Impact Assessment Report

DROUGHT PRONE AREA PROGRAMME (DPAP)
DPAP-BATCH IV
MAHABUBNAGAR DISTRICT, ANDHRA PRADESH

BY

GLOBAL THEME – AGROECOSYSTEMS

ICRISAT
Science with a human face

International Crops Research Institute
for the Semi-Arid Tropics

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Contents

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ACKNOWLEDGEMENTS

We express our gratitude to the Department of Land Resources (DoLR), Ministry of Rural Development (MoRD), Government of India, New Delhi; for assigning the study of impact assessment of DPAP Batch-IV watersheds in Mahabubnagar district.

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), Mahabubnagar; 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-IV watersheds in Mahabubnagar.

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. Samuel, Assistant Project Director for his help in 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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A. P

ABBREVIATIONS

APD	Assistant Project Director
DRDA	District Rural Development Agency
DPAP	Drought Prone Area Programme
DWMA	District Water Management Agency
FGD	Focused Group Discussions
IWD	Integrated Watershed Development Programme
LBS	Loose boulder structures
MDT	Mandal Development Team
NGO	Non-governmental Organization
NRM	Natural Resources Management
NWDP	National Waste Land Development Board
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
UGs	User Groups
WA	Watershed Association
WS	Watershed
WDC	Watershed Development Committee
WDF	Watershed Development Fund
WDT	Watershed Development Team

EXECUTIVE SUMMARY OF IMPACT ASSESSMENT

In Mahabubnagar district, DPAP – batch IV received funding for development of 120 watersheds in 54 mandals and the project was implemented from 1998-2006 to treat 60000 ha with watershed development.

1. One of the main objectives of DPAP-IV was to minimize the adverse effects of drought on production of crops and livestock and productivity of land, water and human resources. In the inception stage, only four of the selected twenty watershed villages for impact assessment took up Entry Point Activity (EPA) that ensured community participation and awareness about the watershed project. In watershed villages where EPA was undertaken, villagers were satisfied and appreciative of the usefulness of the works.

2. Project expenditure pattern (Table 1) indicates that spending on community organizations development and training of beneficiaries was less than 2% as against stipulated allocation of 5% of the budget.

3. 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 taken up moderately as was evidenced by moderate growth of total 175 SHGs in 14 watersheds out of 20 watersheds assessed; and a very few are functional at present in the selected 20 watershed communities. In large scale activities which promote income generation like raising nursery of horticultural and forest tree plants, weaker sections and women through SHGs should have been involved. SHGs development was not conspicuously seen in terms of successful and sustainability of rural livelihoods for income generation.

4. A total of 43 user groups (UGs) were formed in six watersheds. Soil and water conservation works were undertaken by the WCs without much participation of people, and in some watersheds although farmers participated for works in their fields. User groups' participation in constructing SWC structures would have developed belongingness and prompted for timely management of these structures.

5. In 16 watersheds out of 20 watersheds assessed, masonry structures constructed 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 SWC structures.

6. Farmers in eighteen watersheds out of twenty selected watersheds located in different mandals reported an increase in ground water levels ranging from as low as 0.5 feet to a maximum of 10-15 feet in open wells due to SWC structures as well as field bunding. Water availability in the open wells increased up to March-April months for irrigation. In six watersheds, the number of successful bore wells increased to more than 200 in each watershed, as an indication of farmers' confidence on water availability and exploitation for higher income.

7. Period of water availability for irrigation extended from November-December months before the watershed development, to end of March-April after the watershed development.

8. Crop intensity increased from 100% to a range between 150%-200% as the number of bore well those support second crop were more than 200 per village in at least six villages in our study.

9. Although, variability exists in reported productivity enhancement, it varied from as low as 20% in case of castor and pigeonpea to more than 50% increase in case of grain crops like paddy, maize as well as second crop of groundnut and sunflower in some watersheds. Yields of paddy in the first season generally increased from 20 bags to a range between 25 to 30 bags per acre and in the second season average yield was up to 35 bags per acre.

10. 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.

11. Under DPAP Batch-IV watersheds of Mahabubnagar, afforestation activity received relatively less attention. However horticulture activity received considerable interest generated among farmers for mango and Sweet oranges cultivation on seeing the success of watershed farmers planted mango and sweet orange through DPAP–I.

12. Farmers had harvested mango with a net income ranging from Rs.10,000 to Rs.20,000 per acre based on growth and age of mango orchards. Farmers in various DPAP-IV watersheds indicated that their net income from sweet orange orchards varied from Rs.25,000 to 50,000 per acre based on the age and growth of the orchard.

13. Development of common property resources (CPRs) was done in six watersheds of the twenty selected watersheds in the project for the impact assessment study. In all other watersheds, there was no information on CPRs development during DPAP- Batch IV Project.
14. Our analysis of focused group discussions with village communities indicate that only in 25% (5) of the watershed villages farmers expressed affirmatively for withstanding drought effects for one or two years 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

The Drought Prone Areas Programme (DPAP) aims at mitigating the adverse effects of drought on the production of crops and livestock and productivity of land, water and human resources. The basic objective of the programme is to minimize the adverse effects of drought on production of crops and livestock and productivity of land, water and human resources ultimately leading to drought proofing of the affected areas. The programme also aims to promote overall economic development and improving the socio-economic conditions of the resource poor and disadvantaged sections inhabiting the programme areas. It strives to encourage restoration of ecological balance and seeks to improve the economic and social conditions of the poor and the disadvantaged sections of the rural community.

DPAP was a people's programme with Government assistance. Allocation is to be shared equally by the Centre and State Govt. on 50:50 bases. Watershed community is to contribute for maintenance of assets created. Funds are directly released to District Rural Development Agencies (DRDAs)/District Water Management Agency (DWMA) to sanction projects and release funds to Watershed Committees and Project Implementation Agencies.

Village communities, including self-help groups/user groups, undertake area development by planning and implementation of projects on watershed basis through Watershed Associations and Watershed Committees constituted from among themselves. The Government supplements their work by creating social awareness, imparting training and providing technical support through project implementation agencies.

The project encompassed treatment of 60,000 ha of cultivable land in 120 watersheds in 54 mandals of Mahabubnagar 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. 2384.15 lakhs (Table 1) and to accomplish over a period of seven years from 1998-99 to 2005-06. The ministry of Rural Development (MoRD), Government of India and the government of Andhra Pradesh release their share of funds in two installments during 1998 and later during 2001. A total of Rs.2384.15 lakhs were sanctioned and released for DPAP-IV in Mahabubnagar between 1998 and 2004 (Table 1).

Table 1. Development activity component-wise approved targets and financial allocation in the project.

Components of Developmental activities	Total allocation (Rs. lakhs)	Total expenditure (Rs. lakhs)
Community organizations	119.9 (5%)	27.10 (1.11%)
Training	119.9 (5%)	35.78 (1.47%)
Works	1918.4 (80%)	1818.11 (74.74%)
Administrative costs	239.8 (10%)	551.72 (22.68%)
Total	2398.758 (100%) (Including interest accrued)	2432.71 (101.41%) (33.91 lakhs OD from other schemes)

District Rural Development Agency (DRDA) Mahabubnagar, 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.2398.758 lakhs grant at 50% contribution each from GOI and government of A.P. DRDA-Mahabubnagar selected government and non-governmental agencies for project implementation during 1998-99 to 2005-2006. The details of 120 selected watersheds in respective mandals for treatment is given in Table 2.

Table 2. Details of 120 watersheds covered by DPAP-IV project in 54 Mandals of Mahabubnagar for treatment in these watersheds.

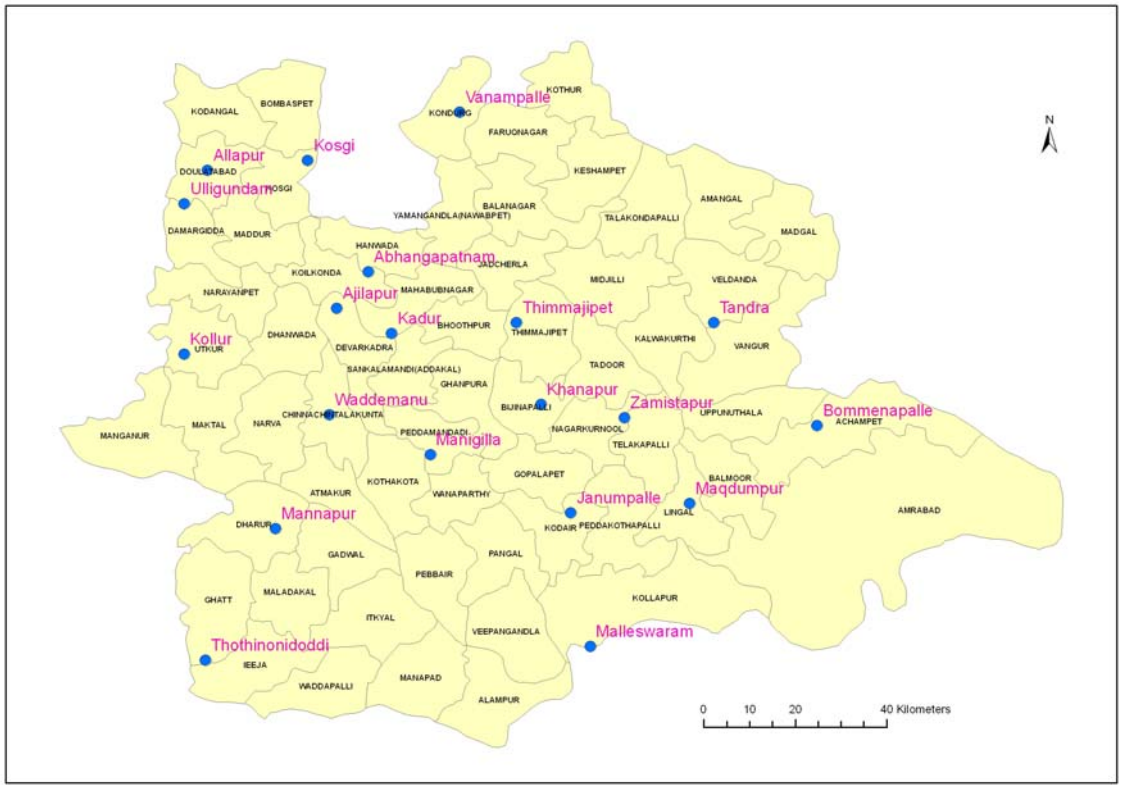
S.No.	Mandal	No. of watersheds	S.No.	Mandal	No. of watersheds
1	Achampet	1	28	Kosgi	1
2	Addakal	1	29	Kothakota	2
3	Amangal	3	30	Kothur	2
4	Atmakur	2	31	Lingal	5
5	Balanagar	3	32	Maddur	3
6	Bijenepally	2	33	Madgul	3
7	Bomraspet	1	34	Maganoor	2
8	CC kunta	3	35	Mahabubnagar	3
9	Damaragidda	2	36	Madvar	1
10	Devarakadra	3	37	Maldakal	2
11	Dhanwada	2	38	Midjil	2
12	Dharur	2	39	Nagarkurnool	1
13	Dowlatabad	2	40	Narayanpet	2
14	Farooqnagar	3	41	Narva	3
15	Gattu	1	42	Navabpet	3
16	Ghanapur	2	43	Panagal	1
17	Goplapet	1	44	Peddamandadi	1
18	Hanwada	4	45	PKPally	2
19	Ieez	3	46	Tadoor	5
20	Jadcherla	2	47	Talakondapally	1
21	Kalwakurthy	2	48	Telkapally	6
22	Keshampeta	2	49	Thimmajipeta	1
23	Kodair	4	50	Uppunuthala	1
24	Kodangal	1	51	Utkoor	1
25	Koilkonda	5	52	Veldanda	3
26	Kolhapur	1	53	Wanaparthy	1
27	Kondurg	3	54	Weepangandla	1
Total		**61**			**59**

Agricultural Situation in Mahabubnagar

Soils and Land use pattern

In Mahabubnagar, sandy loams and red sandy loam soils are the major soil types and salt affected black soils are also present. In the total geographical area of Mahabubnagar 67% are red sandy loams, 20% black soil area and remaining 13% are dubba and mixed soils.

The district map of Mahabubnagar with mandals and watersheds/villages assessed (pink font) for impact were marked in Map 1.



Map 1: Mandals map of Mahabubnagar district with selected watershed of DPAP-IV marked (blue circle, pink font) for impact assessment 2009.

Rainfall

Mahabubnagar district receives a total normal rainfall of 754 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.

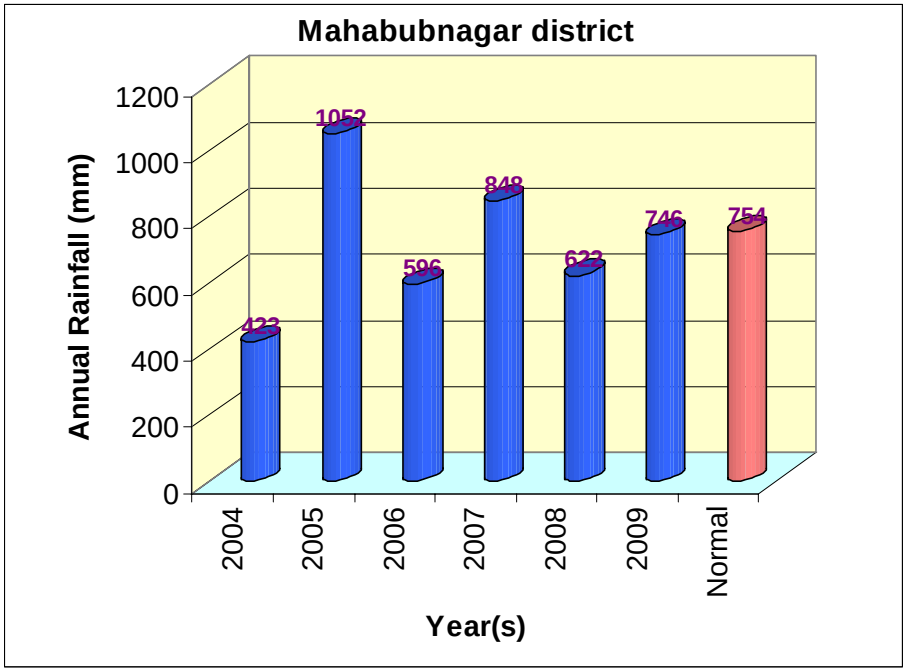


Figure 1. Annual rainfall of district during 2004 to 2009 and district normal rainfall

Rainfall in the district since crop season 2003-04 until 2007-08, i.e. during and after the watershed implementation period up to 2008-09 rainfall has been erratic and below normal during 2004, 2006 and 2008 seasons in the district. Hence, farmers in some watersheds during focused group discussions mentioned about low rainfall that lead to less impact of watershed interventions/development.

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. V Nageswara Rao, Lead Scientific Officer, Agronomy
Mr. L. S. Jangawad, Sr. Scientific Officer, Agricultural Engineering
Mr. Ch. Srinivasa Rao, Sr. Scientific Officer, Soil Science

ICRISAT's Global Theme on AgroEcosystems, which was responsible for the impact assessment of the DPAP IV watershed projects in Mahabubnagar, 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 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, (i) Focused Group discussions, with participation of the local population, a crucial factor of a successful impact assessment; and (ii) 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.

Table 3. List of selected DPAP-IV watersheds for impact assessment and concerned PIAs.

S.No.	Name of the watershed	Mandal	Name of the PIA
1.	Abhangapatnam	Koilkonda	ADA, MDT-I, Mahabubnagar
2.	Allapur	Dowlatabad	DMMS
3.	Azilapur	Devarakadra	Dy. Executive Engg., Narayampeta
4.	Bommanpally	Achampeta	Dy. Executive Engg., Achempeta
5.	Cherla Tirumalapur	Tadoor	DKRDA, Nagarkurnool
6.	Jamisthapur	Telkapally	DKRDA, Nagarkurnool
7.	Janumpally	Kodair	Dy. Executive Engg., Achempeta
8.	Khanapur	Bijinepally	Dy. Executive Engg., N.Kurnool
9.	Kodur II	Mahabubnagar	BAIF, Mahabubnagar
10.	Kollur	Utkoor	Dy. Executive Engg., Narayampeta
11.	Kosgi	Kosgi	Dy. Executive Engg., Narayampeta
12.	Magdumpur	Lingal	SMS, MDT-V, Achempeta
13.	Malleswaram	Kolhapur	Dy. Executive Engg., Achempeta
14.	Manigilla	Peddamandadi	ADA, MDT-VI, Wanaparthy
15.	Mannapur	Dharoor	SEVA, Gadwal
16.	Tandra	Veldanda	Dy. Executive Engg., Kalwakurthy
17.	Thirumalgiri	Thimmajipet	Dy. Executive Engg., N.Kurnool
18.	Thothinonidoddi	Ieez	ACF, MDT-VI, Wanaparthy
19.	Ulligundam	Damarigidda	Dy. Executive Engg., Narayampeta
20.	Waddeman	CCkunta	ACF, MDT-VI, Wanaparthy

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 started with a meeting of the ICRISAT team with 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, Mahabubnagar.

Meeting with project staff helped us to finalize the list of watershed villages (Table 3) evenly spread across eight mandals in Mahabubnagar district (Map 1, Mahabubnagar district) for impact assessment and scheduled our visit. We also ensured accompanying and participation of concerned APDs at FGD in watersheds in their respective mandals, and their presence was quite helpful in calling the *gram sabha* and field visits to watershed structures.

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 (SHG's) 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 where ever available and to discuss aspects such as maintenance of the structures, sustainability and other schemes implemented in the village.

FIELD VISITS

While the focused-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 retaining walls, 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 Mahabubnagar was done from 17th to 20th September 2009 and also from 23rd to 27th November 2009 and the actual field visits took place for two weeks in Mahabubnagar district with the help of project staff of DWMA, Mahabubnagar.

WATERSHED-WISE IMPACT ASSESSMENT

The details of focused group discussions, assessment of watershed interventions including our observations of soil and water conservation structures (pictures) and watershed-wise impacts on watershed communities were provided here under in the suggested format for all 20 watersheds assessed during September and November 2009.

Impact Assessment Report
Abhangapatnam Watershed, DPAP–IV batch
Koilkanda Mandal, Mahabubnagar district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	DPAP–IV Batch
ii. Name of the watershed:	Abhangapatnam
iii. Names of villages in the Watershed:	Abhangapatnam
iv. Villages/Mandal/District:	Abhangapatnam/Koilkanda/Mahabubnagar
v. Name and Address of PIA:	ADA, MDT-I, Mahabubnagar
vi. Total area of the watershed:	

2. Ownership pattern of land:

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:	Spent:
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes, Check dams: 5 Percolation Tanks: 6, Farm ponds:3; Gully Controls: 37; Continuous Contour Trenches: Rs. 2 lakhs worth, some of the structures damaged and needs repairs.	
iv. Whether watershed committees exits	Yes, Harshavardhan MPTL; D Janardhan Reddy – Sarpanch; Dasarath Reddy-Chairman	
v. if exists, activities of the committees	Nil	

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

Tree plantations were taken up on community lands and individual farmer's fields.

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members:7
	Before	After	Before	After	Male: 6
	-	-	-	12	Female:1
Describe:					
ii. Records of meetings properly updated	Watershed committee met once in 15 days, and Watershed Association met once in month				
iii. Liaison with scientific institutions established	Farmers were taken to other watershed				
iv. Watershed Development Fund collected?, and its utilization	Rs. 88,000/- was collected and deposited in Watershed account				
v. Self Help Groups	No:		Revolving fund: 4 lakhs		
V.O functioning:			Savings: 12000/-		
Utilization of loans:	Varalakshmi self help group used Rs 1 lakh for pipe line construction, Sada begum group used for cloth business.				
Bank linkages established:					
vi. Planned CPRs sustainable & equitable development					
vii. Benefits to weaker sections (women, dalits and landless)					

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	10-12 feet ground water level increased; some dried wells rejuvenated and became functional. No exact idea.
ii. Additional area under cultivation/horticulture/afforestation	About 15 acres additional area brought under cultivation. 50% area increased under irrigation and intensity also increased up to 30-40 bags due to rabi groundnut after watershed development. Sweet oranges were given for 9 acres, Palmira trees and teak plants were planted and survival was good.
iii. Changes in cropping pattern and intensity	Paddy before 20-25 bags/ac now 30-40. Rabi ground nut. 50% yield increased due to improve practices. Crops newly introduced were groundnut in rabi season and onion in rainy season.
iv. Changes in agricultural productivity	50% Yield increase due to improve practice and fertilizer application.
v. Changes in fodder & fuel wood availability	Farmers were given forage seed of *styloxanthus hamata* paragrass etc (PC-23 Sorghum)
vi. Changes in size and character of livestock holdings	All families have milch animals now after watershed developmental activities

vii. Status of grazing land & their carrying capacity	
viii. Employment generated due to implementation of project	
ix. Change in household category, total, & source-	Base line data not available and presently not surveyed.
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Farmers are getting loans from banks, and borrowing from private money lenders decreased. Almost all of them are utilizing bank loans and self sufficient.
xi. Reduction in out-migration (case studies)	Earlier 25-30% people migrated, now only 2-3 % of people migrating to towns and cities.
xii. Reduction in drought vulnerability of the watershed	Drought vulnerability decreased due to increased ground water availability for irrigation and drinking purposes.
xiii. Detailed case studies of specific farmers impacted by the project	Chinta kinda Dasappa family used to migrate earlier in search of livelihood. After Watershed developmental interventions, he dug a tube well and cultivating crops, become well-to-do. His son became a contractor with the available finances.
xiv.Photographs showing work + its impact	

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

8. **Observations and Comments by Evaluators:**

- Relevance of the structure in the location considering technical inputs is good.
- Physical measurements (whether matching with M book) Yes
- Some structures were damaged, repairs were not done and WDF could not be utilized for the purpose. If repairs and maintenance are taken up, benefits will increase on sustainable basis.
- Village has a total of 2500 acres land but half of the area covered under watershed, and the remaining area may be developed under watershed scheme.
- A check dam inspected was in good condition (picture 1); apron needs repairs as 10 farmers cultivating 30 acres benefits from this check dam.
- A Percolation Tank needs strengthening of bund (picture 2). Five farmers are benefitted cultivating 10 acres area around it.

	
Picture 1. Good quality check dam in Abangapatnam needs apron repairs.	Picture 2. A Percolation tank needs strengthening of bunds in Abangapatnam.

Impact Assessment Report
Allapur Watershed, DPAP-IV batch
Doulatabad Mandal, Mahabubnagar district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	DPAP-IV Batch
ii. Name of the watershed:	Allapur
iii. Names of villages in the Watershed:	Allapur
iv. Villages/Mandal/District:	Allapur/ Doulatabad/ Mahabubnagar
v. Name and Address of PIA:	DMMS, Narayanpet
vi. Total area of the watershed:	500 ha

2. Land Use Pattern:

i. Arable land (ha)	350
ii. Non arable land (ha)	100
iii. Government/Community land (ha)	50 ha and 70 ha assigned lands
iv. Private land (ha)	280
v. Treated arable	350
vi. Treated non arable	50

3. Verification financial and other Records

i. Total Budget: Rs.15.39 lakhs	Approved: Rs. 15.39 lakhs	Spent:Rs.15.37 lakhs
ii. Expenditure incurred as per guidelines	Yes,	
iii. Works executed as per Records	Yes, Check dams: 12, Percolation Tanks: 8, Earthen Bunding: 40 hectares, Rock filled dams/LBS: 100, feeder channels:1	
iv. Whether watershed committees exits	Yes, Chairman: P.Vijaya Kumar, President: Tirumalaiah late, Secretary: G.Sreedhar Rao,	
v. if exists, activities of the committees		

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

Nil

5. Qualitative Parameters of Impacts

<table>
<tr><td rowspan="3">i. Functioning of village level institutions

Describe:</td><td colspan="2">No. of UGs</td><td colspan="2">No. of SHGs</td><td>WC members:14</td></tr>
<tr><td>Before</td><td>After</td><td>Before</td><td>After</td><td>Male</td></tr>
<tr><td>-</td><td>11</td><td>-</td><td>9-all are working</td><td>Female:3</td></tr>
<tr><td colspan="5"></td></tr>
<tr><td>ii. Records of meetings properly updated</td><td colspan="5">Watershed committee met once in 15 days and Watershed association met once in a month regularly.</td></tr>
<tr><td>iii. Liaison with scientific institutions established</td><td colspan="5">Farmers visited Ralegaon Siddi to witness NRM technologies in watershed development.</td></tr>
<tr><td>iv. Watershed Development Fund collected? and its utilization</td><td colspan="5">RS.47651, at present Rs. 60000 plus deposit was available in the s/b account.</td></tr>
<tr><td>v. Self Help Groups</td><td colspan="2">No:</td><td colspan="3">Revolving fund: Rs.2.60 lakh</td></tr>
<tr><td>V.O functioning:</td><td colspan="2"></td><td colspan="3">Savings:</td></tr>
<tr><td>Utilization of loans:</td><td colspan="5">General business, floor tills, milch cattle</td></tr>
<tr><td>Bank linkages established:</td><td colspan="5"></td></tr>
<tr><td>vi. Planned CPRs sustainable & equitable development</td><td colspan="5">10-13 hectares field bunding in assigned lands- survey#195 Silt application was also done</td></tr>
<tr><td>vii. Benefits to weaker sections (women, dalits and landless)</td><td colspan="5">Nil</td></tr>
</table>

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Open wells: 50-60 (no water); bore wells: 300 (depth= 150' below), 0.5 inch of excess water delivered from bore well of 2' water delivery. Water in bore wells available round the year in this watershed.
ii. Additional area under cultivation/horticulture/ afforestation	15.27 hectare sweet orange, well established in Allapur and Timmayapalli.
iii. Changes in cropping pattern and intensity	Pigeon pea, Groundnut, Paddy
iv. Changes in agricultural productivity	Pigeon pea-600 kg/acre, Groundnut-15 (40kg) bags/acre, Paddy-40 (75 kg) bags/acre.
v. Changes in fodder & fuel wood availability	*Stylo hamata* was introduced on field bunds, fodder availability up to June- July and August
vi. Changes in size and character of livestock holdings	20-30 liters to 30-40 liters increased
vii. Status of grazing land & their carrying capacity	

viii. Employment generated due to implementation of project	Each work was under taken by beneficiaries then selves.
ix. Change in household category, total, & source-	300 house holds -> 5% only poor
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Sangameswara Grameena Bank, Balampet and The Vysya bank, Doulatabad provide loans to farmers; Primary Cooperative society, Doulatabad also provides input credit to farmers.
xi. Reduction in out-migration (case studies)	20% migration reduced, existing migration can be up to 10%
xii. Reduction in drought vulnerability of the watershed	
xiii. Detailed case studies of specific farmers impacted by the project	1. Mr. G. Venkata Rao has 4 acres of sweet oranges (Rangapur lime) 2. G. Ramulu has 5 acres sweet oranges orchards. These are at fruit bearing stage, obtained a net income of Rs. 25000/acre/year in the last two years.
xiv. Photographs showing work + its impact	

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

8. **Specific datasets on different impact parameters:**

9. **Observations and Comments by Evaluators:**

- Percolation Tank (picture 3) – 75 m, ht- 2m at a cost of Rs.60,000 during 2002; Six bore wells in the range of 150-200 feet depth has good water availability, provides irrigation to 20 acre cultivated land.

- Relevance of location considering technical inputs of the structures was Good

- Physical measurements(whether matching with M book): Yes; Quality of the works were Good and after maintenance of the structures was Fair

- Maintenance was attempted as good patch work with cement mortar was seen. Four check dams on identified sites should have been more useful, another four percolation tanks would have benefitted people in the village.

- Horticulture plantation in large areas covering more number of farmers will benefit by improved income to farmers.

- Desilting of check dams (picture 4), percolation tanks and application of this silt in farmers' fields was much more useful as was felt by the secretary, Mr. Sreedhar Rao.

	
Picture 3. Big percolation tank in Allapur requires desilting for improved storage.	Picture 4. Check dam requires desilting, closer of breaches to side walls in Allapur.

Impact Assessment Report
Azilapur Watershed, DPAP-IV batch,
Devarkadra Mandal, Mahabubnagar district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	DPAP-IV Batch
ii. Name of the watershed:	Azilapur
iii. Names of villages in the Watershed:	Azilapur
iv. Villages/Mandal/District:	Azilapur/Devarakadra/Mahabubnagar
v. Name and Address of PIA:	Dy. Executive Engineer, MDT-II, Narayampet
vi. Total area of the watershed:	500 ha

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	
vi. Treated non arable	

3. Verification financial and other Records

i. Total Budget	Approved: lakhs	Spent: Rs. 15.31 lakhs
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes, Check Dams:5, Percolation Tanks: 321, Diversion drains: 80, Bunding: 22 ha, Horticulture: 5 ha	
iv. Whether watershed committees exits	Yes, Sarpanch: M.Venkataiah Goud is managing the committee.	
v. if exists, activities of the committees	Nil	

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

EPA activity was not done, a NGO in the village partnered watershed activities for 1.5 yrs and afterwards MDT has taken over. Land development works have been taken up.

5. Qualitative Parameters of Impacts

<table>
<tr><td rowspan="4">i. Functioning of village level institutions</td><td colspan="2">No. of UGs</td><td colspan="2">No. of SHGs</td><td>WC members:11</td></tr>
<tr><td>Before</td><td>After</td><td>Before</td><td>After</td><td>Male:7</td></tr>
<tr><td>-</td><td>4</td><td>-</td><td>14 (formed after watershed activity closed)</td><td>Female:4</td></tr>
<tr><td colspan="5">Describe:</td></tr>
<tr><td>ii. Records of meetings properly updated</td><td colspan="5">Watershed committee meetings were held once in every 3 months, and WA (gram sabha) meeting once in every 6 months</td></tr>
<tr><td>iii. Liaison with scientific institutions established</td><td colspan="5">As per present Sarpanch, no trainings and visits were arranged for the farmers.</td></tr>
<tr><td>iv. Watershed Development Fund collected?, and its utilization</td><td colspan="5">WDF 60000/- was deposited but it was taken away to deposit with DWMA.</td></tr>
<tr><td>v. Self Help Groups</td><td colspan="3">No:</td><td colspan="2">Revolving fund: Rs.10,000 per group</td></tr>
<tr><td>V.O functioning:</td><td colspan="3"></td><td colspan="2">Savings:</td></tr>
<tr><td>Utilization of loans:</td><td colspan="5">Revolving fund given to groups was not properly used for development activities.</td></tr>
<tr><td>Bank linkages established:</td><td colspan="5"></td></tr>
<tr><td>vi. Planned CPRs sustainable & equitable development</td><td colspan="5">No CPRs</td></tr>
<tr><td>vii. Benefits to weaker sections (women, dalits and landless)</td><td colspan="5"></td></tr>
</table>

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Improved ground water in tube wells, water availability increased by 50% compared to before the watershed.
ii. Additional area under cultivation/horticulture/afforestation	Irrigated land increased by about 50%, 25% area increased under cultivation because of land leveling
iii. Changes in cropping pattern and intensity	No change in crops and cropping systems due to lack of technical support and low risk taking ability.
iv. Changes in agricultural productivity	Not much
v. Changes in fodder & fuel wood availability	Not much
vi. Changes in size and character of livestock holdings	Not much (in general cattle population is decreasing)
vii. Status of grazing land & their carrying capacity	

viii. Employment generated due to implementation of project	25% increase in employment due to Watershed activities
ix. Change in household category, total & source	
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	
xi. Reduction in out-migration (case studies)	No reduction due to Watershed activities but reduced after NREGS considerably.
xii. Reduction in drought vulnerability of the watershed	
xiii. Detailed case studies of specific farmers impacted by the project	
xiv. Photographs showing work + its impact	

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

8. **Specific datasets on different impact parameters:**

9. **Observations and Comments by Evaluators:**

- Two benefits as agreed by beneficiaries due to WS activities were Ground water increased by 50%, area increased under cultivation by about 25% due to land leveling.
- Relevance of the location of the structure considering technical inputs is Good
- Physical measurements(whether matching with M book): Yes
- Quality of the work and after maintenance of the structure is Good
- Percolation tanks useful for irrigation (picture 5), recharging ground waters and drinking water for cattle, people washing clothes.
- Grassed water ways and planting *Pongamia* trees on the bunds was found to be useful.
- No repair works were done by watershed funds. Repairs were done under NREGs activities by labors.
- WDF approximately Rs.60000 is available as balance in SB account, but was advised by PD not to spend the amount.

- In ground water, higher Fluoride concentration exists and drinking water problem persisting. Villagers have tap water supply for drinking water.

- Ground water improved in two wells situated below the percolation tank (Picture 6).

- In 100 bore wells water is available at a depth of 150-200 ft and in 4 to 7 bore wells water is available at a depth of 40-50 ft.

	
Picture 5. Small percolation tank in Azilapur, supporting irrigation to paddy	Picture 6. Big percolation tank in Azilapur requires desilting, strengthening of bund

Impact Assessment Report
Bommanpally Watershed, DPAP-IV batch
Achampet Mandal, Mahabubnagar district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	DPAP-IV Batch
ii. Name of the watershed:	Bommanpally
iii. Names of villages in the Watershed:	Bommanpally
iv. Villages/Mandal/District:	Bommanpally/ Achampeta/Mahabubnagar
v. Name and Address of PIA:	Dy. Executive Engg., MDT-V, Achampeta
vi. Total area of the watershed:	500 HA

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	
vi. Treated non arable	

3. Verification financial and other Records

i. Total Budget	Approved: lakhs	Spent: Rs. 13.7 lakhs
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes, Check dams: 10, Percolation Tanks: 23, Gully control structures: 35, Bunding: 126 ha, Desilting: 710 m^3	
iv. Whether watershed committees exits	No	
v. if exists, activities of the committees	NIL	

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

No EPA activity

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members
	Before	After	Before	After	Male
				30	Female:
Describe:					
ii. Records of meetings properly updated	Meetings were held once in month for the watershed committee and six months once for the watershed association.				
iii. Liaison with scientific institutions established	NA				
iv. Watershed Development Fund collected?, and its utilization	NA				
v. Self Help Groups	No:		Revolving fund: Rs.		
V.O functioning:			Savings:		
Utilization of loans:					
Bank linkages established:					
vi. Planned CPRs sustainable & equitable development	NIL				
vii. Benefits to weaker sections (women, dalits and landless)	NIL				

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Ground water improved but not considerably as the structures were affected by poor quality construction developed leakages and storage was not maintained.
ii. Additional area under cultivation/horticulture/afforestation	
iii. Changes in cropping pattern and intensity	Castor, maize and sorghum/pigeonpea intercropping are practiced in watershed.
iv. Changes in agricultural productivity	Rabi ground nut in 300 hectares
v. Changes in fodder & fuel wood availability	
vi. Changes in size and character of livestock holdings	Milch cattle improved in number from 120 to 200 buffaloes now, and milk production also improved from 200 litres per day to 350 litres in the season.
vii. Status of grazing land & their carrying capacity	
viii. Employment generated due to implementation of project	During project implementation period only and further employment did not get influenced by watershed development.

ix. Change in household category, total & source	
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Bank loans were available to some farmers and remaining people depend on money lenders only.
xi. Reduction in out-migration (case studies)	Out migration reduced by 50% as NREGS helped the rural poor remained in the villages.
xii. Reduction in drought vulnerability of the watershed	Did not improve much
xiii. Detailed case studies of specific farmers impacted by the project	
xiv. Photographs showing work + its impact	

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

8. **Specific datasets on different impact parameters:**

Picture 7. A Check dam requires maintenance in Bommanpally watershed

Picture 8. Focused group discussion in Bommanpally watershed

9. **Observations and Comments by Evaluators:**

- Leakages in check dam is observed (picture 7) and repairs for check dam apron and plugging holes in the wall is suggested.

- Ground water improvement observed when ever rainfall season is good, but ground water improvement is not due to watershed structure as these are non-functional water harvesting structures as informed by villagers in FGD (picture 8).

Impact Assessment Report
Cherla Thirumalapur Watershed, DPAP-IV batch
Tadoor Mandal, Mahabubnagar district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	DPAP-IV Batch
ii. Name of the watershed:	Cherla Tirumalapur
iii. Names of villages in the Watershed:	Cherla Tirumalapur
iv. Villages/Mandal/District:	Cherla Tirumalapur/Tadoor/Mahabubnagar
v. Name and Address of PIA:	DKRDA, Nagarkurnool
vi. Total area of the watershed:	500 ha

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	
vi. Treated non arable	

3. Verification financial and other Records

i. Total Budget	Approved: lakhs	Spent: Rs. 18.383 lakhs
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes, Check dams: 17, Percolation tanks: 2, Farm Ponds: 2, Gully control structures: 101, Bunding: 57 ha, diversion drains:120, horticulture: 11 ha	
iv. Whether watershed committees exits	Yes, President: Mr. M. Venkataramana Secretary: Mr. N. Narasimha	
v. if exists, activities of the committees	NIL	

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

Entry point activity was not done

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members:11
	Before	After	Before	After	Male:10
	No	-	-	6	Female:1
Describe:					
ii. Records of meetings properly updated	Watershed committee meet as and when required, and watershed association meet at every 6 months intervals				
iii. Liaison with scientific institutions established	Visits to RARS, Palem, Vorita watershed in Timmagipet mandal; Salluri palli watershed in Hanwad mandal to show watershed structures.				
iv. Watershed Development Fund collected?, and its utilization	Rs. 1.30 lakh deposited in bank and not used for any purpose.				
v. Self Help Groups	No:6		Revolving fund: Rs.2.7 lakh given in one installment		
V.O functioning:			Savings:		
Utilization of loans:	Used for buying milch animals, vegetables business and also used for purchase of agricultural inputs				
Bank linkages established:					
vi. Planned CPRs sustainable & equitable development	No CPR development although government land was available.				
vii. Benefits to weaker sections (women, dalits & landless)	No				

5. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Increase in water level by 0.5 to 1 feet in 5 to 6 functioning wells out of 100 Open wells in the watershed, 150 tube wells are functional, water is available at a depth of 40-130 feet in bore wells.
ii. Additional area under cultivation/horticulture/afforestation	No increase in irrigated area as check dams are ineffective 9 acres mango planting and 6 acres good condition due to less water availability
iii. Changes in cropping pattern and intensity	No change in cropping systems and intensity, however Maize and cotton are newly introduced
iv. Changes in agricultural productivity	No agricultural productivity increase because of watersheds
v. Changes in fodder & fuel wood availability	Grazing lands decreased hence sheep population also reduced
vi. Changes in size and character of livestock holdings	Increased she- buffaloes, 300 liters selling now from the village

vii. Status of grazing land & their carrying capacity	Fodder scarcity is there because of decrease in grazing lands
viii. Employment generated due to implementation of project	Employment improved due to SWC works during the activity period
ix. Change in household category, total, & source-	NA
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Still unorganized lending is continuing
xi. Reduction in out-migration (case studies)	Migration reduced from 200 people to negligible number because of NREGS.
xii. Reduction in drought vulnerability of the watershed	
xiii. Detailed case studies of specific farmers impacted by the project	
xiv. Photographs showing work + its impact	

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

7. **Specific datasets on different impact parameters:**

8. **Observations and Comments by Evaluators:**

- A Check dam of 20 ft length, 0.6m width and 2 m-height was inspected (picture 9), six bore wells under this check dam benefitting 6 farmers. As Ground water level improved, farmers cultivating vegetables and maize. Crop productivity increased significantly.

- Location of some structures planned without considering technical inputs, resulting in damages to the structures

- Down a percolation tank (picture 10), ground water level increased and water is available in bore wells at 130 ft deep. Maintenance of structures has been poor; WDF was requested for repair of structures by villagers.

	
Picture 9. A check dam benefiting 6 farmers in Cherla-Tirumalapur.	Picture 10. Percolation tank improved ground water in Cherla-Tirumalapur.

Impact Assessment Report
Jamisthapur Watershed, DPAP IV batch,
Telkapally Mandal, Mahabubnagar district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	DPAP-IV Batch
ii. Name of the watershed:	Jamisthapur
iii. Names of villages in the Watershed:	Jamisthapur
iv. Villages/Mandal/District:	Jamisthapur/Telkapally/Mahabubnagar
v. Name and Address of PIA:	DKRDA, Nagarkurnool
vi. Total area of the watershed:	500 ha

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	
vi. Treated non arable	

3. Verification financial and other Records

i. Total Budget	Approved: lakhs	Spent: Rs. 15.747 lakhs
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes, Check dams: 12, Percolation tanks: 4, Farm ponds:1, Bunding = 30 acres, Rock filled dams/Gully control structures: 45, Irrigation open wells: 40, bore wells: 100, Diversion channels:26, Feeder channels:2, horticulture, mango in 26 ha in good condition.	
iv. Whether watershed committees exits	Yes, Chairman: Shekar Reddy (Watershed committee),	
v. if exists, activities of the committees	NIL	

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

No entry point activity was taken up in the watershed

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members:15
	Before	After	Before	After	Male:15
	-	6	-	4	Female: nil
Describe:					
ii. Records of meetings properly updated	Watershed committee meets as and when necessary to discuss issues.				
iii. Liaison with scientific institutions established	NGOs partnership, no linkage with scientific institutions; watershed works were shown at Lattupalli.				
iv. Watershed Development Fund collected?, and its utilization	Not aware of total amount, but says bank balance was available				
v. Self Help Groups	No:		Revolving fund: Rs.2.7 lakh		
V.O functioning:			Savings:		
Utilization of loans:					
Bank linkages established:					
vi. Planned CPRs sustainable & equitable development	Land development not done in CPRs.				
vii. Benefits to weaker sections (women, dalits and landless)					

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	10′-12′ water level increased in general and a minimum of 2′ to 3′ increase was also mentioned.
ii. Additional area under cultivation/horticulture/afforestation	100 acres additionally cultivable area developed and increase was 100%. 26 acres mango planting was done and orchards are good.
iii. Changes in cropping pattern and intensity	Crop intensity increased by 100%
iv. Changes in agricultural productivity	Soil sampling was taken, but results were not given; Increase in agricultural productivity was not noticed.
v. Changes in fodder & fuel wood availability	Fodder and forage seeds were distributed. *Aloe vera* planted in 8 acres area.
vi. Changes in size and character of livestock holdings	Reduced cattle population, but milch animals increased. Sheep and goat population more or less maintained.
vii. Status of grazing land & their carrying capacity	No grazing land because of land allotment to weaker section.
viii. Employment generated due to implementation of project	
ix. Change in household category, total, & source-	

x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Reduced money lending, but farmers still approach money lenders in need.
xi. Reduction in out-migration (case studies)	60-70 migration earlier, reduced to 10 people migration
xii. Reduction in drought vulnerability of the watershed	Initially it was possible to withstand droughts, but due to continuous droughts, the effect of development is nullified
xiii. Detailed case studies of specific farmers impacted by the project	
xiv. Photographs showing work + its impact	

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

   i. Supply of good vegetable seeds for better production

   ii. Good horticulture plants are required for development

   iii. WDF may be utilized for repair and maintenance of WS structures for continued water conservation

   iv. Either a Veterinary hospital or a school compound wall construction may be approved to use Watershed Development Fund.

8. **Specific datasets on different impact parameters:**

9. **Observations and Comments by Evaluators:**

   - Check dam: Length=10 m; height=1 m; width=0.6 m was inspected; maintenance of the structure is poor, near by 2 bore wells improved.

   - 10-12 ft improved in ground water level, compared to other villages this village farmers expressed that their area was better in terms of water availability (picture 11).

   - Relevance of the location of the structure consideration of technical inputs is appropriate; maintenance of the structure is not up to the mark. Silt deposited to be removed, repair required for fully damaged apron (picture 12.)

	
Picture 11. Focused group discussion with Chairman and Committee members in Jamisthapur.	Picture 12. Leakages were found for a check dam but no repairs were undertaken in Jamisthapur.

Impact Assessment Report
Janumpally Watershed, DPAP-IV batch,
Kodair Mandal, Mahabubnagar district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	DPAP-IV Batch
ii. Name of the watershed:	Janumpally
iii. Names of villages in the Watershed:	Janumpally
iv. Villages/Mandal/District:	Janumpally/Kodair/Mahabubnagar
v. Name and Address of PIA:	Dy. Executive Engg., Achempeta
vi. Total area of the watershed:	500 ha

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	
vi. Treated non arable	

3. Verification financial and other Records

i. Total Budget	Approved: lakhs	Spent: Rs. 13.749 lakhs
ii. Expenditure incurred as per guidelines		
iii. Works executed as per Records	Yes, check dams: 2, Percolation tans: 16, Gully control structures: 30, Bunding: 1250 acres, Run off diversions: 44 wells; Dry and open wells: 150 – dried up Bore wells: water column in a depth of 150-300 feet.	
iv. Whether watershed committees exits	Yes, President: Mr. G. Mantralaya, Secretary: Mr. A. Lakshma Reddy, Surpanch: Mr. Bondaiah	
v. if exists, activities of the committees	Nil	

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

Entry point activity was not taken up.

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members:9
	Before	After	Before	After	Male:8
	-	-	-	13 later increased to 30	Female:1
Describe:	Villagers were not aware of group formation requirement				
ii. Records of meetings properly updated	Watershed Committee meets as and when works are to be approved, Watershed Association meetings were conducted once in a month.				
iii. Liaison with scientific institutions established	Three awareness meetings were organized initially Watershed members visited Regional Agricultural Research station – Palem and Ralegaon Siddi in Maharashtra to understand watershed technologies.				
iv. Watershed Development Fund collected?, and its utilization	Rs.1, 30, 000/- in the bank, Rs.1,20,000/- watershed funds were unspent due to not availability of chairman.				
v. Self-Help Groups	No:		Revolving fund: Rs.10000 per group was distributed to groups.		
V.O functioning:	Rs. 2.60 lakh		Savings:		
Utilization of loans:	Sheep rearing, petty business, vegetable business milk cattle				
Bank linkages established:	Repayments by members are proper and all groups were functional.				
vi. Planned CPRs sustainable & equitable development	Grass seeds were distributed on filed bunds as well as CPRs				
vii. Benefits to weaker sections (women, dalits & landless)	Watershed works helped them by providing regular employment.				

10. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	5-10 feet increase in water level in the watershed area during good rainfall seasons
ii. Additional area under cultivation/horticulture/afforestation	No increase in cultivable land area. 42 acres planting was done. Because of insufficient rains only 6 acres mango retained and fruiting.
iii. Changes in cropping pattern and intensity	Maize, sorghum, ground nut, castor, pigeon pea are intercrop
iv. Changes in agricultural productivity	Groundnut (5-6Q/acre) increased to 10-12Q/acre and
v. Changes in fodder & fuel wood availability	Since rainfall season was not good, no improvement in fodder or drinking water availability for cattle. Seasonally cattle migration takes place to water available areas or forest areas.

vi. Changes in size and character of livestock holdings	Approximately 80 milch cows, 100 draught purpose cattle, and 80 sheep and goats are available.
vii. Status of grazing land & their carrying capacity	Grazing only in forest areas
viii. Employment generated due to implementation of project	No employment increase after the watershed development.
ix. Change in household category, total, & source-	NA
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	As crop loans are available from banks, role of money lenders reduced significantly.
xi. Reduction in out-migration (case studies)	No change in migration pattern and 30% population migration for previous two years. Due to NREGS labour migration reduced.
xii. Reduction in drought vulnerability of the watershed	No change because of continuous droughts due to deficit rainfall
xiii. Detailed case studies of specific farmers impacted by the project	Mr. Budda Nagaiah received 200 mango plants (picture 15), out of which 150 plants in 4 acres could be establish with a lot of difficulty and 50 plants died. Since two years, trees bearing fruits and harvest good crop and income.
xiv. Photographs showing work + its impact	

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

i. Maintenance and repairing are to be done for all structures using WDF if it is released immediately

ii. Percolation Tanks should be increased in numbers and existing bunds of Percolation tanks should be strengthened to improve storage inside

12. Specific datasets on different impact parameters:

13. **Observations and Comments by Evaluators:**

- Checkdam at Madigolla manyam with a size about 16 m wide, height 1 m, about 200 m^3 storage capacity. Cracks were observed to check dam wall, lot of bushy dry branches of *Prosopis* sps came up and poor maintenance, some siltation was also seen (Picture 13).
- Upparbanda kunta percolation tank bund was good, stone pitching done inside, no water storage (picture 14), degraded land under submergence; capacity may be 400-500 m^3.
- Two open wells dried and three bores are operational.
- Relevance of structures location considering technical inputs was appropriate
- Physical measurements (whether matching with M book): Yes
- Quality of the work was good, and after maintenance of the structures was fair


Picture 13. A check dam with cracks developed at Madigolla manyam in Janumpally.

Picture 14. Upparbanda kunta percolation tank on degraded lands, no water storage

Picture 15. Mr Budda Nagaiah a successful mango grower in the watershed scheme

Impact Assessment Report
Khanapur Watershed, DPAP–IV batch
Bijnaepally Mandal, Mahabubnagar district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	DPAP–IV Batch
ii. Name of the watershed:	Khanapur
iii. Names of villages in the Watershed:	Khanapur/ Bijnaepally
iv. Villages/Mandal/District:	Khanapur/Bijnaepally/Mahabubnagar
v. Name and Address of PIA:	Dy. Executive Engg., N.Kurnool
vi. Total area of the watershed:	500 ha

2. Ownership pattern of land:

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:	Spent: Rs.14.74 lakhs
ii. Expenditure incurred as per guidelines		
iii. Works executed as per Records	Yes, Check dams: 23, Percolation tanks: 2, Gully Control:36, Bunding:10 ha, Feeder channels:2, diversion drains:150, Horticulture in 8 hectares was taken up	
iv. Whether watershed committees exits	Yes, Mr. Prakash Rao responded and showed us the works	
v. if exists, activities of the committees	Nil	

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

No EPA was taken up.

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members:
	Before	After	Before	After	Male:
					Female:
Describe:					
ii. Records of meetings properly updated					
iii. Liaison with scientific institutions established					
iv. Watershed Development Fund collected and its utilization					
v. Self-Help Groups	No:		Revolving fund:		
V.O functioning:			Savings:		
Utilization of loans:					
Bank linkages established:					
vi. Planned CPRs sustainable & equitable development					
vii. Benefits to weaker sections (women, dalits & landless)					

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Improved ground water levels , 10 bore wells are functional
ii. Additional area under cultivation/horticulture/ afforestation	NA
iii. Changes in cropping pattern and intensity	
iv. Changes in agricultural productivity	
v. Changes in fodder & fuel wood availability	
vi. Changes in size and character of livestock holdings	
vii. Status of grazing land & their carrying capacity	
viii. Employment generated due to implementation of project	

ix. Change in household category, total & source	
x. Freedom from debt and reduction in degree of dependence of money lenders (case studies)	
xi. Reduction in out-migration (case studies)	
xii. Reduction in drought vulnerability of the watershed	
xiii. Detailed case studies of specific farmers impacted by the project	
xiv. Photographs showing work + its impact	

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

   - Farmers in this watershed expressed that there is no use of watershed activities (picture 16).

   - Most of the structures constructed were damaged in the first year due to poor quality construction and bunding was washed away.

8. **Observations and Comments by Evaluators:**

   - Four check dam structures damaged in the same year of construction due to poor quality construction.

   - Only two check dams are good and augmenting recharge of groundwater around in tube wells.

   - Repairs are required for damaged apron, side walls damaged.

   - In some fields, bunding was completely damaged and eroded, gullies formed aggravating soil erosion.

Picture 16. Focused group discussion in Khanapur watershed with villagers

Impact Assessment Report
Kodoor Watershed, DPAP–IV batch
Mahabubnagar Mandal, Mahabubnagar district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	DPAP–IV Batch
ii. Name of the watershed:	Kodoor
iii. Names of villages in the Watershed:	Kodoor
iv. Villages/Mandal/District:	Kodoor/Mahabubnagar/Mahabubnagar
v. Name and Address of PIA:	BAIF, Mahabubnagar
vi. Total area of the watershed:	500 ha

2. Ownership pattern of land:

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:	Spent: Rs. 12.58 lakhs
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Check dams: 14; Percolation tanks: 3; Farm ponds: 2; sunken pits: 4; diversion drains: 100; continuous contour trenches: 2954 m3, Bunding= 16ha.	
iv. Whether watershed committees exits	Yes	
v. if exists, activities of the committees	NIL	

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

Temple was constructed with an amount of Rs 80000/- from watershed and other donations for villagers.

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members:
	Before	After	Before	After	Male: 15
		14	2	22	Female: 11
Describe:					
ii. Records of meetings properly updated					
iii. Liaison with scientific institutions established					
iv. Watershed Development Fund collected?, and its utilization	WDF				
v. Self Help Groups	No:		Revolving fund: 29000/-		
V.O functioning:			Savings: With bank linkages		
Utilization of loans:					
Bank linkages established:					
vi. Planned CPRs sustainable & equitable development	Nil				
vii. Benefits to weaker sections (women, dalits & landless)	They were provided employment in the form of wages				

5. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Water availability increased but no extra idea. 250 tube wells were dug and 800-900 acres came under irrigation.
ii. Additional area under cultivation/horticulture/ afforestation	25%-50% irrigated area rainy season paddy and ground nut rabi.
iii. Changes in cropping pattern and intensity	Earlier sorghum Now Paddy and groundnut vegetables also flowers.
iv. Changes in agricultural productivity	20-20 Bags earlier now 40 bags/acres ground nut also improved yields-20-30 bags/acre
v. Changes in fodder & fuel wood availability	Milch animals about 100 nos, buffalos increased. 300 lit/day of milk sold in Mahabubnagar every day.
vi. Changes in size and character of livestock holdings	
vii. Status of grazing land & their carrying capacity	
viii. Employment generated due to implementation of project	

ix. Change in household category, total & source	
x. Freedom from debt and reduction in degree of dependence of money lenders (case studies)	
xi. Reduction in out-migration (case studies)	Earlier 50% used to migrate now about 10-20 % migration.
xii. Reduction in drought vulnerability of the watershed	
xiii. Detailed case studies of specific farmers impacted by the project	
xiv. Photographs showing work + its impact	

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

7. Check dams size and quality should be increased for storing more water, resulting in further benefits. Cost of construction of check dams were in the range of Rs 50,000/- to 60000/- which should be increased to 1-2 lakhs to construct bigger size structures and get more benefits.

- WDF of Rs. 90,000 is available and suggesting to be diverted for post maintenance of the structure.

- Government fund for tanks and other structures also to be diverted for watershed post maintenance.

8. Observations and Comments by Evaluators:

- Gully control structures helped in reducing soil erosion and helped in filling up gullies.

- Water harvesting structures helped in recharging Ground water level, Loose boulder structures were helpful in filling up gullies and recharging, Bunding helped in reducing soil erosion and recharging ground water.

- Recharging of wells was taken up under AP wells project, 26 tube wells were dug and all were successful. User groups are not taking care of structures. Major repairs are there and there are damages to structure.

- Relevance of the location of the structure considering technical inputs was appropriate.

- Quality of the work was good and after maintenance of the structures was fair

- Ground water levels improved, but number of bore well did not increase. Before watershed development, major area was under dry land with sorghum etc. Area under paddy, groundnut/pigeonpea, sorghum/pigeonpea (picture 18), vegetables and floral plants increased by 60% and crop yield increased by 100%.

	
Picture 17. A percolation tank with good storage and a spillway, but silted up	Picture 18. Intercrop of sorghum pigeonpea in farmers' fields in Kodoor.

Impact Assessment Report
Kollur Watershed, DPAP-IV batch
Utkoor Mandal, Mahabubnagar District, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	DPAP-IV Batch
ii. Name of the watershed:	Kollur
iii. Names of villages in the Watershed:	Kollur
iv. Villages/Mandal/District:	Kollur/Utkoor/Mahabubnagar
v. Name and Address of PIA:	Dy. Executive Engg., Narayampeta
vi. Total area of the watershed:	500 ha

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	
vi. Treated non arable	

3. Verification financial and other Records

i. Total Budget	Approved: lakhs	Spent: Rs.13.82 lakhs
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes, Check dams: 5, Percolation tanks: 30, Earthen Bunding: 400 acres, RFDs/LBS: 100; diversion channels: 45, drinking water need increased hence some arrangement should be made to improve water availability.	
iv. Whether watershed committees exits	Yes, Chairman: Thimmappa, President: Govardhan Reddy, Secretary: Shantappa,	
v. if exists, activities of the committees	NIL	

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

EPA: nil

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members
	Before	After	Before	After	Male
				3	Female
Describe:					
ii. Records of meetings properly updated	Watershed committee meet once in 15 days, and watershed association meet once in a month.				
iii. Liaison with scientific institutions established	Farmers and watershed committee members visited Ralegaon siddi to familiarize with watershed development activities.				
iv. Watershed Development Fund collected and its utilization	Rs.72000 was collected from the beneficiaries as contribution to WDF				
v. Self-Help Groups	No:		Revolving fund: Rs.250000		
V.O functioning:			Savings:		
Utilization of loans:					
Bank linkages established:					
vi. Planned CPRs sustainable & equitable development	one check dam, gully control structures and field bunding was taken up along with tree plantation of Teak, neem, and Subabul was done				
vii. Benefits to weaker sections (women, dalits & landless)					

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	20-25% of water increase for pumping and irrigation during the season.
ii. Additional area under cultivation/horticulture/ afforestation	100 acres of additional area brought to cultivation. Mango plantation only for 2 acres
iii. Changes in cropping pattern and intensity	Groundnut crop was a new introduction after the watershed activities.
iv. Changes in agricultural productivity	
v. Changes in fodder & fuel wood availability	
vi. Changes in size and character of livestock holdings	
vii. Status of grazing land & their carrying capacity	
viii. Employment generated due to implementation of project	

ix. Change in household category, total & source	
x. Freedom from debt and reduction in degree of dependence of money lenders (case studies)	Crop loans were available from SBH, Primary Agricultural cooperative society; Utkoor also provided agricultural input loans.
xi. Reduction in out-migration (case studies)	20% out migration before the watershed activities, at present no migration seasonally.
xii. Reduction in drought vulnerability of the watershed	
xiii. Detailed case studies of specific farmers impacted by the project	1. A bore well recharged in Police Anantha Reddy provides irrigation for 10 acres. He grows two crops, paddy and groundnut sequentially in the season. 2. Land leveling and bunding helped Mr. Dandu Yahoon to cultivate pigeon pea, sunflower, sorghum in 5 acres with increased crop yields.
xiv. Photographs showing work + its impact	

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

- Field bunding should be increased
- Redo gully control as the present structures are fully filled
- In-bores should be explored

8. Specific datasets on different impact parameters:

9. Observations and Comments by Evaluators:

- Relevance of the location of the structure consideration of technical inputs was appropriate.
- Physical measurements (whether matching with M book): Yes
- Quality of the work and after maintenance of the structure: Fair
- Check dams width: 8 m, height: 1 m, cost of construction: Rs.70000
- Side wall cracked because of black soils, Apron is good
- All structures were damaged with recent floods, silted up however helped in controlling erosion (picture 19).
- Pigeonpea (picture 20), cotton, sorghum, sunflower, castor, and chickpea were grown in most of the black soil area in the watershed.
- Drinking water facilities are to be improved as there is assured drinking water facility is there.

	
Picture 19. A check dam silted up with black soil and no water storage in Kollur.	Picture 20. A good pigeonpea crop in a farmers' field in Kollur watershed

Impact Assessment Report
Kosgi-3 Watershed, DPAP-IV batch
Kosgi Mandal, Mahabubnagar district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	DPAP-IV Batch
ii. Name of the watershed:	Kosgi-3
iii. Names of villages in the Watershed:	Kosgi
iv. Villages/Mandal/District:	Kosgi/ Kosgi/Mahabubnagar
v. Name and Address of PIA:	Dy. Executive Engg., Narayampeta
vi. Total area of the watershed:	500 ha

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	
vi. Treated non arable	

3. Verification financial and other Records

i. Total Budget	Approved: lakhs	Spent: Rs. 13.12 lakhs
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes, check dams: 4, Percolation tanks: 6, Gully control structures: 280, bunding: 206 ha, Horticulture: 52 ha, road side plantation, afforestation and bunding were done.	
iv. Whether watershed committees exits	Yes, Chairman: K. Kistappa, President: Venkataiah, Secretary: M.Venu Gopal	
v. If exists, activities of the committees	Nil	

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

Entry point activity was not taken up

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members: 11
	Before	After	Before	After	Male: 8
					Female: 3
Describe:					
ii. Records of meetings properly updated					
iii. Liaison with scientific institutions established					
iv. Watershed Development Fund collected? and its utilization					
v. Self-Help Groups	No:		Revolving fund: Rs.		
V.O functioning:			Savings:		
Utilization of loans:					
Bank linkages established:					
vi. Planned CPRs sustainable & equitable development					
vii. Benefits to weaker sections (women, dalits and landless)					

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	
ii. Additional area under cultivation/horticulture/ afforestation	
iii. Changes in cropping pattern and intensity	
iv. Changes in agricultural productivity	
v. Changes in fodder & fuel wood availability	
vi. Changes in size and character of livestock holdings	
vii. Status of grazing land & their carrying capacity	
viii. Employment generated due to implementation of project	

ix.	Change in household category, total & source	
x.	Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	
xi.	Reduction in out-migration (case studies)	
xii.	Reduction in drought vulnerability of the watershed	
xiii.	Detailed case studies of specific farmers impacted by the project	Impact of horticulture plantation especially orchards were very much realized by the farmers. All the beneficiaries were getting an income of Rs. 25000 per acre per annum as the trees are fruit bearing.
xiv.	Photographs showing work + its impact	

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

8. **Specific datasets on different impact parameters:**

9. **Observations and Comments by Evaluators:**

- Horticulture development with 52 ha of sweet oranges and mango was undertaken (picture 21).

- Afforestation with *Eucalyptus* plantation was done in CPR waste lands and road side plantation was also taken up

- Bunding in 206 ha at a cost of Rs. 58.00 lakhs were done, and the bunding maintenance was poor even in individual farmers' fields.

Picture 21. Well established orchard of mango and citrus mixed tree planting in a farmers' field in Kosgi.

Impact Assessment Report
Magdumpur Watershed, DPAP-IV batch
Lingal Mandal, Mahabubnagar district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	DPAP-IV Batch
ii. Name of the watershed:	Magdumpur
iii. Names of villages in the Watershed:	Magdumpur
iv. Villages/Mandal/District:	Magdumpur/Lingala/Mahabubnagar
v. Name and Address of PIA:	SMS, MDT-V, Achempeta
vi. Total area of the watershed:	500 ha

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	
vi. Treated non arable	

3. Verification financial and other Records

i. Total Budget	Approved: lakhs	Spent: Rs 7.83 lakhs
ii. Expenditure incurred as per guidelines		
iii. Works executed as per Records	Yes, check dams: 1, Percolation tanks: 9, structures are very good, Continuous contour trenches: 11409 m^3, Bunding: 750 acres, Open wells: 20-25(all dried up); bore wells: 35, Water available in the bore wells at a depth of 120ft- 300 ft	
iv. Whether watershed committees exits	Yes, Chairman, President, Secretary were taking care of the committee functioning.	
v. if exists, activities of the committees	NIL	

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

Nil

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions Describe:	No. of UGs		No. of SHGs		WC members:9
	Before	After	Before	After	Male:6
		6		12	Female:3
ii. Records of meetings properly updated	Watershed committee meet at 15 days once while watershed association meetings were held monthly once				
iii. Liaison with scientific institutions established	Watershed Committee members visited Ralegaon siddi to understand the conservation of natural resources and visited Deccan Development Society in Zaheerabad.				
iv. Watershed Development Fund collected?, and its utilization	RS.40000 was available as WDF				
v. Self Help Groups	No:		Revolving fund: Rs.		
V.O functioning:			Savings:		
Utilization of loans:					
Bank linkages established:					
vi. Planned CPRs sustainable & equitable development					
vii. Benefits to weaker sections (women, dalits and landless)					

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Rejuvenated open well with recharge
ii. Additional area under cultivation/horticulture/ afforestation	300 acres of additional area brought under cultivation. 30 ha of horticulture i.e. mango (20 ha), sweet orange (10 ha) these orchards are in good condition. Floriculture developed in one acre area.
iii. Changes in cropping pattern and intensity	Groundnut and paddy crop intensity increased by 2 times due to double cropping.
iv. Changes in agricultural productivity	Groundnut pod yield increased from 8 to 12 bags/acre, maize, paddy yields increased from 20 to 35 bags/acre, cotton kapas yield increased from 12 to 15 q/acre, maize grain yield increased from 12 to 25q/acre increased
v. Changes in fodder & fuel wood availability	No fodder increase
vi. Changes in size and character of livestock holdings	Decrease in live stock population due to fewer rains during the previous 3 years.
vii. Status of grazing land & their carrying capacity	
viii. Employment generated due to implementation of project	Employment increased during project implementation

ix. Change in household category, total, & source-	
x. Freedom from debt and reduction in degree of dependence of money lenders (case studies)	Money lender role is reduced due to bank loans availability and money from NREGs
xi. Reduction in out-migration (case studies)	Out migration reduced from 200 to 50 people this year
xii. Reduction in drought vulnerability of the watershed	Can with stand now due to watershed intervention
xiii. Detailed case studies of specific farmers impacted by the project	Mr. Srinivasulu (Watershed Committee secretary) has horticulture in half an acre and he earns a regular income of Rs.40000/annum from his sweet orange orchard.
xiv. Photographs showing work + its impact	

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

Recommendations:

i. Land leveling and bunding is required for good soil and water conservation resulting in crop production.
ii. Continuous Contour Trenching around the hills in three contours is very good.

8. **Specific datasets on different impact parameters:**

9. **Observations and Comments by Evaluators:**

- Ground water improved, number of bore wells increased from 150 to 300 resulting in improved crop yields as informed by the farmers (picture 22).
- Percolation tank with bund measuring 20 m length, 5 m at the bottom and 2 m at the top width and 2.5m height supporting 8 bore wells in 6 farmers' fields was inspected.
- A check dam size of 5 m length, 1 m width and 1.2 m height was inspected. This was a good structures were constructed requiring minor repair.
- Relevance of the location of the structure considering technical inputs is good
- Physical measurements were matching with M book and maintenance of the structure was also good.

Picture 22.A focused group discussion with most of the tribal farmers in Mugdampur watershed.

Impact Assessment Report
Malleswaram Watershed, DPAP-IV batch
Kolhapur Mandal, Mahabubnagar district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	DPAP-IV Batch
ii. Name of the watershed:	Malleswaram
iii. Names of villages in the Watershed:	Malleswaram
iv. Villages/Mandal/District:	Malleswaram/Kolhapur/Mahabubnagar
v. Name and Address of PIA:	Dy. Executive Engg., Achempeta
vi. Total area of the watershed:	500 ha

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	
vi. Treated non arable	

3. Verification financial and other Records

i. Total Budget	Approved: lakhs	Spent: Rs. 15.36 lakhs
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes, check dams:15, Percolation tanks:10, Field Bunding: 500acres, Rock filled dams/Gully Control structures: 50-60	
iv. Whether watershed committees exits	Yes, Chairman: Arjunaiah, President: Narasimha, Secretary: SaiBabu,	
v. if exists, activities of the committees	Nil	

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

Entry Point Activity was not taken up.

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members:12
	Before	After	Before	After	Male:11
					Female:1
Describe:	SHGs raised nursery for 20000 avenue plantation of *Acacia* and Subabul in this watershed.				
ii. Records of meetings properly updated	Watershed committee meet monthly once or twice, watershed association meets once in 2 months duration.				
iii. Liaison with scientific institutions established	Watershed Committee members and farmers visited Kodem and Chityala watersheds				
iv. Watershed Development Fund collected? and its utilization	An amount of Rs.80000 was deposited in the bank account contributed towards WDF.				
v. Self-Help Groups	No: NA		Revolving fund: Rs.		
V.O functioning:			Savings:		
Utilization of loans:	NA				
Bank linkages established:					
vi. Planned CPRs sustainable & equitable development	No activity in CPRs since this watershed has reserve forest around it.				
vii. Benefits to weaker sections (women, dalits & landless)	No other activity except watershed development works.				

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Water increased in the field *in situ* because of bunding, 10-15 feet increase in open wells; Number of open wells is around 17-19 and all of them are functional used for irrigation. No bore wells in the watershed.
ii. Additional area under cultivation/horticulture/afforestation	25 acres additional area brought under cultivation Vegetable Drum stick gardening for 50 acres and mango orchards in 50 acres was developed
iii. Changes in cropping pattern and intensity	New introduction of paddy followed by groundnut crop during post rainy season with supplemental irrigation.
iv. Changes in agricultural productivity	Paddy, pigeonpea, horse gram, foxtail millet increased production by 2 to 3 q/ha
v. Changes in fodder & fuel wood availability	Not available
vi. Changes in size and character of livestock holdings	Animals population did not increased, and milch buffaloes are retained only to required levels
vii. Status of grazing land & their carrying capacity	Only forest and hilly area
viii. Employment generated due to implementation of project	Employment increase during watershed works

ix.	Change in household category, total, & source-	
x.	Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Role of money lenders and debt of farmers reduced as bank loans helped them to improve their financial status.
xi.	Reduction in out-migration (case studies)	Out migration reduced only because of NREGS, but not because of watershed activity to the significant level.
xii.	Reduction in drought vulnerability of the watershed	There is no considerable impacts as there are no wells & bore wells to make use of water and there are no rains either in recent years
xiii.	Detailed case studies of specific farmers impacted by the project	
xiv.	Photographs showing work + its impact	

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

   Digging bore well in a percolation tank seems to be good enough for an individual farmer.

8. **Specific datasets on different impact parameters:**

9. **Observations and Comments by Evaluators:**

   - Check dams require maintenance and repairs to damages (picture 23). Farmers are expecting release of WDF for these repairs.
   - Percolation tank was dug in the field of Mr. Golla Satyam and due to water storage in percolation tank, water availability increased in the open well located in the field.
   - Lot of bushes grown around a check dam (picture 24); however, it is in good condition without any leakages. Water is not available due to drought during this rainy season.
   - Relevance of the location of the structure consideration of technical inputs is Good
   - After maintenance of the structure: Poor

	
Picture 23. Check dam silted up and requires bush cleaning in Malleswaram	Picture 24. Check dam with bushes around it requires bush cleaning in Malleswaram.

Impact Assessment Report
Manigilla Watershed, DPAP-IV batch
Peddamandadi Mandal, Mahabubnagar district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	DPAP-IV Batch
ii. Name of the watershed:	Manigilla
iii. Names of villages in the Watershed:	Manigilla
iv. Villages/Mandal/District:	Manigilla/Peddamandadi/Mahabubnagar
v. Name and Address of PIA:	ADA, MDT-VI, Wanaparthy
vi. Total area of the watershed:	500 HA

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	
vi. Treated non arable	

3. Verification financial and other Records

i. Total Budget	Approved: lakhs	Spent: lakhs
ii. Expenditure incurred as per guidelines		
iii. Works executed as per Records	Yes, check dams: 3 (2 in good condition), Percolation tanks: 20 (breaches to some), Rock filled dams/Loose Boulder Structures: 150, Gully Controls: not in good condition because of rains; Bunding was done for 200 acres; 100 diversion drains were constructed.	
iv. Whether watershed committees exits	Yes, Chairman: M. Shekar Reddy, President: M. Ravinder Reddy, Secretary: R. Rajavardhan Reddy,	
v. if exists, activities of the committees	NIL	

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

Entry point activity was not taken up in this watershed**.**

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members
	Before	After	Before	After	Male
					Female
Describe:					
ii. Records of meetings properly updated					
iii. Liaison with scientific institutions established					
iv. Watershed Development Fund collected? and its utilization					
v. Self-Help Groups	No:		Revolving fund: Rs.		
V.O functioning:			Savings:		
Utilization of loans:					
Bank linkages established:					
vi. Planned CPRs sustainable & equitable development					
vii. Benefits to weaker sections (women, dalits & landless)					

14. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Around 200 open wells are operational in the watersheds with water at a depth of 35′ and there was increase in water level between 10′ and 15′ water. Around 150′ depth water was available in the bore wells. Water is available plenty in bore wells up to March and after wards deplete, but available round the year.
ii. Additional area under cultivation/horticulture/ afforestation	Eight acres of mango plantation was done and successfully established.
iii. Changes in cropping pattern and intensity	Double cropping under bore wells with Paddy or castor, and second crop of either groundnut or maize
iv. Changes in agricultural productivity	Average productivity increase of paddy grain yield of 30 bags/acre; castor seed yield of 12 to 13 q/acre; groundnut pod yield between 30 to 32 bags/acre; and maize grain yield of 25 q/acre were achieved by farmers. On an average 30% yield increase was noticed after watershed development and water availability.
v. Changes in fodder & fuel wood availability	
vi. Changes in size and character of livestock holdings	

vii. Status of grazing land & their carrying capacity	
viii. Employment generated due to implementation of project	
ix. Change in household category, total & source-	
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Andhra Pradesh Grameena Vikas bank and primary agricultural cooperative bank provide input credit to farmers; however private money lenders also provide loans @ 24%per annum.
xi. Reduction in out-migration (case studies)	Out migration reduced from 600 people before the watershed to 200 people migrating at present.
xii. Reduction in drought vulnerability of the watershed	
xiii. Detailed case studies of specific farmers impacted by the project	1. Percolation tank in M. Ravindra Reddy field helped to improve water in bore well to produce two crops in a year. 2. Five acres of mango orchard of R. Rajavardhan Reddy bearing fruits since three years and his income has been Rs.10000/acres/annum.
xiv. Photographs showing work + its impact	

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

Entire village area did not get covered fully by watershed treatment, and it should have been funded further to complete the treatment for better impact in the village.

16. Specific datasets on different impact parameters:

17. Observations and Comments by Evaluators:

- After maintenance of the structures has been poor, silted up requiring repairs especially for check dams.
- Relevance of the location of the structure considering technical inputs is good, and the quality of construction is good.
- Percolation tanks and check dams are getting fully filled during the season, impacting ground water level increase in the surrounding wells.
- Crop yields increased due to in situ water conservation and good crop growth.
- Improved water availability increased area of paddy and groundnut cultivation under irrigation (picture 25).

Picture 25. Groundnut with supplemental irrigation after paddy in Manigilla watershed.

Impact Assessment Report
Mannapur watershed, DPAP-IV batch
Dharoor Mandal, Mahabubnagar district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	DPAP–IV Batch
ii. Name of the watershed:	Mannapur
iii. Names of villages in the Watershed:	Mannapur
iv. Villages/Mandal/District:	Mannapur/Dharoor/Mahabubnagar
v. Name and Address of PIA:	SEVA, Gadwal
vi. Total area of the watershed:	500 ha

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	
vi. Treated non arable	

3. Verification financial and other Records

i. Total Budget	Approved: lakhs	Spent: Rs.13.43 lakhs
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes, check dams: 7 (2 submerged in Nellapadu canal, Rock filled dams/loose boulder structures:350, percolation tanks: 6 (one submerged), field bunding: 80 acres, gully control structures: 350, feeder channels:1	
iv. Whether watershed committees exits	Yes, Chairman: Mr. Sanjeeva Bharadwaj, President: Ms. Suvarchalamma, Secretary: Late. Mr. Narasimhulu.	
v. if exists, activities of the committees		

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

Entry point activity to form gully control structure were taken up at a cost of Rs. 50,000 initially to promote community participation.

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members:13
	Before	After	Before	After	Male: 10
	-		-	8	Female: 3
Describe:					
ii. Records of meetings properly updated	Watershed committee meet once in a month and the watershed association meet once in six months.				
iii. Liaison with scientific institutions established	Watershed committee members and farmers visited Ralegaon siddi to learn about natural resource conservation practices by Anna Hazari group in Maharashtra.				
iv. Watershed Development Fund collected? and its utilization	Rs.1,30,000 was contributed as WDF in the bank account.				
v. Self-Help Groups	No:		Revolving fund: Rs.		
V.O functioning:			Savings:		
Utilization of loans:					
Bank linkages established:					
vi. Planned CPRs sustainable & equitable development					
vii. Benefits to weaker sections (women, dalits & landless)					

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	68 open wells are functional with one meter ground water level increase in the watershed. 200 bore wells are functions with water levels at a depth of 80 to 100 feet.
ii. Additional area under cultivation/horticulture/ afforestation	95 ha of mango and sweet orange orchards were developed under horticulture component of the project.
iii. Changes in cropping pattern and intensity	In the watershed cropping pattern changed from single season cropping to double cropping due to water availability. Crop intensity increased to 200%
iv. Changes in agricultural productivity	Crop productivity increased between 20% and 50% for various crops. Castor yield increased to 5q/acre, groundnut increased to 8q/acre, paddy increased to 30 q/acre and pigeonpea yields to 5 q/acre.
v. Changes in fodder & fuel wood availability	
vi. Changes in size and character of livestock holdings	
vii. Status of grazing land & their carrying capacity	

viii. Employment generated due to implementation of project	
ix. Change in household category, total, & source-	
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	25% of the farmers were getting bank loans, 75% of the farmers were approaching money lender in this watersheds.
xi. Reduction in out-migration (case studies)	Out migration is reduced to less than 5%mostly due to NREGS.
xii. Reduction in drought vulnerability of the watershed	
xiii. Detailed case studies of specific farmers impacted by the project	1. Six to seven acres was brought under irrigated cropping because of a well and a bore well in Mr. Seshagiri Rao field. 2. Mr. K. Yellappa developed 4 acres of sweet oranges, under open well which has irrigation water at a depth of 30-35' due to a check dam construction near his field, he gets an annual income of Rs.90,0000 to 1,00,000 from this orchard. 3. Thirteen acres sweet orange orchard was developed by Mr. Venkata Reddy, who get an annual income of Rs. 3.0 lakhs from lease of orchard.
xiv. Photographs showing work + its impact	

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

- Tank silt application was found to be most useful for low fertile and less organic content soils.
- A large storage tank above ground in the farmers' field is useful for irrigating crops during day-time to over come power supply problem.
- High yielding varieties of crops were requested by the farmers

8. Specific datasets on different impact parameters:

- **Observations and comments of the Evaluators:**

  - A check dam constructed in wasteland without considering technical specification had side walls breached in the first year, require repairs (picture 26).

  - Check dams were silted up and need maintenance and repairs soon by removal of bushes around the check dam (picture 27).

  - Mango and sweet orange orchards were quite beneficial and income to farmers was quite substantial based on investment.

Picture 26. Leakages to side walls from the first year for this check dam in Mannapur

Picture 27. Check dam silted up and requires maintenance in Mannapur

Impact Assessment Report
Tandra Watershed, DPAP-IV batch
Veldanda Mandal, Mahabubnagar district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	DPAP-IV Batch
ii. Name of the watershed:	Tandra
iii. Names of villages in the Watershed:	Tandra
iv. Villages/Mandal/District:	Tandra/Veldanda/Mahabubnagar
v. Name and Address of PIA:	Dy. Executive Engg., Kalwakurthy
vi. Total area of the watershed:	500 ha

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	
vi. Treated non arable	

3. Verification financial and other Records

i. Total Budget	Approved: lakhs	Spent: Rs. 13.92 lakhs
ii. Expenditure incurred as per guidelines		
iii. Works executed as per Records	Yes, Check dams: 8 (2.56 lakhs), MPTs: 22, Gully control structures: 65, Bunding: 420 ha, diversion channels:7	
iv. Whether watershed committees exits	Yes, Chairman: Mr. Gokari, President: Mr. Kistaiah, Secretary: Mr. Sarveshwar Goud,	
v. if exists, activities of the committees		

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

Nil

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members10
	Before	After	Before	After	Male:8
	-	-	-	-	Female:2
Describe:					
ii. Records of meetings properly updated	Watershed committee meet once in month and Watershed association meet once in 2 to 3 months				
iii. Liaison with scientific institutions established					
iv. Watershed Development Fund collected? and its utilization					
v. Self-Help Groups	No:		Revolving fund: Rs.		
V.O functioning:			Savings:		
Utilization of loans:					
Bank linkages established:					
vi. Planned CPRs sustainable & equitable development	No activity.				
vii. Benefits to weaker sections (women, dalits & landless)					

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Bore wells-400 and increase in irrigated area is almost double
ii. Additional area under cultivation/horticulture/ Afforestation	50 acres additionally brought under cultivation 50% of the mango plants stabilized, overall 50 acres of mango orchards established under this programme.
iii. Changes in cropping pattern and intensity	30% area increased under paddy
iv. Changes in agricultural productivity	
v. Changes in fodder & fuel wood availability	1100 kg of grass seeds were supplied for improving fodder availability.
vi. Changes in size and character of livestock holdings	
vii. Status of grazing land & their carrying capacity	
viii. Employment generated due to implementation of project	
ix. Change in household category, total & source	

x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	
xi. Reduction in out-migration (case studies)	
xii. Reduction in drought vulnerability of the watershed	
xiii. Detailed case studies of specific farmers impacted by the project	
xiv. Photographs showing work + its impact	

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

i. Beneficiaries realized that check dams and percolation tanks are good for water improvement. Proper maintenance and repair of watershed structures help to improve water availability.

ii. Dairy development activity is one aspect to be encouraged under watershed development to reduce migration which is completely reduced in this watershed.

8. Specific datasets on different impact parameters:

9. Observations and Comments by Evaluators:

- Beneficiaries informed us that the quality of the watershed structures is very good and maintenance was also very good.

- Migration in the village has been completely reduced because of milk production and labor employed for fodder production and feed preparation.

Impact Assessment Report
Thirumalagiri Watershed, DPAP-IV batch
Thimmajipet Mandal, Mahabubnagar district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	DPAP-IV Batch
ii. Name of the watershed:	Tirumalagiri
iii. Names of villages in the Watershed:	Tirumalagiri
iv. Villages/Mandal/District:	Cherla Tirumalagiri/Tadoor/ Mahabubnagar
v. Name and Address of PIA:	Dy. Executive Engg., N.Kurnool
vi. Total area of the watershed:	500 ha

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	
vi. Treated non arable	

3. Verification financial and other Records

i. Total Budget	Approved: lakhs	Spent: Rs. 10.42 lakhs
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes, Check dams: 2, Percolation Tanks: 6, Bunding: 45 ha, Gully Control structures: 172, diversion drains were made for Run off to recharge the open wells.	
iv. Whether watershed committees exits	Yes, Chairman:, President:, Secretary:,	
v. if exists, activities of the committees		

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

EPA: 6 number of tube wells were dug for community water supply; some are used while few are having saline water.

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members:10
	Before	After	Before	After	Male:8
	-	5	-	-	Female:2
Describe:					
ii. Records of meetings properly updated					
iii. Liaison with scientific institutions established	Farmers were taken on exposure visit to other Watersheds and Ralegaon Siddi.				
iv. Watershed Development Fund collected?, and its utilization	About Rs.1, 00, 000 were collected and deposited as WDF in the bank.				
v. Self Help Groups	No:		Revolving fund: Rs.		
V.O functioning:			Savings:		
Utilization of loans:					
Bank linkages established:					
vi. Planned CPRs sustainable & equitable development	Tree plantations was done, in and around hillocks				
vii. Benefits to weaker sections (women, dalits & landless)	Bunding and other works were done by labors.				

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	About 150 to 200 open wells and 300 Tube wells are available in the watershed. Very good increase in ground water. Dry open wells were recharged after Water harvesting structures were constructed. Pumping time has doubled after Watershed development.
ii. Additional area under cultivation/horticulture/ afforestation	80% of waste land brought into cultivation. Paddy under irrigation
iii. Changes in cropping pattern and intensity	Maize, chillies, castor, cotton, sorghum, pigeonpea, vegetables;
iv. Changes in agricultural productivity	Maize yield increased a lot, paddy yield increased from 20 bags to 30 bags/acre, cropping intensity doubled, 30% area double cropping.70%in dryland; 30% in irrigated land.
v. Changes in fodder & fuel wood availability	Fodder availability improved.
vi. Changes in size and character of livestock holdings	Milk production increased from 50 litres/day to 300 litres /day – milch animals increased but cattle population decreased
vii. Status of grazing land & their carrying capacity	
viii. Employment generated due to implementation of project	Employment increased after the watershed development.

ix. Change in household category, total, & source-	NA
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Farmers were getting loans from banks, and dependence on private money lenders came down.
xi. Reduction in out-migration (case studies)	50% labors used to migrate earlier, out migration decreased due to NREGS and it could be 10% migration now and some people are coming back from towns.
xii. Reduction in drought vulnerability of the watershed	Ground water availability is helping them to cope with drought
xiii. Detailed case studies of specific farmers impacted by the project	Mr. Ramchandra Reddy had 5 tube wells for 3 acres under cultivation. At present 12-15 acres were brought under cultivation with these same tube wells.
xiv. Photographs showing work + its impact	

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

   Water harvesting structures need repairs for the basement leakages, and desilting also required.

8. **Specific datasets on different impact parameters:**

9. **Observations and Comments by Evaluators:**

   - Improved ground water level after construction of structure and doubled water availability. Wells irrigating one acre earlier, providing irrigation to two acres after watershed development as ascertained by farmers in FGD (picture 28).
   - Relevance of the location of the structure and quality of work is good.
   - No waste land – completely brought under cultivation (80% presently, earlier it was 50% area under cultivation)
   - Groundnut pod yield improved, onion bulb yield doubled, cotton cultivated area increased.

Picture 28. Focused group discussion with farmers and beneficiaries in Tirumalgiri watershed

Impact Assessment Report
Thothinonidoddi Watershed, DPAP-IV batch
Ieeja Mandal, Mahabubnagar district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	DPAP-IV Batch
ii. Name of the watershed:	Thothinonidoddi
iii. Names of villages in the Watershed:	Thothinonidoddi
iv. Villages/Mandal/District:	Thothinonidoddi/Ieeja/Mahabubnagar
v. Name and Address of PIA:	ACF, MDT-VI, Wanaparthy
vi. Total area of the watershed:	500 ha

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	
vi. Treated non arable	

3. Verification financial and other Records

i. Total Budget	Approved: lakhs	Spent: Rs. 9.75 lakhs
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per records	Yes, check dams: 1, Percolation tanks: 5, Rock filled dams / Loose Boulder Structures: nil, Sunken pits: 40, Field Bunding: 300 acres done however farmers removed. One side breach to check dam was made by people to allow water to go down and avoid inundation of village	
iv. Whether watershed committees exists	Yes, Chairman:Mr. K. Bheemanna, President: Mr. E. Chandran Goud, Secretary: Mr. T. Shankar Gouda,	
v. if exists, activities of the committees		

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

Nil

5. Qualitative Parameters of Impacts

<table>
<tr><td rowspan="4">i. Functioning of village level institutions

Describe:</td><td colspan="2">No. of UGs</td><td colspan="2">No. of SHGs</td><td>WC members:12</td></tr>
<tr><td>Before</td><td>After</td><td>Before</td><td>After</td><td>Male:8</td></tr>
<tr><td>-</td><td>-</td><td>-</td><td>20</td><td>Female:4</td></tr>
<tr><td colspan="5"></td></tr>
<tr><td>ii. Records of meetings properly updated</td><td colspan="5">Watershed committee meeting were held monthly once, watershed association meeting were held once in 2 months Records were maintained properly</td></tr>
<tr><td>iii. Liaison with scientific institutions established</td><td colspan="5">Committee members and farmers visited Ralegaon Siddi village and Annahazari to understand natural resource conservation.</td></tr>
<tr><td>iv. Watershed Development Fund collected?, and its utilization</td><td colspan="5">Rs.85000 was contributed by members towards contribution to WDF fund in a bank account.</td></tr>
<tr><td>v. Self Help Groups</td><td colspan="2">No: 20</td><td colspan="3">Revolving fund: Rs.50000 @ 2500/group</td></tr>
<tr><td>V.O functioning:</td><td colspan="2"></td><td colspan="3">Savings:</td></tr>
<tr><td>Utilization of loans:</td><td colspan="5">Vegetable business, milch cattle, sheep rearing</td></tr>
<tr><td>Bank linkages established:</td><td colspan="5"></td></tr>
<tr><td>vi. Planned CPRs sustainable & equitable development</td><td colspan="5">Two Percolation tanks were constructed in the CPR lands</td></tr>
<tr><td>vii. Benefits to weaker sections (women, dalits and landless)</td><td colspan="5">Employment generated during works</td></tr>
</table>

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	All 80 open wells in the village were dried up before the watershed implementation. At present 300 bore wells are functional, check dam and percolation tanks have been useful to improve the ground water availability extending from February up to May. Water is available now even in open wells. Hand bore is used for drinking water all the year round in the village.
ii. Additional area under cultivation/horticulture/ afforestation	No additional area was brought under cultivation. Sweet orange plants for 500 acres were given. Due to low yield and income farmers up rooted sweet orange plants after 6years of growth and after taking 2-3 crops.
iii. Changes in cropping pattern and intensity	Cotton, castor, and paddy as rainy season crops and Groundnut, sunflower as rabi season crops under supplemental irrigation.
iv. Changes in agricultural productivity	Groundnut: 9 bags/acre, sunflower: 3 q/acre, cotton: 3-4 q/acre, castor: 4 q/acre. Not significant improvements in productivity as farmers are not aware of improved management.

v. Changes in fodder & fuel wood availability	
vi. Changes in size and character of livestock holdings	
vii. Status of grazing land & their carrying capacity	
viii. Employment generated due to implementation of project	
ix. Change in household category, total, & source-	
x. Freedom from debt and reduction in degree of dependence of money lenders (case studies)	Banks loans are available to farmers as farm input credit however, approaching private lenders are also.
xi. Reduction in out-migration (case studies)	Migration increased to an extent of 25%
xii. Reduction in drought vulnerability of the watershed	Drought vulnerability still existing
xiii. Detailed case studies of specific farmers impacted by the project	Mr. Gonaram Nagendra and Mr. G. Pedda ramaiah are the major beneficiaries of watershed development and sweet orange plantation under horticultural component.
xiv. Photographs showing work + its impact	

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

   - Farmers expressed that Sunken pits are not useful in a long run.
   - Percolation Tanks are very useful to develop ground water as bore wells, open wells gets recharged.
   - Horticulture plantation and orchard development was good, but farmers perceptions have made them to remove orchards and then income badly affected

8. **Specific datasets on different impact parameters:**
9. **Observations and Comments by Evaluators:**

   - Relevance of the location of the structure Consideration of technical inputs is Fair
   - Physical measurements(whether matching with M book): Yes
   - Quality of the work and after maintenance of the structure is fair

- Percolation Tank bund length of 120 m damage due to floods during 2009, silted up heavily and desilting is required (picture 30)

- Check dam was constructed in an incorrect site and breaches along the side wall (picture 29); it was constructed in common lands which were not cultivable.

- Four open wells with 50' depth were seen, having 4 m column of water present in the well. A total of 10 to 20 acres were cultivated under these wells.

	
Picture 29. A check dam without cultivable land around incorrect site.	Picture 30. Percolation tank silted up after the floods in 2009

Impact Assessment Report
Ulligundam Watershed, DPAP-IV batch
Damargidda Mandal, Mahabubnagar district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	DPAP-IV Batch
ii. Name of the watershed:	Ulligundam
iii. Names of villages in the Watershed:	Ulligundam
iv. Villages/Mandal/District:	Ulligundam/ Damargidda/ Mahabubnagar
v. Name and Address of PIA:	MDT II, Narayampet
vi. Total area of the watershed:	500 ha

2. Land Use Pattern:

i. Arable land (ha)	315 ha
ii. Non arable land (ha)	185 ha
iii. Government/Community land (ha)	50 ha/ no assigned lands
iv. Private land (ha)	450 ha
v. Treated arable	300 ha
vi. Treated non arable	90 ha

3. Verification financial and other Records

i. Total Budget: Rs.15.45 lakhs	Approved: Rs. lakhs	Spent: Rs.13,28,000lakhs
ii. Expenditure incurred as per guidelines	No	
iii. Works executed as per Records	Yes, Check dams: 2 (bad condition, apron & revetment has been washed away), Percolation Tanks: 7 (breached away by heavy rains), Field Bunding: 107 acres, Rock filled dams/Loose Boulder Structures: 300/1000 (Some road side ones were taken away), Sunken pits: Nil.	
iv. Whether watershed committees exists	Yes, Chairman: K. Kista Reddy, President: G.S. Pushapalu, Secretary: Kishan Das	
v. If exists, activities of the committees	Nil	

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

EPA: Nil

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members:11
	Before	After	Before	After	Male
	-	No group	-	12	Female:2
Describe:					
ii. Records of meetings properly updated	Watershed Committee meets once in 15 to 30 days Watershed Association meets once in 6 months				
iii. Liaison with scientific institutions established	Farmers including committee members visited Raligam siddi; listened to Anna Hazari efforts. The visit was made only after our project works were completely				
iv. Watershed Development Fund collected?, and its utilization	RS.47000 was collected and deposited in the account				
v. Self-Help Groups	No:		Revolving fund: Rs. Nil		
V.O functioning:			Savings:		
Utilization of loans:					
Bank linkages established:	Were established, vegetable business, milk cattle				
vi. Planned CPRs sustainable & equitable development	Government land does not exist; field bunding in SC/ST CPR lands which were allotted to beneficiaries, bunding still exists and intact.				
vii. Benefits to weaker sections (women, dalits & landless)					

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Open wells: 30 (but dried); bore wells: 50, 1 to 2 m water level increased. Period of water availability before watershed was up to December, and after watershed development water availability period is up to the month of May. Water deficit exists for 2-4 months during the year
ii. Additional area under cultivation/horticulture/ afforestation	100 acres under seasonal crops, 6 new bores were dug and cultivation was newly developed, Mango 5-6 acres but removed because of termite infestation. Social forestry road side with 300 plants was done
iii. Changes in cropping pattern and intensity	Paddy, Groundnut, Vegetable
iv. Changes in agricultural productivity	Paddy grain yield was 40 bags (28 q)/acre (Rs.20000), Groundnut pod yield was 10 bags (4 q)/acre (Rs.10000), Vegetables cultivated were Tomato, Brinjal and Bendi.
v. Changes in fodder & fuel wood availability	Fodder sorghum is grown and available
vi. Changes in size and character of livestock holdings	
vii. Status of grazing land & their carrying capacity	Open grazing is still continuing and stall feeding is restricted to milch animals.

viii. Employment generated due to implementation of project	
ix. Change in household category, total, & source-	
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Bank loans increased to Rs.50000/acre Reduced private lending.
xi. Reduction in out-migration (case studies)	3-5% migration on a permanent basis, seasonal migration reduced.
xii. Reduction in drought vulnerability of the watershed	Vulnerability still exists as invest sets increased
xiii. Detailed case studies of specific farmers impacted by the project	A. Venkata Reddy, S/o Narasi Reddy, 3 acres mango was at bearing stage, Rs.20000/acre/annum B. Sai Reddy has sweet oranges in 2 acres increased to 4 acres now
xiv. Photographs showing work + its impact	

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

i. Check dams should be desilted, and aprons/revetments should also be redone, percolation tanks should be desilted as well as breaches to be repaired

ii. Farmers identified more sites to construct four check dams for water conservation; five Percolation Tanks also may be built to benefit farmers (picture 31).

iii. Field bunding for another 500 acres may be developed.

8. Specific datasets on different impact parameters:

9. Observations and Comments by Evaluators:

- A percolation tank with a bund of 60 m length; 2.4 m height; 7.5 m wide base wall and 1.2m wide top wall was visited (picture 32). Pitching is very good with good water storage
- 10 farmers are benefited, cultivating 50 acres under irrigation.
- Drinking water availability for cattle during summer is a major benefit from the Percolation Tank. Silt removal and formation of outlets for PT is required urgently.
- Relevance of the location of the structure Considering technical inputs and the quality of work is Good.
- Physical measurements (whether matching with M book): Yes
- After maintenance of the structure is also good

	
Picture 31. Watershed committee members discussion in Ulligundam village.	Picture 32. Percolation tank with full water level in Ulligundam watershed.

Impact Assessment Report
Waddeman Watershed, DPAP-IV batch
CCkunta Mandal, Mahabubnagar district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	DPAP-IV Batch
ii. Name of the watershed:	Waddeman
iii. Names of villages in the Watershed:	Waddeman
iv. Villages/Mandal/District:	Waddeman/CCkunta/Mahabubnagar
v. Name and Address of PIA:	ACF, MDT-VI, Wanaparthy
vi. Total area of the watershed:	500 ha

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	
vi. Treated non arable	

3. Verification financial and other Records

i. Total Budget	Approved: lakhs	Spent: Rs. 14.17 lakhs
ii. Expenditure incurred as per guidelines		
iii. Works executed as per Records	Yes, check dams: 28, Percolation tanks: 21, Bunding: 200 acres, Rock filled dams/Loose Boulder Structures: -	
iv. Whether watershed committees exists	Yes, Chairman: Mr. A. Sudharshan Reddy President: Mr. A.Mallaiah Secretary: Mr. Manzur Ahmed	
v. If exists, activities of the committees		

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

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members:11
	Before	After	Before	After	Male
				11	Female:4
Describe:					
ii. Records of meetings properly updated					
iii. Liaison with scientific institutions established					
iv. Watershed Development Fund collected?, and its utilization	RS.160000 10%				
v. Self Help Groups	No:		Revolving fund: Rs.		
V.O functioning:			Savings:		
Utilization of loans:					
Bank linkages established:					
vi. Planned CPRs sustainable & equitable development	No development				
vii. Benefits to weaker sections (women, dalits & landless)					

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Open wells: 5; Bore wells: 30 Drinking water for cattle Water levels increase. Soil erosion reduced
ii. Additional area under cultivation/horticulture/ afforestation	
iii. Changes in cropping pattern and intensity	
iv. Changes in agricultural productivity	Castor Cotton
v. Changes in fodder & fuel wood availability	
vi. Changes in size and character of livestock holdings	
vii. Status of grazing land & their carrying capacity	

viii. Employment generated due to implementation of project	
ix. Change in household category, total, & source-	
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Loans were available from market yard and also from banks for farm input credit.
xi. Reduction in out-migration (case studies)	20% out migration is still continuing as they take large sum of money as advance with out interest
xii. Reduction in drought vulnerability of the watershed	
xiii. Detailed case studies of specific farmers impacted by the project	
xiv. Photographs showing work + its impact	

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

   - Horticulture plantation should have been better
   - Field bunding should have been helped in crop production

8. **Specific datasets on different impact parameters:**

9. **Observations and Comments by Evaluators:**

   - Relevance of the location of the structure considering technical inputs was good
   - Physical measurements were matching with M book and Bunding was also good
   - Quality of the work and after maintenance of the structure was fair
   - Check dam silted up, side walls damaged due to recent flash floods
   - Percolation tank: good pitching stable, good water storage, structure is very good, down stream good recharge of water.
   - Improved ground water level enhanced water availability for agriculture and drinking water for cattle, horticulture has been very useful to farmers.

ANALYSIS OF IMPACTS

Drought Prone Area Programme (Batch IV) targeted and developed 120 watersheds in 54 mandals (15 erstwhile revenue blocks) in Mahabubnagar district during four years which had started in the year 1998-99 and execution of developmental activities completed during 2005-06, with a delay of almost four years from the sanctioned period. The area treated under watershed activities (SWC structures) was 60,000 ha with a total expenditure of Rs.2398.758 lakhs directly released to watershed committees during the period. Amounts sanctioned towards training, community participation and administrative charges to the tune of Rs. 614.6 lakhs were released to concerned PIA directly. We chose 20 watersheds developed by PIAs from 20 different mandals of Mahabubnagar to have well distributed representation of watersheds for the present impact assessment study.

Verification of Records

In this district, we spent lots of time to 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 completely. Our efforts were fruitful finally 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. This report was useful in 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 and we did not get access to those records at DWMA office.

Community (People's) Participation

DPAP was a people's programme with Government assistance. The Government complements their work by creating social awareness, imparting training and providing technical support through project implementation agencies. At the inception stage, in four of the twenty selected watershed villages for impact assessment, Entry Point Activity (EPA) was implemented either by digging community bore wells (Thirumalagiri) for water supply, construction of a temple (Kodoor), tree plantation in the village (Abhangapatnam) or gully control structures (Mannapur) in the sloppy areas of the watershed that ensured community participation and awareness about the watershed project. In most of the watersheds EPA

was not be done and villagers were not aware of the EPA. In watershed villages where EPA was undertaken, villagers were satisfied and appreciative of the usefulness of the works.

Project expenditure pattern (Table 1) indicates that spending on community organizations development and training of beneficiaries was less than 2% as against stipulated allocation of 5% of the budget. 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 taken up moderately as was evidenced by moderate growth of total 175 SHGs in 14 watersheds out of 20 watersheds assessed; and a very few are functional at present in the selected 20 watershed communities. In large scale activities which promote income generation like raising nursery of horticultural and forest tree plants, weaker sections and women through SHGs should have been involved. SHGs development was not conspicuously seen in terms of successful and sustainability of rural livelihoods for income generation.

A total of 43 user groups (UGs) were formed in six watersheds (Allapur – 8, Azillapur – 4, Jamisthapur - 6, Kodoor - 14, Magdumpur – 6 and Tirumalgiri- 5) out of the twenty watersheds. Soil and water conservation works were undertaken by the WCs without much participation of people and in some watersheds although farmers participated for works in their fields. User groups' participation in constructing SWC structures would have developed belongingness and prompted for timely management of these structures.

Soil and water conservation structures

Soil and water conservation works permitted under this component in the project was for an estimated allocation and release of Rs.1918.4 lakhs (80%) to cover 60000 ha, an amount of Rs. 1818.11 lakhs (74.74%) was spent. A total of 30797 m^3 of continuous contour trenches, 1883 no. non-cemented water harvesting structure, 165 cemented SWC structures as check dams, 250 percolation tanks, 883 diversion drains, 78 farm ponds and 2378 m^3 of desilting works were done with an expenditure of Rs.273.3 lakhs in this 20 selected watersheds for impact assessment in the DPAP-IV project.

In majority of watersheds assessed (in 16 out of 20 watersheds) construction quality of masonry structures either by PIA of government organization or NGO were generally good and suitably located. In Khanapur, watershed structures and works did not exist beyond the first year of implementation and in Bommanpalli check dams were affected either by

leakages or by breaches due to very poor construction. However, in most of these 20 watersheds some structures were damaged for lack of maintenance of the structures for a longer period, also due to floods during October 2009 and this needs immediate attention to repair these structures and desilting to improve efficiency of SWC structures.

In Cherla Tirumalapur, Bommanpalli and Waddeman watersheds, the structures were of poor quality and some of the road-side RFDs were removed by villagers. Bunding in Khanapur is mostly eroded due to no maintenance by less interested farmers. Hence, farmers are not much benefitted in terms of soil and water conservation and groundwater improvement.

Water availability for irrigation and drinking purpose

Farmers in eighteen out of twenty selected watersheds located in different mandals reported an increase in ground water levels ranging from as low as 0.5 feet in Cherla Tirumalapur to a maximum of 10-15 feet in open wells of Jamisthapur and Malleswaram due to SWC structures as well as field bunding. In Magdumpur, all the open wells were rejuvenated after watershed developments, which were dried up before the watershed implementation. Water availability in the open wells increased during March-April months for irrigation. In six watersheds, the number of successful bore wells increased to more than 200 in each watershed, as an indication of farmers' confidence on water availability and exploitation for higher income. In Jamisthapur, Malleswaram and Tandra watersheds, farmers realized more water availability in treated watershed areas of these villages compared to less availability of groundwater in surrounding un-treated watershed villages in the area. Impact of watershed interventions especially masonry structures have been felt very much by the beneficiary farmers in DPAP-IV developed watershed villages in terms of their utility to control erosion, to some extent ground water increase and more importantly availability of water for drinking purpose. Period of water availability for irrigation extended during November-December months before the watershed development to end of March-April after the watershed development. In Allapur, farmers reported an increase of 0.5" water delivery from bore wells i.e. from 1.5" delivery increase to 2" in most of the bore wells in their village and bore wells supply water round the year. In Kolluru, daily bore well pumping time increased by 25% after the watershed development. These situations favored for double cropping with one or two supplemental irrigations for second crops between January and 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 (Waddeman and Ulligundam), water storage in percolation tanks was providing drinking water for cattle population even during summer months.

Enhanced agricultural productivity of seasonal crops

Due to water availability, farmers in all watersheds reported increase in cultivated area of paddy and post-rainy season crops especially groundnut. Crop intensity increased from 100% to a range between 150%-200% as the number of bore well those support second crop were more than 200 per village in at least six villages in our study. Due to availability of water for longer period in the season up to end of March-April, crops like groundnut, sunflower and maize as second crop after paddy was introduced. Although, variability exists in reported productivity enhancement, it varied from as low as 20% in case of castor and pigeonpea to more than 50% increase in case of grain crops like paddy, maize as well as second crop of groundnut and sunflower in some watersheds. Some farmers cultivated paddy in two seasons under bore well irrigation in the second season. Yields of paddy in the first season generally increased from 20 bags to a range between 25 to 30 bags per acre and in the second season average yield was up to 35 bags per acre. 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-IV watersheds of Mahabubnagar, afforestation activity received relatively less attention. However, horticulture activity received considerable interest among farmers for mango and sweet oranges cultivation on seeing the success of watershed farmers planted mango and sweet oranges through DPAP–I. In 20 watersheds, 441 ha of mango and sweet orange plantation was established, reaping good harvest of fruits and income. Major areas include 95 ha in Mannapur, 51 ha in Thothinonidoddi, 52 ha in Janumpally, 52 ha in Kosgi and 40 ha in Tandra watersheds. In the range of 10 to20 ha of mango orchards were established in seven other watersheds. Actual area targeted under mango plantation and plants supplied to farmers were 4 to 5 times higher to the actually survived and established

in orchards. Mango plants survival rate was affected due to several reasons including less care initially from trespassing cattle and low watering at establishment.

Farmers had harvested mango with a net income ranging from Rs.10,000 to Rs.20,000 per acre based on growth and age of mango orchards. Farmers in various DPAP-IV watersheds indicated that their net income from sweet orange orchards varied from Rs.25,000 to 50,000 per acre based on the age and growth of the orchard. Teak and Tamarind plantations were developed under afforestation on field bunds of interested farmers.

Farmers indicated reasons for poor establishment of orchards due to:

1. Low quality sweet orange plants and low quality small and weak mango plants were supplied;

2. Lack of sufficient water supply during establishment due to drought during 2001-2004 seasons; and

3. In unprotected orchards, plants were exposed to goat and cattle grazing during summer season.

Common Property Resources and Wasteland Development

Mahabubnagar is one of the frequently drought affected districts having large areas of wastelands. Development of common property resources (CPRs) was done in six watersheds of the twenty selected watersheds in the project for the impact assessment study. In Allapur watershed, 10-15 ha bunding and also silt application was done in CPRs, grass seeds were distributed to grow grass in CPRs as well as individual farm lands in Janumpally watershed. In Kolluru watershed, SWC structures were developed in CPRs similar to the entire watershed with construction of check dams, percolation tanks, formation of field bunds and planting teak and subabul plants. In Tirumalgiri, afforestation by tree planting on hillocks (CPRs) was done. In Thothinonidoddi, two percolation tanks were dug in CPRs. In Ulligundam, field bunding was done in CPR lands which were allotted to SC/ST farmers and have already been under cultivation by them with usufruct rights. In all other watersheds, there was no information on CPRs development during DPAP- Batch IV Project.

Employment and Migration

In the entire Andhra Pradesh, Mahabubnagar has the distinction of highest labor migration in the state, due to scarce rainfall and low productivity of dryland crops. In the selected

twenty watershed villages for impact assessment, the migration for employment reduced four-fold in five watersheds (25%) villages and these are Abhangapatnam, Cherla Tirumalapur, Jamisthapur, Magdumpur and Manigilla. These correspond to well developed watersheds with higher water availability. In another fourteen (70%) of the watershed villages, migration reduced to 5%-10% from as high as 30%-60% in some villages, not only due to watershed development and crop productivity increase, but because of National Rural Employment Guarantee Scheme (NREGS) of the central government in operation for the couple of years. Surprisingly in Thothinonidoddi watershed, people reported 25% increase in labor migration. As informed by respondent farmers at the time of focused group discussion, 3-5% 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 25% (5) of the watershed villages farmers expressed affirmatively for withstanding drought affects for one or two years and expressed vulnerable for mainly fodder scarcity as there is no fodder availability for large number of goat, sheep and cattle population. Farmers expressed fodder scarcity even in subnormal or poorly distributed years of rainfall season when crop production becomes lower and hence cattle population is decreasing.

Watershed Development Fund

Watershed development fund should be collected in all the watersheds as per guidelines and deposited into the banks for joint operations by watershed committee and WDT from the PIA. It is gathered from FGDs and reports that WDF as low as Rs. 72,000 in Kolluru watershed village and WDF as high as Rs. 1.60 lakhs in Waddeman were deposited 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.

Suggestion for enhanced impacts in the watersheds

1. Watershed development fund contributed by watershed members should be utilized for repair and maintenance of watershed structures on regular basis annually, either by desilting, attending necessary repairs for masonry structures and rock filling and earth works for breaches.

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. An example was available from Alwal watershed of DPAP-Batch I, managed by WC, Alwal; for further study.

3. Mango and sweet orange 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 zones.

4. Fodder availability is another issue which may need attention to enhance income and livelihoods for poor by rearing 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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