

Promotion of Sustainable Agriculture and Diversified Livelihoods
2013-15



ANNUAL PROJECT UPDATE - 2013

For the period 01.04.2013 to 31.12.2013



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General Information

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1. CONTEXT OF THE PROJECT:

1.1 Introduction.

Transforming the conventional agriculture into Sustainable Agriculture (SA) is a very challenging long term process and AF Ecology Centre has made a dent in sustainable agriculture in its project area with its continuous and concerted efforts in this direction. SA practices are being promoted in annual crops and tree crops, in both irrigated & rain fed lands and the farmers' acceptance is growing steadily. It is drought resilient, cost-saving and adding to household food and nutritional security.

The human resources in the organization are strengthened by filling vacancies and organizing appropriate trainings. The domain knowledge resources of AF Ecology Centre are strengthened and action-reflection-learning cycle is being mainstreamed at different levels. The PPIME systems, internal controls, checks & balances and performance based incentive systems for staff in AF Ecology Centre have improved the organizational effectiveness. More energy and seriousness is now observed in the field staff in implementing activities and ensuring quality in the work. A more systematic and enhanced involvement of CBOs and women participation in project activities has been observed.

1.2 A fortified Core Team and enhanced knowledge resources:

The Core Team is fortified with joining of 3 new members in the fields of Sustainable Agriculture, Farmers Cooperatives and Non-Farm Livelihoods. Dr.T.Yellamanda Reddy, a retired Dean of Agriculture from Agriculture University has brought in, the treasure of domain knowledge, a new energy and enthusiasm into the organization. Similarly Mr.Sairam and Mr.Rammohan Rao with hands on experience in farmer cooperatives and non-farm livelihoods respectively filled in much needed gaps in the organisational human resources. Thus at the moment the central leadership team has adequate knowledge and experience in the fields of Participatory Planning, Implementation, Monitoring and Evaluation (PPIME), Sustainable Agriculture, Watershed Development, Farmer Cooperatives and Non-farm Livelihoods. This fortified team is able to enhance the energy levels, lead and organize all planned activities in the field in a much more focused and result oriented manner; and is able to forge new alliances and partnerships with other NGOs, CSOs, research organizations and government agencies etc.

1.3 Constitution of Project Sasyamitra Samakhya (PSS):

At project level the apex federation of SMGs is constituted called PSS. The PSS consists of 40 selected representatives from MSS (Mandala Sasyamitra Samakyas) and 10 progressive farmers who have passion for sustainable agriculture. The PSS meets 4 times a year generally (once in 3 months) and more when needed. With the constitution of PSS, the 3 tier CBO structure is complete. At village level the SMGs federate as GSS, at mandal level GSSs



federate as MSS and at project level MSSs federate as PSS. At the moment, the PSS is

functioning more as a consultative body of farmers. Its main functions are a) to provide authentic feedback on the efficiency of activities at village level, b) to suggest new activities which will add to the achievement of the objectives, c) to advice on the appropriate systems and processes that will enhance the effectiveness of the activities and programmes, d) to identify, voice and pursue policy issues with government authorities.

1.4 Restless Situation in Anantapur district due to agitation to keep Andhra Pradesh state united: Implementation of activities slowed down.

The Indian Government had announced its decision in the month of July 2013 to separate Telangana Region from Andhra Pradesh and form a new state called Telangana state. This decision has provoked severe and continuous protests in Rayalaseema & Coastal regions. Both the regions are opposed to formation of separate Telangana state and so are demanding to keep the state united as it is now. All the Government staff had gone on strike for 3 months from July to October 2013. All the sections of society like educational institutions, hospitals, business community, farmers etc., were all involved in several forms of protests including several "road blocks". This had created a restless situation in the state. Anantapur being a drought affected district and part of Rayalaseema was the worst affected in this movement. The movement is more intense in the District than in any other part of Andhra Pradesh state. In spite of all this, The Indian Government is taking forward the process of forming a new state "Telangana". Though many organizations had called off bandhs the restless situation is still continuing in the state and in Anantapur district. AF's work had also slowed down because of "bandhs" called by various sections and organisations. However AF Ecology Centre has not participated in the agitations.

1.5 Groundwater depletion in Anantapur district is alarming: Ecology Centre voices concern.

The summer season in Anantapur district especially between April and August months had been very harsh. Some persons had even died of heat in the district. Groundwater was the major source of water for drinking and irrigation in Anantapur district. The ground water table had gone down alarmingly between the months April to August which had created a severe drinking water problem in the district. And the irrigation dependent on bore wells also



had suffered a big setback. The quantum of ground water drawn was many folds higher than the recharge. There are 192, 000 bore wells in the district (govt data), irrigating about 150,000 ha of land in the district. An estimated 80,000 bore wells out of 192,000 have been dried up in between the months of April & August 2013. Many crops under the bore wells including mature horticulture trees yielding had reportedly dried up leaving the farmers bankrupt and helpless. Most of these farmers had tried digging more and more new bore wells with the hope to protect

standing crop in their lands but mostly failed to yield any water. This situation had pushed them into further vicious cycle of indebtedness. The groundwater department has been trying to stop drilling of new bore wells and stop over exploitation of groundwater.

AF Ecology Centre's response to the ground water problem: AF Ecology Centre organized intensive campaigns in the project area on the urgent need to put an end to new bore wells as the district is facing severe hydrological drought affecting the farmers and accelerating desertification. The issue had been discussed with SMGs, GSS, MSS and PSS. AF emphasized in the campaigns and meetings, judicious and sustainable use of groundwater; the need for "groundwater sharing" and "social regulation on using groundwater".

In this context AF Ecology Centre organized, 'Day for Combating Drought and Desertification on June 17, 2013'. The main objective of this mega event was to highlight and voice the concerns of groundwater in the district and to focus on the short-term and long-term measures to combat groundwater depletion, droughts and desertification. This event involved all the stakeholders including over 1000 farmers having bore wells, concerned government officers like District Collector, Director-Groundwater, Project Director-District Water Management Agency, District Forest Officer, Agriculture Research and Agriculture Extension agencies and various Civil Society Organizations, NGOs, Writers, Artists, Farmer organizations, Social activists, Human Rights activists etc. The event loudly and effectively echoed the issues around the groundwater and short-term and long-term measures to achieve sustainable management of ground water.

Similarly 'International Mother Earth Day' event organized on April 22, 2013 also involved all stakeholders including Farmers, Government Agencies, Civil Society Organizations and Farmer Organizations. This event echoed on the concerns of loss of biodiversity, drought and desertification of Anantapur district and the need for regenerating and conserving the environmental resources like soils, water, vegetation, Bio-diversity, crop diversity etc. It also emphasized the need for following the social ethic of resource conservation and changing the present consumerist life style of human beings to a more 'simple living'.

AF had by and large succeeded in its efforts in a) creating awareness among farmers for minimizing the digging of new bore wells and for more judicious and responsible use of ground water as well as other natural resources, b) sensitizing and forcefully drawing the attention of civil society in general and policy makers in particular on the short-term and long-term measures needed in this regard.

1.6 A shift in cropping patterns observed:

1.6.1 Mono cropping of Groundnut is being shifted to diversified crops of millets and pulses: The sowing area of Groundnut in rainfed lands of the district has come down by about 30% due to increasing costs of cultivation, continuous crop failure and ineffective crop insurance for Groundnut crop. During Kharif 2013, farmers did not cultivate any crops in about 200,000 ha of rainfed lands because of lack of timely rains as well as farmers losing interest in rainfed farming. In AF's project area a

clear shift in cropping patterns is now emerging from mono crop of Groundnut to a more intercropping with food crops of millets and pulses. Though this trend is desirable from the point of food security and healthy land use, these crops are not yet economically remunerative for farmers due to unfavorable food policies and pricing policies for farm produce.

AF had developed '9 diversified cropping models for rainfed lands' as alternate crops to mono crop of groundnut and an 'integrated package of LEISA practices' suitable for those crop models. AF had procured 15 varieties (36 tons) of suitable seed consisting of pulses, millets, and vegetables and supplied to 6600 rainfed farmers to motivate them to go for the diversified crop models. The resource material on crop models and SA practices was prepared, printed and circulated widely among the target group members.



1.6.2 Land use pattern is changing: Gradually land use pattern is moving from seasonal annual crops to perennial tree crops. AF Ecology Centre has been advocating strongly for such a change. Now farmers are showing interest to go for perennial tree crops in the place of seasonal annual crops. It is desirable as it is economically and ecologically beneficial. In the last 2 years, Dry Land Horticulture (DLH) was promoted in 40,000 ha of land under MGNREGA by Govt of India. And RDT is also promoting Horticulture extensively. Mostly dry land fruit trees like Mango, Sapota, Amla etc were grown under tree crops. Farmers are getting financial support for pot-watering these plants for initial three years under MGNREGS. AF had been instrumental in convincing the government to take up DLH under MGNREGA. AF is now focusing its efforts both on developing and demonstrating suitable tree crop models and annual crop models for of Anantapur agro-climate.

1.7 Innovative Research and Experiments for Revitalising Rainfed Farming

AF had initiated a number of new initiatives on sustainable agriculture during this year. Thirteen new experiments were initiated adopting scientific methodology with participation of 60 farmers. The experiments included sowing with Aqua Seed Drill, Anantha Planter and providing protective irrigation. Further new experiments on Bio-intensive farming, Soil Mulching, treatment with Zypsum, and treatments to improve the moisture retention in soils are conducted. The results will be documented and successful practices evolved would be established and replicated. AF had continued SA demonstrations in diversified annual crop models, promoting bio-fertilizers and bio-pest management in both rainfed and irrigated lands with participation of farmers. An Integrated Kitchen Garden system (IKG) with drum based drip irrigation was set up in backyards of 300 landless families to grow vegetables.

AF Ecology centre initiated some new experiments that have potential for mitigation of droughts.

1.7.1 Mobile Micro Irrigation unit: A mobile micro-irrigation unit called Rakshaka Thadi (Protective Irrigation) is designed by AF. The idea is to provide protective irrigation to the crops when there is a prolonged dry spell threatening the crop. A water transport tanker (truck) fitted with micro-irrigation equipment (drip & sprinkler system) is tested successfully for providing protective irrigation. The field trials on protective irrigation showed high potential for saving the crop from drying up due to prolonged dry spells. This unit is designed for use in rainfed annual crops as well as tree crops. It is particularly beneficial in providing protective irrigation to rainfed tree crops. During the coming summer (tree crops) and rainy season (annual crops) the Rakshaka Thadi will be tried more extensively under different moisture stress conditions and standards will be fixed like how much irrigation has to be given for various crops including tree crops. This concept of “life saving irrigation” or protective irrigation is becoming increasingly critical and inevitable given more erratic, low and unpredictable rainfall due to climate change. AF plans to demonstrate the “Rakshaka Thadi” concept to the government and lobby for its replication.



1.7.2 Aqua Seed drill: This equipment was designed by Agricultural Research Station (ARS), Anantapur. It is being tested jointly by AF and ARS in the field. In Anantapur district the inability of farmers to sow rainfed crops in time is a major cause of crop failure when there are no sufficient rains in the month of July. In order to overcome this problem an Aqua Seed Drill is designed. When the rain fails in the month of July (sowing month) the Aqua Seed Drill can be used for timely sowing. This equipment sows simultaneously the seed and adequate water to help in germination. This equipment carries both seed and water in drums mounted and releases water slowly along the seed. AF and ARS tested this equipment during kharif 2013 crop season and found it workable. Initial results show that the seed sown with Aqua Seed drill germinate better and grow for 2-3 weeks more. Wherever there is inadequate moisture in the soil for sowing, this Aqua Seed Drill adds required moisture to it and helps in better germination and growth of the plant. AF will continue this experiment in the next crop season.



1.7.3 Integrated Kitchen Garden (IKG): AF designed a small drum based drip irrigation system for kitchen gardens which saves water and also useful in getting high yields. An IKG aims at providing all the essential nutrients required for a family. During the year, 300 IKG sets were installed and most of them are functioning well.



These experiments have potential for mitigating

droughts and initial results are encouraging. AF will continue these experiments in 2014 also and the results will give us more authentic feedback on their workability and limitations.

1.8 Using Information Technology to communicate and educate farmers on daily basis:

AF-EC has collaborated with IFFCO KISAN in providing “GREEN SIM” to its target farmers. Nearly 6000 target farmers in 230 project villages, mobilized by AF, had purchased this Green SIM and installed in their mobile phones. Through this facility the communication related to various practices of crop production of sustainable agriculture, market rates of agri-produce, weather forecast and activities of AF-EC are effectively reaching the farmers through voice messages in local telugu language. Everyday each farmer is receiving 5 useful voice messages, out of them 2 or 3 are from AF-Ecology Centre. This ICT (Information and Communication Technology) is benefitting farmers immensely by providing timely and needy information. AF is also able to reach 6000 farmers directly with this technology and providing them timely inputs on SA practices, market rates, government programmes etc.

1.9 Low Carbon Farming (LCF) project

LCF program is implemented in 2 parts, a) LCF Research Lab and b) LCF extension with small farmers.

a) LCF Research Lab: The initial findings from LCF lab say that the green house gases emissions are negligible in irrigated groundnut crop while they are slightly higher in paddy crop. But paddy is a dying crop in Anantapur District. However, one season is not adequate to conclude the emission reductions. A longitudinal research need to be done for 4 to 5 seasons to see the trends in Emission Reductions. So the research is being continued with different package of practices for Groundnut and Paddy. EDF is providing financial support, scientific input and monitoring this research.



b) LCF extension with small farmers: Fair Climate Network is exploring the possibilities of carbon revenues to LCF farmers based on informed “guestimates” of Carbon Emission Reductions in Groundnut and other food crops under rainfed conditions. The carbon sensitivity is growing gradually with Indian Industry and it is showing some interest in Emission Reductions. At present the guestimates of carbon emission reductions under Sustainable Agriculture are around 1 CO₂ t/acre. FCN feels that this might be sold to Industry in India at about Rs 850/- per 1 CO₂ t. The challenge is to convince the industry on the need for emission reduction and that our guestimates of emission reductions are true. However there are designated verification agencies by UNFCCC which will do verification based on empirical data and certify the emission reductions.

Earlier AF had planned ambitiously to do LCF extension with farmers in all 230 villages with 15000 farmers. As the prospects of carbon revenues are not yet very certain and the effort required for fulfilling all LCF protocols with required rigor and quality is high, AF decided to work with fewer farmers in 2013 crop season on a pilot basis in a cluster of villages. AF is now doing LCF pilot work in a cluster of 24 villages in Rappthadu and Dharmavaram mandals with 1500 farmers in 1500 acres (607 ha). FCN is providing technical support and monitoring the pilot project. The pilot phase is also used for developing staff capacities, systems and practices and train farmers on LCF protocols with focus on rigor and quality. AF is trying to ensure that all the protocols of LCF are followed rigorously in order to stand the test of verification. AF will invite a designated verification agency this year to verify and validate LCF practices in 1500 acres (607 ha) of land. Once the prospects seem clear, the program will be expanded to other SA farmers in the project.

1.10. HRD Interventions: During the year 2013, two intensive trainings were organized for AF staff for building their motivation and capacities. One training was done in May and the other in September 2013. These trainings focused on a) understanding the Vision, Mission and Values of AF Ecology Centre, b) the relevance and importance of Sustainable Agriculture in Anantapur District, c) Gender sensitization, d) Farmer field schools, e) improved practices of SA. These trainings were very helpful in orienting newly recruited STOs and refreshing senior STOs. They were also useful to them in preparing for the forthcoming crop season.

1.11 The challenges ahead

The challenges in front of AF at present are the following:

- 1) To improve the processes of PPIME in the field.
- 2) To strengthen the CBOs in general and women participation in particular so that they take bigger responsibility in the program.
- 3) 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.
- 4) To stabilise systems of FFS and PGS in the field.
- 5) To stabilize the LCF protocol management. We also have to grab the emerging opportunities in Biogas CDM project and Low Carbon Farming Projects.
- 6) The groundwater situation in the district is worsening and there is urgent need to draw the attention of farmer organizations, civil society and Government to act on this crisis immediately.

2. PROGRESS MONITORING PROTOCOL

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 & Nutritional Security by promoting; (a) Sustainable Agriculture, (b) Natural Resource Management, (c) Alternate Livelihoods for Rural Women & youth d) Public opinion building and Lobbying with Government for Pro- LEISA policies.

2.2 Specific Objectives and their indicators:

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

2.3 Progress at outcome level:

Objectives	Indicator (or) Desired End Result by 2015	Achieved during April-December 2013	Remarks
1) To reduce the cost of cultivation and mitigate drought (by diversified cropping) in 11200 ha of land belonging to 5600 farmer families through	1.1) 35% of 16000 farmer families practicing atleast 3 of 5 main sustainable agriculture practices.	Of the 16000 small and marginal farmer families enrolled into AF's SA program: During April 2013 to December 2013, <ul style="list-style-type: none"> • 4241 (27%) Farmers had adopted crop 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 	There is steady growth in farmers practicing SA. Most of them are practicing SA in 1 acre (0.4 ha) demo plots, so the extent of land covered under SA is less than planned. Once farmers understand the benefits of SA they will expand the practices to

SA practices by 2015.		<p>used bio-fertilizers like Jeevamritam to their crops covering 5320 ha.</p> <ul style="list-style-type: none"> • 268 farmers had practiced alleys & Azolla in paddy in 163 ha and 68 families had practiced SRI in paddy covering 34 ha. <p>The farmer families practicing any 3 of 5 SA practices by Dec 2013 were 3320 families in 1820 ha.</p>	their entire land.
	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.	<p>During April 2013 to December 2013:</p> <ul style="list-style-type: none"> • Out of 856 SMGs formed 825 (96%) groups are functioning. • Out of 856 SMGs 85 SMGs (10%) are practicing mutual cooperation in farming. (eg: exchange of labour, implements etc) 	Community organizing work was partly affected during this reporting period due to agitations for united AP.
2) 1500 famers introduce Low Carbon Farming in their 1500 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 ha of land and is validated and certified for the Indian Co2 market.	<p>During the period April 2013 to December 2013, LCF is being practiced by 1500 farmers in 1500 acres (607 ha).</p>	The target has been reduced to focus on developing efficient systems.
	2.2) The certificates are offered at the Indian carbon mkt.	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.	<p>During the reporting period April 2013 to December 2013</p> <ul style="list-style-type: none"> • 448 youth (60% of the planned 750) had acquired skills to diversify their occupation. • 309 Girls have been trained in garment making and 139 Boys in motor vehicle driving. • Of them 59 girls have started earning Rs 2000 per month and 81 boys are earning 4500 per month through employment. 	Driving School was closed for August & September due to transport strike, so two batches of training were cancelled.

Progress at output level (Milestones)

2.3.1 Campaigns on; (a) Sustainable Agriculture, (b) Gender and (c) Adaptation to Climate Change

These campaigns were organized at different levels like village level, area level and project level. The farmers, the agriculture scientists, the social and human rights activists, NGOs, government agencies, media and elected representatives were brought together in these campaigns. The farmer groups (GSS, SMGs) and federations (MSSs) had played an active role in organizing these campaigns. In these campaigns awareness was created on;



(a) 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 effects of climate change like changing rainfall patterns etc. The practicing farmers of SA shared their experiences with other farmers. Good cropping practices, indigenous bio-fertilizers, bio-pesticides were demonstrated to the farmers in these campaigns. Experiments in sustainable agriculture and new initiatives to address drought were discussed in these campaigns.

- **During April 2013 to December 2013**, 362 campaigns (169% of the planned 214) were conducted in 214 villages and in 8 mandals. 21,112 farmers have attended (99% of the planned 21400) of which 10922 (52%) are women farmers and 5886 (28%) farmers are from SC/ST communities.

2.3.2 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)**. FFS is an experiential learning process where farmers “learn by doing and observing.” It educates the farmers to manage their crops effectively by adopting Integrated Crop Management (ICM) practices. FFS is conducted from sowing to harvest of the crop, so that the



farmers can observe and analyze the dynamics of crop ecology throughout the season. The topics dealt in FFSs in 2013 crop season are land preparation, benefits of FYM, seed treatment, importance of multiple cropping & crop rotation, Jeevamrutham preparation and application, disease management. 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 project. Further the crop wise trainings were organized for groundnut, tomato and mango farmers to impart specific crop related SA practices.

These FFS groups also follow Participatory Guarantee Systems (PGS) to ensure that all the farmers followed the practices of sustainable agriculture. PGS is also a good monitoring tool. Each farmer had pledged 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 has not followed the protocols the group will discuss with farmer and motivate him/her to follow protocols. The group members also prepare Bio fertilizers & Bio pesticides together, share and use them together.

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 at home, participation for women in decision making in family matters, cropping choices, livelihoods, women and child health etc were discussed and dealt with. Also experiential learning in group dynamics such as participation, conflict resolution, cooperation and leadership processes were imparted through these trainings.

During April 2013 to December 2013,

- 68 cluster level trainings (113% out of planned 60 trainings) were organized. 2880 GSS leaders and farmers (96% out of 3000) had attended these trainings. Out of them 1556 (54%) were women. Of the total participants 826 members (29%) were from SC/ST communities.
- 1250 Farmer Field Schools (49% of the planned 2568) were conducted in 214 villages. 5020 farmers (78% of the planned 6420) had attended these FFS sessions, out of them 2710 (54%) were women participants and 1405 (28%) farmers were from SC/ST communities. The achievement in FFS was less than planned due to continuous road blocks by protesters of Samaikyandra agitation during July to October.
- Intensive two day training was organized on 29th & 30th July 2013 for FFS Facilitators by an expert Entomologist on “Integrated Pest Management”. Knowledge on life cycles of very common pests, practical exposure to these pests and ways to prevent them were imparted in this training.
- **Exposure visits:** AF had organized 10 study visits with farmers to Agriculture Research Station in Anantapur. Nearly with 400 farmers from 8 mandals had visited ARS in these studies. In these visits farmers learnt new technologies in Rainfed Agriculture and results of experiments. Farmers had understood the efficiency of equipment like Aqua Seed Drill, Ananta Seed Drill, Mini tractor etc. The ongoing experiments in ARS on Integrated farming, Dryland Horticulture, Water Conservation, Effect of critical irrigation on Ground nut crop, New generation farm equipment etc were shown to farmers. Scientists and farmers had discussed on need for improving and implementation of technologies in rainfed agriculture.



2.3.3 CBO Meetings (SMG, GSS, MSS)

There are 4 SMGs and 1 GSS functioning in each of 214 project villages. In 16 Watershed Villages, Watershed Development Committees (WDCs) and user groups (UGs) are functioning. Each SMG meets once a month and every GSS meet twice a month. The STOs facilitate the regular meetings of SMGs and GSSs. The topics discussed in the meetings were sustainable agriculture, planning and implementation of various project activities and importance of mutual cooperation. Selection of deserving and eligible beneficiaries for incentive based activities considering Gender & Social equity is done by the SMGs and GSSs. The management of the common equipment and services like sprayers, Sprinklers, NPM Shops etc is also done by GSS in each village.

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 also participate in physical monitoring process conducted twice a year. The teams of MSS members visit villages, selected randomly, and monitor the progress and impact of project activities.



A Project level Sasyamitra Samakhya (PSS) is formed with 5 leaders from each of 8 MSSs and 10 progressive farmers who have passion for SA. This PSS acts as an apex body of all CBOs in the project. The PSS representatives were selected by MSS. PSS meet once in 3 months and discuss progress of the project in all the areas.

During April 2013 to December 2013,

- 1584 SMG meetings (82% of the planned 1926) were conducted in 214 villages.
- 1739 GSS meetings (90% of the planned 1926) were conducted in 214 villages.
- 68 MSS meetings (94% of the planned 72) were conducted for 8 MSS in 8 mandals.
- Two PSS meetings were organized in April and in September 2013.
- 35 KK (Karyakartha) meetings (97% of the planned 36) were conducted.

2.3.4 CROP DEMONSTRATIONS ON SA PRACTICES IN ANNUAL AND TREE CROPS:

AF had developed 9 diversified cropping models for rainfed conditions suitable for Anantapur agro-climate and demonstrated these crop designs with participation of farmers in all project villages in 2013 crop 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 had supplied 15 varieties of seed (pulses, millets and vegetables) to all the farmers who came forward to take up demo plots. Each demo plot is sown in 1 acre. The crops advocated were intercrops of pulses, millets and vegetables like red gram, pearl millet, sorghum, foxtail millet, field beans, cow pea, castor, cluster beans, ladies

finger, bitter gourd, ridge gourd etc. The important SA practices included were Jeevamritam application, use of various herbal pest control solutions, Pheromone traps, border crops, trap crops etc for pest management. A Handbook on SA practices for management of crop models were printed and circulated widely among the target group farmers. This hand book on Sustainable Agriculture in Telugu language had been distributed to 7000 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. During the Kharif season 2013, a sum of Rs 600,000/- had been utilized from these seed banks benefitting 2000 small farmers.

During the cropping season (2013), Annual Demonstration plots were taken up on a big scale with 6420 farmers in 6420 acres (1 acre plot each). Millets, Pulses and Vegetable Seeds were provided to these small and marginal Rainfed farmers to promote crop diversity. The major costs such as ploughing, sowing, bio-manures 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 acres sown, millets crops are grown in 3099 acres either as main crop or as inter crop. 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% belong to SC community, 8% belong to ST community and 3% are 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 are Groundnut, Paddy and Vegetables. AF is educating these farmers on adopting SA practices. The material is being prepared for each crop. This will soon be circulated to all the irrigated farmers.

2.3.5 Non-Pesticide Management (NPM)

The purpose of Non Pesticide Management (NPM) is to dispense with agro-chemicals which are expensive and hazardous and promote cost effective and eco friendly practices of Pest management. NPM is a set of activities to control pests and diseases using locally available resources which include both mechanical pest control and bio pest control. AF is promoting NPM methods to reduce the cost of pest management and to grow healthy crops. The NPM practices are also done and demonstrated as part of demo plots.

AF had 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. By the end of the reporting period, 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 they were not economically viable.

In villages where NPM shops are not present, AF encouraged small group of farmers to prepare the bio-pesticides together and share among themselves. The cost of such preparations was ranging 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/control the incidence of pests and to trap them mechanically before they are multiplied. Bird perches are helpful for birds to sit on them and prey on pests.

During April 2013 to December 2013, 2820 families (44% of the planned 6420) had 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 had installed bird perches with their own costs.

Application of Bio-pesticides:

Preparation of Bio-pesticides and pest repellants with locally available herbs, spices and cow urine were demonstrated to the farmers. The usage of bio-pesticides was also demonstrated. The power sprayers were available with GSS in all the villages and are used by farmers for spraying Bio-pesticides.

During April 2013 to December 2013, 5793 families (54% of the planned 10700 families) had 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.

2.3.6 Promotion of Bio-fertilizers

During April 2013 to December 2013, 8180 families (76% of the planned 10700 families) had 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.

2.3.7 Promotion of Rain fed Farmer Cooperatives

AF - EC is working intensively with rainfed farmer groups in 8 villages in 8 mandals to form and promote Rainfed Farmers Cooperatives under MACS Act. After exploring various models of farmer cooperatives, AF EC had designed a model of cooperative which is formed with a group of about 25 rainfed farmers and work on mitigating risk in Rainfed farming through self help and mutual cooperation. An experienced staff member was recruited in June 2013 to take this activity forward. The villages were finalized and the preparation for formation of cooperatives has begun. One village was selected from each of the 8 mandals. The 8 villages selected are 1) Cholasamudram in Kuderu mandal, 2) Kurlapalli in Atmakur mandal, 3) Vasantapuram in Dharmavarm mandal, 4) Palabavi in Rappthadu mandal, 5) Devadulakonda in Kalyandurg, 6) Konampalli in Belguppa mandal, 7) Seegalapalli in

Kundurpi mandal and 8) Yerraborepalli in Settur Mandal. The activities completed during the reporting period were Identification and capacity building of farmer groups, Need Assessment, Baseline survey and village situation analysis.

Two awareness workshops on proposed cooperatives were organised during the reporting period on Rainfed Farmers Cooperatives. One was organized on 08th July 2013 and the second one on 20th September 2013. In the first workshop CSO's working on cooperatives and Leaders of different cooperative organizations had participated and discussed about suitable cooperative model for rain fed farmers of Anantapuram District. In the second workshop 62 rainfed farmers from 4 mandals had participated and discussed the need of mutual cooperation and finalized a model of cooperative that suits and fulfill their requirements.

2.3.8 Tree Cropping Models in wastelands under Rainfed conditions

AF believes that tree crops in Rainfed lands provide sustainable income to the small farmers and thus provide better livelihood security to rain fed farmers of Anantapur. So it is campaigning for 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 failure (droughts). AF has designed some tree-based farming 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 one ha. 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 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 lot of bio-mass yielding trees in plots of a size of one acre to one and half acre. This model is expected to provide continuous income all through the year, perennially, and add tree diversity to the agro-ecology.
- 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 believes that every land has its suitable trees and there is nothing like waste lands. So AF has developed a new 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 April 2013 to December 2013:

- Four trainings were given to Tree crop farmers on management of Dry land Tree crops from 3rd to 7th July 2013 at Anantapur and Kalyanadurg. About 200 farmers attended these trainings.
- During this reporting period, 120 new tree crop plots were initiated with 120 farmers in 300 acres. These farmers were supplied required varieties and quantities of saplings and also provided financial support to dig pits. The planting process was completed in November 2013.

2.3.9 Home based activities (Kitchen Gardens and Backyard Horticulture)

AF is promoting home based activities such as Kitchen Gardens and Back yard Horticulture to add to household food and nutritional security. During the reporting period, vegetable seed was provided for existing 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, 300 IKG sets were set up in 150 villages and most of them are functioning well. All the beneficiaries were given an on location training for setting up and maintaining IKG sets properly.



2.3.10 Adaption to Climate Change: LCF practices by Farmers:

During April 2013 to December 2013, LCF was practiced by 1500 farmers in 1500 acres. Regular meetings were conducted in all the LCF villages so that all the LCF farmers have good understanding about the program. Women farmers are actively participating in these meetings. Farmers are following the LCF norms and protocols their selected 1 acre plot. Extensive Demographic data is being collected in these villages. GPS survey work is initiated. Corner stones are being fixed at corners of LCF plots. Stone fixing work is completed in 6 villages in 180 acres.



2.3.11 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.

2.3.12 Promoting Rural Youth as Entrepreneurs

AF-EC is promoting rural youth as entrepreneurs through skill trainings in Garment making and Motor Vehicle Driving. AF also support enterprising youth through setting up of NPM shops, forming Cooperatives and through giving necessary support like training, bank linkages etc.

During this year a training session on enterprise development was given to rural youth to motivate them to start own businesses.

2.3.13 Job - Oriented Skills Trainings for Rural youth in Garment making and driving During April 2013 to December 2013,

- 448 Youth (60% of the planned 750) have acquired alternate skills to diversify their occupation.
- Eleven tailoring courses were conducted in 10 villages. Through these centers, 309 Girls were trained in garment making of whom 233 girls (75%) are from SC/ST communities. 59 Girls have started earning Rs 2000 per month through self employment.
- Two LMV driving courses were conducted in Anantapur and Kalyandurg Driving schools. One HMV driving course was conducted in Anantapur Driving School. 139 Boys were trained in Motor Vehicle Driving (129 in LMV & 10 in HMV), of them 92 boys (66%) are from SC/ST communities. Of the total boys trained during this period, 81 boys are earning 4500 per month through employment.
- A workshop on “Road Safety” was conducted in April 2013 for the students of the driving school, mechanics and other vehicle drivers. The District transport officials and Motor vehicle Inspectors have attended the workshop. Brochures and Pamphlets on Road safety were distributed. The orientation program on safe and efficient driving was very useful to the participants.



2.3.14 Policy Advocacy on SA

Public opinion building and policy advocacy efforts focused on a) immediate and urgent issues of groundwater management, crop insurance and input subsidy b) the long term issues of drought and desertification. 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 famers fortunately materialized and the amount was directly transferred to the farmers. On the long term issues of droughts and desertification are highlighted in the two special events in April and June. A concept paper with a 10 point programme to combat drought & desertification has been 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.

3. WHAT WENT WELL AND WHAT DIDN'T:

3.1 Things that went well in 2013:

- The number of youth supporting their families through employment with acquired skills through jobs training is increasing. (See case study)
- The farmers began to appreciate the importance and benefits of diversified cropping particularly with food crops (pulses and millets) as a result of crop demonstration programme. This is contributing towards reduction in cost of crop cultivation and a more favorable agro- ecology, food and nutritional security at farm household and community level. The LEISA practices are benefitting farmers in irrigated crops also and many young farmers are adopting these practices.
- Integrated Kitchen Gardens (IKGs) are providing nutritional security to women and children and in some cases even an additional income to the farmer family.
- More and more farmers are adopting sustainable agriculture. More farmers are now resorting to multiple cropping, tree crops, indigenous bio fertilizers, bio-pest management and composting.
- Campaign events on ecology, environment, climate change, gender, sustainable agriculture, watershed development etc are generating public consciousness and creating public opinion. The people's voice for more favorable agri policies is rising gradually.

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

3.2 Things that did not went well in 2013:

The achievement of some of the planned activities like skill development trainings was low as few tailoring trainings could not be started and Driving School was closed for August & September due to transport strike because of United AP movement.

4. LESSONS LEARNT:

The following are the lessons learnt during the year:

- The grass root staff (STOs) are not adequately effective in providing day to day extension services to farmers. There is a strong need to train and develop them as barefoot agricultural professionals.
- AF understands that it has to grow and position itself as knowledge based organization. Because of its legacy it is still perceived as "implementer of activities". So there is need to change our own mindset and of the people.
- Lessons are learnt in evolving MIS and participatory PME systems for better project management. These are crucial for improving organizational efficiency, effectiveness and also achieving project objectives.
- More attention on CBO strengthening is required and the gender aspect in the organization and in the programmes (People & Activities) requires consistent reinforcement.

5. GENDER AND RIGHTS BASED APPROACH

Gender approach:

- AF had realized that women are more enterprising than men in the adoption of LEISA practices. So, AF had been encouraging women's participation in the program. Because of all these efforts, the women participation and leadership in the GSS and SMGs is increasing gradually.
- The women leaders began to participate in the process of planning, implementation and monitoring at the village level.
- Each Sasyamitra Group (SMG) has about 25 families and at least 12 families (50%) are represented by women.
- Village level federations, called Grama Sasyamitra Samakhya (GSS) are constituted with conveners and co-conveners of the SMGs, in which automatically 50% of the members are women.
- Mandal Level Sasyamitra Samakhya (MSS) are formed with conveners & co-conveners of GSS were also automatically 50% of the members are women.
- In this way, equal representation of women has been ensured in all the 856 SMGs, 214 GSSs and the 8 MSSs.
- The women headed households are given preference in program benefits.
- During the year AF had recruited 2 women staff to work at middle level.

Rights based Approach:

- The project targets 20,800 target families from 214 villages. Of them 30% are from SC community (*who actually constitute 16% of the population in the project area*) and 6% are from ST community (*who constitute 3% of the population in the project area*).
- Each village has 2 SMGs for Rain fed farmers, of which the members in one are predominantly from SC and ST communities who are socially disadvantaged.
- Each village has also 1 SMG for landless / wage seekers. Most of them are from SC and ST communities, who are generally poorest of the poor.
- AF has also shown positive discrimination to SC and ST families in beneficiary contribution for the project. They also get a bigger share in program benefits.

6. CASE STUDY:

Prabhakar becomes a Driver and supports his family.

Mr.Prabhakar hails from Hulikallu Village of Kalyandurg Mandal, Anantapuramu District. His family consists of 5 members. All are daily wage earners. This family has 2.5 acres of rainfed land and his father Pothanna grows rainfed crops. He belongs to SC community and they are living in a house constructed by the RDT.



G. Prabhakar studied up to 10th Std in his village and could not continue his education as his family was unable support for his higher education. He started working as daily agriculture labour to support his family, though reluctantly. The daily wages were low but he had no other option.

What makes him join the AF Driving School

Prabhakar was not happy with his low earnings and low self esteem. He wanted to learn some vocational skills and have better earning and better social status. At that time, he came to know through AF field staff about AF Driving School at Kalyandurg which is imparting high quality training to rural youth in Driving.

G. Prabhakar attended the interview and got selected for a LMV driving course. He took admission and undergone a 75 days training in AF Driving School at Kalyanadurg. During the training period along with driving skills he was also provided trainings on Personality Development, spoken English, First Aid, Aids awareness etc. in order to make him a professional driver as well as a fuller human being. The School also paid for his Insurance Coverage, travel charges and Driving test fee. Mr. Prabhakar attended the training regularly and he was provided more than 50 hours of driving practice with different type of vehicles along with theory classes. He passed the Driving competence test in first attempt itself and secured LMV Driving License and Driving certificate.

The change brought in candidate by the AF Driving School

Prabhakar has improved his Personality into a more responsible person with better Communication Skills. The Spoken English and training on First Aid are very useful to him in his daily work. In this training he learnt all the road signs, transport laws, statutory requirements and also soft skills required for a good driver.

AF Driving School also supported him in getting a job within 20 days after passing out. He got a job in Kalyandurg itself with an initial monthly salary of Rs. 2,400/- + allowances. In the first few months he could not support his family but later his salary was increased to Rs 4000/- and he started giving part of his salary to his family. Now he is earning more than Rs 6000/- as salary per month.

Mr. Prabhakar is now happy that he is professional driver and his earning has improved. Equally important he is respected by his friends, relatives and his community. He is happy that he found a great change in his behavior, communication skills and self confidence. His parents are also happy that their son has become a skilled person and a good individual. He is the first person in the family to go to a better occupation with upward mobility. He has inspired many other youth of his village to join AF Driving School. The response from other youth of his village and neighbouring villages was over whelming as many of them approached the AF Driving School for learning Driving Skills.

AF Driving School has trained many youth who are now supporting their family like Mr. Prabhakar. They all experience a better living condition than their parents and grandparents by breaking away from their traditional occupation of farm labour and hopefully a big leap forward for the future generations.



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