers were supplied with required varieties and quantities of saplings and also provided financial support to dig pits. IFS plots were taken in 16 acres, BIFSRA in 64 acres, MFTC in 52 acres and Wasteland plantation in 68 acres. As on 31st March 2014, the survival of plants in rainfed tree crop plots is 70% due to lack of water availability. AF will support farmers for gap filling in the coming rainy season.

**Cumulative Achievement (April 2012 to March 2014):** Since inception of this project phase (2012-15), pot watering support was extended to 45 plots and new plots were set up in 200 acres.

### 3.2.5 Home based activities (Kitchen Gardens and Backyard Horticulture)

AF is promoting home based activities such as Kitchen Gardens and Backyard Horticulture to add to household food and nutritional security. During the reporting period, vegetable seed was provided for existing Kitchen Gardens.

**Integrated Kitchen Gardens:** AF designed a small drip irrigation system for kitchen gardens which saves water and also useful in getting high yields. This is called Integrated Kitchen Garden (IKG) which aims at providing all the essential nutrients required for a family. An IKG set consists of water tank of 200 ltr capacity, drip set and seeds of various vegetables.

During the reporting period, as an experiment, 300 IKG systems were set up in 150 villages and most of them are functioning well and providing vegetables required for the family and are even able to share with neighbors. All the beneficiaries were given an on location training for setting up and maintaining IKGs properly. During the summer months, there would be a scarcity of drinking water. We have to see how the families manage and then will decide on the scope to scale up this activity.

### 3.3 ADAPTION TO CLIMATE CHANGE:

**LCF (Sustainable agriculture) practices by Farmers:**

**During the reporting period, October 2013 to March 2014,** LCF was practiced by 1500 farmers in 1500 acres. 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. Extensive demographic data is being collected in these villages. GPS survey work was initiated. Corner stones were fixed at corners of LCF plots.

**LCF Research:** The research is going on with measuring the emission reductions in Paddy and groundnut crops with different package of practices. The research needs to be continued for another 3 or 4 seasons to see the trends in emission reductions. EDF is providing financial support, scientific input and monitoring this highly scientific research project.
DIVERSIFIED LIVELIHOODS

The objective of the program Diversified Livelihoods is to develop job-oriented skills among under-educated rural youth and rehabilitate them by facilitating their access to skill-based employment for occupational diversity and occupational mobility. The program will not only reduce the dependency of youth on family but also give them an opportunity to earn and support their families.

3.4.1 Promoting Rural Youth as Entrepreneurs

AF-EC is promoting rural youth as entrepreneurs and encourage self employed through skill trainings in Garment making, Motor Vehicle Driving and accessing vocational trainings from other vocational training institutes like APBIRED, TTDC, RUDSETI etc. During the reporting period a training session on enterprise development was given to rural youth to motivate them to start own businesses in agri-processing and marketing.

3.4.2 Job-Oriented Skills Trainings for Rural youth in Garment making and driving

During the reporting period October 2013 to March 2014,

- Four tailoring courses were conducted in 4 villages. Through these centers, 233 Girls were trained in garment making of whom 118 girls (51%) were from SC/ST communities. 60 Girls started earning Rs 2000 per month through self employment.
- Two LMV courses and one HMV course was conducted. In these, 73 youth were trained (63 in LMV and 10 in HMV). Of them 47 youth were from SC & ST communities. Out of youth trained 25 secured jobs.
- 70 youth were sent to skill development centers like APBIRED, TTDC, RUDSETI etc and trained on trades like Embroidery, Electrician etc. Of them, 41 youth (59%) were from SC/ST communities. Of these trained candidates, 57 have got jobs.
- A traffic awareness program was organized on 24th January 2014 by AF to inculcate the traffic awareness and discipline to all the trainees of AF Driving School and AF’s vehicle drivers. The Motor Vehicle Inspectors from Transport Department and other officials provided orientation to the participants.
- Two visitors from BfdW, Germany Mr.Ulrich Gundert, & Mr.Dieter Phole visited AF Driving School on 25th February 2014 and participated in a valedictory function for driving school trainees. They also addressed the trainees and distributed certificates and driving licenses.

During the year, April 2013 to March 2014,

- 591 youth (79% of the planned 750) acquired skills to diversify their occupation and of them, 222 youth (36%) earned a job.
- Eleven tailoring courses were conducted in 10 villages. Through these centers, 309 Girls were trained in garment making of whom 233 girls (75%) were from SC/ST communities. 59 Girls started earning Rs 2000 per month through self employment.
- Four LMV driving courses were conducted in Anantapur and Kalyandurg Driving schools. Two HMV driving course was conducted in Anantapur Driving School. 212 Boys were trained in Motor Vehicle Driving (192 in LMV
& 20 in HMV), of them 139 boys (66%) were from SC/ST communities. Of the total boys trained during this period, 81 boys started earning 4500 per month through employment.

**Cumulative Achievement (April 2012 to March 2014):** Since inception of this project phase (2012-15), 1109 youth (52% of the planned 2134) had acquired skills for diversifying livelihood and of them 494 (45%) youth earned employment.

3.5 POLICY ADVOCACY ON SA

AF Ecology centre focused on Public opinion building and policy advocacy on important immediate issues like water crisis, crop insurance and input subsidy and also long term issues of drought and desertification in the district. The groundwater depletion affected many farmers this season. The weather based crop insurance policy framework is still very uncertain. AF Ecology Centre has been lobbying for a transparent policy framework for the crop insurance be it weather based or otherwise. The input subsidy for farmers fortunately was materialized and the amount was directly transferred to the farmers.

A concept paper with a 10 point programme to combat drought & desertification was prepared and presented to concerned policy makers. The policy makers were enlightened on how MGNREGS programme could be tailored to fight drought & desertification in the long term.

**World Water Day:** World Water Day was organized on March 22, 2014 by AF Ecology centre with central theme as water crisis in the district in order to highlight the causes and consequences of the crisis and suggest measures for short term and for the long term. The World Water Day was attended by farmers, CSOs, media, water experts, the Government machinery and elected representatives of the local bodies.

**International Women Day:** International Women Day was organized in all the 4 field areas. About 4000 women participated and celebrated the event. MSS leaders took initiative in organizing the events.

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. 01.10.2013 to 31.03.2014, 7 staff members (5 men and 2 women) resigned for various reasons and 9 candidates (8 men and one woman) were newly recruited.
- Totally, 7 staff members (5 STOs + 1 Lab Asst + 1 computer operator) resigned for their posts, for personal reasons.
- Totally, 9 staff members (2 Agri specialists + 1 PME Associate + 1 ATL + 5 STOs) joined the organization.
- At present, AF has 30% women staff (24 out of 80 members).
5. Change in Development Context and Problem Analysis.

5.1 Are there important changes in the direct Political Environment since the inception of the project?
- No important changes in the Political Environment.
- The state of Telangana had been carved out of state of Andhra Pradesh with 10 districts. The state of Andhra Pradesh will now have 13 remaining districts. The new Telangana state will come into existence from 2nd June 2014. Hyderabad which was the capital of AP will now be common capital of both states for another 10 years. However, soon the Govt will decide which will be the capital city of Andhra Pradesh and start building the infrastructure required for a capital city.

5.2 Are there important changes in the Direct Social Environment since the inception of the project?
- There is no change in Social Environment.

5.3 Are there important changes in the Direct Natural Environment since the inception of the project?
- There is no change in Natural Environment.

5.4 Do those changes have implications for the relevance of the project?
- The relevance of project is still intact.

5.5 Do those changes have implications for the project goal?
- There are no implications for the project goal.

5.6 Do those changes have implications for the project objective?
- There are no implications for the project objective.

5.7 Is the underlying problem analysis of the project still valid?
- Yes. The underlying problem analysis of the project is still valid.

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?
- There is no need for changing the planned activities.

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 capacity building of staff, gender mainstreaming and in documentation.

6.4 What are the lessons learned? Please refer to gender equality issues.
- There is a need for an effective MIS for better project management.
- Strengthen PPIME processes for improved organizational efficiency and achieving project objectives.
- CBO strengthening is required so that they take responsibility in the program and ultimately own it. AF has understood the Karyakartas are not allowing the CBO to take responsibility. So from April 2014 the KK system has been discontinued. This will allow CBO leaders to take more responsibility which will strengthen CBOs.
• The gender aspect needs reinforcement both in the organization and in the program. A committee has been formed to address the grievances of sexual harassment in the organization.
• The grass root staffs, who are mostly young and inexperienced youth, need intensive trainings, proper orientation and regular mentoring.
• Stabilize FFS and PGS systems.
• LCF protocols and systems to be implemented with rigor which can stand for third party verification.
• There is urgent need to draw the attention of farmer organizations, civil society and Government on deepening water crisis in the district.
CASE STUDIES
Case study-1
Water scarcity – An ever grappling issue for the villages of Anantapuram district.
A brief case study of Pampanur Thanda.

AF-Ecology Centre has been working to get the attention of stakeholders on issues of Anantapuram District by raising voice at appropriate forums. AF does not restrict itself just to give details of an issue but also influences policies to a great extent. World water day was conducted on 22nd March 2014 by AF-Ecology Center at Anantapuram drawing around 1200 farmers and other stake holders like environmentalists, CSO, Government Agencies, Writers, NGOs, etc. In this forum the severity of water crisis in Anantapuram district was brought out clearly by Sasya Mithra Groups from 10 different project villages. Pampanur Thanda is one such hamlet whose condition was presented by Grama Sasyamitra Samakhya representative Mr. Suryanarayana Naik. The situation which is similar in many villages of the District could draw enough attention from all the people.

Pampanur Thanda, a tribal habitat that has 172 families is facing a threat that questions its very existence in the wake of serious water crisis. The village has a population of 732 depending mostly on rainfed farming along with cattle and small ruminants. This village has four check dams, 14 farm ponds and one small pond to recharge groundwater in the village. To meet the drinking water needs of people and cattle, one drinking water over head tank was constructed under Satya Sai Water Project.

The rainy season of the year 2013, Pampanur thanda received scanty rain fall less than 300 m.m, mounting severe stress on existing water sources. All the 14 farm ponds did not receive any water during monsoon of 2013. The supplies from water tank could not meet the domestic water needs forcing the villagers to get from other neighboring villages like Pampanur, Y.Kothapalli. The cattle were taken to other villages having water sources to quench their thirst.

Pampanur thanda had 41 bore wells and 28 more have been dug in this year by spending Rs 7,40,000/-. But, at present only 18 bore wells could supply water to irrigate only 18.5 acres with crops like Tomato, Chilli, Banana and Ground nut. Only 16 farming families have adequate water facility to pursue agriculture, forcing all other families to migrate in distress seeking some employment during summer months.Adults belonging to these families go to Anantapuram town every day in search of labor in construction works as daily wage employees.

6 famers of the village earned Rs 100000 for an acre of Tomato grown in 25 acres during Kharif, triggering an intense urge among other farmers to go for 28 new bore wells in this year alone. Due to receding ground water level, more than 35 bore wells dried up and could not supply any water. Added to this, nose dive in price of Tomato also hurt 30 farmers badly. The earnings as daily wage labor that a farmer could make being the only source of living for farming families depicts the scenario. 100 work days per family in a year under MGNREGA got over soon leaving villagers puzzled for the rest of the year and desperately seeking employment elsewhere.
The villagers are now in a distress and even proposed to abandon the village in near future if no steps are taken in restoring drinking water and water for irrigation facilities. Villagers themselves recognized some potential solutions to overcome these problems. They are 1. Repair and restoration of existing check dams to increase water holding capacities 2. More Farm ponds are to be constructed to increase the level of ground water 3. Storage capacity of the drinking water tank to be increased. 4. Water to be drawn from Jeedipalli Reservoir for irrigating lands during critical periods.

AF-Ecology Center has brought the problem to the notice of the Government, including the solutions suggested by the local community and pursuing further together with Grama Sasyamithra Samakhya.

**Case Study – 2**

**Watershed Program- Contributing to drought mitigation in Anantapur District**

Land use changes from vulnerable seasonal crops to drought resistant perennial tree crops.

In Anantapur District 90% of 11lakh acres of cultivated land is under rainfed conditions. The rainfed land is used for growing monocrop of groundnut. It is grown during monsoon as seasonal crop between July-November which is highly vulnerable for drought; resulting in only one or two crops in 5 years. About 90% of the rainfed farmers are small and marginal. This is the major cause for crisis in agriculture resulting in severe distressing conditions for rainfed farmers.

Watershed program activities in Bhattuvanipalli village of Kalyandurgam mandal brought significant change in land use since the year 2003. This village is a habitat for 197 families, mostly (>85%) dependent on rain fed farming. Watershed program with support from NABARD has been implemented by AF Ecology Center. The watershed program follows a participatory approach and focus on soil moisture conservation, rain water harvesting, vegetation development, Dryland Horticulture and additional livelihoods for the landless and other poor. It has brought much desired change in land use, besides impacting on Soil moisture conservation in farm lands, rain water harvesting bodies recharging the ground water, vegetation development across the watershed area, overall improving ecosystem and land productivity enhancement. In this short report the impact of rainfed horticulture is focused.

AF Ecology Center took up the rainfed horticulture activity with high priority under watershed program. AF Ecology Center firmly believed that perennial tree crops grown under rainfed conditions will mitigate drought and as well greatly influence the local ecosystem of the watershed area. The rainfed trees like Mango, Custard apple, Sapota, Tamarind, Jamoon etc. that are known for their resilience in harsh drought conditions can turn out to be a secure income source for the farmer.
Additionally these trees offer enough green cover (which is much wanted) as source of instant biomass, serve as fodder for small ruminants.

AF Ecology Centre motivated the local farmers to grow tree crops which would ensure farmers coping capacity in drought years, provided the farmers ensure survival of young trees with pot watering for the first three years. 94 rainfed farmers came forward to grow tree crops in 475 acres. 36110 plants mainly mango were planted under watershed program with all care, following the set guidelines that start right from marking, pitting, staking and providing pot watering.

Generally there are three reasons why farmers would not come forward for taking up rainfed horticulture: a) It has a long gestation period b) It is requiring high initial investment c) Pot watering and protecting the trees in the absence of assured source of water is big challenge. The support assured under watershed program for initial investment and particularly for pot watering encouraged the farmers to come forward for this program. However, when they grow horticultural tree crops in their land, farmers can still continue to grow their seasonal crops like Groundnut in between the rows for next 5 years or more. There by no loss of seasonal crops.

Convergence with Government and RDT has resulted in increase in the acreage under dryland horticulture in another 240 acres with 16800 plants belonging 62 farmer families. Regular extension support for proper crop management and yield enhancement in the form of individual interaction and trainings provided by AF Ecology Center has been very helpful for the farmers.

“Our land used to get exposed to sun, wind and rain round the year reducing its fertility. Now because of green cover and the biomass our land started recovering. Besides Mango we continue to get our regular seasonal crops as intercrops in the same field” Bommanna, a farmer shared his experience with tree crops.

By now (2014) 17050 mango trees have started yielding and supporting about 100 farmers with regular annual income and mitigating drought impact on these farmers. The produce from these orchards is presold for agreed amount of money at flowering stage itself. The income ranged from Rs 45000/- for 150 trees to Rs.2,25,000/- for 600 trees based on size and yield of a particular farm. This program has assured farm income to the farmers and improved their living standard. It also added ecological benefits by the change in land use pattern. This land of about 700 acres belonging to more than 150 farmer families was all used earlier only to grow seasonal crop of groundnut as monocrop, which they continue to go as an inter crop with mango in between the rows. In next 3 years all the plantations will come for yielding and all farmers would have assured income and would be able to cope with droughts.

“I have witnessed contrasting situations in my life time, abundant availability of mango tree leaves for usage on auspicious occasions (like festivals, marriages etc) in my childhood and after 15 years I could not trace a mango tree for its leaves. This caused me both worry and astonishment. As how the things have changed for better now again, our village landscape is filled with mango gardens” Mareppa, resident of Bhattuvanipalli recollected.
The land use change as a strategy for drought mitigation under watershed program in Bhattuvanipalli village has motivated other surrounding villages and also positively influenced the policy of the State Government to take it up as a program for rainfed famers under its MGNREGA program. Now thousands of farmers across the District are accessing MGNREGS and converting part of their cultivated land to suitable tree crops.

Muttala Village gets Purified water supply

Muttala is a remote village in Atmakur mandal of Anantapur district. AF Ecology Centre is the Project Implementing Agency for Government funded Integrated Watershed Management Project (IWMP). As part of IWMP watershed project implementation, an Entry Point Activity was taken up. The Entry Point Activity taken up was setting up of a water purifying plant. The population of this village is about 2000 with 475 households. The village falls in gray zone of ground water table. The high fluoride content in ground water was causing health hazards. There is no safe drinking water facility in the village. Some better-off people used to buy water from private purified water suppliers from Atmakur town. And women carried drinking water for their domestic needs from bore wells which were far off, and frequent power failure added to their woes. Some women were also losing wages by spending more time in fetching water.

During the baseline survey and Participatory Rural Appraisal (PRA), the problem of drinking water was voiced by the villagers. Sooner the watershed committee was formed. AF staff discussed with watershed committee and they all decided to solve this issue of drinking water. Fortunately the IWMP Program has a provision for taking up an Entry Point Activity (EPA). The EPA is aimed at identifying a common need in the village and fulfilling the same by collective efforts and utilizing the funds allocated under IWMP. The Watershed committee decided to install a water purification plant using Reverse Osmosis (R.O) technology.

The feasibility study was done and a sustainable economic model was worked out. The committee collected a contribution of Rs 30,000/- @ Rs 100 per family from all the families. Entire people of the Village came forward enthusiastically to pay their contribution. A piece of common land was identified at the entrance of the village to establish the water plant. An amount of Rs 3,79,058/-was sanctioned from IWMP project. A bank account was opened in State bank of India for financial transactions. RO water plant was installed within a month. The panchayat bore well which was not functioning was repaired and used for this purpose. The villagers took active part in the installation process. A separate committee was set up for day to day management of the plant and guidelines were set for water utilization.
Each family is given a ‘monthly water usage card’ which costs Rs 50. With this card a family is entitled for a maximum of 20 containers of 25 liters capacity. With this system each liter of water cost 10 paise compared to 25 paise purchased from private water sellers. An operator was appointed to look after the plant and to collect money from the users. He is paid a salary of Rs 1500 a month from the sales proceeds. The remaining amount would be used to maintain the repairs, if any. The operator reports to Watershed committee.

Now Muttala village, all the families are getting benefitted a lot from this water plant. Especially women are happy as they have safe drinking water at their reach and also it saved them from stress and a lot of drudgery. This EPA has brought the whole village together and created a very positive social environment in the village. With this, the villagers cooperated well with watershed activities and all the activities were completed in time with high quality.

Muttala Watershed is recognized as the best performing model in the state of A.P for the year of 2013-14. Finally the community participation and best use of a government program has created a lasting impact on the natural resources, agriculture as well on non-farm livelihoods in Muttala Village.
ANNEXURES
Work shop on Groundwater management

1. Introduction:
Water crisis in the year of 2013 has created a deep fear among farmers depending on ground water for irrigation. It had caused irreparable loss to many farmers as their crops withered away including horticultural tree crops which were yielding, as the level of ground water plummeted to lowest levels leading to failures of bore wells during summer. An estimated 8000 bore wells had dried up during 2013 causing damage to over one lakh hectares of crops. Even the yielding tree crops like sweet lime withered away in about 10,000 ha. Ground water being life line for irrigation in the district, this situation has triggered the need for understanding the dynamics of water cycle holistically by all the stake holders and seeking solutions.

2. Workshop on groundwater crisis:
AF Ecology Center organized a workshop with experts on ground water, agriculture and Government officials in order to brain storm on this burning issue on 23rd Nov 2013. The objective of the workshop was to assess the present condition of ground water in the District and explore prospects of improving ground water. This workshop was organised to bring out policy issues for policy advocacy and also to build public opinion on the conservation and judicious use of water in several and ground water in particular.

3. The participants in the workshop
The participants included Mr. Purshotham reddy ,Deputy Director, Ground Water Department (Govt. of Ag), Dr. Muralidharan ,Principle scientist ,NGRI and scientific advisor to P.M.O, Dr.Sahadeva reddy, Principle scientist, ARS-Aantapuram, Dr. Bhargavi, Scientist- KVK, Dr. Madhusudan reddy,ARS, Dr.Subbireddy, Dr. N.Johnson,KVK, Mr.Adinarayana, ICRISAT ,Mr.Sathyanarayana setty, RDT all senior staff of AF Ecology centre, other NGO and CSO representatives of the district participated.

4. Summary of discussions:
Dr.Y.V. Malla Reddy, Director-AF Ecology raised important questions on this alarming issue like what would be the fate of horticultural tree crops and farmers and the current status of ‘WALTA’ Act and its ineffectiveness. Though AF made a commendable contribution to this district in rain water harvesting and recharging ground water table it was unable to regulate it’s over exploitation. As the quantum of ground water draft has increased many folds to the recharge.

Mr. Purshotham reddy , Dr. Muralidharan , explained the scientific facts and statistics such that the workshop can arrive at workable interventions to address the crisis.

The major observations that came up during the workshop are
1. Present area under irrigation is about 3.5 lakh acres in the district of which surface irrigation is 15% and ground water irrigation is 85% leading to more stress on ground water.
2. Annual replenishable water capacity of 93840 hectares meters will allow only 1,87,680 bore wells, whereas more than 1,92,000 bore wells are already in existence, crossing the limit and leading to water stress in 70% of villages in the district.

3. Rainfall pattern and trends in every 4-5 years should be understood in depth so that planning can be done in sync with nature’s rhythm. Onset of monsoon also to be studied with a closer look for this.

4. Increase in thickness of wathered zone is the main culprit that reduces the infiltration factor / water recharge.

5. Usage of geomorphological maps ensures high precision in tracing ground water. Assistance in the form of topo sheets in PDF format can be sought from NRSA and AP State Remote Sensing department.

6. Reforestation through succession method with indigenous species vegetation progress is the ideal way to establish and sustain the forest / green cover.

7. Resistivity image to be used to locate high permeability zone for locating the best suitable place for water shed.

Other technical points came up during the interaction raising the levels of understanding of the participants.
As a result of this workshop, many interventions emerged with scientific basis and led to few plans which are to be tried out on the field and where successful would be replicated.

The suggestions to adapt that emerged during the workshop

- Social and ethical regulations are the most effective tools for better implementation of WALTA act.
- If irrigation from ground water is restrained for 1-3 years, ground water table will improve and can be maintained further with the help of water budget and safe yield estimation methods.
- Fractures of hilly regions to be considered for afforestation with the trees of suitable root system. Social forestry system to be adapted to offer financial benefits too. Usage of both sides of streams to be considered for regeneration of forest.
- 2500 tanks in forest areas of Anantapuram district to be revived under MGNREGA.
- Check dams of small size more than 3 in a series would increase percolation rate that exceeds the loss by evaporation. This also spread the benefit to more hectares and farmers.
- Sanctuary for ground water at foot regions of hills should be planned.
The infiltration percentage of check dams will increase multifold in black soils, if 80 c.m of top soil is removed. Porous concrete bed increases hydraulic pressure and improves the percolation. Building sub surface walls are beneficial and in many cases thin CC wall is enough.

Isolated approach for water recharge program is not practical/ useful and at the same time community approach is ideal in water sharing and artificial recharge methods.

6. Future course of action:
AF has taken cue from these new concepts and ideas to formulate action plan for coming years. The following were chosen for future plan

1. Visit Mogilichetla thanda village to understand and get the feedback on ‘social regulation’ activity to protect ground water.

2. Scientific findings to be incorporated in selecting site for constructing check dams. Adapt the new method of smaller and more number of check dams in a series.

3. Using the remote sensing and scan to finalize the water spot.

4. Plantation along the side of stream helps in increasing greenery.

5. Modifications as per suggestions in check dam models constructed in black soils. Implementing few of strategies in selective villages.

6. Propagate Usage of Piezometer apparatus by the farmers to record the level of ground water table.

7. Sensitizing and involving younger generations.
WORLD WATER DAY
22.03.2014
A farmers conference on water crisis in Anantapur District

1. Introduction:

The “World Water Day” was conducted on 22 March every year all over the world. AF Ecology Centre has been conducting this program for the past 12 years successfully and utilizing this opportunity to make the farmers aware on water issues and influencing the policy makers for a more favourable policy environment on water related issues.

As on today 80 thousand bore wells were dried up out of 1.8 lakh bore wells during this year in Anantapur district and functioning of remaining bore wells is under serious question in the summer. Even drinking water for people and cattle has been in severe scarcity. Irrigated crops in thousands of acres dried up including some age old fruit orchards. Some farmers were desperately trying to save their crops, particularly tree crops transporting the water from as far as 10 or 15 km away and providing protective irrigations. While the farmers were forced into a severe economic distress, the farm labour were affected for want of wage employment, leading to distress migration. In this alarming situation AF Ecology Centre wanted to highlight the issue and draw the attention of the government and people on to the acute water crisis. Accordingly, organized a large multi-stake holder conference with all the stake holders on the “World Water Day” on 22nd March 2014 at RK Function hall, Anantapur.

2. Multi-stakeholder Participants in the conference:

The participants included about 1200 farmers and leaders of farmers Sasyamithra Groups from project area of eight mandals, watershed committee leaders including 430 women members, District Officers from Government, Agencies, elected local body representatives, Civil Society Organisations, Progressive, Writers, Thinkers, Subject Matter Specialists in ground water, irrigation, agriculture, media representatives, opinion builders were brought in to one platform for analyzing the causes for water crisis and finding solutions for addressing the water crisis in Anantapur District.

3. Conference Objectives:

Water crisis was becoming a life and death problem to this district. The objective of this conference was to create a multi-stake holder platform to understand the causes and consequences of the grave, unprecedented water situation this year and to bring out the ways and means to combat the issue in the short-term and in the long term.
This was also an opportunity to network and work together with like-minded CSOs, intellectuals, progressive writers, experts, cultural activists and policy makers on the issue of utmost public concern and build public opinion in favour of a) the need for accessing additional water resources from the river waters b) judicious and sustainable water use and c) influence public policy in that direction.

3.1 Presentation of case studies on status of actual water situation in the villages:

The program began by a hearty welcome to the participants by the anchor Dr. Y.V.Malla Reddy followed by some cultural events specially prepared on water issues for this event. A mime show by the speech & hearing impaired students, showing how much water we all wasted every day and how we all could avoid wastage and be responsible in our daily use of water. It enthralled the whole audience and made many to feel guilty of mindlessly wasting water. Later, Dr. Malla Reddy explained the objectives of the event and called for everybody to cooperate to make it a fruitful event.

In preparation for this conference, AF Ecology Centre had facilitated 9 Grama Sasyamithra Samakhyas (GSS) from 9 selected villages to prepare each a report on the water situation in each village. The villages were purposively selected in order to a) highlight the seriousness of the problem and b) to highlight some potential solutions were found effective and could be replicated across the district. The GSS representatives were facilitated to study their village water situation and prepare factual reports.

Nine GSS representatives from project villages namely 1) Mr.Lakshminarayana (Yerraguntapalli) 2) Mr. Suryanarayana Nayak (Pampanur Thanda) 3) Mr. Muthyala Reddy (Muttalla) 4) Mr. Ramakrishna (bandameedapalli) 5) Mr. Ramadasu Reddy (Konampalli) 6) Mrs. Sulochanamma (Madigubba) 7) Mr. Narayana (Mallipalli) 8) Mr. Kuntenna (Korrakodu) 9) Mr. Ramanjaneyulu (P.Narayanapuram) presented their water status reports on the ground situation in their respective villages.

The village reports reflected
a) in 6 villages the severity of the ground water depletion resulting in drying up of most of the bore wells consequently acute shortage for drinking water for people and cattle, loss of standing crops including some age-old fruit tree crops like sweet lime, lack of farm employment, distress migration
b) in two villages where groundwater problem was eased because of filling their village traditional water bodies with Tungabhadra river water and thereby surface water was made available, recharging the groundwater, which protected the bore wells from drying up, farming continued, no shortage of water for people and cattle.
c) in one village where a group of farmers, bore well owners and non-owners both came together to share the groundwater, so that the non-owners get a some share of ground water to protect their rainfed crops with protective irrigation and in return they did not drill new bore wells.
AF wanted to demonstrate with these reports the points that a) filling up the traditional water bodies with river waters will make surface water available for people & cattle, protect the ground water dependent bore wells and a conjunctive use of water could be promoted b) the ground water sharing and social regulation could be an inevitable and sustainable option to control over exploitation of ground water.

The village reports presented by GSS leaders brought out the seriousness of the problem and possible options before the Government and also farmers themselves. The farmers understood that indiscriminate drilling of bore wells would only be suicidal for both the existing bore wells and the new ones! They came to know that the bore wells which were dependent solely on rainfall for recharge of ground water were undependable. In those villages where the traditional water bodies were filled with river waters the bore wells were recharged and performed sustainably.

3.2 Ecology Centre’s recommendations
Ecology Centre had circulated to the participants three concept papers explaining comprehensively the causes of the groundwater crisis and possible measures to address the problem. These concept papers were prepared by Dr. Y.V. Malla Reddy, the Director especially for this occasion.

The papers described the seriousness of the water crisis of this district, its consequences on agriculture & rural livelihoods, including suicides committed by about 3000 farmers in the last 10 years. 2 lakh ha. of cultivable land was kept as fallow in 2013, which forced farmers to migrate to cities under distress. The papers also emphasized that the hastened process of desertification causing threat to the very existence of humans as well as any living organism (plants, trees, animals, insects etc.,) in the District. These papers mainly proposed as solution the concept of “Ananta Jalavalayam” a concept of “Conjunctive Use of Water” linking rainfall, surface water, river waters and ground water for providing assured irrigation to the crops. This concept can also protect rainfed crops with protective irrigation, assure groundwater recharge and protect all the bore wells. AF Ecology Centre has been advocating this concept for more than a decade.

Dr. Malla Reddy strongly made a call that in order to achieve Ananta Jalavalayam the active participation of all stake-holders in voicing the cause so that the policy makers listen. The government, panchayat raj situations, watershed committees, particularly farmers have to work together in a concert. First of all the Government has to provide a favourable policy environment for this purpose. The other major solutions advised to the farming community included a) social regulation of ground water use, b) ground water sharing and joint water management, c) adopting micro irrigation, d) less water consuming cropping patterns e) short duration crops, f) water budgeting, g) collective management of ground water, h) applying critical irrigation to rainfed crops during long dry spells etc.

3.3 Opinions of representatives from Civil Society Organisations and Government Agencies:
Mr. Singamaneni Narayana an eminent writer on farmers issues, Mr. Panyam Subramanyam, Executive Engineer (Retd) from Irrigation Dept., have shared about availability of Tungabhadra river water at present to the district and possible ways and means to enhance the river water availability. The irrigation experts opined further that a minimum of 100 TMC of water (including the river waters already allocated) would be required to meet the basic requirements like a) 15 TMCs of drinking water for 42 lakh population and cattle (57 lakhs by 2030?) b) 20 TMCs for filling the traditional water bodies and another 65 TMCs for protective irrigation and to comply with 30% of the cultivated land to be covered under irrigation as per the recommendation of the Irrigation Commission 1972. They emphatically explained that by linking of Godavari, Krishna and Penna rivers and making inter-basin transfers, Anantapur could be allotted up to 100 TMC of water. They also highlighted the negligent attitude of successive Governments as main reason behind the crisis. They pointed that, according to 1972 irrigation commission, 30% cultivable lands has to be provided with assured irrigation in order to make agriculture viable in a Community Development Block.

Eminent speakers called for a “Water Revolution” from the people of this district to achieve 100 TMC water. With the active participation of farmers, supported by other stake-holders like CSOs, NGOs, experts etc., water movement could be brought in order to bring pressure on high level policy makers to make this dream into a reality.

Representatives from other Civil Society Organizations explained their experiences and experiments with farmers in adopting innovative approaches in water sharing, social regulation and joint water management. Mr. Uthappa from WASSAN, Mr. Nagaraju from MYRADA, Mr. Kristappa from RIDS, Mr. Shankar from Janajagrithi, Mr. Kullai Swamy from CERA organization shared their experiences in water sharing, social regulation and joint water management at community level. They also proposed collective water management, social control on drilling of new bore wells, practicing water budgeting and deciding the cropping pattern based on availability of water.

3.4 The Agricultural and Groundwater Scientists proposed following technologies for drought mitigation:

Mr. Thippeswamy Assit. Director, Ground Water Department, Mr. Sahadeve Reddy, Principle Scientist RARS, Rekulakunta, Dr. Yellamanda Reddy, Head, Sustainable Agriculture, AF Ecology Centre explained about various new methods, implements and technologies to be used to mitigate drought. They shared about “Ananta Planter” for timely and faster sowing under rainfed conditions, providing critical irrigation during long dry spells to rainfed crop to increase productivity, using “Aqua Seed Drill” to sow the crop in time in case of delayed rains, summer deep ploughing once in three years to increase moisture holding capacity of the soil etc.

3.5 Resolutions passed in the conference:
Finally AF Ecology Centre Director Mr. Y.V.Malla Reddy proposed three resolutions to be passed in the conference for immediate implementation by the government to address the water issue in this district as follows:
1. Ananta Jalavalayam has to be implemented on high priority and fill the traditional water bodies with the water from Handri Neeva Sujala Shravanthi Project.

2. Allot 13 TMC water to be allocated additionally for Anantapur District for drinking water to 56 lakh population (projected population by 2030) and also to the 60 lakh of cattle.

3. Allocate additionally 5 TMC of water for establishing industries to create industrial employment for educated and under educated youth.

All these proposed resolutions were enthusiastically accepted with a loud resounding applause by the twelve hundred participants in the program. The Director told to the participants that the resolutions which were accepted by the farmers will be brought to the notice of Government and efforts would be made to pursue these resolutions.

3.6 Exhibition Stalls:

As a part of the program, some exhibition stalls were organized mitigation to demonstrate the new implements and new technologies for drought. They were a) ground water sharing by a group of farmers, b) integrated kitchen garden with drip, c) Aqua Seed Drill, d) Mobile Protective Irrigation Unit, e) Rainfed Tree Crop Models, f) photo exhibition of Integrated Watershed Development Activities. They very much attracted the farmers’ attention. The methods, the implements, technologies of protective irrigation to rainfed tree crops were very much appreciated by the farmers. Then could bring some hope among the farmers in mitigating the droughts.

3.7 Cultural activities:

There was a cultural team performing small events for one hour in the beginning and in intervals during the conference. Folk songs, mime show, skits designed on the theme of water attracted the farmers very much. The theme developed on judicious water management through popular folk art forms and songs sung by the cultural team, the skit performed by the visually impaired children on how we all waste water in our day to day and on consequences of wasting water etc., tried to make the participants to be more sensitive, sensible and responsible on this important issue.

4 Conclusion:

The world water day event was organized effectively inspiring and creating hope among 1200 farmers and other stake holders on water issues; proposed various measures to overcome water crisis of this district. It outlined plans to save the agricultural sector from drought and also to overcome drinking water crisis. It motivated the farmers to raise their voice on water issues with Government and elected representatives so that water goals could be achieved, someday sooner if not immediately.
## Achievement under NABARD (WDF) Watershed Programmes

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<td>Agriculture and Horticulture</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>1</td>
<td>Dryland Horticulture (for irrigated farmers)</td>
<td>Ha</td>
<td>485</td>
<td>291</td>
<td>776</td>
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<tr>
<td>2</td>
<td>Back yard Horticulture</td>
<td>No</td>
<td>240</td>
<td>0</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>5,018,000</td>
<td>501,137</td>
<td>5,519,137</td>
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<tr>
<td>E</td>
<td>Non Farm Livelihoods</td>
<td>No.</td>
<td>1281</td>
<td>72</td>
<td>1353</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>83,09,000</td>
<td>8,20,000</td>
<td>91,29,000</td>
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<tr>
<td></td>
<td>Grand Total</td>
<td></td>
<td>30,607,000</td>
<td>12,056,895</td>
<td>42,663,895</td>
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### Achievement under IWMP Watershed programmes

<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Activities</th>
<th>Unit</th>
<th>Extent covered / Nos</th>
<th>Expenditure (Rs)</th>
<th>Number of families benefitted</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>From 2009 to March 2013</td>
<td>During the year 2013-14</td>
<td>Cumulative achievement 2009-2014</td>
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<tr>
<td>A</td>
<td>Soil and Moisture Conservation</td>
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<tr>
<td>1</td>
<td>Rock Fill Dams</td>
<td>No</td>
<td>170</td>
<td>305</td>
<td>3,454,000</td>
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<td>2</td>
<td>Farm ponds</td>
<td>No</td>
<td>207</td>
<td>218</td>
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<td>3</td>
<td>WAT (Water absorption trench)</td>
<td>Ha</td>
<td>64</td>
<td>2500</td>
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<td></td>
<td><strong>Sub Total</strong></td>
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<td></td>
<td>6,359,000</td>
<td>5,864,000</td>
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<td>B</td>
<td>Rain Water Harvesting</td>
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<td>1</td>
<td>Check dams</td>
<td>No</td>
<td>11</td>
<td>18</td>
<td>2,805,000</td>
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<td>2</td>
<td>Percolation tanks</td>
<td>No</td>
<td>4</td>
<td>7</td>
<td>593,000</td>
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<tr>
<td>3</td>
<td>Recharge of dried wells</td>
<td>No</td>
<td>3</td>
<td>4</td>
<td>57,000</td>
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<tr>
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<td><strong>Sub Total</strong></td>
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<td>C</td>
<td>Vegetative measures</td>
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<td>1</td>
<td>Avenue plantation</td>
<td>Km</td>
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<td>30</td>
<td>862,000</td>
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<td>Barren Hill Afforestation</td>
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<td>129</td>
<td>99,000</td>
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<td>1,918,000</td>
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<td>1</td>
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<td>Ha</td>
<td>583</td>
<td>1233</td>
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<td>Fodder Development</td>
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<td>26</td>
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<td>3</td>
<td>PSI (Production systems improvements)</td>
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<td>386</td>
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<td><strong>Sub Total</strong></td>
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<td>Non Farm Livelihoods</td>
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<td>-</td>
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<td><strong>Sub Total</strong></td>
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<td>3,000,000</td>
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<tr>
<td></td>
<td><strong>Grand Total</strong></td>
<td></td>
<td></td>
<td>53,066,000</td>
<td>31,343,000</td>
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</tbody>
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CPR : Common Property Resources
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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Andhra Pradesh – India

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Director

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Fax : +91 (0) 8554 – 244990

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