

Impact Assessment Report

Integrated Wasteland Development Project (IWDP-Batch I)



**Medak District
Andhra Pradesh**

BY

Research Program on Resilient Dryland Systems



**International Crops Research Institute
for the Semi-Arid Tropics**
Patancheru 502 324, Andhra Pradesh, India

August 2011

Impact Assessment Report

Integrated Wasteland Development Project (IWDP-Batch I)

**Medak District
Andhra Pradesh**

BY

Research Program on Resilient Dryland Systems



**International Crops Research Institute
for the Semi-Arid Tropics**
Patancheru 502 324, Andhra Pradesh, India

August 2011

Contents

	Particulars	Pages
Acknowledgement		01
Abbreviations		02
Executive Summary		03
Background		04
Method of Impact Assessment		06
	Multi-Disciplinary Impact Assessment Team	06
	Discussions with DWMA Officials	06
	Focused Group Discussions	08
	Field Visits	08
	Period of Evaluation	09
Watershed-wise Impact Assessment Reports		09
Bussapur		10
Chinna Gundavelly		14
Duddeda		17
Irukodu		21
Bakrichepyala & Nancharipally		25
Ponnala		29
Tadkapally		33
Thoguta		36
Velikatta		40
Yellareddypeta		44
Analysis of Impacts		47
	Verification of Records	47
	Community (People's) Participation	47
	Soil and Water Conservation Structures	47
	Water Availability for Irrigation and Drinking Purpose	48
	Horticulture, Agro forestry, Peripheral planting and social forestry	48
	Enhanced Agricultural Productivity of seasonal crops	48
	Common Property Resources and Wasteland Development	49
	Employment and Migration	49
	Watershed Development Fund	50

Acknowledgements

We express our gratitude to the Department of Land Resources, Ministry of Rural Development, Government of India, New Delhi; for assigning the study of impact assessment of IWDP Batch I watersheds in Medak district. We greatly acknowledge to the Commissioner, Department of Rural Development, the Government of Andhra Pradesh for providing co-ordination with Project Director, District Water Management Agency (DWMA), Medak; to guide us in selecting watersheds for complete representation of variability of watersheds for the study of impact assessment of IWDP Batch I watersheds in Medak.

We sincerely acknowledge the support and guidance of Project Director, DWMA and Mr. Mangaiiah Sarma, Additional Project Director, DWMA for providing all support with active participation and getting required support from his project staff. We record our profound thanks to Assistant Project Directors of Siddipet, Kondapaka and Thoguta mandals for their untiring support and help touring along with us every day and organizing *gram sabhas* and field visits in all watersheds, which was most crucial in our efforts.

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.

Dr. S P Wani

Principal Scientist (Watersheds) and Project Coordinator IWMP

Research Program on Resilient Dryland Systems

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), Patancheru

A. P 502324

Abbreviations

APD:	Assistant Project Director
CJFS:	Co-operative Joint Farming Societies
DWMA:	District Water Management Agency
EAS:	Employment Assurance Scheme
FD:	Forest Department
IWDP:	Integrated Watershed Development Programme
MDT:	Multi Disciplinary Team
NGO:	Non-governmental Organization
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
SPW:	Silt Protection Wall
SHGs:	Self Help Groups
SMC:	Soil moisture conservation
UGs:	User Groups
VSS:	Vana Samrakshana Samithi
WA:	Watershed Association
WDC:	Watershed Development Committee
WDF:	Watershed Development Fund
WDT:	Watershed Development Team

Executive Summary

1. Farmers in different villages confirmed that water level in open wells increased on an average in the range of 3 to 15 feet during the SW monsoon rainy season and availability is extended by about 2 months in the dry season during year. Farmers mentioned that period of water availability in open wells for irrigation extended from January before the IWDP initiative to end of March after the watershed development. This situation favored a change to double cropping with four or six supplemental irrigations for second crop between January to March. All this impact was felt by the beneficiaries because of good quality soil and water conservation interventions and water harvesting structures at right location developed through this project. Commendable efforts by the project managers, staff, as well as WC were responsible for these positive impacts in these watersheds.
2. Drinking water is available sufficiently in all the villages round the year for human and cattle requirements as was observed by us and acknowledged by beneficiaries.
3. Appropriate and more trainings on productivity enhancement technology to WC members and farmers, and establishment of linkages to technology centers through farmers' visits in this project would have benefitted farmers and rural poor and created more impact on their incomes, as there were no new cropping technologies or new livelihood activities significantly adopted by farmers and rural poor. Over all training component target was not achieved.
4. Variability exists in reported increase in crop productivity across watersheds from as low as 10% to more than 20% in main crop season as well as second crop season in some watersheds. Farmers could cultivate commercial crops like fruits and vegetables and earning good income.
5. It was revealed in our assessment that the concept of community participation was given low priority during the implementation phase as evidenced by non-existence of Self help groups and their functioning for income generation among rural poor.
6. In all the watersheds, we did not observe formation or functioning of self help groups (SHGs) since the implementation phase of the project. Some SHGs currently functioning in the watersheds did not receive any assistance in the form of revolving fund from this

project. Training of rural poor on livelihood activities did not receive much attention for sustainability income of these groups in the watersheds.

7. Employment increased and migration reduced completely or restrict up to 10-25%, and this migration was mainly confined to semi skilled or skilled migration for gainful employment.
8. WDF funds collected were in the order of Rs.9.95 lakhs plus interest on principle in 10 watersheds under IWDP I. If these funds were made available for repair and maintenance of soil and water conservation and water harvesting structures which are of good quality and rightly placed, their impact would have been felt much better by the beneficiaries in the watershed.
9. Farmers are getting an income of Rs. 60,000 per hectare from Mango plantation and hence their preference to this crop in the district. However, enough cautions should have been observed while selecting Mango seedlings from nurseries, as plants supplied to farmers were of poor quality and affecting the income of these farmers after 5 years.
10. Project has achieved its objectives in bringing up more than 200 ha additional area in to cultivation and the tree culture in more than 30 ha wastelands by not only concentrating on horticulture plantation which is of interest to farmers, but by promoting mango, guava, pomegranate, sweet lime, acid lime, coconut, goose berry, teak and Eucalyptus in back yard plantation. This was a commendable effort due to the interest of PIAs from the project implementing agencies in popularizing the tree plantation.

Background

Department of wasteland development under the Ministry of Rural areas and Employment, Government of India, sanctioned the Integrated Wasteland Development Project (IWDP) - Phase I for Medak district of Andhra Pradesh. The project encompassed treatment of 12500 ha of wastelands in 25 watersheds of Siddipet, Kondapaka and Thoguta Mandals of Medak district. The objectives of this project were 1. To integrate land and water management and waste land development in village micro-watershed plans, 2. To enhance peoples participation in the wasteland development program at all stages. This project was sanctioned for implementation with a project budget outlay of Rs. 400 lakhs (table 1), and to accomplish over a period of 4 years from 1998-99 to 2001-02.

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

Components of Developmental activities	Total target/allocation	
	Physical Nos/(ha)	Financial (Rs. lakhs)
Community organizations		25
Training	268	20
Soil moisture conservation	2860	95
Water harvesting structures	583	145
Afforestation works	1625	65
Pasture development	480	48
Horticulture Development	1300	52
Administrative Overheads		50
Area to be treated (works)	12500	405

District Rural Development Agency (DRDA) Medak, 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. DRDA-Medak selected the Divisional Forest Officer (Territorial), a government agency for project implementation during 1998-99 to 2001-2002.

The project implementation started in the year 1998-99 and works were implemented in 25 watersheds as per approval. However project was implemented in 25 watersheds each comprised of two or three villages as a cluster selected based on 1. Availability of large extent of wastelands in contiguous blocks, 2. Forming part of the area of watershed draining to a river/stream/local tank. The project execution over run the stipulated period and was completed by 2004-2005.

Agricultural Situation in Medak

Soils and Land use pattern

In Medak, Black soils occupy 23% land area, red soils are present on 43% area and 34% area is with sandy soils. In the total geographical area of Medak (13.16 lakh ha), 41.3% is arable land, forests occupy on 18.7% of area, and barren and uncultivable area is around 13.8%. Out of the arable land, net sown area is only 23.8%, while cultivable wasteland and fallow lands constitute 11%

Method of Impact Assessment

Multi-disciplinary Impact Assessment Team

Dr. S. P. Wani, Principal Scientist (Watersheds) and Project Coordinator IWMP, Research Program on Resilient Dryland Systems

Mr. Ch. Srinivasa Rao, Senior Scientific Officer, Soil Science

Mr. V. Nageswarar Rao, Lead Scientific Officer, Agronomy

Mr. L. S. Jangawad, Lead Scientific Officer, Agricultural Engineering

ICRISAT's Research Program on Resilient Dryland Systems, which was responsible for the impact evaluation of the IWDP watershed projects in Medak, 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/Soil science/hydrology, engineering/technical aspects and social aspects/institutions.

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

Discussions with DWMA Officials

ICRISAT undertook the assessment with an open and participatory approach with the staff of the DWMA and village level staff. The involvement of the program staff of the respective watershed projects at various stages of the assessment aimed at enhancing the ownership of the results among the extension personnel. Impact assessments in Medak started with a meeting of the ICRISAT team with three of the Assistant Project Directors (APD) of DWMA and their staff under the instruction of Project Director of the District Water Management

Agency, Medak. Meeting with project staff helped us to finalize the list of watershed villages (Table 2.) evenly spread across 3 mandals in Medak district (Map 1. Medak district) for impact assessment and scheduled our visit. We also ensured accompanying and participation of concerned APDs in FGD in watersheds in their respective mandals, and their presence was quite helpful in calling the *gram sabha* and field visits to watershed structures.

Table 2. List of selected IWDP I watersheds, and concerned APDs for impact assessment

S. No.	Name of the watershed	Mandal	Name of the PIA
1.	Bussapur	Siddipet	MDT, Siddipet
2.	Chinna Gundavelly	Siddipet	MDT, Siddipet
3.	Duddeda	Kondapaka	MDT, Kondapaka
4.	Irukodu	Siddipet	MDT, Siddipet
5.	Bakrichepyala & Nancharipally	Siddipet	MDT, Siddipet
6.	Ponnala	Siddipet	MDT, Siddipet
7.	Tadkapally	Siddipet	MDT, Siddipet
8.	Thoguta	Thoguta	MDT, Kondapaka
9.	Velikatta	Kondapaka	MDT, Kondapaka
10.	Yellareddypeta	Thoguta	MDT, Kondapaka



Map 1. Location of selected IWDP watersheds in three mandals of Medak district

Focused Group Discussions

The focus-group-discussions were held with members of the watershed development team, the watershed committee, farmers/beneficiaries and when possible with the Gram Panchyat president. Focus-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 focus-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.



Picture 1. FGD in Chinna Gundavally village



Picture 2. FGD in Thoguta village

Field Visits

While the focus-group-discussions were held in the village, other member(s) of the team inspected a minimum of two structures considering them as sample of the physical structures such as check-dams, percolation tanks, RFDs/LBS, open wells and field bunding,

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 IWDP-I watersheds in Medak was done during 2nd week of November 2009, and the actual field visits took place for a week in Medak district with the help of project staff of DWMA, Medak.

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 10 watersheds assessed during November 2009.

Impact Assessment Report
BUSSAPUR Watershed, IWDP – I Batch,
Siddipet Mandal, Medak District, Andhra Pradesh

1. Details of Watershed:

i. Name of the Scheme:	IWDP - I Batch
ii. Name of the watershed:	Bussapur
iii. Names of villages in the Watershed:	Bussapur, Ghanapur, Venkatapur
iv. Villages/Mandal/District:	Bussapur/Siddipet/Medak
v. Name and Address of PIA:	MDT, Siddipet
vi. Total area of the watershed:	500 ha

2. Ownership Pattern of Land:

i. Community land (ha)	
ii. Government land (ha)	
iii. Private land (ha)	
iv. Forest land (ha)	
v. Others	

3. Verification Financial and other Records

i. Total cost:	Approved:	Spent:
ii. Expenditure incurred as per guidelines	Yes.	
iii. Works executed as per Records	Check dams=Nil; PTs=13 one repaired, and all are in good condition; RFDs/LBs=130; Sunken pits=100; Field bunding=12 ha; Feeder channels=3 (4 km) Two repaired and one newly dug in Bussapur.	
iv. Whether watershed committees exists	Yes, G. Anjaneyulu-Chairman; Ramulu-President; A Malla Goud -Secretary	
v. if exists, activities of the committees	No activities and no clear guidelines to use WDF to repair and maintain the structures.	

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

Bus shelter was constructed with 50% contribution from watershed fund and another 50% contribution from APSRTC.

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions Describe	No. of UGs		No. of SHGs		WC members: 11
	Before	After	Before	After	Male: 7
	-	13	-	-	Female: 4

ii. Records of meetings properly updated	Yes, WC used to meet once in 3 months and were conducted systematically, WA once in 6 months to take approval of WS works.	
iii. Liaison with scientific institutions established	Farmers were taken on exposure visit to ICRISAT and Ralegaon Siddi watersheds.	
iv. Watershed Development Fund collected?, and its utilization	Yes, collected Rs. 1,10,000/- towards WDF and not spent due to lack of clear guidelines.	
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)	Provided employment while executing the watershed activities.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Open wells= 300 and all dried up; Bore wells= 400 only in Bussapur; Ghanapur 500; Venkatapur=400. Drinking water was available in wells up to February only before watershed development and after watershed interventions all bore wells are supplying 2 inch water up to March and 1.5 inch up to May.
ii. Additional area under cultivation/horticulture /afforestation	40 ha together in 3 hamlets/ Mango was distributed 4-5 plants and teak plants 4-5 plants per famer family and no block plantations were promoted.
iii. Changes in cropping pattern and intensity	Paddy, Maize, Sunflower and Tomato crops were grown earlier and after watershed interventions Maize, Paddy, Pigeonpea, Sunflower, Beans, Tomato, and Watermelon are grown by farmers.
iv. Changes in agricultural productivity	Maize productivity 3.8 to 4.5 t/ha, Paddy: 6.0 t/ha and Sunflower: 1.3 t/ha.
v. Changes in fodder & fuel wood availability	Not much change in fodder and fuel wood availability.
vi. Changes in size and character of livestock holdings	Milch cattle are increasing and other livestock is decreasing year after year due to increased maintenance cost.
vii. Status of grazing land & their carrying capacity	Very less grazing lands are available.
viii. Employment generated due to implementation of project	All laborers got good employment during the implementation of watershed activities.

ix. Change in household category, total, & source-	All the beneficiary farmers are better now.
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Farmers are taking bank loans and less dependence on private money lenders.
xi. Reduction in out-migration (case studies)	Migration increased from 15 members to 50 members on daily basis to Siddipet town due to decreasing rainfall and frequent droughts year after year.
xii. Reduction in drought vulnerability of the watershed	Not much change.
xiii. Detailed case studies of specific farmers impacted by the project	Bathina Rangaiah and N Raja Reddy are benefited with percolation tank and they could grow vegetable crops in during post rainy season.
xiv. Photographs showing work + its impact	Please see the pictures below.

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

- i. Water availability increased in bore wells and cropping intensity is increased with second crop grown under irrigation.
- ii. There is scope for constructing some more new percolation tanks which may benefit watershed farmers.

8. Observations and Comments by Evaluators:

- i. Visited Mallaiah kunta percolation tank constructed in private land with about 1000m³ water storage capacity. There are about 6 bore wells with 10 farmers and area benefited is about 12 ha. Nearby farmer says when there is stored water in the tank, groundwater availability increases in bore wells.
- ii. Visited another Percolation tank constructed on cart road going to Gudikandula and it is not useful now due to road formation by filling it. This PT was constructed in the cart road to Gudikandula village. It was filled up by JCB and not useful now. This was not at all a suitable location and money is being wasted.



Picture 3. Constructed bus shelter under EPA in Bussapur village



Picture 4. Mallaiah kunta PT in Bussapur watershed, Medak district



Picture 5. Filled up PT constructed on Gudikandula village cart road in Bussapur watershed

Impact Assessment Report
CHINNA GUNDAVELLY Watershed, IWDP – I batch,
Siddipet Mandal, Medak District, Andhra Pradesh

1. Details of Watershed:

i. Name of the Scheme:	IWDP – I Batch
ii. Name of the watershed:	Chinna Gundavelly
iii. Names of villages in the Watershed:	Chinna Gundavelly, Burugupally
iv. Villages/Mandal/District:	Chinna Gundavelly/Siddipet/Medak District
v. Name and Address of PIA:	MDT, Siddipet
vi. Total area of the watershed:	500 ha

2. Ownership Pattern of Land:

i. Community land (ha)	
ii. Government land (ha)	
iii. Private land (ha)	
iv. Forest land (ha)	
v. Others	

3. Verification Financial and other Records

i. Total cost:	Approved:	Spent:
ii. Expenditure incurred as per guidelines	Yes.	
iii. Works executed as per Records	Check dams: 3, PTs: 10; Field bunding: 16 ha, RFDs/LBS: 100. All are in good condition.	
iv. Whether watershed committees exists	Yes, Chairman: Srinivasulu Reddy; President: D Patel Reddy; Secretary: Kamalakar Rao.	
v. if exists, activities of the committees	No activities and no clear guidelines to use WDF to repair and maintain the structures.	

i. Community Participation (how community participation has been ensured and what EPA has been taken up, inputs of details of beneficiaries)

A bore well was dug for drinking water supply to the village by laying 1 km length pipeline. But it is not operated due to problems.

ii. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC member: 11
	Before	After	Before	After	Male: 7
	-	10	-	15	Female: 4
Describe:					
ii. Records of meetings properly updated	Yes, WC used to meet once in 3 months and WA used to meet once in 6 months.				

iii. Liaison with scientific institutions established	Farmers were taken on exposure visit to ICRISAT and Ralegaon Siddi watersheds.	
iv. Watershed Development Fund collected?, and its utilization	Yes, collected about Rs. 1,00,000/- towards WDF and not spent due to lack of clear guidelines.	
v. Self Help Groups	No:	Revolving fund: Rs. Nil
vi. V.O functioning:		Savings:
vii. Utilization of loans:		
viii. Bank linkages established:		
ix. Planned CPRs sustainable & equitable development	No development	
x. Benefits to weaker sections (women, dalits and landless)	Only employment was provided during watershed works implementation.	

vi. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Bore wells: 3 feet increase in water levels. Irrigated area increased by 50% during rainy season and 15% increase in post rainy season.
ii. Additional area under cultivation/horticultur/afforestation	About 15 ha area newly brought under cultivation/ Mango block plantation was done in 10 ha, survival is in 5 ha in 6 farmers' fields and yielding for the last 4 years.
iii. Changes in cropping pattern and intensity	15% increase in cropped area during second crop. Maize, Sunflower and Vegetables are grown.
iv. Changes in agricultural productivity	Maiz productivity in rainfed area 2.5 t/ha, irrigated area 6.0 t/ha, sunflower 1.5 t/ha.
v. Changes in fodder & fuel wood availability	Increased water availability has increased the fodder availability. No change in fuel wood availability.
vi. Changes in size and character of livestock holdings	In general livestock population is decreasing due to increased maintenance cost.
vii. Status of grazing land & their carrying capacity	Less carrying capacity due to low rainfall.
viii. Employment generated due to implementation of project	Laborers were provided employment during implementation of the watershed activities.
ix. Change in household category, total, & source-	Farm incomes have increased due to increased water availability.
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	More dependence on bank loans and less dependence on money lenders.

xi. Reduction in out-migration (case studies)	Earlier about 40 people used to migrate; now about 20 people are migrating and 50% reduction in migration.
xii. Reduction in drought vulnerability of the watershed	They can withstand about one season.
xiii. Detailed case studies of specific farmers impacted by the project	R. Durga Reddy planted mango in 0.8 ha and Police Kistavva planted mango in 1.0 ha and getting income of about Rs. 60,000/ha from the plantations.
xiv. Photographs showing work + its impact	Please see the pictures of PTs below.

vii. Learnings and Process Documentation (how the program could be implemented better; constraints, improvements possible, Changes made etc.)

- i. Linking NREGS with farmers and farm operations will help farming community to overcome labor shortage and increase profit margins.

viii. Observations and Comments by Evaluators:

- i. Two PTs were visited one with about 2000 m³ and another one with about 3000 m³ water storage capacity and about 400 m³ water was stored in both the PTs on the day of visit. Both are good structures but surrounding area is uncultivated fallow land with scrub vegetation. No wells and no beneficiary farmers with in 500 m radius. Water is useful for cattle drinking only.



Picture 6. Percolation tanks constructed in uncultivated area in Chinna Gundavelly watershed

**Impact Assessment Report
DUDEDA Watershed, IWDP – I Batch,
Kondapaka Mandal, Medak District, Andhra Pradesh**

1. Details of Watershed:

i. Name of the Scheme:	IWDP – I Batch
ii. Name of the watershed:	Duddeda
iii. Names of villages in the Watershed:	Duddeda, Bandaram and Ankireddypally
iv. Villages/Mandal/District:	Duddeda/Kondapaka/Medak
v. Name and Address of PIA:	MDT, Kondapaka
vi. Total area of the watershed:	500 ha

2. Ownership Pattern of Land:

i. Community land (ha)	
ii. Government land (ha)	
iii. Private land (ha)	
iv. Forest land (ha)	
v. Others	

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; PTs: 7; RFD/LBS: 30 and Field bunding: 60 ha. Two PTs are breached away.	
iv. Whether watershed committees exists	Yes, Chairman: Durgaiyah; President: Sudhakar Rao and Secretary: Lakshma Reddy.	
v. if exists, activities of the committees	No activities and no clear guidelines to use WDF to repair and maintain the structures.	

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

Duddeda village was having drinking water problem. Hence a bore well was dug by spending Rs. 50,000/- to provide drinking water supply to the village.

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions Describe:	No of UGs		No of SHGs		
	Before	After	Before	After	
	-	-	-	20	
	Rs 5000/- given to each group				

ii. Records of meetings properly updated	Yes, WC used to meet once in a month and WA used to meet once in 6 months.	
iii. Liaison with scientific institutions established	Farmers were taken on exposure visit to ICRISAT and Ralegaon Siddi watersheds.	
iv. Watershed Development Fund collected?, and its utilization	Yes, collected Rs. 50,000/- towards WDF and not spent due to lack of clear guidelines.	
v. Self Help Groups	No:	Revolving fund: Rs.1,00,000
vi. V.O functioning:		Savings:
vii. Utilization of loans:		
viii. Bank linkages established:		
ix. Planned CPRs sustainable & equitable development	Field bunding was done in 60 ha.	
x. Benefits to weaker sections (women, dalits and landless)	Laborers were provided employment during project implementation.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Open wells: 500, all dried up and bore wells: 300 exist. Two months water availability increased from January to March due to water harvesting structures. Sheep and cattle are benefited for drinking water.
ii. Additional area under cultivation/horticulture /afforestation	20 ha additional area brought under cultivation in Bandaram village/ Mango plantation was done in 8 ha. Seethaphal plantation (Custard apple) and back yard plantation was done with 5 plants/family.
iii. Changes in cropping pattern and intensity	Paddy crop after Paddy is grown under bore well irrigation due to wild bore problem.
iv. Changes in agricultural productivity	Maize: 3.8 t/ha; Cotton=1.3-2.5 t/ha; Pigeonpea: 1.0 t/ha; Paddy: 6.0 t/ha; Sunflower: 1.3-1.5 t/ha.
v. Changes in fodder & fuel wood availability	Not much change in fodder and fuel wood availability.
vi. Changes in size and character of livestock holdings	Not much change in livestock holdings.
vii. Status of grazing land & their carrying capacity	Grazing lands availability is less.
viii. Employment generated due to implementation of project	All laborers were provided with employment during implementation of watershed project.

ix. Change in household category, total, & source-	Income of farmers increased due to increased water availability.
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	More dependence on bank loans and less dependence on money lenders.
xi. Reduction in out-migration (case studies)	Earlier about 50 families used to migrate; now about 10 families are migrating.
xii. Reduction in drought vulnerability of the watershed	Only employment can help their earning.
xiii. Detailed case studies of specific farmers impacted by the project	1. Sanjeeva Reddy, near by a PT has good bore well with plenty of water available for two crops. 2. K Yella Reddy has a bore well and successfully developed mango orchard with assured water availability.
xiv. Photographs showing work + its impact	Please see the pictures below.

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

- i. Check dams are useful to control erosion as well as to store water for drinking water to live stock. Hence old structures are to be repaired and there is a lot of scope for construction of new structures.
- ii. Feeder channels are to be renovated to divert water into the village tank so that water availability in the village will be increased.

8. Observations and Comments by Evaluators:

- i. A masonry checkdam was seen with about 500m³ storage capacity. Silt accumulation has reduced its storage capacity by about 25%. There are 2 bore wells about 100 m away from the structure with 2 beneficiary farmers and area benefitted is about 3 ha. Almost entire area is under dryland agriculture with Maize/Pigeonpea intercrop. Good pigeonpea crop is seen in large area.
- ii. A loose boulder structure was seen in the same drain, it is partially damaged and no maintenance of the structures in the watershed.



Picture 7. A masonry check dam in Duddeda watershed filled with silt.



Picture 8. Partially damaged loose boulder structure in Duddeda watershed.

Impact Assessment Report
IRUKODU Watershed, IWDP – I Batch,
Siddipet Mandal, Medak District, Andhra Pradesh

1. Details of Watershed:

i. Name of the Scheme:	IWDP – I Batch
ii. Name of the watershed:	Irukodu
iii. Names of villages in the Watershed:	Irukodu
iv. Villages/Mandal/District:	Irukodu/Siddipet/Medak
v. Name and Address of PIA:	MDT, Siddipet
vi. Total area of the watershed:	500 ha

2. Ownership Pattern of Land:

i. Community land (ha)	
ii. Government land (ha)	
iii. Private land (ha)	
iv. Forest land (ha)	
v. Others	

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: 2; PTs: 10; RFDs/LBS: 200; Field bunding wells 80 ha; Recharging of dry open wells: 200 (has been considered a failure by farmers as there is no extra water availability); Feeder canals: 2 (2.5 km repaired and very useful)	
iv. Whether watershed committees exists	Yes, Chairman: T Rami Reddy; President: K Veeramalla Reddy; Secretary: L Veeramalla Reddy.	
v. if exists, activities of the committees	No activities and no clear guidelines to use WDF to repair and maintain the structures.	

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

Bus shelter was constructed with 50:50 contributions from WS scheme and APSRTC; which is quite useful and attracted the attention of villagers.

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions Describe	No. of UGs		No. of SHGs		WC members: 11
	Before	After	Before	After	Male: 9
	-	-	-	-	Female: 2

ii. Records of meetings properly updated	Yes, WC used to meet once in a month to resolve the issues and inform about the progress of works. WA used to meet once in 3 months.	
iii. Liaison with scientific institutions established	Farmers visited developed watershed in Ralegaon Siddi, Maharashtra.	
iv. Watershed Development Fund collected?, and its utilization	Yes, collected Rs.1,00,000/- towards WDF as per the guidelines and not spent on repair and maintenance of the structures due to lack of clear guidelines.	
v. Self Help Groups	No:	Revolving fund: Rs.
vi. V.O functioning:		Savings:
vii. Utilization of loans:		
viii. Bank linkages established:		
ix. Planned CPRs sustainable & equitable development	PTs and gully control structures were constructed.	
x. Benefits to weaker sections (women, dalits and landless)	Employment was provided during implementation of watershed project.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Open wells: 400 and Bore wells: 500. About 3-6 feet increase of water levels in open wells only during rainy season up to November for single crop. About 1.5 - 2 h increase in pumping time in the bore wells and two crops are grown. Water availability will be decreased from March-June during summer.
ii. Additional area under cultivation/horticulture /afforestation	40 ha additional area brought under cultivation/4 ha mango plantation was done in 5 farmers fields and the crop is at bearing stage. Mango plants 5 numbers per family for back yard plantation was provided and useful/ <i>Pongamia</i> , bamboo and soap nut plants were supplied but less attention was given to protect them.
iii. Changes in cropping pattern and intensity	Maize, pigeonpea, horse gram, cowpea, green gram, paddy, tomato and other vegetables are grown.
iv. Changes in agricultural productivity	Maize productivity: 4.5-6.0 t/ha; Paddy: 6 t/ha.
v. Changes in fodder & fuel wood availability	Increased water availability has increased fodder and fuel wood availability in the village.
vi. Changes in size and character of livestock holdings	Live stock population is decreasing because of fodder scarcity and increased maintenance cost as well as labor shortage to take care of them.
vii. Status of grazing land & their carrying capacity	Not much grazing land is available.

viii. Employment generated due to implementation of project	All laborers had employment during implementation of watershed project.
ix. Change in household category, total, & source-	Financial status of beneficiary farmers has been increased due to increased water availability.
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Farmers are depending on both bank loans as well as money lenders. First preference to bank loans then if required they will go to money lenders.
xi. Reduction in out-migration (case studies)	Earlier about 100 families used to migrate because of no employment but negligible migration now.
xii. Reduction in drought vulnerability of the watershed	They are better now to face drought years.
xiii. Detailed case studies of specific farmers impacted by the project	<p>i. U Anjaneyulu had 0.8 ha mango plantation with IWDP. Getting good crop and income of Rs. 75000/ha for the last two years.</p> <p>ii. K Malla Reddy had 1.0 ha mango plantation and getting Rs. 50000/ha for the last two years.</p> <p>iii. K Bal Reddy had 1.6 ha mango plantation and getting good mango crop.</p>
xiv. Photographs showing work + its impact	Please see the pictures below.

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

- i. Need more check dams (2), 6 percolation tanks and renovation of one more feeder channel.
- ii. There is lot of scope for further development.

8. Observations and Comments by Evaluators:

- i. Visited mango orchard of Mr. U Anjaneyulu planted in 0.8 ha. Few plants died last summer due to stress and less water yield in the bore well.
- ii. Visited a percolation tank of about 6000m³ storage capacity. About 1000 m³ water stored in the PT on the day of visit. No wells and no cultivated area in the vicinity. Water is useful for cattle drinking and cloths washing.

- iii. Visited another PT of about 2000m³ capacity. There are about 6 bore wells, 6 beneficiary farmers and area benefited is about 8 ha. Good benefit to nearby bore wells when there is stored water in it.

9. Feed back from the Community:

- i. Misuse of resources by lifting gully plugs and used them for house construction.
- ii. Water harvesting structures were encroached and damaged. Most of the structures are useless now. Encored and leveled the structures.



Picture 9. Mango orchard of Mr. U. Anjaneyulu (left) and dead plants (right) due to stress in the Irukodu watershed, Medak district.



Picture 10. Percolation tanks constructed in the fallow land (left) and in the cultivated land (right) in the Irukodu watershed, Medak district.

Impact Assessment Report
BAKRICHEPYALA & NANCHARIPALLY Watershed, IWDP – I Batch,
Siddipet Mandal, Medak District, Andhra Pradesh

1. Details of Watershed:

i. Name of the Scheme:	IWDP – I Batch
ii. Name of the watershed:	Bakrichepyala & Nancharipally
iii. Names of villages in the Watershed:	Bakrichepyala and Nancharipally
iv. Villages/Mandal/District:	Bakrichepyala and Nancharipally/ Siddipet/ Medak
v. Name and Address of PIA:	MDT, Siddipet
vi. Total area of the watershed:	500 ha.

2. Ownership Pattern of Land:

i. Community land (ha)	
ii. Government land (ha)	
iii. Private land (ha)	
iv. Forest land (ha)	
v. Others	

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: 2, PTs: 4 new and 3 old renovated, RFDs/LBS: 35, Recharging of open wells: 200 and Field bunding: 20 ha.	
iv. Whether watershed committees exists	Yes, Chairman: L Bhaskar, President: M Chandram and Secretary: B Chandram	
v. if exists, activities of the committees	No activities and no clear guidelines to use WDF to repair and maintain the structures.	

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

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions Describe:	No. of UGs		No. of SHGs		WC member: 9
	Before	After	Before	After	Male: 8
	-	-	-	-	Female: 1
ii. Records of meetings properly updated	WC used to meet once in a month and WA used to meet once in 6 months.				

iii.	Liaison with scientific institutions established		
iv.	Watershed Development Fund collected?, and its utilization	Collected about Rs. 60,000/- as WDF and not spent due to lack of clear guidelines.	
v.	Self Help Groups	No:	Revolving fund: Rs.
vi.	V.O functioning:		Savings:
vii.	Utilization of loans:		
viii.	Bank linkages established:		
ix.	Planned CPRs sustainable & equitable development	CPRs are not developed.	
x.	Benefits to weaker sections (women, dalits and landless)	Provided employment for implementing watershed activities.	

6. Quantitative Parameters of Impacts

i.	Improvements in water table/water availability	Open wells: 100, Bore wells: 70. No water table improvement as all check dams are leaking and low rainfall amount during these years.	
ii.	Additional area under cultivation/horticultur/afforestation	No additional area brought under cultivation and mango, guava and teak plants were distributed for planting in back yards.	
iii.	Changes in cropping pattern and intensity	No change in cropping patter and crop intensity.	
iv.	Changes in agricultural productivity	No change in agricultural productivity.	
v.	Changes in fodder & fuel wood availability	No change in fodder and fuel wood availability.	
vi.	Changes in size and character of livestock holdings	Except milch animals other livestock size is coming down due to increased maintenance cost.	
vii.	Status of grazing land & their carrying capacity	Decrease in grazing land area year after year.	
viii.	Employment generated due to implementation of project	All laborers had good employment during watershed project period.	
ix.	Change in household category, total, & source-	No change in household category.	
x.	Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Bank loans fetching has become difficult hence farmers are depending on money lenders at 24-36% interest per annum.	

xi. Reduction in out-migration (case studies)	Change in migration and reduced by about 30%.
xii. Reduction in drought vulnerability of the watershed	Drought vulnerability is high.
xiii. Detailed case studies of specific farmers impacted by the project	No specific case studies.
xiv. Photographs showing work + its impact	Please see the pictures below.

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

- i. Water harvesting structures are in bad condition and hence no impact is seen. Rock filled dams also breached away.
- ii. Suitability of location and other technical inputs were not considered while constructing the structures.

8. Observations and Comments by Evaluators:

- i. A percolation tank of about 4000 m³ capacity was inspected during field visit.
- ii. It is a good structure serving the purpose effectively. There is one bore well dug in the same tank and one open well exist in the down side. There are 3 beneficiary farmers with area benefited is about 2.5 ha. Maize crop was grown in 0.8 ha under irrigation under bore well and paddy and cotton under crops under open well (1.6 ha). Good ground water will be available in the bore well when water is stored in the PT.
- iii. A masonry check dam of about 1500 m³ capacity was seen. This structure was constructed in plain land in a big farmer field and stored water occupies large area. There are 4 open wells and 1 well with about 10 beneficiary farmers and area benefited is about 12 ha.



Picture 11. Percolation tank with bore well in Bakrichepyala and Nancharipally watershed, Medak district.



Picture 12. Masonry check dam constructed in plain land in Bakrichepyala and Nancharipally watershed.

**Impact Assessment Report
PONNALA Watershed, IWDP – I Batch,
Siddipet Mandal, Medak District, Andhra Pradesh**

1. Details of Watershed:

i.	Name of the Scheme:	IWDP – I Batch
ii.	Name of the watershed:	Ponnala
iii.	Names of villages in the Watershed:	Ponnala
iv.	Villages/Mandal/District:	Ponnala/Siddipeta/Medak
v.	Name and Address of PIA:	MDT, Siddipet
vi.	Total area of the watershed:	500 ha

2. Ownership Pattern of Land:

i.	Community land (ha)	
ii.	Government land (ha)	
iii.	Private land (ha)	
iv.	Forest land (ha)	
v.	Others	

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: 2 (condition good); PTs: 6 (Condition good and 2 were repaired); RFDs: 17; LBS: 50; earthen bunding: 24 ha; Feeder channels: 2 (2.5 km length); recharging open wells: 100.	
iv.	Whether watershed committees exists	Yes, Chairman: M Ramulu; President: K Yellaiah; Secretary: N Mallaiah.	
v.	if exists, activities of the committees	No activities and no clear guidelines to use WDF to repair and maintain the structures.	

4. Community Participation (how community participation has been ensured and what EPA has 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: 12 Male: 8 Female: 4
		Before	After	Before	After	
		-	-	-	40	
ii.	Describe:					
iii.	Records of meetings properly updated	Yes, WC used to meet once in a month and WA used to meet once in 3 months.				

iv. Liaison with scientific institutions established	Farmers were taken on exposure visit to Anakapur watershed in Nizamabad district and Ralegaon Siddi watershed in Maharashtra.	
v. Watershed Development Fund collected?, and its utilization	Yes, collected Rs.1,40,000/- towards WDF and not spent due to lack of clear guidelines on repair and maintenance of the water harvesting structures.	
vi. Self Help Groups	No:	Revolving fund: Rs. 8,00,000 lakhs
vii. V.O functioning:	Mahila bank	Savings:
viii. Utilization of loans:		
ix. Bank linkages established:	Milch cattle, vegetable business, goat, sheep rearing, sprinklers and draft animals.	
x. Planned CPRs sustainable & equitable development	Barren land.	
xi. Benefits to weaker sections (women, dalits and landless)	Provided employment during implementation of the watershed activities.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Open wells: 300, Bore wells: 250. Water availability has been extended by about 2 months from Dec-Jan to March. Water table increased by about 15 feet in the bore wells after constructing water harvesting structures. About 90% runoff is being harvested, stored and used for recharging the groundwater.	
ii. Additional area under cultivation/horticulture /afforestation	About 24 ha additional area brought under cultivation/ Mango, Sweet lime, Acid lime, Guava, and coconut plants were distributed to farmers for back yard plantation.	
iii. Changes in cropping pattern and intensity	Maize/Pigeonpea intercropping, Paddy after Paddy, Sunflower and cotton crops are grown.	
iv. Changes in agricultural productivity	Maize: 6 t/ha, Cotton: 1.5 t/ha, Sunflower: 1 t/ha and Paddy: 6.5 t/ha.	
v. Changes in fodder & fuel wood availability	Increased water availability has increased fodder and fuel wood availability in the watershed.	
vi. Changes in size and character of livestock holdings	Increase of milch cattle and no change in other livestock.	
vii. Status of grazing land & their carrying capacity	No change in status of grazing land and their carrying capacity.	
viii. Employment generated due to implementation of project	All laborers were provided employment during implementation of watershed activities.	

ix. Change in household category, total, & source-	Income levels of beneficiary farmers increased.
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Farmers are depending maximum on bank loans (agricultural development bank-SBI) and less dependence on money lenders.
xi. Reduction in out-migration (case studies)	Migration reduced.
xii. Reduction in drought vulnerability of the watershed	They can withstand for one season due to increased water availability.
xiii. Detailed case studies of specific farmers impacted by the project	No specific case studies.
xiv. Photographs showing work + its impact	Please see the pictures below.

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

- i. Participatory farming is more important and should be stressed and demonstrated.

8. Observations and Comments by Evaluators:

- i. A big masonry check dam with 20 m body wall length, 2m height with about 6000 m³ was seen. About 500 m³ water was stored in the trench which was constructed in the forest land. Down side area is private patta lands and benefiting large area. There are about 20 wells, 30 beneficiary farmers, benefiting about 30 ha. Good work done and good groundwater availability if water stored in the structure.
- ii. Another masonry check dam was seen with about 3000 m³ water storage capacity which was constructed in the forest land. Down side area is private patta lands. There are about 10 wells with 15 beneficiary farmers and benefiting about 20 ha area. Paddy and vegetable crops are grown under irrigation.



Picture 13. Masonry check dams constructed in the forest lands in Ponnala watershed.

**Impact Assessment Report
TADKAPALLY Watershed, IWDP – I Batch,
Siddipet Mandal, Medak District, Andhra Pradesh**

1. Details of Watershed:

i. Name of the Scheme:	IWDP – I Batch
ii. Name of the watershed:	Tadkapally
iii. Names of villages in the Watershed:	Tadkapally
iv. Villages/Mandal/District:	Tadkapally/Siddipet/Medak
v. Name and Address of PIA:	MDT, Siddipet
vi. Total area of the watershed:	500 ha.

2. Ownership Pattern of Land:

i. Community land (ha)	
ii. Government land (ha)	
iii. Private land (ha)	
iv. Forest land (ha)	
v. Others	

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: 2; PTs: 8; RFDs/LBS: 50; Field bunding: 40 ha.	
iv. Whether watershed committees exists	Yes, Chairman: B Madhusudhan Reddy; President: A Bhaskar Goud; Secretary: S Srinivas.	
v. if exists, activities of the committees	No activities and no clear guidelines to use WDF to repair and maintain the structures.	

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

Bore well was dug and pump was fixed for supplying drinking water to the village community by spending Rs. 50000/-

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
					Female: 1
ii. Records of meetings properly updated	Yes.				

iii. Liaison with scientific institutions established	No.	
iv. Watershed Development Fund collected?, and its utilization	Collected Rs 1,40,000/- towards WDF and not spent on repair and maintenance of water harvesting structures due to lack of guidelines for spending.	
v. Self Help Groups	No:	Revolving fund: Rs.
vi. V.O functioning:		Savings:
vii. Utilization of loans:		
viii. Bank linkages established:		
ix. Planned CPRs sustainable & equitable development	CPRs not developed.	
x. Benefits to weaker sections (women, dalits and landless)	Provided employment to weaker sections for implementing project activities.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Open wells: 150, Bore wells: 300. About 3 to 6 feet increase in water table.
ii. Additional area under cultivation/horticulture /afforestation	About 10 ha additional area brought under cultivation. Back yard plantation was promoted by distributing saplings of mango, guava, coconut and teak.
iii. Changes in cropping pattern and intensity	Paddy, sunflower, maize/pigeonpea crops are being grown.
iv. Changes in agricultural productivity	About 20% increase in productivity. Paddy: 6.0 t/ha, Maize: 5 t/ha.
v. Changes in fodder & fuel wood availability	No change.
vi. Changes in size and character of livestock holdings	Livestock size is coming down year after year due to increased maintenance cost.
vii. Status of grazing land & their carrying capacity	No change.
viii. Employment generated due to implementation of project	All laborers had good employment during implementation of project.
ix. Change in household category, total, & source-	Moderate increase in household income.
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	More dependence on bank loans and less dependence on money lenders.

xi. Reduction in out-migration (case studies)	Migration reduced considerably and negligible migration now.
xii. Reduction in drought vulnerability of the watershed	Low.
xiii. Detailed case studies of specific farmers impacted by the project	No specific case studies.
xiv. Photographs showing work + its impact	Please see the picture below.

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

- i. Block plantations of horticultural crops could have given better benefits to the farmers.

8. Observations and Comments by Evaluators:

- i. A percolation tank was seen with about 2500 m³ capacity. Cost of construction was Rs. 80,000/- There are no wells and beneficiary farmers in the vicinity of 300 to 400 m distance. About 8 wells are there after 300-400 m distance with 15 beneficiary farmers and area benefited is about 12 ha. Paddy and sunflower crops are grown under irrigation.



Picture 14. Percolation tank constructed in Tadkapally watershed, Medak district.

Impact Assessment Report
THOGUTA Watershed, IWDP – I Batch,
Thoguta Mandal, Medak District, Andhra Pradesh

1. Details of Watershed:

i. Name of the Scheme:	IWDP - I Batch
ii. Name of the watershed:	Thoguta
iii. Names of villages in the Watershed:	Thoguta, Banjarapally
iv. Villages/Mandal/District:	Thoguta, Banjarapally /Thoguta/Medak
v. Name and Address of PIA:	MDT, Kondapaka
vi. Total area of the watershed:	500 ha.

2. Ownership Pattern of Land:

i. Community land (ha)	
ii. Government land (ha)	
iii. Private land (ha)	
iv. Forest land (ha)	
v. Others	

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: 4; PTs: 9; RFDs/LBS: 200; Earthen bunding: 280 ha; Recharging open wells: 50.	
iv. Whether watershed committees exists	Yes, Chairman: K Balakishan; President: P Venkat Reddy; Secretary: S Narasimha Reddy.	
v. if exists, activities of the committees	No activities and no clear guidelines to use WDF to repair and maintain the structures.	

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

Two bore wells were dug and brought in to operation for supplying drinking water to Thoguta and Banjarapally villages.

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions					WC members: 10
	Before	After	Before	After	Male: 8
					Female: 2
Describe:					
ii. Records of meetings properly updated	Yes, WC used to meet once in a month and WA used meet once in 3 months interval.				

iii. Liaison with scientific institutions established	Farmers were taken on exposure visit to ICRISAT and Ralegaon Siddi watersheds.	
iv. Watershed Development Fund collected?, and its utilization	Yes, collected Rs. 85,000/- towards WDF and not spent due to lack of clear guidelines.	
v. Self Help Groups	No:	Revolving fund: Rs.
vi. V.O functioning:		Savings:
vii. Utilization of loans:		
viii. Bank linkages established:		
ix. Planned CPRs sustainable & equitable development	280 ha field bunding was done.	
x. Benefits to weaker sections (women, dalits and landless)	Employment was provided to weaker sections.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Dried bore wells were rejuvenated and water availability/pumping duration in bore wells increased due to construction of water harvesting structures.
ii. Additional area under cultivation/horticulture /afforestation	Mango plantation to individual farmers was given along with distribution of goose berry, teak, coconut, and guava plants for back yard plantation.
iii. Changes in cropping pattern and intensity	About 320 ha area is under cultivation during rainy season and about 60 ha area is under cultivation during post rainy season. Maize, paddy and sunflower crops are grown.
iv. Changes in agricultural productivity	Maize productivity ranges from 4.5-6.0 t/ha, Paddy: 5.0 t/ha, sunflower: 2.0-3.0 t/ha.
v. Changes in fodder & fuel wood availability	Increased water availability has increased fodder and fuel wood availability in the watershed.
vi. Changes in size and character of livestock holdings	Livestock population is decreasing due to increased cost of maintenance.
vii. Status of grazing land & their carrying capacity	Not much grazing lands in the village.
viii. Employment generated due to implementation of project	Good employment was generated during the implementation of watershed activities.
ix. Change in household category, total, & source-	Income levels of beneficiary farmers increased.
x. Freedom from Debt and	Farmers are taking loans from APGVB and other

reduction in degree of dependence of money lenders (case studies)	banks as well as from money lenders.
xi. Reduction in out-migration (case studies)	75% reduction in out migration. Still 25% laborers are migrating in search of good employment and wages.
xii. Reduction in drought vulnerability of the watershed	Drought vulnerability is low due to increased water availability in the village.
xiii. Detailed case studies of specific farmers impacted by the project	<ul style="list-style-type: none"> • Y Narasa Reddy, beneficiary of PT, water in the open well is increased and growing crops in 2 ha during rainy season and 1.2 ha during post rainy season. • Y Balakrishna Reddy, beneficiary of PT, growing crops in 2 ha during rainy season and 0.8 ha during post rainy season. • Vadde Yellaiah, beneficiary of PT has 0.8 ha land, growing paddy in the rainy season and sunflower during post rainy season.
xiv. Photographs showing work + its impact	Please see the pictures below.

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

- i. Repair and maintenance of the water harvesting structures is very crucial for getting sustainable benefits due to watershed project.
- ii. Promotion of horticultural crops can give better benefits to farmers.

8. Observations of the Evaluator(s):

- i. A percolation tank with about 4000 m³ capacity was seen in low-lying area/saline patch, good amount of water, about 2000 m³ stored in the PT. It was looking like a dug out pond because no bunds and water is stored below the normal ground level. There are about 6 bore wells, 10 beneficiary farmers and area benefited is about 10 ha.
- ii. Another percolation tank with about 3500 m³ was seen in the watershed. PT is good and spillway was also constructed but damaged by upside farmers to drain out water from the PT to avoid submergence of their fields ups. There are about 8 bore wells, 10 farmers and area benefited is about 14 ha. Good water availability in the nearby wells if water is stored in the PT.



Picture 15. Percolation tanks constructed in Thoguta watershed, Medak district.



Picture 16. Damaged spill way of PT constructed in Thoguta watershed.

Impact Assessment Report
VELIKATTA Watershed, IWDP – I Batch,
Kondapaka Mandal, Medak District, Andhra Pradesh

1. Details of Watershed:

i. Name of the Scheme:	IWDP – I Batch
ii. Name of the watershed:	Velikatta
iii. Names of villages in the Watershed:	Velikatta
iv. Villages/Mandal/District:	Velikatta/Kondapaka/Medak
v. Name and Address of PIA:	MDT, Kondapaka
vi. Total area of the watershed:	500 ha.

2. Ownership Pattern of Land:

i. Community land (ha)	
ii. Government land (ha)	
iii. Private land (ha)	
iv. Forest land (ha)	
v. Others	

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; PTs: 5; RFDs/LBS: 50; Field bunding: 40 ha.	
iv. Whether watershed committees exists	Yes, Chairman: S Babu Rao; President: V Pandu; Secretary: B Yadava Rao.	
v. if exists, activities of the committees	No activities and no clear guidelines to use WDF to repair and maintain the structures.	

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

Additional class room with GI sheet on the roof was constructed at a cost of Rs. 40,000/- for school children.

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions Describe:	No of UGs		No of SHGs		WC members: 8
	Before	After	Before	After	Male: 7
	-		-	16	Female: 1
ii. Records of meetings properly updated	Yes, WC used to meet once in a month and WA used meet once in 3 months interval.				

iii. Liaison with scientific institutions established	Farmers were taken on exposure visit to developed watersheds.	
iv. Watershed Development Fund collected?, and its utilization	Yes, collected Rs. 1,10,000/- towards WDF and not spent due to lack of clear guidelines.	
v. Self Help Groups	No:	Revolving fund: Rs. 20,000/-
vi. V.O functioning:		Savings:
vii. Utilization of loans:		
viii. Bank linkages established:		
ix. Planned CPRs sustainable & equitable development	PTs (2), contour bunding and RFDs/LBS (40) were taken up in CPRs.	
x. Benefits to weaker sections (women, dalits and landless)	Employment was provided to weaker sections.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Open wells: 70 and bore wells: 150 exist. About 6 feet increase in the water table due to construction water harvesting structures.
ii. Additional area under cultivation/horticulture /afforestation	20 ha additional area brought under cultivation/ mango plantation in 10 ha/ teak plantation near wells and back yards.
iii. Changes in cropping pattern and intensity	Cropping intensity is increased to 1.5 due to increased water availability for 2 nd crop. Paddy, Maize, Cotton Pigeonpea, Chickpea, Sunflower crops are grown.
iv. Changes in agricultural productivity	About 20 % increase in productivity was reported by farmers. Paddy: 6.0 t/ha; Maize: 3.8 t/ha; Cotton 2.5-3.5 t/ha; Sunflower 1.0-1.3 t/ha; Chickpea: 1.3 t/ha.
v. Changes in fodder & fuel wood availability	Increased water availability has increased the fodder availability and no change in fuel wood availability.
vi. Changes in size and character of livestock holdings	Milch cattle is increased and no change in other livestock.
vii. Status of grazing land & their carrying capacity	Not effected positively.
viii. Employment generated due to implementation of project	About 30% additional employment was generated during implementation of watershed project.
ix. Change in household category, total, & source-	Incomes of beneficiary farmers increased after implementation of watershed project.

x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Dependence on private money lenders is decreasing.
xi. Reduction in out-migration (case studies)	Out migration is reduced by 10% from 30% to 20% for agricultural works.
xii. Reduction in drought vulnerability of the watershed	They can withstand for about one season.
xiii. Detailed case studies of specific farmers impacted by the project	Godugu Narayana and Godugu Ramachander are the beneficiaries of water harvesting structures and growing good crops in their lands.
xiv. Photographs showing work + its impact	Please see the pictures below.

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

- i. More check dams are to be constructed as there are more numbers of drains in the village.
- ii. Repair and maintenance of water harvesting structures is to be done.

8. Observations and Comments by Evaluators:

- i. A masonry check dam with 20 m body wall length, 1.3 m height with about 1500 m³ capacity was seen but size has been reduced to half by siltation. There are 15 wells with 20 beneficiary farmers and area benefited is about 16 ha. Good check dam but size has been reduced drastically by about 0.5 m height silt deposition. Apron wall is damaged and no care is taken. Water availability in the nearby wells increased after the check dam construction.
- ii. A percolation tank with about 3000 m³ capacity was seen with about 500m³ water stored in it. Spillway /surplus weir was not constructed. There are about 20 bore wells with 20 beneficiary farmers and area benefitted is about 20 ha. By constructing spillway more quantity of water could have been stored. Deepening of bare outlet leading to less storage capacity.



Picture 17. Damaged apron wall (left) and accumulated silt (right) in a check dam in Velikatta watershed, Medak district.



Picture 18. Stored water in a percolation tank in Velikatta watershed, Medak district.

Impact Assessment Report
YELLAREDDYPETA Watershed, IWDP – I Batch,
Thoguta Mandal, Medak District, Andhra Pradesh

1. Details of Watershed:

i. Name of the Scheme:	IWDP – I Batch
ii. Name of the watershed:	Yellareddypeta
iii. Names of villages in the Watershed:	Yellareddypeta
iv. Villages/Mandal/District:	Yellareddypeta/Thoguta/Medak
v. Name and Address of PIA:	MDT, Kondapaka
vi. Total area of the watershed:	500 ha.

2. Ownership Pattern of Land:

i. Community land (ha)	
ii. Government land (ha)	
iii. Private land (ha)	
iv. Forest land (ha)	
v. Others	

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: 2; PTs: 7; RFDs/LBS: 50; Field bunding: 40 ha; Recharging of open wells: 70.	
iv. Whether watershed committees exists	Yes, Chairman: Muralidhar Reddy; President: P Balesh; Secretary: M Parameshaiah.	
v. if exists, activities of the committees	No activities and no clear guidelines to use WDF to repair and maintain the structures.	

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

Compound wall was constructed and flooring was done with Shabad stones in Anjaneya Swamy temple in the village.

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: 7
	-	12	-	10	Female: 2
i. Describe:					
ii. Records of meetings properly updated	Yes, WC used to meet once in a month to finalize works and WA used meet once in 3 months interval.				
iii. Liaison with scientific institutions established	Farmers were taken on exposure visit to ICRISAT and Ralegaon Siddi watersheds.				

iv. Watershed Development Fund collected?, and its utilization	Yes, collected Rs. 1,00,000/- towards WDF and not spent due to lack of clear guidelines.	
v. Self Help Groups	No:	Revolving fund: Rs.50,000/-
vi. V.O functioning:		Savings:
vii. Utilization of loans:		
viii. Bank linkages established:		
ix. Planned CPRs sustainable & equitable development	Only 20 ha of CPRs developed; Mango plantation was done in CPR.	
x. Benefits to weaker sections (women, dalits and landless)	Employment was provided to weaker sections.	

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Open wells: not functioning. Bore Wells: 400; no bore wells were there before 15 years. About 3-5 feet increase in water table in the wells. Water availability in the bore wells extended up to March-April.
ii. Additional area under cultivation/horticulture /afforestation	About 40 ha additional area brought in to cultivation/ individual farmers were given Mango, Guava, Teak, Eucalyptus plants for back yard plantation.
iii. Changes in cropping pattern and intensity	Cropping intensity is increased to 1.5 as irrigated area increased by 50 %.
iv. Changes in agricultural productivity	Paddy: 5.0-6.0 t/ha; Maize: 5.0 t/ha, Sunflower: 1.5 t/ha.
v. Changes in fodder & fuel wood availability	Increased water availability has increased the fodder availability and no change in fuel wood availability.
vi. Changes in size and character of livestock holdings	Milch cattle is increased and no change in other livestock.
vii. Status of grazing land & their carrying capacity	No change in the status of grazing land.
viii. Employment generated due to implementation of project	About 25% additional employment was generated during implementation of watershed project.
ix. Change in household category, total, & source-	Incomes of beneficiary farmers increased after implementation of watershed project.
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Farmers are depending more on bank loans and less on money lenders.

xi. Reduction in out-migration (case studies)	Migration was reduced during implementation of watershed project and completely stopped now because of NREGS.
xii. Reduction in drought vulnerability of the watershed	Not much reduction in drought vulnerability.
xiii. Detailed case studies of specific farmers impacted by the project	No specific case studies.
xiv. Photographs showing work + its impact	Please see the pictures below.

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

- i. New assigned lands given to SC/ST and small holder marginal farmers should be allowed to develop like CLDP type development with funds, as it will become a good example of livelihood for individual farmers.
- ii. Repair and maintenance of water harvesting structure should be taken up on priority basis to get good benefits from watershed works.

8. Observations and Comments by Evaluators:

- i. A percolation tank was seen with about 2000 m³ storage capacity. Length of bund is about 100 m but storage capacity has come down due to draining out of water to irrigate down side paddy fields and may be to avoid submergence of dry lands up side. Otherwise capacity would have been more and no water is stored in the PT due to less rain and draining out of water from it.



Picture 19. Condition of percolation tank (left) and drain made across the bund (right) to drain out water and to irrigate paddy fields down side in Yellareddypet watershed, Medak district.

Analysis of Impacts

Verification of Records

We could not verify the records as almost all the records were not available with WC. Some of the WC members when interviewed disowned their status as WC members. This project was initially handled by DRDA with PIAs from Department of forest and later part of the project period it was assigned DWMA staff under the super vision of PD, DWMA, hence fetching older records did not materialize.

Community (People's) Participation

One of the main objectives of IWDP was to ensure and enhance people participation in this programme. In the initial stages of the project it self, the project seems to have missed the opportunity to ensure participation of people and create awareness to the people by ignoring to take up any entry point activity in some of the watershed villages. There were no activities in the project which were particularly targeted towards weaker sections, rural women although there was ample scope and opportunities to address the issues, by forming self help groups (SHGs) of these sections of the society. User groups (UGs) were formed and soil and water conservation works were taken up by them successfully. Such success should have been given to weaker sections and women through SHGs for income generating activities to raise nursery of horticultural and forest tree plants in large scale. SHGs development would have impacted much better in terms of income generation and sustainability of rural livelihoods.

Soil and Water Conservation Structures

Soil moisture conservation works permitted under this component in the project was only 95 lakhs covering 12500 ha at the rate of Rs. 760/ha. A total of Rs. 145 lakhs were allocated for construction of water harvesting structures in the watersheds. A total of more than 1900 under Soil conservation works, water harvesting structures and field bunding in 380 ha were taken up in these 10 watersheds. Most of the watershed masonry structures constructed either through PIA, DWMA or PIA, Forest department were generally of good quality, and suitably located except some which have been mentioned. Due to these SWC and water harvesting structures,

large numbers of farmers in different mandals have reported increased availability of water and ground water levels rose, which was also verified in our field visits.

Water Availability for Irrigation and Drinking Purpose

Impact has been very much felt by the beneficiary farmers in IWDP developed watershed villages in terms of ground water increase, and water availability for irrigation and more importantly for drinking purpose. Farmers in different villages confirmed that water level in open wells increased on an average in the range of 3 - 15 feet, and two hours increase of pumping time during monsoon in bore wells in addition to extended availability of water by 2 months during summer. Farmers mentioned that period of water availability in open wells for irrigation extend from January before the watershed development to end of March after the watershed development. This situation favored for double cropping with four or six supplemental irrigations for second crops between January to March every year. However there was also mention about more number of low rainfall seasons after watershed development, which could have restricted their benefits of watersheds. In all most all villages there was a clear agreement on availability of drinking water round the year in plenty after watershed development project implementation in their area.

Horticulture, Agro Forestry, Peripheral Planting and Social Forestry

Mango block plantations in 32 ha, distribution of mango, guava, pomegranate, acid lime, sweet lime, goose berry and coconut plants were distributed for back yard plantation, teak and eucalyptus plants for planting on bunds during the initial 4years of the project. Horticultural plantations have come for bearing and farmers reported good yields of Mango and an income of Rs. 60000 per hectare hence their preference to this crop in the district.

Enhanced Agricultural Productivity of Seasonal Crops

Due to water availability farmers in all watersheds reported increase in area of paddy cultivation. Due to availability of water for longer period in the season up to end of March, crops like vegetables, groundnut, sunflower, black gram and green as

second crop after paddy was introduced. Although variability exists in reported productivity enhancement from as low as 10% to more than 20% increase was noticed in main crop as well as second crop in some watersheds. Farmers reported that cropping intensity is increased in the range of 1.15 to 1.5 in the watersheds depending on the quality of works executed and increased availability of water. Although paddy is not an efficient crop for scarce water utilization, farmers are taking up paddy in watersheds for food grains and fodder for animals.

Common Property Resources and Wasteland Development

Medak is having large areas of wastelands and planting of Eucalyptus, teak, and other tree plants was taken up successfully under social forestry of this scheme. Even these efforts could not help rural poor or land less laborers. These plants were distributed to all the farmers in the watersheds for back yard plantation as well as planting on the bunds.

Employment and Migration

In the entire 10 watersheds under assessment, only in two (20%) watersheds beneficiaries expressed that labor migration is reduced considerably and negligible labor migration in their watersheds. Labor migration had come down from almost 50% before the watershed development activities. However, wage parity between men and women still exists in most of the watersheds. Labor migration is almost arrested at present due to National Rural Employment Guarantee Scheme of government of India, but can not be attributed to watershed development. As informed by respondent farmers at the time of focused group discussion, 10-25% migration in some of the villages was for higher wage earnings and for especially skilled labor like construction workers and vendors.

Our analysis of Focused group discussions with village communities indicate that less than 50% of the watershed villages sounded that they are not vulnerable to one or two seasons of droughts as they expressed confidence of growing one crop, as well as their credit worthiness with banks can help tide over the financial and food insecurity due to crop failures.

Watershed Development Fund

Watershed Development fund should be collected in all the watersheds as per the guidelines and deposited in the banks for joint operations by watershed committee and WDT from the PIA. It was reported that DWMA has collected only 9.95 lakhs towards WDF from some WC, and the amount has been transferred to PD, DWMA. Farmers and WC members in almost all watersheds mentioned that if the fund were made available for repair and maintenance of watershed structures, their impact would have been felt very much by the beneficiaries in the watershed.

About ICRISAT



The International Crops Research Institute for the Semi-Arid Tropics (ICRISAT) is a non-profit, non-political organization that conducts agricultural research for development in Asia and sub-Saharan Africa with a wide array of partners throughout the world. Covering 6.5 million square kilometers of land in 55 countries, the semi-arid tropics have over 2 billion people, and 644 million of these are the poorest of the poor. ICRISAT and its partners help empower these poor people to overcome poverty, hunger, malnutrition and a degraded environment through better and more resilient agriculture.

ICRISAT is headquartered in Hyderabad, Andhra Pradesh, India, with two regional hubs and four country offices in sub-Saharan Africa. It belongs to the Consortium of Centers supported by the Consultative Group on International Agricultural Research (CGIAR).

Contact Information

**ICRISAT-Patancheru
(Headquarters)**
Patancheru 502 324
Andhra Pradesh, India
Tel +91 40 30713071
Fax +91 40 30713074
icrisat@cgiar.org

ICRISAT-Liaison Office
CG Centers Block
NASC Complex
Dev Prakash Shastri Marg
New Delhi 110 012, India
Tel +91 11 32472306 to 08
Fax +91 11 25841294

**ICRISAT-Nairobi
(Regional hub ESA)**
PO Box 39063, Nairobi, Kenya
Tel +254 20 7224550
Fax +254 20 7224001
icrisat-nairobi@cgiar.org

**ICRISAT-Niamey
(Regional hub WCA)**
BP 12404, Niamey, Niger (Via Paris)
Tel +227 20722529, 20722725
Fax +227 20734329
icrisatnc@cgiar.org

ICRISAT-Bamako
BP 320
Bamako, Mali
Tel +223 20 223375
Fax +223 20 228683
icrisat-w-mali@cgiar.org

ICRISAT-Bulawayo
Matopos Research Station
PO Box 776
Bulawayo, Zimbabwe
Tel +263 383 311 to 15
Fax +263 383 307
icrisatzw@cgiar.org

ICRISAT-Lilongwe
Chitedze Agricultural Research Station
PO Box 1096
Lilongwe, Malawi
Tel +265 1 707297/071/067/057
Fax +265 1 707298
icrisat-malawi@cgiar.org

ICRISAT-Maputo
c/o IIAM, Av. das FPLM No 2698
Caixa Postal 1906
Maputo, Mozambique
Tel +258 21 461657
Fax +258 21 461581
icrisatmoz@panintra.com

www.icrisat.org