Impact Assessment Report

INTEGRATED WASTELAND DEVELOPMENT PROJECT

(IWDP-BATCH III)

Nellore District

Andhra Pradesh

BY

GLOBAL THEME- AGROECOSYSTEMS

ICRISAT
Science with a human face
International Crops Research Institute
for the Semi-Arid Tropics

July 2010

Contents

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We sincerely acknowledge the support of Mr. K. Sudhakar Reddy Project Director for providing all support through his staff. We record our profound thanks to Mr. A.Hanumantha Rao, Assistant Project Director (Engineering) and Mr. S. Bhaskar Rao, Assistant Project Director (Social mobilization) for their untiring support and help touring along with us long distance every day and organizing *gram sabha* and field visits in all watersheds, which was most crucial in our efforts.

We thank our Director General Dr. William D. Dar for his approval to undertake this study and his support to provide a good analysis of the study.

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ABBREVIATIONS

ADA: Assistant Director of Agriculture

APD: Assistant Project Director

CJFS: Co-operative Joint Farming Society

DWMA: District Water Management Agency

Dy. E. E: Deputy Executive Engineer

FD: Forest Department

GWD: Ground Water Department

IWDP: Integrated Watershed Development Programme

MDT: Mandal Development Team

NGO: Non-governmental Agency

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

WDC: Watershed Development Committee

WDF: Watershed Development Fund

WDT: Watershed Development Team

EXECUTIVE SUMMARY OF IMPACT ASSESSMENT

1. Farmers in different villages confirmed that water level in open wells increased on an average in the range of 5 to 8 feet during the NE monsoon rainy season and 2 -5 feet 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 one or two 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 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 the village 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 20% to more than 50% in main crop season as well as second crop season in some watersheds. Farmers could cultivate commercial crops like chillies and reported productivity increase from 40 bags (20 kg each) to almost 70 bags of dry chillies per acre. Their additionally income would be estimated around Rs.18000 per acre with chillies. As reported by farmers 300 kg yield increase in black gram results in Rs.9000 per acre during the second season.

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 10-20%, 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.12 lakhs plus interest on principle in 25 waters under IWDP III. If these funds were made available for repair and maintenance of soil and water conservation 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. 25000 per acre from Acid lime crop and hence their preference to this crop in the district. However, enough cautions should have been observed while selecting Acid lime 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 the tree culture in more than 4000 ha wastelands by not only concentrating on horticulture plantation which is of interest to farmers, but by promoting teak plantation, Eucalyptus, neem, subabul and casurina under different activities like social forestry, farm forestry, peripheral planting and agroforestry. This was a commendable effort due to the interest of PIAs from the project implementing agencies in popularizing the tree plantation. Impacts of these plantations are now felt as income of Rs.12, 000 per acre from Subabul, Rs. 40,000 per acre from Casurina and Rs. 36,000 per acre from Eucalyptus after 9 years for the second crop.

BACKGROUND

National Wasteland Development Board (Department of wasteland development) under the Ministry of Rural areas and Employment sanctioned the Integrated Wasteland Development Project (IWDP) - Phase III for Nellore district of Andhra Pradesh. 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 to treat 12500 ha area in 25 watersheds spread over 15 mandals with a project budget outlay of Rs. 500 lakhs (table 1), and to accomplish over a period of 4 years from 1998-99 to 2001-02.

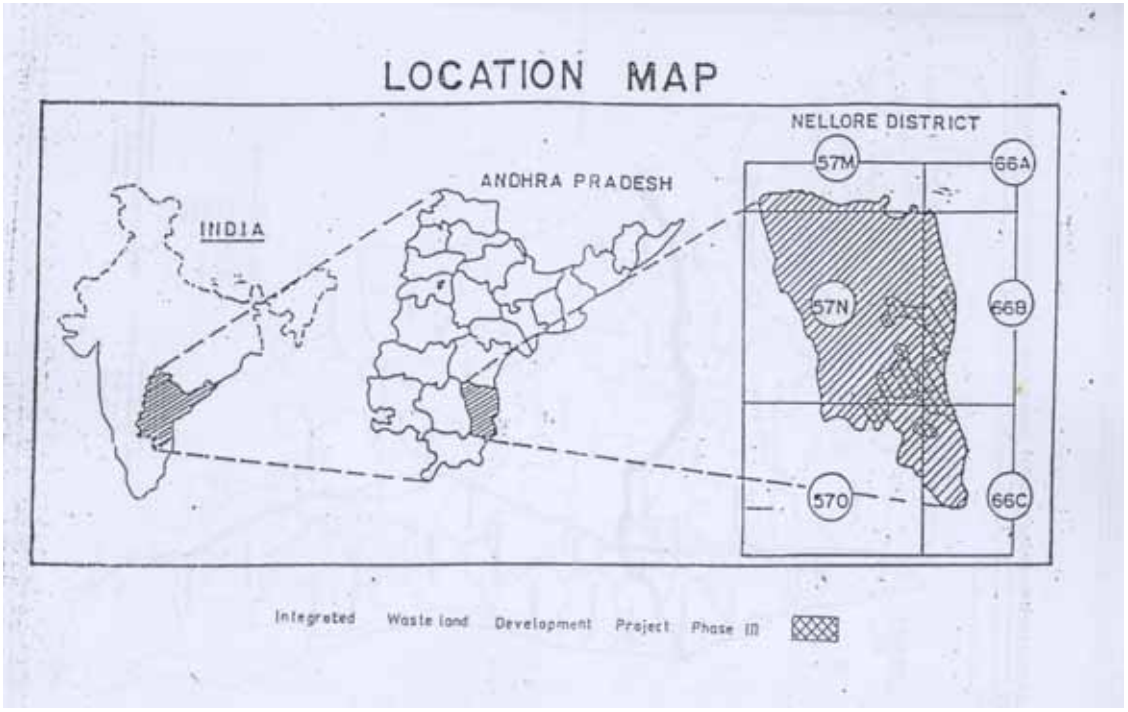
Table 1. Development activity component-wise approved targets and financial allocation in the project.

Components of Developmental activities	**Total target/allocation**	
	Physical (ha)	**Financial (Rs. lakhs)**
Horticulture	4000	128
Agro Forestry	4000	74
Farm Forestry	2000	64
Social Forestry	2000	118
Silvipasture	500	16
Administrative costs	-	50
Training	-	25
Community organization	-	25
Total	**12500**	**500**

District Rural Development Agency (DRDA) Nellore was assigned the responsibility of providing infrastructure for implementation, management of the project through project implementing agency and financial supervision of the project. DRDA-Nellore selected government agencies like Assistant conservator of forests, DRDA, Nellore; DCF (P&E), Nellore; Assistant Director (soil conservation) and Assistant Director (Horticulture), Nellore as project implementation agencies with notice to Ministry of Rural

Development, Government of India although initial sanctions were made to three NGOs.

The project implementation started in the year 1998-99 and works were implemented in 22 watersheds in stead of 25 watersheds as per approval. It was informed that replacements were made in 3 selected watersheds namely Pebbaletipalli watershed in stead of S R Puram, Chinakraka watershed in stead of Brahmanakraka and Vemulapadu watershed in stead of Somavarappadu as there were operational difficulties with village communities. 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.



Map 1 : Nellore district map

Agricultural Situation in Nellore

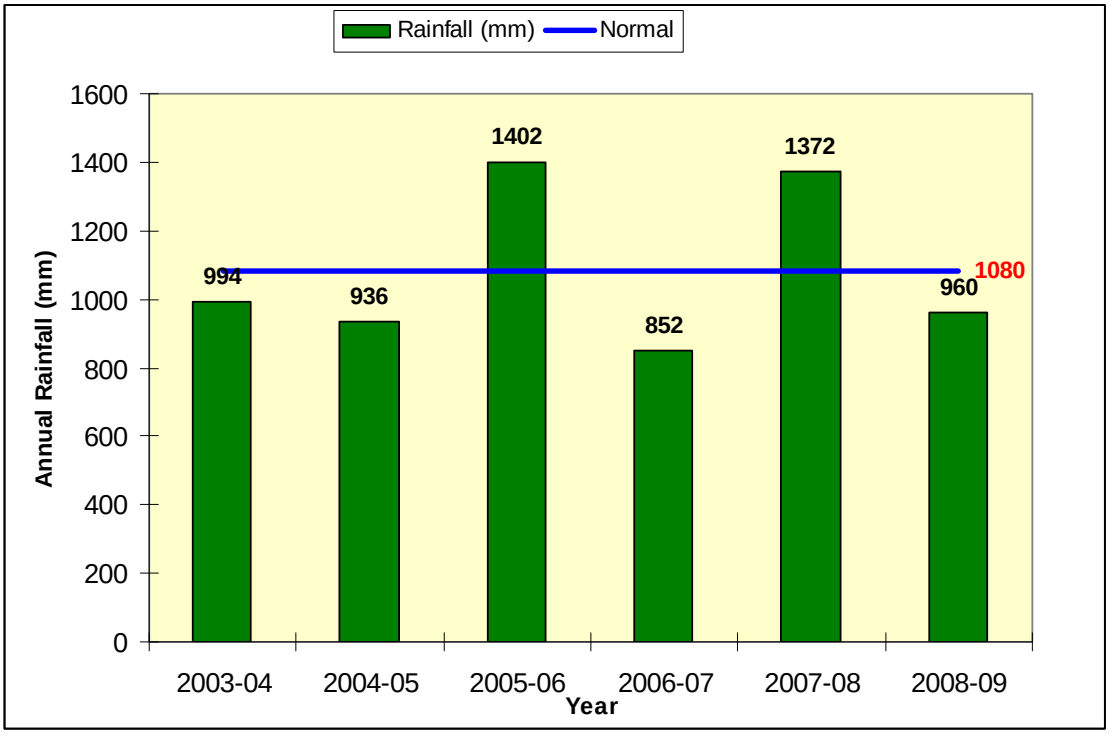
Soils and Land use pattern

In Nellore, 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 Nellore (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%

Rainfall

Nellore district receives major rainfall from North-East Monsoon season starting from October and end by December-January months. This period forms the main cropping season receiving 66.7% of the annual rainfall through NE monsoon, while drought conditions generally prevail during south-west monsoon season with roughly 33.3% of the annual rainfall. Farmers take up cropping if monsoon rainfall is good in Kharif season. Total number of rainy days in a year is about 45 days.



As report in earlier evaluations, four crop seasons from 2001-02 to 2004-05 during the watershed implementation period rainfall was less than normal in all the mandals of the district, and further also above normal rainfall received only during 2005-06 and 2007-08. Hence many farmers in the focused group discussions elucidate that lack of good rainfall after watershed interventions / development was the main reason not to have major gains of watershed interventions in terms of crop production.

METHOD OF IMPACT ASSESSMENT

Multi-disciplinary impact assessment team

Dr. S. P. Wani, Principal Scientist (watersheds), Regional Theme Co-ordinator (Asia), Global Theme- Agroecosystems

Mr. V. Nageswarar 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 Agrocecosystems, which was responsible for the impact evaluation of the IWDP watershed projects in Nellore, 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 Agrocecosystems 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 Nellore 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, Nellore. Meeting with project staff helped us to finalize the list of watershed villages (table 2.) evenly spread across 8 mandals in Nellore district (Map 1. Nellore 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 III watersheds, and concerned APDs for impact assessment

S. No.	Name of the watershed	Mandal	Name of the PIA
1.	Arlapadiya	Udayagiri	Sri B. Balu Naik, Dy. E. E., MDT-II
2.	Chakalikonda	Vinjamur	
3.	Chinnanaluru	Kaligiri	
4.	Kanur	Pellakur	Sri. K. Sreenivasulu, Dy. E. E., MDT-I
5.	Madavayapalem	Dakkili	
6.	Paravolu	Venkatagiri	
7.	Pigilam	Balayapalli	
8.	Thellapadu	Kaligiri	Sri B. Balu Naik, Dy. E. E., MDT-II
9.	Veeranakallu	Kaligiri	
10.	Venkatampeta	Duttalur	

FOCUSSED 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.

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, 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 watershed in Nellore started in the second fortnight of September and continued up to the end of second week in October 2010, and the actual field visits took place a week in Nellore district with the help of project staff of DWMA, Nellore.

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 September –October 2009.

Impact Assessment Report
ARLAPADIYA Watershed, IWDP – III batch,
UDAYAGIRI Mandal, NELLORE district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	IWDP – III Batch
ii. Name of the watershed:	Arlapadiya
iii. Names of villages in the Watershed:	Papulavaripalli, Kottayapalli, Arlapadiya
iv. Villages / Mandal / District:	Arlapadiya / Udayagiri / Nellore
v. Name and Address of PIA:	Sri. B. Balu Naik, Dy. Executive Engg., MDT
vi. Treated area of the watershed:	500

2. Ownership pattern of land:

i. Community land (ha)	Details not available as there were not records provided.
ii. Government land (ha)	
iii. Private land (ha)	
iv. Forest land (ha)	
v. Others	

3. Verification financial and other Records

i. Total cost:1773276	Approved:1773276	Spent:1598600
ii. Expenditure incurred as per guidelines	Records not available with WC	
iii. Works executed as per Records	Check dams: 11, percolation tank: 2, RFDs:5, Recharging of wells: 11	
iv. Whether watershed committees exits	Veerashekar Reddy, secretary respondant	
v. if exists, activities of the committees	No activities were taken up as WDF was unavailable for repair and maintenance of structures.	

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 taken up in the watershed.

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	Since committee took up all the works and no UGs and SHGs were formed, however committee was constituted with 4 women and 7 men members	
ii. Records of meetings properly updated	Not available for verification	
iii. Liaison with scientific institutions established	No	
iv. Watershed Development Fund collected?, and its utilization	Collected as per norms but secretary does not remember the amount accrued in WDF. As per records Rs.58600	
v. Self Help Groups	No:	Revolving fund: Nil
V.O functioning:		Savings:
Utilization of loans:	NA	
Bank linkages established:	NA	
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	4-5 feet increase in ground water level as observed compared to yester years before watershed development informed by villagers
ii. Additional area under cultivation / horticulture / afforestation	400 coconut plants, 400 sapota plants, 600 sweet oranges plants were distributed and all have survived. 3000 teak stumps and 3000 Eucalyptus plants were planted and survival rate was more than 95% and we visited a 3 acre Eucalyptus plantation. Area under annual crop production did not increase
iii. Changes in cropping pattern and intensity	Sunflower was relatively new crop in the area.
iv. Changes in agricultural productivity	Paddy yields increased 35 bags per acre from 20-25 bags per acre; sunflower yields increased from 3-5 q / acre to 7-8 q / acre for the previous 4-5years
v. Changes in fodder & fuel wood availability	
vi. Changes in size and character of livestock	Cattle population is reducing as the people are migrating, however milk production increased by 180

holdings	litres per day.
vii. Status of grazing land & their carrying capacity	
viii. Employment generated due to implementation of project	Employment enhanced during watershed works implementation period.
ix. Change in household category, total, & source-	
x. Freedom from Debt and reduction in degree fo dependence of money lenders (case studies)	Bank loans are a major source of agricultural credit, loans from farmer to farmer were secondary source, however money lenders have no business.
xi. Reduction in out-migration (case studies)	Out migration reduced due to NREGS, but not due to watershed implementation as the rural population depended on daily wages.
xii. Reduction in drought vulnerability of the watershed	Farmers are dependant on rainfall and when good rainfall in the season, water availability increased due to watershed interventions, otherwise farmers are vulnerable without good crop production.
xiii. Detailed case studies of specific farmers impacted by the project	No specific instance of farmers gain significantly
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. **Observation by evaluators:**

Silt deposition removal and maintenance of all structures were satisfactory.

There were around 70 to 80 open wells, and the water level in them increased by 4 to 5 feet in the rainy season. Water availability in the wells increased up to March for agriculture and later 1 to 1.5 m water available round the year in the wells.

Paddy, Sunflower, bajra and sesame are the major crops after watershed development as the crops grown beyond February with supplemental irrigation available from open wells.

Impact Assessment Report
CHAKALIKONDA Watershed, IWDP – III batch,
VINJAMUR Mandal, NELLORE district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	IWDP – III Batch
ii. Name of the watershed:	Chakalikonda
iii. Names of villages in the Watershed:	Chakalikonda II
iv. Villages / Mandal / District:	Chakalikonda / Vinjamur / Nellore
v. Name and Address of PIA:	Sri B. Balu Naik, Dy. Executive Engg., MDT, PIA
vi. Treated 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:2200397	Approved:2200397	Spent:2199605
ii. Expenditure incurred as per guidelines	Records not available with WC	
iii. Works executed as per Records	Yes, most of the work was taken up as continues contour trenching.	
iv. Whether watershed committees exits		
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)

No entry point activity was taken up in this watershed project.

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members: 10
	Before	After	Before	After	Men: 7
					Women: 3
Decribe functions:					
ii. Records of meetings properly updated	Records were not available, members indicated that there were WC meeting held once in a month				
iii. Liaison with scientific institutions established	A visit was organized to see CCTs at Singarayakonda watershed village.				
iv. Watershed Development Fund collected?, and its utilization	Approximately Rs. 45000 was collected as WDF while works were taken.				
v. Self Help Groups	No:		Revolving fund: Rs.		
V.O functioning:			Savings:		
Utilization of loans:					
Bank linkages established:					
vi. Planned CPRs sustainable & equitable development	More than 300 acres of CPR development was taken with the watershed project				
vii. Benefits to weaker sections (women, dalits and landless)					

6. Quantitative Parameters of Impacts

i. Improvements in water table / water availability	Dried open wells have rejuvenated and 10 feet of water column available in the wells. New bores were dug due to ground water development effected by CCT intervention.
ii. Additional area under cultivation / horticulture / afforestation	300 acres of land developed under IWDP III is under seasonal crops cultivation.
iii. Changes in cropping pattern and intensity	Before watershed development Paddy crop was only single crop season, after watershed interventions second crop of black gram and sunflower have provided additional yields and additional farm employment in the village.
iv. Changes in agricultural productivity	Additional yield of second crop black gram with 2 to 3 q acre was obtained by beneficiaries
v. Changes in fodder & fuel wood availability	Fodder availability increased due to increased paddy fodder yield and second crop fodder yields.
vi. Changes in size and	Number of cattle increased due to water availability

character of livestock holdings	and fodder availability. Milk sales increased from 10 L / day to 500 L / day in the village.
vii. Status of grazing land & their carrying capacity	CPR were developed to seasonal and horticulture plantation but no improvement of grazing land
viii. Employment generated due to implementation of project	Employment increased marginally through good crop production
ix. Change in household category, total, & source-	House hold incomes increased to farmers but no change in the status of rural poor.
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	
xi. Reduction in out-migration (case studies)	Reduced from 50% population before the watershed interventions however still 20% people migration is continuing.
xii. Reduction in drought vulnerability of the watershed	Farmers' incomes stabilized after watershed interventions in this watershed.
xiii. Detailed case studies of specific farmers impacted by the project	G. Ram Reddy, Sarpanch of the village has sweet oranges garden because of bore well water enhancement with watershed interventions.
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. Observation of the Evaluators:

We observed Continuous Contour Trenches (CCT) around two hills. These have been formed more than 3

Picture 1. Continuous contour trench at the upper terrain around a hillock at Chakalikonda, Vinjamur mandal, Nellore district.

Picture 2. Long contour bund around the foot hill of a small hillock at Chakalikonda watershed, Vinjamur Mandal, Nellore district.

Impact Assessment Report
CHINNA ANALUR Watershed, IWDP – III batch,
KALIGIRI Mandal, NELLORE district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	IWDP – III Batch
ii. Name of the watershed:	Chinna Analuru
iii. Names of villages in the Watershed:	Chinna Analuru
iv. Villages / Mandal / District:	Chinna Analuru / Kaligiri / Nellore
v. Name and Address of PIA:	Sri. B. Balu Naik, Dy. Executive Engg. MDT
vi. Total area of the watershed:	Data not available

2. Ownership pattern of land:

i. Community land (ha)	Data not available
ii. Government land (ha)	
iii. Private land (ha)	
iv. Forest land (ha)	
v. Others	

3. Verification financial and other Records

i. Total cost:18,29,353	Approved:	Spent:18,29,353
ii. Expenditure incurred as per guidelines	Records not available with WC	
iii. Works executed as per Records	Yes, check dams: 4 and no percolation tanks	
iv. Whether watershed committees exits	Yes, Mr. Kolla Jayaramaiah, Chairman, Mr. Gaddae Malakondaiah, President, Mr. Nagisetty Jaginayana, 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)

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	Men: 7
					Women: 2
Describe					
ii. Records of meetings properly updated	Meeting held once in a month for WC members				
iii. Liaison with scientific institutions established	Only watershed committee members visited Raligaon siddi for examining watershed development				
iv. Watershed Development Fund collected?, and its utilization	WDF was collected as per norms and deposited in the bank. Not utilized for maintenance works Rs.44,700				
v. Self Help Groups	No:		Revolving fund:		
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)	Weaker section people got Eucalyptus plantation up to 100 acres and acid lime plants for 50 acres.				

6. Quantitative Parameters of Impacts

i. Improvements in water table / water availability	Water level increased in the open wells by 2 feet
ii. Additional area under cultivation / horticulture / afforestation	100 acres brought under afforestation in weaker sections lands. 60 acres of acid lime horticultural plantation was developed in the watershed.
iii. Changes in cropping pattern and intensity	Tobacco and Chillies are the commercial crops introduced
iv. Changes in agricultural productivity	Tobacco production increased significantly with supplemental irrigation.
v. Changes in fodder & fuel wood availability	
vi. Changes in size and character of livestock holdings	With additional milch cattle, every milk collection increased by 500 litres.
vii. Status of grazing land & their carrying capacity	
viii. Employment generated due to	Employment during the implementation of the works, later on reduced

implementation of project	
ix. Change in household category, total, & source-	
x. Freedom from Debt and reduction in degree fo dependence of money lenders (case studies)	Farmers depend only on agricultural crop loan credit or gold loans from banks`, no dependence on money lenders.
xi. Reduction in out-migration (case studies)	Some labor took up brick making as employment, however migration of semi-skilled labour for higher wage earnings continuing
xii. Reduction in drought vulnerability of the watershed	Availability of water for irrigation and drinking water for men and cattle population reduced vulnerability.
xiii. Detailed case studies of specific farmers impacted by the project	Many farmers resorted to Eucalyptus cultivation as income generating for farmers and employment generation for rural poor.
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. **Observation of the Evaluators:**

Picture 3. A check dam on Alugu vagu silt deposited and breaching at the side-wall in Chinna Annaluru watershed, Kaligiri Mandal, Nellore.

Picture 4. A big masonry check dam located on Mondikunta vagu was silted reducing storage capacity, needs desilting.

- Disilting behind the check dams is to be taken up immediately, and check dams side wall breaching is to be filled.

- Acid lime found the preference of the farmers in this watershed and the crop comes to commercial production within 3 years and the income is Rs. 30,000 per acre.

- Masonry checkdam located on Alugu vagu was having about 1000 m^3 capacity and constructed with a cost of Rs 87614/-. Location and quality of construction is good and effective in conserving runoff water and recharging groundwater. Lot of silt deposition seen resulting in reduction of storage capacity. Embankment was not properly done and erosion cum widening of drain observed. There are about 6 beneficiary farmers around the structure with 4 open wells.

- A big masonry checkdam located on Mondikunta vagu was having about 1200 m^3 capacity and constructed with a cost of Rs 120000/-. Location and quality of construction is very good and effective in conserving runoff water and recharging groundwater. Lot of silt deposition seen resulting in reduction of storage capacity. No de-silting and maintenance work done. There are about 5 beneficiary farmers around the structure with 3 open wells.

- Formation of percolation tank was done by spending Rs. 36000/- but structure was completely damaged. Suitability of location and quality of work was poor resulting in breaching of bunds on both sides of surplus veir. Checkdam could have been better choice than this PT.

Impact Assessment Report
KANURU Watershed, IWDP – III batch,
PELLAKUR Mandal, NELLORE district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	IWDP – III Batch
ii. Name of the watershed:	Kanuru Rajupalem
iii. Names of villages in the Watershed:	Kanuru Rajupalem
iv. Villages / Mandal / District:	Kanuru Rajupalem / Pellakur / Nellore
v. Name and Address of PIA:	Sri. K. Srinivasulu, Dy. Executive Engg.
vi. Total area of the watershed:	500

2. Ownership pattern of land:

i. Community land (ha)	
ii. Government land (ha)	1014
iii. Private land (ha)	461
iv. Forest land (ha)	
v. Others	200

3. Verification financial and other Records

i. Total cost:1529943	Approved:	Spent:1403900
ii. Expenditure incurred as per guidelines	Records not available with WC	
iii. Works executed as per Records	Check dams:1, Percolation tanks:11, Recharge of wells: 8	
iv. Whether watershed committees exits	Yes, but not functional, Mr. S. Chintaiah, chairman, President: D. Mohan Raju, Secretary: Rajagopala Raju responded in the meeting.	
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 was not taken up.

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members:9
	-				Men: 8
					Women: 1
Describe:					
ii. Records of meetings properly updated	WC meets once in three months, and WA meets once in 6 months.				
iii. Liaison with scientific institutions established	One visit to Hyderabad facilitated to see agricultural research centres.				
iv. Watershed Development Fund collected?, and its utilization	Rs.30000				
v. Self Help Groups	No: NA		Revolving fund: Rs. NA		
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)	NA				

6. Quantitative Parameters of Impacts

i. Improvements in water table / water availability	Open wells: 90 and Bore wells: more than 100; water availability in open well extended for 2-3 months from February up to May end.
ii. Additional area under cultivation / horticulture / afforestation	100 acres of acid lime plantation was taken under IWDP, removed after five years as farmers received low quality plant material. Eucalyptus plantation was also taken up.
iii. Changes in cropping pattern and intensity	Chillies, groundnut, black gram, green gram as seasonal crops. Farmers' preference was for acid lime orchards as it income is Rs. 20,000 to 25000 per acre per annum.
iv. Changes in agricultural productivity	Black and green gram yields doubled from 2 bags per acre to 4 bags per acre, chillies yield increase from 40-50 bags to 60-70 bags per acre.
v. Changes in fodder & fuel wood availability	No increase in fodder
vi. Changes in size and	No market for milk sales hence no increase in milk

character of livestock holdings	production.
vii. Status of grazing land & their carrying capacity	No grazing land available
viii. Employment generated due to implementation of project	Enough employment is available and migration reduced almost.
ix. Change in household category, total, & source-	
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Although dependence on money lender continue, reduced considerably due to crop and gold loans availability from banks.
xi. Reduction in out-migration (case studies)	Required labour availability reduced hence no migration of labour.
xii. Reduction in drought vulnerability of the watershed	Drought withstanding is not attained as was observed with recent drought. Acid lime plantation in some area dried up.
xiii. Detailed case studies of specific farmers impacted by the project	Most farmers feel they all have got benefit from watershed initiative, and enhanced their income.
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 of the evaluator:

- A masonry check dam constructed on Eduru kaluva with about 500 m^3 capacity was inspected. Lot of silt deposition of about 0.5 m height observed and storage capacity of the structure has come down. Location and quality of construction is good and has about 200 m^3 of water storage exits. In open wells, 4 feet ground-water level increase was observed in the watershed area. There are about 20 open wells and 7 bore wells around the structure with about 20 beneficiary farmers. Acid lime orchards and groundnut crops are seen under irrigation.

- An old percolation tank (Bopana kunta) was renovated under watershed activity and capacity of the PT is about 2000 m^3. Quality of the work was good and about 200 m^3 stored water seen in it. It was renovated again under NREGS recently. Ground-water level in the area increased by 3 feet. There are about 8 open wells around the structure with about 15 beneficiary farmers.

Picture 5. A masonry check dam constructed on Eduru kaluva (about 500 m^3 water storage capacity) has 200 m^3 water serves 20 open and 7 borewells in Kanuru watershed, Pellakur mandal, Nellore district.

- Paddy, acid lime orchards, chillies and groundnut crops are seen under irrigation.

Picture 6. An old percolation tank (Bopana kunta) was renovated under IWDP III project serves 8 open wells in the surroundings in Kanuru watershed, Pellakur mandal, Nellore.

Impact Assessment Report
MADHAVAYAPALLI Watershed, IWDP – III batch,
DAKKILI Mandal, NELLORE district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	IWDP – III Batch
ii. Name of the watershed:	Madhavayapalli
iii. Names of villages in the Watershed:	Madhavayapalli,
iv. Villages / Mandal / District:	Madhavayapalli / Dakkili / Nellore
v. Name and Address of PIA:	Sri. K. Sreenivasulu, Dy. Executive Engg., PIA
vi. Total area of the watershed:	

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: 1813398	Approved:	Spent: 86300
ii. Expenditure incurred as per guidelines	Records not available with WC	
iii. Works executed as per Records	Yes, Check dams:1, Percolation tanks: 5, Recharge wells: 270 pipes for 270 farmers supplied	
iv. Whether watershed committees exits	Yes, Chairman: Kota Reddy, President: Allam Janaradhana Reddy, Secretary: Madhusudhana Reddy	
v. if exists, activities of the committees	No activity as there are no guidelines to use WDF available for maintenance of structures.	

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 to promote participation of community.

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members: 9
	Before	After	Before	After	Men: 9
					Women: 0
Describe:					
ii. Records of meetings properly updated					
iii. Liaison with scientific institutions established					
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	With co-operative joint farming society 250 acres of land was developed, however not allotted to groups or individuals later hence care was not taken to cultivate land.				
vii. Benefits to weaker sections (women, dalits and landless)					

6. Quantitative Parameters of Impacts

i. Improvements in water table / water availability	Check dams and percolation tanks have breached and check dam construction sites were not appropriate hence could not achieve desired results. However drinking water for cattle requirements were meet satisfactorily. Percolation tanks helped in increasing supply of water to bore wells indirectly helping cropping.
ii. Additional area under cultivation / horticulture / afforestation	Afforestation with Eucalyptus and Teak was taken in back yard plantation with individual house holds. Horticulture plantation with Acid lime was taken up on 60 acres.
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 fo 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	Nil
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 of the Evaluators:

- Percolation tank I at Madigakunta has the storage capacity of 500 m3 with 10 cubic meter of water in it. It is located in correct place considering all technical parameters. Quality of work and after maintenance was also good.
- Since this Percolation Tank has good storage capacity influencing 5 open wells and 20 bore wells in the vicinity, 20 farmers are benefitted. It is renovated under NREGS by spending Rs. 1.5 lakhs for increasing size and strengthening bunds.

- Percolation tank II at Jeeva Kunta near Velikondalu tank has a capacity of 350 cubic meters of water. It is located in a catchment area of a big tank and serves no purpose. Its quality of work and technical considerations are not up to the standards. Slope is in the opposite direction to the bund, soil was excavated to store water. No beneficiary farmers are situated around the tank, surrounding land area is owned by government.

Picture 7. Percolation tank at Madigakunta has the storage capacity of 500 m3 of water, serves 5 open wells and 20 bore wells benefiting 20 farmers in Madhavayapalem, Dakkili mandal, Nellore district..

Picture 8. Percolation tank II at Jeeva Kunta has a capacity of 350 cubic meters of water, located in a catchment area of Velikondalu tank and slope is in the opposite direction to the bund and serves no beneficiaries(Madhavayapalem, Dakkili mandal, Nellore).

Impact Assessment Report
PARAVOLU Watershed, IWDP – III batch,
VENKATAGIRI Mandal, NELLORE district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	IWDP – III Batch
ii. Name of the watershed:	Paravolu watershed
iii. Names of villages in the Watershed:	Paravolu, C.C. Kandriga, Siddavaram
iv. Villages / Mandal / District:	Paravolu / Venkatagiri / Nellore
v. Name and Address of PIA:	Sri. K. Srinivasulu, Dy. E. E., MDT, PIA
vi. Watershed Area treated:	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: Rs.1966900	Approved: Rs.1966900	Spent: Rs.1688151
ii. Expenditure incurred as per guidelines	Rs.1688151	
iii. Works executed as per Records	Yes, Check dams: 7, PTs: 2, Bunding: 2 strips on breached old bunds, recharge wells:126	
iv. Whether watershed committees exits	Yes, Mr. Veluri Papi Reddy, Chairman; Mr. K. V. Subbaiah, President; Mr. Pulluri Krishna Reddy, Secretary	
v. if exists, activities of the committees	No activities in the absence of guidelines / approval to utilize WDF for maintenance and repairs of watershed structures.	

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: 7
Describe					
ii. Records of meetings properly updated					
iii. Liaison with scientific institutions established					
iv. Watershed Development Fund collected?, and its utilization	Water shed development collected as per norms but returned to the members.				
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)	Co-operative Joint Farming Society for weaker sections took up 100 acres of Eucalyptus plantation with watershed program.				

6. Quantitative Parameters of Impacts

i. Improvements in water table / water availability	Water availability increase up to March in the open wells which used to dry up by January before the watershed intervention.
ii. Additional area under cultivation / horticulture / afforestation	Acid lime plantation was taken in additional 110 acres, however due to price reduction of wood Eucalyptus plantation was cut down.
iii. Changes in cropping pattern and intensity	First crop paddy and second crop groundnut with supplemental irrigation. Crop intensity increased by 100%
iv. Changes in agricultural productivity	Paddy yields increased from 40 bags / acre to 50 bags / acre and groundnut yields increased from 30 bags / acre to 40 bags / acre
v. Changes in fodder & fuel wood availability	Fodder availability increased due to paddy production of straw
vi. Changes in size and character of livestock holdings	Milk selling from village increased from 50 litres per day to 200 litres per day.

vii. Status of grazing land & their carrying capacity	No improvement
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)	Because of good paddy production and prices farmers are not indebted.
xi. Reduction in out-migration (case studies)	No migration from this watershed village
xii. Reduction in drought vulnerability of the watershed	Farmers can with stand drought for one season crop failure without much hardship
xiii. Detailed case studies of specific farmers impacted by the project	Tummala Bhagavan Das has 2.5" bore well near the percolation tank. After the PT is formed he has been harvesting two crops with water availability
xiv. Photographs showing work + its impact	See attached photos in the observation of the evaluators

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

xv. Since Nellore district spreads over a longer strip from south to north, distance between watersheds is more leading to operational difficulties of the staff. The selection of watersheds under the scheme should have been in clusters for concentrating efforts of the staff.

xvi. There was no publicity on the activities of the scheme through wall writing and not even details of works written on watershed structures.

8. Observations of the Evaluator(s):

i. Masonry checkdam located on Basava tank kaluju kaluva was constructed but no use now. Quality of construction of structure and apron walls was not good and embankment was also not properly done. Water flows out from two sides and hardly 1- 1.5 feet depth of water can be stored. There were 2

open wells and 2 bore wells around the structure serves 6 beneficiary farmers, but the structures utility diminished due to poor maintenance.

ii. We inspected a percolation tank (Ramaswamy kunta) and observed about 400 m^3 stored water in it. Location and quality of work was good and very effective in conserving water and recharging groundwater. Thirteen bore wells were dug under CLDP in the zone of influence to bring 48 ha of land under cultivation. It was rainfed area without open wells or bore wells before the construction of this Percolation Tank.

iii. Acid lime orchard of Mr. V. Papi Reddy, watershed chairman planted in 0.8 ha under watershed activity was seen. He removed plants from about 0.4 ha area because they died due to disease. Remaining plants in about 0.4 ha also not healthy and not giving any yield.

Picture 9. A masonry check dam located on Basava tank kaluju kaluva was constructed but serves no purpose as quality of structure was poor and embankment was also not properly done in Paravolu watershed, Venkatagiri Mandal, Nellore district

Picture 10. A percolation tank (Ramaswamy kunta) with 400 m^3 stored water was effective in conserving water and recharging groundwater. 13 bore wells are operational irrigating 48 ha of land.

Picture 11. Acid lime orchard (0.8 ha) of Mr. V. Papi Reddy, planted under watershed activity, removed established plants (0.4 ha) because of die-back disease, remaining are also diseased.

Impact Assessment Report
PIGILAM Watershed, IWDP – III batch,
BALAYAPALLI Mandal, NELLORE district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	IWDP – III Batch
ii. Name of the watershed:	Pigilam
iii. Names of villages in the Watershed:	Pigilam, Kothapalem, Kommalakunta, Jarlapadu
iv. Villages / Mandal / District:	Pigilam / Balayapalli / Nellore
v. Name and Address of PIA:	Sri K. Sreenivasulu, Dy. Executive Engineer
vi. Treated area of the watershed:	500
	Arable: 370 ha Non-arable:130 ha

2. Ownership pattern of land:

i. Community land (ha)	NA
ii. Government land (ha)	1035.25 ha
iii. Private land (ha)	133.24 ha
iv. Forest land (ha)	NA
v. Others	NA

3. Verification financial and other Records

i. Total cost: Rs.1897437	Approved:	Spent: Rs.1839446
ii. Expenditure incurred as per guidelines	Records not available with WC	
iii. Works executed as per Records	Check dams: 3, Percolation Tanks: 9 , sunken pits: 25	
iv. Whether watershed committees exits	Yes, Mr. Maravaneni Masthanaiah, chairman; Mr. M. Ramakrishnaiah, President, Mr. Mallela Gurunadham, 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)

Entry point activity was not taken up in this project.

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: 15</td></tr>
<tr><td>Before</td><td>After</td><td>Before</td><td>After</td><td>Men: 13</td></tr>
<tr><td>-</td><td>58</td><td>-</td><td></td><td>Women: 2</td></tr>
<tr><td>Describe:</td><td colspan="5">SC=1; ST=1</td></tr>
<tr><td>ii. Records of meetings properly updated</td><td colspan="5">WC met once in a month, and sometime met in between when required. WA meetings were conducted once in THREE months.</td></tr>
<tr><td>iii. Liaison with scientific institutions established</td><td colspan="5">Visited Nellore three times to witness technologies demonstrated by Israel water conservation techniques. A video film was also shown on these technologies.</td></tr>
<tr><td>iv. Watershed Development Fund collected?, and its utilization</td><td colspan="5">Water development fund was collected as per norms with information that the money will be spent on repairs and maintenance of structures, but nothing was taken up. Rs.85600 was collected.</td></tr>
<tr><td>v. Self Help Groups</td><td colspan="3">No:</td><td colspan="2">Revolving fund: Rs.</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"></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 activity</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	After watershed interventions water availability extended up to March in the open wells. Number of bore wells increased after watershed and year-round water availability in them.
ii. Additional area under cultivation / horticulture / afforestation	Additionally 50 acres brought under cultivation. Acid lime plants for 148 acres are were given to farmers in three villages namely Kothapalyam, pigilam and Degapudi.
iii. Changes in cropping pattern and intensity	Groundnut and sesame in rainy as well as second season with supplemental irrigation was a change brought after watershed development.

iv. Changes in agricultural productivity	Rabi season productivity is additional in terms of Groundnut (yield of 40 bags per acre), paddy (25 to 40 bags per acre),.
v. Changes in fodder & fuel wood availability	
vi. Changes in size and character of livestock holdings	Up to 2008, milk production enhanced from nil sales to 160 liters / day. Milk production reduced due to drought in 2009, and disposal of all milch cattle.
vii. Status of grazing land & their carrying capacity	Although paddy straw is available, fodder scarcity exists.
viii. Employment generated due to implementation of project	Employment during execution of the works was conspicuous, and later on through agriculture labour employment.
ix. Change in household category, total, & source-	Baseline data not provided
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Bank loans are primary source of agricultural loans, however farmer to farmers loans are still practiced.
xi. Reduction in out-migration (case studies)	No migration in labor.
xii. Reduction in drought vulnerability of the watershed	Farmers felt they can withstand drought as their income also increased.
xiii. Detailed case studies of specific farmers impacted by the project	Mallela Guravaiah naidu is a good example of beneficiary of watershed scheme.
xiv. Photographs showing work + its impact	See attached in observations of the evaluators

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

8. Observation of the Evaluators:

- We visited a mini-percolation tank (Gajulavari kunta) of about 300 m^3 was constructed with a cost of Rs. 60,000. Location and quality of construction is good and about 20 m^3 stored water seen in it. There were about 4 open wells and 8 bore wells around the structure benefiting 15 farmers.

- Visited a percolation tank (Kotha kunta) with about 800 m^3 capacity which was constructed with a cost of Rs. 80,000. Outlet left bare without stone pitching or any treatment. Location and quality of masonry work was good and about 100 m^3 stored water was seen in it. There are only 2 bore wells in the zone of influence with 4 beneficiary farmers.

- Visted a percolation tank with surplus veir (Peenugula kaluva) with about 2000 m^3 capacity which was constructed with a cost of Rs. 110,000. Location and quality of work was good and about 200 m^3 stored water was seen in it. There were no wells around the structure but water was used for irrigating paddy fields in the down stream area.

Picture 12. A mini-percolation tank (Gajulavari kunta) of about 300 m^3, quality of construction was good in Pigilam watershed,Balayapalli mandal, Nellore district.

Picture 13. A percolation tank (Kotha kunta) with 800 m^3 capacity as its outlet left bare without stone pitching or any treatment.

Picture 14. Percolation tank with surplus veir (*on Peenugula kaluva*), *water stored was used for irrigating paddy fields in the down stream area.*

Impact Assessment Report
THELLAPADU Watershed, IWDP – III batch,
KALIGIRI Mandal, NELLORE district, Andhra Pradesh

3. Details of watershed:

vii. Name of the Scheme:	IWDP – III Batch
viii. Name of the watershed:	Thellapadu
ix. Names of villages in the Watershed:	Thellapadu
x. Villages / Mandal / District:	Thellapadu / Kaligiri / Nellore
xi. Name and Address of PIA:	Sri. B. Balu Naik, Dy. Executive Engg
xii. Total area of the watershed:	

2. Ownership pattern of land:

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

4. Verification financial and other Records

vi. Total cost: 1854400	Approved:	Spent: 1853089
vii. Expenditure incurred as per guidelines		
viii. Works executed as per Records	Yes	
ix. Whether watershed committees exits	Yes, Marella Ramana Reddy, Watershed Committee President is not very much aware of the developmental works.	
x. if exists, activities of the committees	No activity.	

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

6. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members:
	Before	After	Before	After	Male: 9
					Female: 2
ii. Describe					
iii. Records of meetings properly updated					
iv. Liaison with scientific institutions established					
v. Watershed Development Fund collected?, and its utilization	Rs.24, 800				
vi. Self Help Groups	No:		Revolving fund: Rs. Nil		
vii. V.O functioning:			Savings:		
viii. Utilization of loans:					
ix. Bank linkages established:					
x. Planned CPRs sustainable & equitable development					
xi. Benefits to weaker sections (women, dalits and landless)					

7. Quantitative Parameters of Impacts

xv. Improvements in water table / water availability	Water availability in open wells increased from 2 hr per day to 8 hr per day after watershed interventions.
xvi. Additional area under cultivation / horticulture / afforestation	
xvii. Changes in cropping pattern and intensity	
xviii. Changes in agricultural productivity	
xix. Changes in fodder & fuel wood availability	
xx. Changes in size and character of livestock holdings	
xxi. Status of grazing land	

& their carrying capacity	
xxii. Employment generated due to implementation of project	Labor requirement due to orchard plantation and work availability round the year helped rural landless poor
xxiii. Change in household category, total, & source-	
xxiv. Freedom from Debt and reduction in degree fo dependence of money lenders (case studies)	
xxv. Reduction in out-migration (case studies)	
xxvi. Reduction in drought vulnerability of the watershed	
xxvii. Detailed case studies of specific farmers impacted by the project	Marella Konda Reddy and Marella Sunder Rami Reddy have been benefitting through citrus plantations through watershed programme.
xxviii. Photographs showing work + its impact	

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

9. **Observation of the Evaluator:**

Rock-filled dams have been either damaged or removed to use the stones for construction. Those check dams constructed at the correct places their utility has been good. Sweet oranges plantation was established and first crop has been taken up. Farmers were projecting higher income and optimistic. Farmers' opinion was that a tank irrigation system in stead of watershed structures should have served their purpose very well.

1. Masonry checkdam located on Mangalakunta vagu was constructed with a cost of Rs 63257/-. Location and quality of construction is good and very effective in conserving runoff water and recharging groundwater. Lot of silt deposition and accumulation of dry twigs seen but no maintenance and

cleaning of the structure. There are about 10 beneficiary farmers around the structure with 4 open wells and 3 bore wells.

2. Good acid lime orchards promoted under watershed activity was seen. Mr. M. Sudhakar Reddy and M. Konda Reddy are the beneficiary farmers and getting good yield and profits from it.

3. Renovation of percolation tank was done along with bund strengthening and revetment. Surplus veir was also constructed with a total cost of Rs. 78120/-. Quality of work is good and serving the purpose of recharging groundwater.

Picture 15. Masonry checkdam located on Mangalakunta vagu can be effective in conserving runoff water and recharging groundwater, 10 beneficiary farmers around the structure with 4 open wells and 3 bore wells in Tellapadu watershed, Kaligiri Mandal, Nellore.

Picture 16. Acid lime orchard (5 acres) of Mr. Marella Konda Reddy in Tellapadu watershed, Kaligiri Mandal, Nellore District.

Impact Assessment Report
VEERANKALLU Watershed, IWDP – III batch,
KALIGIRI Mandal, NELLORE district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	IWDP – III Batch
ii. Name of the watershed:	Veerankallu
iii. Names of villages in the Watershed:	Veerankallu
iv. Villages / Mandal / District:	Veerankallu / Kaligiri / Nellore
v. Name and Address of PIA:	Sri. B. Balu Naik, Dy. Executive Engg., MDT
vi. Total area of the watershed:	

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: 1668672	Approved:	Spent: 1667918
ii. Expenditure incurred as per guidelines	Records not available with WC	
iii. Works executed as per Records	Yes, check dams: 10, Percolation tanks: 4, Recharge of open wells: around 100 open wells,	
iv. Whether watershed committees exits	Yes, Mr. Dega Srinivasulu, president interacted.	
v. if exists, activities of the committees	Activities were not undertaken as WDF was not released for maintenance of watershed structures.	

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

<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: 10</td></tr>
<tr><td>Before</td><td>After</td><td>Before</td><td>After</td><td>Men: 10</td></tr>
<tr><td>-</td><td>7</td><td>-</td><td>-</td><td>Women: nil</td></tr>
<tr><td colspan="5">Describe:</td></tr>
<tr><td>ii. Records of meetings properly updated</td><td colspan="5">Yes, WC meeting were held regularly once in a month or as and when required.</td></tr>
<tr><td>iii. Liaison with scientific institutions established</td><td colspan="5">Exposure visits conducted, but respondents could not agree on exact places visited.</td></tr>
<tr><td>iv. Watershed Development Fund collected?, and its utilization</td><td colspan="5">WDF funds are available but not sure about the amount.
Records indicate Rs.42600</td></tr>
<tr><td>v. Self Help Groups</td><td colspan="2">No:</td><td colspan="3">Revolving fund: Rs.</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"></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">NA</td></tr>
<tr><td>vii. Benefits to weaker sections (women, dalits and landless)</td><td colspan="5">NA</td></tr>
</table>

6. Quantitative Parameters of Impacts

i. Improvements in water table / water availability	Bore wells rejuvenated
ii. Additional area under cultivation / horticulture / afforestation	200 acres additionally brought under cultivation, however horticultural and agroforestry interventions were not taken up.
iii. Changes in cropping pattern and intensity	Paddy in a new introduction with water availability and second crop of cotton after paddy is another introduction.
iv. Changes in agricultural productivity	Crop yield doubled with water availability as farmers harvest 40 bags of paddy and 10q of cotton per acre.
v. Changes in fodder & fuel wood availability	Fodder availability increased with paddy cultivation in additional area.
vi. Changes in size and character of livestock holdings	Buffaloe population increased to 400-500 in the watershed and milk yield and sales increased from 80 litres to 400 litres per day.

vii. Status of grazing land & their carrying capacity	No grazing lands
viii. Employment generated due to implementation of project	Not quantified.
ix. Change in household category, total, & source-	NA
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Loans from money lender reduced drastically (70% reduced) as loans from banks in the form of crop loans, gold loans increased, and farmer to farmer loans are also available.
xi. Reduction in out-migration (case studies)	Migration confined to 50 people after watershed interventions, reduced from 150-200 migration every year.
xii. Reduction in drought vulnerability of the watershed	Water available behind the check dams are used for supplemental irrigation to crops hence providing reasonable crop yield even in drought situation
xiii. Detailed case studies of specific farmers impacted by the project	All farmers are getting good water from bore wells hence all farmers are well-to-do in terms of agricultural income.
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 of Evaluators:

- Masonry checkdam was constructed on Sirimella vagu with a capacity of about 700 m^3 and cost of construction was Rs 105000/-. Location and quality of construction is good and serving the purpose. Lot of bushes have grown and reduced the storage capacity. There are about 10 beneficiary farmers around the structure with 4 open wells.

- A percolation tank was constructed by spending Rs. 1.43 lakhs. Size of the structure is about 500 m^3 capacity and about 60 m^3 stored water was seen. Suitability of location and quality of work was good and very effective in conserving and recharging groundwater. There are about 10 beneficiary farmers around the structure with 3 open wells and 2 bore wells.

Picture 17. Focused group discussion with WC members and villagers in Veerankallu village, Kaligiri Mandal, Nellore District.

Picture 18. A percolation tank in Veerankallu developed during IWDP Phase III with approximately 60 m^3 of water during October 2009, before the start of NE monsoon rains.

Impact Assessment Report
VENKATAMPETA Watershed, IWDP – III batch,
DUTTALUR Mandal, NELLORE district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	IWDP – III Batch (1998-99 to 2005-06)
ii. Name of the watershed:	Venkatampeta
iii. Names of villages in the Watershed:	Venkatampeta, Nandipadu, Papampalli, Chintalagunta
iv. Villages / Mandal / District:	Venkatampeta / Duttalur / Nellore
v. Name and Address of PIA:	Sri B. Balu Naik, Dy. Executive Engg., MDT, PIA
vi. Total area of the watershed:	500 ha

2. Ownership pattern of land:

3. Verification financial and other Records

i. Total cost: 1585638	Approved:	Spent: 1563031
ii. Expenditure incurred as per guidelines	Records not available with WC	
iii. Works executed as per Records	Yes, CDs. 6, Percolation tanks: 4, RFDs: 20, Recharge Community Wells: 60, Bunding: Nil, CCTs: Nil	
iv. Whether watershed committees exits	Yes, chairman: K. Subba Reddy responded to questionnaire.	
v. if exists, activities of the committees	No activity, however waiting to repair damaged structures and maintain with WDF, if available.	

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 for administrative reasons.

5. Qualitative Parameters of Impacts

viii. Functioning of village level institutions	No. of UGs		No. of SHGs		WC numbers: 9
	Before	After	Before	After	Men: 7
	-	-	-	-	Women: 2
i. Records of meetings properly updated	Record books not available with the committee				
ii. Liaison with scientific institutions established	NIL				
iii. Watershed Development Fund collected?, and its utilization	Amount not known, but available Records indicate Rs.45500				
iv. Self Help Groups	No: NIL		Revolving fund: Rs.		
V.O functioning:			Savings:		
Utilization of loans:					
Bank linkages established:					
v. Planned CPRs sustainable & equitable development	NIL				
vi. Benefits to weaker sections (women, dalits and landless)	NA				

6. Quantitative Parameters of Impacts

i. Improvements in water table / water availability	Water level in the wells increased by 2 feet
ii. Additional area under cultivation / horticulture / afforestation	20 to 30 acres of land additional brought under cultivation.
iii. Changes in cropping pattern and intensity	20% increase in crop intensity
iv. Changes in agricultural productivity	With Paddy+groundnut or cowpea / pigeonpea or black gram +cotton double cropping yields increased from 20% up to 50% in good rainfall years.
v. Changes in fodder & fuel wood availability	No scarcity of fodder
vi. Changes in size and character of livestock holdings	Cattle population did not increase, but increase in milk production by 120 litres per day.
vii. Status of grazing land & their carrying capacity	No change

viii. Employment generated due to implementation of project	Employment increased during execution of watershed works directly. Indirect benefit was not quantified.
ix. Change in household category, total, & source-	
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Since bank loans are available without problem, farmers are free from money lenders traps
xi. Reduction in out-migration (case studies)	10% of the labor migrates and there has been no change in labour migration
xii. Reduction in drought vulnerability of the watershed	Not much appreciable change in drought vulnerability as there were no sufficient rains after watersheds are developed.
xiii. Detailed case studies of specific farmers impacted by the project	Mr. Pavuluri Ramaiah who has developed acid lime plantation has become good income generating farmer and an example in the village.
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:**

- Watershed structures constructed were in good quality and maintenance was not attempted.
- Water levels in the open wells increased by 2 to 3 feet
- 10% of labor migration is continuing.

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 disowning their status as WC members were observed when interviewed. 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 of 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 t 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 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 the 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 52.50 lakhs covering 12500 ha at the rate of Rs. 500/ha in the vicinity of the plantation activity. A total 996 under Soil conservation works were taken up under horticulture, agro forestry, farm forestry and social forestry activities.

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 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 2 -5 feet, and 6 to 10 feet during the NE monsoon rainy season. 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 one or two 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, Acid lime, sweet oranges and sapota plants were distributed covering 688 ha, agroforestry plants in 1100 ha, social forestry in 670 ha, farm forestry 887 ha and peripheral tree guarding in 690 ha during the initial 4years of the project. Horticultural plantations have come for bearing and farmers reported good yields of Acid lime and an income of Rs. 25000 per acre hence their preference to this crop in the district. However, enough cautions should have been observed while selected nurseries of Acid lime seedlings, as those farmers who taken seedlings from this project reported to have received inferior plant materials

hence they are at loss to cut the trees at 5-7 years for low quality plant materials and diseased nursery plants.

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 groundnut, sunflower, black gram and green as second crop after paddy was introduced. Although variability exists in reported productivity enhancement from as low as 20% to more than 50% increase was noticed in main crop as well as second crop in some watersheds. Farmers could cultivate commercial crops like chillies and reported productivity increase from 40 bags (20 kg each) to almost 70 bags of dry chillies per acre, and their income increase additionally would be estimated around Rs.18000 per acre. As reported by farmers 300 kg yield increase in black gram results in Rs.9000 per acre during the second season. 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

Nellore is having large areas of wastelands and planting of Eucalyptus, Subabul , Tamarind, Neem, Goose berry and Causurina tree plants was taken up successfully under social forestry of this scheme. The project could achieve less than 50% (669 ha) of the targeted area of 1500 ha. Even these efforts could not help rural poor or land less labourers. To cite an example, in Madhavayapalem, co-operative joint farming society took up 250 acres of wasteland development in the watershed, but could not allocate the usufruct rights to rural poor although each farmers was told to hold rights for five acres. Since the tree usufruct rights were not assigned to beneficiaries, it was neglected by the community and individuals and wasted the development without deriving any advantage to the community or individual beneficiary.

Employment and Migration

In the entire 10 watershed under assessment, only in three (30%) watersheds beneficiaries expressed that labor migration is continuing to the extent of 10 to 20% in their watershed. Labour 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, 10-20% migration in some of the villages was for higher wage earnings and for especially skilled labor like construction workers and pickle-vendors.

Our analysis of Focused group discussions with village communities indicate that 60% of the watershed villages sounded that they are not vulnerable to one or two years 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 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 11.97 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.