NATIONAL BANK FOR AGRICULTURE AND RURAL DEVELOPMENT

PMU-Ongole

WDF

PROJECT COMPLETION REPORT

GUBANAPALLI WATERSHED

Watershed Development Fund Programme

(WDF-NABARD-AF)

FES
FOUNDATION FOR ECOLOGICAL SECURITY

Submitted by

Accion Fraterna (AF)

Anantapuram

ACCION FRATERNA ecology centre
sustainable . human . nature

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Project Completion Report

Name of the Project: GUBANAPALLI WATERSHED

Name of the PFA: Accion Fraterna

Summary and conclusions:

Genesis:

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

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

Objectives of WDF:

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

With the support of NABARD, AF has facilitated the implementation of Gubanapalli watershed from 2006 to 2015 with the active participation of VWDC which has proportionate representation of communities living there. The VWDC has demonstrated high degree of involvement and cooperated with AF in spreading the watershed awareness to all sections of population. .They have made proper use of the booklet provided by NABARD on quality aspects of watershed interventions. They have made effective use the visits of the NABARD officials to inform them about their needs and seek the support and guidance of NABARD in realizing them. . Another positive note about the watershed is that NABARD has always given utmost importance to the feelings and needs of the people and demonstrated immediate response for which both AF VWDC are grateful.

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

The basic principle in the programme mainly includes social fencing and peoples contribution. Peoples' contribution includes minimum 16 percent free labour from the community and contribution towards maintenance fund. Above all this, the people plan, implement and own the project. Thus, the main objective of the programme is to develop watershed in an integrated and comprehensive manner for achieving the supporting sustainable production system through active participation of the local people.

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

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

The Gubanapalli watershed is located at the Anantapuramu district in Kalyandurgam mandal, with a conglomeration of 1 hamlets of Mallikarjuna Palli.

The Total Geographical area of the watershed is 1125.00 ha., in which 850 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 502 with a population of 2007 (household survey), which is, predominantly backward classes. Total work force is 75 percent of the total population is mainly engaged in agriculture and allied activities. Female population is 46.34 per cent. Literacy level is 32.61%. Density of population is 182 persons per square kilo meter.

The project was sanctioned in 2010 with a financial grant of Cr.1.12, along with LH component and training amount, MF and Management Cost. As against this, the physical achievement under area treatment and drainage treatment was above 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 47104 number of saplings were planted all installments, of which, an average survival percentage is around 72.5 percent as on 2012-13 year. Dry land-horticulture was also given top priority in the watershed which included plantation of mango, jamoon etc., Nearly 75 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. 4.64 lakhs has been released and interest accrued in the project measures account Rs. 218890.74/- and peoples' contributions towards maintenance Rs. 51200. 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 0.48 lakhs/ha to Rs. 0.75 lakh/ha showing an impressive growth of percent. There are 106 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 above were completed. Further, much of the drainage line treatments were also completed and hence impact of all these works taken together would be significant in recharging the ground water. The water available in the check dam, percolation tanks which were constructed are also used for irrigation, dry land agriculture and agro-horticulture. Farmers who are growing the mango plants under horticulture are aware of good management practices and it would bring good income to the farmers.

Though, the watershed is being located in the rain-shadow area, the availability of fodder enhanced, as many of farmers have been growing fodder through irrigation and also used the ground-nut residue and paddy as hay for the use of cattle in summer period. It was clearly known that the numbers of cross breed cows were increased in the watershed. However, the dairy activity has to be undertaken on stall-fed basis and proper veterinary services may have to be provided. The mandal head quarter and Kalyandurgam are nearby distance to the watershed villages and hence there is a good demand for the dairy products. This activity can therefore be taken up. However, the climate during rainy season being humid, after care of the breeds has to be taken in the region.

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

In the watershed, incremental income from crop husbandry is accrued due to increase in productivity, production, change in cultivation practices and cropping pattern, switch over to high value crops, etc., the incremental income from the crops, thus worked out to Rs.

557.99 lakhs. This income is in the fifth year of the project which represents 70 percent of full benefits. The full benefits are expected to stabilize from the sixth year on wards. The income from -horticulture is estimated by taking 50 percent of the number of plants planted, leaving enough margin for non-survival. The stabilization stage of the plantation is assumed to be tenth year from the year of planting. As the plantation was done from the first year to the fifth year, the benefits are expected to stabilize from the 15th year onwards. The total income from the horticulture plantation at stabilization stage is worked out at Rs. 48.80 lakhs. The total income from the watershed, thus, would be from crop husbandry and dry-horticulture put together worked out to Rs. 452.79 lakhs at stabilization which stage, i. e., in the fifteen year.

On the count of generation of employment, the project had created additional employment of non-recurring nature to the tune of 17742 mandays during 2010 to 2015 year. In addition to this the people is expected to generate recurring employment of nearly 1250 man days per year. In other words, the project would be provide employment to nearly 600 persons all the year round.

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

Contents of project completion report:

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

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Chapter –I

Introduction

Background:

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

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

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

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

Watershed development programme involves regeneration of the environment, management of the resources like land, water and vegetation within that particular

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

Concept of watershed:

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

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

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

Institutional Arrangement:

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

the “Accion Fraterna” (AF) had identified as a Project Facilitating Agency. The FES had been identified as Resource Support Organization (RSO), to support the PFA and VWDCs..

PFA introduction:

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:

1. 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.
2. 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).
3. AF is committed to combat desertification and promote sustainable ecology, healthy environment and bio-diversity, where people and nature live in harmony and support each other.
4. AF is committed to work with poor and disadvantaged women and youth and promote Diversified Livelihoods including agri-processing, marketing and skill based employment.
5. AF is committed to work for gender, social equality, human dignity, and to create a responsible social environment with peace, democracy mutual cooperation and community support.

6. AF is committed to work with Government, like minded NGOs, CBOs Civil Society Organizations and individuals. In this process it is committed to strengthen and coordinate the role of different organizations, intellectuals, experts and individuals in the interest of social well being.
7. AF is committed to being a strong, dynamic, dedicated and sustainable organization. It builds itself into an organization, learning from experiences and always 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:

1. **Basic human values of compassion, concern, honesty, hard work, sincerity etc.** We are committed to practice and promote the basic human values of love, compassion, concern, honesty, hard work, sincerity etc driven by the Vision, Mission and Values of AF Ecology Centre.

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

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

4. **Work together with Govt., NGos, CBOs and CSO.**
   We are committed to working with Government and like-minded NGOs, CBOs & CSOs in order to produce the best synergies through combined and co-ordinated efforts.

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

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

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

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

9. **Transparent and Accountable**
   We are committed to be transparent and accountable to all our stakeholders.

Location and Selection of watershed:

2.3 Gubanapalli watershed area is located at the Anantapuramu district in Mallikarjunapalli revenue village, Kalyandurgam mandal and falls under drought prone area. The Total Geographical area of the watershed is 1125.00 ha., in which 850 ha., are treatable area. The average annual rainfall is around 520 mm most of which is received during the south-west monsoons. The agriculture is largely dependent on monsoon, butthe 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 12 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 326 people from 502 households, were migrated to nearest towns.These are the facts which made to watershed interventions very important and necessary. At this juncture, AF has undertaken the watershed programme with the grant support of NABARD-WDF for the development of community through restoration of the denuded resources and the area, as one of the projects, as per the objective of the Orgnization.

The basic principles of the programme are:

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

The Project completion report:

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

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Chapter-II

Methodology of study

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

Objectives:

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

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

Reference year:

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

Sources of Data:

2.4 The basic source of data is the household survey through conversation at individual level among different households effected by the watershed and records maintained at WDC level. Interaction with different people of such as upper, middle and lower regions of the watershed to capture the impact on production, productivity, income and generation of employment in agriculture and also with landless poor to study

possibilities of wage employment in the watershed, improved opportunities of livelihoods, migration, scope for agriculture and allied activities and discussion were held village level workers, group level meetings with farmers, SHG members.

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

Project Cost:

2.5 Actual cumulative cost of the watershed is 80.45 (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.

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Chapter-III

Watershed Project and Its implementation

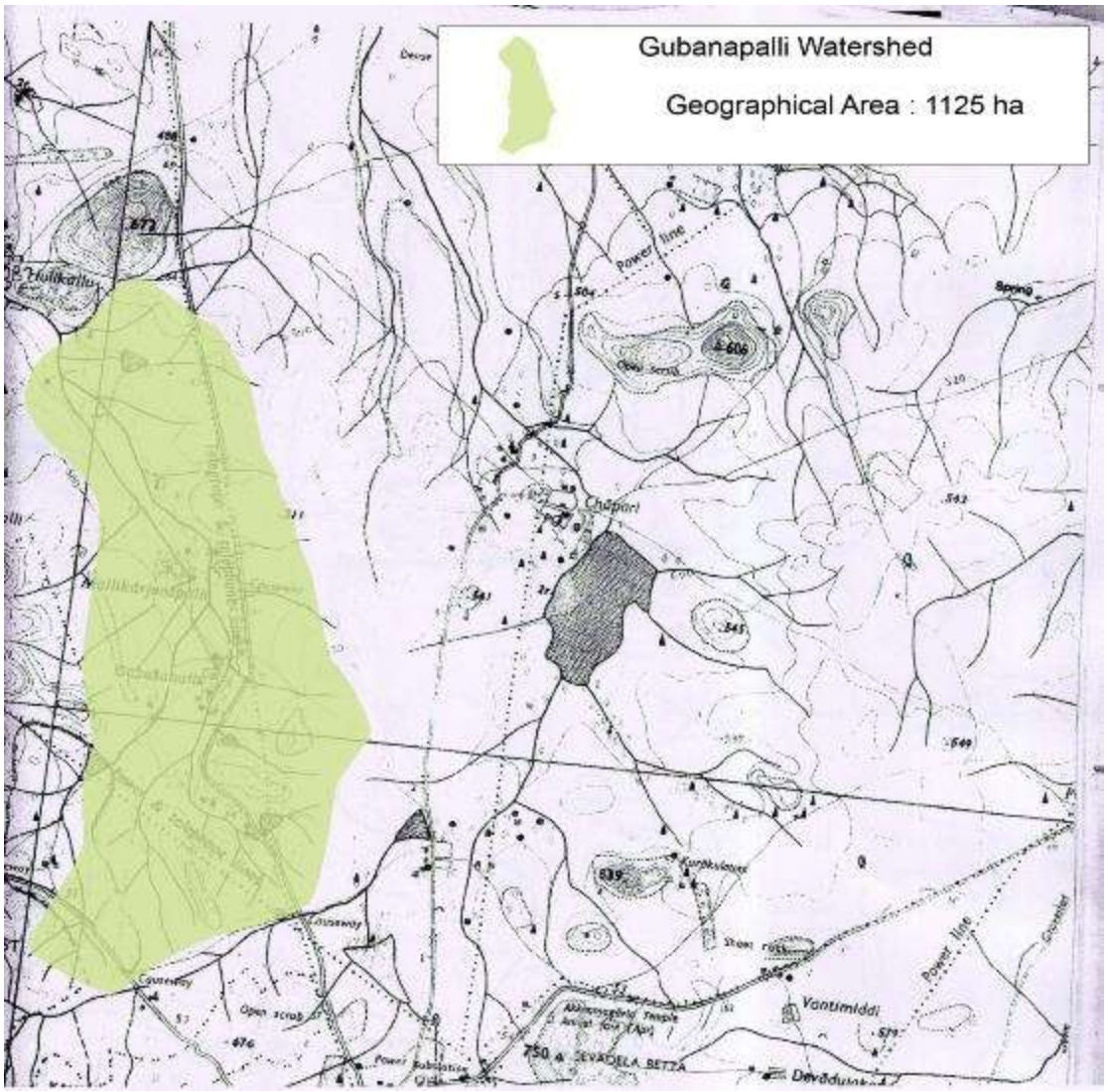
Watershed Project:

Overview of the Project:

Name of the Watershed		Gubanapalli	
Name of the district		ATP	
Name of the Mandal		KLD	
Name of the Gram Panchayat		Gubanapalli	
Names of habitations		Mallikarjunapalli	
Longitude	$14^{0}30^{1}15$	Latitude	7705120
Elevation (above MSL)			
Highest elevation	+694	Lowest elevation	+549
Height difference		145 mts	
Average annual Rainfall		352-520mm	
Major drainage		Balavanka	
Slope %		2 to 5%	
Soil type		Red Soil and Sand Soil	
Major crops		Ground Nut	
Water resources		Village Tank, Srirama reddy Pipe line and Sathya Sai Water,	
Demographic Details			
Population		2007	
Of which SC / ST (%)		26.59%/0.63%	
Landless (%)		39.57	
SF / MF up to 2 ha		10.64%	
Male		1034	
Female		973	
Amenities (nearest) and Distance in Km.			
Railway station		66 Km – Anantapuram	
Bus stand		4 Km - Kalyandurgam	
Town		4 Km- Kalyandurgam	
Bank		4 Km- Kalyandurgam	
Agriculture market		4 Km- Kalyandurgam	
Agriculture research station		66 Km- Anantapuram	
Veterinary hospital		4 Km- Kalyandurgam	
Mandal office		4 Km- Kalyandurgam	

Location:

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



Topography:

3.2 The Total Geographical area of the watershed is 1125.00 ha., with clear hydrological boundary on all sides, in which 850 ha., are treatable area. There are 344 land holding, of which, 40.13 per cent hold less than one hectare of land. There are 25 holding have more than four to eight hectare of land which formed 1.27percent of total holdings, but account 6.58 per cent of total land.

The land mass is divided 3 micro watersheds on the basis of natural drainage. The percentage of slope ranges 2 to 6%.

3.4 Nearly 80 percentage of the Geographical area is comprised of shallow to medium soils have depth up to 32 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 502 households with a total population of 2007. In the project area major dominating communities are BC(71%) and SC(19%). There is good cohesiveness among all the communities. The work force is 66.83 per cent of the total population and is mainly engaged in agriculture and allied activities. Female population is 46.34 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		Minor ities		Total		
	M	F	M	F	M	F	M	F	M	F	M	F	Total
Gubanapalli	207	201			211	181	93	120			511	502	1013
Mallikarjuna Palli	81	70	05	03	393	413	12	16			494	500	994
Total											**1025**	**1015**	**2007**

Climate:

3.5 The annual average rainfall is 352 to 520 mm. Much of the rainfall is received form South west monsoon during the June to Septmember.The Maximum temperature at around 42 degrees and the average temperature of the area is 32- 36C.

Livestock:

3.6 The total population of livestock is 8705, amongst which the percentage of milch animals is 300, and majority animals are cross breeds of Hoelstein Frezien and Zersy varieties. The number of small ruminants is 808, (49.91%) and mortality rate is medium.

Sl.No.	Live stock	Total no.s	Mortality rates (High/ Med / Nil)
1	Bullocks	50	Med
2	Cows	164	Med
3	Buffaloes	430	Med
4	Sheep	3500	Med
5	Goat	346	Med
6	Poultry	4215	Med
	TOTAL	**8705**	

Land Utilization:

Total Geographical area of the watershed is 1125.00hectares. Out of this, cultivable area (850 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	30	2.35
2	Revenue land	228	17.88
3	Panchayath land	2	0.15
4	Gaathan(land occupied by households)	2	0.15
5	Submergence area due to tanks/ponds	24	1.88
	Land privately owned		
6	Cropped Area		
7	Seasonally irrigated	16	1.25
8	Perennially irrigated	170	13.33
9	Rain -fed	1003	78.66
10	Fallow area(Cultivable waste)	10	0.78
11	Uncultivable waste land	76	5.96
	Total	**1275**	**100**

Irrigation:

There are 156 bore wells and out of 164 bore wells 156 bore wells are functional and 277.88 Ha., of land is under irrigation of bore wells and 156 bore wells are seasonal functional.20 open wells are also functional in the season. The main crops cultivated under bore wells are paddy, tomato and vegetables of few varieties such as beans, brinjal, Ladies finger etc.,and sericulture in small patches.

	Pre watershed					**Post watershed**				
Type of well	**Total no.s**	**Fully functional**	**Seasonal**	**Fully Defunct**	**Area (ha) Irrigated**	**Total no.s**	**Fully functional**	**Seasonal**	**Fully Defunct**	**Area (ha) Irrigated**
Open wells	37	16	16	21	19.42	37	12	12	25	15
Bore wells	87	82	82	5	130.58	164	156	156	08	277.88
Total	**124**	**124**	**98**	**26**	**150.00**	**201**	**156**	**156**	**45**	**277.88**

Land Holdings:

There are 284 land holdings, of which 39.57 per cent is landless and 40.13 percent hold less than one hectare of land. There were 25 holdings having between 4 to 8 hectares of land which formed 1.27 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	186	39.57	0	0
2	0-<1	115	24.46	113.09	16.96
3	1-<2	87	18.51	145.32	21.78
4	2-<4	50	10.63	170.20	25.51
5	4-<8	25	5.31	167.60	25.13
6	More than 8 ha	07	1.52	70.82	10.62
	Total	**470**	**100**	**667.03**	**100**

Implementation of Watershed

Sanctions and Achievements:

The project was sanctioned during 2010 year with a financial grant of Rs. 79.45 Lakhs(for worsks). The above sanctioned amount excludes management expenditure of Rs. 20.26 lakhs. For trainings 1.00 lakh and for maintenance of assets created during the implementation was sanctioned 4.64 lakhs. The expenditure against sanction is Rs. 79.45 lakhs. The total sanction and achievement there against as on shown in the table given below:

Following are the financial details for the project:

Financial Details

a. CBP

Initially Gubanapalli watershedwas sanctioned and after completion of CBP, for the convenience of implementation the area was devided into two watersheds during the FIP sanction. So, the CBP area comes under Gubanapalli watershed and sanctions and achievements and the impact was given in the PCR of Gubanapalli.

Budget details of CBP:

Sanction details		Utilisation of Funds
Material	218724.00	218724.00
Labour	459240.10	459240.10
Supervision	36739.45	36739.45
Total Project Measures	714703.55	714703.55
Less shramdhan	73478.90	73478.90
Grant to the WDC	641224.65	641224.65

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**	**2026952**	**1747900**	**100000**	**464787**	**7945908**	**12285547**
II	**Total amount of grant received (cumulative) (Till the end of reporting period)**	**1528895**	**1747900**	**100000**	**321300**	**7945908**	**11644003**
III	**Grant utilized during the reporting period**	**1528895**	**1747900**	**107451**	**0**	**8045908**	**11430154**
V	**Balance of grant carried forward (I-IV)**	**498057**	**0**	**0**	**143487**	**0**	**641544**

Project Implementation:

With the active involvement of Village Watershed committee the area treated is **850 Ha** area with an amount of Rs **7 lakhs.** Apart from irrigated private lands all other land types have covered under various bio physical interventions and revegetation activities followed by the drainage line treatments in the watershed.

Sanction and achievements:

a. FIP

Sl.No	Activity	Sanction		ACHIEVEMENT/ EXPENDITURE			
		Phy.	Financial (With.Shrmn)	Phy. Quantity (m /cum)	Percentage of completion of units	Grant amount	Percentage of completion of grant
1	New Farm Bunding	33735	1986317	27778	82	1193169	60
2	Stone Outlets	645	424874	645	100	686393	162
3	Farm Ponds(8x8x2)	34	589465	34	100	842399	143
4	AF Seed	175	25550	53	30	7738	30
5	Farm Bunding with Stone Revetment	7630	643972	5664	74	1052490	163
6	Stone Bunding	639	244354	725	100	326051	133
7	Recharge of Dried -up wells	6	38448	0	0	0	0
8	Zinc Application	12	69000	12	100	115000	167
	Vegetative Measures			0		0	
9	Bund Plantation	19307	435566	6513	34	188026	43
10	Block Plantation	12400	392088	0	0	0	0
11	*AH*	6510	470022	2800	43	241920	51
12	*AH(P)*	8070	322800	1890	23	136458	42
13	DH with pitcher	7910	567938	5210	66	462474	81
14	DH(Material)	9290	325150	1545	17	54075	17
15	Grass Seed	320	12800	166	52	6640	52
16	Agave Suckers	18000	52560	5500	31	16060	31
B	Drainage line treatments						
17	Loose Boulder Structure - 6 mt	1	1230		0	0	0
18	Loose Boulder Structure - 8 mt	1	1636	0	0	0	0
19	Loose Boulder Structure - 12 mt	1	2447	0	0	0	0
20	Loose Boulder Structure - 13 mt	1	2651	0	0	0	0
21	Loose Boulder Structure - 15 mt	4	12229	0	0	0	0
22	Stone Gully Plug- 4 mt	2	4703	1	50	2766	59
23	Stone Gully Plug- 5 mt	1	2766	1	100	4024	145
24	Rock Fill Dam 1 (3 mts)	2	8047	0	0	0	0
25	Rock Fill Dam 2 (4 mts)	1	4787	1	100	26222	548
26	Rock Fill Dam 3 (5 mts)	10	55495	2	20	13447	24
27	Rock Fill Dam 4 (6 mts)	4	26895	3	75	18535	69
28	Rock Fill Dam 5 (6 mts)	1	7436	1	100	6671	90
29	Rock Fill Dam 6 (6 mts)	1	6671	1	100	7837	117
30	Rock Fill Dam 7 (8 mts)	1	7837	0	0	0	0
31	Sunken Ponds -1(10X5 m)	3	24367	0	0	0	0

32	Sunken Ponds -2(8x6 m)	1	8406	0	0	0	0
33	Dug out pond - 1(10X10 m)	2	45889	0	0	0	0
34	Dug out pond - 2(15X15 m)	1	51911	0	0	0	0
35	Check Wall (6 m)	1	52356	0	0	0	0
36	Flood Control Bund - 1(10 mt)	1	4627	1	100	9253	200
37	Flood Control Bund - 2(20 mt)	1	9253	0	0	0	0
38	Earthen Gully Plug (25 mt)	1	45636	0	0	0	0
C	Other grant based activities						
39	Household Plantation	400	86400	400	100	80528	93
	SB	913	600811		0		0
	CD 1	1	400127	1	100	400714	100
	CD 2	1	180923	1	100	180923	100
	CD 3	1	167012	1	100	167011	100
	DD 1	1	64211	1	100	64211	100
	DD 2	1	92529	1	100	92529	100
	RO Plant	1	250000	1	100	250000	100
	DH (P)	1260	90500	1260	100	90468	100
	EGP	1	45600	1	100	45636	100
	FCB-1	1	54700	1	100	54743	100
	FCB-2	1	47900	1	100	47900	100
	CHECK WALL	1	67600	1	100	67620	100
	CD-1	1	325600	1	100	420669	129
	CD-2	1	167000	1	100	167012	100
	Trainings	1	100000	1	100	107451	107
Total		**127304**	**9729089**	**497440**	**100**	**7813351**	**80**

It can be seen from the table that the physical achievement under area treatment is 80% while the financial achievement of the corresponding work worked out to 100% which is more because change of SSR. A total of nearly 73 (both area and drainage treatments) per cent of the geographical area has been treated for soil and water conservation.

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

3.4 Regarding the drainage line treatment works, the physical achievement is 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. 7 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. 3CD's 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.

3.7 From third year onwards, stone outlets were constructed in proportionate to the NFB execution and the remaining area treatments and drainage treatment works such as NSB, Cd's 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 27000 and 11445 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.)
New Farm Bunding	1986317	263441	229338	700390			1193169
Stone Outlets	424874	59944	119785	297644	209020		686393
Farm Ponds(8x8x2)	589465	0	86686	333403	422310		842399
AF Seed	25550	4818	2920				7738
Farm Bunding with Stone Revetment	643972	431004	322769	298717			1052490
Stone Bunding	244354	180684	91202	54165			326051
Recharge of Dried -up wells	38448	0	0				0
Zinc Application	69000	69000	46000				115000
Bund Plantation	435566	71515	66259	50252			188026
Block Plantation	392088	0	0				0

AH	470022	0		241920			241920
AH(P)	322800	0	136458				136458
DH with pitcher	567938	116675	95494	250305			462474
DH(Material)	325150	0	54075				54075
Grass Seed	12800	2680	3960				6640
AgaveSuckers	52560	0	16060				16060
Loose Boulder Structure -6 mt	1230	0	0				0
Loose Boulder Structure -8 mt	1636	0	0				0
Loose Boulder Structure -12 mt	2447	0	0				0
Loose Boulder Structure -13 mt	2651	0	0				0
Loose Boulder Structure -15 mt	12229	0	0				0
Stone Gully Plug-4 mt	4703	0	0				0
Stone Gully Plug-5 mt	2766	2766	0				2766
Rock Fill Dam 1 (3 mts)	8047	4024					4024
Rock Fill Dam 2 (4 mts)	4787	0	0				0
Rock Fill Dam 3 (5 mts)	55495	22198	4024				26222
Rock Fill Dam 4 (6 mts)	26895	6724	6724				13447
Rock Fill Dam 5 (6 mts)	7436	7436	11099				18535
Rock Fill Dam 6 (6 mts)	6671	0	6671				6671
Rock Fill Dam 7 (8 mts)	7837	7837	0				7837
Sunken Ponds - 1(10X5 m)	24367	0	0				0
Sunken Ponds - 2(8x6 m)	8406	0	0				0
Dug out pond - 1(10X10 m)	45889	0	0				0
Dug out pond - 2(15X15 m)	51911	0	0				0
Check Wall (6 m)	52356	0	0				0
Flood Control Bund - 1(10 mt)	4627	0	0				0
Flood Control Bund - 2(20 mt)	9253	0	9253				9253
Earthen Gully Plug (25 mt)	45636	0	0				0
Household Plantation	86400	80528	77760				158288
SB	600811						0
CD 1	400127					400714	400714
CD 2	180923					180923	180923

CD 3	167012					167011	167011
DD 1	64211					64211	64211
DD 2	92529					92529	92529
RO Plant	250000					250000	250000
DH (P)	90500					90468	90468
EGP	45600					45636	45636
FCB-1	54700					54743	54743
FCB-2	47900					47900	47900
CHECK WALL	67600					67620	67620
CD-1	325600					420669	420669
CD-2	167000					167012	167012
Trainings	100000					107451	107451
Total	**9729089**	**1331273**	**1386536**	**2226796**	**631330**	**2156888**	**7732823**

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.

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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), developmentof 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.

Check Dam Sy.No.49

MPT: An MPT was formed in the survey no. 3, to harvest the run-off of the surrounding lands.,

Farm bunding was also formed in the same survey number, to arrest the erosion and to enhance the retention of soil moisture

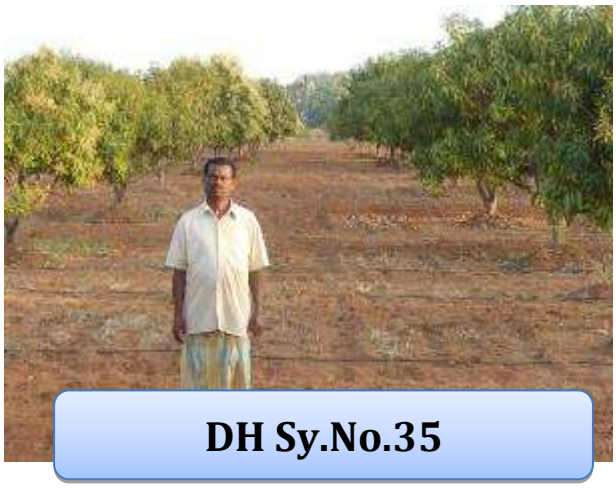
and to drain out excess run-of,Stone outlets were formed. And bund plantation was also taken up. The number of plants planted are 2000 nos. The survival percentage is 70%.(plantation register). Stone bunding was also constructed in the same land, where the slope of the land falls from the range 5 to 6% to minimize the erosion. After the treatments, the farmer has been cultivating the land and at the present standing crop is horse-gram in the entire land. The period of retention of soil moisture has been increased substantially *and* the crops too sustained during long dry spells after the treatments. After the treatment of the above land(survey no.3 and 5) 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 farmers S.Thimaraju and Ravi Shekar has been cultivating vegetables such as tomato, chilly, brinjal etc., She had got nearly Rs. 70,000/- through the tomato crop. The yield of chilly is nearly 1 quintal and got Rs. 15000/-. As a total of nearly 7 acres of land come into cultivation and under the bore well paddy was cultivated in 50 cents and gave an yield of 20 bags (75 kgs).5 acres of land was converted as dry land horticulture and the yield expected would be sold for Rs. 25000/-. 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.30000/-.

In the same survey number, in the fields of Donaswamy, a bore well was get recharged by the CD and farmer has been cultivated paddy in 0.50 acres and 5 in acres of land under horticulture250 plants were planted through NREGS programme. The present land use was changed to horticulture,which is a fallow before the treatments implementation.

Mango orchards securing the livelihoods of farmers

Gubanapalli is a typical village of drought prone Anantapuram district, where Groundnut and paddy were major crops on very little irrigated land under bore wells prior to 2010. The village is located at 5 KM from the mandal head quarters kalyanadurgam.

Accion Fraterna Ecology Centre initiated watershed activities in the village with financial assistance from NABARD. As part of CBP, AF started to sensitise farmers on the importance of fruit plants in the wake of fast depleting ground water which would further worsen the situation, if continued to grow annual crops like paddy, groundnut, vegetables etc. Initially the farmers showed no interest in taking up fruit tree crops. AF's continued efforts changed the mind set of one rain fed farmer called Mr. Kongara Parandhama, who came forward to take up mango plantation on 6 acres of land.


DH Sy.No.35

He convinced his father and brother and planted 450 mango plants on 6 acres. All the members of his family put in a lot of efforts in watering and protecting the plants from June 2011. They used their bullock cart to carry water in drums for watering the plants. They followed the suggestions of AF & RSO on mango crop management. Inspired by these efforts of Parandhama, 75 farmers of the village had planted fruit plants covering 172 acres in two years nfrom 2011 to 2013.

Mr. Parandhama earned about Rs. 1,36,000/- from the first harvest of mango in 2014 season. He also gained from intercrops of groundnut, redgram and horsegram during the four years. "I spent about Rs.50,000/- on mango crop management and got a net income of Rs.86,000/- with the first harvest. In the future the expenditure comes down to Rs.10,000 to 15,000/- and the yield increases further which assures me of higher income" revealed the elated farmer. He also thanked NABARD and AF for supporting throughout, otherwise it would be very difficult to make a living during droughts which were quite frequent in Anantapuram district.

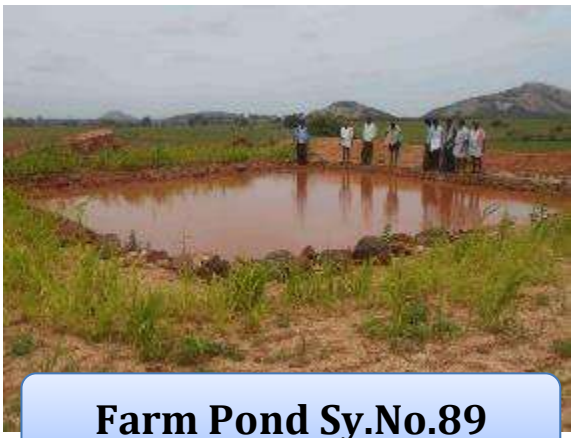
Other farmers of the village also expressed their happiness over finding suitable drought resistant farming systems through watershed programmes. The Watershed committee members proudly said that the watershed activities started to yield in the desired livelihood security even under drought conditions.


DH Sy.No.19

The impact grew further with 102 small & marginal farmers shifted to mango orchards on 92 acres in the year 2014. More and more tree crops are not only providing income to the farmers, but also positively contributing to the environment.

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:



Farm Pond Sy.No.89

Farm pond: In the survey no. 89, in the fields of Anand a Farm pond was excavated and has been useful as a drinking water source for cattle of 5 villlages(Gubanapalli and Mallikarjunapalli). The farmer has been using to watering the plants of Alla neredu and Tamarind plants of 10 Nos.

Convergence of Government & NGOs improving livelihoods in Watershed villages

Mango Plants Distribution

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.


Horticulture Plot Sy.No.85/2

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 endeavor.

Ground Water

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

	Pre watershed					Post watershed				
Type of well	**Total no's**	**Fully functional**	**Seasonal**	**Fully Defunct**	**Area (ha) Irrigated**	**Total no's**	**Fully functional**	**Seasonal**	**Fully Defunct**	**Area (ha) Irrigated**
Open wells	37	16	12	25	9.71	37		37	37	
Bore wells	87	82	65	22	78.91	164	164	157	07	269.39
Total	**124**	**98**	**77**	**47**	**88.62**	**201**	**64**	**194**	**42**	**269.39**

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.

Horticulture Plot Sy.No.3

A check dam was constructed across Gubanapalli Gunta Vanka, to harvest heavy flow with a length of 10 meters of main body wall. 1 bore well was get recharged and 5 acres of land of G. Sai Ram come into cultivation. He has been cultivated tomato and earned nearly Rs. 45000/- in the year 2015. Under the check dam, 6 acres of land of 4 farmers come into cultivation which is a waste land at previous with boulders and small bushes.

Table 4.1
Rainfall in the watershed

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

Table 4.2
Water table depths of bore wells and open wells

Number of observation wells	Pre Watershed (October 2010)			Post Watershed (October 2015)		
	Avg. depth of well (m)	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						
Parandamma	60	20	40	60	30	30
Venkatesulu.N	45	15	30	45	20	25
Srinivasulu	45	15	30	45	19	26
Middle						
Jayaramulu	70	10	60	70	20	50
Surendra Babu	**40**	**9**	**31**	**40**	**14**	**26**
Lower						
Donaswamy	60	10	50	60	16	44
Ranga Reddy	60	10	50	60	14	46
Buddeppa	45	15	30	45	22	23
Thimmappa	63	10	30	63	22	41

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

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

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

number of open wells was decreased due to continuous drought and area under irrigation also decreased.

Totally there were 114 open or bore wells in the watershed area which has increased to 170 out of which 106 are fully functional, 32 are seasonal and 32 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.

	Pre watershed					**Post watershed**				
Type of well	**Total no.s**	**Fully functional**	**Seasonal**	**Fully Defunct**	**Area (ha) Irrigated**	**Total no.s**	**Fully functional**	**Seasonal**	**Fully Defunct**	**Area (ha) Irrigated**
Open wells	37	16	16	21	19.42	37	12	12	25	15
Bore wells	87	82	82	5	130.58	164	156	156	08	277.88
Total	**124**	**124**	**98**	**26**	**150.00**	**201**	**156**	**156**	**45**	**277.88**

4.5 The water table was decreased due to the following reasons

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

The above table, the figures were taken from the well inventory register maintained by the para worker. As the recording the water levels are started in the critical period after almost 3 months after the rainy season and hence November / January months are taken as base periods for comparison. In general the water levels in this critical month have been raised by 2 meters. A deeper reference to the well inventory register indicates that the bore wells are over flowing with water for more than two months after the rainy season. When we compare the water levels from year to year it reveals there is direct correlation between the level of rainfall and the water levels in the observation wells. However the VWDC members and farmers have shared in different meetings that as the land treatment works progressed in watershed interventions availability of water levels in bore wells increased in time and quantity. Water levels as mentioned above remained so in a number of wells which played a crucial role in survival of plants planted in the watershed area using the project funds. The VWDC members and farmers shared that in the pre watershed period the bore

wells were yielding water intermittently – half an hour to two hours at a stretch and by October month. Now there is continuity in yield of water of and water is seen available even till February or March every year. This is the main reason as to why there is multifold increase in the number of bore wells coming up. Confidence of the farmers in going for crops in rabi season has increased.

Land Utilization Pattern:

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

Table 4.3
Land Utilisation pattern (Area in ha.)

S.No.	Type of land	Area in Ha.	
		Pre Watershed	Post Watershed
A	**Crop Land**		
1	Irrigated land	150	277.88
2	Dry land (Rainfed)	1003	875.12
B	**Fallows**		
1	Uncultivable waste land	**28**	**9.00**
2	Cultivable Waste land (fallows)	10	3.00
C	**Others (Water bodies, hillocks etc.)**	**84**	**84.00**
	Total	**1275**	**1249.00**

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 45104 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	24			100.1	
2	DH	0	6739	5683	84.33	
3	AF(bund)	0	50/8000	20.1/3216	40.20	
4	AF (block)	0	0	0	0	
5	Agave Sunkers	0	90.00	76.00	84.44	
	Total	**24**			**309.07**	

Table 4.5
Survival Rate of Plantations

Sl. No.	Year	No. of plants planted	No. of plants survived as on	Survival rate %
1	2010-11	890	782	87.86
2	2011-12	1205	806	66.88
3	2012-13	378	360	95.23
4	2013.14	4266	3735	87.55
	Total	**6739**	**5683**	**84.33**

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 69.5per 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 Allaneredu etc.,

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

Table 4.8

Cropping Patterns:

Sl. No.	Crops	Production of major crops in the watershed					
		Pre watershed			Post watershed		
		Area (ha)	Yield (Q/ha)	Production (Qts.)	Area (ha)	Yield (Q/ha)	Production (Qts.)
Kharif							
	Crops						
1	Ground nut	439	8	3512	320	7	2240
2	Ragi	6	3.20	19.20	0	0	0
3	Bajra	10.00	5	50.00	10	5	50.00
4	Red gram	0	0	0	60	12	720
	(Inter crop)	0	0.50	219.50	320	0.5	160
5	Green gram	12.00	13.50	162.00	140	13.50	1890
6	Horse Gram	25	5	125.00	50	5.00	250.00
7	Paddy	90	46.875	4218.75	8.00	37.50	300.00
8	Perinol	20	37.50	750.00	0	0	0
9	Castor	0	0	0	44	8.75	385
10	Goru Chikkufu	0	0	0	04	5	20
	Vegetable						
1	tomato	6.00	75	450	104	300	31200
2	Ladies finger	120	05	15	0	0	0
3	Others	0	0	0	0	0	0
		Area (ha)	**Yield(Q/ha)**	**Production (Qts.)**	**Area (ha)**	**Yield(Q/Ha)**	**Production (Qts.)**
1	Paddy	5	40	200	0	0	0

	Vegetable						
		Area (ha)	**Yield(Q/ha)**	**Production (Qts.)**	**Area (ha)**	**Yield(Q/Ha)**	**Production (Qts.)**

1	tomato	6.00	75	0	**90**	**250**	22500

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	8	20000	16000	19200	-3200
2	Ragi	Kharif	3.2	900	2880	3000	-120
3	Jowar	Kharif	5	700	3500	1000	2500
4	Red gram	Kharif	0.5	2000	1000	500	500
5	Green gram	Kharif	13.50	1000	13500	8100	5400
6	Horse Gram	Kharif	5	700	3500	1500	2000
7	Paddy	Kharif	46.875	600	28125	14062	14063
8	Mulbary	Kharif	0	0	0	0	0
9	tomato	Kharif	75	600	45000	13500	31500
10	Ladies finger	Kharif	05	400	2000	800	1600
11	Paddy	Rabi	37.50	600	22500	11250	11250
12	Tomato	Rabi	300	400	120000	48000	72000
13	Vegetables	Rabi					
14	Ladies Finger	Rabi	05	400	2000	800	1600

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	7	5500	38500	25100	13400
2	Ragi	Kharif	0	0	0	0	0
3	Jowar	Kharif	5	2000	10000	6000	4000
4	Red gram	Kharif	12	5000	60000	24600	64900
5	Green gram	Kharif	13.50	7000	94500	29600	64900
6	Horse Gram	Kharif	5.00	3000	15000	6750	8250
7	Paddy	Kharif	37.50	1500	56250	24900	31350
8	Mulbary	Kharif	0	0	0	0	0
9	tomato	Kharif	300	1260	378000	140000	238000
10	Ladies finger	Kharif	0	0	0	0	0
11	Paddy	Rabi	0	0	0	0	0
12	Tomato	Rabi	250	1260	315000	162500	152500
13	Vegetables	Rabi	8.75	3000	26250	14860	11390
14	Gorru Chikkdu	Rabi	5.00	4000	20000	5000	15000

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	136	177.00	215	235
Area under vegetable cultivation	5	6.00	60	120
No of Drip/Sprinklers set financed	13	13.00	40	240
Area under Horticulture(Mango, Lemon.etc)	02	4.00	25	100

The above details indicate the status of agriculture before and after the watershed. The conscious efforts to promote practices aimed at making agriculture less water intensive, less capital intensive and also enhancing the productivity of the land. All these efforts were initiated with continuous guidance of PMU, NABARD/WDF and RSO. All the stakeholders understood the importance of these initiatives in order to ensure the sustainability of the impact created through watershed interventions. Area under these indicators has increased considerably. This is because of exposure visits and training programs to make the VWDC members and farmers aware of concepts such as organic cultivation, SA, organic cultivation, zero budget farming etc under training component.. This ensures not only the survival of plants but also ensures water conservation.

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

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

In order to facilitate water conservation for irrigation, the VWDC has financed drip irrigation sets on loan basis after duly availing subsidy from government. The VWDC have

also encouraged the farmers especially of those beneficiaries of vegetable cultivation, agro-horticulture (plants given under DH and later turned converted to agro-horticulture) to avail Government Subsidy schemes to get drip irrigation sets. In this watershed about 14 farmers have benefitted with this gesture.

Changes in Agri-allied activities:

Livestock

a. Summary of Livestock holdings:

Sl. No	Livestock	Population & Mortality			
		Pre watershed		Post watershed	
		Total no.s	Mortality rates (High/ Med / Nil)	Total no.s	Mortality rates (High/ Med / Nil)
1	Bullocks	195	Med	50	Med
2	Cows	127	Med	164	Med
3	Buffaloes	182	Med	430	Med
4	Sheep	972	Med	3500	Med
5	Goat	205	Med	346	Med
6	Poultry	1175	Med	4215	Med
	TOTAL	**2856**		**8705**	

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	50	450	8.00	72
B	Rabi (Paddy)	10.06	271.6	15.06	406.6	0	0
	Maize	0	0	2.50	4.50	0	0
	Ground Nut	439	1185.3	520	1404	320	864
	Bajra + Horse Gram + Red Gram	0	0	0	0	210	135
2	Stylo Hamota	0	0	40	40	40	40
3	Nappier Crop	0	0	5.5	17.60	5.5	17.60
	Fodder Production	0	0	0	0	10	8
	Sri Paddy	0	0	5.0	135	0	0
	Total	**494.06**	**1861.9**	**638.06**	**2457.7**	**593.5**	**1136.6**

Fodder	Pre watershed	Post watershed
Fodder availability throughout the year (Yes/No)	Yes	Yes
If No, the scarcity period (no. of months in year)	9	3
Livestock drinking Water		
Water availability throughout the year (Yes/No)	Yes	Yes
If No, the scarcity period (no. of months in year)	9	3

Fodder production has gone up from 6425 tons before the watershed to 21224 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 neighbhorers. The trend noticed in the watershed is that the farmers have recognized dairy as a secured additional income generating activity and they get income every week or fortnight. This income is also very crucial for meeting expenditure

related to domestic expenses, children's education, etc. The VWDC is also ensuring that those who are aspiring loan for dairy animals from them should have land and water resources to grow fodder.

Dairy:

Particular	Pre Watershed	Post Watershed
Number of Dairy Animal (local)	20	200
Number of Dairy Animal (cross breed/ Improved)	70	100
Number of Families involved in dairy		32
Milk production per year (l)	133	824
Milk procurement by cooperative (l)		

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

Livelihoods

i. Summary of Livelihood activities by wealth rank category

S.No.	Wealth rank	Post watershed					Remarks
		Total No. of Households	Investments from Watershed program (Lakhs)				
			No of HH	Grant (Works)	No of HH	Loan from Revolving	
1	POP	60		904000	60	90400	
2	Poor	76		800000	76	80000	
3	Middle	98		600000	98	60000	
4	Well off	10		276000	10	27600	
	Total	**244**	**0**	**2580000**	**244**	**258000**	

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

Following are the types of activities promoted under livelihood component:

S.No.	Name of the LivelihoodActivity	Total Families Covered Till Now	Total Loan Amount
1	Ramlambs	116	1198000
2	Mich Animals	55	657000
3	Corpenter	2	18000
4	Tailaring	1	9000
5	Petty Shop	3	28000
6	Amali Bandi	1	9000
7	Kolemi Implements	1	9000
8	Air Mission	2	19000
9	Auto Repair	1	9000
10	Speyars	5	46000
11	Gujari	2	19000
12	Fadlar	37	342000
13	Milk Business	3	27000
14	Beildari Implements	3	30000
15	Flowers	2	20000
16	Vegetables	1	10000
17	Tracter Rotary	1	40000
18	Business	7	70000
19	Electrical Implements	1	20000
Total		**244**	**2580000**

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/Tirupati/Hyderabad in search of livelihood.

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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 hamlet. 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 15 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.,

1. VWC status:

Registered	-
Total No. of members	15
No. of women members	4
Registration no. and date *(Registered under Societies Registration Act)*	-
If cooperative is registered, date and registration number	AMC/ATP/DCO/2014/4101

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/2014/4101
2	Bank Account Details	120920100000072 ADCC BANK, KALYANDURGAM
3	PAN Card Number	AABAG9472A / 24-02-2014
4	Name of the Board Of Directors of MACS with their Designation	P.Dhonaswamy, K. Jayaramulu
5	Number of Villages Covered through the MACS	01
6	Eligible Families to become members of the MACS	240
7	Families took MACS Membership	100

8	% of Families Enrolled in MACS	-
9	Value of each Share Certificate Given to Member families	-
10	Fund Details	-
10.1	LH Grant Received from NABARD	1747900
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.	2580000
11.1	Bank Balance in MACS SB Account	4546
11.2	Bank Balance in MACS Fixed Depoists	1578000
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	25440

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 Gubanapalli watershed. At present the recovery per cent of LH loans is 80% and the remaining amount was transferred to MACS account.

5.7The records and the accounts of the project are properly maintained in the VWC office at Gubanapalli 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. 39705/- was

accrued interest on project implementation fund and this amount was gone up by Rs. 3.61 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.3.21 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 Gubanapalli watershed, the maintenance of institution is expected to be looked after by the own. The AF has been working for than a decade in these villages and has thus, planned to continue the work in the area through the institution created by organization. Hence, there may not be any lack of the technical expertise for the maintenance of the structures. Besides, due to the continuous rise in accrual of the benefits every year, the village community is taking keen interest in repairing the private SMC works that were undertaken during the project implementation, on their own. Thus, the total corpus was accumulated to the tune of Rs. 3.84 lakh by the end of the progamme, as shown in table.5.1

Table 5.1

Corpus of Maintenance Fund

Name of the Watershed	Gubanapalli
Bank Account Details	
Bank Account Opened	Yes
If opened	-
Name of the Bank Account	M. Fund
Name of Bank/Branch	APG Bank, Kalyandurgam.
Account No	91000623212
Amount collected from families	96200
Interest transferred from Project Measures account	218834
Grant sanctioned for	-
MF received from NABARD	321300
Others/ Interest/ Awards/ Visitors fee	131683-31
Visitors fee if any,	Nil
SB Interest	46585
Works 2% Transfer	83825
Total balance in 'MF ' account	825440-31

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.

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

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

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Chapter VI

Financial and Economic Analysis

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

Assumptions:

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

i. The life of the watershed is infinite as long as there is continuous maintenance. However, economic life of the project is assumed at 25 years only, as return on investment beyond 25 years would make little difference in viability;

ii. Inspite of the project life being infinite, 30 per cent of the updated project cost is considered as 'salvage value' at the end of the economic life of the project.

iii. Actual project cost incurred during the different years is recapitalized at the rate of eight percent to arrive at the project cost at the prices of reference year.

iv. It is assumed that the benefits from crops like paddy, vegetables etc., would proportionate with the project expenditure, subject to a minimum of 50 percent expenditure. The benefits from crops are expected to stabilize from the sixth year onwards.

v. The share of income from MACS is expected to accrue from the sixth year onwards as Instiution was formed during the fifth year only.

vi. The income from dry land horticulture is expected to stabilize from the tenth year onwards. Till then, only 50 percent income is considered from the fifth year to ninth year from the year of planting of horticulture.

vii. Therefore, the incremental income would be total of crop benefits and income received from Dry land-horticulture. The additional benefits likely to accrue with development in future are not considered in the analysis.

viii. Cost of maintenance is estimated at one and half percent (1.5%) of the total updated project cost. However, it is not taken into consideration as there is a separate provision of fund for the project maintenance. Interest accrued on the Corpus of Maintenance Fund and the yearly contribution to be collected from the wataershed community are the sources of income for maintenance of the project. Since this income from both the accounts is not considered as income and the same amount is going to neutralize/ meet the maintenance expenditure of the watershed, it is not shown separately being merely a transfer payment.

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

Project Cost:

6.3 The investment incurred in the project is Cr. 1.12 of the project as mentioned in Chapter II on methodology. In addition, Shramdan component of the project (16 percent) is Rs. 7.08 lakhs included to the cost, total becomes Rs. 1.194/-

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 850 hectares of land, the total number of man days required would be. 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 situtations. The average net income per hectare from each crop during 'pre' and 'present' development situations was already given in Chapter IV. Now, the same has been blown up over to the entire area of the crops to arrive at the incremental income of the watershed community from agriculture. The same is shown in tables 6.2 and 6.3

Table 6.2
Income in the pre-developmental situation

Sl.No.	Crops	Area	Net income per ha	Total income(in lakhs)
1	Ground nut	439	-3200	-1404800
2	Ragi	6	-120	-720
3	Jowar	10	2500	25000
4	Red gram	320	500	160000
5	Green gram	12	500	160000
6	Horse Gram	25	2000	50000
7	Paddy	90	14063	1265670
8	Perennial	20	11250	225000
9	tomato	6	31500	189000
10	Ladies finger	1.20	1600	720
11	Paddy(Rabi)	5	11250	56250
12	Tomato(Rabi)	6	72000	432000
13	Ladies finger	05	1600	8000

Table 6.3

Income in the present development situation

Sl.No.	Crops	Area	Net income per ha	Total income(in lakhs)
1	Ground nut	320	13400	4288000
2	Ragi	0	0	0
3	Bajra	10	4000	40000
4	Red gram (Inter crop)	320	500	160000
	Red Gram	60	35400	2124000
5	Green gram	140	64900	9086000
6	Horse Gram	50	8250	412500
7	Paddy	8	31250	250800
8	Mulbary	0	0	0
9	tomato	104	238000	24752000
10	Ladies finger	0	0	0
11	Paddy(Rabi)	0	0	0
12	Tomato(Rabi)	90	152800	13725000
13	Vegetables(Rabi)	44	11390	501160
14	Goruchikkudu	04	15000	60000
15	Horticulutre	08	50000	400000
	Total	**1158**	**48186**	**55799460**

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. 2.05 lakhs while the same at present-development stage worked out to Rs.7.19 lakhs. Thus, the incremental income from crops

worked out to Rs. 557.99 lakhs. This income is in the fifith year of the project which represents 70 percent of full benefits. The full benefits are expected to stabilize from the sixth year onwards.

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

6.9 The total incremental income from the watershed thus, would be income from crops, and dry land-horticulture put together, the incremental income worked out to Rs. 557.99 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. 557.99 lakh would be accrued from the 15th year onwards- the stage of stabilization of benefits, against the project cost of Rs. 89.59 lakhs.

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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 days	150 days
Agriculture wage days in a year (avg.)	116 days	270 days

A. **Migration**

S.No.	Type	Pre Watershed (Number of HH)	Post Watershed (Number of HH)
1	Seasonal	0	10
2	Distress/ Drought	0	0
3	Permanent	0	0
4	Others (Specify)	0	0
	*Gulf	01	0
5	Reverse Migration	0	25

The other major impact has been on the **migration** front. As was mentioned earlier in this report, migration is an annual feature in this region. Every year, number of people from the villages of watershed migrate for anywhere ranging from a few weeks to several months, to places like Bangalore and Anantapur 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 10 from 109 .

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 3 check dams constructed and 1 MPTs were formed in the watershed, These along with other measure have substantially recharged the ground water. Further, formation of 2 EGPs and excavation of 25FP 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 42789 saplings are planted in the area. Its growth is satisfactory. These measures helped to improve ecological balance.

7.6 Further, 11445 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	18	22
2.	JLG		
3.	Farmers Club	01	01
4.	SHG Federation	01	01
5	Education committees	01	01
6.	Mother Committees	01	01
7.	Watershed Committees	00	01

7.9 The external intervention has contributed for changes in economic and social conditions of the community. The relevant changes in socio-economic structure are presented in Table 7.2. It can be seen from the table that overall literacy rate has gone up from 29 percent to 40.91 per cent. It was reported by the people that the children between 6 to 10 years are regualarly sent to school mainly due to the awareness of education created by the socio-economic and cultural atmosphere created by the watershed development activities in the region. The asset position has also increased. People invested money on housing, entertainment (TV), etc.,

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

Table 7.2 : Pre and Post Scenario of Socio Economic Parameters of the watershed

Sl.No	Parameters	2009	2014
	No. of families	470	502
	Population	1919	2007
	Literacy(%)	21.78	32.61
	Bullocks (No)	195	50
	Houses-Pucca/tiled	380/90	460/10
	TV	335	454
	Tractor	04	20

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.

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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 2010-15. However, the time schedule could not be adhered to for various reasons. The success of the project primarily depends on people's participation and commitment to the project.

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

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

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

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

Signatories

PFA

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

VWC

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

Enclosures:

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

Case Studies:

I CONTRIBUTED TO INCREASE OF MILK YIELD IN MY VILLAGE

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

My name is Srinivasulu , aged 45 years, residing in Gubanapalli village. I participated in WDF (NABARD) watershed meeting and understood the activities of the programme. Then, myself and four other members formed into a common interest group and approached the WDC, for loan to take up livelihood activities by purchasing "Milch Animals" Then we informed the WDC, and accepted to abide by the norms set by the VWDC, and repay the amount in installments . Then I obtained Rs.15,000/- and put my share of 5000/- and purchased a buffalo for Rs.,16000/-. The other members of the group also purchased the milch animals . The buffalo is regularly yielding 6 lts., of milk per day I am and selling the milk at Rs. 20/- per lt. During these 6 months I earned an income of Rs.16,200/- and repair 6,450/- and made a net income of Rs.,9750/- Now, I want to increase the animals by spending the enhanced income. Now, I am happy, with increase of income and better living standard . Besides the milk production of our village in also increased due to increase of milch animals, through loans provided by the WDC under livelihood programme. Our group is thankful to NABARD, WDC and Accion Fraterna (PFA). for taking up watershed programme in our village

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

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

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

Type of structure	Name of structure	Pre watershed					Post watershed					
		No.s	Storage capacity per structure	Total Storage capacity (cum)	Period of storage (months)	Usage	No.s	Storage capacity per structure (cum)	Total Storage capacity (cum)	Period of storage months)	Usage	Additional storage capacity
1	2	3	4	5	6	7	8	9	10	11	12	13(5-10)
Sunken/ Dug out type	Farm Bunding/ TCB						60	190	11400	1 Month	Erosion of Soil reduced	11400
	Dugout/ Sunken ponds	6	100	600	5	Pot watering for horticulture	27	100	2700	4 Months	Pot watering for horticulture and Dhobi purpose.	2100
	Others(Tanks)						1	2000	2000	2 Months		2000
Heading type	Check dams	3	800	2400	3	Recharge of 12borewell cattle drinking purpose	3	2000	6000	3 Months	Recharge of 12borewell cattle drinking purpose	3600
	New MPTs						1	1000	1000	5 Months		1000
	Existing MPT	1	1500	1500	5	Recharge of 12borewell cattle drinking purpose	2	1000	2000	4 Months	Recharge of 12borewell cattle drinking purpose	500

2. Ground Water

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

	Pre watershed					Post watershed				
Type of well	**Total no.s**	**Fully functional**	**Seasonal**	**Fully Defunct**	**Area (ha) Irrigated**	**Total no.s**	**Fully functional**	**Seasonal**	**Fully Defunct**	**Area (ha) Irrigated**
Open wells	37	16	16	21	19.42	37	12	12	25	15
Bore wells	87	82	82	5	130.58	164	156	156	08	277.88
Total	**124**	**124**	**98**	**26**	**150.00**	**201**	**156**	**156**	**45**	**277.88**

Part -B Water levels

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

Number of observation wells	**Pre Watershed (October 2010)**			**Post Watershed (October 2015)**		
	Avg. depth of well (m)	**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						
Parandamma	60	20	40	60	30	30
Venkatesulu.N	45	15	30	45	20	25
Srinivasulu	45	15	30	45	19	26
Middle						
Jayaramulu	70	10	60	70	20	50
Surendra Babu	**40**	**9**	**31**	**40**	**14**	**26**
Lower						
Donaswamy	60	10	50	60	16	44
Ranga Reddy	60	10	50	60	14	46
Buddeppa	45	15	30	45	22	23
Thimmappa	63	10	30	63	22	41
Average						

(Summary note was given in the main chapters)

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	150	277.88
2	Dry land (Rainfed)	1003	875.12
B	**Fallows**		
1	Uncultivable waste land	**28**	**9.00**
2	Cultivable Waste land (fallows)	10	3.00
C	**Others (Water bodies, hillocks etc.)**	**84**	**84.00**
	Total	**1275**	**1249.00**

(Summary note was given in the main chapters)

4. Changes in Agriculture

a. Cropping systems and aggregate Production Assessment

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	439	8	3512	320	7	2240
2	Ragi	6	3.20	19.20	0	0	0
3	Bajra	10.00	5	50.00	10	5	50.00
4	Red gram	0	0	0	60	12	720
	(Inter crop)	0	0.50	219.50	320	0.5	160
5	Green gram	12.00	13.50	162.00	140	13.50	1890
6	Horse Gram	25	5	125.00	50	5.00	250.00
7	Paddy	90	46.875	4218.75	8.00	37.50	300.00
8	Perinol	20	37.50	750.00	0	0	0
9	Castor	0	0	0	44	8.75	385
10	Goru Chikkufu	0	0	0	04	5	20
	Vegetable						
1	tomato	6.00	75	450	104	300	31200
2	Ladies finger	120	05	15	0	0	0
3	Others	0	0	0	0	0	0
		Area (ha)	**Yield(Q/ ha)**	**Production (Qts.)**	**Area (ha)**	**Yield(Q/Ha)**	**Production (Qts.)**
1	Paddy	5	40	200	0	0	0

(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	136	177.00	215	235
Area under vegetable cultivation	5	6.00	60	120
No of Drip/Sprinklers set financed	13	13.00	40	240
Area under Horticulture(Mango, Lemon.etc)	02	4.00	25	100
Development of Fodder				

(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	**24**			**100.1**	
2	DH	**0**	6739	5683	84.33	
3	AF(bund)	**0**	50/8000	20.1/3216	40.20	
4	AF (block)	**0**	0	0	0	
5	Agave Sunkers	0	90.00	76.00	84.44	
	Total	**24**			**309.07**	

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	50	Med
2	Cows	164	Med
3	Buffaloes	430	Med
4	Sheep	3500	Med
5	Goat	346	Med
6	Poultry	4215	Med
7	**TOTAL**	**8705**	

(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	50	450	8.00	72
B	Rabi (Paddy)	10.06	271.6	15.06	406.6	0	0
1	Maize	0	0	2.50	4.50	0	0
2	Ground Nut	439	1185.3	520	1404	320	864
3	Bajra + Horse Gram + Red Gram	0	0	0	0	210	135
4	Stylo Hamota	0	0	40	40	40	40
5	Nappier Crop	0	0	5.5	17.60	5.5	17.60
6	Fodder Production	0	0	0	0	10	8
7	Sri Paddy	0	0	5.0	135	0	0
	Total	**494.06**	**1861.9**	**638.06**	**2457.7**	**593.5**	**1136.6**

** 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
Practices of meeting scarcity	Ground nut, Horse Gram, Bajra.	Preserved Paddy straw,
If surplus, how is it managed		
Livestock drinking Water		
Water availability throughout the year (Yes/No)	Yes	Yes
If No, the scarcity period (no. of months in year)	----	-----
Practices of meeting scarcity		

(Summary note was given in the main chapters)

d. Dairy

Particular	Pre Watershed	Post Watershed
Number of Dairy Animal (local)	75	120
Number of Dairy Animal (cross breed/ Improved)	70	100
Number of Families involved in dairy	18	35
Milk production per year (l)	185 lts. per day	255 Lts. Per day
Milk procurement by cooperative (l)		

(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	18	22
2.	JLG	0	0
3.	Farmers Club	01	01
4.	SHG Federation	01	01

The above data to be collect from the banks. In case of any support require PFAs could contact DDMs. Combined data of RRB and commercial banks to be given in this table.

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	313	90	374	95
2	Groups	90	30	80	25
3	Money Lenders (Private)	60	20	10	10
4	Relatives	50	15	30	10

C. Migration

S.No.	Type	Pre Watershed (Number of HH)	Post Watershed (Number of HH)
1	Seasonal	22	10
2	Distress/ Drought	30	06
3	Permanent	15	02
4	Others (Specify)	0	0
	Gulf	01	

D. 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	60		904000	60	90400	
2	Poor	76		800000	76	80000	
3	Middle	98		600000	98	60000	
4	Well off	10		276000	10	27600	
	Total	**244**	**0**	**2580000**	**244**	**258000**	

Note: All the major wage seekers are from POP and Poor group. Therefore the benefit of wages from the works done in middle and well off category farmers also gone to the first two categories (i.e. Poor & POP).

Following are the types of activities promoted under livelihood component: PFA's are requested to insert the list of the LH Activities they have supported in the Project in this Table and give the details

S.No.	Name of the LivelihoodActivity	Total Families Covered Till Now	Total Loan Amount
1	Ramlambs	116	1198000
2	Mich Animals	55	657000
3	Corpenter	2	18000
4	Tailaring	1	9000
5	Petty Shop	3	28000
6	Amali Bandi	1	9000
7	Kolemi Implements	1	9000
8	Air Mission	2	19000
9	Auto Repair	1	9000
10	Speyars	5	46000
11	Gujari	2	19000
12	Fadlar	37	342000
13	Milk Business	3	27000
14	Beildari Implements	3	30000
15	Flowers	2	20000
16	Vegetables	1	10000
17	Tracter Rotary	1	40000
18	Business	7	70000
19	Electrical Implements	1	20000
Total		**244**	**2580000**

ii. Wage Days

Particular	Pre Watershed	Post Watershed
Wage days created by Watershed Project	100 days	150 days
Agriculture wage days in a year (avg.)	116 days	270 days

iii. **Income sources and Distribution of income sources across households**

Income Sources	Pre- Watershed (% of Households)					Total No of HH	Post Watershed (% of Households)					Total No of HH
	0	1-25	25-50	50-75	75-100		0	1-25	25-50	50-75	75-100	
Wages	0	30	47	198	0	20	0	32	49	201	0	30
Agriculture	0	20	115	15	0	30		22	120	20	0	40
Livestock	0	15	20	10	0	10		17	22	15	0	15
Migration	0	0	0	0	0	0		0	0	0	0	0

E. Social Norms

(Summary note was given in the main chapters)

F. Sustainability concerns:

(Summary note was given in the main chapters)

8. Trainings and Exposures

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

(Summary note was given in the main chapters)

Trainings and Exposures:

-W/S village level training camps for the village level VWDC, supervisors, LH co-ordinators and the cultivators were conducted to introduce innovative ideas.

-At district RSO level special trainings programmes were organized for field staff, PFA's to introduce new technologies.

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

1. Identifying problems and deciding what was important to the landless and cultivations.

2. Providing technical help in preparing and implementing comprehensive action plans.

3. Providing guidance in the use of high quality seeds organic inanures, Bio-fertilisers and bio-pesticides, water management and improves implements.

4. Implementing other convergence programmes.

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

Annexure: 5 :

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

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

*** *** ***

Rework Plan Sanction Letters

Savings utilaization for RO plants - request

Inbox x

Mar 12

NABARD PMU Ongole <nbpmuongole1@gmail.com>

to fesrso.mpl1, Anantapur, actionf, me

Dear Sir

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

Regards

I Chattopadhya
Deputy General Manager

Rework plan of 6 Watersheds of Accion Fraterna of Anantapur district

Re - Work Plan Mails x

12/3/14

NABARD PMU Ongole <nbpmuongole1@gmail.com>

to me, fesrso.mpl1, actionf, Anantapur

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

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

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

V V B S Murthy
Manager
3 November 2014

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

Inbox x

Re - Work Plan Mails x

NABARD PMU Ongole **<nbpmuongole1@gmail.com>** Apr 10

to fesrso.mpl1, actionf, me, Anantapur

Dear Sir

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

1. For Gaudapuram WS - Rs. 2,46,071/- (CD)
2. For Battuvanipalli WS -Rs.7,05,491/- (DD,CDR 2no)
3. For Gubanapalli WS - Rs.7,48,061/- (CDs 3no.)
4. For Mallipalli WS - Rs.7,20,613/- (CD,ROT)
5. For Papampalli WS - Rs. 9,39,269/- (CD- 3no.)

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

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

NATIONAL BANK FOR AGRICULTURE AND RURAL DEVELOPMENT
Project Unit for Watershed Development
37-1-409/5, 4th Lane, 9th Cross Road, Bhagyanagar
Ongole, Prakasam District, Andhra Pradesh
Phone 08592 223788 Mobile:9704799971 Email nbpmuongole@gmail.c

Ref. No. NB. APRO/PU (Ongole)/ 652 /WDF-270/2011-12

13 June 2011

Shri Y V Malla Reddy
Director-Accion Fraterna Trust
RDT Ecological Centre
Upparapalli Road
Bangalore Highway
Anantapur- 515 002

Dear Sir

Sanction of financial assistance by way of grant out of Watershed Development Fund for the implementation of Gubanapalli Watershed Project, Anantapur district, Andhra Pradesh.

Period of implementation: 4 years

Please refer to the captioned project forwarded by you for our consideration for providing grant assistance under the Watershed Development Fund (WDF). We are happy to sanction you a grant of **Rs.1,12,85,400/- (Rupees One Crore Twelve Lakh Eighty Five Thousand and Four Hundred Only)** as per the terms and conditions specified in the Schedule to this letter for implementation of the said project. The broad activity wise sanction details are furnished in the annexures. The grant amount comprises grant for Project Measures, Project Management Cost, Maintenance Fund and Livelihood support for women and landless, productivity enhancement, training and demonstration, etc.

2. This sanction is subject to:

i. Acceptance of terms, conditions, suggestions and phasing contained in this sanction letter and the Schedule. In token of acceptance of the same, you and VWC may sign the duplicate copy of this letter on each page and return the same to NABARD, Project Unit, Ongole, Prakasam district, Andhra Pradesh.

ii. The action plan for release shall be submitted to us through your RSO. The first installment will be sanctioned as advance on the basis of the estimated work plan. The release of subsequent installments, also as advance, will be contingent upon satisfactory completion of work for which installment was drawn, duly certified by the RSO.

iii. The project will be implemented by the Village Watershed Committee (VWC) and faci by **ACCION FRATERNA**, the Project Facilitating Agency (PFA) and as per the term conditions of sanction. The PFA has to ensure that the VWC is registered at an early Continuation of financial support for the project will be subject to the acceptance in writing terms and conditions of sanction mentioned in this letter by PFA & VWC.

4. Please acknowledge receipt

Yours faithfully

(Y N Reddy)

Deputy General Manager

Encl: Schedule, Annexure & Proformae

The terms and conditions of sanction are accepted.

	Project Facilitating Agency(PFA)	**Village Watershed Committee(VWC)**
Signature:		
Name of authorised signatory/ies:		
Designation of authorised signatory/ies		
SEAL	PFA ACCION FRATERNA KALYANDURGAM	
Date:		
Place:		

PFA
ACCION FRATERNA
KALYANDURGAM

PROFORMA -13 A
WATERSHED DEVELOPMENT FUND (WDF)
SUMMARY OF AREA TREATMENT

Name of NGO: ACCION FRATERNA, KALYANDURG. Name of Watershed : GUBANA PALLE
Name of RSO : FES, MADANAPALLE 75100 116.43 Phase : FIP

1085.00

S. No	Prop osed Treatments	Units/ Length	Cross Sectio n	Volume (m3)	Labour (Rate of Unit)	Materi al (Rate of Unit)	Total (Rate of Unit/Cu m)	Labour Cost	Material Cost	Total Cost	Shramadan 16% of labour cost	Supervision 8% of labour cost	Grant Amount (Rs)
A	**Area treatments**												
1	New Farm Bunding	67470	0.50	33735	64	0	64	2159040	0	2159040	345446	172723	1986317
2	Stone Outlets	645	0	645	291	391	682	187695	252195	439890	30031	15016	424874
3	Farm Ponds(8x8x2)	34	0	34	15160	3390	18550	515440	115260	630700	82470	41235	589465
4	AF Seed	175	0	175	50	100	150	8750	17500	26250	1400	700	25550
5	Farm Bunding with Stone Reve	7630	0	7630	70	20	90	534100	152600	686700	85456	42728	643972
6	Stone Bunding	2130	0.3	639	220	180	400	140580	115020	255600	22493	11246	244354
7	Recharge of Dried -up wells	6	0	6	4900	1900	6800	29400	11400	40800	4704	2352	38448
8	Zinc Application	12	0	12	0	5750	5750	0	69000	69000	0	0	69000
	Vegetative Measures												
9	Bund Plantation	19307	0	19307	18	6	24	347526	115842	463368	55604	27802	435566
10	Block Plantation	6200	0	6200	22	6	28	136400	37200	173600	21824	10912	162688
11	AH	6510	0	6510	35	40	75	227850	260400	488250	36456	18228	470022
12	AH(Material)	8070	0	8070	0	40	40	0	322800	322800	0	0	322800
13	DH with pitcher	7910	0	7910	40	35	75	316400	276850	593250	50624	25312	567938
14	DH(Material)	9290	0	9290	0	35	35	0	325150	325150	0	0	325150
15	Grass Seed	320	0	320	0	40	40	0	12800	12800	0	0	12800
16	Agave Suckers	18000	0	18000	1	2	3	18000	36000	54000	2880	1440	52560
	Sub Total							**4621181**	**2120017**	**6741198**	**739389**	**369694**	**6371504**
B	**Drainage line treatment**												
17	Loose Boulder Structure -6 mt	1	0	1	747	543	1290	747	543	1290	120	60	1230
18	Loose Boulder Structure -8 mt	1	0	1	991	724	1715	991	724	1715	159	79	1636
19	Loose Boulder Structure -12 mt	1	0	1	1480	1085	2565	1480	1085	2565	237	118	2447
20	Loose Boulder Structure -13 mt	1	0	1	1604	1175	2779	1604	1175	2779	257	128	2651

PFA
ACCION FRATERNA
KALYANDURGAM

S. No	Prop osed Treatments	Units/ Length	Cross Sectio n	Volume (m3)	Labour (Rate of Unit)	Materi al (Rate of Unit)	Total (Rate of Unit/Cu m)	Labour Cost	Material Cost	Total Cost	Shramadan 16% of labour cost	Supervision 8% of labour cost	Grant Amount (Rs)
21	Loose Boulder Structure -15 mt	4	0	4	1848	1357	3205	7392	5428	12820	1183	591	12229
22	Stone Gully Plug- 4 mt	2		2	1434	1032	2466	2868	2064	4932	459	229	4703
23	Stone Gully Plug- 5 mt	1		1	1680	1220	2900	1680	1220	2900	269	134	2766
24	Rock Fill Dam 1 (3 mts)	2		2	2455	1765	4220	4910	3530	8440	786	393	8047
25	Rock Fill Dam 2 (4 mts)	1		1	2918	2102	5020	2918	2102	5020	467	233	4787
26	Rock Fill Dam 3 (5 mts)	10		10	3381	2439	5820	33810	24390	58200	5410	2705	55495
27	Rock Fill Dam 4 (6 mts)	4		4	4079	2971	7050	16316	11884	28200	2611	1305	26895
28	Rock Fill Dam 5 (6 mts)	1		1	4490	3305	7795	4490	3305	7795	718	359	7436
29	Rock Fill Dam 6 (6 mts)	1		1	4050	2945	6995	4050	2945	6995	648	324	6671
30	Rock Fill Dam 7 (8 mts)	1		1	4768	3450	8218	4768	3450	8218	763	381	7837
31	Sunken Ponds -1(10X5 m)	3	0	3	7222	1478	8700	21666	4434	26100	3467	1733	24367
32	Sunken Ponds -2(8x6 m)	1	0	1	7294	1696	8990	7294	1696	8990	1167	584	8406
33	Dug out pond - 1(10X10 m)	2	0	2	20195	4365	24560	40390	8730	49120	6462	3231	45889
34	Dug out pond - 2(15X15 m)	1	0	1	49239	6611	55850	49239	6611	55850	7878	3939	51911
35	Check Wall (8 m)	1	0	1	21800	32300	54100	21800	32300	54100	3488	1744	52356
36	Flood Control Bund - 1(10 mt)	1	0	1	2915	1945	4860	2915	1945	4860	466	233	4627
37	Flood Control Bund - 2(20 mt)	1	0	1	5832	3888	9720	5832	3888	9720	933	467	9253
38	Earthen Gully Plug (25 mt)	1		1	38922	9828	48750	38922	9828	48750	6228	3114	45636
	Sub Total							**278082**	**133277**	**409359**	**44173**	**22087**	**387272**
C	**Other Grant Based Activities**												
39	House hold plantation	400	0	400	0	200	200	0	80000	80000	0	6400	86400
	Sub Total							**0**	**80000**	**80000**	**0**	**6400**	**86400**
D	**Agricultural Productivity enhancement**												
40	Vegetable Demo	5	0	5	0	6000	6000	0	30000	30000	0	2400	32400
41	Sustainable Agri. Demo	2	0	2	0	4000	4000	0	8000	8000	0	640	8640
42	Floriculture	5	0	5	0	4000	4000	0	20000	20000	0	1600	21600
43	Pulses Cultivation Demo	8	0	8	0	3500	3500	0	28000	28000	0	2240	30240
44	NPM	2	0	2	0	3100	3100	0	6200	6200	0	496	6696
45	Chillies Nursery	10	0	10	0	5000	5000	0	50000	50000	0	4000	54000
46	Puddler	7	0	7	0	2500	2500	0	17500	17500	0	1400	18900
47	Power Sprayers	3	0	3	0	8000	8000	0	24000	24000	0	1920	25920
48	Thaiwan Sprayers	12	0	12	0	8000	8000	0	96000	96000	0	7680	103680
49	Seed cum Fertilizer Drill	2	0	2	0	23500	23500	0	47000	47000	0	3760	50760
50	Guntaka blade	3	0	3	0	13000	13000	0	39000	39000	0	3120	42120
51	Multi purpose Thresher	1	0	1	0	50000	50000	0	50000	50000	0	4000	54000
52	Levelling Blade	2	0	2	0	9000	9000	0	18000	18000	0	1440	19440
53	Conu	10	0	10	0	3000	3000	0	30000	30000	0	2400	32400
54	2 Furrow M B Plough	2	0	2	0	23800	23800	0	47200	47200	0	3776	50976
55	Foot Sprayers	10	0	10	0	4200	4200	0	42000	42000	0	3360	45360
56	Drying Sheets	20	0	20	0	3000	3000	[illegible]	[illegible]	[illegible]	0	[illegible]	[illegible]

S. No	Prop osed Treatments	Units/ Length	Cross Sectio n	Volume (m3)	Labour (Rate of Unit)	Materi al (Rate of Unit)	Total (Rate of Unit/Cu m)	Labour Cost	Material Cost	Total Cost	Shramadan 16% of labour cost	Supervision 8% of labour cost	Grant Amount (Rs)
	Sub Total							0	612900	612900	0	49032	661932
E	Livelihood Activities:												
57	Milch Animals	23	0	23	0	15000	15000	0	345000	345000	0	27600	372600
58	Calf Rearing(2 No)	9	0	9	0	15000	15000	0	135000	135000	0	10800	145800
59	Sheep Rearing(5+1)	12	0	12	0	15000	15000	0	180000	180000	0	14400	194400
60	Ram Lamb fattening(8 No)	11	0	11	0	15000	15000	0	165000	165000	0	13200	178200
61	Petty Shop	4	0	4	0	10000	10000	0	40000	40000	0	3200	43200
62	Tailoring machines	5	0	5	0	5000	5000	0	25000	25000	0	2000	27000
63	Carpentry	2	0	2	0	15000	15000	0	30000	30000	0	2400	32400
64	Tamarind Business	3	0	3	0	15000	15000	0	45000	45000	0	3600	48600
65	Motor mechanic	2	0	2	0	15000	15000	0	30000	30000	0	2400	32400
66	Chicken Shop	1	0	1	0	15000	15000	0	15000	15000	0	1200	16200
67	Laundry	1	0	1	0	8000	8000	0	8000	8000	0	640	8640
68	Cobblers	1	0	1	0	7000	7000	0	7000	7000	0	560	7560
69	Nursery(forest species)	1	0	1	0	50000	50000	0	50000	50000	0	4000	54000
70	Ploughing Bullocks	2	0	2	0	30000	30000	0	60000	60000	0	4800	64800
	Sub Total							0	1135000	1135000	0	90800	1225800
	Grand Total												

PROFORMA -13 B for FIP

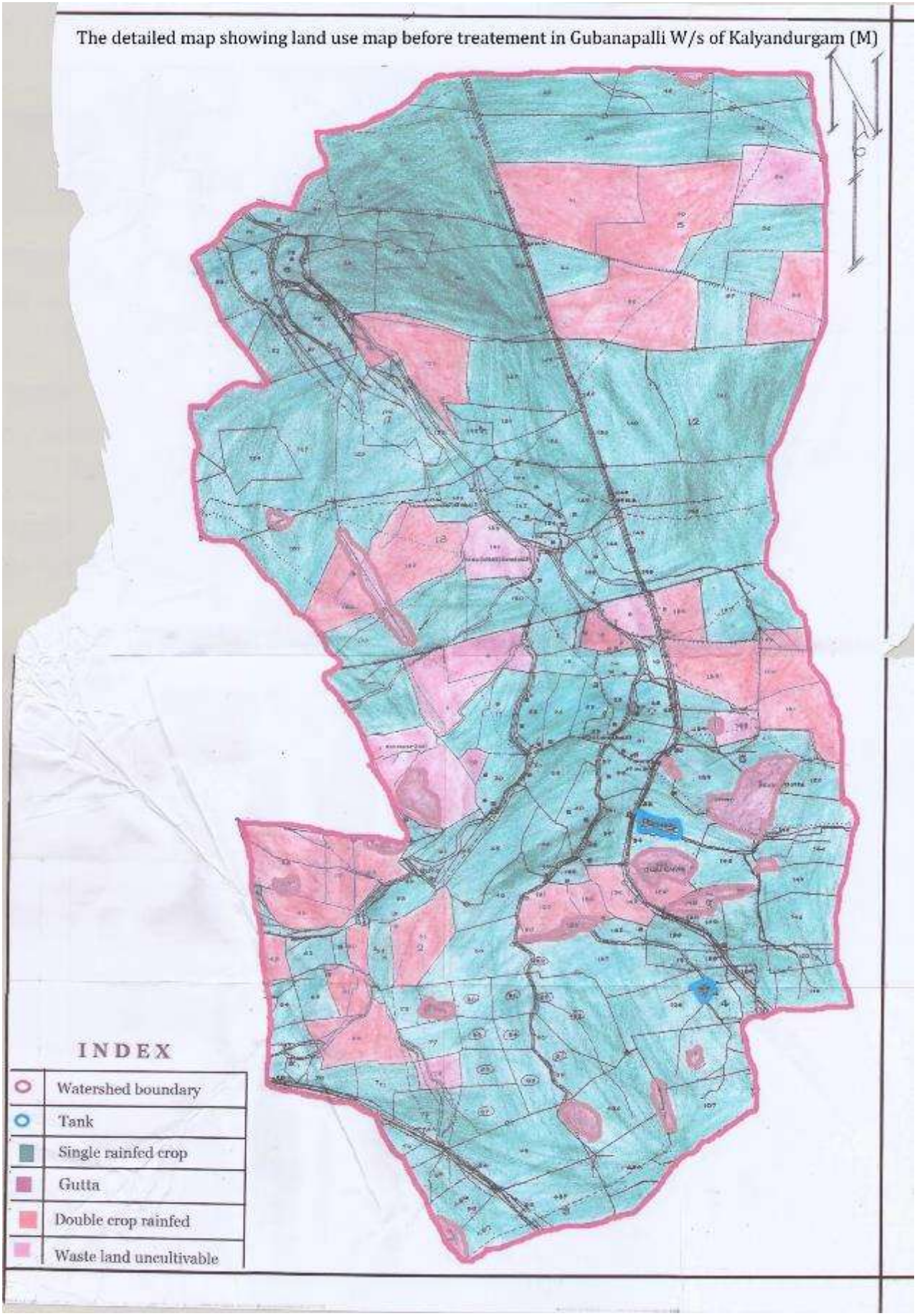
Watershed Development Fund (WDF) - Summary
Name of NGO: ACCION FRATERNA, Kalyandurg.
Name of Watershed : GUBANA PALLE
Name of RSO : FES, MADANA PALLI

(Amount in Rupees)

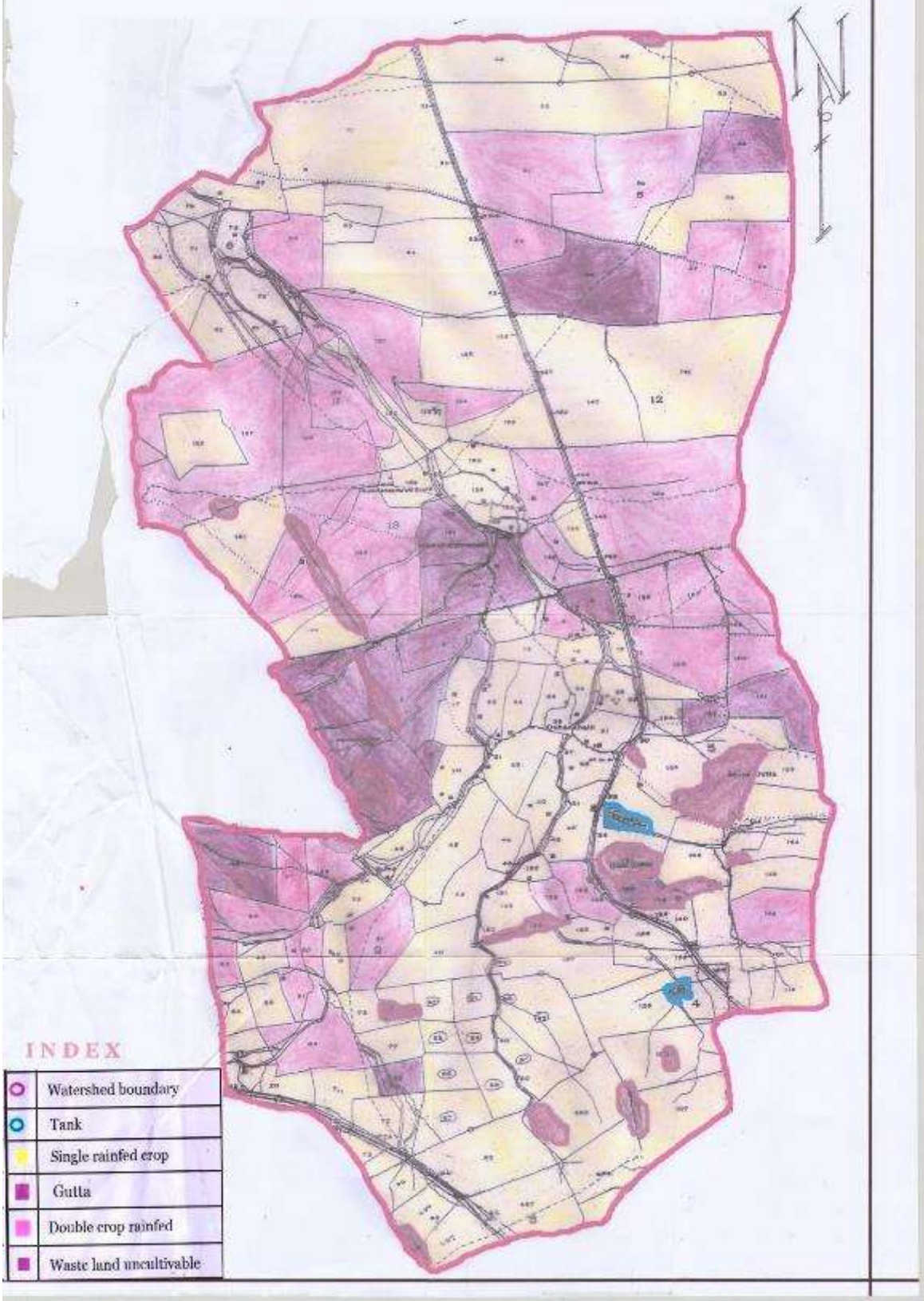
Sl. No.	Particulars	Project Cost	Regular shramadan	Amount of Grant	Rounded off
1	Area Treatment				
a)	Material	2120017		2,120,017	
b)	Labour	4621181	739389	3,881,792	
2	Drainage Treatment				
a)	Material	133277		133,277	
b)	Labour	276082	44173	231,909	
3	Other Grant Based Activities	80000		80,000	
4	Agriculture Productivity Enhancement Measures	612900		612,900	
5	Livelihood Component	1135000		1,135,000	
6	Installation of Watershed devices	150000		150,000	
7	Project Measures (1+2+3+4+5+6)	9128457	783,562	8,344,895	
8	Supervision cost	550013		550,013	
9	Total Project Measures	9678470	783,562	8,894,908	
10	Project Management cost (20% of 7)	1825691		1,825,691	
11	Total Project Measures	11504161	783,562	10,720,599	
12	Training to Village Community	100000		100,000	
13	Maintenance (1% of Project measures + 50% of Shramadaan)	464787		464,787	
	Grand Total	12068948	783,562	11,285,386	11285400
	FIP area (1085.00 ha)		Cost per ha	10,401	

PFA

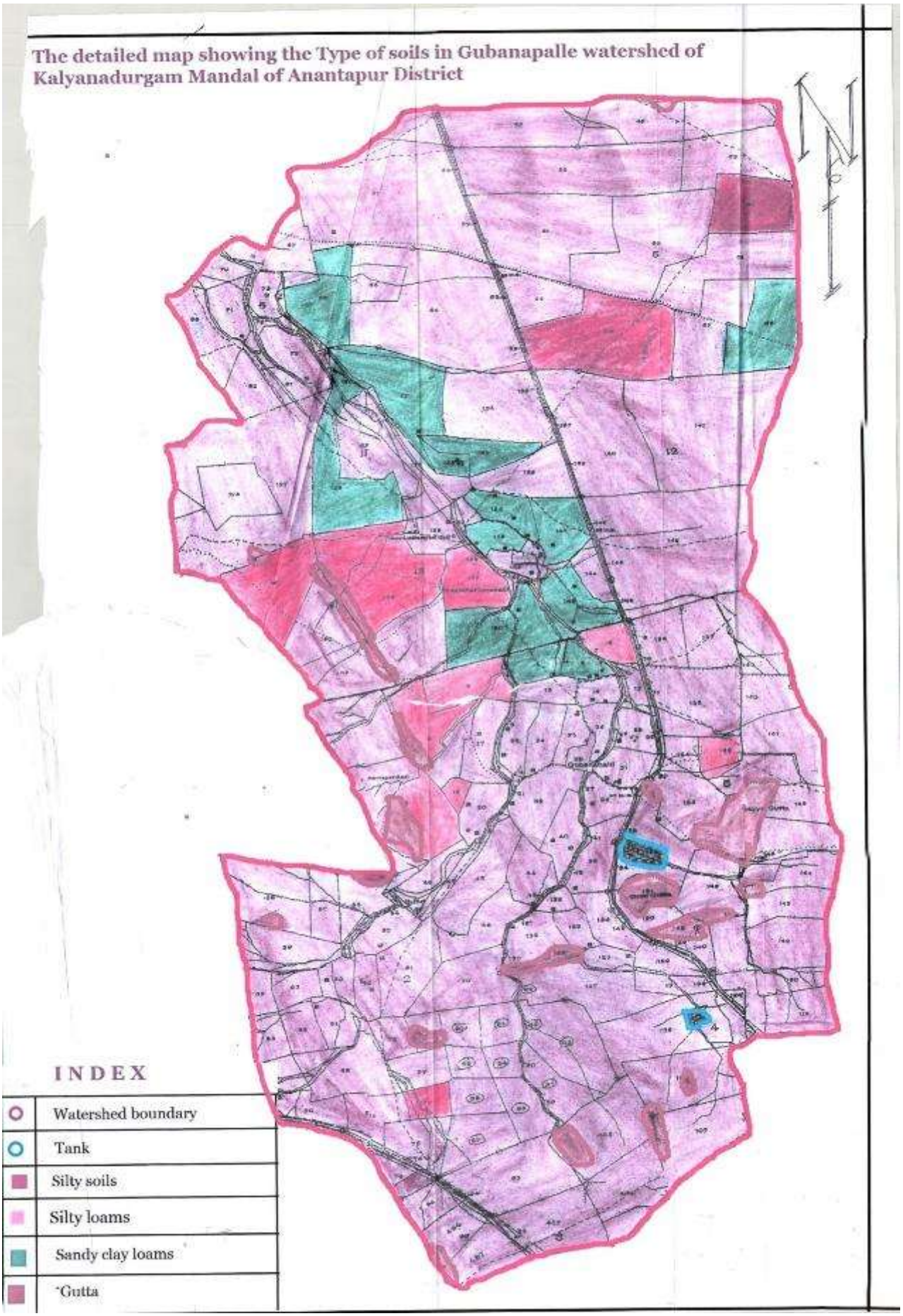
The detailed map showing land use map before treatement in Gubanapalli W/s of Kalyandurgam (M)



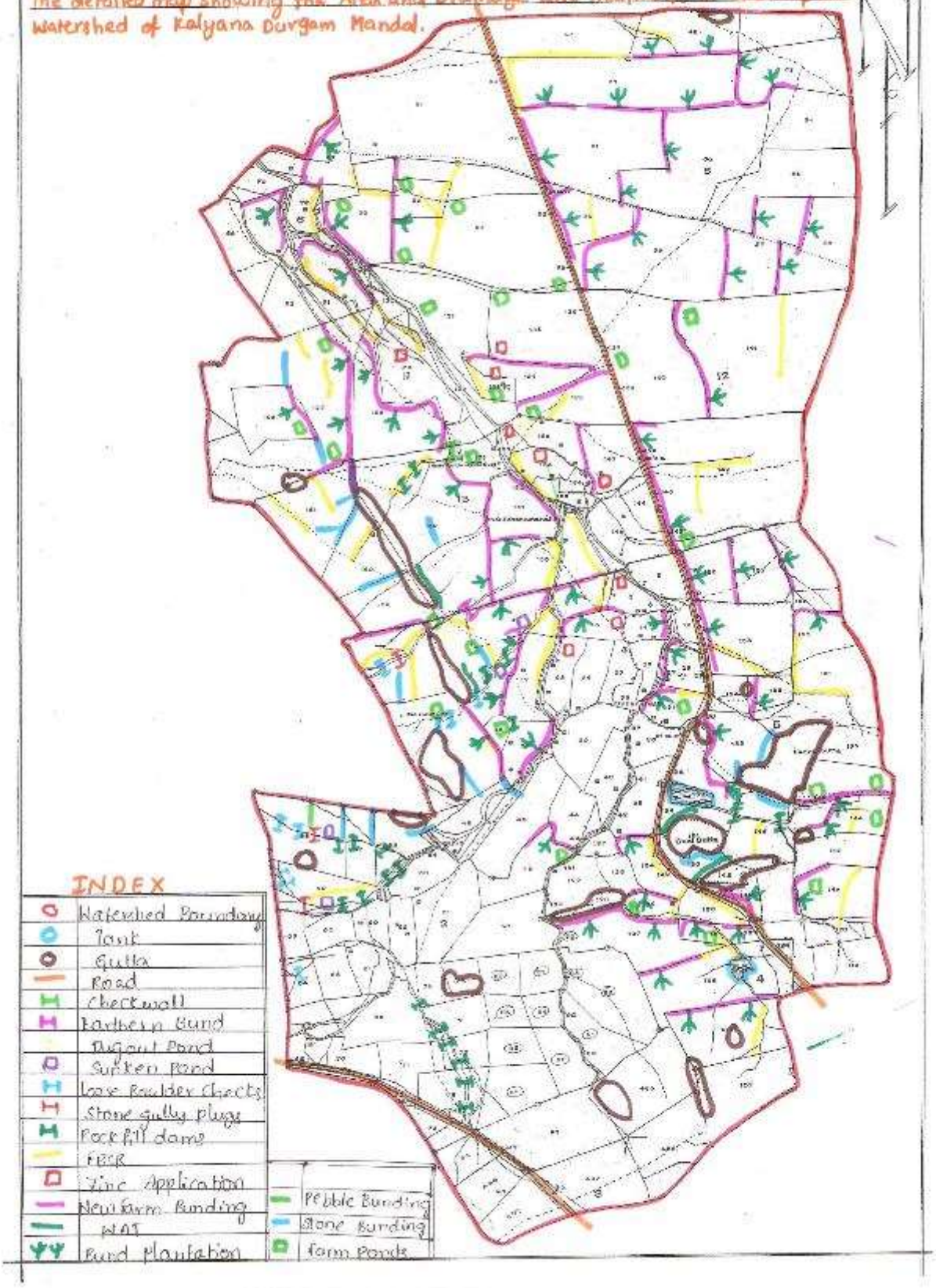
The detailed map showing land use map after treatement in Gubanapalli W/s of Kalyandurgam (M)

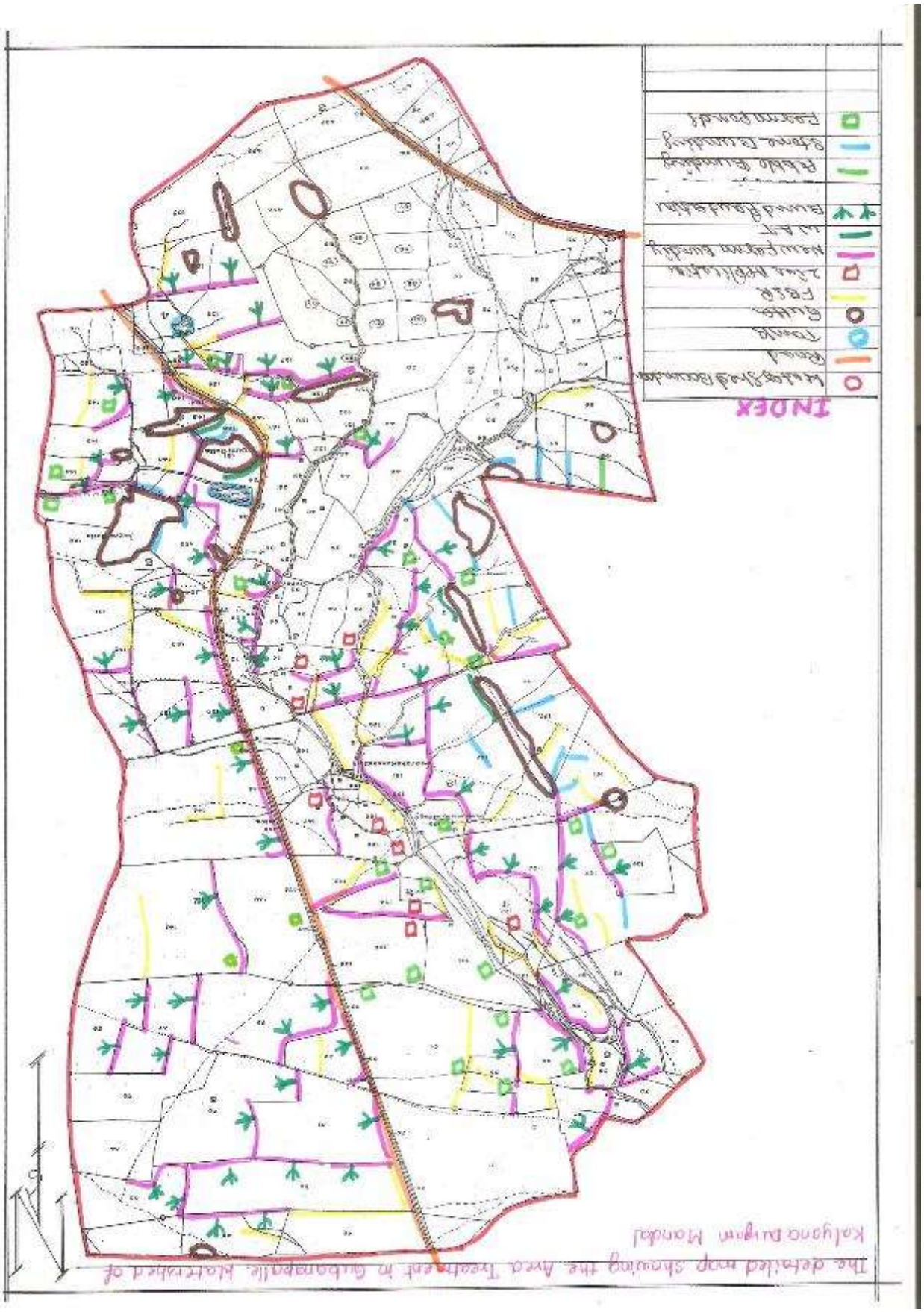


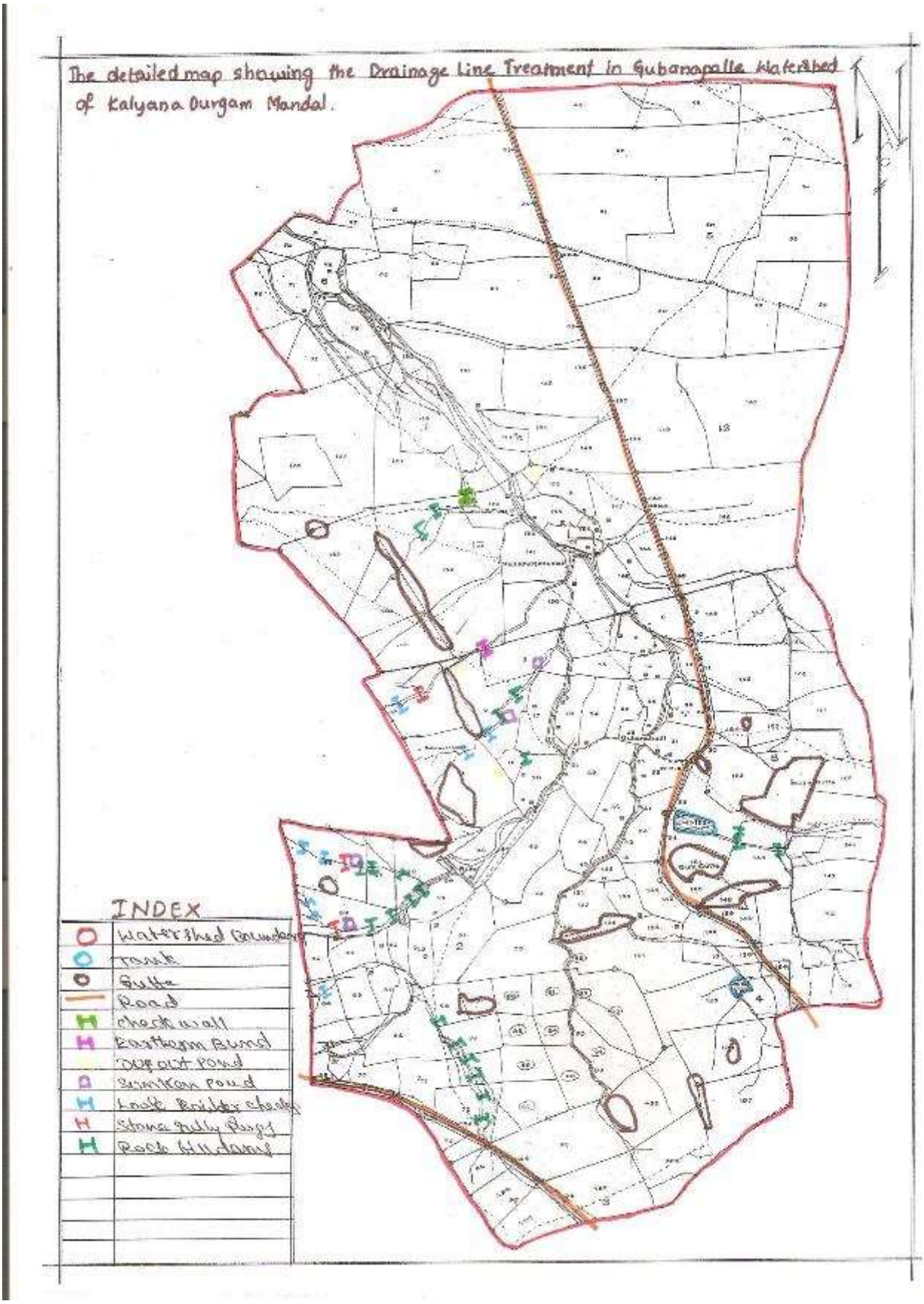
The detailed map showing the Type of soils in Gubanapalle watershed of Kalyanadurgam Mandal of Anantapur District



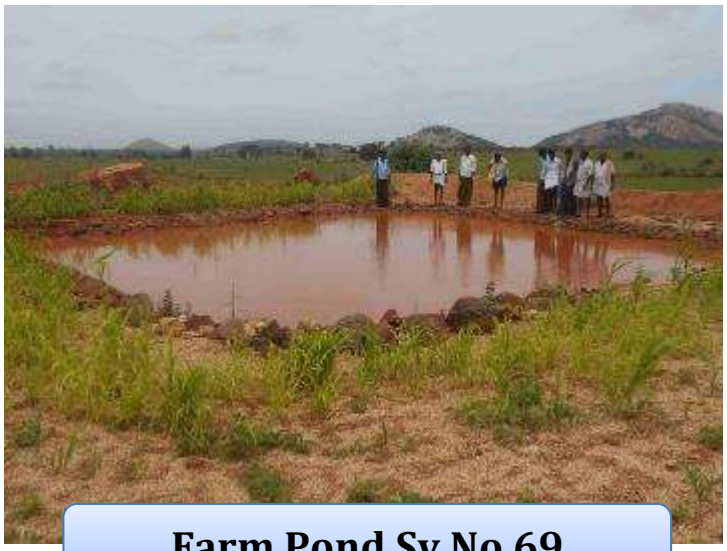
The detailed map showing the Area and Drainage Line Treatment in Gubangapalle watershed of Kalyana Durgam Mandal.




The detailed map showing the Area Treatment in Gudanapalle Watershed of Kalyanadurgam Mandal
INDEX
Water shed boundary
Road
Tank
Bund
Field
Area treatment
Nala treatment building
Nala
Gully control building
Stone filling building
Farm pond

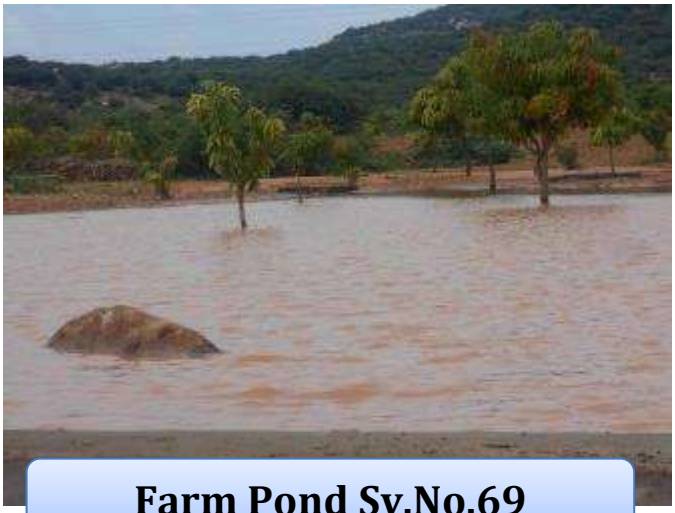

The detailed map showing the Drainage Line Treatment in Gubanapalle Watershed of Kalyana Durgam Mandal.
INDEX
Watershed Boundary
Tank
Gully
Road
check wall
Earthern Bund
Dug out pond
Sunken pond
Loose Boulder check
Stone gully plugs
Rock Windows

PHOTOS

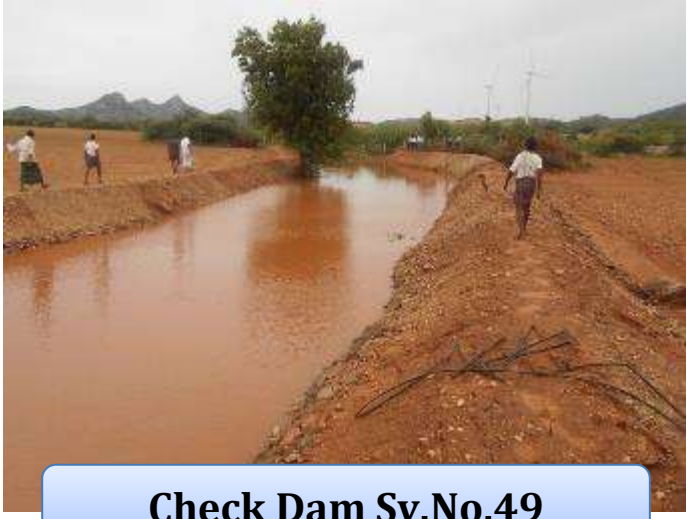


Farm Pond Sy.No.69

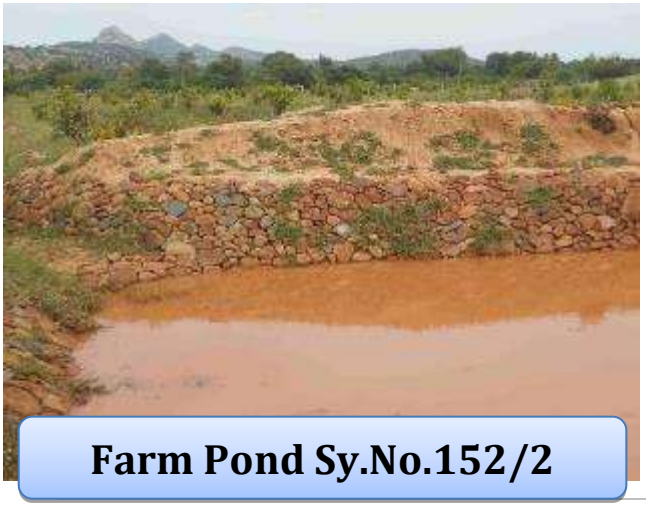
Check Dam Sy.No.03Sy.No.03



Farm Pond Sy.No.69

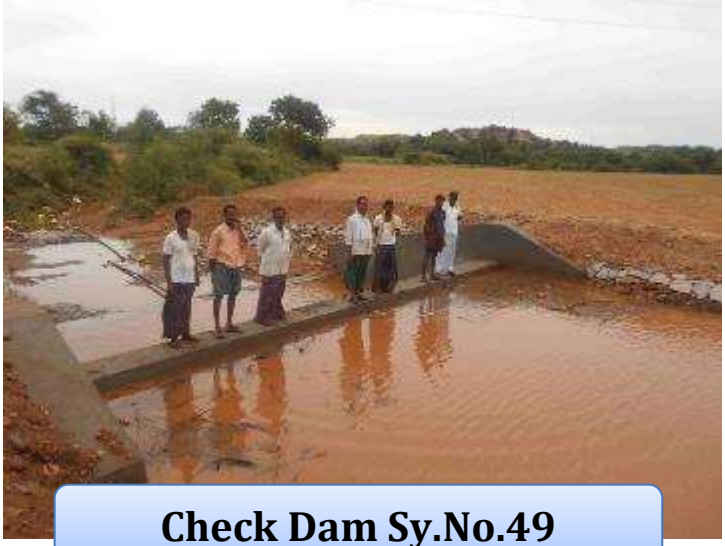


Check Dam Sy.No.49



Farm Pond Sy.No.152/2

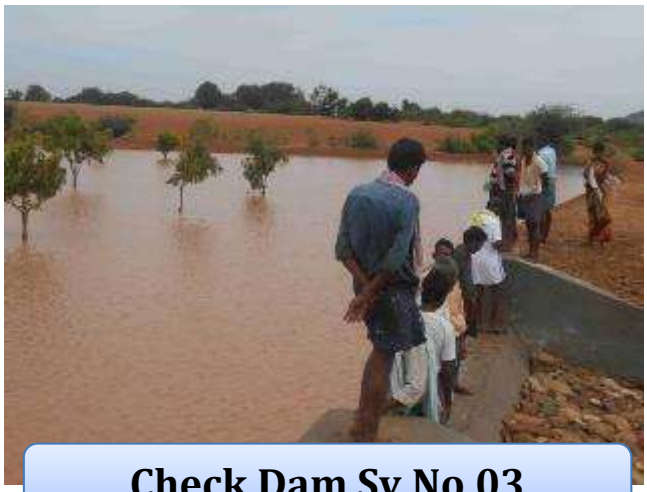
Bund Plantation



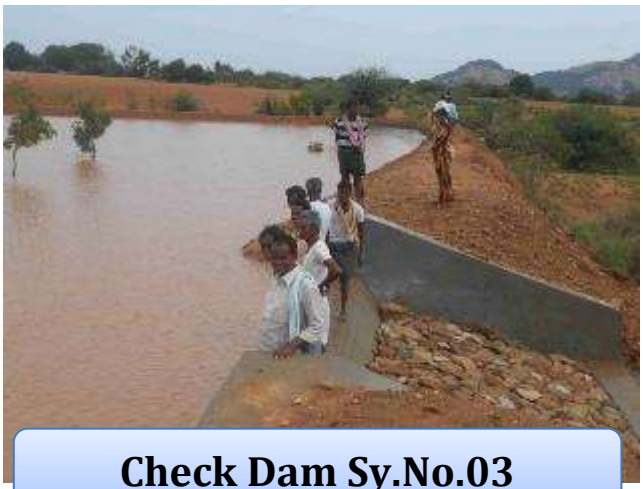
Check Dam Sy.No.49

Horticulture Sy.No.35

Bunding Sy.No.92



Check Dam Sy.No.03



Check Dam Sy.No.03

Farm Pond Sy.No.152/2

Horticulture Sy.No 35

Paper Cuttings

కళ్యాణదుర్గం

నీటి వనరులకు జలకళ

చెక్‌డ్యామ్‌లకు భారీగా చేరిన నీరు

ఆంధ్రజ్యోతి

కళ్యాణదుర్గం

వర్షం రాకతో... రైతుల్లో హర్షం