

Impact Assessment Report
DROUGHT PRONE AREA DEVELOPMENT PROGRAMME
(DPAP-BATCH III)

Nalgonda District, Andhra Pradesh



GLOBAL THEME - AGROECOSYSTEMS



**International Crops Research Institute
for the Semi-Arid Tropics**

October 2010

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Patancheru 502 324, Andhra Pradesh, India

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We gratefully acknowledge the Commissioner, Department of Rural Development, Government of Andhra Pradesh for providing co-ordination with Project Director, District Water Management Agency (DWMA), Nalgonda; to guide us in selecting watersheds well distributed across the district to capture complete representation of variability of watersheds development for the impact assessment study of DPAP Batch III watersheds in Nalgonda.

We are thankful for the support and guidance of Project Director, DWMA for providing all support from their project staff for their active participation. We record our profound thanks to Mr. K. Janardhan Reddy, Additional Project Director for his help arranging our tour schedules, contact persons at different watersheds every day during our field visits and to organize village meetings in all watersheds, which was most crucial in our efforts.

Our team acknowledges the useful information shared by Chairmen, Secretaries and DPAP project beneficiaries during focused group discussions (FGD) and field visits.

We profusely thank Dr. William D. Dar, Director General of ICRISAT for his approval to undertake this study and encouragement for a good analysis of the study.

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ABBREVIATIONS

APD	Assistant Project Director
CCT	Continuous Contour Trenches
DRDA	District Rural Development Agency
DPAP	Drought Prone Area Programme
DWMA	District Water Management Agency
FGD	Focused Group Discussions
GCS	Gully Control Structures
IWD	Integrated Watershed Development
LBS	Loose Boulder Structures
MDT	Mandal Development Team
NGO	Non-governmental Organization
NRM	Natural Resources Management
PD	Project Director
PIA	Project Implementing Agency
PRA	Participatory Rural Appraisal
PT	Percolation Tank
RFDs	Rock Filled Dams
SF	Social Forestry
SHGs	Self-Help Groups
SMC	Soil Moisture Conservation
SWCS	Soil Water Conservation Structures
UGs	User Groups
VSS	Vana Samrakshana Samithi
WA	Watershed Association
WS	Watershed
WDC	Watershed Development Committee
WDF	Watershed Development Fund
WDT	Watershed Development Team

EXECUTIVE SUMMARY OF IMPACT ASSESSMENT

In Nalgonda district, DPAP – batch III received funding for development of 36 watersheds in 6 mandals and the project was implemented from 1997-98 to 2003-04 to treat about 20000 ha with watershed development.

1. One of the main objectives of DPAP was to ensure and enhance people's participation in this programme. At the inception stage, in seven of the fifteen selected watershed villages for impact assessment, Entry Point Activity (EPA) was implemented to construct bus shelters (Gorekunta, Kandikunta, Kudali, Neredavai and Voorakunta watersheds), construction of water tank and laying of pipe line (Hanuman watershed) and laying of pipe line, purchasing and fixing of electric motor/pump (Rama watershed) for village water supply that ensured community participation and awareness about the watershed project. In other watersheds EPA could not be done for varied interests and lack of common agreement among beneficiaries on a particular work as EPA. In watershed villages where EPA was undertaken, villagers were satisfied and appreciative of the usefulness of the works.
2. Although, there was ample scope and opportunities to address the issues of women by forming self-help groups (SHGs) involving weaker sections of the society, this aspect was not actively persuaded and no micro enterprise/income generating activities were introduced to improve the livelihoods of women SHGs in the selected 15 watersheds.
3. User groups (UGs) were formed in all the 15 watersheds but soil and water conservation works and construction of water harvesting structures were undertaken by the WCs without much participation of people.
4. In 8 out of 15 watersheds, water-harvesting structures constructed either by PIA of government organization or NGO were generally of good quality and suitably located. However, in these watersheds, for lack of maintenance of the structures for a longer period, some structures were damaged, need immediate attention to repair these structures and remove siltation to improve efficiency of the water-harvesting structures. In other seven watersheds some of the structures constructed were of poor quality with improper locations and without good design criteria and foundation hence most of the structures in the watersheds damaged several years back and repairs were not done resulting in no benefit to farmers in terms of water harvesting and groundwater improvement.
5. Farmers in seven watersheds located in different villages reported an increase in ground water levels ranging from 0.5 to 1.0 meter generally and in four watersheds water level raise was up to 2 meters, in 4 watersheds raise was more than 2 meters and increased availability of water for irrigation up to February-March months. In four watersheds, the number of functional wells increased to more than 150 in each watershed, as an indication of water availability.

6. Period of water availability for irrigation extend from November-December months before the watershed development, to end of February-March after the watershed development. This situation favored for double cropping with one or two supplemental irrigations for second crops between Januarys to March every year.
7. In most of the villages there was a clear agreement on availability of drinking water round the year after watershed development project implementation in their area.
8. In some watersheds water storage in percolation tanks providing drinking water for cattle population even during summer months.
9. Crop intensity increased between 150%-200% as the number of bore well those support second crop were more than 100 per village. Due to increased availability of water for longer period in the season up to end of February-March, crops like paddy, vegetables, groundnut, sunflower and maize as second crop after paddy are grown.
10. Our enquiries revealed that there was considerable interest generated among farmers for sweet lime, acid lime and mango cultivation on seeing the success of watershed farmers planted these orchard crops through DPAP-III.
11. Farmers have diversified their annual food crops with orchard crops like sweet lime, acid lime and mango and getting a sustainable net income ranging from Rs.20,000 to Rs.40,000 per acre based on growth and age of orchard crops developed through DPAP-III.
12. Development of common property resources (CPRs) was done in seven watersheds of the fifteen selected watersheds in the project for the impact assessment study. In 7 watersheds CPRs were developed similar to the entire watershed with construction of water harvesting structures and formation of field bunding as CPRs land had already been under cultivation by weaker sections community farmers with usufruct rights.
13. In the selected fifteen watershed villages for impact assessment, the migration for employment reduced to 0-20% from as high as 20%-100% in all the villages, not only due to watershed development and crop productivity increase, but because of National Rural Employment Guarantee Scheme (NREGS) of the central government.
14. Our analysis of focused group discussions with village communities indicate that only in 20% (3) of the watershed villages farmers expressed affirmatively for withstanding drought effects for one year (risk reduced by 50%) and vulnerable for mainly fodder scarcity as there is no fodder security for large number of goat, sheep and cattle population.

15. Farmers and WC members in almost all watersheds mentioned that if the WDF was made available for repair and maintenance of watershed structures or for construction of much needed new structures, the impact would have been felt very much by the beneficiaries in the watershed.

BACKGROUND

Department of wasteland development under the Ministry of Rural areas and Employment, Government of India, sanctioned the Integrated Wasteland Development Project (DPAP) - Phase III for Nalgonda district of Andhra Pradesh. The project encompassed treatment of about 20000 ha of cultivable land in 36 watersheds in 6 mandals of Nalgonda district. The objectives of this project were: (1) To integrate land and water conservation and management into the village micro-watershed plans; and (2) To enhance people's participation in the integrated watershed development program at all stages. This project was sanctioned for implementation with a project budget outlay of Rs. 600 lakhs and to accomplish over a period of seven years from 1997-98 to 2003-04.

District Rural Development Agency (DRDA) Nalgonda, now designated as District Water Management Agency (DWMA) was assigned the responsibility of providing infrastructure for implementation, management of the project through project implementing agency and financial supervision of the project and received an amount of Rs.600 lakhs grant at 50% contribution each from GOI and government of AP. DRDA-Nalgonda selected government and non-governmental agencies for project implementation during 1997-98 to 2003-04. The details of 36 selected watersheds in respective mandals for treatment is given in Table 1.

Table 1. Details of 36 watersheds covered by DPAP-III project for treatment in various mandals of Nalgonda.

S No.	Mandal	No. of villages covered	No. of watersheds
1	Shaligouraram	5	10
2	Mothey	7	9
3	Thungathurthy	5	8
4	Marriguda*	4	4
5	Chinthapally*	3	3
6	Chityal*	2	2
	Total		36

* Watersheds given to forest department and implemented through Vana Samrakshana Samithi (VSS)

The project implementation started in the year 1997-98 and works were implemented in 36 watersheds as per approval. The project execution over run due to delay executing works and non-compliance of guidelines in the stipulated period of four years and was extended up to 2003-2004, which was completed in seven years.

Agricultural Situation in Nalgonda

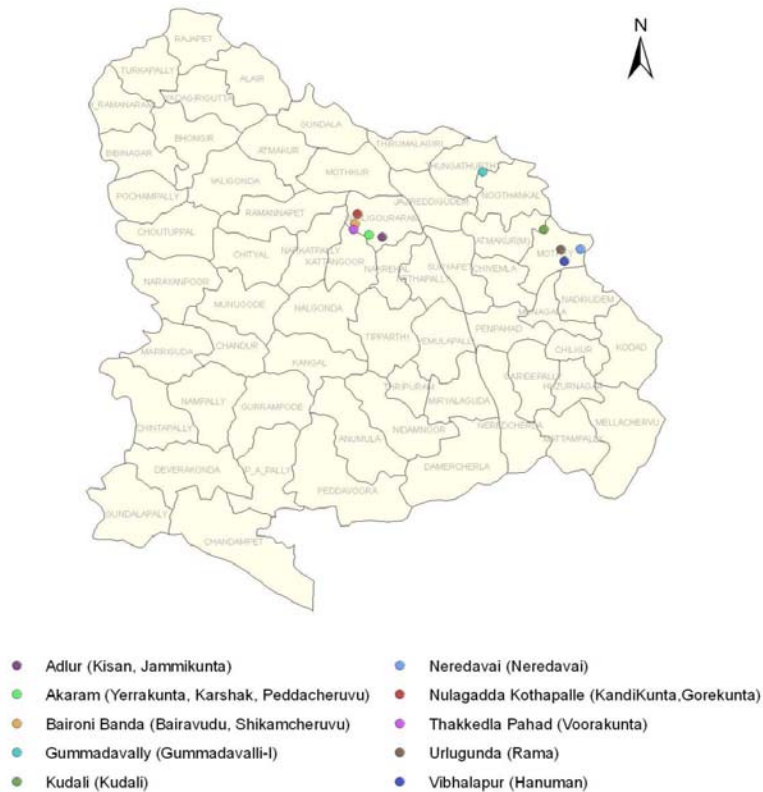
Soils and Land use pattern

In Nalgonda, sandy loams (65%) and black cotton soils (35%) are the major soil types and salt affected soils are also present. Out of 14,24,000 ha of total geographical area of Nalgonda 5.86% area is under forest, 8.27% area is under barren and uncultivable land, 6.81% land put to non agricultural use, 1.72% is cultivable waste, 6.87% area is under permanent pastures and other grazing lands, 0.65% land is under miscellaneous use, 32.54% area is under other fallows, 39.29% area is under net area sown and 47.0% is gross area sown.

Cropping pattern

Paddy, sorghum, cotton, castor, groundnut and pulses are major crops grown in the district. Horticulture orchards of sweet lime, acid lime and mango have come up in about 1,00,000 ha area.

The district map of Nalgonda with mandals and villages / watersheds assessed for impact were marked in map 1.



Map 1. Watersheds assessed for impacts in various mandals of Nalgonda.

Rainfall

Nalgonda district receives a total normal rainfall of 743 mm per annum with 74% of annual rainfall contributes to main cropping season during South-West Monsoon from June to September and North-East monsoon provides 20% of rainfall between October and December months. Drought conditions generally prevail during south-west monsoon season determines the crop production in the season.

Rainfall in the district since crop season 1997-98 until 2009-10, has been erratic and below normal during eight years out of 13 years (Figure 1). Hence, farmers in some watersheds during focused group discussions mentioned about low rainfall that lead to less impact of watershed interventions/development.

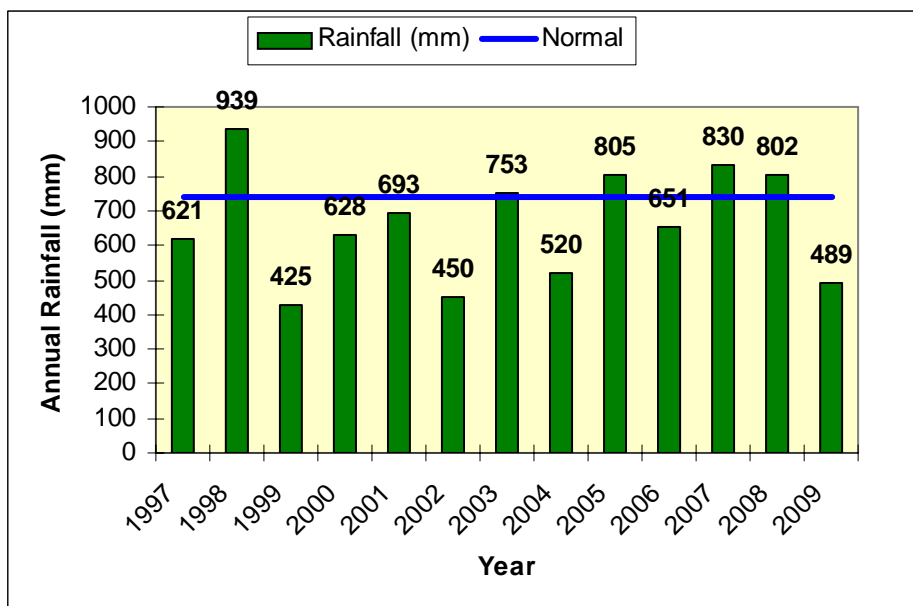


Figure 1. Annual rainfall of Nalgonda district and district normal rainfall.

METHOD OF IMPACT ASSESSMENT

Multi-disciplinary impact assessment team

Dr. S P Wani, Principal Scientist (Watersheds) and Regional Theme Coordinator (Asia), Global Theme-Agroecosystems

Mr. Ch Srinivasa Rao, Sr. Scientific Officer (Soil Science)

Mr. L S Jangawad, Sr. Scientific Officer (Agricultural Engineering)

Mr. V Nageswara Rao, Lead Scientific Officer (Agronomy)

ICRISAT's Global Theme on Agroecosystems, which was responsible for the impact evaluation of the DPAP watershed projects in Nalgonda, consists of scientists from various professional backgrounds: soil science, hydrology and agricultural engineering and agronomy. To undertake the impact assessment of watershed projects, multi-disciplinary team was formed that consisted of (at least) three researchers with different areas of expertise and (at least) one scientific officer who was responsible for the technical inspection and evaluation of the constructed structures in the watershed. To assess the different aspects of watershed development projects, the scientists in each team had scientific expertise in Agronomy and soil science/hydrology, engineering/technical aspects and social aspects/ institutions.

As a first step, ICRISAT's Global Theme on Agroecosystems discussed the "terms of references" from the Government of India and shared the experiences from previous impact and midterm assessments. The division of tasks was undertaken in a participatory manner depending on the professional expertise and the local knowledge of the scientists and scientific officers. We had divided tasks of the impact assessment in two parts (1) Focused Group discussions, with participation of the local population, a crucial factor of a successful impact assessment; and (2) Field visits, to ensure verification of watershed structures, their maintenance and assess their use.

DISCUSSIONS WITH DWMA OFFICIALS

ICRISAT undertook the assessment with an open and participatory approach with the staff of the DWMA and village level staff. The involvement of the program staff of the respective watershed projects at various stages of the assessment aimed at enhancing the ownership of the results among the extension personnel.

Impact assessments in watersheds of DPAP-III, Nalgonda started with the ICRISAT team meeting Mr. K. Janardhan Reddy, Additional Project Director and two of the Assistant Project Directors (APD) of DWMA and their staff under the instruction of Project Director of the District Water Management Agency, Nalgonda.

Meeting with project staff helped us to finalize the list of watershed villages (Table 2) spread across 3 mandals in Nalgonda district (Map 1, Nalgonda district) for impact assessment and scheduled our visit. We requested to make ensure the availability and participation of concerned APDs at FGD in watersheds in their respective mandals and their presence was quite helpful in organizing village meeting and field visits to watershed structures

Table 2. List of selected DPAP-III watersheds for impact assessment in Nalgonda.

S. No.	Name of the watershed	Mandal	Name of the PIA
1.	Bairavudu	Shaligouraram	PEPCARDS, Shaligouraram
2.	Gorekunta	Shaligouraram	PEPCARDS, Shaligouraram
3	Gummadavalli-I	Thungathurthy	CRYDO, Thungathurthy
4	Hanuman	Mothey	D.F.O (SF), Nalgonda
5.	Jammikunta	Shaligouraram	PEPCARDS, Shaligouraram
6	Kandikunta	Shaligouraram	PEPCARDS, Shaligouraram
7.	Karshak	Shaligouraram	PEPCARDS, Shaligouraram
8.	Kisan	Shaligouraram	PEPCARDS, Shaligouraram
9	Kudali	Mothey	D.F.O (SF), Nalgonda
10.	Neredavai	Mothey	D.F.O (SF), Nalgonda
11.	Peddacheruvu	Shaligouraram	PEPCARDS, Shaligouraram
12.	Rama	Mothey	D.F.O (SF), Nalgonda
13.	Shikamcheruvu	Shaligouraram	PEPCARDS, Shaligouraram
14.	Voorakunta	Shaligouraram	PEPCARDS, Shaligouraram
15.	Yerrakunta	Shaligouraram	PEPCARDS, Shaligouraram

FOCUSED GROUP DISCUSSIONS

The focused-group-discussions were held with members of the watershed development team, the watershed committee, farmers/beneficiaries and whenever possible with the Gram Panchayat president even. Focused-group-discussions enabled us to elicit valuable information in short time and to include the community in the process. It is important to check, however, the participation of a representative sample of the local population in order to extract meaningful information that helps to draw conclusions of the whole picture. We standardized a comprehensive version of focused group discussion format, which is used for this assessment. ICRISAT ensured the participation of majority local language speakers in the multidisciplinary team and structured the focused-group-discussions according to the guidelines and the specific local context. The meetings focused on the community's knowledge of the watershed program, their personal benefits as well as their assessment of the impacts for the whole community. In villages where women Self-Help-Groups (SHGs) were formed under the watershed project, a special focus was laid on discussions with the SHG members and the impacts upon women's lives of the watershed project.

The meetings also served as an opportunity to verify the records of the watershed development team wherever available and to discuss aspects such as maintenance of the structures, sustainability and other schemes implemented in the village.

FIELD VISITS

While the focus-group-discussions were held in the village, other member(s) of the team inspected a minimum of two structures considering them as samples of these physical structures such as check-dams, percolation tanks, CCTs, open wells and gully control structures, assessed their quality of construction and selection of location and measured structures on a random basis and assess their potential impacts for number beneficiaries and extent area and on the community well-being. Individual farmers were interviewed for their gains by watershed interventions when they were spotted in the fields nearby the structures wherever possible.

After completing the field visits, the observations were openly shared with the participating program staff. Their comments and feedback were also included in the assessment of the watersheds.

PERIOD OF EVALUATION

Impact assessment of watersheds in Nalgonda was done in 2nd, 3rd and 4th weeks of December 2009 and the actual field visits took place for three weeks in Nalgonda district with the help of project staff of DWMA, Nalgonda.

WATERSHED-WISE IMPACT ASSESSMENT

The details of focused group discussions, assessment of watershed interventions including our observations of soil and water conservation, water harvesting structures (pictures) and watershed-wise impacts on watershed communities were provided here under in the suggested format for all the 15 watersheds assessed during December 2009.

Impact Assessment Report
Bairavudu Watershed, DPAP – III batch,
Shaligouraram Mandal, Nalgonda district, Andhra Pradesh

1. Details of watershed:

1. Name of the Scheme:	DPAP – III Batch
2. Name of the watershed:	Bairavudu
3. Names of villages in the Watershed:	Bairavunibanda
4. Villages/Mandal/District:	Bairavunibanda/ Shaligouraram/ Nalgonda
5. Name and Address of PIA:	PEPCARDS, Shaligouraram
6. Total area of the watershed:	ha (ha Treated area)

2. Land Use Pattern:

i. Arable land (ha)	
ii. Non-arable land (ha)	
iii. Government/ Community land (ha)	
iv. Private land (ha)	
v. Treated arable (ha)	
vi. Treated non-arable (ha)	

3. Verification financial and other Records

i. Total cost:	Approved: Rs	Spent: Rs 17.10 Lakh
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes LBS (50 nos.), PT (7), CD (9), Bunding (80 ha), afforestation (2 ha)	
iv. Whether watershed committees (WC) exists	Yes WC comprises of 10 members (1 woman, 9 men); Mr D Narsi Reddy was WA President, Mr P Narsimha, was WC Chairman, Mr. E Venkataiah was WC Secretary. All these members were available for consultation.	
v. If exists, activities of the committees	Not functional due to any clear guidelines for utilizing WDF to repair and maintain structures.	

4. Community participation (how community participation have been ensured and what EPA have been taken up, inputs of details of beneficiaries)

Although EPA was not taken up; construction of 9 check dams, 7 percolation tanks and other conservation works were taken up with the participation of farmers from 18 user groups (UGs) and landless poor from the watershed village.

5. Qualitative Parameters of Impacts

1. Functioning of village level institutions	Satisfactory during project and after as the SHGs increased from three to twenty without any financial help from watershed scheme.	
2. Records of meetings properly updated	Yes	
3. Liaison with scientific institutions established	No, farmers were not given any exposure to productivity enhancement	
4. Watershed Development Fund (WDF) collected?, and its utilization	Yes; collected Rs.60 000 according to guidelines and deposited in NGB, Shaligouraram but unspent for maintenance works due to lack of clear guidelines on use from District Authorities.	
5. Self Help Groups	SHGs increased from 3 to 20 after watershed interventions (no support from watershed program)	Revolving fund: Rs. 120000
V.O functioning:		Savings:
Utilization of loans:	Loans were given to members for establishing grocery shops, tailoring shops and domestic use.	
Bank linkages established:	Farmers have linkage with Grameena Bank, SBH for credit and other transactions	
6. Planned CPRs sustainable & equitable development	Rocky area and CPRs development work not done	
7. Benefits to weaker sections (women, dalits and landless)	No specific initiatives; engaged for labor work during watershed works, SHGs micro finance and livelihood activities.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Impact of watershed project has clearly reflected in enhancing the groundwater levels (1-2 m increase) and duration of water availability in wells for agricultural and other purposes in the watershed. There are about 20 open wells and 100 bore wells exist in the watershed, discharge and area under irrigation doubled.		
ii. Additional area under cultivation/horticulture/afforestation	38 ha additional area brought under cultivation; 2 ha common land with afforestation.		
iii. Changes in cropping pattern and intensity	Before project sorghum, millets, castor, green gram and paddy crops were grown; After watershed implementation, farmers are growing cotton, pigeon pea and paddy crops.		
iv. Changes in agricultural productivity	Crops	Yield (q/ha)	
		Before	After
	Cotton	-	15
	Castor	7	9
v. Changes in fodder & fuel wood availability	Improved due to water availability		

vi. Changes in size and character of livestock holdings	Buffalo numbers and milk production increased from 70 liters a day earlier to 200 liters per day and sold to Mother Dairy collection center in the village
vii. Status of grazing land & their carrying capacity	Nil
viii. Employment generated due to implementation of project	About 90 laborers had employment during project period; on implementation of project water availability enhanced 50% additional cropping area and productivity (30-40% people benefited).
ix. Change in household category, total, & source-	Around 100 households improved their income through agriculture, dairying and livelihood activities (income improved by 30%).
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Have good credit linkages with banks, micro finance of SHGs also helping and less dependence on private moneylenders.
xi. Reduction in out-migration (case studies)	Earlier 60% laborers used to migrate in search of work during off-season. Now no migration from this village.
xii. Reduction in drought vulnerability of the watershed	Quantity and duration groundwater availability has increased and about 30% risk is reduced due to watershed interventions.
xiii. Detailed case studies of specific farmers impacted by the project	Please see the attachment
xiv. Photographs showing work + its impact	Please see the attachment

7. Learnings and process documentation (how the program could be implemented better; constraints, improvements possible, Changes made etc.)

- Repair, maintenance and de-silting of water harvesting structures are essential to get sustainable benefits.
- Recharging of dry open wells near small streams would have given better equity and results.
- There is a scope for construction of water harvesting structures in untreated area.
- Guidelines are needed for using WDF.



Figure 1. Check dam (left) and percolation tank (right) at Bairavudu watershed, Shaligouraram Mandal.

8. Observations and Comments of Evaluator:

- The quality of construction and location of WHS is good except two percolation tanks and one check dam that are damaged (**Fig. 1**).
- Maintenance of the structures is very poor and they are filled with sediment and bushes (**Fig.2**).



Figure 2. Poor maintenance of the structures at Bairavudu watershed, Shaligouraram Mandal

- Post-project maintenance was not clearly envisaged as an exit policy in the project, hence proper mechanism should be operationalized to repair and maintain the structures, and to ensure proper utilization of WDF/community contribution, clear guidelines should be in place. Otherwise watershed committee exists, but becomes defunct, as is the case with Bairavudu watershed.

- Crop productivity enhancement and water use efficiency measures were not emphasized in the project to harness the full benefits of project activities, and increased water availability.
- Technology Resource organizations like academic/research institutions involvement was absent.
- As admitted by farmers in the village, availability of drinking water round the year, supplemental irrigation water for second crop and ground water increase helping growth of orchard crops are the visible qualitative and quantitative impacts due to watershed development.

Success story

- **Mr. D Indra Reddy** has 3 wells in his 2.8 ha land near percolation tank. After PT constriction, groundwater availability has increased and he has planted acid lime and growing cotton and paddy crops under irrigation with sustainable yields and profits.
- **Mr. T Shankar Reddy** is a big farmer and one of the beneficiaries has paddy fields near 2 PTs satisfactorily admits that groundwater level has been increased substantially in his wells and growing paddy crop and getting good yield and income from the land.

Impact Assessment Report
Gorekunta Watershed, DPAP - III batch,
Shaligouraram Mandal, Nalgonda district, Andhra Pradesh

1. Details of watershed:

1. Name of the Scheme:	DPAP - III Batch
2. Name of the watershed:	Gorekunta
3. Names of villages in the Watershed:	Nulagadda Kothapally
4. Villages/Mandal/District:	N G Kothapally/ Shaligouraram/ Nalgonda
5. Name and Address of PIA:	PEPCARDS, Shaligouraram
6. Total area of the watershed:	ha (ha Treated area)

2. Land Use Pattern:

i. Arable land (ha)	
ii. Non-arable land (ha)	
iii. Government/ Community land (ha)	
iv. Private land (ha)	
v. Treated arable (ha)	
vi. Treated non-arable (ha)	

3. Verification financial and other Records

i. Total cost:	Approved: Rs	Spent: Rs 14.60 Lakh
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes LBS (10 nos.), PT (4), CD (9), Bunding (80 ha), horticulture (4 ha); afforestation (2 ha)	
iv. Whether watershed committees (WC) exists	Yes WC comprises of 10 members (2 women, 8 men); Mr B Narsaiah was WA President, Mr G Bal Reddy, was WC Chairman, Mr. N Narsaiah was WC Secretary. All these members were available for consultation.	
v. If exists, activities of the committees	Not functional due to any clear guidelines for utilizing WDF to repair and maintain structures.	

4. Community participation (how community participation have been ensured and what EPA have been taken up, inputs of details of beneficiaries)

Construction of bus shelter was taken up as EPA with a cost of Rs 0.57 lakh from Gorekunta watershed and Rs 0.13 lakh from Kandikunta watershed and it is used by all villagers; In addition to EPA, construction of 9 check dams, 4 percolation tanks and other conservation

works were taken up with the participation of farmers from 19 user groups (UGs) and landless poor from the watershed village.

5. Qualitative Parameters of Impacts

1. Functioning of village level institutions	Satisfactory during project and after as the SHGs increased from eight to twenty-five without any financial help from watershed scheme.	
2. Records of meetings properly updated	Yes	
3. Liaison with scientific institutions established	No, farmers were not given any exposure to productivity enhancement	
4. Watershed Development Fund (WDF) collected?, and its utilization	Yes; collected Rs.59 000 according to guidelines and deposited in SBH, Shaligouraram but unspent for maintenance works due to lack of clear guidelines on use from District Authorities.	
5. Self Help Groups	SHGs increased from 8 to 25 after watershed interventions (no support from watershed program	Revolving fund:
V.O functioning:		Savings:
Utilization of loans:	Loans were given to members for the purchase of cattle and for establishing grocery shops.	
Bank linkages established:	Farmers have linkage with SBH, Shaligouraram for credit and other transactions	
6. Planned CPRs sustainable & equitable development	Bunding was done in 21 acres and later it was assigned to landless poor communities in the village	
7. Benefits to weaker sections (women, dalits and landless)	No specific initiatives; engaged for labor work during watershed works, SHGs micro finance and livelihood activities.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Impact of watershed project has clearly reflected in enhancing the groundwater levels (2-3 m increase) and duration of water availability in wells for agricultural and other purposes in the watershed. Area under irrigation has increased from 270 acres to 550 acres due to improved groundwater availability after watershed interventions. There are about 35 open wells and 50 bore wells in the watershed for irrigation.		
ii. Additional area under cultivation/horticulture/afforestation	38 ha additional area brought under cultivation; 4 ha land with horticulture; 2 ha common land with afforestation.		
iii. Changes in cropping pattern and intensity	Before project sorghum, millets and paddy crops were grown; After watershed implementation, farmers are growing cotton, pigeon pea and paddy crops.		
iv. Changes in agricultural productivity	Crops	Yield (q/ha)	
		Before	After
	Cotton	-	20
	Pigeon pea	6	8
	Paddy	40	55

v. Changes in fodder & fuel wood availability	Improved due to water availability
vi. Changes in size and character of livestock holdings	Buffalo numbers and milk production increased from 50 liters a day earlier to 120 liters per day and sold to Mother Dairy collection center in the village
vii. Status of grazing land & their carrying capacity	Nil
viii. Employment generated due to implementation of project	About 200 laborers had employment during project period; on implementation of project water availability enhanced 50% additional cropping area and productivity.
ix. Change in household category, total, & source-	Around 120 households improved their income through agriculture, horticulture, dairying and livelihood activities (income improved by 30%).
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Have good credit linkages with banks, micro finance of SHGs also helping and less dependence (about 20%) on private moneylenders.
xi. Reduction in out-migration (case studies)	Earlier about 40% laborers used to migrate in search of work during off-season. Now no migration from this village.
xii. Reduction in drought vulnerability of the watershed	Quantity and duration of groundwater availability has increased and they can withstand for about 6 months in case of drought.
xiii. Detailed case studies of specific farmers impacted by the project	Please see the attachment
xiv. Photographs showing work + its impact	Please see the attachment

7. Learnings and process documentation (how the program could be implemented better; constraints, improvements possible, Changes made etc.)

- Repair, maintenance and de-silting of water harvesting structures are essential to get sustainable benefits.
- Horticulture plantations with sweet lime and mango can give better income to the farmers.
- There is a scope for construction of water harvesting structures in untreated area.
- Guidelines are needed for using WDF.



Figure 1. Check dam (left) and gully control structure (right) at Gorekunta watershed, N G Kothapally village, Shaligouraram Mandal.

8. Observations and Comments of Evaluator:

- Lot of silt accumulation was observed in check dams and no maintenance of the structures (**Fig. 1**).
- Quality of construction of water harvesting structures is poor and damages were noticed (**Fig.2**).



Figure 2. Damages on wing wall and apron wall of check dam, Gorekunta watershed, N G Kothapally village, Shaligouraram Mandal

- Post-project maintenance was not clearly envisaged as an exit policy in the project, hence proper mechanism should be operationalized to repair and maintain the structures, and to ensure proper utilization of WDF/community contribution, clear guidelines should be in place. Otherwise watershed committee exists, but becomes defunct, as is the case with Gorekunta watershed.
- Crop productivity enhancement and water use efficiency measures were not emphasized in the project to harness the full benefits of project activities, and increased water availability.

- Technology Resource organizations like academic/research institutions involvement was absent.
- As admitted by farmers in the village, availability of groundwater round the year, supplemental irrigation water for second crop and ground water increase helping growth of orchard crops are the visible qualitative and quantitative impacts due to watershed development.

Success story

- **Mr. G Ankaiah** has 6.4 ha land near check dam. After check dam constriction, groundwater availability has increased in his bore well and growing paddy, pigeon pea and cotton crops and getting good yields and income from the land.
- **Mr. D Muthaiah** owns 2.8 ha field near a check dam, and one of the beneficiaries of this check dam satisfactorily admits that groundwater level has been increased substantially in his wells and growing paddy crop and getting good yield and income from the land.

Impact Assessment Report
Gummadavalli-I Watershed, DPAP - III batch,
Thungathurthy Mandal, Nalgonda district, Andhra Pradesh

1. Details of watershed:

1. Name of the Scheme:	DPAP - III Batch
2. Name of the watershed:	Gummadavalli- I
3. Names of villages in the Watershed:	Gummadavalli
4. Villages/Mandal/District:	Gummadavalli / Thungathurthy/ Nalgonda
5. Name and Address of PIA:	CRYDO, Thungathurthy
6. Total area of the watershed:	ha (ha Treated area)

2. Land Use Pattern:

i. Arable land (ha)	
ii. Non-arable land (ha)	
iii. Government/ Community land (ha)	
iv. Private land (ha)	
v. Treated arable (ha)	
vi. Treated non-arable (ha)	

3. Verification financial and other Records

i. Total cost:	Approved: Rs	Spent: Rs 19.64 Lakh
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes PT (4), CD (6), Bunding (180 ha), LBS (30 nos.), horticulture (4 ha), Afforestation (8 ha)	
iv. Whether watershed committees (WC) exists	Yes WC comprises of 10 members (2 women, 8 men); Mr. A Yadagiri was WA President, Mr. T Ramesh, was WC Chairman, Mr. Kiran Kumar was WC Secretary. All these members were available for consultation.	
v. If exists, activities of the committees	Not functional due to any clear guidelines for utilizing WDF to repair and maintain structures.	

4. Community participation (how community participation have been ensured and what EPA have been taken up, inputs of details of beneficiaries)

Although EPA was not taken up, construction of 6 check dams, 4 percolation tanks, bunding and other conservation works were taken up with the participation of farmers from 14 user groups (UGs) and landless poor from the watershed village.

5. Qualitative Parameters of Impacts

1. Functioning of village level institutions	Satisfactory during project and after as the SHGs increased from five to eighteen without any financial help from watershed scheme.	
2. Records of meetings properly updated	Yes	
3. Liaison with scientific institutions established	No, farmers were not given any exposure to productivity enhancement	
4. Watershed Development Fund (WDF) collected?, and its utilization	Yes; collected Rs.71 000 according to guidelines and deposited in NGB, Thungathurthy but unspent for maintenance works due to lack of clear guidelines on use from District Authorities.	
5. Self Help Groups	SHGs increased from 5 to 18 after watershed interventions (no support from watershed program)	Revolving fund: Rs.
	V.O functioning:	Savings:
	Utilization of loans:	Loans were given to members for the purchase of cattle (milk animals), sheep, inputs for agriculture and for petty business
	Bank linkages established:	Farmers have linkage with NGB, Thungathurthy for credit and other transactions.
6. Planned CPRs sustainable & equitable development	No CPRs development done	
7. Benefits to weaker sections (women, dalits and landless)	No specific initiatives; engaged for labor work during watershed works and livelihood activities.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Impact of watershed project has clearly reflected in enhancing the groundwater levels (0.5-1 m increase) and duration of water availability in wells for agricultural and other purposes. Area under irrigation is doubled due to improved groundwater availability after watershed interventions. There are about 20 open wells and 150 bore wells in the watershed for irrigation.		
ii. Additional area under cultivation/horticulture/afforestation	80 ha additional area brought under cultivation; 4 ha private land with horticulture and 8 ha common land with afforestation.		
iii. Changes in cropping pattern and intensity	Before project sorghum, millets, castor and paddy crops were grown; After watershed implementation, farmers are growing cotton, pigeon pea and paddy crops.		
iv. Changes in agricultural productivity	Crops	Yield (q/ha)	
		Before	After
	Cotton	-	16
	Castor	8	10
	Pigeon pea	6	9

v. Changes in fodder & fuel wood availability	Improved due to water availability
vi. Changes in size and character of livestock holdings	Buffalo numbers increased by about 80 and milk production increased from 100 liters a day earlier to 200 liters per day.
vii. Status of grazing land & their carrying capacity	Nil
viii. Employment generated due to implementation of project	About 140 laborers had employment during project period; on implementation of project water availability enhanced 50% additional cropping area and productivity.
ix. Change in household category, total, & source-	Around 200 households improved their income through agriculture, horticulture, dairying and livelihood activities (income improved by 20%).
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Have good credit linkages with banks, micro finance of SHGs also helping and less dependence (about 20%) on private moneylenders.
xi. Reduction in out-migration (case studies)	Earlier about 30% laborers used to migrate in search of work during off-season. Now no migration from this village.
xii. Reduction in drought vulnerability of the watershed	Quantity and duration of groundwater availability has increased and they can withstand for about 3 months in case of drought.
xiii. Detailed case studies of specific farmers impacted by the project	Most of the farmers in the village satisfactorily admit that groundwater levels have been increased substantially in their wells due to construction of water harvesting structures and growing paddy crop, getting good yield and incomes from their lands.
xiv. Photographs showing work + its impact	Please see the attachment

7. Learnings and process documentation (how the program could be implemented better; constraints, improvements possible, Changes made etc.)

- Repair and maintenance of water harvesting structures are essential to get sustainable benefits.
- De-silting of water harvesting structures is essential to increase storage capacity of the structures.
- There is further scope for horticulture plantations with sweet lime and acid lime.
- There is scope for construction of water harvesting structures in untreated area.
- Guidelines are needed for using WDF.



Figure 1. Masonry check dam (left) and percolation tank (right) at Gummadavalli watershed, Thungathuthy Mandal.

8. Observations and Comments of Evaluator:

- Locations, design criteria and quality of construction of WHS are good and effectively serving the purpose (**Fig. 1**).
- Maintenance of the structures is very poor as they are filled with sediment, bushes and developed leakages (**Fig.2**).



Figure 2. Masonry check filled with bushes at Gummadavalli watershed, Thungathuthy Mandal

- Post-project maintenance was not clearly envisaged as an exit policy in the project, hence proper mechanism should be operationalized to repair and maintain the structures, and to ensure proper utilization of WDF/community contribution, clear guidelines should be in place. Otherwise watershed committee exists, but becomes defunct, as is the case with Gummadavalli watershed.
- Crop productivity enhancement and water use efficiency measures were not emphasized in the project to harness the full benefits of project activities, and increased water availability.

- Technology Resource organizations like academic/research institutions involvement was absent.
- As admitted by farmers in the village, availability of groundwater round the year, supplemental irrigation water for second crop and ground water increase helping growth of cropping intensity and orchard crops are the visible qualitative and quantitative impacts due to watershed development.

Impact Assessment Report
Hanuman Watershed, DPAP - III batch,
Mothey Mandal, Nalgonda district, Andhra Pradesh

1. Details of watershed:

1. Name of the Scheme:	DPAP - III Batch
2. Name of the watershed:	Hanuman
3. Names of villages in the Watershed:	Vibhalapur
4. Villages/Mandal/District:	Vibhalapur / Mothey / Nalgonda
5. Name and Address of PIA:	D.F.O. (SF), Nalgonda
6. Total area of the watershed:	ha (ha Treated area)

2. Land Use Pattern:

i. Arable land (ha)	
ii. Non-arable land (ha)	
iii. Government/ Community land (ha)	
iv. Private land (ha)	
v. Treated arable (ha)	
vi. Treated non-arable (ha)	

3. Verification financial and other Records

i. Total cost:	Approved: Rs	Spent: Rs 17.58 Lakh
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes PT (3), CD (6), LBS (50 nos.), Bunding (77 ha), afforestation (5 ha), horticulture (42 ha).	
iv. Whether watershed committees (WC) exists	Yes WC comprises of 11 members (2 women, 9 men); Mr. B Narsi Reddy was WA President, Mr. M Srinivas Reddy, was WC Chairman, Mr. M Narender Reddy was WC Secretary. All these members were available for consultation.	
v. If exists, activities of the committees	Not functional due to any clear guidelines for utilizing WDF to repair and maintain structures.	

4. Community participation (how community participation have been ensured and what EPA have been taken up, inputs of details of beneficiaries)

Laying of pipe line and construction of water tank for village water supply was taken up as EPA with a cost of Rs 0.36 lakh and it is useful to all villagers; In addition to EPA,

construction of 6 check dams, 3 percolation tanks and other conservation works were taken up with the participation of farmers from 13 user groups (UGs) and landless poor from the watershed village.

5. Qualitative Parameters of Impacts

1. Functioning of village level institutions	Satisfactory during project and after as the SHGs increased from six to fifteen without any financial help from watershed scheme.	
2. Records of meetings properly updated	Yes	
3. Liaison with scientific institutions established	No, farmers were not given any exposure to productivity enhancement	
4. Watershed Development Fund (WDF) collected?, and its utilization	Yes; collected Rs.63 000 according to guidelines and deposited in SBH, Suryapet but unspent for maintenance works due to lack of clear guidelines on use from District Authorities.	
5. Self Help Groups	SHGs increased from 6 to 15 after watershed interventions (no support from watershed program)	Revolving fund: Rs.
V.O functioning:		Savings:
Utilization of loans:	Loans were given to members for purchasing livestock, sewing machines and inputs for agriculture.	
Bank linkages established:	Farmers have linkage with State Bank of Hyderabad for credit and other transactions	
6. Planned CPRs sustainable & equitable development	CPRs development work not done	
7. Benefits to weaker sections (women, dalits and landless)	No specific initiatives; engaged for labor work during watershed works.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Impact of watershed project has clearly reflected in enhancing the groundwater levels (0.5-1 m increase) and duration of water availability in the wells for agricultural and other purposes in the watershed. There are about 25 open wells and 140 bore wells exist in the watershed for irrigation and area under irrigation is increased.
ii. Additional area under cultivation/horticulture/afforestation	20 ha additional area brought under cultivation; 42 ha private land with horticulture and 5 ha common land with afforestation.
iii. Changes in cropping pattern and intensity	Before project sorghum, millets, castor, green gram and paddy crops were grown; After watershed implementation, farmers are growing cotton, pigeon pea and paddy crops.

iv. Changes in agricultural productivity	Crops	Yield (q/ha)	
		Before	After
	Cotton	-	15
	Castor	6	8
	Pigeon pea	8	11
	Paddy	48	55
v. Changes in fodder & fuel wood availability	Improved due to water availability.		
vi. Changes in size and character of livestock holdings	Buffalo numbers increased by 60 and milk production increased from 80 liters a day earlier to 150 liters per day.		
vii. Status of grazing land & their carrying capacity	Nil		
viii. Employment generated due to implementation of project	About 100 laborers had employment during project period; on implementation of project water availability enhanced 40% additional cropping area and productivity.		
ix. Change in household category, total, & source-	Around 200 households improved their income through agriculture, dairying and livelihood activities.		
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Have good credit linkages with banks, micro finance of SHGs also helping and less dependence on private moneylenders.		
xi. Reduction in out-migration (case studies)	Earlier 30% laborers used to migrate in search of work during off-season. Now no migration from this village.		
xii. Reduction in drought vulnerability of the watershed	Quantity and duration groundwater availability has increased and about 30% risk is reduced due to watershed interventions.		
xiii. Detailed case studies of specific farmers impacted by the project	Please see the attachment		
xiv. Photographs showing work + its impact	Please see the attachment		

7. Learnings and process documentation (how the program could be implemented better; constraints, improvements possible, Changes made etc.)

- Repair, maintenance and de-silting of water harvesting structures are essential to get sustainable benefits.
- Recharging of dry open wells near streams would have given better equity and results.
- There is scope for promoting horticultural plantations with mango and citrus.
- There is a scope for construction of water harvesting structures in untreated area.
- Guidelines are needed for using WDF.



Figure 1. Check dam (left) and percolation tank (right) at Hanuman watershed, Mothey Mandal.

8. Observations and Comments of Evaluator:

- Locations, design criteria and quality of construction of WHS are good and effectively serving the purpose (**Fig. 1**).
- Maintenance of the structures is very poor as they are filled with sediment, bushes and developed leakages (**Fig.2**).



Figure 2. Poor maintenance of the structures at Hanuman watershed, Mothey Mandal

- Post-project maintenance was not clearly envisaged as an exit policy in the project, hence proper mechanism should be operationalized to repair and maintain the structures, and to ensure proper utilization of WDF/community contribution, clear guidelines should be in place. Otherwise watershed committee exists, but becomes defunct, as is the case with Hanuman watershed.
- Crop productivity enhancement and water use efficiency measures were not emphasized in the project to harness the full benefits of project activities, and increased water availability.

- Technology Resource organizations like academic/research institutions involvement was absent.
- As admitted by the farmers in the village, availability of drinking water round the year, supplemental irrigation water for second crop and ground water increase helping growth of cropping intensity and orchard crops are the visible qualitative and quantitative impacts due to watershed development.

Success story

- **Many farmers** in the village have diversified their crops to sweet lime with drip irrigation due to watershed interventions and increased groundwater availability to have more secured and sustainable incomes (Fig. 3).



Figure 3. Diversified sweet lime cultivation with drip irrigation in Hanuman watershed.

Impact Assessment Report
Jammikunta Watershed, DPAP - III batch,
Shaligouraram Mandal, Nalgonda district, Andhra Pradesh

1. Details of watershed:

1. Name of the Scheme:	DPAP - III Batch
2. Name of the watershed:	Jammikunta
3. Names of villages in the Watershed:	Adloor
4. Villages/Mandal/District:	Adloor/ Shaligouraram/ Nalgonda
5. Name and Address of PIA:	PEPCARDS, Shaligouraram
6. Total area of the watershed:	ha (ha Treated area)

2. Land Use Pattern:

i. Arable land (ha)	
ii. Non-arable land (ha)	
iii. Government/ Community land (ha)	
iv. Private land (ha)	
v. Treated arable (ha)	
vi. Treated non-arable (ha)	

3. Verification financial and other Records

i. Total cost:	Approved: Rs	Spent: Rs 16.66 Lakh
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes PT (1), CD (4), Bunding (88 ha), horticulture (16 ha)	
iv. Whether watershed committees (WC) exists	Yes WC comprises of 11 members (2 women, 9 men); Mr. B Srinivas Reddy was WA President, Mr. M Krishnamurthy, was WC Chairman, Mr. K Yesu was WC Secretary. All these members were available for consultation.	
v. If exists, activities of the committees	Not functional due to any clear guidelines for utilizing WDF to repair and maintain structures.	

4. Community participation (how community participation have been ensured and what EPA have been taken up, inputs of details of beneficiaries)

Although EPA was not taken up, construction of 4 check dams, 1 percolation tank, bunding and other conservation works were taken up with the participation of farmers from 18 user groups (UGs) and landless poor from the watershed village.

5. Qualitative Parameters of Impacts

1. Functioning of village level institutions	Satisfactory during project and after as the SHGs increased from nine to twenty without any financial help from watershed scheme.	
2. Records of meetings properly updated	Yes	
3. Liaison with scientific institutions established	No, farmers were not given any exposure to productivity enhancement	
4. Watershed Development Fund (WDF) collected?, and its utilization	Yes; collected Rs.95 000 according to guidelines and deposited in SBH, Shaligouraram but unspent for maintenance works due to lack of clear guidelines on use from District Authorities.	
5. Self Help Groups	SHGs increased from 9 to 20 after watershed interventions (no support from watershed program)	Revolving fund:
	V.O functioning:	Savings:
	Utilization of loans:	
Bank linkages established:	Farmers have linkage with SBH, Shaligouraram for credit and other transactions	
6. Planned CPRs sustainable & equitable development	CPRs assigned to landless people in the village	
7. Benefits to weaker sections (women, dalits and landless)	No specific initiatives; engaged for labor work during watershed works and livelihood activities.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Impact of watershed project has clearly reflected in enhancing the groundwater levels (1-2 m increase) and duration of water availability in wells for agricultural and other purposes in the watershed. Area under irrigation has increased from 100 acres to more than 200 acres due to improved groundwater availability after watershed interventions. There are about 5 open wells and 120 bore wells in the watershed for irrigation.		
ii. Additional area under cultivation/horticulture/afforestation	32 ha additional area brought under cultivation; 16 ha land with horticulture.		
iii. Changes in cropping pattern and intensity	Before project sorghum, millets and paddy crops were grown; After watershed implementation, farmers are growing cotton, pigeon pea and paddy crops.		
iv. Changes in agricultural productivity	Crops	Yield (q/ha)	
		Before	After
	Cotton	-	16
	Pigeon pea	5	8
v. Changes in fodder & fuel wood availability	Improved due to water availability		

vi. Changes in size and character of livestock holdings	Buffalo numbers and milk production increased from 50 liters a day earlier to 250 liters per day and sold to Mother Dairy collection center in the village
vii. Status of grazing land & their carrying capacity	Nil
viii. Employment generated due to implementation of project	About 90 laborers had employment during project period; on implementation of project water availability enhanced 50% additional cropping area and productivity.
ix. Change in household category, total, & source-	Around 120 households improved their income through agriculture, horticulture, dairying and livelihood activities (income improved by 20%).
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Have good credit linkages with banks, micro finance of SHGs also helping and less dependence (about 20%) on private moneylenders.
xi. Reduction in out-migration (case studies)	Earlier about 30% laborers used to migrate in search of work during off-season. Now no migration from this village.
xii. Reduction in drought vulnerability of the watershed	Quantity and duration of groundwater availability has increased and they can withstand for about one year in case of drought.
xiii. Detailed case studies of specific farmers impacted by the project	Mr. S Maisaiah owns 1.0 ha field near a check dam, and one of the beneficiaries of this check dam satisfactorily admits that groundwater level has been increased substantially in the watershed. Before check dam construction groundwater availability was less and his land was under dry land crops. After check dam construction he dug a bore well and growing paddy crop under irrigation and getting good yield and income from the land.
xiv. Photographs showing work + its impact	Please see the attachment

7. Learnings and process documentation (how the program could be implemented better; constraints, improvements possible, Changes made etc.)

- Repair and maintenance of water harvesting structures are essential to get sustainable benefits.
- Removal of bushes and de-silting of water harvesting structures is essential to increase storage capacity of the structures.
- There is further scope for horticulture plantations with sweet lime and acid lime.
- There is scope for construction of water harvesting structures in untreated area.

- Guidelines are needed for using WDF



Figure 1. Masonry check dam (left) and good paddy crop near a check dam (right) at Jammikunta watershed, Shaligouraram Mandal.

8. Observations and Comments of Evaluator:

- Locations and design criteria of the check dams are good and serving the purpose (Fig. 1).
- Quality of construction of the water harvesting structures is not that good, no maintenance of the structures and damaged structures are ineffective in serving the purpose (Fig.2).



Figure 2. Damages on apron wall, leakages from check dam and grown up bushes, silt deposition in the structures at Jammikunta watershed, Shaligouraram Mandal

- Post-project maintenance was not clearly envisaged as an exit policy in the project, hence proper mechanism should be operationalized to repair and maintain the structures, and to ensure proper utilization of WDF/community contribution, clear guidelines should be in place. Otherwise watershed committee exists, but becomes defunct, as is the case with Jammikunta watershed.
- Crop productivity enhancement and water use efficiency measures were not emphasized in the project to harness the full benefits of project activities, and increased water availability.

- Technology Resource organizations like academic/research institutions involvement was absent.
- As admitted by farmers in the village, availability of groundwater round the year, supplemental irrigation water for second crop and ground water increase helping growth of orchard crops are the visible qualitative and quantitative impacts due to watershed development.

Impact Assessment Report
Kandikunta Watershed, DPAP - III batch,
Shaligouraram Mandal, Nalgonda district, Andhra Pradesh

1. Details of watershed:

1. Name of the Scheme:	DPAP - III Batch
2. Name of the watershed:	Kandikunta
3. Names of villages in the Watershed:	Nulagadda Kothapally
4. Villages/Mandal/District:	N G Kothapally/ Shaligouraram/ Nalgonda
5. Name and Address of PIA:	PEPCARDS, Shaligouraram
6. Total area of the watershed:	ha (ha Treated area)

2. Land Use Pattern:

i. Arable land (ha)	
ii. Non-arable land (ha)	
iii. Government/ Community land (ha)	
iv. Private land (ha)	
v. Treated arable (ha)	
vi. Treated non-arable (ha)	

3. Verification financial and other Records

i. Total cost:	Approved: Rs	Spent: Rs 13.93 Lakh
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes LBS (10 nos.), PT (10), CD (9), Bunding (100 ha), horticulture (4 ha)	
iv. Whether watershed committees (WC) exists	Yes WC comprises of 10 members (2 women, 8 men); Mr N Anjaiah was WA President, Mr G Venugopal, was WC Chairman, Mr. N Chandraiah was WC Secretary. All these members were available for consultation.	
v. If exists, activities of the committees	Not functional due to any clear guidelines for utilizing WDF to repair and maintain structures.	

4. Community participation (how community participation have been ensured and what EPA have been taken up, inputs of details of beneficiaries)

Construction of bus shelter was taken up as EPA with a cost of Rs 0.13 lakh from Kandikunta watershed and Rs 0.57 lakh from Gorekunta watershed and it is used by all

villagers; In addition to EPA, construction of 9 check dams, 10 percolation tanks and other conservation works were taken up with the participation of farmers from 18 user groups (UGs) and landless poor from the watershed village.

5. Qualitative Parameters of Impacts

1. Functioning of village level institutions	Satisfactory during project and after as the SHGs increased from eight to twenty-five without any financial help from watershed scheme.	
2. Records of meetings properly updated	Yes	
3. Liaison with scientific institutions established	No, farmers were not given any exposure to productivity enhancement	
4. Watershed Development Fund (WDF) collected?, and its utilization	Yes; collected Rs.61 000 according to guidelines and deposited in NGB, Shaligouraram but unspent for maintenance works due to lack of clear guidelines on use from District Authorities.	
5. Self Help Groups	SHGs increased from 8 to 25 after watershed interventions (no support from watershed program)	Revolving fund:
V.O functioning:		Savings:
Utilization of loans:	Loans were given to members for the purchase of cattle and for establishing grocery shops.	
Bank linkages established:	Farmers have linkage with NGB, Shaligouraram for credit and other transactions	
6. Planned CPRs sustainable & equitable development	Bunding was done in CPR and later it was assigned to landless poor communities in the village	
7. Benefits to weaker sections (women, dalits and landless)	No specific initiatives; engaged for labor work during watershed works, SHGs micro finance and livelihood activities.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Impact of watershed project has clearly reflected in enhancing the groundwater levels (2-3 m increase) and duration of water availability in wells for agricultural and other purposes in the watershed. Area under irrigation has increased from 200 acres to 500 acres due to improved groundwater availability after watershed interventions. There are about 50 open wells and 100 bore wells in the watershed for irrigation.		
ii. Additional area under cultivation/horticulture/afforestation	40 ha additional area brought under cultivation; 4 ha land with horticulture.		
iii. Changes in cropping pattern and intensity	Before project sorghum, millets and paddy crops were grown; After watershed implementation, farmers are growing cotton, pigeon pea and paddy crops.		
iv. Changes in agricultural productivity	Crops	Yield (q/ha)	
		Before	After

	Cotton	-	20
	Pigeon pea	6	8
	Paddy	40	55
v. Changes in fodder & fuel wood availability	Improved due to water availability		
vi. Changes in size and character of livestock holdings	Buffalo numbers and milk production increased from 60 liters a day earlier to 200 liters per day and sold to Mother Dairy collection center in the village		
vii. Status of grazing land & their carrying capacity	Nil		
viii. Employment generated due to implementation of project	About 200 laborers had employment during project period; on implementation of project water availability enhanced 50% additional cropping area and productivity.		
ix. Change in household category, total, & source-	Around 120 households improved their income through agriculture, horticulture, dairying and livelihood activities (income improved by 30%).		
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Have good credit linkages with banks, micro finance of SHGs also helping and less dependence (about 10%) on private moneylenders.		
xi. Reduction in out-migration (case studies)	Earlier about 40% laborers used to migrate in search of work during off-season. Now no migration from this village.		
xii. Reduction in drought vulnerability of the watershed	Quantity and duration of groundwater availability has increased and they can withstand for about 6 months in case of drought.		
xiii. Detailed case studies of specific farmers impacted by the project	Please see the attachment		
xiv. Photographs showing work + its impact	Please see the attachment		

7. Learnings and process documentation (how the program could be implemented better; constraints, improvements possible, Changes made etc.)

- Repair, maintenance and de-silting of water harvesting structures are essential to get sustainable benefits.
- Horticulture plantations with sweet lime and mango can give better income to the farmers.
- There is a scope for construction of water harvesting structures in untreated area.
- Guidelines are needed for using WDF.



Figure 1. Damaged check dam (left) and damaged percolation tank (right) at Kandikunta watershed, N G Kothapally village, Shaligouraram Mandal.

8. Observations and Comments of Evaluator:

- Water harvesting structures were constructed in saline soil area and most of them are damaged (**Fig. 1**).
- Quality of construction of water harvesting structures is poor and damaged structures are not serving any purpose (**Fig.2**).



Figure 2. A big hole on wing wall (left) and damage on apron wall (right) of check dams, Kandikunta watershed, N G Kothapally village, Shaligouraram Mandal

- Post-project maintenance was not clearly envisaged as an exit policy in the project, hence proper mechanism should be operationalized to repair and maintain the structures, and to ensure proper utilization of WDF/community contribution, clear guidelines should be in place. Otherwise watershed committee exists, but becomes defunct, as is the case with Kandikunta watershed.

- Crop productivity enhancement and water use efficiency measures were not emphasized in the project to harness the full benefits of project activities, and increased water availability.
- Technology Resource organizations like academic/research institutions involvement was absent.
- As admitted by farmers in the village, availability of groundwater round the year, supplemental irrigation water for second crop and ground water increase helping growth of orchard crops are the visible qualitative and quantitative impacts due to watershed development.

Success story

- **Mr. Indra Reddy** has 2.0 ha land near a check dam. After check dam constriction, groundwater availability has increased in his bore well and growing paddy crop during two seasons and getting good yield and income from the land.
- **Mr. C Narsaiah** owns 1.0 ha field near a check dam, and one of the beneficiaries of this check dam satisfactorily admits that groundwater level has been increased substantially in his well and growing paddy crop and getting good yield and income from the land.

Impact Assessment Report
Karshak Watershed, DPAP - III batch,
Shaligouraram Mandal, Nalgonda district, Andhra Pradesh

1. Details of watershed:

1. Name of the Scheme:	DPAP - III Batch
2. Name of the watershed:	Karshak
3. Names of villages in the Watershed:	Akaram
4. Villages/Mandal/District:	Akaram/ Shaligouraram/ Nalgonda
5. Name and Address of PIA:	PEPCARDS, Shaligouraram
6. Total area of the watershed:	ha (ha Treated area)

2. Land Use Pattern:

i. Arable land (ha)	
ii. Non-arable land (ha)	
iii. Government/ Community land (ha)	
iv. Private land (ha)	
v. Treated arable (ha)	
vi. Treated non-arable (ha)	

3. Verification financial and other Records

i. Total cost:	Approved: Rs	Spent: Rs 13.63 Lakh
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes PT (2), CD (2), Bunding (120 ha), LBS (10 nos.), horticulture (8 ha), Afforestation (3 ha)	
iv. Whether watershed committees (WC) exists	Yes WC comprises of 9 members (2 women, 7 men); Mr V Shankaraiah was WA President, Mr N Yadaiah, was WC Chairman, Mr. G Veerabhadraiah was WC Secretary. All these members were available for consultation.	
v. If exists, activities of the committees	Not functional due to any clear guidelines for utilizing WDF to repair and maintain structures.	

4. Community participation (how community participation have been ensured and what EPA have been taken up, inputs of details of beneficiaries)

Although EPA was not taken up, construction of 2 check dams, 2 percolation tanks, bunding and other conservation works were taken up with the participation of farmers from 23 user groups (UGs) and landless poor from the watershed village.

5. Qualitative Parameters of Impacts

1. Functioning of village level institutions	Satisfactory during project and after as the SHGs increased from five to twenty five without any financial help from watershed scheme.	
2. Records of meetings properly updated	Yes	
3. Liaison with scientific institutions established	No, farmers were not given any exposure to productivity enhancement	
4. Watershed Development Fund (WDF) collected?, and its utilization	Yes; collected Rs.1 00 000 according to guidelines and deposited in SBH, Shaligouraram but unspent for maintenance works due to lack of clear guidelines on use from District Authorities.	
5. Self Help Groups	SHGs increased from 5 to 25 after watershed interventions (no support from watershed program)	Revolving fund: Rs. 2.6 lakhs
V.O functioning:		Savings:
Utilization of loans:	Loans were given to members for the purchase of cattle (milk animals), sheep and for petty business	
Bank linkages established:	Farmers have linkage with SBH, Shaligouraram for credit and other transactions	
6. Planned CPRs sustainable & equitable development	Tree plantation and bunding in 40 ha	
7. Benefits to weaker sections (women, dalits and landless)	No specific initiatives; engaged for labor work during watershed works and livelihood activities.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Impact of watershed project has clearly reflected in enhancing the groundwater levels (1-2 m increase) and duration of water availability in wells for agricultural and other purposes. Area under irrigation is doubled due to improved groundwater availability after watershed interventions. There are about 2 open wells and 200 bore wells in the watershed for irrigation.
ii. Additional area under cultivation/horticulture/afforestation	40 ha additional area brought under cultivation; 8 ha land with horticulture.
iii. Changes in cropping pattern and intensity	Before project sorghum, millets and paddy crops were grown; After watershed implementation, farmers are growing cotton, pigeon pea and paddy crops.

iv. Changes in agricultural productivity	Crops	Yield (q/ha)	
		Before	After
	Cotton	-	18
	Pigeon pea	4	6
v. Changes in fodder & fuel wood availability	Improved due to water availability		
vi. Changes in size and character of livestock holdings	Buffalo numbers and milk production increased from 30 liters a day earlier to 120 liters per day.		
vii. Status of grazing land & their carrying capacity	Nil		
viii. Employment generated due to implementation of project	About 250 laborers had employment during project period; on implementation of project water availability enhanced 50% additional cropping area and productivity.		
ix. Change in household category, total, & source-	Around 110 households improved their income through agriculture, horticulture, dairying and livelihood activities (income improved by 20%).		
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Have good credit linkages with banks, micro finance of SHGs also helping and less dependence (about 20%) on private moneylenders.		
xi. Reduction in out-migration (case studies)	Earlier about 50% laborers used to migrate in search of work during off-season. Now no migration from this village.		
xii. Reduction in drought vulnerability of the watershed	Quantity and duration of groundwater availability has increased and they can withstand for about 3 months in case of drought.		
xiii. Detailed case studies of specific farmers impacted by the project	<p>Mr. L Venkataiah has 1.6 ha land near a percolation tank. Before PT renovation his bore well irrigating about 0.8 ha area and after PT renovation area under irrigation is doubled. He is growing paddy crop in his land during rainy season and getting good yield and income.</p>		
xiv. Photographs showing work + its impact	Please see the attachment		

7. Learnings and process documentation (how the program could be implemented better; constraints, improvements possible, Changes made etc.)

- Repair and maintenance of water harvesting structures are essential to get sustainable benefits.
- De-silting of water harvesting structures is essential to increase storage capacity of the structures.

- There is further scope for horticulture plantations with sweet lime and acid lime.
- There is scope for construction of water harvesting structures in untreated area.
- Guidelines are needed for using WDF.



Figure 1. Masonry check dam (left) and damaged apron wall with leakages (right) at Karshak watershed, Akaram village, Shaligouraram Mandal

8. Observations and Comments of Evaluator:

- Locations of the check dams are good but quality of construction is very poor. Apron walls are completely damaged and leakages are reported by nearby beneficiary farmers and not much useful now **(Fig. 1)**.
- Bund strengthening with stone revetment was done and surplus weirs were constructed to two existing percolation tanks **(Fig.2)**. Surplus weirs are controlling soil erosion but necessity and relevance of bund strengthening and revetment work was big question mark.



Figure 2. Percolation tank with stone revetment at Karshak watershed, Akaram village, Shaligouraram Mandal

- Post-project maintenance was not clearly envisaged as an exit policy in the project, hence proper mechanism should be operationalized to repair and maintain the

structures, and to ensure proper utilization of WDF/community contribution, clear guidelines should be in place. Otherwise watershed committee exists, but becomes defunct, as is the case with Karshak watershed.

- Crop productivity enhancement and water use efficiency measures were not emphasized in the project to harness the full benefits of project activities, and increased water availability.
- Technology Resource organizations like academic/research institutions involvement was absent.
- As admitted by farmers in the village, availability of groundwater round the year, supplemental irrigation water for second crop and ground water increase helping growth of orchard crops are the visible qualitative and quantitative impacts due to watershed development.

Impact Assessment Report
Kisan Watershed, DPAP - III batch,
Shaligouraram Mandal, Nalgonda district, Andhra Pradesh

1. Details of watershed:

1. Name of the Scheme:	DPAP - III Batch
2. Name of the watershed:	Kisan
3. Names of villages in the Watershed:	Adloor
4. Villages/Mandal/District:	Adloor/ Shaligouraram/ Nalgonda
5. Name and Address of PIA:	PEPCARDS, Shaligouraram
6. Total area of the watershed:	ha (ha Treated area)

2. Land Use Pattern:

i. Arable land (ha)	
ii. Non-arable land (ha)	
iii. Government/ Community land (ha)	
iv. Private land (ha)	
v. Treated arable (ha)	
vi. Treated non-arable (ha)	

3. Verification financial and other Records

i. Total cost:	Approved: Rs	Spent: Rs 16.75 Lakh
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes PT (1), CD (3), Bunding (200 ha), horticulture (17 ha)	
iv. Whether watershed committees (WC) exists	Yes WC comprises of 12 members (2 women, 10 men); Mr K Moothaiah was WA President, Mr P Venkataiah, was WC Chairman, Mr. A Damodar was WC Secretary. All these members were available for consultation.	
v. If exists, activities of the committees	Not functional due to any clear guidelines for utilizing WDF to repair and maintain structures.	

4. Community participation (how community participation have been ensured and what EPA have been taken up, inputs of details of beneficiaries)

Although EPA was not taken up, construction of 3 check dams, 1 percolation tank, bunding and other conservation works were taken up with the participation of farmers from 21 user groups (UGs) and landless poor from the watershed village.

5. Qualitative Parameters of Impacts

1. Functioning of village level institutions	Satisfactory during project and after as the SHGs increased from eight to twenty without any financial help from watershed scheme.	
2. Records of meetings properly updated	Yes	
3. Liaison with scientific institutions established	No, farmers were not given any exposure to productivity enhancement	
4. Watershed Development Fund (WDF) collected?, and its utilization	Yes; collected Rs.79 000 according to guidelines and deposited in SBH, Shaligouraram but unspent for maintenance works due to lack of clear guidelines on use from District Authorities.	
5. Self Help Groups	SHGs increased from 8 to 20 after watershed interventions (no support from watershed program)	Revolving fund:
V.O functioning:		Savings:
Utilization of loans:		
Bank linkages established:	Farmers have linkage with SBH, Shaligouraram for credit and other transactions	
6. Planned CPRs sustainable & equitable development	CPRs assigned to landless people in the village	
7. Benefits to weaker sections (women, dalits and landless)	No specific initiatives; engaged for labor work during watershed works and livelihood activities.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Impact of watershed project has clearly reflected in enhancing the groundwater levels (2-3 m increase) and duration of water availability in wells for agricultural and other purposes in the watershed. Area under irrigation has increased from 100 acres to more than 200 acres due to improved groundwater availability after watershed interventions. There are about 3 open wells and 100 bore wells in the watershed for irrigation.		
ii. Additional area under cultivation/horticulture/afforestation	30 ha additional area brought under cultivation; 17 ha land with horticulture.		
iii. Changes in cropping pattern and intensity	Before project sorghum, millets and paddy crops were grown; After watershed implementation, farmers are growing cotton, pigeon pea and paddy crops.		
iv. Changes in agricultural productivity	Crops	Yield (q/ha)	
		Before	After
	Cotton	-	20
	Pigeon pea	6	9
v. Changes in fodder & fuel wood availability	Improved due to water availability		

vi. Changes in size and character of livestock holdings	Buffalo numbers and milk production increased from 50 liters a day earlier to 250 liters per day and sold to Mother Dairy collection center in the village
vii. Status of grazing land & their carrying capacity	Nil
viii. Employment generated due to implementation of project	About 200 laborers had employment during project period; on implementation of project water availability enhanced 50% additional cropping area and productivity.
ix. Change in household category, total, & source-	Around 100 households improved their income through agriculture, horticulture, dairying and livelihood activities (income improved by 20%).
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Have good credit linkages with banks, micro finance of SHGs also helping and less dependence (about 20%) on private moneylenders.
xi. Reduction in out-migration (case studies)	Earlier about 20% laborers used to migrate in search of work during off-season. Now no migration from this village.
xii. Reduction in drought vulnerability of the watershed	Quantity and duration of groundwater availability has increased and they can withstand for about one year in case of drought.
xiii. Detailed case studies of specific farmers impacted by the project	Mr. K Veeraswamy has 1.0 ha land near a check dam. Before check dam construction his bore well became dry and no irrigation under bore well. After check dam construction bore well became functional and growing paddy crop in 1 ha land during rainy season and getting good yield and income.
xiv. Photographs showing work + its impact	Please see the attachment

7. Learnings and process documentation (how the program could be implemented better; constraints, improvements possible, Changes made etc.)

- Repair and maintenance of water harvesting structures are essential to get sustainable benefits.
- De-silting of water harvesting structures is essential to increase storage capacity of the structures.
- There is further scope for horticulture plantations with sweet lime and acid lime.
- There is scope for construction of water harvesting structures in untreated area.
- Guidelines are needed for using WDF.



Figure 1. Masonry check dam (left) and damaged percolation tank (right) at Kisan watershed, Adloor village, Shaligouraram Mandal.

8. Observations and Comments of Evaluator:

- Locations of the check dams are good but maintenance is poor. Where as percolation tank was constructed in saline soil area, bund is breached away and there are no beneficiaries or cultivable area near by PT **(Fig. 1)**.
- Quality of construction of water harvesting structures is poor and damaged structures are not serving any purpose **(Fig.2)**.



Figure 2. Damages on apron walls and leakages from check dams, Kisan watershed, Adloor village, Shaligouraram Mandal

- Post-project maintenance was not clearly envisaged as an exit policy in the project, hence proper mechanism should be operationalized to repair and maintain the structures, and to ensure proper utilization of WDF/community contribution, clear guidelines should be in place. Otherwise watershed committee exists, but becomes defunct, as is the case with Kisan watershed.

- Crop productivity enhancement and water use efficiency measures were not emphasized in the project to harness the full benefits of project activities, and increased water availability.
- Technology Resource organizations like academic/research institutions involvement was absent.
- As admitted by farmers in the village, availability of groundwater round the year, supplemental irrigation water for second crop and ground water increase helping growth of orchard crops are the visible qualitative and quantitative impacts due to watershed development.

Impact Assessment Report
Kudali Watershed, DPAP - III batch,
Mothey Mandal, Nalgonda district, Andhra Pradesh

1. Details of watershed:

1. Name of the Scheme:	DPAP - III Batch
2. Name of the watershed:	Kudali
3. Names of villages in the Watershed:	Kudali
4. Villages/Mandal/District:	Kudali / Mothey / Nalgonda
5. Name and Address of PIA:	D.F.O. (SF), Nalgonda
6. Total area of the watershed:	ha (ha Treated area)

2. Land Use Pattern:

i. Arable land (ha)	
ii. Non-arable land (ha)	
iii. Government/ Community land (ha)	
iv. Private land (ha)	
v. Treated arable (ha)	
vi. Treated non-arable (ha)	

3. Verification financial and other Records

i. Total cost:	Approved: Rs	Spent: Rs 16.91 Lakh
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes PT (3), CD (5), LBS (30 nos.), Bunding (102 ha), afforestation (38 ha), horticulture (2 ha).	
iv. Whether watershed committees (WC) exists	Yes WC comprises of 10 members (1 woman, 9 men); Mr. M Prabhakar was WA President, Mr. M Istari, was WC Chairman, Mr. A Venkanna was WC Secretary. All these members were available for consultation.	
v. If exists, activities of the committees	Not functional due to any clear guidelines for utilizing WDF to repair and maintain structures.	

4. Community participation (how community participation have been ensured and what EPA have been taken up, inputs of details of beneficiaries)

Construction of bus shelter was taken up as EPA with a cost of Rs 0.32 lakh and it is used by all villagers; In addition to EPA, construction of 5 check dams, 3 percolation tanks and other

conservation works were taken up with the participation of farmers from 13 user groups (UGs) and landless poor from the watershed village.

5. Qualitative Parameters of Impacts

1. Functioning of village level institutions	Satisfactory during project and after as the SHGs increased from five to fifteen without any financial help from watershed scheme.	
2. Records of meetings properly updated	Yes	
3. Liaison with scientific institutions established	No, farmers were not given any exposure to productivity enhancement	
4. Watershed Development Fund (WDF) collected?, and its utilization	Yes; collected Rs.40 000 according to guidelines and deposited in NGB, Suryapet but unspent for maintenance works due to lack of clear guidelines on use from District Authorities.	
5. Self Help Groups	SHGs increased from 5 to 15 after watershed interventions (no support from watershed program)	Revolving fund: Rs.
V.O functioning:		Savings:
Utilization of loans:	Loans were given to members for purchasing livestock, sewing machines and domestic use.	
Bank linkages established:	Farmers have linkage with Nagarjuna Grameena Bank for credit and other transactions	
6. Planned CPRs sustainable & equitable development	CPRs development work not done	
7. Benefits to weaker sections (women, dalits and landless)	No specific initiatives; engaged for labor work during watershed works.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Impact of watershed project has clearly reflected in enhancing the groundwater levels (0.5-1 m increase) and duration of water availability in the wells for agricultural and other purposes in the watershed. There are about 20 open wells and 100 bore wells exist in the watershed for irrigation and area under irrigation is doubled.		
ii. Additional area under cultivation/horticulture/afforestation	40 ha additional area brought under cultivation; 2 ha private land with horticulture and 38 ha common land with afforestation.		
iii. Changes in cropping pattern and intensity	Before project sorghum, millets, castor, green gram and paddy crops were grown; After watershed implementation, farmers are growing cotton, pigeon pea and paddy crops.		
iv. Changes in agricultural productivity	Crops	Yield (q/ha)	
		Before	After
	Cotton	-	15
	Castor	7	9
	Pigeon pea	8	10
Paddy	45	52	

v. Changes in fodder & fuel wood availability	Improved due to water availability.
vi. Changes in size and character of livestock holdings	Buffalo numbers increased by 50 and milk production increased from 100 liters a day earlier to 200 liters per day.
vii. Status of grazing land & their carrying capacity	Nil
viii. Employment generated due to implementation of project	About 100 laborers had employment during project period; on implementation of project water availability enhanced 50% additional cropping area and productivity.
ix. Change in household category, total, & source-	Around 200 households improved their income through agriculture, dairying and livelihood activities.
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Have good credit linkages with banks, micro finance of SHGs also helping and less dependence on private moneylenders.
xi. Reduction in out-migration (case studies)	Earlier 30% laborers used to migrate in search of work during off-season. Now no migration from this village.
xii. Reduction in drought vulnerability of the watershed	Quantity and duration groundwater availability has increased and about 20% risk is reduced due to watershed interventions.
xiii. Detailed case studies of specific farmers impacted by the project	Most of the farmers in the village satisfactorily admit that groundwater levels have been increased substantially in their wells due to construction of water harvesting structures and growing paddy crop, getting good yield and incomes from their lands.
xiv. Photographs showing work + its impact	Please see the attachment

7. Learnings and process documentation (how the program could be implemented better; constraints, improvements possible, Changes made etc.)

- Repair, maintenance and de-silting of water harvesting structures are essential to get sustainable benefits.
- Recharging of dry open wells near streams would have given better equity and results.
- There is scope for promoting horticultural plantations with mango and citrus.
- There is a scope for construction of water harvesting structures in untreated area.
- Guidelines are needed for using WDF.



Figure 1. Check dam (left) and percolation tank (right) at Kudali watershed, Mothey Mandal

8. Observations and Comments of Evaluator:

- Locations, design criteria and quality of construction of WHS are good and effectively serving the purpose (**Fig. 1**).
- Maintenance of the structures is very poor and they are filled with sediment and bushes (**Fig.2**).



Figure 2. Poor maintenance of the structures at Kudali watershed, Mothey Mandal

- Post-project maintenance was not clearly envisaged as an exit policy in the project, hence proper mechanism should be operationalized to repair and maintain the structures, and to ensure proper utilization of WDF/community contribution, clear guidelines should be in place. Otherwise watershed committee exists, but becomes defunct, as is the case with Kudali watershed.
- Crop productivity enhancement and water use efficiency measures were not emphasized in the project to harness the full benefits of project activities, and increased water availability.

- Technology Resource organizations like academic/research institutions involvement was absent.
- As admitted by the farmers in the village, availability of drinking water round the year, supplemental irrigation water for second crop and ground water increase helping growth of crop intensity and orchard crops are the visible qualitative and quantitative impacts due to watershed development.

Impact Assessment Report
Neredavai Watershed, DPAP - III batch,
Mothey Mandal, Nalgonda district, Andhra Pradesh

1. Details of watershed:

1. Name of the Scheme:	DPAP - III Batch
2. Name of the watershed:	Neredavai
3. Names of villages in the Watershed:	Neredavai
4. Villages/Mandal/District:	Neredavai / Mothey / Nalgonda
5. Name and Address of PIA:	D.F.O. (SF), Nalgonda
6. Total area of the watershed:	ha (ha Treated area)

2. Land Use Pattern:

i. Arable land (ha)	
ii. Non-arable land (ha)	
iii. Government/ Community land (ha)	
iv. Private land (ha)	
v. Treated arable (ha)	
vi. Treated non-arable (ha)	

3. Verification financial and other Records

i. Total cost:	Approved: Rs	Spent: Rs 14.55 Lakh
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes PT (2), CD (5), LBS (38 nos.), Bunding (64 ha), afforestation (3 ha).	
iv. Whether watershed committees (WC) exists	Yes WC comprises of 10 members (1 woman, 9 men); Mr. D Uppaiah was WA President, Mr. P Venkanna, was WC Chairman, Mr. B Lalu was WC Secretary. All these members were available for consultation.	
v. If exists, activities of the committees	Not functional due to any clear guidelines for utilizing WDF to repair and maintain structures.	

4. Community participation (how community participation have been ensured and what EPA have been taken up, inputs of details of beneficiaries)

Construction of bus shelter was taken up as EPA with a cost of Rs 0.32 lakh and it is useful to all villagers; In addition to EPA, construction of 5 check dams, 2 percolation tanks and

other conservation works were taken up with the participation of farmers from 12 user groups (UGs) and landless poor from the watershed village.

5. Qualitative Parameters of Impacts

1. Functioning of village level institutions	Satisfactory during project and after as the SHGs increased from twelve to twenty one without any financial help from watershed scheme.	
2. Records of meetings properly updated	Yes	
3. Liaison with scientific institutions established	No, farmers were not given any exposure to productivity enhancement	
4. Watershed Development Fund (WDF) collected?, and its utilization	Yes; collected Rs.61 000 according to guidelines and deposited in NGB, Urlugunda but unspent for maintenance works due to lack of clear guidelines on use from District Authorities.	
5. Self Help Groups	SHGs increased from 12 to 21 after watershed interventions (no support from watershed program)	Revolving fund: Rs.
V.O functioning:		Savings:
Utilization of loans:	Loans were given to members for purchasing livestock, sewing machines and inputs for agriculture.	
Bank linkages established:	Farmers have linkage with Nagarjuna Grameena Bank for credit and other transactions	
6. Planned CPRs sustainable & equitable development	CPRs development work not done	
7. Benefits to weaker sections (women, dalits and landless)	No specific initiatives; engaged for labor work during watershed works.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Impact of watershed project has clearly reflected in enhancing the groundwater levels (about 0.5 m increase) and duration of water availability in the wells for agricultural and other purposes in the watershed. There are about 10 open wells and 90 bore wells exist in the watershed for irrigation and area under irrigation is increased.		
ii. Additional area under cultivation/horticulture/afforestation	40 ha additional area brought under cultivation; 3 ha common land with afforestation.		
iii. Changes in cropping pattern and intensity	Before project sorghum, millets, castor, green gram and paddy crops were grown; After watershed implementation, farmers are growing cotton, pigeon pea and paddy crops.		
iv. Changes in agricultural productivity	Crops	Yield (q/ha)	
		Before	After
	Cotton	-	15
	Castor	8	10

	Pigeon pea	10	12
	Paddy	48	55
v. Changes in fodder & fuel wood availability	Improved due to water availability.		
vi. Changes in size and character of livestock holdings	Buffalo numbers increased by 50 and milk production increased from 80 liters a day earlier to 150 liters per day.		
vii. Status of grazing land & their carrying capacity	Nil		
viii. Employment generated due to implementation of project	About 70 laborers had employment during project period; on implementation of project water availability enhanced 30% additional cropping area and productivity.		
ix. Change in household category, total, & source-	Around 120 households improved their income through agriculture, dairying and livelihood activities.		
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Have good credit linkages with banks, micro finance of SHGs also helping and less dependence on private moneylenders.		
xi. Reduction in out-migration (case studies)	Earlier 40% laborers used to migrate in search of work during off-season. Now no migration from this village.		
xii. Reduction in drought vulnerability of the watershed	Quantity and duration groundwater availability has increased and about 25% risk is reduced due to watershed interventions.		
xiii. Detailed case studies of specific farmers impacted by the project	Most of the farmers in the village satisfactorily admit that groundwater levels have been increased substantially in their wells due to construction of water harvesting structures and growing paddy crop, getting good yield and incomes from their lands.		
xiv. Photographs showing work + its impact	Please see the attachment		

7. Learnings and process documentation (how the program could be implemented better; constraints, improvements possible, Changes made etc.)

- Repair, maintenance and de-silting of water harvesting structures are essential to get sustainable benefits.
- Recharging of dry open wells near streams would have given better equity and results.
- There is scope for promoting horticultural plantations with mango and citrus.
- There is a scope for construction of water harvesting structures in untreated area.
- Guidelines are needed for using WDF.



Figure 1. Check dam (left) and percolation tank (right) at Neredavai watershed, Mothey Mandal.

8. Observations and Comments of Evaluator:

- Locations, design criteria and quality of construction of WHS are good and effectively serving the purpose (**Fig. 1**).
- Maintenance of the structures is very poor; they are filled with sediment, bushes and damages were noticed (**Fig.2**).



Figure 2. Damage of apron wall at Neredavai watershed, Mothey Mandal

- Post-project maintenance was not clearly envisaged as an exit policy in the project, hence proper mechanism should be operationalized to repair and maintain the structures, and to ensure proper utilization of WDF/community contribution, clear guidelines should be in place. Otherwise watershed committee exists, but becomes defunct, as is the case with Neredavai watershed.

- Crop productivity enhancement and water use efficiency measures were not emphasized in the project to harness the full benefits of project activities, and increased water availability.
- Technology Resource organizations like academic/research institutions involvement was absent.
- As admitted by the farmers in the village, availability of drinking water round the year, supplemental irrigation water for second crop and ground water increase helping growth of cropping intensity and orchard crops are the visible qualitative and quantitative impacts due to watershed development.

Impact Assessment Report
Peddacheruvu Watershed, DPAP - III batch,
Shaligouraram Mandal, Nalgonda district, Andhra Pradesh

1. Details of watershed:

1. Name of the Scheme:	DPAP - III Batch
2. Name of the watershed:	Peddacheruvu
3. Names of villages in the Watershed:	Akaram
4. Villages/Mandal/District:	Akaram/ Shaligouraram/ Nalgonda
5. Name and Address of PIA:	PEPCARDS, Shaligouraram
6. Total area of the watershed:	ha (ha Treated area)

2. Land Use Pattern:

i. Arable land (ha)	
ii. Non-arable land (ha)	
iii. Government/ Community land (ha)	
iv. Private land (ha)	
v. Treated arable (ha)	
vi. Treated non-arable (ha)	

3. Verification financial and other Records

i. Total cost:	Approved: Rs	Spent: Rs 11.34 Lakh
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes PT (3), CD (3), Bunding (47 ha), LBS (12 nos.).	
iv. Whether watershed committees (WC) exists	Yes WC comprises of 9 members (2 women, 7 men); Mr. S K Jain was WA President, Mr B Pichaiah, was WC Chairman, Mr. V Balaiah was WC Secretary. All these members were available for consultation.	
v. If exists, activities of the committees	Not functional due to any clear guidelines for utilizing WDF to repair and maintain structures.	

4. Community participation (how community participation have been ensured and what EPA have been taken up, inputs of details of beneficiaries)

Although EPA was not taken up, construction of 3 check dams, 3 percolation tanks, bunding and other conservation works were taken up with the participation of farmers from 25 user groups (UGs) and landless poor from the watershed village.

5. Qualitative Parameters of Impacts

1. Functioning of village level institutions	Satisfactory during project and after as the SHGs increased from four to twenty without any financial help from watershed scheme.	
2. Records of meetings properly updated	Yes	
3. Liaison with scientific institutions established	No, farmers were not given any exposure to productivity enhancement	
4. Watershed Development Fund (WDF) collected?, and its utilization	Yes; collected Rs.1 00 000 according to guidelines and deposited in SBH, Shaligouraram but unspent for maintenance works due to lack of clear guidelines on use from District Authorities.	
5. Self Help Groups	SHGs increased from 4 to 20 after watershed interventions (no support from watershed program)	Revolving fund: Rs.
V.O functioning:		Savings:
Utilization of loans:	Loans were given to members for the purchase of cattle (milk animals), sheep and for doing petty business	
Bank linkages established:	Farmers have linkage with SBH, Shaligouraram for credit and other transactions	
6. Planned CPRs sustainable & equitable development	Tree plantation and bunding in 47 ha	
7. Benefits to weaker sections (women, dalits and landless)	No specific initiatives; engaged for labor work during watershed works and livelihood activities.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Impact of watershed project has clearly reflected in enhancing the groundwater levels (0.5-1 m increase) and duration of water availability in wells for agricultural and other purposes. Area under irrigation is doubled due to improved groundwater availability after watershed interventions. There are about 5 open wells and 120 bore wells in the watershed for irrigation.		
ii. Additional area under cultivation/horticulture/afforestation	40 ha additional area brought under cultivation.		
iii. Changes in cropping pattern and intensity	Before project sorghum, millets and paddy crops were grown; After watershed implementation, farmers are growing cotton, pigeon pea and paddy crops.		
iv. Changes in agricultural productivity	Crops	Yield (q/ha)	
		Before	After
	Cotton	-	16
	Pigeon pea	6	8
v. Changes in fodder & fuel wood availability	Improved due to water availability		

vi. Changes in size and character of livestock holdings	Buffalo numbers and milk production increased from 40 liters a day earlier to 100 liters per day.
vii. Status of grazing land & their carrying capacity	Nil
viii. Employment generated due to implementation of project	About 105 laborers had employment during project period; on implementation of project water availability enhanced 30% additional cropping area and productivity.
ix. Change in household category, total, & source-	Around 160 households improved their income through agriculture, horticulture, dairying and livelihood activities.
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Have good credit linkages with banks, micro finance of SHGs also helping and less dependence (about 20%) on private moneylenders.
xi. Reduction in out-migration (case studies)	Earlier about 50% laborers used to migrate in search of work during off-season. Now no migration from this village.
xii. Reduction in drought vulnerability of the watershed	Quantity and duration of groundwater availability has increased and they can withstand for about 2 months in case of drought.
xiii. Detailed case studies of specific farmers impacted by the project	Mr. V Balaiah has 2.0 ha land near a percolation tank. Before PT renovation his bore well was irrigating about 1 ha area and after PT renovation area under irrigation is doubled. He is growing paddy crop in his land during rainy and post rainy season and getting good yield and income.
xiv. Photographs showing work + its impact	Please see the attachment

7. Learnings and process documentation (how the program could be implemented better; constraints, improvements possible, Changes made etc.)

- Repair and maintenance of water harvesting structures are essential to get sustainable benefits.
- De-silting of water harvesting structures is essential to increase storage capacity of the structures.
- There is further scope for horticulture plantations with sweet lime and acid lime.
- There is scope for construction of water harvesting structures in untreated area.
- Guidelines are needed for using WDF.



Figure 1. Percolation tank (left) and Masonry check dam (right) at Peddacheruvu watershed, Shaligouraram Mandal.

8. Observations and Comments of Evaluator:

- Locations, design criteria and quality of construction of check dams are good and serving the purpose (**Fig. 1**).
- Bund strengthening was done and surplus weirs were constructed to the existing percolation tanks in the watershed.
- Water harvesting structures are filled with bushes, sediment and developed leakages; hence efficiency and effectiveness of the structures are reduced (**Fig.1&2**).



Figure 2. Leakages from check dam at Peddacheruvu watershed, Shaligouraram Mandal

- Post-project maintenance was not clearly envisaged as an exit policy in the project, hence proper mechanism should be operationalized to repair and maintain the structures, and to ensure proper utilization of WDF/community contribution, clear guidelines should be in place. Otherwise watershed committee exists, but becomes defunct, as is the case with Peddacheruvu watershed.

- Crop productivity enhancement and water use efficiency measures were not emphasized in the project to harness the full benefits of project activities, and increased water availability.
- Technology Resource organizations like academic/research institutions involvement was absent.
- As admitted by farmers in the village, availability of groundwater round the year, supplemental irrigation water for second crop and ground water increase helping growth of orchard crops are the visible qualitative and quantitative impacts due to watershed development.

**Impact Assessment Report
Rama Watershed, DPAP - III batch,
Mothey Mandal, Nalgonda district, Andhra Pradesh**

1. Details of watershed:

1. Name of the Scheme:	DPAP - III Batch
2. Name of the watershed:	Rama
3. Names of villages in the Watershed:	Urlugunda
4. Villages/Mandal/District:	Urlugunda / Mothey / Nalgonda
5. Name and Address of PIA:	D.F.O. (SF), Nalgonda
6. Total area of the watershed:	ha (ha Treated area)

2. Land Use Pattern:

i. Arable land (ha)	
ii. Non-arable land (ha)	
iii. Government/ Community land (ha)	
iv. Private land (ha)	
v. Treated arable (ha)	
vi. Treated non-arable (ha)	

3. Verification financial and other Records

i. Total cost:	Approved: Rs	Spent: Rs 15.11 Lakh
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes PT (2), CD (4), LBS (20 nos.), Bunding (121 ha), afforestation (6 ha), horticulture (10 ha).	
iv. Whether watershed committees (WC) exists	Yes WC comprises of 11 members (2 women, 9 men); Mr. K Narsi Reddy was WA President, Mr. P Upender Reddy, was WC Chairman, Mr. P Umashanker was WC Secretary. All these members were available for consultation.	
v. If exists, activities of the committees	Not functional due to any clear guidelines for utilizing WDF to repair and maintain structures.	

4. Community participation (how community participation have been ensured and what EPA have been taken up, inputs of details of beneficiaries)

Laying of pipe line and purchasing and fixing of an electric motor/pump to a community bore well for village water supply was taken up as EPA with a cost of Rs 0.53 lakh and it is useful to all villagers; In addition to EPA, construction of 4 check dams, 2 percolation tanks

and other conservation works were taken up with the participation of farmers from 18 user groups (UGs) and landless poor from the watershed village.

5. Qualitative Parameters of Impacts

1. Functioning of village level institutions	Satisfactory during project and after as the SHGs increased from twelve to eighteen without any financial help from watershed scheme.	
2. Records of meetings properly updated	Yes	
3. Liaison with scientific institutions established	No, farmers were not given any exposure to productivity enhancement	
4. Watershed Development Fund (WDF) collected?, and its utilization	Yes; collected Rs.57 000 according to guidelines and deposited in NGB, Urlugunda but unspent for maintenance works due to lack of clear guidelines on use from District Authorities.	
5. Self Help Groups	SHGs increased from 12 to 18 after watershed interventions (no support from watershed program)	Revolving fund: Rs.
V.O functioning:		Savings:
Utilization of loans:	Loans were given to members for purchasing livestock, sewing machines and domestic use.	
Bank linkages established:	Farmers have linkage with Nagarjuna Grameena Bank for credit and other transactions	
6. Planned CPRs sustainable & equitable development	CPRs development work not done	
7. Benefits to weaker sections (women, dalits and landless)	No specific initiatives; engaged for labor work during watershed works.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Impact of watershed project has clearly reflected in enhancing the groundwater levels (0.5-1 m increase) and duration of water availability in the wells for agricultural and other purposes in the watershed. There are about 15 open wells and 130 bore wells exist in the watershed for irrigation and area under irrigation is increased.		
ii. Additional area under cultivation/horticulture/afforestation	50 ha additional area brought under cultivation; 10 ha private land with horticulture and 6 ha common land with afforestation.		
iii. Changes in cropping pattern and intensity	Before project sorghum, millets, castor, green gram and paddy crops were grown; After watershed implementation, farmers are growing cotton, pigeon pea and paddy crops.		
iv. Changes in agricultural productivity	Crops	Yield (q/ha)	
		Before	After
	Cotton	-	16
	Castor	8	10
	Pigeon pea	9	12

	Paddy	48	56
v. Changes in fodder & fuel wood availability	Improved due to water availability.		
vi. Changes in size and character of livestock holdings	Buffalo numbers increased by 80 and milk production increased from 120 liters a day earlier to 240 liters per day.		
vii. Status of grazing land & their carrying capacity	Nil		
viii. Employment generated due to implementation of project	About 120 laborers had employment during project period; on implementation of project water availability enhanced 30% additional cropping area and productivity.		
ix. Change in household category, total, & source-	Around 250 households improved their income through agriculture, dairying and livelihood activities.		
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Have good credit linkages with banks, micro finance of SHGs also helping and less dependence on private moneylenders.		
xi. Reduction in out-migration (case studies)	Earlier 25% laborers used to migrate in search of work during off-season. Now no migration from this village.		
xii. Reduction in drought vulnerability of the watershed	Quantity and duration groundwater availability has increased and about 25% risk is reduced due to watershed interventions.		
xiii. Detailed case studies of specific farmers impacted by the project	Mr. P. Shanker Reddy has 2.0 ha land and one bore well near a check dam. He satisfactorily admits that groundwater level has been increased substantially in his bore well after check dam construction. Earlier he used to grow paddy crop in 1 ha land and now he is growing paddy crop in 2 ha land during rainy season.		
xiv. Photographs showing work + its impact	Please see the attachment		

7. Learnings and process documentation (how the program could be implemented better; constraints, improvements possible, Changes made etc.)

- Repair, maintenance and de-silting of water harvesting structures are essential to get sustainable benefits.
- Recharging of dry open wells near streams would have given better equity and results.
- There is scope for promoting horticultural plantations with mango and citrus.
- There is a scope for construction of water harvesting structures in untreated area.
- Guidelines are needed for using WDF.



Figure 1. Check dam (left) and percolation tank (right) at Rama watershed, Mothey Mandal.

8. Observations and Comments of Evaluator:

- Locations, design criteria and quality of construction of WHS are good and effectively serving the purpose (**Fig. 1**).
- Maintenance of the structures is very poor as damages and leakages were observed (**Fig.2**).



Figure 2. Poor maintenance of the structures at Rama watershed, Mothey Mandal

- Post-project maintenance was not clearly envisaged as an exit policy in the project, hence proper mechanism should be operationalized to repair and maintain the structures, and to ensure proper utilization of WDF/community contribution, clear guidelines should be in place. Otherwise watershed committee exists, but becomes defunct, as is the case with Rama watershed.
- Crop productivity enhancement and water use efficiency measures were not emphasized in the project to harness the full benefits of project activities, and increased water availability.

- Technology Resource organizations like academic/research institutions involvement was absent.
- As admitted by the farmers in the village, availability of drinking water round the year, supplemental irrigation water for second crop and ground water increase helping growth of cropping intensity and orchard crops are the visible qualitative and quantitative impacts due to watershed development.

Impact Assessment Report
Shikamcheruvu Watershed, DPAP - III batch,
Shaligouraram Mandal, Nalgonda district, Andhra Pradesh

1. Details of watershed:

1. Name of the Scheme:	DPAP - III Batch
2. Name of the watershed:	Shikamcheruvu
3. Names of villages in the Watershed:	Bairavunibanda
4. Villages/Mandal/District:	Bairavunibanda/ Shaligouraram/ Nalgonda
5. Name and Address of PIA:	PEPCARDS, Shaligouraram
6. Total area of the watershed:	ha (ha Treated area)

2. Land Use Pattern:

i. Arable land (ha)	
ii. Non-arable land (ha)	
iii. Government/ Community land (ha)	
iv. Private land (ha)	
v. Treated arable (ha)	
vi. Treated non-arable (ha)	

3. Verification financial and other Records

i. Total cost:	Approved: Rs	Spent: Rs 17.54 Lakh
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes LBS (30 nos.), PT (3), CD (7), Bunding (80 ha), horticulture (6 ha), afforestation (1 ha)	
iv. Whether watershed committees (WC) exists	Yes WC comprises of 10 members (2 women, 8 men); Mr D Chandra Reddy was WA President, Mr S Lingaiah, was WC Chairman, Mr. N Narsaiah was WC Secretary. All these members were available for consultation.	
v. If exists, activities of the committees	Not functional due to any clear guidelines for utilizing WDF to repair and maintain structures.	

4. Community participation (how community participation have been ensured and what EPA have been taken up, inputs of details of beneficiaries)

Although EPA was not taken up; construction of 7 check dams, 3 percolation tanks and other conservation works were taken up with the participation of farmers from 21 user groups (UGs) and landless poor from the watershed village.

5. Qualitative Parameters of Impacts

1. Functioning of village level institutions	Satisfactory during project and after as the SHGs increased from four to twenty without any financial help from watershed scheme.	
2. Records of meetings properly updated	Yes	
3. Liaison with scientific institutions established	No, farmers were not given any exposure to productivity enhancement	
4. Watershed Development Fund (WDF) collected?, and its utilization	Yes; collected Rs.84 000 according to guidelines and deposited in NGB, Shaligouraram but unspent for maintenance works due to lack of clear guidelines on use from District Authorities.	
5. Self Help Groups	SHGs increased from 4 to 20 after watershed interventions (no support from watershed program)	Revolving fund: Rs. 120000
V.O functioning:		Savings:
Utilization of loans:	Loans were given to members for establishing grocery shops, tailoring shops and domestic use.	
Bank linkages established:	Farmers have linkage with Grameena Bank, SBH for credit and other transactions	
6. Planned CPRs sustainable & equitable development	Rocky area and CPRs development work not done	
7. Benefits to weaker sections (women, dalits and landless)	No specific initiatives; engaged for labor work during watershed works, SHGs micro finance and livelihood activities.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Impact of watershed project has clearly reflected in enhancing the groundwater levels (1-2 m increase) and duration of water availability in wells for agricultural and other purposes in the watershed. There are about 20 open wells and 100 bore wells exist in the watershed, discharge and area under irrigation doubled.
ii. Additional area under cultivation/horticulture/afforestation	35 ha additional area brought under cultivation; 6 ha horticulture; 1 ha common land with afforestation.
iii. Changes in cropping pattern and intensity	Before project sorghum, millets, castor, green gram and paddy crops were grown; After watershed implementation, farmers are growing cotton, pigeon pea and paddy crops.

iv. Changes in agricultural productivity	Crops	Yield (q/ha)	
		Before	After
	Pigeon pea	6	8
	Castor	6	8
	Paddy	40	50
v. Changes in fodder & fuel wood availability	Improved due to water availability		
vi. Changes in size and character of livestock holdings	Buffalo numbers and milk production increased from 70 liters a day earlier to 200 liters per day and sold to Mother Dairy collection center in the village		
vii. Status of grazing land & their carrying capacity	Nil		
viii. Employment generated due to implementation of project	About 100 laborers had employment during project period; on implementation of project water availability enhanced 50% additional cropping area and productivity (30-40% people benefited).		
ix. Change in household category, total, & source-	Around 118 households improved their income through agriculture, dairying and livelihood activities (income improved by 30%).		
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Have good credit linkages with banks, micro finance of SHGs also helping and less dependence on private moneylenders.		
xi. Reduction in out-migration (case studies)	Earlier 60% laborers used to migrate in search of work during off-season. Now no migration from this village.		
xii. Reduction in drought vulnerability of the watershed	Quantity and duration groundwater availability has increased and about 30% risk is reduced due to watershed interventions.		
xiii. Detailed case studies of specific farmers impacted by the project	Please see the attachment		
xiv. Photographs showing work + its impact	Please see the attachment		

7. Learnings and process documentation (how the program could be implemented better; constraints, improvements possible, Changes made etc.)

- Repair, maintenance and de-silting of water harvesting structures are essential to get sustainable benefits.
- Recharging of dry open wells near small streams would have given better equity and results.
- There is a scope for construction of water harvesting structures in untreated area.
- Guidelines are needed for using WDF.



Figure 1. Percolation tanks at Shikamcheruvu watershed, Shaligouraram Mandal.

8. Observations and Comments of Evaluator:

- The quality of construction and location of WHS is good and serving the purpose (Fig. 1).
- Maintenance of the structures is poor as they are filled with sediment and bushes (Fig.2).



Figure 2. Poor maintenance of the structures at Shikamcheruvu watershed, Shaligouraram Mandal

- Post-project maintenance was not clearly envisaged as an exit policy in the project, hence proper mechanism should be operationalized to repair and maintain the structures, and to ensure proper utilization of WDF/community contribution, clear guidelines should be in place. Otherwise watershed committee exists, but becomes defunct, as is the case with Shikamcheruvu watershed.
- Crop productivity enhancement and water use efficiency measures were not emphasized in the project to harness the full benefits of project activities, and increased water availability.

- Technology Resource organizations like academic/research institutions involvement was absent.
- As admitted by farmers in the village, availability of drinking water round the year, supplemental irrigation water for second crop and ground water increase helping growth of orchard crops are the visible qualitative and quantitative impacts due to watershed development.

Success story

- **Mr. V Papaiah** has 1 well in his 2.0 ha land near percolation tank. After PT constriction, groundwater availability has increased and he is growing paddy crop under irrigation during two seasons.
- **Mr. H Lakshma Reddy** is a big farmer and one of the beneficiaries has 8 ha land near PTs satisfactorily admits that groundwater level has been increased substantially in his 3 wells and growing sweet lime (4 ha) and paddy crop and getting good yield and increased income by 200%.

Impact Assessment Report
Voorakunta Watershed, DPAP - III batch,
Shaligouraram Mandal, Nalgonda district, Andhra Pradesh

1. Details of watershed:

1. Name of the Scheme:	DPAP - III Batch
2. Name of the watershed:	Voorakunta
3. Names of villages in the Watershed:	Thakkellapahad
4. Villages/Mandal/District:	Thakkellapahad/ Shaligouraram/ Nalgonda
5. Name and Address of PIA:	PEPCARDS, Shaligouraram
6. Total area of the watershed:	ha (ha Treated area)

2. Land Use Pattern:

i. Arable land (ha)	
ii. Non-arable land (ha)	
iii. Government/ Community land (ha)	
iv. Private land (ha)	
v. Treated arable (ha)	
vi. Treated non-arable (ha)	

3. Verification financial and other Records

i. Total cost:	Approved: Rs	Spent: Rs 20.10 Lakh
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes LBS (12 nos.), PT (7), CD (11), Bunding (240 ha), afforestation (2 ha)	
iv. Whether watershed committees (WC) exists	Yes WC comprises of 10 members (2 women, 8 men); Mr K Mahender Reddy was WA President, Mr G Narender Reddy, was WC Chairman, Mr. M Laxmaiah was WC Secretary. All these members were available for consultation.	
v. If exists, activities of the committees	Not functional due to any clear guidelines for utilizing WDF to repair and maintain structures.	

4. Community participation (how community participation have been ensured and what EPA have been taken up, inputs of details of beneficiaries)

Construction of bus shelter was taken up as EPA with a cost of Rs 1.0 lakh and it is used by all villagers; In addition to EPA, construction of 11 check dams, 7 percolation tanks and

other conservation works were taken up with the participation of farmers from 28 user groups (UGs) and landless poor from the watershed village.

5. Qualitative Parameters of Impacts

1. Functioning of village level institutions	Satisfactory during project and after as the SHGs increased from four to sixteen without any financial help from watershed scheme.	
2. Records of meetings properly updated	Yes	
3. Liaison with scientific institutions established	No, farmers were not given any exposure to productivity enhancement	
4. Watershed Development Fund (WDF) collected?, and its utilization	Yes; collected Rs.60 000 according to guidelines and deposited in NGB, Shaligouraram but unspent for maintenance works due to lack of clear guidelines on use from District Authorities.	
5. Self Help Groups	SHGs increased from 4 to 16 after watershed interventions (no support from watershed program)	Revolving fund: Rs. 160000
V.O functioning:		Savings: 5.0 lakhs
Utilization of loans:	Loans were given to members for the purchase of cattle and for establishing grocery shops.	
Bank linkages established:	Farmers have linkage with Nagarjuna Grameena Bank, Shaligouraram for credit and other transactions	
6. Planned CPRs sustainable & equitable development	Rocky area and CPRs development work not done	
7. Benefits to weaker sections (women, dalits and landless)	No specific initiatives; engaged for labor work during watershed works, SHGs micro finance and livelihood activities.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Impact of watershed project has clearly reflected in enhancing the groundwater levels (2-3 m increase) and duration of water availability in wells for agricultural and other purposes in the watershed. There are about 100 bore wells exist in the watershed, discharge and area under irrigation doubled.		
ii. Additional area under cultivation/horticulture/afforestation	35 ha additional area brought under cultivation; 2 ha common land with afforestation.		
iii. Changes in cropping pattern and intensity	Before project sorghum, millets, castor and paddy crops were grown; After watershed implementation, farmers are growing cotton and paddy crops.		
iv. Changes in agricultural productivity	Crops	Yield (q/ha)	
		Before	After
	Cotton	-	15
	Castor	8	10
	Paddy	45	55

v. Changes in fodder & fuel wood availability	Improved due to water availability
vi. Changes in size and character of livestock holdings	Buffalo numbers and milk production increased from 40 liters a day earlier to 150 liters per day and sold to Mother Dairy collection center in the village
vii. Status of grazing land & their carrying capacity	Nil
viii. Employment generated due to implementation of project	About 95 laborers had employment during project period; on implementation of project water availability enhanced 50% additional cropping area and productivity.
ix. Change in household category, total, & source-	Around 100 households improved their income through agriculture, dairying and livelihood activities (income improved by 45%).
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Have good credit linkages with banks, micro finance of SHGs also helping and less dependence on private moneylenders.
xi. Reduction in out-migration (case studies)	Earlier all laborers used to migrate in search of work during off-season. Now 20% migration from this village. Reduced by 80%.
xii. Reduction in drought vulnerability of the watershed	Quantity and duration groundwater availability has increased and about 50% risk is reduced due to watershed interventions.
xiii. Detailed case studies of specific farmers impacted by the project	Please see the attachment
xiv. Photographs showing work + its impact	Please see the attachment

7. Learnings and process documentation (how the program could be implemented better; constraints, improvements possible, Changes made etc.)

- Repair, maintenance and de-silting of water harvesting structures are essential to get sustainable benefits.
- Recharging of dry open wells near small streams would have given better equity and results.
- There is a scope for construction of water harvesting structures in untreated area.
- Guidelines are needed for using WDF.



Figure 1. Check dams at Voorakunta watershed, Takkellapadu village, Shaligouraram Mandal.

8. Observations and Comments of Evaluator:

- The quality of construction and location of WHS is good and water was flowing in the canal as the water was released from Akkenapally tank to fill up Akaram tank **(Fig. 1)**.
- Damage on apron wall and grown bushes were noticed in the check dams and lot of fallow land with bushes exist on left side of the structures **(Fig.2)**.



Figure 2. Damage on apron wall and encroachment of bushes in check dams, Voorakunta watershed

- Post-project maintenance was not clearly envisaged as an exit policy in the project, hence proper mechanism should be operationalized to repair and maintain the structures, and to ensure proper utilization of WDF/community contribution, clear guidelines should be in place. Otherwise watershed committee exists, but becomes defunct, as is the case with Voorakunta watershed.

- Crop productivity enhancement and water use efficiency measures were not emphasized in the project to harness the full benefits of project activities, and increased water availability.
- Technology Resource organizations like academic/research institutions involvement was absent.
- As admitted by farmers in the village, availability of drinking water round the year, supplemental irrigation water for second crop and ground water increase helping growth of orchard crops are the visible qualitative and quantitative impacts due to watershed development.

Success story

- **Mr. T Mallesh** has 1.2 ha land near check dam. After check dam constriction, bore well was dug and got good groundwater available. He is growing paddy and sweet lime in his land and happy with development.
- **Mr. B Vishal** owns 1.6 ha field near a check dam, and one of the beneficiaries of this check dam satisfactorily admits that groundwater level has been increased substantially in his 2 tube wells and growing paddy crop and getting good yield and income from the land.

Impact Assessment Report
Yerrakunta Watershed, DPAP - III batch,
Shaligouraram Mandal, Nalgonda district, Andhra Pradesh

1. Details of watershed:

1. Name of the Scheme:	DPAP - III Batch
2. Name of the watershed:	Yerrakunta
3. Names of villages in the Watershed:	Akaram
4. Villages/Mandal/District:	Akaram/ Shaligouraram/ Nalgonda
5. Name and Address of PIA:	PEPCARDS, Shaligouraram
6. Total area of the watershed:	ha (ha Treated area)

2. Land Use Pattern:

i. Arable land (ha)	
ii. Non-arable land (ha)	
iii. Government/ Community land (ha)	
iv. Private land (ha)	
v. Treated arable (ha)	
vi. Treated non-arable (ha)	

3. Verification financial and other Records

i. Total cost:	Approved: Rs	Spent: Rs 9.33 Lakh
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes PT (2), CD (3), Bunding (56 ha), LBS (12 nos.), horticulture (12 ha).	
iv. Whether watershed committees (WC) exists	Yes WC comprises of 9 members (1 woman, 8 men); Mr R Bhaskar was WA President, Mr Y Ram Reddy, was WC Chairman, Mr. J Krishna was WC Secretary. All these members were available for consultation.	
v. If exists, activities of the committees	Not functional due to any clear guidelines for utilizing WDF to repair and maintain structures.	

4. Community participation (how community participation have been ensured and what EPA have been taken up, inputs of details of beneficiaries)

Although EPA was not taken up, construction of 3 check dams, 2 percolation tanks, bunding and other conservation works were taken up with the participation of farmers from 22 user groups (UGs) and landless poor from the watershed village.

5. Qualitative Parameters of Impacts

1. Functioning of village level institutions	Satisfactory during project and after as the SHGs increased from five to twenty five without any financial help from watershed scheme.	
2. Records of meetings properly updated	Yes	
3. Liaison with scientific institutions established	No, farmers were not given any exposure to productivity enhancement	
4. Watershed Development Fund (WDF) collected?, and its utilization	Yes; collected Rs.90 000 according to guidelines and deposited in Nagarjuna Grameena Bank, Perika Kondaram but unspent for maintenance works due to lack of clear guidelines on use from District Authorities.	
5. Self Help Groups	SHGs increased from 5 to 25 after watershed interventions (no support from watershed program)	Revolving fund: Rs.
V.O functioning:		Savings:
Utilization of loans:	Loans were given to members for the purchase of cattle (milk animals), sheep and for doing petty business	
Bank linkages established:	Farmers have linkage with NGB, Perika Kondaram for credit and other transactions	
6. Planned CPRs sustainable & equitable development	Tree plantation and bunding in 56 ha	
7. Benefits to weaker sections (women, dalits and landless)	No specific initiatives; engaged for labor work during watershed works and livelihood activities.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Impact of watershed project has clearly reflected in enhancing the groundwater levels (0.5-1 m increase) and duration of water availability in wells for agricultural and other purposes. Area under irrigation is doubled due to improved groundwater availability after watershed interventions. There are about 10 open wells and 100 bore wells in the watershed for irrigation.
ii. Additional area under cultivation/horticulture/afforestation	20 ha additional area brought under cultivation; 12 ha land with horticulture.
iii. Changes in cropping pattern and intensity	Before project sorghum, millets and paddy crops were grown; After watershed implementation, farmers are growing cotton, pigeon pea and paddy crops.

iv. Changes in agricultural productivity	Crops	Yield (q/ha)	
		Before	After
	Cotton	-	15
	Pigeon pea	5	8
v. Changes in fodder & fuel wood availability	Improved due to water availability		
vi. Changes in size and character of livestock holdings	Buffalo numbers and milk production increased from 30 liters a day earlier to 120 liters per day.		
vii. Status of grazing land & their carrying capacity	Nil		
viii. Employment generated due to implementation of project	About 105 laborers had employment during project period; on implementation of project water availability enhanced 40% additional cropping area and productivity.		
ix. Change in household category, total, & source-	Around 150 households improved their income through agriculture, horticulture, dairying and livelihood activities (income improved by 20%).		
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Have good credit linkages with banks, micro finance of SHGs also helping and less dependence (about 20%) on private moneylenders.		
xi. Reduction in out-migration (case studies)	Earlier about 50% laborers used to migrate in search of work during off-season. Now no migration from this village due to NAREGA.		
xii. Reduction in drought vulnerability of the watershed	Quantity and duration of groundwater availability has increased and they can withstand for about 3 months in case of drought.		
xiii. Detailed case studies of specific farmers impacted by the project	Mr. Anjaneyulu owns 1.5 ha field near a PT, and one of the beneficiaries of this structure satisfactorily admits that groundwater level has been increased substantially in the watershed. Before PT renovation groundwater availability was less in his bore well and after PT renovation groundwater availability is increased and growing paddy crop under irrigation and getting good yield and income from the land.		
xiv. Photographs showing work + its impact	Please see the attachment		

7. **Learnings and process documentation** (how the program could be implemented better; constraints, improvements possible, Changes made etc.)

- Repair and maintenance of water harvesting structures are essential to get sustainable benefits.
- De-silting of water harvesting structures is essential to increase storage capacity of the structures.
- There is further scope for horticulture plantations with sweet lime and acid lime.
- There is scope for construction of water harvesting structures in untreated area.
- Guidelines are needed for using WDF.



Figure 1. Percolation tank (left) and Masonry check dam (right) at Yerrakunta watershed, Shaligouraram Mandal.

8. **Observations and Comments of Evaluator:**

- Locations of the WHS are good but quality of construction of check dams is not that good (**Fig. 1**).
- Bund strengthening with stone revetment was done to existing percolation tanks.
- Apron walls are damaged and leakages are reported by nearby farmers and not much useful now (**Fig. 1&2**).



Figure 2. Leakage from check dam at Yerrakunta watershed, Shaligouraram Mandal

- Post-project maintenance was not clearly envisaged as an exit policy in the project, hence proper mechanism should be operationalized to repair and maintain the structures, and to ensure proper utilization of WDF/community contribution, clear guidelines should be in place. Otherwise watershed committee exists, but becomes defunct, as is the case with Yerrakunta watershed.
- Crop productivity enhancement and water use efficiency measures were not emphasized in the project to harness the full benefits of project activities, and increased water availability.
- Technology Resource organizations like academic/research institutions involvement was absent.
- As admitted by farmers in the village, availability of groundwater round the year, supplemental irrigation water for second crop and ground water increase helping growth of orchard crops are the visible qualitative and quantitative impacts due to watershed development.

ANALYSIS OF IMPACTS

Drought Prone Area Programme (Batch III) in Nalgonda district targeted and developed 36 watersheds in 6 mandals in four years started in the year 1997-98 and execution of developmental activities completed by 2003-04, with a delay of almost three years from the sanctioned period. The area treated under watershed activities (SWC structures) was about 20,000 ha with sanction of Rs.600 lakhs directly released to Watershed committees during the period. We chose 15 watersheds developed by PIAs from 3 different mandals of Nalgonda to have well distributed representation of watersheds for the impact assessment.

Verification of Records

In this district, we spent lots of time to fetch or access records during our team's field trips to watersheds and meeting with officials in DWMA office to gather information and verification of records, however, found it difficult to get the required reports. Our efforts were not fruitful even in getting final evaluation report of this project from the office of the Commissioner of Rural Development and Andhra Pradesh Academy of Rural Development (APARD), Hyderabad. We did not get any reports for cross verification of information, we gathered during focused group discussion with beneficiaries in each watershed. Most of the activity reports including action plans and measurement books and bank passbooks, supposed to be available with watershed committees were reportedly taken and placed in DWMA office for safe custody according to watershed committees' members.

Community (People's) Participation

One of the main objectives of DPAP was to ensure and enhance people's participation in this programme. At the inception stage, in seven of the fifteen selected watershed villages for impact assessment, Entry Point Activity (EPA) was implemented either to construct bus shelters (Gorekunta, Kandikunta, Kudali, Neredavai and Voorakunta watersheds), construction of water tank and laying of pipe line (Hanuman watershed) and laying of pipe line, purchasing and fixing of

electric motor/pump (Rama watershed) for village water supply that ensured community participation and awareness about the watershed project. In other watersheds EPA could not be done for varied interests and lack of common agreement among beneficiaries on a particular work as EPA. In watershed villages where EPA was undertaken, villagers were satisfied and appreciative of the usefulness of the works. In other eight watersheds community participation was ensured by taking up soil and water conservation activities, construction of water harvesting structures and crop diversification with orchard crops.

Spending on community organizations development and training of beneficiaries was not given much importance. Although, there was ample scope and opportunities to address the issues of women by forming self-help groups (SHGs) involving weaker sections of the society, this aspect was not actively persuaded and no micro enterprise/income generating activities were introduced to improve the livelihoods of women SHGs in the watersheds; and a very few are functional at present out of 98 SHGs in the selected 15 watershed communities. Livelihood activities like vermicomposting, raising nursery of horticultural and forest tree plants, value addition to agricultural/horticultural produce, dairy, poultry etc could have been taken up involving weaker sections and women through SHGs but efforts were not made in this direction. SHGs development would have impacted much better in terms of income generation and sustainability of rural livelihoods.

User groups (283 UGs) were formed in all the 15 watersheds but soil and water conservation works and construction of water harvesting structures were undertaken by the WCs without much participation of people. User groups' participation in constructing water harvesting structures would have developed belongingness and prompted for timely management of these structures.

Soil and water conservation structures

Soil and water conservation works undertaken under this component in the project to cover about 20000 ha includes field bunding, percolation tanks, check dams and

gully control structures. A total of 54 percolation tanks, 86 masonry check dams, 314 gully control structures were constructed and 1635 ha area covered under field bunding in this project.

In eight out of 15 watersheds, water-harvesting structures constructed either by PIA of government organization or NGO were generally of good quality and suitably located. However, in these watersheds, for lack of maintenance of the structures for a longer period, some structures were damaged, need immediate attention to repair these structures and remove siltation to improve efficiency of the water-harvesting structures.

In other seven watersheds some of the structures constructed were of poor quality with improper locations and without good design criteria and foundation hence most of the structures in the watersheds damaged several years back and repairs were not done resulting in no benefit to farmers in terms of water harvesting and groundwater improvement.

Water availability for irrigation and drinking purpose

Farmers in seven watersheds located in different villages reported an increase in ground water levels ranging from 0.5 to 1.0 meter generally and in four watersheds water level raise was up to 2 meters, in 4 watersheds raise was more than 2 meters and increased availability of water for irrigation up to February-March months. In four watersheds, the number of functional wells increased to more than 150 in each watershed, as an indication of water availability. In some of the watersheds, farmers realized less availability of groundwater in un-treated areas of their villages compared to more water availability in treated watershed areas of these villages. Impact of watershed interventions especially masonry structures has been felt very much by the beneficiary farmers in DPAP developed watershed villages in terms of their utility to control erosion and to some extent ground water increase and water availability for drinking purpose more importantly. Period of water availability for irrigation extended from November-December months before the watershed development, to end of February-March after the watershed development. This

situation favored for double cropping with one or two supplemental irrigations for second crops between January to March every year. In most of the villages there was a clear agreement on availability of drinking water in plenty round the year after watershed development project implementation in their area. In some watersheds water storage in percolation tanks providing drinking water for cattle population even during summer months.

Enhanced agricultural productivity of seasonal crops

Due to increased water availability, farmers in all watersheds reported increase in cultivated area of paddy. Crop intensity increased between 150%-200% as the number of bore well those support second crop were more than 100 per village. Due to increased availability of water for longer period in the season up to end of February-March, crops like paddy, vegetables, groundnut, sunflower and maize as second crop after paddy are grown. Although, variability exists in reported productivity enhancement, it varied from 13% to 38% increase in case of paddy, 1.5 to 2.0 tons of cotton yields per hectare, 25% to 33% increase in castor and 20% to 60% increase in pigeonpea in the watersheds. Some farmers cultivate paddy in two seasons under bore well irrigation. Although, paddy is not an efficient crop for scarce water utilization, farmers are taking up paddy as second crop also in watersheds for food grains and fodder for animals. Farmers were not exposed to best production technologies for dryland crops to achieve higher water use efficiency in these crops. This should have been possible as the farmers get exposed to advances in dryland technologies.

Afforestation and Horticulture Development

Under DPAP Batch-III watersheds of Nalgonda, afforestation activity was promoted in 70 ha while horticulture activity was taken up in 175 ha. Our visit revealed that there was considerable interest generated among farmers for sweet lime, acid lime and mango cultivation on seeing the success of watershed farmers planted these orchard crops through DPAP-III. In 5 watersheds, considerable area in the range of 10 ha to 42 ha was developed with horticulture plantations. Farmers who have

diversified their annual food crops with orchard crops like sweet lime, acid lime and mango and getting a sustainable net income ranging from Rs.20,000 to Rs.40,000 per acre based on growth and age of orchard crops developed through DPAP-III.

Common Property Resources and Wasteland Development

Nalgonda is one of the frequently drought affected districts of Andhra Pradesh having large areas of wastelands. Development of common property resources (CPRs) was done in seven watersheds of the fifteen selected watersheds in the project for the impact assessment study. In 7 watersheds CPRs were developed similar to the entire watershed with construction of water harvesting structures and formation of field bunding as CPRs land had already been under cultivation by weaker sections community farmers with usufruct rights.

Employment and Migration

Nalgonda district has considerable labor migration in the state, due to scarce rainfall and low productivity of dryland crops. In the selected fifteen watershed villages for impact assessment, the migration for employment reduced to 0-20% from as high as 20%-100% in all the villages, not only due to watershed development and crop productivity increase, but because of National Rural Employment Guarantee Scheme (NREGS) of the central government. As informed by respondent farmers at the time of focused group discussion, 5 to 20% migration in some of the villages was for higher wage earnings and for especially skilled labor like construction workers and security duties. Parity in labor wages between men and women still exists in most of the watersheds.

Our analysis of focused group discussions with village communities indicate that only in 20% (3) of the watershed villages farmers expressed affirmatively for withstanding drought effects for one year (risk reduced by 50%) and vulnerable for mainly fodder scarcity as there is no fodder security for large number of goat, sheep and cattle population. Farmers expressed fodder scarcity even in years of subnormal or poorly distributed rainfall season when crop production becomes lower.

Watershed Development Fund

Watershed development fund was collected in all the watersheds as per guidelines and deposited in the banks for joint operations by watershed committee and WDT from the PIA. It was gathered from the reports that deposits of Rs. 40,000 from Kudali watershed to Rs. 1,00,000 in Karshak and Peddacheruvu watersheds were available as watershed development fund with various WCs collected from watershed member beneficiaries as WDF at the rates specified in guidelines and the amount has been transferred to PD, DWMA. Farmers and WC members in almost all watersheds mentioned that if the fund was made available for repair and maintenance of watershed structures, or for construction of much needed new structures their impact would have been felt very much by the beneficiaries in the watershed.

Suggestions for enhanced impacts in these watersheds

1. Watershed development fund contributed by watershed members should be utilized for repair and maintenance of water harvesting structures on regular basis annually, by desilting and attending necessary repairs for masonry structures and rock filling or stone revetment and earth works for breaches of percolation tanks, farm ponds and other structures.
2. As an exit policy, a matching grant equal to accrued WDF may be provided to a village body, which must accept the responsibility for repair and maintenance of the structures annually by utilizing the interest portion of the WDF.
3. Sweet lime, acid lime and mango cultivation is of interest to farmers and remunerative, hence smallholder farmers may be given an opportunity to take up one hectare orchards based on feasibility, with possible option of drip irrigation for efficient use of water in scarce rainfall zone.

4. Fodder availability is another issue, which may need attention to enhance income and livelihoods for poor by maintaining milch cattle, goat and sheep. Increasing fodder availability by growing improved forage grasses and fodder supplying trees in agricultural and non-agricultural vacant lands.

About ICRISAT



The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit, non-political organization that does innovative agricultural research and capacity building for sustainable development with a wide array of partners across the globe. ICRISAT's mission is to help empower 644 million poor people to overcome hunger, poverty and a degraded environment in the dry tropics through better agriculture. ICRISAT belongs to the Alliance of Centers of the Consultative Group on International Agricultural Research (CGIAR).

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