NATIONAL BANK FOR AGRICULTURE AND RURAL DEVELOPMENT

PMU-Ongole

WDF

PROJECT COMPLETION REPORT

GARUDAPURAM WATERSHED

Watershed Development Fund Programme

(WDF-NABARD-AF)

FES
FOUNDATION FOR ECOLOGICAL SECURITY

Submitted by

Accion Fraterna (AF)

Anantapuram

ACCION FRATERNA ecology centre
sustainable . human . nature

Table of Contents

Project Completion Report

Name of the Project: GARUDAPURAM WATERSHED

Name of the PFA: Accion Fraterna

Summary and conclusions:

Genesis:

The Union Finance Minister, in the budget speech for 1999-2000 had announced the creation of a Watershed Development Fund(WDF) with the National Bank for Agricultural and Rural Development(NABARD) with broad objectives of unification of multiplicity of watershed development programmes into a single national initiative involvement of village level institutions and NGOs.

In pursuance thereof WDF has been created in NABARD with a contribution of Rs. 100 crore each by NABARD and Government of India (GoI).

Objectives of WDF:

The objective of the fund is to spread the message of participatory watershed development. The Fund will be utilized to create the necessary framework conditions to replicate and consolidate the isolated successful initiatives under different programmes in the government, semi-government and NGO sectors. Thereby, all the actors involved –watershed community, Central and state government department, banks, agricultural research institutions, NGOs and NABARD can act in concert to make a breakthrough in participatory watershed development. WDF is proposed to be operationalized in close coordination with the Central and State Ministries as a continuum of their efforts but with a district identity.

With the support of NABARD, AF has facilitated the implementation of Garudapuram watershed from 2010 to 2015 with the active participation of VWDC which has proportionate representation of communities living there. The VWDC has demonstrated high degree of involvement and cooperated with AF in spreading the watershed awareness to all sections of population. .They have made proper use of the booklet provided by NABARD on quality aspects of watershed interventions. They have made effective use the visits of the NABARD officials to inform them about their needs and seek the support and guidance of NABARD in realizing them. . Another positive note about the watershed is that NABARD has always given utmost importance to the feelings and needs of the people and demonstrated immediate response for which both AF VWDC are grateful.

The selected watershed community and the AF had undergone the Capacity Building Phase(CBP) in which their capacity and inclination to implement the project is tested. The CBP is financed by NABARD under WDF and is facilitating by AF . On the successful completion of capacity building phase, the AF was permitted to begin the preparation of Project Feasibility report. This report forms the basic document of village community for the proper treatment of watershed. The treatments are finalized after detailed survey and discussions with the community, keeping in view the programme objectives.

The basic principle in the programme mainly includes social fencing and peoples contribution. Peoples' contribution includes minimum 16 percent free labour from the community and contribution

towards maintenance fund. Above all this, the people plan, implement and own the project. Thus, the main objective of the programme is to develop watershed in an integrated and comprehensive manner for achieving the supporting sustainable production system through active participation of the local people.

The basic source of data is through household survey, conversation at individual level among different categories of the households afftected by the watershed, records maintained at VWDC level and monitoring studies conducted by NABARD and RSO. All farmers having different size of land holdings located in upper, middle and lower regions and landless beneficiaries of the watershed was selected to study the impact on production, productivity income and generation of employment in agriculture. Besides this, it was also captured the possibilities of wage employment in the watershed itself, migration, scope for agriculture and allied activities etc., Discussions were also held with the community oftenly, about common land, livestock and availability of fodder, source of irrigation and water, social relations etc., and the environment on the whole.

There was a baseline survey depicting the pre development situation of the project. The data presented in the baseline survey was also verified with the selected beneficiaries for comparison between pre and post development situations. All these data and the perceptions are made use of while preparing the report.

The Garudapuram watershed is located Anantapur district in Kalyandurgam mandal, with a conglomeration of 1 hamlets of Yerrampalli.

The Total Geographical area of the watershed is 1175.00 ha., in which 975 ha., are treatable area. But the most of the hillocks denuded and the land mass is divided into three micro watersheds on the basis of natural drainage

.

The percentage of of slope ranges from 2 to 5 per cent.

The total number of households in the watershed is 222 with a population of 665 (household survey), which is, predominantly backward classes. Total work force is 70.00 percent of the total population is mainly engaged in agriculture and allied activities. Female population is 48.00 per cent. Literacy level is 42.93%. Density of population is 69 persons per square kilo meter.

The project was sanctioned in 2010 with a financial grant of 1.12 Cr, along with LH component and training amount. As against this, the physical achievement under area treatment was above 74.46%, while the financial achievement as at the end of project is 82 percent showing a reasonably good match between physical and financial achievements.

Regarding the impact of the watershed development on water conservation, water table in the existing bore wells persistently increases in all the seasons from 2011 to 2013. The increase in water table was substantial in all the wells considering the fact that the actual rainfall is less than that of the normal rainfall in the region. It was further reported that the flow in the streams continued till the end of February which otherwise use to dry by the middle of December during the pre-development period.

Further, under the project, more than 32444 number of saplings were planted all installments, of which, an average survival percentage is around 69.5 percent as on 2012-13 year. Dry land-horticulture was also given top priority in the watershed which included plantation of mango, etc., Nearly 80 percent of the plants were survived as on 2013-14.

Regarding the sustainability of the project, village level institutions, viz., Gram Sabha, Village watershed Committee and Mutually Aided Cooperative Society(MACS) Committee have been formed as a part of the implementation and for sustainability of the project in future. For maintenance of the project, corpus of Rs. 5.07 lakhs has been released and interest accrued in the project measures account Rs. 88347/- and peoples' contributions towards maintenance Rs. 87550/-. The AF has been working than a decade in these villages and has, thus, planned to continue the work in the area through the institutions created during the period. Therefore, there may not be any lack of technical expertise for maintenance of the structures. Besides, due to the continuous rise in accrual of benefits, the village community is taking keen interest in repairing private bunds on their own. As the corpus of maintenance fund is to be utilized for maintenance of the project, the interest @ 12 percent, which is sufficient to maintain the project in future.

The agricultural production has substantially increased primarily due to implementation of the watershed development project itself. The farmers have started taking interest in agriculture because of hopes of development created among the people by the AF as a Facilitating Agency. The farmers have adopted better package of farming practices for improving productivity and production of crops . The net value of agriculture production per ha., has gone up from Rs 0.55 lakhs to Rs. 1.75 lakh showing an impressive growth of percent. There are 69 bore wells which are in fully functional in the watershed. Nowadays, enough water is available in these bore wells for irrigation. The farmers have just taken some initiative in the direction by putting these wells to use by cultivation of vegetables. The villages are well connected by the roads and Kalyandurgam markets are nearby. Therefore cultivation of cash crops like vegetables could fetch them higher income. There is a great scope for growing second crop in Rabi season. So far, area treatment works of around 72.56 percent above were completed. Further, much of the drainage line treatments were also completed and hence impact of all these works taken together would be significant in recharging the ground water. The water available in the check dam, percolation tanks which were constructed are also used for irrigation, dry land agriculture and agro-horticulture. Farmers who are growing the mango plants under horticulture are aware of good management practices and it would bring good income to the farmers.

Though, the watershed is being located in the rain-shadow area, the availability of fodder enhanced, as many of farmers have been growing fodder through irrigation and also used the ground-nut residue and paddy as hay for the use of cattle in summer period. It was clearly known that the numbers of cross breed cows were increased in the watershed. However, the dairy activity has to be undertaken on stall-fed basis and proper veterinary services may have to be provided. The Mandal head quarter and Kalyandurgam are nearby distance to the watershed villages and hence there is a good demand for the dairy products. This activity can therefore be taken up. However, the climate during rainy season being humid, after care of the breeds has to be taken in the region.
To sum up, it is strongly felt that the project is sustainable in long run. Because the watershed community has " the will to maintain" and the necessary financial arrangements inbuilt within the Programme itself lead to sustainability of the project in future.

In the watershed, incremental income from crop husbandry is accrued due to increase in productivity, production, change in cultivation practices and cropping pattern, switch over to high value crops, etc., the incremental income from the crops, thus worked out to Rs. 403.99 lakhs. This income is in the fifth year of the project which represents 70 percent of full benefits. The full benefits are expected to stabilize from the sixth year on wards. The income from -horticulture is estimated by taking 50 percent of the number of plants planted, leaving enough margin for non-survival. The stabilization stage of the plantation is assumed to be tenth year from the year of planting. As the plantation was done from the first year to the fifth year, the benefits are expected to stabilize from the 15th year onwards. The total income from the horticulture plantation at stabilization stage is worked out at Rs. 48.80 lakhs. The total income from the watershed, thus,

would be from crop husbandry and dry-horticulture put together worked out to Rs. 452.79 lakhs at stabilization which stage, i. e., in the fifteen year.

On the count of generation of employment, the project had created additional employment of non-recurring nature to the tune of 15081 mandays during 2006 to 2012 year. In addition to this the people is expected to generate recurring employment of nearly 1250 man days per year. In other words, the project would be provide employment to nearly 600 persons all the year round.

On the whole, the development of watershed has helped to maintain ecological balance in the area. The sustained utilization of resources, thus, may not lead to degradation of land in future. The external intervention has contributed for change in economic and social conditions of the community. the literacy rate has gone up. The children between 6 and 10 are being regularly sent to school. The asset position has also increased. People have investment on housing, entertainment etc., The socio-economic scenario of the watershed is gradually getting upward momentum with the sense of responsibility and people's participation.

Contents of project completion report:

The report contains mainly base line survey and analysis of data. Those are Implementation of the programme, impact of the programme on vegetation and agricultural production, sustainability of the project in terms of agriculture production and mechanisms for maintenance of the project, financial and economic analysis, aspects like impact of the programme on employment generation, ecology and socio-economic status of the project area/project beneficiaries are covered and an attempt to understand the problems faced in developing the watershed and the prospects for further development.

******

Chapter –I

Introduction

Background:

The increase in population witnessed in the last 5-6 decades has put tremendous stress on the natural resources such as land, water and forest. Activities of man like deforestation, exploitation of water resources, wrong farming techniques, livestock over-grazing and faulty land use lead to the destruction of plant and tree cover exposing the earth to the natural forces like severe droughts, heavy rains, direct sunshine and high winds. It has also resulted in over exploitation of water resources and degradation of soils, which are very crucial for sustainable agriculture. These in turn lead to environmental problems such as soil erosion, floods or water scarcity. Decline in water levels and well yields lead to shrinkage of well commands. Agriculture yield is lowered and this resulted in decline in the income levels of the community resulting in poverty, migration of people and even leads to large number of suicides.

Suicides due to agriculture distress were of great concern to the government and also to the policy makers. In the country 31 districts have been identified as distress districts and of these majority i.e., 16 districts are from Andhra Pradesh and Telengana alone. It is a great challenge to address distress not only to the governments but also to the entire fraternity that is involved with agriculture and rural development and prosperity of rural areas in Andhra Pradesh.

In Andhra Pradesh 13 districts (7districts in Andhra Pradesh respectively) have been identified under distress. With a view to address farmers' distress, Government of India in consultation with State Government have initiated various programmes under PM's package. The watershed development programme has been assigned to NABARD and the resource for the programme is being met from its Watershed Development Fund (WDF-NABARD).

A watershed can be defined as the drainage basin or catchment area of a particular stream or river. Simply state it refers to the area from where the water to a particular drainage system, like a river or stream, comes from. A watershed may be small, consisting of a few hectares or huge, cover several thousands of hectares.

Watershed development programme involves regeneration of the environment, management of the resources like land, water and vegetation within that particular watershed. This equilibrium between need and availability of resources will lead to a better and increased resistance to drought and increased agricultural production augmenting food supply, fodder, fuel and timber. Further special emphasis needs to be given to address the farmers' distress through 'watershed plus approach' which includes implementation of various activities under agriculture enhancement measures, livelihood component, women development activities specifically targeting the landless people, small and marginal farmers, women and various common interest groups.

Concept of watershed:

It is an eco-system or bio-geo-physical unit in which the interdependence of renewable/non- renewable environment is closed. In other words, it is a "resource region" where the ecosystem is closely inter-connected around basic resource like water. Hence the management of resources on the basis of watershed is both ecologically sound and operationally viable.

Integrated watershed development is generally understood as an approach that combines soil and water conservation with social and institutional development, in addition to pursuing a broad range of activities that meet the felt needs of communities across many sectors, such as rural access, water supply, and income-generating activities.

Soils, water and vegetation are the basic essential resources for the agricultural development and thus, proper and sustainable utilization of these resources are the major decoding factors for the success of rain-fed agriculture. Watershed development is one of the techniques for development of these essential resources in less endowed areas. The development of watershed is, therefore, an important weapon against poverty. It has tremendous potential to render socio economic justice, attain self-reliance and to usher in a balanced development. The success of watershed, however, depends largely on participation and involvement of the local community particularly those who have suffered most of the consequences of environmental, besides proper technology.

Institutional Arrangement:

Looking to the enormous work involved, a three tier structure has been evolved to implement the watershed program. The bottom to top layers include community with "Village Watershed Development Committee"(VWDC) at the bottom /ground level to implement the watershed project. To facililtate the community/VWDC, a 'Non-Governmental Organization would act as a Project Facilitating Agency (PFA) and as an Experienced NGO, the "Accion Fraterna" (AF) had identified as a Project Facilitating Agency. The FES had been identified as Resource Support Organization (RSO), to support the PFA and VWDCs..

PFA introduction:

Accion Fraterna Vision, Mission and Values

1. AF 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.

And all people and institutional live as Trustees of Mother Earth and follow a culture of 'simple living' and ethics of conservation. Thus People and Nature live in harmony with each other showing due care for sustainable ecology, environment and bio-diversity.

2. Our Mission:

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

Our Present Programme Focus

AF at present focuses on transforming the conventional HEIDA (High External Input Destructive Agriculture), to sustainable that is low cost, local resource based, eco-regenerative and small rainfed farmer oriented.

Read More

Present Strategy & Priorities

Our Strategic priorities for 2013-18:

1. Strengthening CBOs and Participatory Process:

Strengthening the CBOs of farmers with emphasis on Gender and social equity, so that they play more and more active role in PPIME (Participatory Planning, Monitoring and Evaluation); and be proactive and responsive to any of their needs and problems.

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

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

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

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

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

AF is committed to being a strong, dynamic, dedicated and sustainable organization. It builds itself into an organization, learning from experiences and always improving in its work 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 often

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:

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 Ecology Centre..

Social Equality and Gender SensitiveWe 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.

Concern for Sustainable environmentWe ensure that all our policies and programmes have due consideration for sustainable environment biodiversity and ecological balance.

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 through combined and co-ordinated efforts.

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

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

Relevant and learningWe 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.

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

Transparent and AccountableWe are committed to be transparent and accountable to all our stakeholders.

Location and Selection of watershed:

2.3 Garudapuram watershed area is located at Anantapur district in Yerrampalli revenue village, Kalyandurgam mandal and falls under drought prone area. The Total Geographical area of the watershed is 1175 ha., in which 975 ha., are treatable area. The average annual rainfall is around 350 mm most of which is received during the south-west monsoons. The agriculture is largely dependent on monsoon, but the rains are not only scanty, but also erratic. The area is predominantly rain-fed area. The Project area was severely eroded and degraded due to multiple undulations. The arable lands are sandy loamy and as per the soil analysis report the land has low organic carbon levels and fertility of the soil is poor, resulting in relatively low productivity of important crops in the area. Improper soil management and insufficient rainfall are also causes to poor productivity of crops. Most of the area is undulated with a slope range from 2 to 5 per cent. Majority of the families belongs to B.C and S.C communities and most of the farm households are small and marginal land holders, and many of them working as Agriculture laborers. Because of continuous drought the agriculture was severely affected and 86 people from 222 households, were migrated to nearest towns. These are the facts which made to watershed interventions very important and necessary. At this juncture, AF has undertaken the watershed programme with the grant support of NABARD-WDF for the development of community through restoration of the denuded resources and the area, as one of the projects, as per the objective of the Orgnization.

The basic principles of the programme are:

- increased availability of surface and ground water;
- reduced run-off and soil erosion; improved vegetative cover in treated areas;
- improved commonland (waste lands, not about fallow lands) condition in the fragile upper slopes of watersheds;
- increased availability of fodder and fuel;
- increased crop yields, milk production and horticultural products;
- increased household incomes of marginal and small farmers, the landless and women;
- increased community/beneficiary participation through Village Development Committees (VWCs).

The Project completion report:

The Project completion report contains all eight chapters. The second chapter deals with methodology of the study and analysis of data. The third chapter presents implementation of the programme. The fourth chapter discusses the impact of the programme on vegetation and agriculture production. Chapter five makes an attempt to assess the sustainability of the project, in terms of agriculture production and mechanisms for maintenance of the project. The sixth chapter deals with financial and economic analysis. The seventh chapter, aspects like impact of the programme on employment generation, ecology and socio-economic status of the project area/ project beneficiaries are covered. Finally, the last chapter makes an attempt to understand the problems faced in developing the watershed and the prospects for further development.

Chapter-II

Methodology of study

This is a study of the watershed project in the sense of to prepare project completion report of physical and financial aspects of the completed investments. As the watershed completed with project implementation, such as, effects on conservation of soil and water and thereby increase in groundwater level of wells or bore wells and its suitability for irrigation, increase in area irrigated, change in cropping pattern, increase in yields, incomes, generation of employment, increase in quality and quantity of fodder and other common land produce and the arrangements made in the watershed itself for their sustain ability in future, etc., Further includes implementation of 'watershed plus approach' activities such as agriculture enhancement measures, livelihood component , women development, specifically targeting the landless people, small and marginal farmers, women and various 'common interest groups'.Problems and prospects are also highlighted to avoid errors, if any, to ensure full benefits in future.

Objectives:

2.2 Through the baseline survey and analysis of data for the project completion report mainly focus on aspects which are given in the following lines:

I. Impact of the programme on soil and water conservation, vegetation and agriculture production.
II. Sustainability of the project in terms of increased agricultural production, village level institutional mechanisms built up and maintenance of the project after the end use of funds available under the programme.
III. Financial and economic analysis of the project.
IV. Estimation of generation of recurring and non-recurring employment.
V. Impact on ecology and social structure and
VI. Constraints operating during implementation of the programme and means to overcome these.

Reference year:

2.3 The reference year of the base line survey is 2010-15

Sources of Data:

2.4 The basic source of data is the household survey through conversation at individual level among different households effected by the watershed and records maintained at WDC level. Interaction with different people of such as upper, middle and lower regions of the watershed to capture the impact on production, productivity, income and generation of employment in agriculture and also with landless poor to study possibilities of wage employment in the watershed, improved opportunities of livelihoods, migration, scope for agriculture and allied activities and discussion were held village level workers, group level meetings with farmers, SHG members.

There was a base line survey depicting the pre development situation of the project. The data presented in the base line survey was also verified with the selected beneficiaries for comparison between pre and post development situations and also referred the Feasibility Study Report(FSR). All these data and the perceptions of the team are made use of while preparing the report.

Project Cost:

2.5 Actual cumulative cost of the watershed is 1.12 Cr. (including training cost to capacitate the community) lakhs incurred during the last five years..

Analysis of Data:

2.6 The economics of the individual crops during the pre and post development situations is worked out on the basis of the average per hectare and then blow up over the total cropped area of the crops to arrive at the incremental income. The benefits of these crops to the extent of 20 to 35 per cent would accrue from the fourth and fifth years respectively and full benefits would stabilize from the sixth year onwards. Moreover, the income from dry land-horticulture is added to arrive at the total incremental income. In regard to dry land-horticulture, number of plants planted, survived and their yields were taken into account for working out income. The rate of survival is conservatively assumed at 50 per cent, even though the survival rate is more than 50 per cent in order to have a realistic estimate. The Dry-land horticulture, is expected to stabilize in 10th year from the date of planting. Till such time only 50 per cent benefits were considered from the sixth year planting to stabilization.

Financial Analysis:

2.7 Besides the direct benefits of the project mentioned above, there are quite a few intangible benefits which, however, are difficult to quantify. For example, availability of drinking water over longer period, change in aptitude of the people, awareness of group action and participatory development, leadership qualities, etc., could not be quantified and hence, only direct benefits of the project are considered under the financial analysis. The life of watershed is assumed to be 20 years.

Economic Analysis:

2.10 An attempt is made to estimate the returns to investment in watershed from social view point of the society. In economic analysis, the methodology of comparing costs and benefits is same as that of the financial analysis. The basic difference lies in identification and valuation of costs and benefits. In the financial analysis, all the benefits and costs are measured at the farm level and accounted at the "farm gate-prices" (the price for the sale of farm produce direct from the farmer). On the other hand, economic analysis is based on "shadow-prices"(The term "Shadow Price" is used to refer to monetary values assigned to currently unknowable or difficult to calculate costs.) reflecting the true social opportunity cost of inputs incurred in the project and the outputs accrued from it. However, estimation of "shadow prices" is a controversial issue.

* * * * *

Chapter-III

Watershed Project and Its implementation

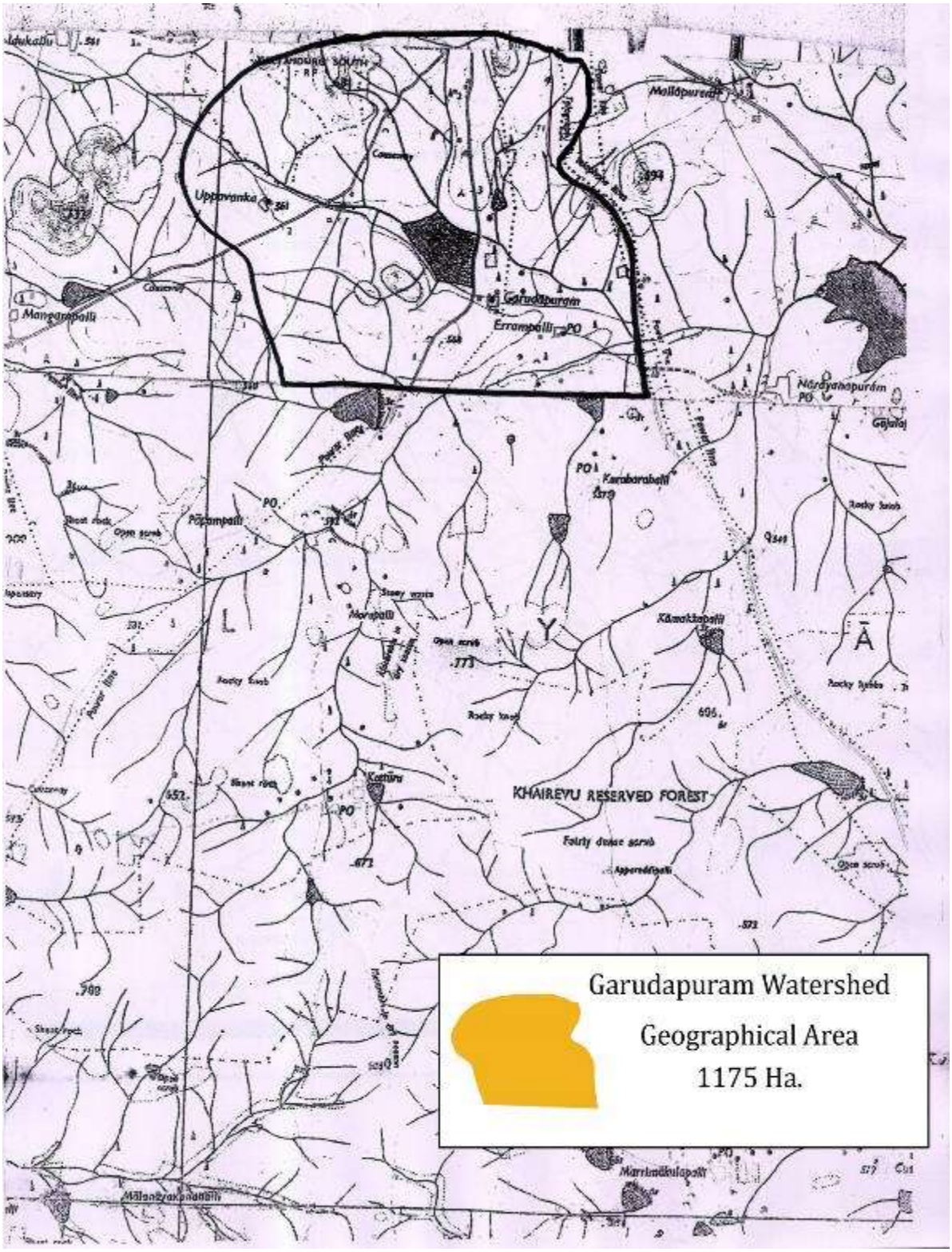
Watershed Project:

Overview of the Project:

Name of the Watershed		Garudapuram	
Name of the district		ATP	
Name of the Mandal		KLD	
Name of the Gram Panchayat		Garudapuram	
Names of habitations		Yerrampalli	
Longitude	$77^{0}5^{1}20$	Latitude	$14^{o}30^{1}15$
Elevation (above MSL)			
Highest elevation	**+694**	Lowest elevation	+549
Height difference		145 m	
Average annual Rainfall		352 - 520 mm	
Major drainage		Pedda Vankam Uppu Vanka	
Slope %			
Soil type		Red Soil	
Major crops		Ground Nut	
Water resources		Wells,	
Demographic Details			
Population		665	
Of which SC / ST (%)		23.77%	
Landless (%)		28%	
SF / MF up to 2 ha		144	
Male		605	
Female		553	
Amenities (nearest) and Distance in Km.			
Railway station		Anantapur (64 Km from Garudapuram)	
Bus stand		Kalyandurgam (4 Km from Garudapuram)	
Town		Kalyandurgam (4 Km from Garudapuram)	
Bank		SBI Bank, Kalyandurgam (4 Km from Garudapuram)	
Agriculture market		Kalyandurgam (4 Km from Garudapuram)	
Agriculture research station		Kalyandurgam (4 Km from Garudapuram)	
Veterinary hospital		Kalyandurgam (4 Km from Garudapuram)	
Mandal office		Kalyandurgam (5 Km from Garudapuram)	

Location:

3.1 Garudapuram watershed area is located at Anantapur district in Yerrampalli revenue village, Kalyandurgam mandal. The watershed area situated at 4 k.mts away from the Mandal head quartedrs and is comprised of 1 hamlets, Garudapuram, Yerrampalli 4 k.m.



Topography:

3.2 The Total Geographical area of the watershed is 1175.00 ha., with clear hydrological boundary on all sides, in which 975 ha., are treatable area. There are 222 land holding, of which, 28 house hold less than one hectare of land. There are 61 holding have more than four to eight hectare of land. The land mass is divided 3 micro watersheds on the basis of natural drainage. The percentage of slope ranges 2 to 3%.

3.4 Nearly 80 percentage of the Geographical area is comprised of shallow to medium soils have depth up to 30 to 50 cms and top surface is covered with sandy loamy. By and large, soils are well drained with moderate water holding capacity

Population:

3.3 There are 222 households with a total population of 1158. In the project area major dominating communities are BC(71%) and SC(19%). There is good cohesiveness among all the communities. The work force is 70 per cent of the total population and is mainly engaged in agriculture and allied activities. Female population is 41 per cent. Literacy level is 40.91%. Density of population is 119 persons per square kilo meter.

Village wise break up of population details are as follows:

Village Name	SC		BC		OC		Total		
	M	F	M	F	M	F	M	F	Total
Garudapuram	180	166	386	343	39	44	605	553	1158

Climate:

3.5 The annual average rainfall is 350 mm. Much of the rainfall is received form South west monsoon during the June to September. The Maximum temperature at around 32 degrees and the average temperature of the area is 25-28C.

Livestock:

3.6 The total population of livestock is 5322, amongst which the percentage of milch animals is 10, and majority animals are cross breeds of Hoelstein Frezien and Zersy varieties.

Sl.No.	Live stock	Total no.s	Mortality rates (High/ Med / Nil)
1	Bullocks	40	
2	Cows	25	
3	Buffaloes	108	
4	Sheep	3224	
5	Goat	210	
6	Poultry	1715	
7	TOTAL	**5322**	

Land Utilization:

Total Geographhical area of the watershed is 1175 hactares. Out of this, cultivable area (850.63 ha) 975 per cent, whereas, area under revenue is 2.60% .The 186 Ha. of irrigated land and 855 ha. Dry land. as shown in the table.

Particulars of Land Utilization

III LAND PRIVATELY OWNED

i) Private cultivated land : 855 ha
a) Seasonally irrigated (under tanks) : 16 ha
b) Perennially irrigated (under borewells) : 170 ha
a) Rain fed
ii) Private cultivable waste Land (including permanent fallows) : 32 ha
iii) Private un-cultivable waste. : 30 ha
==========

Sub- Total : 1003 ha

Irrigation:

There are 90 bore wells and out of 90 bore wells 90 bore wells are functional and 175 Ha., of land is under irrigation 21 open wells are also functional in the season. The main crops cultivated under bore wells are paddy, tomato and vegetables of few varieties such as beans, brinjal, Ladies finger etc., and sericulture in small patches.

	Pre watershed					Post watershed				
Type of well	Total no.s	Fully functional	Seasonal	Fully Defunct	Area (ha) Irrigated	Total no.s	Fully functional	Seasonal	Fully Defunct	Area (ha) Irrigated
Open wells	29	21	21	8	48	29	21	21	8	48
Bore wells	69	63	63	6	138	90	90	90	0	175
Total	98	84	84	**14**	**186**	119	111	111	8	223

Land Holdings:

There are 222 land holdings, of which 10.57 per cent is landless and 13.96 percent hold less than one hectare of land. There were 4 holdings having between 4 to 8 hectares of land which formed 23.01 per cent of total holdings.

Sl.No.	Land holding	No of land holding		Area in ha.,	
		Number	% to total	ha	% to total
	Existing Gross Holding (ha)				
1	Landless	28	10.57		
2	0-<1	37	13.96	38	
3	1-<2	107	40.38	189	
4	2-<4	24	9.05	86	
5	4-<8	61	23.01	265	
6	More than 8 ha	08	3.02	72	
	Total	265			

Implementation of Watershed

Sanctions and Achievements:

The project was sanctioned during 2010 year with a financial grant of 1.12 Cr. Lakhs(for worsks). The above sanctioned amount excludes management expenditure of Rs. 18.22 lakhs. For trainings 1.00 lakh and for maintenance of assets created during the implementation was sanctioned 5.07 lakhs. The expenditure against sanction is Rs. 72.33 lakhs.

Following are the financial details for the project:

Financial Details

a. CBP

Initially Garudapuram watersheds were sanctioned as a Single watershed and after completion of CBP, for the convenience of implementation the area was divided into two watersheds during the FIP sanction. So, the CBP area comes under Garudapuram watershed and sanctions and achievements and the impact was given in the PCR of Garudapuram

Budget details of CBP:

Sanction details		Utilisation of Funds
Material	215204	215204
Labour	416170	416170
Supervision	33293.6	33293.6
Total Project Measures	664667.6	664667.6
Less shramdhan	66587.2	66587.2
Grant to the WDC	598080.40	598080.40

b. FIP as on 30.11.2015

(Amount in Rs)

Sl.No	Grant Status	Project Management	LH & APEM	Trainings	Maintenance fund	Project Implementation	Total
I	Grant Sanctioned	1822300	1327900	100000	556400	7486100	11292700
II	Total amount of grant received (cumulative) (Till the end of reporting period)	1505878	1327900	100000	364200	7486100	10784078
III	Grant utilized during the reporting period	1505878	1327900	100000	364200	7486100	10784078
IV	Balance of grant carried forward (I-IV)	316422	0	0	192200	0	508622

Project Implementation:

With the active involvement of Village Watershed committee the area treated is 975 Ha area with an amount of Rs 72.33 lakhs. Apart from irrigated private lands all other land types have covered under various bio physical interventions and revegetation activities followed by the drainage line treatments in the watershed.

Sanction and achievements:

a. FIP

Sl.No	Activity	Sanction		ACHIEVEMENT/ EXPENDITURE			
		Phy.	Financial (With.Shrmn)	Phy. Quantity (m /cum)	Percentage of completion of units	Grant amount	Percentage of completion of grant
1	NFB.,	48514	1316670	49000	101.001773	1325072	101
2	S.O	521	249112	521	100	753909	303
3	FP-1	10	155233	10	100	389808	251
4	FP-11	5	79080		0		0
5	FP-11	5	75371		0		0
6	FPR	8	19497	8	100	277437	1423
7	AFSEED	284	29200	284	100	42483	145
8	DD	3109	345641	3109	100	464882	410
9	RCW	5	32040		0		0
10	SB	2130	195482	856	40.1877934	217973	112
11	BLPL	5500	144320	3000	54.5454545	98420	68
12	G.S	2500	99000		0		0
13	Agave Suckers	5000	14200	5000	100	12341	87
14	Bpl	25336	571580	6500	25.6551942	49760	9
15	A.H	560	40432	120	21.4285714	34214	85
16	D.H	30384	2019590	30384	100	1405800	70
17	SGP-1	378	398967	378	100	573386	144
18	SGP-11	96	407109		0		0
19	RFD-1	258	9905	258	100	323336	3264
20	RFD-11	34	194298		0		0
21	RFD-111	47	304398		0		0
22	Checkdam	1	242910	1	100	313275	129
23	M.P.Ts	105	273793	105	100	332338	121
24	Bak yard					24000	
25	Kichen Garden					20000	
26	Raingage						
27	S.Cost 8%					380349	
28	Trainings						
29	Bank Charges						
30	LH & PE	1525	1327900	1525	100		0
31	R.O.PLANT			1		194390	
	TOTAL	**122887**	**8545728**		0	**7233173**	**85**

It can be seen from the table that the physical achievement under area treatment is 100% while the financial achievement of the corresponding work worked out to 100% which is more because change of SSR. A total of

nearly 73 (both area and drainage treatments) per cent of the geographical area has been treated for soil and water conservation.

As regard the cost estimates, there are no wide variation in average unit expenditure of various area treatments.

3.4 Regarding the drainage line treatment works, the physical achievement is 83.33% and financial achievement is 77%.The physical achievement of check dam is 133% than the sanctioned units and unit cost is little higher than the sanctioned. The higher achievement in drainage line treatment in few activities is because of changes in work plans at the time of execution. The unit cost of Check dams and existing MPT is slightly higher than the sanctioned. But the overall achievement of drainage line treatment is satisfactory.

Year wise Achievement of watershed:

3.5 In order to understand the sequence of the works executed, the year wise works completed is a good indicator as presented in the table 3.4. It can be seen from table 3.4 that during the first year, beginning was made in area treatments works such as NFB, New Stone Bunding was given on priority basis. 202 Stone gully plugs and RFD's 83 NO's were also constructed, to minimize the erosion, at the beginning of the first order streams, as there were no treatments at previous. One MPT, FP 28 No's and One Check dam were formed to harvest the heavy flow of the surroundings of cultivated lands, which are the catchments of varied streams at the first order of one of the micro watershed. A check wall was constructed at appropriate location to improve the recharge of ground water.

3.6 In the second year along with area treatment, plantation was also given importance. At the lands which were treated with NFB, stone outlets were also constructed to drain out excess run-off. To improve the vegetation, seven thousand saplings were planted during the period and drainage treatments were also given preference. 202 Stone gully plugs were constructed under the component. One Check dam and one MPT for also construction.

3.7 From third year onwards, stone outlets were constructed in proportionate to the NFB execution and the remaining area treatments and drainage treatment works such as NSB, contour staggered trenches, MPTs etc., were also implemented simultaneously. During the period a wide range of preference was given to the plantation and the number of saplings planted was 32444 and 20904 mango plants were also planted under Dry-land horticulture. On the whole the sequence of work executed is satisfactory.

Table 3.4

Treatment Area in (Ha)	Target (Rs.)	2010-11 (Rs.)	2011-12 (Rs.)	2012-13 (Rs.)	2013-14 (Rs.)	2014-15 (Rs.)	TOTAL (Rs.)
NFB	1316670	222895	349123	509929	247075		1329022
STONE OUT LETS	249112	49362	95433	200081	140974		485850
FP-I	155233	45274	58212	150671			254157
FP-II	79080	0	0		101961		101961
FP-III	75371	0	0		97828		97828
FPR	19497	19497	0	25218			44716
AF SEED	29200	0	0		7114		7114
RCW	32040	0	0				0
DD	113333	108296	0	5331			113626
DDR	232308	166409	0	29617			196027
NSB	195483	0	60306				60306
Vegetative Measures		0	0				0
Bpl	571580	49835		108161			157996
Blpl	144320	61085	0				61085
AH	40432	17350	18010				35360
	99000		0				0
DH	2019590	256694	1064650	219384			1540729
Agave Plantation	14200	0	0				0
Drainage line treatment		0	0				0
SGP - 1	398967	69921	71710	200518	190970		533118
SGP - 2	407109	73017	39617	123815			236450
RFD - 1	9905	5611	0				5611
RFD - 2	194298	32788	11429		318382		362598
RFD - 3	304398	6340	51771	165190			223301
Check Dam	242910	0	0	304436			304436
MPT	273793	0	0	336815			336815
Rework Plan							0
SB	291350					281165	281165
SO	221650					213902	213902

CD	257268						0
DD1	67860						0
DD2	51840						0
RO Plant	250000					250000	250000
Total	8357796	1184374	1820263	2379166	1104303	745067	**7233173**

3.8 The watershed project was implemented satisfactorily. After the completion of the project, it is expected that the project would not only be financially a viable proposition, but would also be sustainable in future. Nevertheless, peoples' participation in the activity is imperative for its sustainability. The participation of the people in development and maintenance of the project in future is discussed in the subsequent chapters.

* * * * *

Chapter-IV

Impact on soil and water conservation, vegetation and Agriculture Production

Impact of the watershed development could be measured in terms of increase in soil/water conservation (water table), development_of common land, reduction in fallow land, changes in land use and cropping patterns, switch over to high value crops, intensive cultivation, double cropping, increase in productivity, production, income and generation of employment etc,, besides some social development. An attempt has been made in this chapter to assess the effect of watershed development on soil/water conservation and vegetation and thus impact on productivity, production and income from the different crops grown in watershed.

Effect on Soil/ Water Conservation:

4.2 It was observed from the earlier chapter that nearly 73% of the geographical area has been treated for soil/ water conservation. The major treatments include farm bunding improvement, afforestation, Dry land horticulture, Stone bunding, gully plugging, construction of check dams, formation of MPTs etc., all these works have been satisfactorily carried out in the watershed. The farm bunding improvement has substantially reduced the run-off of water, increased its percolation and improved retention of moisture in the fields and thus, has led to increase in productivity of crops. The marginal lands are brought into proper usage like dry land-horticulture, pulses cultivation(horse-gram). The gully plugs have helped to reduce the run-off velocity of water and soils. The silting in the gully plugs is an indicator of the effect of this treatment. The primarily role of the gully plugs is to reduce the velocity of water to the non-damaging level in the streams or gullies. 1 MPTs and 1 check dams were constructed, for water harvesting (recharging of ground water) in the watershed. The check dams and MPTs are helped to get recharge bore wells and open wells at the downstream side of structures.

All these treatments have resulted in percolation of water in soils which otherwise would have been wasted as run-off and drained in gullies and streams. Though all the gullies were treated, many of the gully plugs were disturbed. However, the watershed community did carry out repairs of gully plugs ever year before on set of monsoon. The check dams were constructed across deep gullies and as such, may be of much use to the village community for recharging of ground water. However, he water available as ground water and used for protective irrigation of dry land-horticulture. The impact of various activities in various survey numbers was given in the following lines:

MPT: An MPT was formed in the survey no. 18, to harvest the run-off -of the surrounding lands.,

Farm bunding was also formed in the same survey number, to arrest the erosion and to enhance the retention of soil moisture and to drain out excess run-of, Stone outlets were formed. And bund plantation was also taken up. The number of plants planted are 2000 nos. The survival percentage is 70%.(plantation register). Stone bunding was also constructed in the same land, where the slope of the land falls from the range 5 to 6% to minimize the erosion. After the treatments, the farmer has been cultivating the land and at the present standing crop is horse-gram in the entire land. The period of retention of soil moisture has been increased substantially *and* the crops too sustained during long dry spells after the treatments.

After the treatment of the above land(survey no.303) and the formation of the MPT, the bore well which is situated at the downstream side of the structure, was get recharged and water level rises to 30 feet from 10 feet during the monsoon period. The farmer Pennappa has been cultivating vegetables such as tomato, chilly, brinjal etc., She had got nearly Rs. 60,000/- through the tomato

crop. The yield of chilly is nearly 1 quintal and got Rs. 10000/-. As a total of nearly 6 acres of land come into cultivation and under the bore well paddy was cultivated in 50 cents and gave an yield of 20 bags (75 kgs).5 acres of land was converted as dry land horticulture and the yield expected would be sold for Rs. 24000/-. An open well was also get recharged at the downstream side structure in the same survey number and farmer had been cultivated the crop of tomato and earned (6 tones) Rs.29000/-.

In the same survey number, in the fields of Narayanaswamy, a bore well was get recharged by the CD and farmer has been cultivated paddy in 0.50 acres and 5 in acres of land under horticulture250 plants were planted.

Dug out pond: In the survey no. 132, in the fields of Ramachandra a FP was excavated and has been useful as a drinking water source for cattle of 2 villlages(Garudapuram, Yerrampalli,).

Convergence of Government & NGOs improving livelihoods in Watershed villages

Accion Fraterna Ecology Centre started 6 Watersheds covering 12 villages in Kalyanadurgam mandal in the year 2010 with financial assistance from NABARD.

Convergence of various Government and Non Governmental Organisations is of utmost importance in NABARD watershed programmes. As part of the convergence, AF saved on NABARD funds by involving Government schemes like MGNREGS for constructing farm bunds, providing fruit tree plants to the farmers outside the boundary of the watershed, linking employment guarantee scheme for wage payment etc. AF mobilized fruit plants, drip irrigation systems, solar water pumping etc from RDT/FVF. AF also mobilized vegetable seeds and annual crop seed for contingency cropping like horsegram, jowar etc from the Department of Agriculture and bio fertilizers from Krishi Vignana Kendram (KVK). AF also provided seed like jowar, redgram, castor, foxtail millet, bajra, cow pea, vegetable etc from its Sustainable Agriculture & Rural Livelihoods programme to demonstrate the drought resistant multiple intercropping models for providing assured income as well as food & nutritional security to the farmers' families.

S.No	Activity	Extent in Acres	Supporting Organisation	Amount mobilised Rs.
1	Farm bunds	1450	MGNREGS	36,25,000
2	Horticulture Plantation	395	MGNREG	37,32,750
3	Drip facility	2500	RDT/FVF	37,50,000
4	Solar Water Pumping	3 Nos	RDT/FVF	2,46,000
5	Drip system for vegetable plantation	35	RDT/FVF	8,75,000

6	Vegetable seeds and fertilizers	318	Agriculture Department	1,98,000
7	Bio fertilizers	472	KVK	2,59,600
8	Seed for SA demo plots	1200	AF EC	3,00,000
TOTAL				**1,29,86,350**

This was made possible with the commitment of strong watershed committees, support from NABARD and convergence with DWMA, Agriculture Department and RDT/FVF. The watershed committees thanked all the Government and NGOs involved in this endeavour.

I CONTRIBUTED TO INCREASE OF MILK YIELD IN MY VILLAGE

Village : **Garudapuram**
Mandal : **Kalyandurg**
District : **Ananthapur**
PFA : **Accion Fraterna Ecology Centre,Ananthapur**

My name is pathalinga , aged 45 years, residing in Garudapuram village. I participated in WDF (NABARD) watershed meeting and understood the activities of the programme. Then, myself and four other members formed into a common interest group and approached the WDC, for loan to take up livelihood activities by purchasing "Milch Animals" Then we informed the WDC, and accepted to abide by the norms set by the VWDC, and repay the amount in installments . Then I obtained Rs.10,000/- and put my share of 6000/- and purchased a cow for Rs.,16000/-. The other members of the group also purchased the milch animals . The Cow is regularly

yielding 6 lts., of milk per day I am and selling the milk at Rs.,15/- per lt. During these 6 months I earned an income of Rs.16,200/- and repair 6,450/- and made a net income of Rs.,9750/- Now, I want to increase the animals by spending the enhanced income. Now, I am happy, with increase of income and better living standard . Besides the milk production of our village in also increased due to increase of milch animals, through loans provided by the WDC under livelihood programme. Our group is thankful to NABARD, WDC and Accion Fraterna (PFA). for taking up watershed programme in our village.

Ground Water

Part – A Open wells and Bore wells – Status and Irrigated area

	Pre watershed					Post watershed				
Type of well	**Total no.s**	**Fully functional**	**Seasonal**	**Fully Defunct**	**Area (ha) Irrigated**	**Total no.s**	**Fully functional**	**Seasonal**	**Fully Defunct**	**Area (ha) Irrigated**
Open wells	29	21	21	8	48	29	21	21	8	48
Bore wells	69	63	63	6	138	90	90	90	0	175
Total	98	84	84	**14**	**186**	119	111	111	8	223

Table 4.1
Rainfall in the watershed

Year (January to December)	Rain fall(mm)
2008	661.4
2009	564.2
2010	659.4
2011	659.4
2012	233.6
2013	374.4
2014	170.7
2015	432.45

Table 4.2
Water table depths of bore wells and open wells

Number of observation wells	Pre Watershed (October 2010)			Post Watershed (October 2015)		
	Avg. depth of well (m) (Open well)	Avg. depth of water table from ground (m)	Avg. Depth of available water (m)	Avg. depth of well (m)	Avg. depth of water table from ground (m)	Avg. Depth of available water (m)
Upper Reaches						
Narayana Swamy	50	41	45 ½	42	35	38.50
Ramachandra	51	41	46	43	35	39.00
Average						
Middle						
Ramakrishna	46	40	43	40	34	37
Narasimhulu	48	42	45	40	34	37
Lower						
Ravindra	43	36	39.50	36	31	33.50
Neti Kollappa	42	37.00	39.50	35	31	33
Average						

Rainfall(millemeters) ---------mandal(to be collected from Mandal office)

Month	Normal	2008	2009	2010	2011	2012	2013	2014	2015
January									
February		22.3	0	0	0	0		0	0
March		84.4	0	0	0	0		0	0
April		0	22.4	58	110.8	42	69.35	0	70.8
May		41.5	71	179.8	66.8	10.2	20.4	0	66.8
June		90.5	47	29.8	96.4			48.3	96.4
July		114.3	14	75.4	55.4	41.6	36	28	55.4
August		84.5	108.4	135.4	104.2	54.8	75.8	64.5	61.25
September		147.3	164.5	50.2	3.6	49.4	65.01	18.6	3.6
October		33.2	63.3	38.3	69	61.5	65.6	11.3	69
Novermber		43.4	73.6	92.5	9.2	26.3	42.24	0	9.2
December		0	0	0	0	0		0	0
Total		**661.4**	**564.2**	**659.4**	**515.4**	**285.8**	**374.4**	**170.7**	**432.45**

A very interesting phenomenon can be observed as far as irrigation sources are concerned. After bore well technique has come to light the bore well culture became part of agriculture in Andhra region and this watershed area is not an exception. It is note that number of open wells was decreased due to continuous drought and area under irrigation also decreased.

Totally there were 119 open or bore wells in the watershed area which has increased to 119 out of which 111 are fully functional, 8 are defunct. It has to be noticed that the farmers leveled the defunct open wells and hence there are very more defunct open wells. As many as 4 bore wells which were earlier defunct became

functional as water levels have increased. Total area under well or bore well irrigation has also increased to 223 Ha. against the pre watershed period irrigated area of 186 Ha.

	Pre watershed					Post watershed				
Type of well	**Total no.s**	**Fully functional**	**Seasonal**	**Fully Defunct**	**Area (ha) Irrigated**	**Total no.s**	**Fully functional**	**Seasonal**	**Fully Defunct**	**Area (ha) Irrigated**
Open wells	29	21	21	8	48	29	21	21	8	48
Bore wells	69	63	63	6	138	90	90	90	0	175
Total	98	84	84	**14**	**186**	119	111	111	8	223

4.5 The water table was decreased due to the following reasons

- Increase in area under irrigation
- Drought
- Low rain fall

The above table, the figures were taken from the well inventory register maintained by the para worker. As the recording the water levels are started in the critical period after almost 3 months after the rainy season and hence November / January months are taken as base periods for comparison. In general the water levels in this critical month have been raised by 2 meters. A deeper reference to the well inventory register indicates that the bore wells are over flowing with water for more than two months after the rainy season. When we compare the water levels from year to year it reveals there is direct correlation between the level of rainfall and the water levels in the observation wells. However the VWDC members and farmers have shared in different meetings that as the land treatment works progressed in watershed interventions availability of water levels in bore wells increased in time and quantity. Water levels as mentioned above remained so in a number of wells which played a crucial role in survival of plants planted in the watershed area using the project funds. The VWDC members and farmers shared that in the pre watershed period the bore wells were yielding water intermittently – half an hour to two hours at a stretch and by October month. Now there is continuity in yield of water of and water is seen available even till February or March every year. This is the main reason as to why there is multifold increase in the number of bore wells coming up. Confidence of the farmers in going for crops in rabi season has increased.

Land Utilization Pattern:

4.6 In addition to this, it has been observed that from the land utilization pattern that the watershed development 164 ha of rain-fed land converted as irrigated land as shown in table 4.3. Though rain-fed land has come under irrigation due to the development of watershed there is no change in the land holding pattern among the farmers.

Table 4.3
Land Utilisation pattern (Area in ha.)

S.No.	Type of land	Area in Ha.	
		Pre Watershed	Post Watershed
A	Crop Land		
1	Irrigated land	150	155
2	Dry land (Rainfed)	1003	1008
B	Fallows		
1	Uncultivable waste land	10	
2	Cultivable Waste land (fallows)	28	28
C	Others (Water bodies, hillocks etc.)		
	Total	1191	1191

Vegetation:

4.7 The common land primarily contains bushy vegetation. The local community over the years had felling trees which could be one of the reasons for the present situation of the common land. Now due to soil and water conservation efforts, people have stopped felling of trees. The people were using this land for grazing their animals for decades. Now due to protective grazing, the fodder availability has improved substantially.

4.8 The village community has taken the responsibility of protecting the common land. The regeneration has taken place because of protective grazing and vigorous reforestation efforts made by the watershed community. The People have planted saplings of local species on this land and their growth is satisfactory.
4.9 Further, due to watershed development activities, fields were conserved and plantation was done on an extensive scale on them. Over 32444 saplings have been planted covering both private and common lands. The details of trees planted and their survival rate are given in tables 4.4 and 4.5 respectively

Table 4.4
Details of Plantation:

S.No.	Species	Pre Watershed	Post Watershed			Remarks
		Plantation area (ha.)/ Numbers	Plantation area (ha.)/ Numbers	Number of plants surviving / area (ha)	% age of survival	
1	AH	560	500/7.14	400/5.71	80	
2	DH	125	20404/291.48	16432/234.743	80.53	
3	AF(bund)	205	29444/184.025	22142/138.388	75.2	
4	AF (block)	10	3000/7.5	2335/5.83	77.83	
5	PAS	5000	*5000/12.5*	4232/8.464	84.64	

Table 4.5
Survival Rate of Plantations

Sl. No.	Year	No. of plants planted	No. of plants survived as on	Survival rate %
1	2010-11	14735	11788	80
2	2011-12	16750	13489	80.53
3	2012-13	12318	9263	75.2
4	2013-14	10315	8028	77.83
5	2014-15	4230	3580	84.64
	Total	58348	46148	

4.10 The survival rate of plantation in the year 2010-15 was high as 84.64% as rainfall was high during the year. The average survival rate was 84.64 percent during 2010-15 year to 2010-11 year. The survival rate would be counted before the watering the plants.

4.11 The people of the watershed have taken maximum care of horticultural plants by providing protective irrigation and farm Yard Manure (FYM). The average survival rate of plantation is 84.64 per cent. The survival rate of DH plantation was highest at 80.53 percent for the reason mentioned earlier. The re-plantation of trees and their protection is a continuous process till the plantation is stabilized.

Plantation activity was taken up during the project period. Altogether over 58348 plants were planted with project grant and 46148 plants are now surviving. The VWDC and motivated the farmers to take personal care of other plantations but lack of water during long dry spells resulted in reduced survival rate. The plantation promoted under DH, Block plantation and bund are Casia,, Glyrecedia, Pongamia,,Mango, Allanerudu,etc. These have provided matter for green manure, supplementary income from Mango and Allaneredu etc.,

4.12 The cropping patterns during the pre and present development period are presented in table 4.8

Table 4.8
Cropping Patterns:

Sl. No.	Crops	Production of major crops in the watershed					
		Pre watershed			Post watershed		
		Area (ha)	Yield (Q/ha)	Production (Qts.)	Area (ha)	Yield (Q/ha)	Production (Qts.)
Kharif							
	Crops						
1	Ground nut	1000	10.5	10500	640	6	3840
2	Ragi	2	2	4			
4	Red gram	100	1	100	60	1	60
5	Green gram				4	3	12
6	Horse Gram	150	4	600	10	4	40
7	Paddy	186	56	10416	74	56	4144
	Vegetable						
1	Tomato	20	250	5000	75	300	22500
		Area (ha)	**Yield(Q/ha)**	**Production (Qts.)**	**Area (ha)**	**Yield(Q/Ha)**	**Production (Qts.)**
2	Greengram	10	5	50			

	Vegetable						
		Area (ha)	Yield(Q/ha)	Production (Qts.)	Area (ha)	Yield(Q/Ha)	Production (Qts.)
1	tomato	7	3	2100	42	300	12600

a. 4.15 It can be seen from table 4.8 that the cropping pattern has remained more or less the same over the period, except the introduction of few varieties of vegetables, and maize in small patches. The intensity of cropping has reduced marginally during the period from 126.46 per cent in the pre-development period to 122.71 per cent in the present development period.

This indicates that rain-fed agriculture reduced in the post development period because of severe drought in recent past. Especially the extent of ground nut cultivation limited to 400 ha from 487 ha., and also cultivation of finger millet reduced to 25 ha., from 75 ha.,

But it was observed that the cultivation is increased in the Rabi which is showing irrigation under bore wells increased to 120%. It is an indication of improvement in the recharge of ground water.

The cultivation of finger millet reduced drastically from 75 ha., to 25 ha., But the extent of cultivation of vegetables like tomato, ladies finger etc., increased and also productivity during the post development period.

From the above table and diagram it was understood the extent of Tomato in the rabi, extended 1 ½ times during the post development period when compare to pre-development and yield per ha., also enhanced 31% in the period. Simalrly, the extent of other vegetables also increased substantially during the peiod of post development period.

Productivity and Economics of Crops

4.13 the productivity and economics of different crops grown during pre and present development situations are presented in Tables 4.9 and 4.10 respectively. In the first instance, it is observed from both the tables that the productivity of the crops has increased to some extent over the period, and at the same, there is a marginal change in the technology. Maintenance of field bunds has become a regular practice during the standing period of crops in the fields in monsoon season.

Inter-culture operations like weeding and after care of standing crops are improved. In short, farmers have turned to agriculture which was otherwise neglected during the pre-development period. All this has led to increase in productivity of crops.

Table 4.9
Economics of Crops Grown during Pre Development Period

(Rs. Per Ha)

Sl.No.	Crops	Season	Yield (Q)	Price (Q)	Gross Value of Production	Cost of cultivation (Ha)	Net income
1	Ground nut	Kharif	10.5	2000	21000	19200	1800

2	Ragi	Kharif	2	1200	2400	3500	-1100
3	Red gram	Kharif	1	2000	2000	4000	-2000
4	Greengram	Kharif	5	1000	5000	8100	-3100
5	Horse Gram	Kharif	4	700	2800	1500	1300
6	Paddy	Kharif	56	600	33600	15600	18000
7	**Vegetable**	Kharif			0		0
8	Tomato	Kharif	250	300	75000	48000	27000
9	Tomato	Rabi	300	400	120000	48000	72000

Table 4.10
Economics of Crops Grown during Post Development Period

(Rs. Per Ha)

Sl.No.	Crops	Season	Yield (Q)	Price (Q)	Gross Value of Production	Cost of cultivation (Ha)	Net income
1	Ground nut	Kharif	10.5	5500	57750	25100	32650
2	Ragi	Kharif	2	1200	2400	3500	-1100
3	Red gram	Kharif	1	1000	1000	500	500
4	Greengram	Kharif	5	7000	35000	29600	5400
5	Horse Gram	Kharif	4	3000	12000	6750	5250
6	Paddy	Kharif	56	1500	84000	24900	59100
7	**Vegetable**	Kharif			0		0
8	Tomato	Kharif	250	900	225000	140000	85000
9	Tomato	Rabi	300	1260	378000	140000	238000

Additional Production:

4.14 In consequence with the increase in productivity, the total production of paddy is increased by 7 tonnes and. Production of pulses increased by 2.3 tonnes. Similarly, production of vegetables increased by 3.37 tonnes.

Other Prominent changes in Agriculture

Particular	Pre Watershed		Post Watershed	
	No of farmers	Area/Unit	No of Farmers	Area/Unit
Promotion of mixed cropping	47	128	81	161
Area under vegetable cultivation	62	26	61	114
No of Drip/Sprinklers set financed	46	81	67	108
Area under Horticulture(Mango, Lemon.etc)	6	5	23	71

The above details indicate the status of agriculture before and after the watershed. The conscious efforts to promote practices aimed at making agriculture less water intensive, less capital intensive and also enhancing the productivity of the land. All these efforts were initiated with continuous guidance of PMU, NABARD/WDF and RSO. All the stakeholders understood the importance of these initiatives in order to ensure the sustainability of the impact created through watershed interventions. Area under these indicators has increased considerably. This is because of exposure visits and training programs to make the VWDC

members and farmers aware of concepts such as organic cultivation, SA, organic cultivation, zero budget farming etc under training component.. This ensures not only the survival of plants but also ensures water conservation.

VWDC have made effective use of all the occasions to promote these practices. These opportunities include VWDC meetings, Gramasabha, Kalajatha, official visits, etc.

The VWDC have effectively made use of the grants available under livelihood and Productivity Enhancement components to motivate farmers to adopt agricultural practices conducive to watershed. It simply means that the agricultural practices of farmers should be conducive to the availability of water for irrigation, soil quality, reduction in monetary investments, effective use of locally available green manure sources, etc. It is very important to note that the farmers could readily take mixed cropping, of Groundnut with red gram, and Cow pea, etc. Area under vegetable, horticulture, fodder, etc. has also increased reflecting the changes in agriculture.

In order to facilitate water conservation for irrigation, the VWDC has financed drip irrigation sets on loan basis after duly availing subsidy from government. The VWDC have also encouraged the farmers especially of those beneficiaries of vegetable cultivation, agro- horticulture (plants given under DH and later turned converted to agro-horticulture) to avail Government Subsidy schemes to get drip irrigation sets. In this watershed about 22 farmers have benefitted with this gesture.

Changes in Agri-allied activities:

Livestock

a. Summary of Livestock holdings:

Sl. No	Livestock	Population & Mortality			
		Pre watershed		Post watershed	
		Total no.s	Mortality rates (High/ Med / Nil)	Total no.s	Mortality rates (High/ Med / Nil)
1	Bullocks	140	Nil	40	Nil
2	Cows	108	Nil	25	Nil
3	Buffaloes	236	Nil	108	Nil
4	Sheep	1280	Mid	3224	Mid
5	Goat	150	Mid	210	Mid
6	Poultry	1652	Mid	1715	Mid
7	TOTAL	**1466**		**1382**	

A glance through the above statement indicates that work animals have gone down considerably compared to the pre watershed period. This is because of the mechanization of the agricultural practices such as tractors and harvesters. Maintenance of work animals is quite expensive affair. It still understands the need for survival of work animals such as bullocks for the survival of milch animals such as cows & Bullocks. Mortality percentage of the livestock has gone down to a larger extent. It is because of the veterinary health camps conducted under watersheds, presence of Supervisors and increase awareness to visit the veterinary hospital in case of health emergency. This watershed also has established linkages with veterinary hospital to ensure that

the doctor visits the village once in a month regularly. This is essential for them as number of diary animals has gone up along with milk production and regular income for the families. Total number of livestock existing in the watershed area has doubled in the span of watershed period.

Fodder & Drinking water Assessment:

S.No.	Source	Pre Development*		Post Development *(estimated)**		Post Development *(Actual)*	
		Area (ha)	Total yearly Prod'n (t)	Area (ha)	Total yearly Prod'n (t)	Area (ha)	Total yearly Prod'n (t)
1	From Agricultural Crops						
A	Kharif (Paddy)	170	1530	180	4860	74	
B	Rabi (Paddy)	16	42.88	25	225		666
	Red Gram, Green Gram, Ragi, Horse Gram					74	150
	Ground Nut	640	1728	690	1863	640	1728
	Sri Paddy			4	108	4	
2	Stylo hameta			30	30	30	
3	Nappier grass			7	22	7	
	Maize			4	76	4	
	Total						

Fodder	Pre watershed	Post watershed
Fodder availability throughout the year (Yes/No)	No	Yes
If No, the scarcity period (no. of months in year)	6	3 Months
Practices of meeting scarcity	Ground nut, Horse gram	Preserved Paddy Straw
If surplus, how is it managed		
Livestock drinking Water		
Water availability throughout the year (Yes/No)	No	Yes
If No, the scarcity period (no. of months in year)	6	3 Months
Practices of meeting scarcity		

The VWDC feels that actually the fodder production fell below their own expectation for some farmers and for some other it is surplus. With this reason some farmers still face fodder shortage during summer. This is also because the number of dairy animals has gone up. This is mainly because many farmers recognized dairy as a secured, additional and regular income giving option. Those who are facing fodder shortage are managing locally with steps such as purchase of fodder with locally fodder surplus farmers or sharing from the neighbhorers. The trend noticed in the watershed is that the farmers have recognized dairy as a secured additional income generating activity and they get income every week or fortnight. This income is also very crucial for meeting expenditure related to domestic expenses, children's education, etc. The VWDC is also

ensuring that those who are aspiring loan for dairy animals from them should have land and water resources to grow fodder.

Dairy:

Particular	Pre Watershed	Post Watershed
Number of Dairy Animal (local)	75	100
Number of Dairy Animal (cross breed/ Improved)	0	0
Number of Families involved in dairy	72	98
Milk production per year (l)	2400 Lt	3200 Lt
Milk procurement by cooperative (l)	300 Lt	400 Lt

The watershed activities impact is a result of a combination of efforts promoted under the watersheds. These initiatives include increase water availability due to watershed works, increased agricultural practices due to waste land coming into cultivation, fodder development, provision of loans for purchase of diary animals, etc. This is also important to note that the milk production has gone up by four times compared to the pre watershed period and milk procurement by cooperative also recorded growth by 300%. Support and guidance of veterinary consultant is very much valuable in maintaining the health of the cattle and also increase the milk production in the watershed.

Livelihoods

i. **Summary of Livelihood activities by wealth rank category**

S.No.	Wealth rank	Post watershed					Remarks
		Total No. of Households	Investments from Watershed program (Lakhs)				
			No of HH	Grant (Works)	No of HH	Loan from Revolving	
1	POP	28			77	816000	
2	Poor	162	56	581840	183	1934000	
3	Middle	67	21	218190	123	1335350	
4	Well off	8	0	0	0	0	
	Total	265	77	800030	383	4085350	

NABARD had released 3.43 lakhs for strengthening of livelihoods in watershed area and 314 households were benefitted under various components as given in table. So it was planned to increase the capacity of the stake holders on their activities to sustain the project and as model to others under the guidance of RSO.

Following are the types of activities promoted under livelihood component:

S.No.	Type of activity	No. of beneficiaries	Total amount disbursed including revolving amount
1	Milich Animals	103	1066000
2	Ramlambs	115	1094000
3	Computer Implements	1	10000
4	Cell repair Shop	2	25000
5	Tailaring	7	48000
6	Dhobi IranBox	4	33000

7	Beldaray Implements	5	25000
8	Tamarind Business	27	445000
9	Vegetebles	9	58000
10	Brikes Business	5	61000
11	Seed Bank	11	120000
12	Thresher	4	20000
13	Gorthalu	4	40000
14	Milk Business	2	15000
15	Borugulu business	6	40000
16	Footswear repair shops	2	10000
17	Flowers	1	5000
18	Chicken Center	2	15000
19	Auto repair	5	64000
20	Diss Implements	1	10000
21	Air massion	2	20000
22	Bekary	2	25000
23	Hotel	4	38000
24	Mango Business	13	245000
25	Floor Mill	1	15000
26	Nursery	5	50000
27	Calf rearing	12	230000
28	camera	1	15000
29	Ration Shop	1	30000
30	Petty Shop	21	196000
31	Gipsum	3	6600
32	Zink	1	5750
33	Kummari Implements	1	5000
Total		**383**	**4085350**

4.15 The population of the watershed is comprised of 71 per cent B.C. The motivation and awarenss among the village community is satisfactory and the watershed is well connected by roads and markets are nearby. Their holdings are small and they have been living in poverty for a longer time. The watershed in a way provided an opportunity for wage earnings and thereby improvement in their financial position relatively.

4.16 In other words, the non-recurring employment created during the development of watershed itself helped the people to stay back in their villages and turn back to agriculture who otherwise would have been migrated to far cities such Bangalore/Bellary in search of livelihood.

* * * * * * * *

CHAPTER-V

Sustainability of Project

The Project may be successful immediately after its implementation, Any project, therefore, should not be seen only in terms of results in the short run but also in terms of its sustainability in the long run. In this, an attempt is therefore, made to assess the sustainability of the project in future.

Village Level Institutions:

5.2 Three village level institutions, viz., Gram Sabha, Village Watershed Committee and Mutually Aided Cooperative Society Committee have been formed as a part of the implementation and for sustainability of the project future. These are discussed in the following sections:

Gram Sabha:

5.3 The watershed is spread over 1 revenue village and 4 hamlets. AF had started its work in 2010 through a Grama sabha for the development of the area through NABARD-WDF programme. The Gram Sabha(GS) is being organized in each village and hamlet and this forum is being used for discussing all the issues pertaining to their village and hamlet. Further, the Gram Sabha elected Village Watershed Committee(VWC), which plans, implements and monitors the progress. The GS is empowered to change the Village Watershed Committee, if necessary. The GS usually discusses the issues pertaining to watershed and VWC reports latest developments to GS. The decisions regarding the larger issues are being taken up in Gram Sabha. The Gram Sabha could bring together all the families of the villages and hamlets and therefore, collective decision action is taken by them. For instance, collective milk producers' farming has gained motion of the region.

Village Watershed Committee (VWC):

5.4 The VWC is constituted and registered under Societies The VWC contains 11 members includes 4 women. The joint account is operated by the VWC and the AF. The planning and review of the watershed development programme is done by VWC on a regular basis, normally every month. The progress of the work done is also reported to Gram Sabha by the VWC. The major decisions are being taken in Gram Sabha. The Chairman of VWC is the Joint Signatory to the joint account operated under Watershed Developm;ent programme. The issues like works to be taken up; quality of the works done and the payments to be made are regularly discussed in the monthly VWC meeting and decisions on the issues are taken democratically. The VWC is empowered to take action against the people who violate the basic principles of the programme like contribution of voluntary labour, ban on tree felling, payment of dues to the MF component which would be revolved in the community, etc.,

1. VWC status:

Registered	No
Total No. of members	11
No. of women members	4
Registration no. and date *(Registered under Societies Registration Act)*	
If cooperative is registered, date and registration number	AMC/ATP/DCO/2014/4102

Mutually Aided Cooperative Society (MACS institution) formation and operationalization of MACS:

a. The MACS institution was formed with the members of the watershed villages under MACS act 1990. All eligible families were mobilized to take the membership in the institution and Board of Directors(BoD) were elected by the members of the MACS. Further, Livelihood(LH) and Agriculture Productivity Enhancement(APEM) portpolio of VWC was transferred to MACS account. VWC and MACS members decided to revolve the LH amount which was released by NABARD as grant. So, after recovery of the overdue of the LH loans from the beneficiaries, loans should be issued through MACS institution. It was worked out the total LH&APEM fund including interest to distribute among eligible families of watershed villages by way of Share Capital Deposit through Non-redeemable share capital certificates carrying interest @ 6% per annum. General Body meetings were organized with all members of MACS including BoD and decided to ground the loans through MACS institution only after recovery of overdue. Trainings were organized to capacitate the BoD by the RSO and the resource persons who are identified by the PMU for the purpose. The Progress report of operationalization of MACS was enclosed in the table given below:

SL No	Details	
1	Name of the MACS and Registration Number	AMC/ATP/DCO/2014/4102
2	Bank Account Details	120920100000068, ADDC BANK, KALYANDURGAM
3	PAN Card Number	AABAG9473B
4	Name of the Board Of Directors of MACS with their Designation	Narayana Swamy and Nagaraju.
5	Number of Villages Covered through the MACS	1
6	Eligible Families to become members of the MACS	265
7	Families took MACS Membership	263
8	% of Families Enrolled in MACS	100
9	Value of each Share Certificate Given to Member families	
10	Fund Details	
10.1	LH Grant Received from NABARD	1327900
10.2	ALL other Incomes	
10.3	Total Fund Available with MACS at the End of the Project Period ..... Date when the PCR is finally submitted to NABARD.	**1771547**
11.1	Bank Balance in MACS SB Account	235739
11.2	Bank Balance in MACS Fixed Depoists	1535808
11.3	Loans with MACS Members	
12	Cumulative Total Value of the Loans Given from MACS till date and Number of Members benefitted.	
13.	Total Maintenance Fund with WDC MF Account	1709919

Management During Implementation of Project:

5.6 The mechanism for implementing the project is already discussed. Now we may discuss the financial management in detail. The watershed expenditure includes two components. One is on project measures and another one is livelihood component. The grant for the project measures is released to the joint account of VWC and AF(facilitating agency) in which the money could be withdrawn only with the consent of VWC. The LH amount was released as grant to the VWC and VWC should revolve the amount as loans to the community of the watershed villages and after the formation and registration of MACS institution, it should be revolved through MACS. The MACS institution was formed with the people of Garudapuram watershed. At present the recovery per cent of LH loans is 100% and the remaining amount was transferred to MACS account.

5.7The records and the accounts of the project are properly maintained in the VWC office at Garudapuram which indicate transparency in formulation, implementation, execution and operation of the project. The labour payments are made only after proper scrutiny and inspection of work done by one of the VWC member and only required amount is withdrawn from the joint account after preparation and verification of the Measurement book and Muster roll.

Management After completion of Project: alignment

5.8 The watershed project needs regular maintenance for its long term stability. To achieve this, a Maintenance Fund is created under the programme. The corpus of the Maintenance Fund is created from peoples' contribution towards maintenance fund Rs.100/- per year. As on date , the contribution of the watershed community is accumulated at Rs 85750/- contributed by families staying in the watershed. So far, an amount of Rs. 83818/- was accrued interest on project implementation fund and this amount was gone up by Rs. 2.53 lakh at the time of the project was completed. Nevertheless, that the funds were properly deployed by the AF/VWC to earn maximum possible interest. All the grant received in advance from NABARD Rs.2.53 lakhs had been deposited in saving account of the bank which gives a return of 12 per cent. The maintenance fund along with village fund will form sufficient corpus for the maintenance of structures created under the programme. Further, as MACS was formed in combine with the villages of Garudapuram watershed, the maintenance of institution is expected to be looked after by the own. The AF has been working for than a decade in these villages and has thus, planned to continue the work in the area through the institution created by organization. Hence, there may not be any lack of the technical expertise for the maintenance of the structures. Besides, due to the continuous rise in accrual of the benefits every year, the village community is taking keen interest in repairing the private SMC works that were undertaken during the project implementation, on their own. Thus, the total corpus was accumulated to the tune of Rs. 3.3 lakh by the end of the progamme, as shown in table.5.1

Table 5.1

Corpus of Maintenance Fund

Name of the Watershed	Garudapuram
Bank Account Details	
Bank Account Opened	Yes
If opened	
Name of the Bank Account	
Name of Bank/Branch	ADCC Bank, Kalyandurgam
Account No	120922050000904
Amount collected from families	85750
Interest transferred from Project Measures account	88347
Grant sanctioned for	
MF received from NABARD	253600
Others/ Interest/ Awards/ Visitors fee	
Visitors fee if any,	
SB Interest	31713
Works 2% Transfer	83230
Total balance in 'MF ' account	1709919

5.9 The above amount was deposited in fixed deposit account of the bank and only the interest accrued is to be utilized for maintenance of the project. The interest @12% itself would be Rs. 0.46 lakhs per annum. In addition to this, the watershed community would be contributing to the MF account, as contributions, which is more than sufficient to maintain the project in future.

Agricultural Production Sustainability:

5.10 The agricultural production has substantially increased primarily due to implementation of the watershed development project itself. They have started taking interest in agriculture because of hopes of development created among the people through participatory movement by the AF. The farmers have adopted better package of farming practices for improving productivity and production of crops enhanced. They have increased inter-culture operations of the crops and have protected the crops from the stray animals and wild bores. No doubt, conservation of soils and water has helped in increasing productivity of crops., but the important thing is that the farmers have started looking at agriculture as their way of livelihood which was neglected against the severe drought and erratic rainfall. All this has resulted into increase in production of paddy. There are 106 bore wells which are fully functional for irrigation. The villages are well connected by roads and nearby towns. Therefore, cultivation of cash crops like vegetables could fetch them higher income. There is a great scope for growing second crop in Rabi season. The treated area is (950 Ha.,) 72.56% and further much of the drainage line treatments were completed and hence impact of all these works taken together would be significant in recharging the ground water. As the growth dry land horticulture is also satisfactory as the farmers have taken maximum after cares of the same for better results. It would bring good income to the villagers.

5.11 Even though the watershed is being located in a low rainfall area, the fodder supply is abundant and the available grasses/fodder can be used as hay for the use in summer period. At present farmers are rearing cross breed cows, However, the dairy activity has to be undertaken on stall-fed basis and proper veterinary services may have to be provided. However, the climate being humid, after care of the breeds has to be taken in the region.

5.12 To sum up, it is strongly felt that the project is sustainable in long run. Because the watershed community has "the will to maintain" and the necessary financial arrangements inbuild within the programme itself lead to sustain ability of the project in future.

* * * * * *

Chapter VI

Financial and Economic Analysis

Based on the data presented in the previous chapters, an attempt has been made in this chapter to present annual stream of costs and benefits over the life of the project and, accordingly workout the financial rate of return to ascertain whether the costs incrurred in the project are fully covered by the returns accrued from it. The rate of return would also be worked out from the view point of the society.

Assumptions:

6.2 The following assumptions are made while working out financial rate of return.

i. The life of the watershed is infinite as long as there is continuous maintenance. However, economic life of the project is assumed at 25 years only, as return on investment beyond 25 years would make little difference in viability;
ii. Inspite of the project life being infinite, 30 per cent of the updated project cost is considered as 'salvage value' at the end of the economic life of the project.
iii. Actual project cost incurred during the different years is recapitalized at the rate of eight percent to arrive at the project cost at the prices of reference year.
iv. It is assumed that the benefits from crops like paddy, vegetables etc., would proportionate with the project expenditure, subject to a minimum of 50 percent expenditure. The benefits from crops are expected to stabilize from the sixth year onwards.
v. The share of income from MACS is expected to accrue from the sixth year onwards as Institution was formed during the fifth year only.
vi. The income from dry land horticulture is expected to stabilize from the tenth year onwards. Till then, only 50 percent income is considered from the fifth year to ninth year from the year of planting of horticulture.
vii. Therefore, the incremental income would be total of crop benefits and income received from Dry land-horticulture. The additional benefits likely to accrue with development in future are not considered in the analysis.
viii. Cost of maintenance is estimated at one and half percent (1.5%) of the total updated project cost. However, it is not taken into consideration as there is a separate provision of fund for the project maintenance. Interest accrued on the Corpus of Maintenance Fund and the yearly contribution to be collected from the wataershed community are the sources of income for maintenance of the project. Since this income from both the accounts is not considered as income and the same amount is going to neutralize/ meet the maintenance expenditure of the watershed, it is not shown separately being merely a transfer payment.

It is assumed that the Corpus of Maintenance Fund would yield on interest of 12 percent per year.

Project Cost:

6.3 The investment incurred in the project is 1.04 Cr. of the project as mentioned in Chapter II on methodology. In addition, Shramdan component of the project (16 percent) is Rs. 8.0 lakhs included to the cost, total becomes Rs. 1.12/-

Maintenance Cost:

6.4 Maintenance cost of a watershed project mainly consist repair of structures every year. It is estimated that 200 man days are required for 100 hectares of area per year for maintenance of the project. The maintenance of structures do not need any material other than labour under normal circumstances. As the watershed was treated around 658.13 hectares of land, the total number of man days required would be 1316. This gives us the maintenance cost at Rs. 1.32 lakhs per annum at Rs.100/- per man day. As the watershed community is expected to contribute '16% Shramadan' towards maintenance of the watershed, the actual requirement to maintenance is Rs. 1.10 lakhs per annum which is less than the maintenance fund available in a year, leaving enough cushion for uncertainties. However, this is being a transfer payment as mentioned earlier, the cost is not separately considered in the cash flow.

Incremental Income:

6.5 In the watershed, the incremental income primarily accrue due to better yields, increase in area under cultivation, changes in cropping pattern, switch over to high value crops, changes in methods of cultivation etc., This is the direct benefit to watershed community from the investment made. In addition to the direct benefit, there are some indirect benefits like generation of employment to the community, availability of drinking water, leadership development, etc., These benefits are difficult to quantify. In financial analysis, therefore, the direct benefits from agriculture and income from horticulture taken together to arrive at the incremental income of the watershed.

6.6 Incremental income is the difference between the 'pre' and 'post' development situtations. The average net income per hectare from each crop during 'pre' and 'present' development situations was already given in Chapter IV. Now, the same has been blown up over to the entire area of the crops to arrive at the incremental income of the watershed community from agriculture. The same is shown in tables 6.2 and 6.3

Table 6.2

Income in the pre-developmental situation

Sl.No.	Crops	Area	Net income per ha	Total income(in lakhs)
1	Ground nut	1000	1800	1800000
2	Ragi	2	-1100	-2200
3	Red gram	100	-2000	-200000
4	Green gram	10	-3100	-31000
5	Horse Gram	150	1300	195000
6	Paddy	186	18000	3348000
7	**Vegetable**		0	0
8	Tomato	20	27000	540000
9			0	0

Table 6.3

Income in the present development situation

Sl.No.	Crops	Area	Net income per ha	Total income(in lakhs)
1	Ground nut	640	32650	20896000
3	Red gram	60	500	30000
4	Green gram	4	5400	21600
5	Horse Gram	10	5250	52500
6	Paddy	74	59100	4373400
7	Vegetable		0	0
8	Tomato	75	85000	6375000
9			0	

6.7 It can be seen from tables 6.2 and 6.3 that the net income from crops during the pre-development situation worked out to rs. 3.17 lakhs while the same at present-development stage worked out to Rs.6.16 lakhs. Thus, the incremental income from crops worked out to Cr. 3.17. This income is in the fifith year of the project which represents 70 percent of full benefits. The full benefits are expected to stabilize from the sixth year onwards.

6.8 The income from dry land-horticulture is estimated by taking 50 percent of the number of plants planted, leaving enough margin for non-survival. Their yields were taken into account for working out income from dry land-horticulture. The income per tree is estimated at Rs. 800/- for mango at stabilization stage which is assumed to be tenth year from the year of planting. Till then, only 50 percent income is considered from the fifth year to ninth from the year of planting of dry land-horituculture (Rs.24.40 lakhs). As the plantation was done in third, the benefits are expected to stabilize from fifteenth year onwards. The total income from dry land-horticulture at stabilization works out to Rs. 48.80 lakhs.

6.9 The total incremental income from the watershed thus, would be income from crops, and dry land-horticulture put together, the incremental income worked out to 3.17 Cr. at stabilization stage i.e., in the fifteenth year. The incremental income could go up substantially once the watershed community adopts the better farming techniques, by addition of dry land-horticulture in future and shift to irrigated cultivation wherever possible. However, such incremental income is not considered in the analysis.

6.10 It could be seen from the above analysis that the incremental income of 3.17 Cr. would be accrued from the 15th year onwards- the stage of stabilization of benefits, against the project cost of Rs. 1.08 lakhs.

* * * * * * * *

Chapter-VII

Impact on Employment, Ecology and Social structure Generation of Employment:

The project financing considers local material and manpower for carrying out various activities related to watershed. As per the records and the day-to-day wage payment registers maintained VWC level for the every activity since the beginning of the project in the year 2005 that project had created an additional employment of non-recurring nature to the tune of 15081 man days during the last 4 years in the watershed., as presented in table 7.1. Thus the total employment of non-recurring nature created by the project is estimated around 1250 man days.

Table 7.1

Generation of Non-recurring employment

i. **Wage Days**

Particular	Pre Watershed	Post Watershed
Wage days created by Watershed Project	0	25026.605
Agriculture wage days in a year (avg.)	182	270

A. **Migration**

S.No.	Type	Pre Watershed (Number of HH)	Post Watershed (Number of HH)
1	Seasonal	100	12
2	Distress/ Drought	60	20

The other major impact has been on the **migration** front. As was mentioned earlier in this report, migration is an annual feature in this region. Every year, number of people from the villages of watershed migrate for anywhere ranging from a few weeks to several months, to places like Bangalore and Ballery in search of work. However, with our interventions, the number of days of migration has down significantly.. This is a significant outcome with wide social and economic ramifications.

The above table indicates that migration by the villagers from the watershed area has decreased.. Seasonal migrants reduced to 12 from 100 .

7.2 In addition to this, the project is expected to generate about 1316 man days per year, @200 man days per 100 hectares of area, for maintaining both private and community land of watershed besides drainage line structures. Further, in increase in agricultural production could create additional employment. It is estimate after discussion with the farmers that the additional paddy yield and change in technology could generate additional employment of five man days. Accordingly, the employment generated due to the additional production is estimated over 2000 man days per year. On whole, the project is thus, expected to generate a recurring additional employment of about 14500 man days every year. In other words, the project would provide employment to nearly 65 persons all the year round (225 work days in a year)

Impact on Ecology:

7.3 The objective of watershed is development of natural resources and sustainable utilization of the resources developed. The area and drainage line treatment works done in the watershed have resulted in halfting the soil erosion and silting of gully plugs and RFDs which are good indicators of successful development of watershed. It was observed that much of the gully plugs have already filled in with silt. Further, the flow of water in the streams have been observed for a longer period of the year.

7.4 The trenching and bunding activity have reduced the run off velocity and soil erosion. The trenches have drastically reduced the run off and improved percolation this low rainfall area. There are 1 check dams constructed and 1 MPTs were formed in the watershed, These along with other measure have substantially recharged the ground water. Further, formation of 202 SGPs and excavation of 28 FP are also used for watering the horticultural plants. The recharge is leading to increase in groundwater table already explained in Chapter IV.

7.5 The over grazing and felling of trees for decades which had denuded much of the upland areas. As the community and the VWC evolved the systems for the protection of natural resources and activities done under watershed development, much of these degraded lands are conserved. On such plantation was also done. The afforestation is undertaken in a massive scale and over 32444 saplings are planted in the area. Its growth is satisfactory. These measures helped to improve ecological balance.

7.6 Further, 20904 saplings are planted under horticulture. This, besides improving quality of land , would bring incremental income to the watershed community.

7.7 The village community has taken responsibility of protecting local common land. The regeneration of common land has commenced mainly due to protective grazing. Further, the availability of fodder has improved substantially.

7.8 On the whole, the development of watershed has helped to maintain ecological balance in the area. The sustained utilization of resources thus, may not lead to degradation of land in future.

Impact on Social Structure:

S No	Type of People Institutions	Pre Watershed (No)	Post Watershed (No)
1	SHG	22	24
2	Farmers Club	01	01
3	SHG Federation	01	01
4	Raithu Mitra Groups	4	0
5	Education committees	1	1
6	Mother Committees	1	1
7	Watershed Committees	0	1

7.9 The external intervention has contributed for changes in economic and social conditions of the community. The relevant changes in socio-economic structure are presented in Table 7.2. It can be seen from the table that overall literacy rate has gone up from 29 percent to 40.91 per cent. It was reported by the people that the children between 6 to 10 years are regualarly sent to school mainly

due to the awareness of education created by the socio-economic and cultural atmosphere created by the watershed development activities in the region. The asset position has also increased. People invested money on housing, entertainment (TV), etc.,

On the whole, the socio-economic scenario of the watershed is gradually getting momentum with the sense of responsibility and people's participation. Because of VWC/GS the sense of unity is being developed among the people. This has led to collective farming by the watershed community.

Table 7.2

Pre and Post Scenario of Socio Economic Parameters of the watershed

Sl.No	Parameters	2006	2014
	No. of families	222	265
	Population	1158	1325
	Literacy(%)	55	62
	Bullocks (No)	140	40
	Houses-Pucca/tiled	106	159
	TV	133	179
	Tractor	3	5

Trainings and Exposures

S.No	Name of the training programme	Month of training	No of Partici pants	Participants (VWDC members or watershed farmers)	Utility of the programme
1	Capacity Building to VWDC	JULY	15	VWDC	Strengthening of VWDC
2	Oriantation to the VWDC members on NABARD concept with DGM sir	JULY	3	VWDC	Awareness of watershed progarammes and monitoring system
3	Training to Supervisors	AUGUST	4	Supervisors	Orientation to the Supervisors on works and records
4	Productivity Enhancement (SRI PADDY)	AUGUST	30	Watershed Farmers	To enhance the production of PADDY
5	DRY LAND HORTICULTURE MAINTAINENCE	SEPTEMBER	30	Watershed Farmers	Awareness on maintaining of Horticulture plots
6	EXPOSURE VISIT	NOVEMBER	15	MACS MEMBERS	Awareness of MACS

The above table indicates that a wide variety of training programs were organized for all the stake holders in order to facilitate successful implementation of woks. A lot of efforts were made to promote the awareness of importance of watershed interventions in improving the soil and water resources in their villages and thereby contribute effectively in making the agriculture a profitable livelihood option. Aspects such as Natural farming, , Zero Budget Farming, crop water budgeting are aimed at drastically reducing the farmers' investment on agriculture and increase the yields considerably.

A number of training programs and exposure visits were organized to make laborers aware of quality management. They were made aware that the watershed interventions are aimed at making their agriculture itself sustainable and they should be ready to maintain the structures created. This is possible only when the structures are in suitable place and in proper technical design.

The VWDC members have also gone through a number of capacity building programs. Every occasion was utilized to make them aware of their roles and responsibilities. They were made active partners in labour mobilization, convincing the farmers in importance of works planned in their pieces of land, responsible for ensuring proper utilization of funds, rotation of revolving funds provided by NABARD for livelihood development, book keeping, and their responsibility as owners and authorized signatories of the agreement with NABARD, etc.

Now the watershed villages have a very good batch of trained and experienced paraprofessionals such as supervisors who are quality conscious. Paraworkers were trained on impact monitoring, survival of plants planted, veterinary development, ground water management, maintenance of relevant registers and records, etc.

staff members are now confident to take up works wherever necessary. They have put on best efforts to make the project successful and it is in this context that some of the watersheds other programs facilitated by AF received a number of awards at district and state level by the district officials.

CHAPTER-VIII

PROBLEMS AND PROSPECTS

The watershed project was to be completed in four years from the date of sanction. It was sanctioned 2006 and completed by 2011-12. However, the time schedule could not be adhered to for various reasons. The success of the project primarily depends on people's participation and commitment to the project.

Due to watershed development activity and social fencing, availability of fodder has increased substantially. Its timely cutting is very much essential for reducing fire hazards.

Due to the watershed development works, the potential for credit flow has been substantially increased. There is scope of increase the irrigated area. The dairy activity can be taken up in a larger scale as there exists sufficient demand and also marketing facilities.

Even though there are some problems, there is a good scope for increasing the benefits from the development activites. The watershed community has already started accruing some benefits from the project. The VWC and Gramasabha hand in hand have determined to develop and maintain the project in years to come for the betterment of themselves with the support and the assistance which they have received from NABARD.

AF acknowledges the support of various players in making the project a success. AF gratefully acknowledges the support of PMU, NABARD in providing guidance, monitoring, motivating the PFAs, conducting different training programs and exposure visits on different themes related to improving the impact of watershed interventions. PMU has facilitated timely release of funds for smooth implementation of the project. .RSO also played a very active role in taking up any responsibility in guiding, reporting, supporting and ensuring the Organization as a PFA adhere to norms and conditions of the project. . Our project staff have gained experience in maintenance of quality of works, dealing with the dynamic and divergent community interests and coordinating them successfully and focusing their attention on successful of project implementation.

Signatories

PFA

Person 1:
Signature : _____
Name :
Designation :
Signature : _____
Name :
Designation :

VWC

Signature : _____
Name :
Designation :**Person 2:**
Signature : _____
Name :
Designation :

Enclosures:

1. A brief report on impact as per the guidelines – Annexure I
2. Xerox copy of the updated 3 VWC bank accounts jointly operated by NGO & VWC (after closing of the account).
3. Certificate/document to show the closure of the account (Audit reports of VWC/NGO joint account and NGO project management account).
4. Xerox copies of the registration certificates of VWC & cooperative if exists
5. Maps
    a. Physical features map updated
    b. Treatment map
    c. Land use map before watershed
    d. Land use map after watershed
    e. Impact maps if any
6. Case studies

annexure I : Guidelines for Assessment of Impact of Watershed Development)

Impact assessment by VWC and PFA of Garudapuram – II Pariprantha Abivrudhipathakam watershed project after 13 years of project implementation (including CBP period):(Impact assessment was given in the main chapter along with summary note)

The list given below is indicative. The PFA and VWC are free to indicate any point which they feel important so far as their watershed is concerned. There are few tables suggested under various themes. These tables have to be filled in and summary of each table may be given at the end of respective table.

Type of structure	Name of structure	Pre watershed					Post watershed					
		No.s	Storage capacity per structure (cum)	Total Storage capacity (cum)	Period of storage (months)	Usage	No.s	Storage capacity per structure (cum)	Total Storage capacity (cum)	Period of storage months)	Usage	Additional storage capacity
1	2	3	4	5	6	7	8	9	10	11	12	13(5-10)
Sunken/ Dug out type	Farm Bunding/ TCB						40	204	8160	1 Month	Erosion of Soil reduced	8160
	Dugout/ Sunken ponds	5	100	500	5	Pot watering for horticulture	28	120	3360	4 Months	Pot watering for horticulture and Dhobi purpose.	2860
	Others(Tanks)			0					0			0
Heading type	Check dams	0	0	0	0		1	1900	1900	3 Months	Recharge of 12borewell cattle drinking purpose	1900
	New MPTs			0					0			0
	Existing MPT	1	10000	10000	5	Recharge of 12borewell cattle drinking purpose	1	10000	10000	4 Months	Recharge of 12borewell cattle drinking purpose	0

2. Ground Water

Part – A Open wells and Bore wells – Status and Irrigated area

	Pre watershed					Post watershed				
Type of well	Total no.s	Fully functional	Seasonal	Fully Defunct	Area (ha) Irrigated	Total no.s	Fully functional	Seasonal	Fully Defunct	Area (ha) Irrigated
Open wells	29	21	21	8	48	29	21	21	8	48
Bore wells	69	63	63	6	138	90	90	90	0	175
Total	98	84	84	**14**	**186**	119	111	111	8	223

Part -B Water levels

*The data has to be presented for same month before and after watershed

Number of observation wells	Pre Watershed (October 2010)			Post Watershed (October 2015)		
	Avg. depth of well (m) (Open well)	Avg. depth of water table from ground (m)	Avg. Depth of available water (m)	Avg. depth of well (m)	Avg. depth of water table from ground (m)	Avg. Depth of available water (m)
Upper Reaches						
Narayana Swamy	50	41	45 ½	42	35	38.50
Ramachandra	51	41	46	43	35	39.00
Average						
Middle						
Ramakrishna	46	40	43	40	34	37
Narasimhulu	48	42	45	40	34	37
Lower						
Ravindra	43	36	39.50	36	31	33.50
Neti Kollappa	42	37.00	39.50	35	31	33
Average						

(Summary note was given in the main chapters)

ii. Income sources and Distribution of income sources across households

Income Sources	Pre- Watershed (% of Households)					Post Watershed (% of Households)				
	0	1-25	25-50	50-75	75-100	0	1-25	25-50	50-75	75-100
Wages	0	20	32	103	0	0	22	35	105	0
Agriculture	0	15	110	17	0	0	17	112	19	0
Livestock	0	10	20	15	0	0	12	23	17	0
Migration	0	0	0	0	0	0	0	0	0	0
Traditional occupations	0	0	0	0	0	0	0	0	0	0
Diary	0	0	0	0	0	0	18	6	10	0

B. Social Norms

(Summary note was given in the main chapters)

C. Sustainability concerns:

(Summary note was given in the main chapters)

3. Trainings and Exposures

S.No	Name of the training programme	Month of training	No of Partici pants	Participants (VWDC members or watershed farmers)	Utility of the programme
1	Capacity Building to VWDC	JULY	15	VWDC	Strengthening of VWDC
2	Oriantation to the VWDC members on NABARD concept with DGM sir	JULY	3	VWDC	Awareness of watershed progarammes and monitoring system
3	Training to Supervisors	AUGUST	4	Supervisors	Orientation to the Supervisors on works and records
4	Productivity Enhancement (SRI PADDY)	AUGUST	30	Watershed Farmers	To enhance the production of PADDY
5	DRY LAND HORTICULTURE MAINTAINENCE	SEPTEMBER	30	Watershed Farmers	Awareness on maintaining of Horticulture plots
6	EXPOSURE VISIT	NOVEMBER	15	MACS MEMBERS	Awareness of MACS

(Summary note was given in the main chapters)

.

Trainings and Exposures:
-W/S village level training camps for the village level VWDC, supervisors, LH co-ordinators and the cultivators were conducted to introduce innovative ideas.
-At district RSO level special trainings programmes were organized for field staff, PFA's to introduce new technologies.

These training conferences were aimed at enhancing the competence of the participants in certain areas, as follows.

1. Identifying problems and deciding what was important to the landless and cultivations.
2. Providing technical help in preparing and implementing comprehensive action plans.
3. Providing guidance in the use of high quality seeds organic inanures, Bio-fertilisers and bio-pesticides, water management and improves implements.
4. Implementing other convergence programmes.

These trainings brought wide spread impact on the lives of the rural people.

Annexure: 5 :Maps – The Following Maps have to be incorporated in the PCR, Colour Maps to be kept in the PCR

a. Physical features map updated
b. Treatment map
c. Land use map before watershed
d. Land use map after watershed
e. Impact maps if any

* * * * * * * * *

Rework Plan Sanction Letters

Savings utilaization for RO plants - request

Inbox x

Mar 12

NABARD PMU Ongole <nbpmuongole1@gmail.com>

to fesrso.mpl1, Anantapur, actionf, me

Dear Sir

In response to your ltr No.49 dated 09th March 2014 forwarding there with the request of PFA- Accion Fraterna for 06 RO plants, we convey our permission for utilisation of savings (balance amount) of already completed works out of the sanctioned amount in respect of work measures. Savings out of 'undone work ' may not be utilized for the purpose.

Regards

I Chattopadhya
Deputy General Manager

Rework plan of 6 Watersheds of Accion Fraterna of Anantapur district

Re - Work Plan Mails x

12/3/14

NABARD PMU Ongole <nbpmuongole1@gmail.com>

to me, fesrso.mpl1, actionf, Anantapur

In response to your letter No.FES.1040-1045 all dated 13 November 2014 forwarding the request rework proposals of AF of different watersheds. In this connection, after careful scrutiny of the proposals we recommend the following:-

1. Garudapuram - Rs.06,08,573/- for NSB, SO, DD I & II
2. Battuvanipallil - Rs.12,90,752/- for NSB CD
3. Gubanapalli - Rs.7,57,551.00 for NSB
4. Mallipalli - Rs.7,62,149/- for NSB
5. Papampalli - Rs.5,55,168/- for NSR, DD I - IV
6. Dasampalli - Rs.8,99,115/- for NSB, ROT 2

We advise you to inform the concerned PFA to carry out the works immediately from the available funds and give the report to us and to DDM. Subsequent recommendations shall be made after visit/satisfactory completion of the recommended works.

V V B S Murthy
Manager
3 November 2014

Re-work plan approval for 5 watershed projects -PFA Accion Fraterna ,Anatapur district

Inbox x
Re - Work Plan Mails x

Apr 10

NABARD PMU Ongole <nbpmuongole1@gmail.com>

to fesrso.mpl1, actionf, me, Anantapur

Dear Sir

Please refer to your letter no. nil dated 19th March 2015, forwarding therewith the request of PFA - Accion Fraterna for re-work plan in respect of 5 watersheds in Anantapur district. We hereby convey our approval of re-work plans as per details given below :-

1. For Gaudapuram WS - Rs. 2,46,071/- (CD)

2. For Battuvanipalli WS -Rs.7,05,491/- (DD,CDR 2no)

3. For Gubanapalli WS - Rs.7,48,061/- (CDs 3no.)

4. For Mallipalli WS - Rs.7,20,613/- (CD,ROT)

5. For Papampalli WS - Rs. 9,39,269/- (CD- 3no.)

The implementation reports after completion may please be submitted immediately to PMU as well as to the AGM (DD),Anantapur.

(I Chattopaydhyay)
Dy. General Manager
PMU-Ongole
09 April 2015

PROFORMA -13 A

WATERSHED DEVELOPMENT FUND (WDF)

PROFORMA 13A

SUMMARY OF AREA TREATMENT

Name of NGO: Action Frater Resource C Foundatic. #17-89-5, Rajiv Is. MADANAPALLE - 5. Phone: 08571-2

Name of RSO :FES

Name of Watershed : GARUDAPURAM

Phase : FIP

Foundation For Ecological Security RSO - WDF MADANAPALLE

S. No	Proposed Treatments	Units Length	Section	(m3)	Labour (Rate of Unit)	Material (Rate of Unit)	Total (Rate of Unit/Cum)	Labour Cost	Material Cost	Total Cost	Supervision cost	Wages	Grant Amount (Rs)
A	Area treatments			24257									
1	NPR	48614	0.50	#####	59	0	59	1431163	0	1431163	228986	114493	1316670
2	STONE OUT LETS	463	0	463.00	303	237	540	140349	114471	280820	23416	11705	249112
3	FP-I	5	0	5.00	19324	1026	20950	151592	13008	167600	24735	12367	135338
4	FP-II	5	0	5.00	15424	1626	17050	77320	8130	85250	12339	6170	79080
5	FP-III	5	0	5.00	14698	1552	16250	73490	7760	81250	11758	5879	75371
6	FPR	1	0	1.00	16283	4517	20800	16283	4517	20800	2605	1303	19197
7	AF SEEC	200	0	200.00	50	100	150	10000	20000	30000	1600	800	27200
8	RCW	5	0	5.00	4900	1900	6800	24500	9500	34000	3920	1960	32040
9	DD	1350	1.25	1687.50	73	0	73	123188	0	123188	19710	9855	113333
10	DDR	1350	0.45	607.50	220	180	400	133650	109350	243000	21384	10692	232308
11	NSB	2130	0.24	511.20	220	180	400	112464	92016	204480	17904	8952	195480
	Vegetative measures												
12	Col	25338	0	25338	18	6	24	456018	152018	608064	72968	36484	571580
13	Bol	5500	0	5500	22	6	28	121000	33000	154000	18480	9240	144320
14	AH	560	0	560	35	40	75	19600	22400	42000	5136	1568	40432
15	GS	2500	0	2500	5	35	40	12500	87500	100000	12000	6000	94000
16	DT	28128	0	28128	40	35	75	1125120	984480	2109600	180018	90009	1819590
17	Agave Plantation	5000	0	5000	2	1	3	10000	5000	15000	1800	900	12300
	TOTAL							4047057	1669343	5716216	847331	423665	4396449
E	Treatments line treatment												
18	ISGP - 1	190	0	190	3377	1623	5000	641630	308370	950000	28500	14250	907500
19	ISGP - 2	337	0	337	1616	1634	3250	544592	550408	1095000	32850	16425	1045725
20	RPD - 1	3	0	3	3091	2109	5200	9273	6327	15600	468	234	14898
21	RPD - 2	34	0	34	3567	2433	6000	121274	82726	204000	6120	3060	194820
22	RPD - 3	41	0	41	4043	2757	6800	165763	113037	278800	8364	4182	266436
23	Check Dam	1	0	1	124729	128150	252879	124729	128150	252879	18956	9479	224444
24	MPT	1	0	1	212331	70448	282779	212331	70448	282779	33973	16986	248806
	TOTAL							1819592	1259516	3079107	184374	92187	2802546
G	Agri Productivity												
25	Vermi Compost	5	0	5	0	5500	5500	0	25000	25000	0	2500	22500
26	NPM Demos	4	0	4	0	3100	3100	0	12400	12400	0	620	11780
27	Azolla	10	0	10	0	950	950	0	9500	9500	0	760	8740
28	Animal Traits	1	0	1	0	10000	10000	0	10000	10000	0	800	9200
29	Tuber Cultivation Demo	6	0	6	0	3500	3500		21000	21000		1680	19320

31	Gas	[illegible]	0	[illegible]	0	[illegible]	[illegible]	0	[illegible]	[illegible]	0	[illegible]	[illegible]
32	Horticulture	4	0	4	0	40000	40000	0	160000	160000	0	1280	161280
33	CC	40	0	40	0	500	500	0	20000	20000	0	1600	21600
34	CC	200	0	200	0	100	100	0	20000	20000	0	1600	21600
35	CC	100	0	100	0	450	450	0	45000	45000	0	3600	48600
36	BND	7	0	7	0	3500	3500	0	24500	24500	0	1960	26460
37	Vermicomposting	4	0	4	0	6000	6000	0	24000	24000	0	1920	25920
38	Gypsum application	1	0	1	0	6600	6600	0	6600	6600	0	528	7128
39	Zinc application	1	0	1	0	5750	5750	0	5750	5750	0	460	6210
40	Groundnut harvesting co-op	1	0	1	0	40000	40000	0	40000	40000	0	3200	43200
41	Bund furrows	1	0	1	0	7500	7500	0	7500	7500	0	600	8100
42	Gopalamitra hamlet-level	36	0	36	0	500	500	0	18000	18000	0	1440	19440
43	Seed Bank	1	0	1	0	60000	60000	0	60000	60000	0	4800	64800
	TOTAL							0	702450	702450	0	56196	758646
D	Livelihood Support												
44	Milch animals	7	0	7	0	15000	15000	0	105000	105000	0	8400	113400
45	Sheep rearing units	4	0	4	0	15000	15000	0	60000	60000	0	4800	64800
46	Ram lamb fattening	4	0	4	0	15000	15000	0	60000	60000	0	4800	64800
47	Calf Rearing	3	0	3	0	20000	20000	0	60000	60000	0	4800	64800
48	Back yard Poultry	15	0	15	0	1000	1000	0	15000	15000	0	1200	16200
49	Tailoring machines	2	0	2	0	15000	15000	0	30000	30000	0	2400	32400
50	Hotel maintenance	1	0	1	0	10000	10000		10000	10000	0	800	10800
51	Tamarind fruit business	1	0	1	0	25000	25000	0	25000	25000	0	2000	27000
52	Mango fruit business	1	0	1	0	25000	25000	0	25000	25000	0	2000	27000
53	Mobile shop	1	0	1	0	25000	25000	0	25000	25000	0	2000	27000
54	Mason implements	1	0	1	0	10000	10000	0	10000	10000	0	800	10800
55	Flour milling	1	0	1	0	15000	15000	0	15000	15000	0	1200	16200
56	Nursery	1	0	1	0	50000	50000	0	50000	50000	0	4000	54000
57	Washerman Shop	1	0	1	0	5000	5000	0	5000	5000	0	400	5400
58	Blacksmith implements	1	0	1	0	5000	5000	0	5000	5000	0	400	5400
59	Embroidery Stitching Machine	1	0	1	0	8500	8500	0	8500	8500	0	680	9180
60	Bangle business	1	0	1	0	10000	10000	0	10000	10000	0	800	10800
61	Washing Implements	1	0	1	0	5000	5000	0	5000	5000	0	400	5400
62	Footwear making	1	0	1	0	5000	5000	0	5000	5000	0	400	5400
63	Vegetable business	1	0	1	0	10000	10000	0	10000	10000	0	800	10800
64	Petty shop	1	0	1	0	15000	15000	0	15000	15000	0	1200	16200
65	Agril. Implements											0	0
a.	Seed Cum fertilizer drill(bullock cart mounted)	2	0	2	0	12500	12500	0	25000	25000	0	2000	[illegible]
b.	Power Sprayers	2	0	2	0	10000	10000	0	20000	20000	0	1600	[illegible]
c.	Guru Shield	1	0	1	0	12000	12000	0	12000	12000	0	960	12960
d.	G Nut Decorticator	8	0	8	0	1500	1500	0	12000	12000	0	960	12960
	Resource Support Organization-WDF								525500	525500	0	50040	[illegible]
	Foundation For Ecological Sec							5193405	3762327	3961732	531905	322183	8652015

Foundation For Ecological Sec
#17-89-5, Rajiv Nagar, Opp:DSP Bun
MADANAPALLE - 517 325, Chittoor
Phone: 08571-231014

(N31 and J38) should match

Total Supervision Cost and Shramadaan of Format 13 and 13 A should match

Foundation For Ecological Security
RSO - WDF

PROFORMA 13 B for FIP

Watershed Development Fund (WDF) - Summary

Name of NGO: Accion Fratern

Name of Watershed : GARUDAPURAM

Name of RSO :FES

Phase : FIP

Foundation For Ecological Security RSO - WDF MADANAPALLE - 517 325

(Amount in Rup

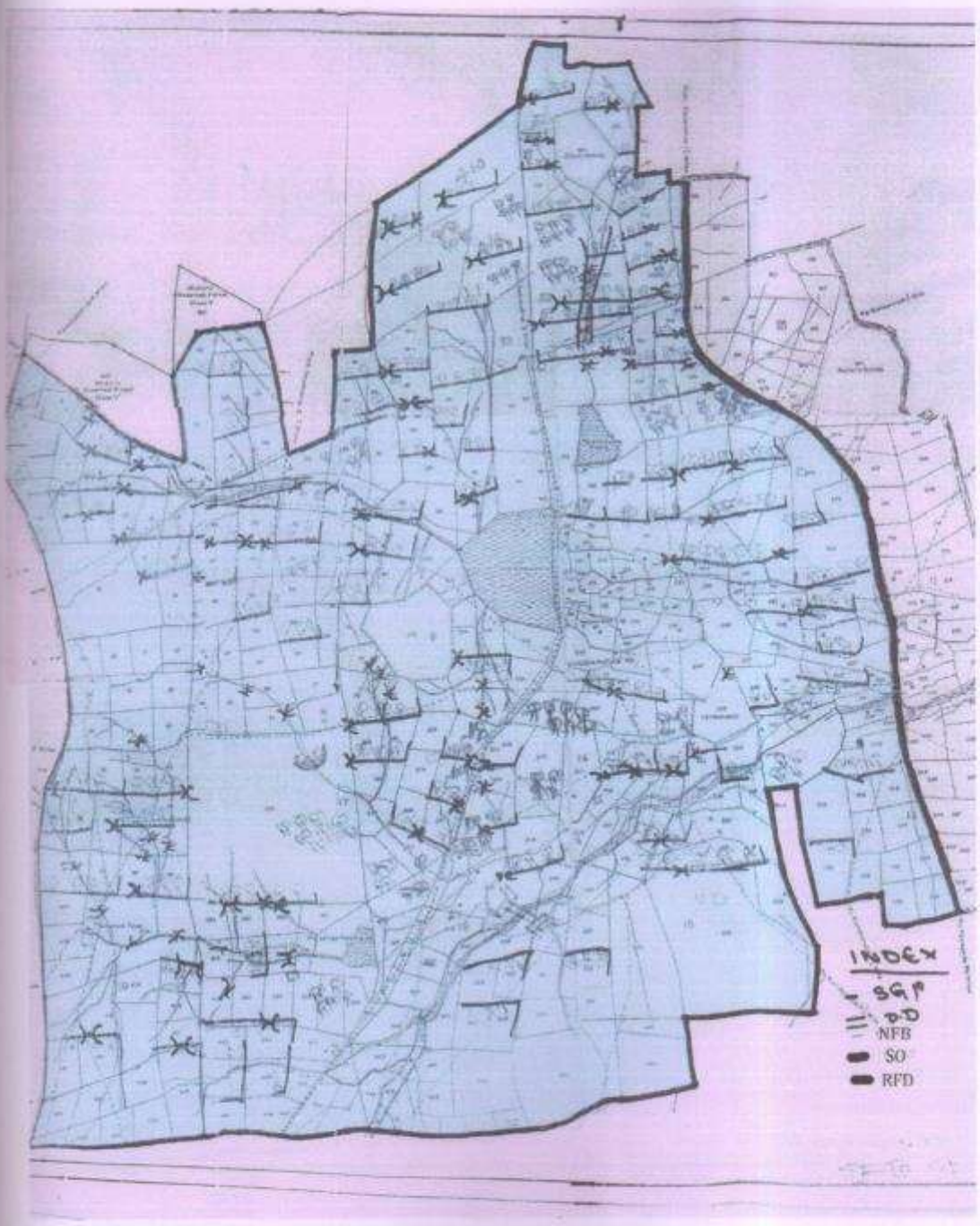
S. No.	Particulars	Project Cost	Regular shramadaan	Amount of Grant	Rounded to Rs.
1	Project Measures				
a)	Material	2,434,377		2,434,377	2434400
b)	Labour	5,199,405	831,905	4,367,500	4367500
c)	Agriculture Productivity Enhancement Measures	702,450		702,450	702400
d)	Livelihood Component	625,500		625,500	625500
e)	Hydrological Survey	150,000		150,000	150000
2	Project measues	9,111,732	831,905	8,279,827	8279800
3	Supervision cost	534,188		534,188	534200
4	Total Project Measures	9,645,920	831,905	8,814,015	8814000
6	Project Management of 20% of Project measures (20% of 4)	1,822,346		1,822,346	1822300
7	Total Project Measures	11,468,266	831,905	10,636,361	10636300
8	Training to Village Community	100,000		100,000	100000
9	Maintenance (1% of Project measures + 50% of Shramadaan)	507,070		507,070	507100
	Grand Total			11,243,431	11243400
	FIP area 895.06 ha.		Cost per ha	12,561.65	

Verified

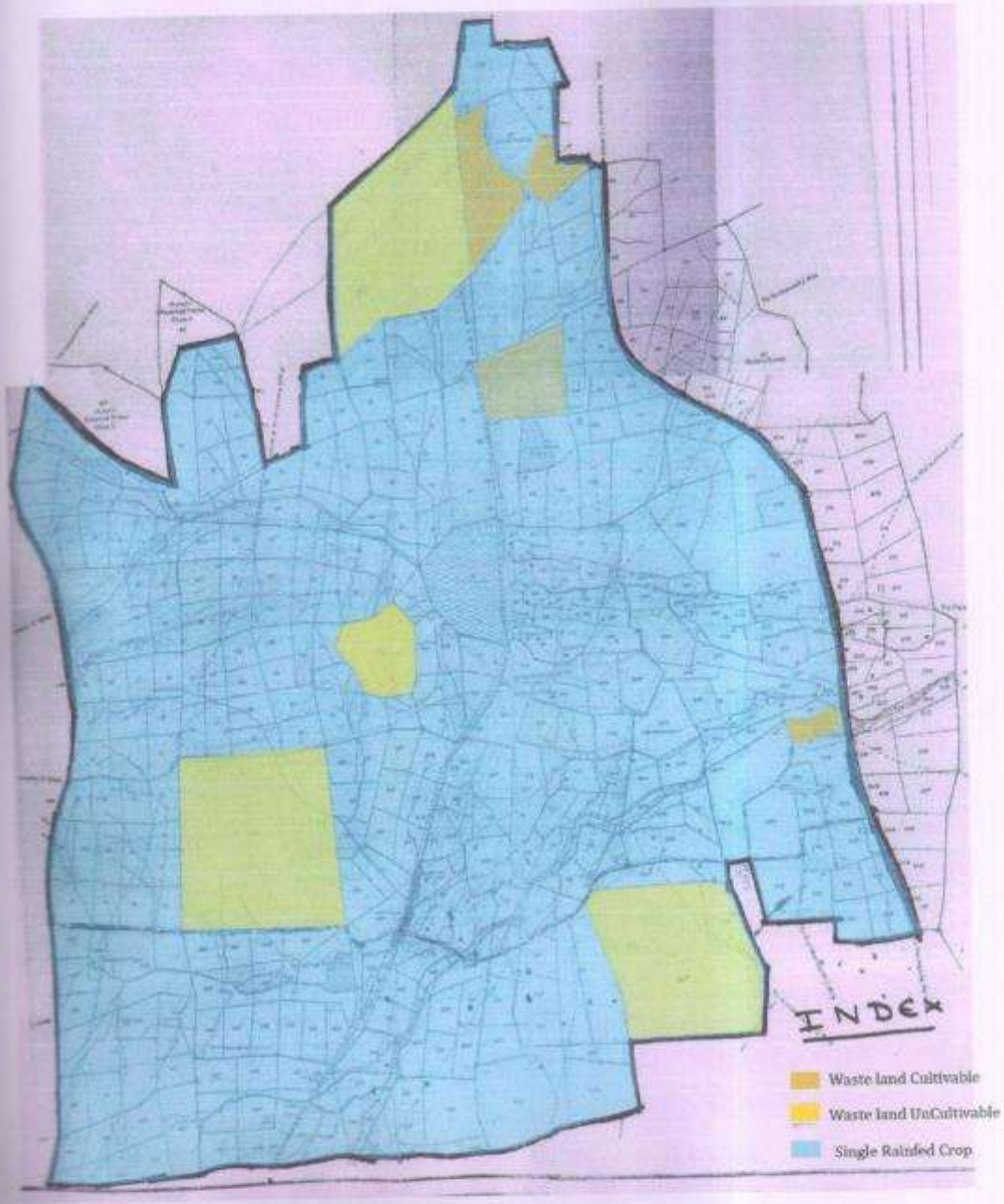
Note: *Total Project Measures, Total Grant, Total Supervision cost, Total Shramadaan should match with the totals of format 13 and 13 A*

Resource Support Organization-WDF
Foundation For Ecological Secu...
#17-89-5, Rajiv Nagar, Opp:DSP Bung...
MADANAPALLE - 517 325, Chittoor Di...
Phone: 08571-231014

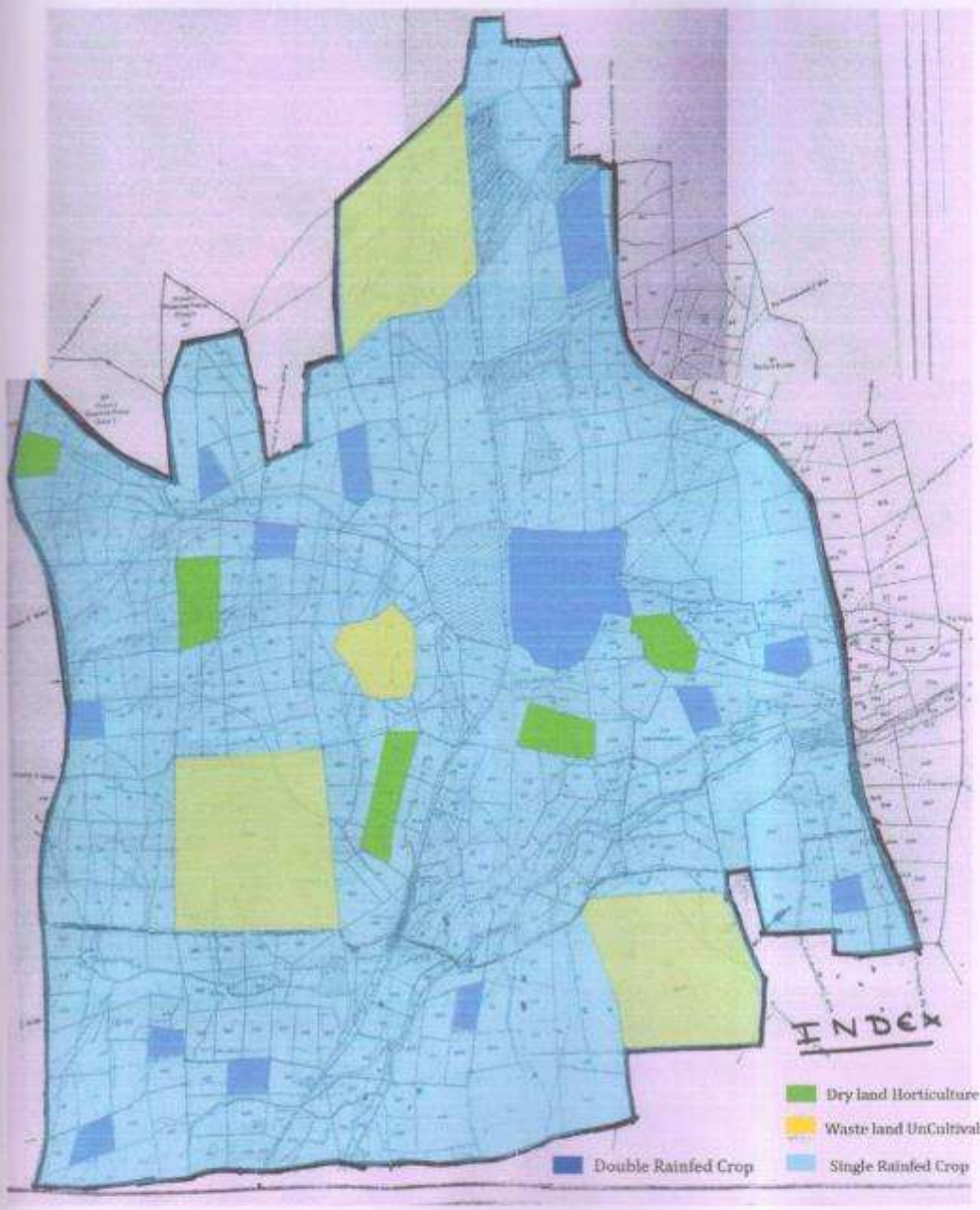
Garudapuram Watershed map after treatement



Garudapruam Wahtershed before land use map



Garudapruam Wahtershed after land use map



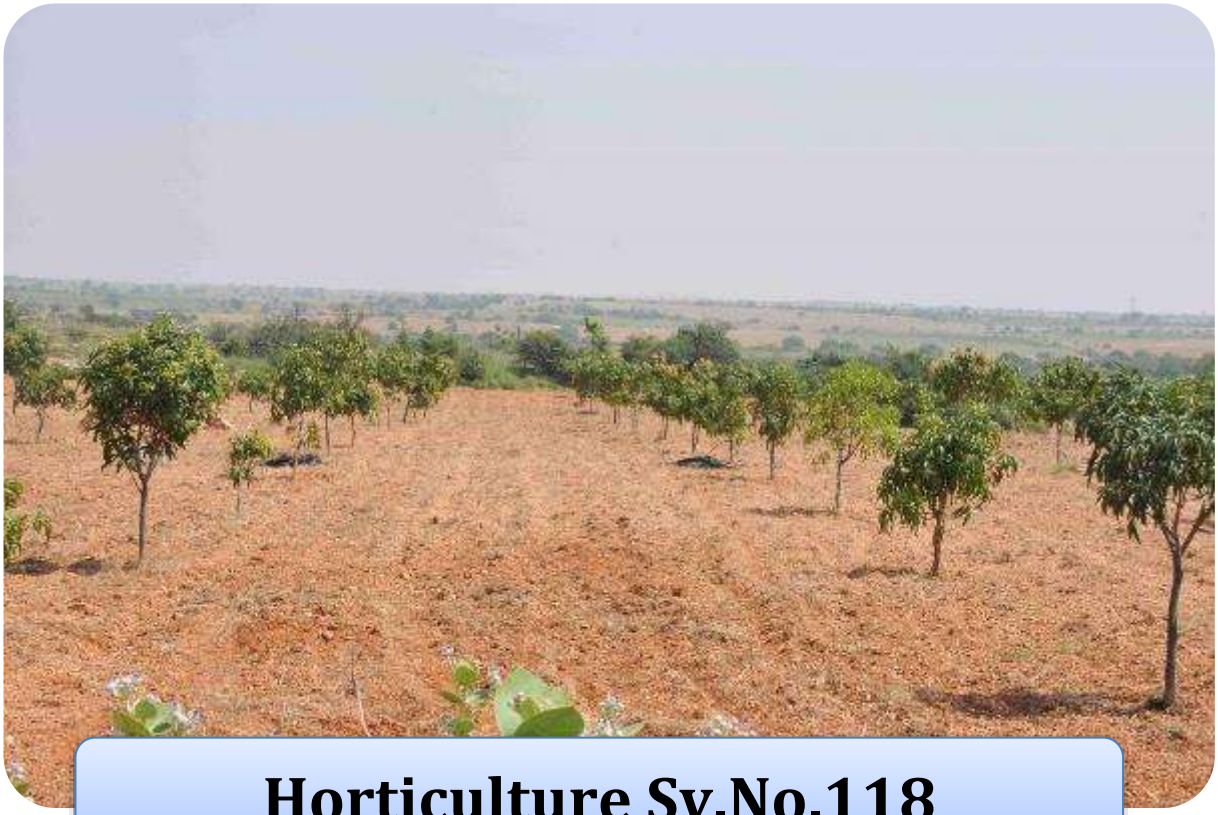
PHOTOS

Stone Bunding Sy.No.115

Border Crop-NPM

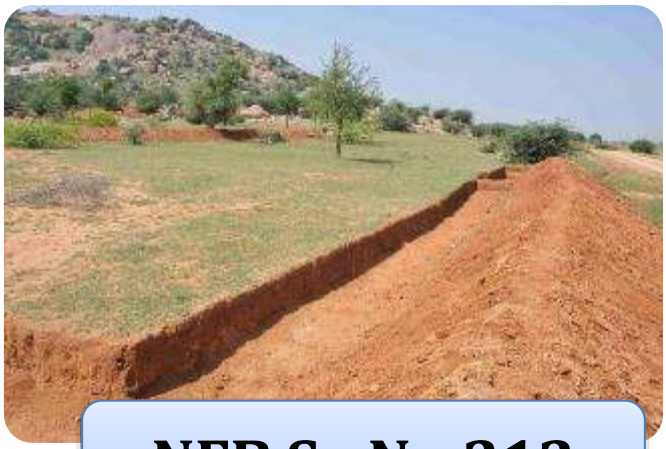
Training in AF Ecology Centre

Horticulture and Tomato



Horticulture Sy.No.118

Rain gage



NFB Sy.No.212

MACS Awareness Meeting

Horticulture Nursery

AF CEO Meeting with MACS

DGM & DDM NABARD Review

Paper Clippings

ఈనాడు

కళ్యాణదుర్గం

నీటి వనరులకు జలకళ

చెక్‌డ్యామ్‌లకు భారీగా చేరిన నీరు

ఆంధ్రజ్యోతి

కళ్యాణదుర్గం

KALYANADURGAM

మంగళవారం 08, సెప్టెంబరు 2015

4

వర్షం రాకతో... రైతుల్లో హర్షం

పొంగిపొర్లిన వాగులు కుంటలు... చెక్‌డ్యామ్‌లకు జలకళ

జీవనోపాధులను మెరుగు పరుచుకోవాలి

కళ్యాణదుర్గం, న్యూస్ టుడే: పథకాలను సద్వినియోగం చేసుకుని జీవనోపాధులను మెరుగు పరుచుకోవాలని రిజర్వు బ్యాంకు మేనేజర్ మురళీధర్ అన్నారు గురువారం నాబార్డు వ్యవస్థాపక దినోత్సవం పురస్కరించుకుని భట్టువానిపల్లి గూబనపల్లి గ్రామాల్లో యాక్షన్ ఫెటర్నా సంస్థ ఆధ్వర్యంలో ఆర్థిక సాక్షరత పెంపొందించే కార్యక్రమం జరిగింది కార్యక్రమానికి రిజర్వు బ్యాంక్ మేనేజర్ మురళీధర్ నాబార్డు ఏజీఎం రవీంద్రప్రసాద్ హాజరయ్యారు ఈ సందర్భంగా వారు మాట్లాడుతూ జీవనోపాధులకు వాటర్ షెడ్డు పనులతో పాటూ కేంద్ర రాష్ట్రాలు అమలు చేస్తున్న పథకాలను సద్వినియోగం చేసుకోవాలని సూచించారు అనంతరం రిజర్వుబ్యాంకు గురించి అవగాహనకల్పించారు కార్యక్రమంలో యాక్షన్ ఫెటర్నా వాటర్ షెడ్డు మేనేజర్ భాస్కర్ బాబు, వాటర్‌షెడ్డు పథకం సుధీర్, రామకృష్ణ తదితర ఇంజనీర్లు నాగరాజు, రులు పాల్గొన్నారు

సభ్యులతో మాట్లాడుతున్న అధికారులు