

PMU-Ongole

PROJECT COMPLETION REPORT
MALLIPALLI WATERSHED
Watershed Development Fund Programme
(WDF-NABARD-AP)



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Project Completion Report

Name of the Project: MALLIPALLI WATERSHED

Name of the PFA: Accion Fraternal

EXECUTIVE SUMMARY:

The Mallipalli watershed is located in East Kodipalli panchayat of Kalyandurg Mandal in Ananthapur district. The watershed is located in between Latitudes of $77^{\circ}10'20''$ and $14^{\circ}32'15''$. The watershed area is located in the West quadrant of the Ananthapur district and 07 km to Kalyandurga Mandal of Ananthapur in West direction. This watershed falls under pennar river sub-basin of pennar drainage basin.

The Mallipalli watershed situated in East Kodipalli Revenue village with covering habitation Mallipalli revenue village. The Mallipalli watershed is having hillocks in the North, West and East side directions with forest cover. The hillocks namely Vepula Vanka, Jerripothula Vanka and Uru Vanka. It is not having proper road facility to habitation. The watershed area consists of 467 families with a population of 2277. Most of them are small and marginal. The Scheduled Castes and Backward communities are the major communities in the watershed area and socially and economically backward. The literacy rate is around 61.25%. They are not getting medical facilities on time. The people used to migrate to near by towns like Kalyandurg, Ananthapur and Bangalore etc., in the off seasons due to prevailed drought conditions in the area.

The elevation difference between highest and lowest points of watershed is approximately 116 Mts. Forest area is there in North, West and Eastern side of the watershed area. The watershed area is having poor vegetative cover. The watershed area is having Vepula Vanka, Jerripothula Vanka and Uru Vanka, and Jerripothula Vanka on Northern side, and Uru Vanka, Vepula Vanka on Eastern side of the watershed respectively.

The Mallipalli watershed area is undulated with multiple slopes results more soil erosion. The average rainfall of watershed area is 315 to 520 mm. There are four tanks and 4 small kuntas in the area (Uru kunta 1Nos., Nandappa kunta 1Nos. and 3Nos. of small kuntas). The tanks got silted up due to heavy soil erosion. They need to be due silted to bring in to its original capacities with support of respective government departments. There are 150 bore wells and 09 open wells in the watershed area. 140 bore wells and 02 open wells are functioning at present out of total open wells and bore wells existing in the area. The three streams of Vepula Vanka, Jerripothula Vanka and Uru Vanka

The rainwater flows towards North – East direction after filling the tanks that exist in the watershed area and passes through a common out let i.e. Muddnayanipalli Cheruvu. The main crops of the watershed area are Paddy, Groundnut, Jowar, Sunflower, Pulses and Vegetables. People are not aware of modern Agriculture techniques especially in dry land agriculture. The productivity levels are as follows.

1. Paddy	-	4.50– 5.00 t / ha. / Year
2. Groundnut	-	0.50 – 0.60 t / ha. / Year
3. Vegetables	-	3.50 - 4.00 t / ha. / Year

Our basic objective is to motivate the community to utilize the available resources effectively & efficiently by conservation of soil & water through physical structures & improving vegetation in the area besides imparting technical skills to improve productivity & livestock management to arrest / reduce the rate of migration in the off seasons.

Generally this Majority area covers dry land owned their main source of livelihood is Agriculture, Agriculture labour. Rural Integrated Development Society (ACCION FRATERNA) is the PFA of this watershed project sanctioned by NABARD Hyderabad.

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 Mallipalli 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 affected 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 Mallipalli watershed is located at Kalyandurgam mandal, in Anantapur district.

The Total Geographical area of the watershed is 1172.00 ha., in which 1022.00 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 467 with a population of 2277 (household survey), which is, predominantly backward classes. Total work force is 75.6 percent of the total population is mainly engaged in agriculture and allied activities. Female population is 48.34 per cent. Literacy level is 48.9%. Density of population is 194 persons per square kilo meter.

The project was sanctioned in 2010 with a financial grant of Rs.1.14Crores, along with LH component, training component, MF Component, watershed devices and management Cost. As against this, the physical achievement under area treatment and drainage line treatment was is 100%, while the financial achievement as at the end of project is 100 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 52202 number of saplings were planted all installments, of which, an average survival percentage is around 71.00 percent as on 2012-13 year. Dry land-horticulture was also given top priority in the watershed which included plantation of mango, sapota etc., Nearly 85 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. 5.05 lakhs has been released and interest accrued in the project measures account Rs. 170137/- and peoples' contributions towards maintenance Rs. 41650/-. 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/ha to Rs. 1.14 lakh/ha showing an impressive growth of percent. There are 140 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 and drainage treatment works of around 100 percent 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. 1.89Cr. 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 20 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. 15 lakhs. The total income from the watershed, thus, would be from crop husbandry and dry-horticulture put together worked out to Rs. 2.44 Cr 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 24792 mandays during 2010 to 2015 year. In addition to this the people is expected to generate recurring employment of nearly 2500 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., 13 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 deciding 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 facilitate 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:

<h4>Our Programs</h4>	<h4>About Us</h4>	<h4>WORKING TOWARDS...</h4>
		
<p>Our watershed development programmes enable the right conditions for agriculture, helping people to cope with the recurring droughts, and the right democratic and social conditions in each village to help them live happy lives.</p>	<p>AF Ecology Centre has been involved in people's empowerment Natural Resources Management (NRM) through Watershed Development, Drought Management, Environmental Development and Policy Advocacy since 1982.</p>	<ul style="list-style-type: none"> ○ Sustainable Agriculture and Sustainable Environment ○ Alternate Livelihoods & Diversification of Rural Livelihoods ○ Building Farmers organizations and mutual cooperation. ○ Freedom from Drought and Poverty ○ Restoring Human Dignity and Equity
	<p>Read More</p>	

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.

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..

Our Present Programme Focus



AF at present focuses on transforming the conventional HFIDA (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:

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 PPLME (Participatory Planning, Monitoring and Evaluation); and be proactive and responsive to any of their needs and problems.

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 Mallipalli watershed area is located at the western part of Anantapur district in East Kodipalli revenue village, Kalyandurgam mandal and falls under drought prone area. The Total Geographical area of the watershed is 1272 ha., in which 1022 ha., are treatable area. The average annual rainfall is around 450 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 6 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 120 people from 310 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 Organization.

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:

Impact of the programme on soil and water conservation, vegetation and agriculture production.

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.

Financial and economic analysis of the project.

Estimation of generation of recurring and non-recurring employment.

Impact on ecology and social structure and

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 2014-15

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 1.14 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

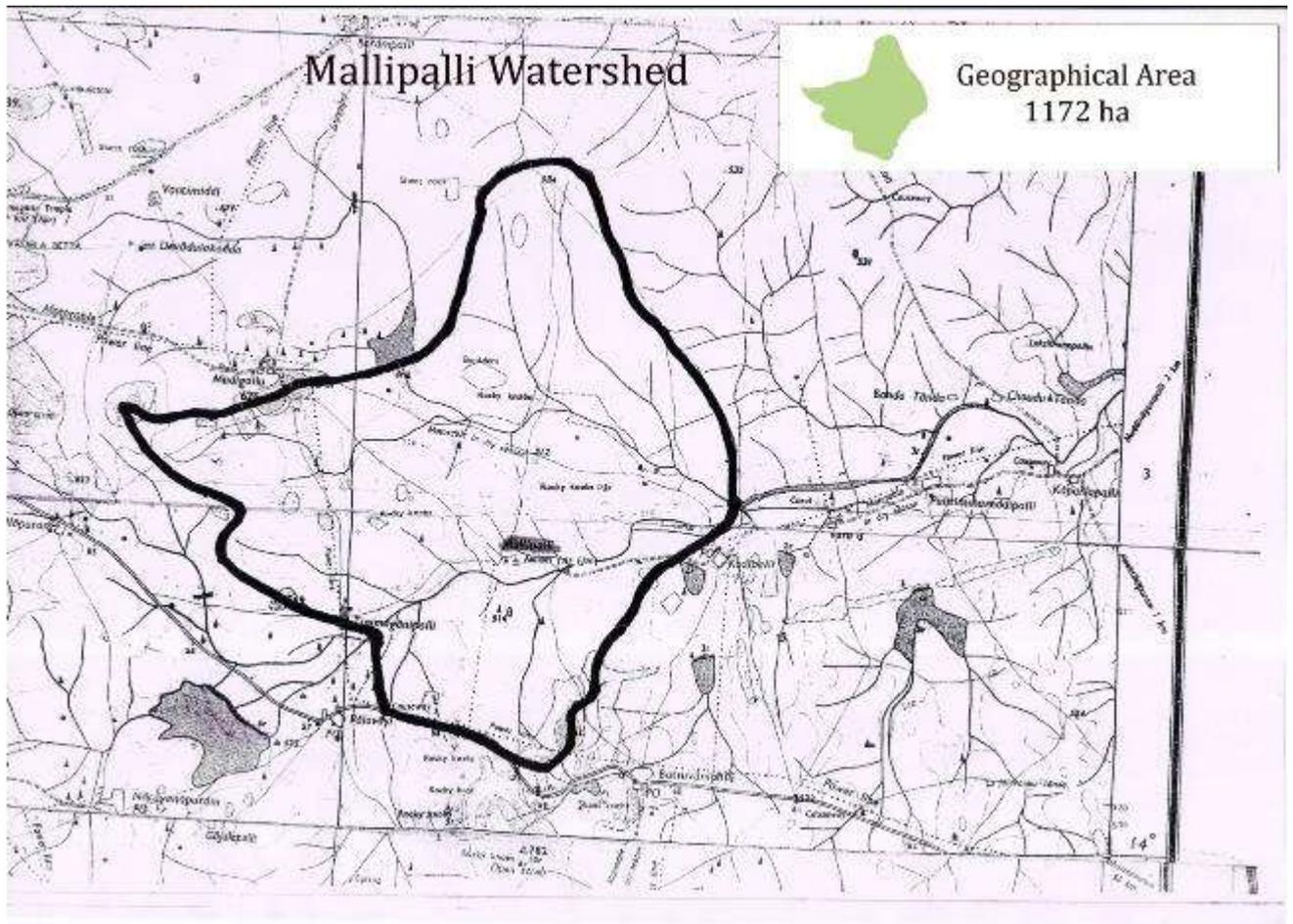
Watershed Project:

Overview of the Project:

Name of the district		ATP	
Name of the Watershed		Mallipalli	
Name of the Gram Panchayat		Varli	
Name of the Mandal		KLD	
Names of habitations		Durada Kunta	
Longitude	14°30'15"	Latitude	77°5'20"
Elevation (above MSL)			
Highest elevation	+694	Lowest elevation	+549
Height difference		145 mts	
Average annual Rainfall		352-520mm	
Major drainage		Gonchimadugu Vanka	
Slope %		3 to 5 %	
Soil type		Red Soil	
Major crops		Ground Nut, Boppaya,	
Water resources		Village Tank, Sathya Sai Water, Sri Rama Reddy Pipe Line. (Drinking Purpose)	
Demographic Details			
Population		1084	
Of which SC / ST (%)		28.04%	
Landless (%)		3.15	
Amenities (nearest) and Distance in Km.			
Railway station		Anantapur (65 Km from Mallipalli)	
Bus stand		Kalyandurgam (13 Km from Mallipalli)	
Town		Kalyandurgam (13 Km from Mallipalli)	
Bank		Andhra Pragathi Grameena Bank, Duradakunta (4 Km from Mallipalli)	
Agriculture market		Kalyandurgam (13 Km from Mallipalli)	
Agriculture research station		Kalyandurgam (13 Km from Mallipalli)	
Veterinary hospital		Kalyandurgam (13 Km from Mallipalli)	
Mandal office		Kalyandurgam (13 Km from Mallipalli)	

Location:

3.1 Mallipalli watershed area is located Anantapur district in East Kodipalli revenue village, Kalyandurgam mandal. The watershed area situated at 6 k.mts away from the Mandal head quarters.



Topography:

3.2 The Total Geographical area of the watershed is 1272 ha., with clear hydrological boundary on all sides, in which 1022 ha., are treatable area. There are 509 land holding, of which, 40.13 per cent hold less than one hectare of land. There are 8 holding have more than four to eight hectare of land which formed 1.27 percent of total holdings, but account 6.58 per cent of total land.

The land mass is divided 4 micro watersheds on the basis of natural drainage. The percentage of slope ranges 0.32 to 0.4%.

3.4 Nearly 80 percentage of the Geographical area is comprised of shallow to medium soils have depth up to 30 to 40 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 310 households with a total population of 2277. In the project area major dominating communities are BC(61%), ST (4%) and SC(28%). There is good cohesiveness among all the communities. The work force is 78.63 per cent of the total population and is mainly engaged in agriculture and allied activities. Female population is 50.00 per cent. Literacy level is 40.91%. Density of population is 148 persons per square kilo meter.

Village wise break up of population details are as follows:

Village Name	SC		ST		BC		OC		Minorities		Total		
	M	F	M	F	M	F	M	F	M	F	M	F	Total
Mallipalli	178	188	0	0	508	535	20	25	0	0	706	748	1454
Timmagani Palli	121	148	48	47	217	144	42	56	0	0	428	395	823

Climate:

3.5 The annual average rainfall is 450 mm. Much of the rainfall is received form South west monsoon during the June to September. The Maximum temperature at around 38 degrees and the average temperature of the area is 28-32C.

Livestock:

3.6 The total population of livestock is 7264, amongst which the percentage of milch animals is 0.7, and majority animals are cross breeds of Hoelstein Frezien and Zersy varieties. The number of small ruminants is 2214, (30.47%) and mortality rate is medium.

Sl.No.	Live stock	Total no.s	Mortality rates (High/ Med / Nil)
1	Bullocks	44	Med
2	Cows	50	Med
3	Buffaloes	20	Med
4	Sheep	5000	Med
5	Goat	350	Med
6	Poultry	1800	Med
7	TOTAL	7264	

Land Utilization:

Total Geographical area of the watershed is 950.00 hectares. Out of this, cultivable area (700 ha) 89.26 per cent, whereas, area under revenue is 2.60% .The percentage of irrigated land is 10.18 and the Rain-fed area is 72.69% as shown in the table.

Particulars of Land Utilization

Sl.No.	Particulars	Area(Ha)	%
	Public land		
1	Govt. Forest land	0	
2	Revenue land	20	1.98
3	Panchayath land	06	0.59
4	Gaathan(land occupied by households)	04	0.39
5	Submergence area due to tanks/ponds		
	Land privately owned		
6	Cropped Area		
7	Seasonally irrigated	14	1.38
8	Perennially irrigated	36	3.56
9	Rain -fed	885	87.62
10	Fallow area(Cultivable waste)	25	2.47
11	Uncultivable waste land	20	1.98
	Total	1010	

Irrigation:

There are 205 bore wells and out of 170 bore wells 142 bore wells are functional and 93.92 Ha., of land is under irrigation of bore wells and 140 bore wells are seasonal functional. 8 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.

Type of well	Pre watershed					Post watershed				
	Total no.s	Fully functional	Seasonal	Fully Defunct	Area (ha) Irrigated	Total no.s	Fully functional	Seasonal	Fully Defunct	Area (ha) Irrigated
Open wells	9	9	6	3	5	9	2	2	7	2
Bore wells	79	49	30	30	44	150	140	140	10	205
Total	88	58	36	33	49	159	142	142	17	207

Land Holdings:

There are 310 land holdings, of which 23.25 per cent is landless and 10.00 percent hold less than one hectare of land. There were 40 holdings having between 4 to 8 hectares of land which formed 11.61 per cent of total holdings, but accounted for 6.58 percent of total land as shown in table. The average land hold works out to around 1.76 hectares.

Sl.No.	Land holding	No of land holding		Area in ha.,	
		Number	% to total	ha	% to total
	Existing Gross Holding (ha)				
1	Landless	39	7.116788		
2	0-<1	97	17.70073	70.68	7.770961
3	1-<2	174	31.75182	297.68	32.72863
4	2-<4	198	36.13139	305.08	33.54223
5	4-<8	40	7.29927	236.1	25.95818
	Total	548	100	909.54	100

Implementation of Watershed

Sanctions and Achievements:

The project was sanctioned during 2010 year with a financial grant of Rs. 83.48 Lakhs(for works). The above sanctioned amount excludes management expenditure of Rs. 83.48 Cr. For trainings 1.00 lakh and for maintenance of assets created during the implementation was sanctioned 4.83 lakhs. The expenditure against sanction is Rs. 83.48

lakhs. The total sanction and achievement there against as on 100 percentage shown in the table given below:

Following are the financial details for the project:

Financial Details

a. CBP

Initially Mallipalli 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 Mallipalli watershed and sanctions and achievements and the impact was given in the PCR of Mallipalli.

Budget details of CBP:

Sanction details		Utilisation of Funds
Material	1,54,035.00	1,54,035.00
Labour	3,04,816.55	3,04,816.55
Supervision	24,385.32	24,385.32
Total Project Measures	4,83,1236.87	4,83,1236.87
Less shramdhan	48,770.65	48,770.65
Grant to the WDC	4,34,500.00	4,34,500.00

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	1859531	914625	100000	505005	8055796	11434957
II	Total amount of grant received (cumulative) (Till the end of reporting period)	1496032	914625	100000	372800	8055796	10939253
III	Grant utilized during the reporting period	1496032	914625	100000	0	8053282	10563939
IV	Balance of grant carried forward (I-IV)	363499	0	0	132205	0	495704

Project Implementation:

With the active involvement of Village Watershed committee the area treated is 1022 Ha area with an amount of Rs 80.55 lakhs. Apart from irrigated private lands all other land types have covered under various bio physical interventions and re vegetation 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,	22538	957414	19486	86.4584	707058	74
2	S.O	240	129600	230	95.8333	199714	154
3	S.B	16312	1565952	4151	25.4475	2072720	132
4	TSA	382	152800	0	0	0	0
5	F.P	14	394702	1	7.14286	30111	8
6	DD-1	450	82125	0	0	0	0
7	FBWR	300	120000	300	100	55080	46
8	D.D	1600	146000	93	5.8125	87573	60
9	D.D.revet	1350	243000	0	0	0	0
10	RCW	5	34000	0	0	0	0
11	Vegetative Measures			0		0	

12	HHP	400	80000	358	89.5	71600	90
13	APL	1200	122400	1200	100	58365	48
14	G.S	2500	100000	200	8	8000	8
15	Agave Suckers	10000	30000	10000	100	7008	23
16	AF(Seed)	200	20000	150	75	9488	47
17	Bpl	15220	365280	2776	18.2392	62627	17
18	A.H	2470	185250	1190	48.1781	100356	54
19	D.H	29140	2185500	26470	90.8373	2167222	99
20	Drainage line treatments			0		0	
21	S.G.P. 5 Rmt	6	17698	18	300	65260	369
22	S.G.P. 6 Rmt	9	30608	7	77.7778	28714	94
23	S.G.P. 7 Rmt	15	57780	1	6.66667	6588	11
24	S.G.P. 8 Rmt	43	185038	9	20.9302	42843	23
25	R.F.D 5 Rmt	1	5341	1	100	6524	122
26	R.F.D 6 Rmt	1	6128	1	100	7489	122
27	R.F.D 7 Rmt	6	41492	6	100	50697	122
28	R.F.D 8Rmt	17	130951	17	100	164295	125
29	LBC 1(10 meters)	1	3435	0	0	0	0
30	LBC 2(15 meters)	1	5153	0	0	0	0
31	Check wall	1	130094	0	0	0	0
32	Checkdam	1	172305	0	0	0	0
33	M.P.Ts	1	150000	1	100	236249	157
34	Repair work / Existing structures			0		0	
	Rennovation of MPT.	1	260864	0	0	0	0
34	Rennovation of MPT2	1	119259	0	0	0	0
35	Sub Total						
	Rework Plan						
	SB	1158	789756	1158	100	762149	97
	CD	1	398090	1	100	383405	96
	ROT	1	353363	1	100	337209	95
	RO PLANT	1	250000	1	100	250000	100
	Training		100000			104350	104
	TOTAL		10121378	68727	65.0904	8082695	80

It can be seen from the table that the physical achievement under area treatment and drainage 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 100 (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.

Regarding the drainage line treatment works, the physical achievement is 100% and financial achievement is 100%.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. 73 gully plugs were also constructed, to minimize the erosion, at the beginning of the first order streams, as there were no treatments at previous. 2 Earthen Gully Plugs were also formed at feasible locations. Two MPTs 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. 3 gully plugs were constructed under the component. And two Earthen gully Plugs, and one MPT was formed.

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 11776 and 27660 mango plants were also planted under Dry-land horticulture. On the whole the sequence of work executed is satisfactory.

Table 3.4

Year wise Achievement of Physical Units completed (cumulative)

Treatment Area in (Ha)	Target (Rs.)	2010-11 (Rs.)	2011-12 (Rs.)	2012-13 (Rs.)	2013-14 (Rs.)	2014-15 (Rs.)	TOTAL (Rs.)
NFB.,	957414	93763	139917	408430	64948		707058
S.O	129600	21941	0	161698	16075		199714
S.B	1565952	458127	446446	1091910	76238		2072720
TSA	152800	0	0				0
F.P	394702	0	0		30111		30111
DD-1	82125	0	0				0
FBWR	120000	0	0	55080			55080
D.D	146000	0	0	87573			87573
D.D.revet	243000	0	0				0
RCW	34000	0	0				0

HHP	80000	17600	25600	11800	16600		71600
APL	122400	24225	0		34140		58365
G.S	100000	8000	0				8000
Agave Suckers	30000	7008	0				7008
AF(Seed)	20000	9488	0				9488
Bpl	365280	49700	12927				62627
A.H	185250	6180	0	43200	50976		100356
D.H	2185500	280452	899425	987345			2167222
S.G.P. 5 Rmt	17698	0	58050	7209			65260
S.G.P. 6 Rmt	30608	0	3778	24936			28714
S.G.P. 7 Rmt	57780	0	6588				6588
S.G.P. 8 Rmt	185038	14797	28047				42843
R.F.D 5 Rmt	5341	0	0	6524			6524
R.F.D 6 Rmt	6128	0	0	7489			7489
R.F.D 7 Rmt	41492	0	0	50697			50697
R.F.D 8Rmt	130951	34446	45121	84729			164295
LBC 1(10 meters)	3435	0	0				0
LBC 2(15 meters)	5153	0	0				0
Check wall	130094	0	0				0
Checkdam	172305	0	0				0
M.P.Ts	150000	113799	0		122450		236249
Repair work / Existing structures		0	0				0
Renno vation of MPT.	260864	0	0				0
Renno vation of MPT2	119259	0	0				0
Rework Plan							0
SB	789756					762149	762149
CD	398090					383405	383405
ROT	353363					337209	337209
RO PLANT	250000					250000	250000
Training	100000					104350	104350
Total	1012137	1139525	1665898	3028619	411540	1837114	8082695

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 100% 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. 8 MPTs and 3 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, the 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. 306, 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-off, 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.306) 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 G.C. Ramanjineyulu has been cultivating vegetables such as tomato, chilly, brinjal etc., She had got nearly Rs. 90,000/- through the tomato crop. The yield of chilly is nearly 1 quintal and got Rs. 15000/-. As a total of nearly 9 acres of land come into cultivation and under the bore well paddy was cultivated in 1 and gave an yield of 40 bags (150 kgs). 5 acres of land was converted as dry land horticulture and the yield expected would be sold for Rs. 50000/-. 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.60000/-.

In the same survey number, in the fields of Anand Kumar, a bore well was get recharged by the MPT and farmer has been cultivated paddy in 0.50 acres and 5 in acres of land under horticulture 250 plants were planted through NREGS programme. The present land use was changed to horticulture, which is a fallow before the treatments implementation.

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.

TAILORING INCREASED MY INCOME LEVELS

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



My name is Vanajakshi, belonging to Mallipalli village. The Watershed Programme being implemented under NABARD (WDF) by Accion Fraterna as PFA, has come to my rescue to improve my livelihood under livelihood activities. Five women of our village formed together as “Venu livelihood group “. Then we approached the VWC, with a proposal to purchase sewing machines to earn livelihood. The loan of Rs.20,000 was sanctioned to us as with approval of the mallipalli VWC. I purchased a sewing machine , with a loan portion of Rs.4000/-. Then I started stitching the children’s clothes, blouses petty coats for women etc., and started earning a net income of Rs.1000/- to 1500/- P. M. This is an additional income apart from the agricultural activity by our family. The loan portion is being repaid through installments of Rs. 350/- + interest. Only two installments are to be repaid at present . During festival season, the income goes upto Rs.2000/-

I am proud to say that, I have already earned an amount of Rs. 8000/-, and the livelihood programme has helped me in enhancing the income levels of my family, Thanks to NABARD (WDF)” Programme, the W.D.C and the Accion Fraterna Organization.

Ground Water

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

Type of well	Pre watershed					Post watershed				
	Total no.s	Fully functional	Seasonal	Fully Defunct	Area (ha) Irrigated	Total no.s	Fully functional	Seasonal	Fully Defunct	Area (ha) Irrigated
Open wells	9	9	6	3	5	9	2	2	7	2
Bore wells	79	49	30	30	44	150	140	140	10	205
Others	0	0	0	0	0	0	0	0	0	0
Total	88	58	36	33	49	159	142	142	17	207

4.3 These measures have contributed towards substantial improvement in availability of water in the watershed. There are several technical indicators and apparatus developed for measurement of soil and water conservation. However, in the absence of all such technical tests, know-how and apparatus required for measurement of soil and water conservation, some thumb rules and witnesses like increase in water levels in the existing wells, water flow from streams/gullies, suspended sediment concentration in water (color of water/muddy water), silting in gully plugs, bunds and check dams, etc., could be handy for the purpose while making the quick and preliminary assessment of the effects.

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 2013)		
	Avg. depth of well (m)	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						
Suryanarayana Rao	66	49	57.5	60	45	52.50
Suryanarayana Rao	66	49	57.5	61	46	53.50
Average						
Middle						
Eeranna	50	41	49.5	54	40	47
Thippeswamy.K	59	41	50	50	39	44.50
Lower						
Vannappa	54	40	47	50	37	43.50
Ravi Shekhar	56	42	49	51	39	45
Kristappa	54	44	47	49	40	44.50
Pedda Kulayappa	52	40	46	49	39	44
Average						

Rainfall(millemeters) Kalyandurgam mandal

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
November		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 183 open or bore wells in the watershed area which has increased to 183 out of which 121 are fully functional, 58 are seasonal and 4 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 93.92 Ha. against the pre watershed period irrigated area of 51.50 Ha.

Type of well	Pre watershed					Post watershed				
	Total no.s	Fully functional	Seasonal	Fully Defunct	Area (ha) Irrigated	Total no.s	Fully functional	Seasonal	Fully Defunct	Area (ha) Irrigated
Open wells	9	9	6	3	5	9	2	2	7	2
Bore wells	79	49	30	30	44	150	140	140	10	205
Total	88	58	36	33	49	159	142	142	17	207

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	50	207
2	Dry land (Rainfed)	885	737
B	Fallows		
1	Uncultivable waste land	50	50
2	Cultivable Waste land (fallows)	25	16
C	Others (Water bodies, hillocks etc.)		
	Total	1010	1010

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 11776 saplings have been planted

on nearly 40 hectares, 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	12/2100	0	0		
2	DH		116.2/203 35	102/17845	87.75	
3	AF(bund)		50/8000	30.25/4841	60.51	
4	AF (block)	0	0	0	0	
5	AS		83.33/400 00	64.9/31152	77.88	

Table 4.5

Survival Rate of Plantations

Sl. No.	Year	No. of plants planted	No. of plants survived as on	Survival rate %
1	2009-10	4573	4132	90.35
2	2010-11	7625	7003	91.84
3	2011-12	2065	1690	81.84
4	2012-13	4864	3912	80.42
5	2013-14	1208	1108	91.72
	Total	20335	17845	

4.10 The survival rate of plantation in the year 2010-11 was high as 90.9% as rainfall was high during the year. The average survival rate was 69.5 percent during 2006-07 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 69.5 per cent. The survival rate of DH plantation was highest at 60 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 36150 plants were planted with project grant and 22498 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 Allanerudu 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	647	4	2588	100	5	500
2	Ragi	8	4	32	0	0	0
3	Jowar	647	0.5	323.50	100	8	800
4	Red gram						
5	Green gram						
6	Horse Gram				60	5	300
7	Paddy	45	30	1350	25	31	775
8	Horticulture	12	100	1200			
	Vegetable						
1	tomato	4	250	1000	40	250	10000
2	Ladies finger						
3	Sun Flower	5	4	20	0	0	0

	Vegetable						
		Area (ha)	Yield(Q/ha)	Production (Qts.)	Area (ha)	Yield(Q/Ha)	Production (Qts.)
1	tomato				30	250	7500
2	Boppayya				12	100	1200
3	Brinjal				8	1000	8000

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 168.75%. 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	4	2000	8000	12500	-4500
2	Ragi	Kharif	4	900	3600	3000	+600
3	Red gram (Inter Crop)	Kharif	0.50	2000	1000	500	500
4	Sun Flower	Kharif	4	1600	6400	3000	3400
5	Paddy	Kharif	30	600	18000	13000	5000
6	Horticulture	Kharif	100	450	45000	20000	25000
7	tomato	Kharif	250	600	150000	75000	75000
8	Maize	Rabi	18	1000	18000	4000	14000

Table 4.10
Economics of Crops Grown during Post Development Period

(Rs. Per Ha)

Sl.No.	Crops	Season	Yield (Q)/ha	Price (Q)	Gross Value of Production	Cost of cultivation	Net income
1	Ground nut	Kharif	5	5500	27500	14500	13000
2	Red gram	Kharif	8	5000	40000	22300	17700
3	Horse Gram	Kharif	5	3000	15000	6750	8250
4	Paddy	Kharif	31	1500	46500	24000	22500
5	Mulbary	Kharif					
6	tomato	Kharif	250	1260	315000	125000	190000
7	Ladies finger	Kharif	100	1200	1200000	50000	70000
8	Tomato	Rabi	250	1260	315000	125000	190000
9	Vegetables	Rabi	100	1500	150000	80000	70000
10	Maize	Rabi	10	2000	20000	4000	16000

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	160	275.6	280	389.7
Area under vegetable cultivation	13	13	76	205
No of Drip/Sprinklers set financed	12	18	49	67
Area under Horticulture(Mango, Lemon.etc)			18	

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.

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	185	Med	44	Med
2	Cows	175	Med	50	Med
3	Buffaloes	75	Med	20	Med
4	Sheep	599	Med	5000	Med
5	Goat	367	Med	200	Med
6	Poultry	200	Med	1800	Med
	TOTAL	1604		7349	

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)	45	405	45	405	25	225
B	Rabi (Paddy)						
	Red Gram (Inter Crop)	647	115.00			100	115

	Ground Nut	647	1746.90	700	1890	100	270
	Maize	06	30.00			06	30
2	Stylo Hamota			40	40	40	40
3	Nappier Grass			5.5	17.60	5.5	17.60
	Fodder Production					10	09
	Horse Gram					60	20

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
Livestock drinking Water		
Water availability throughout the year (Yes/No)	No	Yes
If No, the scarcity period (no. of months in year)	4 Months	_____

Fodder production has gone up from 1563.3 tons before the watershed to 6275.5 tons in the post watershed period. 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 neighbors. 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)	126	135
Number of Dairy Animal (cross breed/ Improved)	45	44
Number of Families involved in dairy	120	165
Milk production per year (l)	1450	2100

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 dairy 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	10	5	25000	5	12000	
2	Poor	200	100	800000	50	80000	
3	Middle	90	60	352500	30	140000	
4	Well off	10	4	25000	2	15000	
	Total	310	169	1202500	87	247000	

NABARD had released 9.14 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.	Name of the LivelihoodActivity	Total Families Covered Till Now	Total Loan Amount
1	Tailaring	17	82000
2	Sheeps	54	363000
3	FrootsBuseness	5	15000
4	Steel Buseness	3	20000
5	Motarwairing	1	10000
6	Hotal	1	10000
7	Cooldrinkshop	1	10000
8	Vesitabul	7	37000
9	Milchanimals	23	275000
10	Fadlar	4	20000
11	Petshop	4	40000
12	Skinbuseness	1	1500

13	Beldari Impliments	8	32000
14	Corpertars	10	45000
15	Seed banks	6	60000
16	Threshar	4	40000
17	Spears	4	24000
18	Auto Repair	12	90000
19	Agriculture Impliments	4	28000
Total		169	1202500

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/ Anantapuramu 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 1 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 13 members includes 5 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.,

VWC status:

Registered	-
Total No. of members	13
No. of women members	05
Registration no. and date (<i>Registered under Societies Registration Act</i>)	-
If cooperative is registered, date and registration number	AMC/ATP/DCO/2014/4098

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

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/2014/4098
2	Bank Account Details	120920100000067, ADCC BANK,KALYANDURGAM
3	PAN Card Number	AADAM3681K
4	Name of the Board Of Directors of MACS with their Designation	Y.S Chittaiyah, Parvathamma
5	Number of Villages Covered through the MACS	1
6	Eligible Families to become members of the MACS	350
7	Families took MACS Membership	310
8	% of Families Enrolled in MACS	88.57
9	Value of each Share Certificate Given to Member families	

10	Fund Details	
10.1	LH Grant Received from NABARD	914600
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.	1202500
11.1	Bank Balance in MACS SB Account	2972
11.2	Bank Balance in MACS Fixed Deposits	820000
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	880000

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 Mallipalli watersheds. At present the recovery per cent of LH loans is 70% and the remaining amount was transferred to MACS account.

5.7 The records and the accounts of the project are properly maintained in the VWC office at Mallipalli 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 500/- 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. 4.83

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.3.72 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 Mallipalli 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.

Table 5.1

Corpus of Maintenance Fund

Name of the Watershed	Mallipalli
Bank Account Details	
Bank Account Opened	Yes
If opened	
Name of the Bank Account	M.Fund
Name of Bank/Branch	APG Bank, Kalyandurga
Account No	19027104579
Amount collected from families	41650
Interest transferred from Project Measures account	273118
Grant sanctioned for	
MF received from NABARD	372800
Visitors fee	
Visitors fee if any,	
SB Interest	83818
Works 2% Transfer	91350
Total balance in 'MF ' account	880000

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 (658.93 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. 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 inbuilt 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 incurred 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. In spite 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

watershed 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 1.14 Cr. of the project as mentioned in Chapter II on methodology. In addition, Shramdan component of the project (16 percent) is Rs. 7.98 lakhs included to the cost, total becomes Rs. 1.14/-

Maintenance Cost:

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 700 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.

Incremental income is the difference between the 'pre' and 'post' development situations. 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	647	-4500	-2911500
2	Ragi	8	+600	4800
3	Jowar			
4	Red gram (Inter crop)	647	+500	323500
5	Green gram			
6	Horse Gram			
7	Paddy	47	+5000	225000
8	Horticulture	12	25000	300000
9	Tomato	4		
10	Sun flower	5	75000	375000
11	Maize	10	+14000	140000

Table 6.3
Income in the present development situation

Sl.No.	Crops	Area	Net income per ha	Total income(in lakhs)
1	Ground nut	100	13000	1300000
2	Red gram	100	17700	1770000
3	Horse Gram	60	8250	495000
4	Paddy	25	22500	562500
5	tomato	40	190000	7600000
6	Brinjal	8	70000	560000
7	Tomato(Rabi)	30	190000	5700000
8	Boppayya	12	70000	840000
9	Maize	06	16000	96000
10	Horticulture			
	Total	381	49668	18923500

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. 0.55 lakhs/ha while the same at present-development stage worked out to Rs.1.00 lakhs/ha. Thus, the incremental income from crops worked out to Cr. 24.44 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 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-horticulture (Rs. 15.00 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. 15.00 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 Cr. 24.44 lakhs 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 Rs. 24.44 Cr. would be accrued from the 15th year onwards- the stage of stabilization of benefits, against the project cost of Rs. 83.48 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	100	150
Agriculture wage days in a year (avg.)	90	230

A. Migration

S.No.	Type	Pre Watershed (Number of HH)	Post Watershed (Number of HH)
1	Seasonal	50	20
2	Distress/ Drought	30	0

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, Bellary and Anantapuramu 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 15 from 22 .

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 2 Check dams constructed and 3 MPTs were formed in the watershed, These along with other measure have substantially recharged the ground water. Further, formation of 73SGPs and excavation of 14FP 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 11776 saplings are planted in the area. Its growth is satisfactory. These measures helped to improve ecological balance.

7.6 Further, 27660 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	10	30
2.	JLG		
3.	Farmers Club	01	01
4.	SHG Federation	01	01
5.	Youth Clubs		
6.	Raithu Mitra Groups		
7.	Education committees	1	1
8.	Mother Committees	1	1
9.	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 regularly 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	2009	2014
1	No. of families	448	467
2	Population	2075	2277
3	Literacy(%)	54.87	61.25
4	Bullocks (No)	185	44
5	Houses-Pucca/tiled	324/124	420/28
6	TV	312	427
7	Tractor	01	02

Trainings and Exposures

S.No	Name of the training programme	Month of training	No of Participants	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 2010 and completed by 2015. 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 activities. 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

Case Studies:**Support of Orchards shows the way for our lives**

Thimmagani Palli is one of the villages of Mallipalli watershed in Mallipalli Panchayath of Punganur mandal. There are 75 families in the village among which 20 are the big farmers. Out of total families, 71 belong to backward community and the remaining are O.C. caste. The literacy percent is 51.2 and all are living depending up on agriculture. Because of drought, many families migrated to the nearest towns and cope with many problems of deprived of necessary amenities.

At that critical juncture, In the year 2009, the AF, entered the village to mitigate the worse conditions of living conditions and cultivation that were arise with the severe drought with their support through the NABARD watershed programme. As a part of norms of the programme to show the unity in the village, we all participated the qualifying shramadan of four days from each family and taken up an activity of the execution a dug-out pond.

After successful completion of Capacity Building phase, the programme graduated to full implementation phase. During the execution, as part of the programme, the farm lands of Surya Narayana, one of the farmers of villages of watershed were treated with SMC activities and were given mango graftings to plant in his land.

Surya Narayana is a farmer who has been living in the hamlet with his wife and he has a son and a daughter. He has 9 acres of rain-fed land and had been cultivating ground nut and is surviving with poor yields.

With the advices and support of the AF staff, he developed the mango plants and also had been cultivating other crops such as ground nut, cow-pea as intercrops. Then he has been getting income through the crops which survived even at long dry spells as retention of

soil moisture was enhanced with the SMC activities and additional income through the horticulture since the fourth year. The bores which were drilled at previous were also get recharged and then, he had cultivated high value crops such as tomato, pappaya etc., From the horticulture, he had been getting good income for two years. In the first year, he sold yield for Rs. 70,000/- and in the second year for Rs. 1,30,000/-.

Now he is sustained economically and his son is studying engineering course and would be completed at soon. His daughter also has been to college, studying intermediate. In his words “orchards which developed through NABARD watershed development programme, gave the new life to my family, now, it is only the support for our lives and, I hope many families would be supported.....as well as me and also and I am thankful to the NABARD.

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

Impact assessment by VWC and PFA of Mallipalliwatershed 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					Additional storage capacity
		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	
1	2	3	4	5	6	7	8	9	10	11	12	13(5-10)
Sunken/ Dug out type	Farm Bunding/ TCB						80	204	16320	1 Month	Erosion of Soil reduced	16320
	Dugout/ Sunken ponds	5	100	500	5	Pot watering for horticulture	35	111.429	3900.02	4 Months	Pot watering for horticulture and Dhobi purpose.	4400.02
	Others(Tanks)									2 Months		0
Heading type	Check dams					Recharge of 12borewell cattle drinking purpose	3	2000	6000	3 Months	Recharge of 12borewell cattle drinking purpose	6000
	New MPTs						2	1000	2000	5 Months		2000
	Existing MPT	1	1500	1500	5	Recharge of 12borewell cattle drinking purpose	3	2000	6000	4 Months	Recharge of 12borewell cattle drinking purpose	7500

2. Ground Water

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

Type of well	Pre watershed					Post watershed				
	Total no.s	Fully functional	Seasonal	Fully Defunct	Area (ha) Irrigated	Total no.s	Fully functional	Seasonal	Fully Defunct	Area (ha) Irrigated
Open wells	9	9	6	3	5	9	2	2	7	2
Bore wells	79	49	30	30	44	150	140	140	10	205
Others	0	0	0	0	0	0	0	0	0	0
Total	88	58	36	33	49	159	142	142	17	207

3. Land Use and Status of fallow lands brought into cultivation:

S.No.	Type of land	Area in Ha.	
		Pre Watershed	Post Watershed
A	Crop Land		
1	Irrigated land	50	207
2	Dry land (Rainfed)	885	737
B	Fallows		
1	Uncultivable waste land	50	50
2	Cultivable Waste land (fallows)	25	16
C	Others (Water bodies, hillocks etc.)		
	Total	1010	1010

(Summary note was given in the main chapters)

4. Changes in Agriculture

a. Cropping systems and aggregate Production Assessment

Sl.No.	Crops	Season	Yield (Q)	Price (Q)	Gross Value of Production	Cost of cultivation (Ha)	Net income
1	Ground nut	Kharif	4	2000	8000	12500	-4500
2	Ragi	Kharif	4	900	3600	3000	+600
3	Red gram (Inter Crop)	Kharif	0.50	2000	1000	500	500
4	Sun Flower	Kharif	4	1600	6400	3000	3400
5	Paddy	Kharif	30	600	18000	13000	5000
6	Horticulture	Kharif	100	450	45000	20000	25000
7	tomato	Kharif	250	600	150000	75000	75000
8	Maize	Rabi	18	1000	18000	4000	14000

(Summary note was given in the main chapters)

b. Other Prominent changes in Agriculture

Particular	Pre Watershed		Post Watershed	
	No of farmers	Area/Unit	No of Farmers	Area/Unit
Promotion of mixed cropping	160	275.6	280	389.7
Area under vegetable cultivation	13	13	76	205
No of Drip/Sprinklers set financed	12	18	49	67
Area under Horticulture(Mango, Lemon.etc)			18	

(Summary note was given in the main chapters)

5. Status 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	12/2100	0	0		
2	DH		116.2/20335	102/17845	87.75	
3	AF(bund)		50/8000	30.25/4841	60.51	
4	AF (block)	0	0	0	0	
5	AS		83.33/40000	64.9/31152	77.88	

Source: Farmer wise and survey no wise Plantation Register and monthly progress reports.

(Summary note was given in the main chapters)

Changes in Agri-allied activities:

6. Livestock

a. Summary of Livestock holdings:

Sl.No.	Live stock	Total no.s	Mortality rates (High/ Med / Nil)
1	Bullocks	44	Med
2	Cows	50	Med
3	Buffaloes	20	Med
4	Sheep	5000	Med
5	Goat	350	Med
6	Poultry	1800	Med
7	TOTAL	7264	

(Summary note was given in the main chapters)

b. Fodder Availability - Existing and proposed

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)	45	405	45	405	25	225
B	Rabi (Paddy)						
	Red Gram (Inter Crop)	647	115.00			100	115
	Ground Nut	647	1746.90	700	1890	100	270
	Maize	06	30.00			06	30
2	Stylo Hamota			40	40	40	40
3	Nappier Grass			5.5	17.60	5.5	17.60
	Fodder Production					10	09
	Horse Gram					60	20

* As mentioned in old Feasibility Report (This is not covered in feasibility report of the watershed but arrived at estimates in the discussion of farmers for the purpose of reporting)

c. Fodder & Drinking water Assessment:

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
Livestock drinking Water		
Water availability throughout the year (Yes/No)	No	Yes
If No, the scarcity period (no. of months in year)	4 Months	_____

(Summary note was given in the main chapters)

d. Dairy

Particular	Pre Watershed	Post Watershed
Number of Dairy Animal (local)	126	135
Number of Dairy Animal (cross breed/ Improved)	45	44
Number of Families involved in dairy	120	165
Milk production per year (l)	1450	2100

(Summary note was given in the main chapters)

7. Socio-Economic changes

B. Institutions & Status:

S No	Type of People Institutions	Pre Watershed (No)	Post Watershed (No)
1.	SHG	10	30
2.	JLG		
3.	Farmers Club	01	01
4.	SHG Federation	01	01
5.	Youth Clubs		
6.	Raithu Mitra Groups		
7.	Education committees	1	1
8.	Mother Committees	1	1
9.	Watershed Committees	0	1

II. Indebtedness and Intermediaries-Profile of loans-source wise

S.No	Source	Pre Watershed		Post watershed	
		Total no. of house holds	Percentage of households availing loans	Total no. of house holds	Percentage of households availing loans
1	Banks	210	70	310	100
2	Money Lenders & Others	280	85	30	20

C. Migration

S.No.	Type	Pre Watershed (Number of HH)	Post Watershed (Number of HH)
1	Seasonal	50	20
2	Distress/ Drought	30	0

D. Livelihoods

i. Summary of Livelihood activities by wealth rank category

S.No.	Wealth rank	Total No. of Households	Post watershed				Remarks
			Investments from Watershed program (Lakhs)				
			No of HH	Grant (Works)	No of HH	Loan from Revolving	
1	POP	10	5	25000	5	12000	
2	Poor	200	100	800000	50	80000	
3	Middle	90	60	352500	30	140000	
4	Well off	10	4	25000	2	15000	
	Total	310	169	1202500	87	247000	

ii. **Wage Days**

Particular	Pre Watershed	Post Watershed
Wage days created by Watershed Project	100	150
Agriculture wage days in a year (avg.)	90	230

E. Social Norms

(Summary note was given in the main chapters)

F. Sustainability concerns:

(Summary note was given in the main chapters)

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 utilization for RO plants - request

Inbox x

NABARD PMU Ongole <nbpmuongole1@gmail.com>

Mar 12

to fersso.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 Chattopadhyaya
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, fersso.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

NABARD PMU Ongole <nbpmuongole1@gmail.com>

Apr 10

to fersso.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.

WATERSHED DEVELOPMENT FUND (WDF)
PROFORMA 12A
SUMMARY OF AREA TREATMENT



Name of Watershed: GARUDAPURAM
Phase: FIS

Resource Centre
Foundation,
#17-89-5, Rajiv N.
MADANAPALLE - 51.

S. No	Proposed Treatments	Units Length	Section	Volume (m ³)	Labour (Rate of Unit)	Material (Rate of Unit)	Total (Rate of Unit)	Labour Cost	Material Cost	Total Cost	Supervisory Staff	Amount (Rs)
A	Area treatments	48514	0.50	24257	59	0	59	143165	22888	145453	11493	1310670
1	NFB	483	0	483.00	303	237	540	148249	114471	262720	1702	245112
2	STONE OUT LETS	8	0	8.00	19324	1026	20550	167000	191005	247505	12307	135239
3	FP-I	5	0	5.00	15424	1028	17050	8130	8130	8260	5175	79090
4	FP-II	5	0	5.00	14688	1552	18250	73490	7760	11758	5619	7531
5	FP-III	1	0	1.00	16263	4917	20900	10263	4517	20300	2605	19497
6	AF SEED	200	0	200.00	50	100	150	10000	20000	30000	50	29200
7	RCW	5	0	5.00	4900	1900	6800	24500	9500	34000	3920	22340
8	DD	1350	1.25	1687.50	73	0	73	12318	0	12318	19710	113930
9	DER	1350	0.45	607.50	220	180	400	139850	198550	243000	21384	10692
10	NSB	2130	0.24	511.20	260	100	400	112434	33078	204480	17984	185483
11	Vegetables intercrop	25.36	0	253.36	18	6	24	4800.00	1500.00	6300.00	3648	571596
12	Bird	5500	0	5500.00	23	5	28	32130	29030	154000	10300	144300
13	Bird	560	0	560.00	35	75	110	10000	24000	42000	3135	46432
14	MS	2500	0	2500.00	5	35	40	15000	30000	100000	2000	95000
15	MS	35128	0	35128.00	40	75	115	123120	34000	210950	60010	301992
16	MS	3500	0	3500.00	3	3	6	10000	5000	15000	310	1200
17	Aquatic Fishpond	3500	0	3500.00	1	1	2	444705	160000	5740210	22168	6388449
18	Agroforestry	100	0	100.00	2000	1638	3638	248000	70000	318000	3500	383967
19	Agroforestry	100	0	100.00	2000	1638	3638	248000	70000	318000	3500	383967
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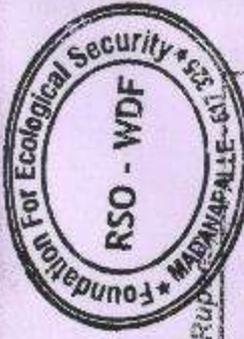
Watersted Development Fund (WDF) - Summary

Name of NGO: Action Forum

Name of Watershed: GARUDAPURAM

Name of RSO :FES

Phase : FIP



S. No.	Particulars	Project Cost	(Amount in Rupees)	
			Regular Shramadaha	Amount of Grant Rounded to Rs.
1	Project Measures			
a)	Material	2,434,377		2,434,400
b)	Labour	5,199,405	831,905	4,367,500
c)	Agriculture Productivity Enhancement Measures	702,450		702,400
d)	Livelihood Component	625,500		625,500
e)	Hydrological Survey	150,000		150,000
2	Project measures	9,111,732	831,905	8,279,827
3	Supervision cost	534,188		534,188
4	Total Project Measures	9,645,920	831,905	8,814,015
5	Project Management of 20% of Project measures (20% of 4)	1,822,346		1,822,346
6	Total Project Measures	11,468,266	831,905	10,635,919
7	Training to Village Community	100,000		100,000
8	Maintenance (1% of Project measures + 50% of Shramadaha)	507,070		507,070
	Grand Total			
	FIP area 895.96 ha.		Cost per ha	12,361.55

Verified
(Signature)

Note: Total Project Measures, Total Grant, Total Supervision cost, Total Shramadaha should match with the totals of format 13 and 13.4

Resource Support Organization-WNF
Foundation For Ecological Security
 #17-89-5, Rajiv Nagar, Opp:DSP Bungla,
 MADANAPALLE - 517 325, Chittoor Dist.,
 Phone: 08571-231014

H.O.: KADAPA - 516 001
[ANDHRA PRADESH]

ANDHRA PRAGATHI GRAMEENA BANK
KALYANDURG-1030
08497-220039

A/APGB 409227

NOT TRANSFERABLE

[Name of the Deposit Scheme/Plan]

Branch

ID. No.:

A/c No.: 910 533 13049

Received from: Sri/Smt./Kum.:

Date of Issue: 31.3.2015

Mallipalli WABARD restricted
maintenance fund
Kalyandurg

Date of Acceptance:

Period of Deposit: 1 year

Rate of Interest: 9%

Interest Payment: Mthly/Qty/Hyly Flatly

Date of Maturity: 31.03.2016

Maturity Amount (in case of Reinvestment Plan)

Amount Rs.: 20000/-

Rs.: 218617/-

[Rupees in words] Two Lakhs only

[Rupees in words] Two Lakhs Eighteen thousand/100

Sundry amounts of

Date of Birth of Depositor (if Minor)

Repayable to (in case of Joint A/c.)

Nomination:



Subject to the Rules of the Bank in force from time-to-time

Folio No.

Entered: 13/4

Manager/Incharge Manager

Branch: KALYANDURG.

12092410 0091217

Not Transferable
FIXED DEPOSIT RECEIPT
No 925123

92/232

District Co-Operative Central Bank Ltd., Anantapur.

Date: 29/1/15

RECEIVED FROM Mallipalli M.A.S. Mallipalli

THE SUM OF RUPEES one lakhs thirty thousand only

AS A DEPOSIT REPAYABLE 3 months

MONTHS AFTER 29-01-2016 WITH INTEREST

AT THE RATE OF 7.75% PERCENT PER ANNUM.

Rs. 1,30,000/-

[Signature]

Authorized Signatories

[Signature] K. Phanishankar
Manager

Note: Production of this Receipt is necessary for drawing principal & interest. On the date of maturity this Receipt will be surrendered by the Depositor duly stamped and signed in the presence of a separate letter of instructions. The interest will Cease From the date of maturity.

P. C. Raghava Reddy
Staff Assistant
Code: 583

ALC-120924100091192 6-55-65 Branch: KALYANDURG.

Not Transferable

FIXED DEPOSIT RECEIPT

92/172

District Co-Operative Central Bank Ltd., Anantapur.

No: 916652

Date: 31/10/14 200

RECEIVED FROM Mallipalli NABARD Watershed,
Mallipalli, Kalyandurg

THE SUM OF RUPEES Six Lakh ninety thousand only

ADCCB

AS A DEPOSIT REPAYABLE 45 days

MONTHS AFTER 15/12/2014 WITH INTEREST

AT THE RATE OF 6.25% PERCENT PER ANNUM

Rs. 690000/-

[Signature]
Authorised Signatories

Note: Production of this Receipt is necessary for drawing principal & interest. On the date of maturity this Receipt should be surrendered by the Depositor duly stamped and signed on the reverse with a separate letter of instructions. The Interest will Ceases From the date of maturity.

M.F



ANDHRA PRAGATHI GRAMEENA BANK

B/APGB No. 357206

Head Office : KADAPA (A.P.)
KALYANDURG. Branch
Ph: 08497-220039

PCC **FIXED DEPOSIT RECEIPT**

NOT TRANSFERABLE

Received from Mallipalli NABARD water shed.

Rupees 120000/- one lakh twenty thousand only

subject to the rules of the Bank in force
In case of Joint A/c. Repayable to :



CLERK
EMP.No.:

Nomination No.:
Date:

Date of Issue : 16/5/11
Date of Acceptance :

Account No. : 91000267172

Amount Rs. : 120000/-

Period : 2 yrs

Interest : 9.25 %P.A.

Date of Maturity : 16/05/13

P.T.O

H.O.: KADAPA - 516 001
[ANDHRA PRADESH]

ANDHRA PRAGATHI GRAMEENA BANK A/APGB 250852
KALYANDURG

Ph. 08497 220039

Branch

NOT TRANSFERABLE

ID. No.

A/c No. : 91035310595

Received from : Sri/Smt./Kum

Date of Issue : 28-3-14

Date of Acceptance : 28-3-14

Period of Deposit : 1yr

MALAPALLI NAZAR
WATER STREET
MAGSANTASWENCC.

Rate of Interest : 9.6%

Interest Payment: Mthly/Qty/Hyly

Date of Maturity 28/03/15

Maturity Amount (in case of Reinvestment Plan)

Amount Rs. 4,50,000/-

Rs. 4,94,700/-

[Rupees in words] - four lakhs fifty thousand/-

[Rupees in words] - four lakhs ninety four thousand seven hundred eighty only

Date of Birth of Depositor (if Minor)

Repayable to (in case of Joint A/c)

Nomination :

Date

Regd. No

Subject to the Rules of the Bank in force from time-to-time

Folio No.

Entered

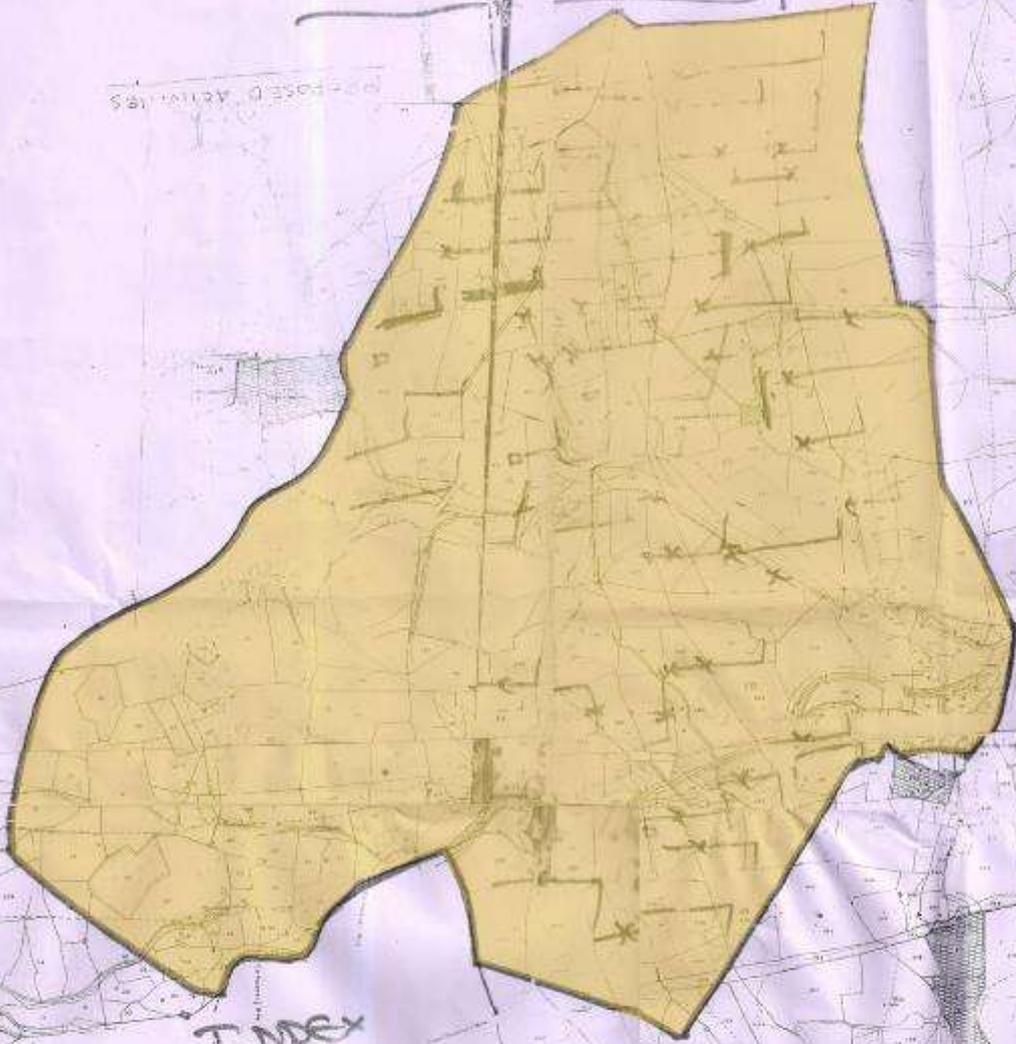
[Signature]
Manager

[Signature]
Manager/Incharge Manager

MALLIPALLI

Treatment MAP

PROPOSED ACTIVITIES

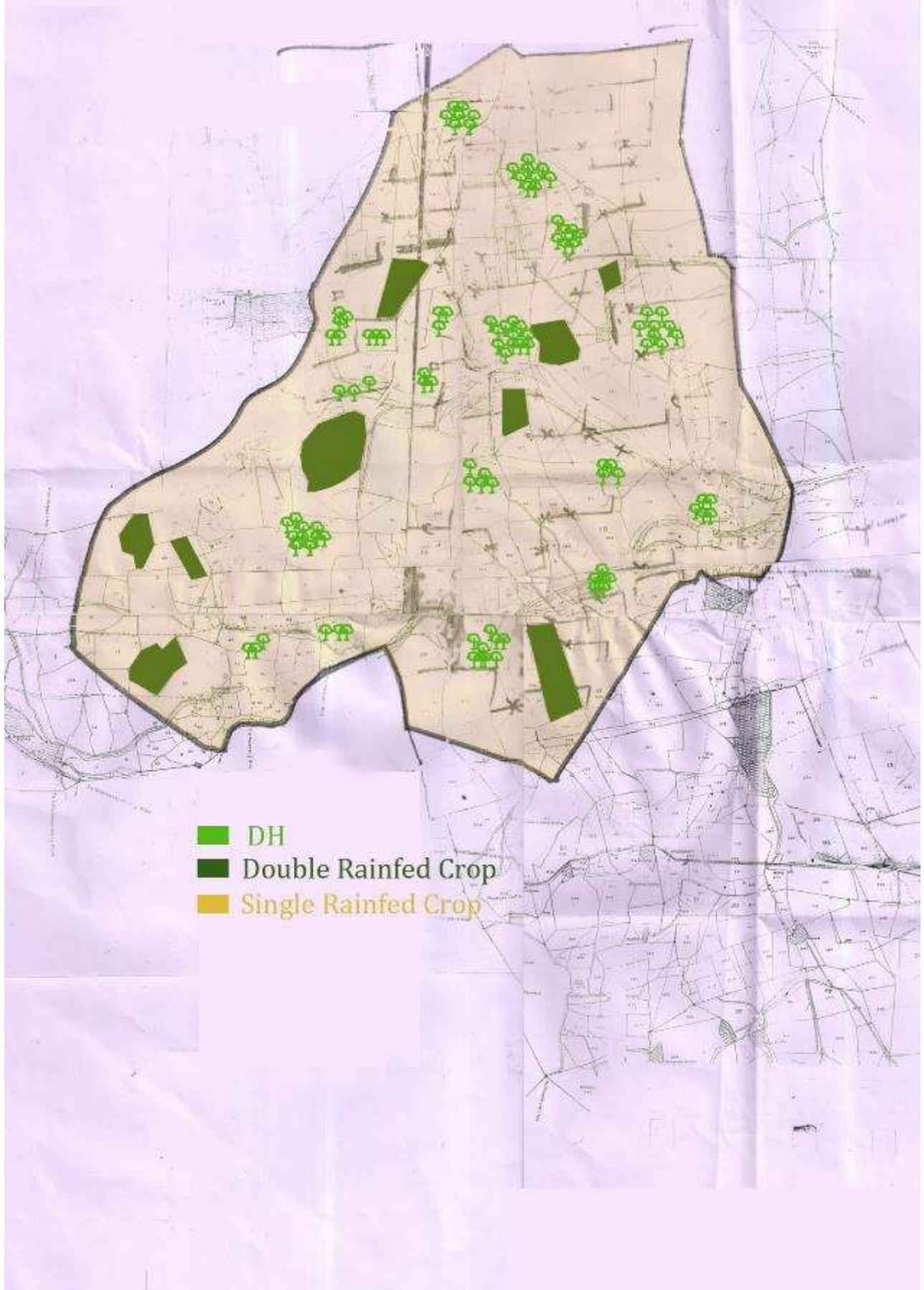


INDEX

NO. 10
PALAVU

- NFA
- SB
- X - SO
- I - RFD
- - F.P
- ≡ DD

The Map showing land use map after treatment in Mallipalli W/s



PHOTOS



DDM Visit at Mallipalli MPT



DDM Visit at Mallipalli MPT



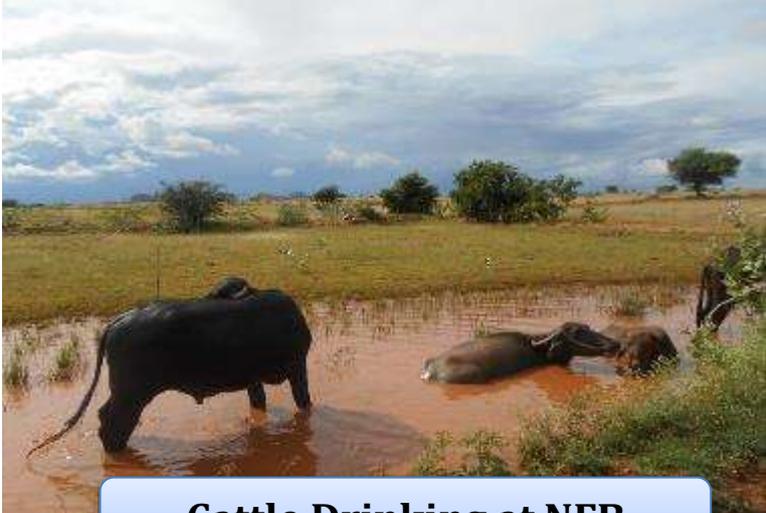
Horticulture Sy.No.225



Changing of Cropping Pattern Gayetri



Series of SGP

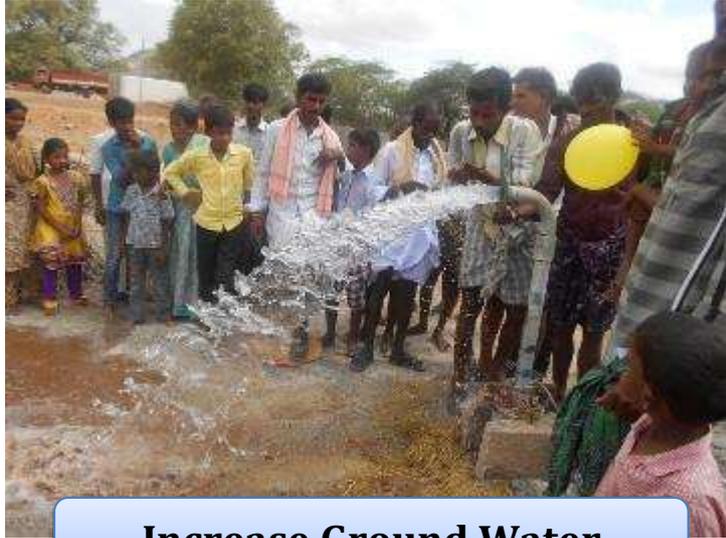


Cattle Drinking at NFB

PHOTOS



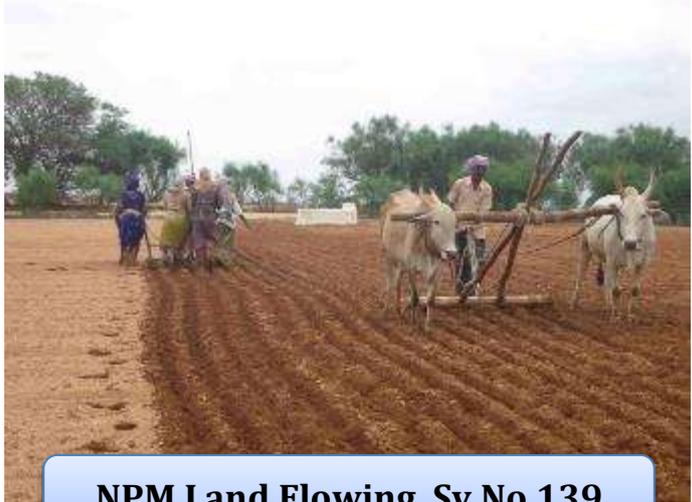
CEO Review Meeting



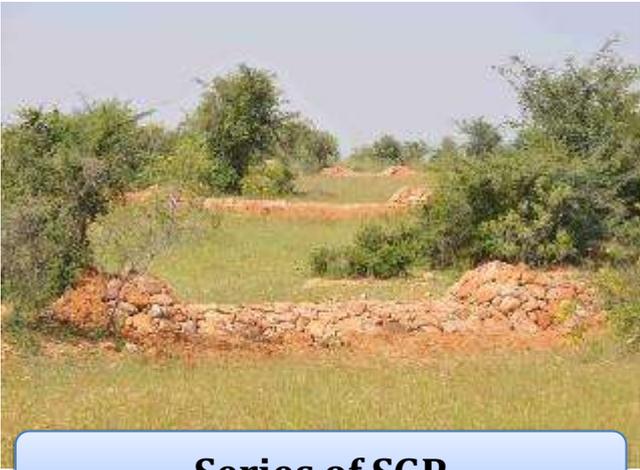
Increase Ground Water



Check Dam Sy.No.69



NPM Land Flowing Sy.No.139



Series of SGP



SGP



Horticulture Sy.No.97



Horticulture Sy.No.162

Paper Cuttings

గురువారం 25 జూలై 2015

కేసనాడు

కళ్యాణదుర్గం

పూనెక్క పల్ల కాలువలో పంపిన నీరు పల్లంకాపురంలో పంపిన నీరు పల్లంకాపురంలో పంపిన నీరు

నీటి వనరులకు జలకళ

చెక్ డ్యామీలకు ఖరీదా చేసిన నీరు

కళ్యాణదుర్గం, పల్లంకాపురం వద్ద ఉన్న చెక్ డ్యామీలకు ఖరీదా చేసిన నీరు. ఈ నీరు పల్లంకాపురం, పల్లంకాపురం వద్ద ఉన్న చెక్ డ్యామీలకు ఖరీదా చేసిన నీరు. ఈ నీరు పల్లంకాపురం, పల్లంకాపురం వద్ద ఉన్న చెక్ డ్యామీలకు ఖరీదా చేసిన నీరు.

చెక్ డ్యామీలకు ఖరీదా చేసిన నీరు

కళ్యాణదుర్గం

ఆంధ్రప్రదేశ్

మంగళవారం 08. సెప్టెంబరు 2015

వర్షం రాకతో... రైతుల్లో హర్షం

పొంగిపొర్లిన వాగులు మంచులు... చెక్ డ్యామీలకు జలకళ

పల్లంకాపురంలో వర్షం రాకతో రైతుల్లో హర్షం.

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