Impact Assessment Report

INTEGRATED WASTELAND DEVELOPMENT PROJECT

(IWDP-BATCH I)

Srikakulam District, Andhra Pradesh

ICRISAT
Science with a human face

International Crops Research Institute
for the Semi-Arid Tropics

August 2010

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by

Global Theme on Agroecosystems

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Patancheru 502 324, Andhra Pradesh, India

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MULTI-DISCIPLINARY IMPACT ASSESSMENT TEAM

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ACKNOWLEDGEMENTS

We express our gratitude to the Department of Land Resources (DoLR), Ministry of Rural Development (MoRD) Government of India, New Delhi; for assigning the study of impact assessment of IWDP Batch I watersheds in Srikakulam 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), Srikakulam; to guide us in selecting watersheds for complete representation of variability of watersheds for the impact assessment study of IWDP Batch I watersheds in Srikakulam.

We are thankful for the support and guidance of Mr. P. Rama Mohan Rao, Project Director, DWMA and Mr. D. Narayana Rao, Additional Project Director, DWMA for providing all support from their project staff besides their active participation. We record our profound thanks to Mr. T. V. Ramana Murthy, Assistant Project Director of Meliaputti, Sarvakota and Pathapatnam mandals and Mr. Appala Suri, Assistant Project Director of Tekkali 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.

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

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

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ABBREVIATIONS

APD:	Assistant Project Director
CJFS:	Co-operative Joint Farming Societies
DRDA:	District Rural Development Agency
DPAP:	Drought Prone Area Programme
DWMA:	District Water Management Agency
EAS:	Employment Assurance Scheme
FD:	Forest Department
FGD:	Focused Group Discussions
IWDP:	Integrated Watershed Development Programme
MDT:	Mandal Development 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
WS:	Watershed
WDC:	Watershed Development Committee
WDF:	Watershed Development Fund
WDT:	Watershed Development Team

EXECUTIVE SUMMARY OF IMPACT ASSESSMENT

1. In Srikakulam district, farmers most of them tribal in different villages confirmed that water level in open wells (used for drinking water) increased on an average in the range of 3 to 5 feet during the post-rainy season.
2. Farmers mentioned that period of water availability for irrigation to paddy crop extended due to percolation tanks, bigger check dams at the upper catchment of watershed storing more water, and check dams as drop structures controlling free runoff at the lower reach of the watershed.
3. Water flows as seepage slowly from hilly to plain cultivable areas in the watershed. Ground water level in many watersheds was very near to ground level in the month of October when assessment was done during 2009.
4. This situation favored a change to double cropping with one or two supplemental irrigations for second crop between Decembers to February. 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.
5. Drinking water is available sufficiently in the villages round the year for human and cattle requirements as was observed by us and acknowledged by beneficiaries.
6. 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.
7. 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 sunflower and groundnut reported productivity increase of 3 q/ acre in sunflower and 10 bags of groundnut with an income increase of Rs. 5000 and Rs. 7000 per acre respectively.

8. It was revealed in our assessment that the concept of community participation was given low priority although there reports of 90 SHGs during the implementation phase, there was no evidence of growth in Self help groups and their functioning for income generation among rural poor.
9. 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.
10. 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.
11. WDF funds collected were in the order of Rs.7.96 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 even better by the beneficiaries in the watershed.
12. Project has achieved its objectives in bringing up the tree culture in more than 2990 ha of wastelands by not only concentrating on mango, cashew nut, Goose berry horticulture plantation which is of interest to farmers, but by promoting tamarind plantation, Bamboo, Acacia and teak under different activities of agroforestry. 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 Srikakulam district of Andhra Pradesh. The project encompassed treatment of 12500 ha of wastelands in 25 watersheds of Tekkali, Sarvakota, Meliaputti, and Pathapatnam Mandals of Srikakulam district. The objectives of this project were 1. To integrate land and water management and waste land development into the village micro-watershed plans, 2. To enhance people's participation in the wasteland development program at all stages. This project was sanctioned for implementation 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**
	Financial (Rs. lakhs)
Community organizations	25
Training	25
Works	400
Administrative costs	50
Total	**500**

District Rural Development Agency (DRDA) Srikakulam, 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-Srikakulam selected the Divisional Forest Officer (Territorial), a government agency for project implementation during 1998-99 to 2001-2002. The list of 25 selected watersheds in respective mandals and area targeted for treatment was given in table 2 below.

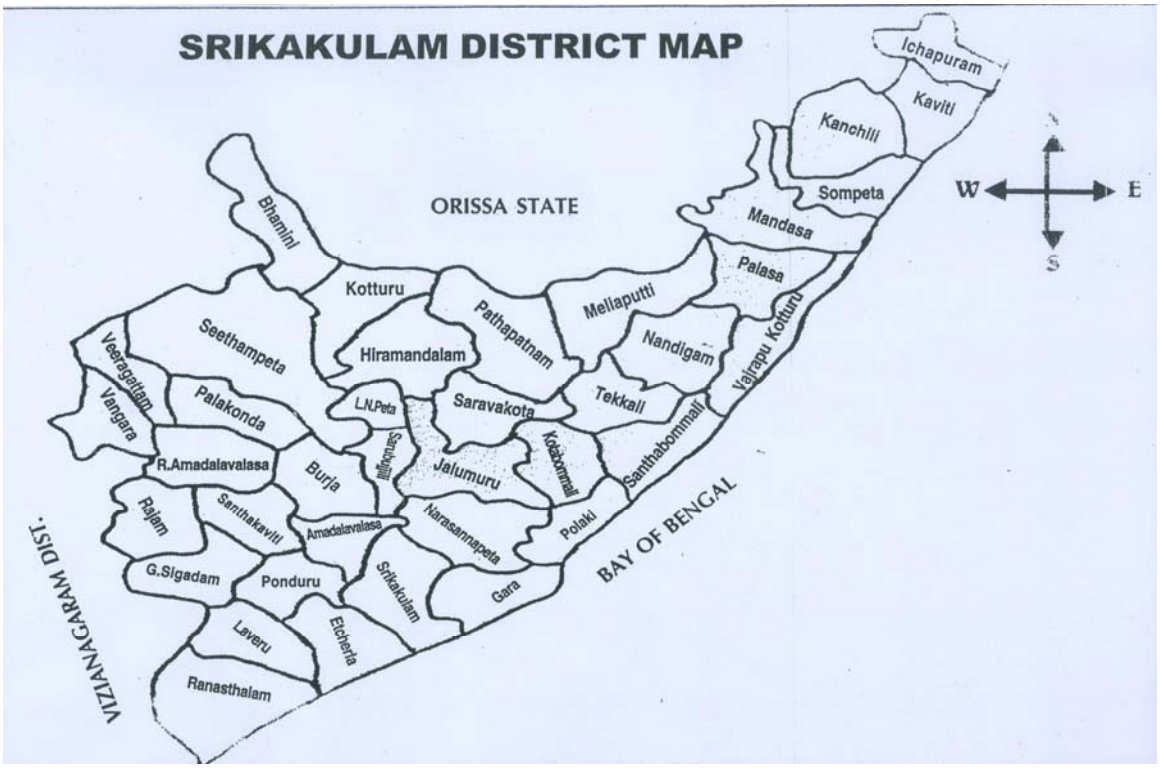
Table 2. Details of 25 watershed covered by IWDP-I project and areas targeted for treatment in these watersheds.

S No.	Name of the watershed	Villages in watershed	Mandal	Treatment Area (ha)
1	Asokam	Asokam	Sarvakota	275
2	Jagannadhapuram	Jagannadhapuram	Sarvakota	450
3	Raiwada	Raiwada	Sarvakota	300
4	Sarvabonthu	Sarvabonthu	Sarvakota	300
5	Burjuwada	Burjuwada	Sarvakota	600
6	Mallipuram	Mallipuram	Pathapatnam	440
7	Peddalogidi	Peddalogidi	Pathapatnam	500
8	Ganguvada	Ganguvada	Pathapatnam	425
9	Temburu	Temburu	Tekkali	675
10	Bejji	Bejji	Saravakota	300
11	K. Mukundapuram	K. Mukundapuram	Meliaputti	550
12	Peduru	Peduru	Pathapatnam	550
13	M. Neelabondthu	M. Neelabondthu	Meliaputti	450
14	Kodandapuram	Kodandapuram	Tekkali	810
15	Yenetipeta	Yenetipeta	Pathapatnam	675
16	S. Sorelgam	S. Sorelgam	Sarvakota	500
17	Nuvvuguddi	Nuvvuguddi	Tekkali	300
18	Janthuru	Janthuru	Meliaputti	550
19	P. Bheempuram	P. Bheempuram	Pathapatnam	750
20	Venkatapuram	Venkatapuram	Meliaputti	500
21	S. Mukundapuram	S. Mukundapuram	Meliaputti	750
22	Degala Poleru	Degala Poleru	Meliaputti	600
23	Patralova	Patralova	Meliaputti	450
24	Banjeerupeta	Banjeerupeta	Pathapatnam	500
25	Marripadu	Marripadu	Saravakota	300
Total				**12,500**

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 due to delay executing works and non-compliance of guidelines in the stipulated period of four years and was extended up to 31-12-2005 which was completed in 8 years.

Agricultural Situation in Srikakulam

Soils and Land use pattern



Map 1 : Geographical map of Srikakulam district with mandals , 2009

In Srikakulam, costal sands, deltaic alluvial soils, red sandy soils and lateritic soils are the major soil types existing. In the total geographical area of Srikakulam (5.83 lakh ha), 41.3% is arable land, forests occupy on 11.8% of area, barren and uncultivable area is around 8.3%, and land put to non-agricultural use was around 17%. Out of the arable land, net sown area was 3.27 lakh ha that was 56% of the total geographical area of the district. Total cropped area was 4.6 lakh ha constituting

78.8% tantamount to 22.8% of the area is sown more than once, while cultivable wastelands and fallow lands constitute only 3.4%.

Rainfall

Srikakulam district receives total norma rainfall of 1162 mm per annum with 60% of annual rainfall (705 mm normal) during South-West Monsoon season from June to September, and North-East monsoon provides 277 mm (23.8%) of rainfall between October and December 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 double cropping of paddy with monsoon rainfall and a second crop of sunflower or groundnut with NE monsoon rainfall and supplemental irrigation in rabi season.

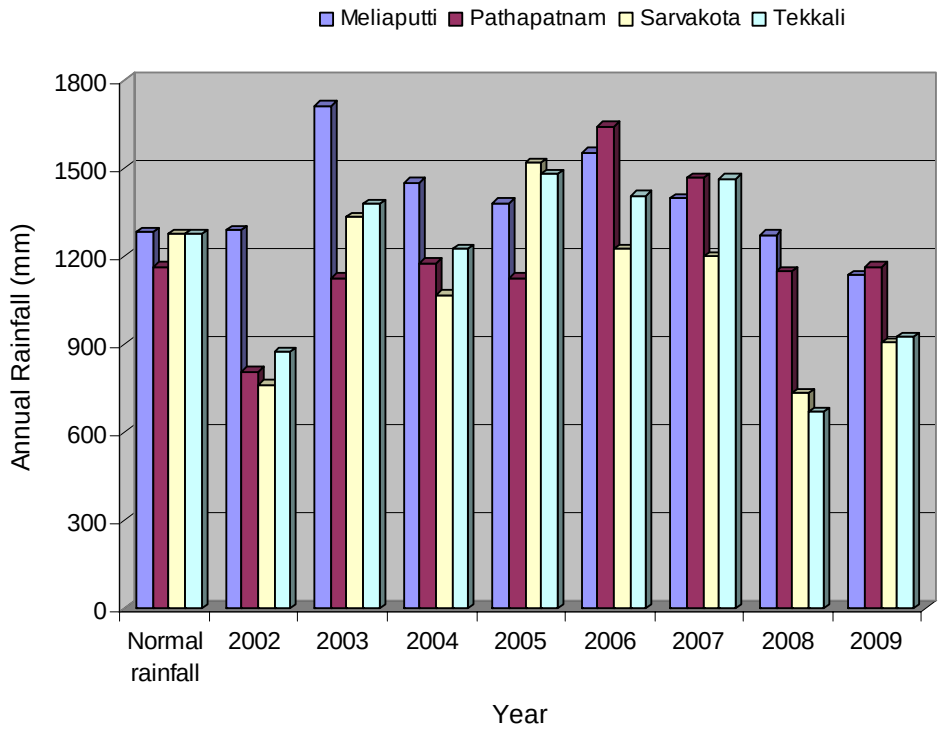


Figure 1. Annual rainfall during 2002 to 2009 in four mandals of Srikakulam district

Rainfall in the district since crop season 2003-04 until 2007-08, e. i during the watershed implementation period and further up to 2007-08 rainfall has been more than normal in all the 4 mandals of the district, and rainfall in 2008 and 2009 season was deficient only in Sarvakota and Tekkali mandals. Hence many farmers in the focused group discussions mentioned about good rainfall made use of effectively

that lead to good impact of watershed interventions/development and 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 Srikakulam, 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 Srikakulam started with a meeting of the ICRISAT team with Additional Project Director and two of the Assistant Project Directors (APD) of DWMA and their staff under the instruction of Project Director of the District Water Management Agency, Srikakulam.

Table 3. List of selected IWDP I watersheds, and concerned APDs for impact assessment.

S. No.	Name of the watershed	Mandal	Name of the PIA
1.	Burjawada	Sarvakota	Forest Range officer, Pathapatnam
			Mr. T. V. Ramana Murthy, APD, DWMA
2.	Chinna Mallipuram	Pathapatnam	Forest Range officer, Pathapatnam
			Mr. T. V. Ramana Murthy APD, DWMA
3.	Degala Poluru	Meliaputti	Mr. D. Narayana Rao, Addl. PD
			Forest Range officer, Tekkali
4.	Ganguvada	Pathapatnam	Forest Range officer, Pathapatnam
			Mr. T. V. Ramana Murthy APD, DWMA
5.	Janthuru	Meliaputti	Forest Range officer, Tekkali
			Mr. D. Narayana Rao
6.	Kodandapuram	Tekkali	Forest Range officer, Tekkali
			Mr. P. Appala suri, APD, DWMA
7.	Kapu Mukundapuram	Meliaputti	Forest Range officer, Tekkali
			Mr. D. Narayana Rao Addl. PD
8.	Peduru	Pathapatnam	Forest Range officer, Pathapatnam
			Mr. T. V. Ramana Murthy APD, DWMA
9.	Peddabhimapuram	Tekkali	Forest Range officer, Tekkali
			Mr. P. Appala suri APD, DWMA
10.	Savarabanthu	Sarvakota	Forest Range officer, Pathapatnam
			Mr. T. V. Ramana Murthy APD, DWMA

Meeting with project staff helped us to finalize the list of watershed villages (Table 3.) evenly spread across 8 mandals in Srikakulam district (Map 1. Srikakulam district) for impact assessment and scheduled our visit. We also ensured accompanying and participation of concerned APDs at FGD in watersheds in their

respective mandals, and their presence was quite helpful in calling the *gram sabha* and field visits to watershed structures.

FOCUSSED GROUP DISCUSSIONS

The focus-group-discussions were held with members of the watershed development team, the watershed committee, farmers/beneficiaries and whenever possible with the Gram Panchyat president even. 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 samples of these physical structures such as check-dams, percolation tanks, CCTs, open wells and retaining walls, assessed their quality of construction and selection of location and measured structures on a random basis and assess their potential impacts for number beneficiaries, and extent area and on the community well-being. Individual farmers were interviewed for their gains by watershed interventions when they were spotted in the fields nearby the structures wherever possible.

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

PERIOD OF EVALUATION

Impact assessment of watersheds in Srikakulam was done in 3rd and 4th weeks of October 2009, and the actual field visits took place for a week in Srikakulam district with the help of project staff of DWMA, Srikakulam.

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 October 2009.

Impact Assessment Report
BURUJAWADA Watershed, IWDP – I BATCH,
SARVAKOTA Mandal, SRIKAKULAM district, Andhra Pradesh

Date of impact assessment: 14-10-09

1. Details of watershed:

i. Name of the Scheme:	IWDP – I Batch
ii. Name of the watershed:	Burujawada
iii. Names of villages in the Watershed:	Burujawada
iv. Villages/Mandal/District:	Burujawada/Sarvakota/ Srikakulam
v. Name and Address of PIA:	Sri. Venkata Rao and Sri T V Ramana Murthy, Asst. Project Director, DWMA
vi. Treatable area of the watershed: (ha)	600

2. Ownership pattern of land:

i. Geographical Gross Area (ha)	1412.5
ii. Forest land (ha)	17.5
iii. Government/ Community land (ha)	80
iv. Private land (ha)	200
v. Wasteland cultivable (ha)	50
vi. Wasteland non-areable (ha)	210

3. Verification financial and other Records

i. Total cost: 700000	Approved: 700000	Spent: Rs.687658
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Yes, CDs: 13, sunken pits: 2, silt protection walls: 2 were constructed at an expenditure of Rs.646228	
iv. Whether watershed committees exits	Yes, Chairman: Mr. Janni Rama Rao, President: Chinnayya; Secretary: Mr. L. Suryanarayana	
v. if exists, activities of the committees	Funds were not available for maintenance of works as WDF meant for the purpose was not released.	

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

A community hall was constructed spending Rs. 35100 and Shramadanam from the villagers in Burujuwada.

5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members: 12
	Before	After	Before	After	Male: 8
	-	30	-	11 (8 active)	Female: 3
ii. Records of meetings properly updated	WC –meets once or twice monthly, and recorded minutes WA- meets quarterly once, but also conducted as and when they required.				
iii. Liaison with scientific institutions established	Ralegaon Siddhi, and Srisailam visits were organized as exposure visits.				
iv. Watershed Development Fund collected?, and its utilization	Yes, Rs.34585 as WDF was collect @ 5% of the value of the work since it is a scheduled tribes developed watershed.				
v. Self Help Groups	No: 8 active		Revolving fund: Rs. NIL		
V.O functioning:	Under Velugu project		Savings:		
Utilization of loans:	Purchased of milch buffaloes, draught-purpose animals, vegetable business income of Rs 800/week and domestic or crop inputs requirements. Milch animals milk output of 4 liters per day at Rs.10/litre results in a monthly income of Rs.1200/month.				
Bank linkages established:	Established and many beneficiaries are opting for second time loans.				
vi. Planned CPRs sustainable & equitable development	30 acres of CPR were developed; and 50 cents of gooseberry, teak, cashew nut, soap nut, seethaphal or tamarind orchard usufruct rights were given per individual farmer.				
vii. Benefits to weaker sections (women, dalits and landless)	Benefiting from cashew nut and mango yields since last year.				

6. Quantitative Parameters of Impacts

a. Improvements in water table/water availability	No open wells, No bore wells, water was available through seepage from foot hills
b. Additional area under cultivation/horticulture/ afforestation	5 Acres area increased under paddy. Villagers got benefitted mainly by Cashew nut, a major crop
c. Changes in cropping pattern and intensity	New crop varieties of Sunflower, Ragi, Green gram, and Black gram crops were grown and intensity increased by 100%
d. Changes in agricultural productivity	Paddy productivity increased by 100% for 15bags per acre to almost 30 bags per acre in rainy season.

e. Changes in fodder & fuel wood availability	Fodder availability increase and there was no problem for fuel wood availability previously also
f. Changes in size and character of livestock holdings	Not available
g. Status of grazing land & their carrying capacity	
h. Employment generated due to implementation of project	Employment generated with watershed works, once these works were completed, no further employment
i. Change in household category, total, & source-	
j. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Money lenders were only support for credit before the watershed initiative. At present, SHG credit is available source of money, and no bank loans were available.
k. Reduction in out-migration (case studies)	80% reduction in out migration from the watershed village.
l. Reduction in drought vulnerability of the watershed	As the productivity increased, farmers expressed that they can withstand the drought for one crop season, and difficult to face even second season failure.
m. Detailed case studies of specific farmers impacted by the project	Provided in the observation and comments of evaluators.
n. Photographs showing work + its impact	Photos attached in the observations section of the each watershed report.

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

Observations and Comments of Evaluators:

- Masonry structures which are of good quality have been used for storage of water and controlled for irrigation
- More than 10 structures were constructed whose values range from Rs 45000/- to 1.2 lakhs (most of them 30m length of body-wall check dams with vents).
- Farmers indicated that more than 10 farm ponds/Percolation tanks constructed which were far way from village.

- These structures constructed were basically meant for arresting land degradation by widening and deepening irrigation channels for controlling flow of irrigation water.
- These structures have less storage capacity and may not be much useful for recharging ground water, but reduce erosion in irrigation channels. However these drop structures have been used to irrigate fields above the drop by rising water level with obstruction to notch.

Picture 1. A drop structure on a deepened canal in Burjavadea used as irrigation canal rather than groundwater recharging check dam.

Farmers wish that the WDF collected, must be released immediately for maintenance of SWC works and to take up some new works. Farmers want a tank at upper reach, so that they will get water for supplemental irrigation to Paddy for the second season also.

Picture 2**.** A drop structure in Burjawada used to irrigate fields around the drop by rising water level at the drop with an obstruction to notch.

Impact Assessment Report
CHINNA MALLIPURAM Watershed, IWDP – I batch,
PATHAPATNAM Mandal, SRIKAKULAM district, Andhra Pradesh

1. Details of watershed:

i. Name of the Scheme:	IWDP – I Batch
ii. Name of the watershed:	Chinna Mallipuram watershed
iii. Names of villages in the Watershed:	Chinna Mallipuram, Cheedipeta
iv. Villages/Mandal/District:	Chinna Mallipuram/Pathapatnam/Srikakulam
v. Name and Address of PIA:	Sri G Venkata Rao, Sri TV Ramana Murthy, Asst. Project Director, DWMA
vi. Net Treatable area of the watershed (ha) :	440

2. Ownership pattern of land:

i. Geographical Gross Area (ha)	687.5
ii. Forest land (ha)	150
iii. Government/ Community land (ha)	110
iv. Private land (ha)	nil
v. Wasteland cultivable (ha)	40
vi. Wasteland non-areable (ha)	110

3. Verification financial and other Records

i. Total cost:	Approved:	Spent: Rs. 991712
ii. Expenditure incurred as per guidelines		
iii. Works executed as per Records	CDs:11, Silt protection wall: 7 were constructed at a cost of Rs. 517764 as per records	
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)

Entry point activity was not taken up to mobilize and create awareness among the communities in the watershed.

5. Qualitative Parameters of Impacts

<table>
<tr><td rowspan="3">i. Functioning of village level institutions</td><td colspan="2">No. of UGs</td><td colspan="2">No. of SHGs</td><td>WC members: 11</td></tr>
<tr><td>Before</td><td>After</td><td>Before</td><td>After</td><td>Male: 7</td></tr>
<tr><td>-</td><td>38</td><td>-</td><td>7</td><td>Female: 3</td></tr>
<tr><td>ii. Records of meetings properly updated</td><td colspan="5">WC met once in a month and during peak seasons twice in a month, and minutes were recorded</td></tr>
<tr><td>iii. Liaison with scientific institutions established</td><td colspan="5">WC members visited Ralegaon Siddhi watershed village in Maharashtra to visit resource conservation.</td></tr>
<tr><td>iv. Watershed Development Fund (WDF) collected?, and its utilization</td><td colspan="5">WDF Rs. 31180 at 5% of the budget for executed works as the beneficiaries are scheduled tribes in the village.</td></tr>
<tr><td>v. Self Help Groups</td><td colspan="2">No:</td><td colspan="3">Revolving fund: Rs. Nil</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">6 hectare of plantation with goose berry, Alla neredu, Eucalyptus and Bamboo developed.</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

a. Improvements in water table/water availability	5 feet water level increased; drinking water availability increased through out the year
b. Additional area under cultivation/horticulture/ afforestation	20 acres cashew nut not within watershed area and another 25 acres under watershed area increased under cultivation.
c. Changes in cropping pattern and intensity	Paddy in kharif and sunflower as second crop in rabi season yielded 8 to 10 tins of oil, and an additional income of Rs. 5000-10000 per acre was reported.
d. Changes in agricultural productivity	Increased from 10-12 bags/acre of paddy to 20 bags per acre of paddy due to sufficient availability of water.
e. Changes in fodder & fuel wood availability	As agricultural crop productivity increased, availability of fodder of paddy as well as groundnut increased
f. Changes in size and character of livestock holdings	
g. Status of grazing land & their carrying capacity	No change in grazing lands capacity and grazing practice was not allowed.

h. Employment generated due to implementation of project	Employment increased due to watershed activities as well as National Rural Employment Guarantee programme in the village.
i. Change in household category, total, & source-	N/A
j. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	State Bank of India, Gangawada is the main source of agricultural loans. Girijana corporation also provides input credit to tribal farmers.
k. Reduction in out-migration (case studies)	There was no migration among 70-80 families after watershed development. 5 families migrated before watershed development and are continuing with the gained employment in cities
l. Reduction in drought vulnerability of the watershed	Alternative crops and crops like Ragi is grown with available water in watershed.
m. Detailed case studies of specific farmers impacted by the project	Mr. L. Neelakantam got benefitted due to check dam in cultivating extra one acre upland which was not under cultivation earlier. Mr.Jeeva Simhachalam got benefitted by 2 acres and others 8 acres under one check dam at the end of Esikala bandha gulley. Paddy and chillies, Sunflower are the crops grown season.
n. Photographs showing work + its impact	Photos attached in the observations section of the each watershed report.

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

8. **Observations and comments for Evaluators:**

   Surplus veir on a tank near road was observed which was in good condition.

   Seen one open well in the village which is used for drinking water and household usage. GWL is almost near to real ground level surface if we take out platform and compound wall. Water was clear and blue in color.

   There about 80 families in the hamlet benefiting from this initiative.

Picture 3. A cleanly maintained open well in Chinna mallipuram village serving drinking water requirement round the year, with near ground water level in the well

Picture 4. A surplus weir of a tank with quality construction in Chinnamallipuram

Impact Assessment Report

DEGALAPOLURU Watershed, IWDP – I batch,
MELIAPUTTI Mandal, SRIKAKULAM district, Andhra Pradesh

Date of Assessment: 14/10/2010

1. Details of watershed:

i. Name of the Scheme:	IWDP – I Batch
ii. Name of the watershed:	Degalapoluru
iii. Names of villages in the Watershed:	Gadelapoluru, Degalapoluru
iv. Villages/Mandal/District:	Degala poluru/ Miliaputti/Srikakulam
v. Name and Address of PIA:	Sri G. Venkata Rao and D Narayana Rao, Asst. Project Director, DWMA
vi. Net Treatable area of the watershed (ha) :	600

2. Ownership and Use pattern of land:

i. Geographical Gross Area (ha)	1012.5
ii. Forest land (ha)	296.25
iii. Government/ Community land (ha)	420
iv. Private land (ha)	nil
v. Wasteland cultivable (ha)	90
vi. Wasteland non-areable (ha)	380

3. Verification financial and other Records

i. Total cost: Rs. 791207	Approved: Rs. 791207	Spent: Rs. 789688
ii. Expenditure incurred as per guidelines	Yes,	
iii. Works executed as per Records	Yes,	
iv. Whether watershed committees exits	Yes, Chairman :Appa Rao, Secretary: Savara Ramu	
v. if exists, activities of the committees	Ws activities	

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

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5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members:11
	Before	After	Before	After	Male: 7
	-	4	-	Nil	Female: 4
ii. Records of meetings properly updated	Once in a month				
iii. Liaison with scientific institutions established	An exposure visit to Ralegaon Siddhi in Maharshtra to familiarize on efficient management of natural resources in watersheds. A visit to Nimmatur vada in Srikakulam for training on vermin-composting.				
iv. Watershed Development Fund collected?, and its utilization	Rs. 12772 was collected as contribution to WDF for the works executed.				
v. Self Help Groups	No:		Revolving fund: Rs.		
V.O functioning:			Savings:		
Utilization of loans:					
Bank linkages established:					
vi. Planned CPRs sustainable & equitable development	Mango and cashew plants were planted in the CPR lands				
vii. Benefits to weaker sections (women, dalits and landless)	No particular benefit s for women and dalits				

6. Quantitative Parameters of Impacts

a. Improvements in water table/water availability	Because of low rains, water levels in the wells did not increase sufficiently. However, our assessment indicates that there is good levels for groundwater as well as surface seepage water
b. Additional area under cultivation/horticulture/ afforestation	12 acres of additional area increased under new cultivation
c. Changes in cropping pattern and intensity	No increase in area under double cropping.
d. Changes in agricultural productivity	Paddy yields increased from 15-20 bags per acre before the watershed, increased grain yields up to 30-35 bags per acre
e. Changes in fodder & fuel wood availability	Paddy straw is available as the acre under paddy increased.
f. Changes in size and character of livestock holdings	

g. Status of grazing land & their carrying capacity	
h. Employment generated due to implementation of project	Employment availability was significant during the project period and further employment was only due to increased crop productivity only.
i. Change in household category, total, & source-	N/A
j. Freedom from Debt and reduction in degree fo dependence of money lenders (case studies)	
k. Reduction in out-migration (case studies)	4 to 5 families used to migrate; now only two families migrate. Villagers felt migration has not been impacted by watersheds.
l. Reduction in drought vulnerability of the watershed	Drought vulnerability still continues as there is no marked increase in water availability.
m. Detailed case studies of specific farmers impacted by the project	
n. Photographs showing work + its impact	Photos attached in the observations section of the each watershed report.

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

   WDF if given back new checkdams useful for other will be constructed.

8. **Observations and comments by evaluators:**

- Renovated percolation tank 40mx20mx1.5m with surplus veir 2.5m x0.5m (picture 5) which has good storage was visited.
- Renovated percolation tank 30mx20mx1.5m with surplus veir and 2.5mx0.5m height earthen bund (picture 6) was assessed, as it has ample water storage capacity for ground water recharge and even for irrigation. Water used for irrigating paddy fields and stored water is drained through opened bund into 2nd pond for irrigation.

Picture 5. A renovated percolation tank with surplus veir in Degalapoluru

- Masonry check dam= 4 m width, 5Mt height, 10 m bunding (picture 7) having 1 feet storage at that point of time.

Picture 6. Renovated percolation tank with 0.5m height earthern bund in Degalapoluru

- The Check dam was in good condition and water is 1 ft below surplus veir. Water is used for irrigating paddy if necessary.

Picture 7**.** Good quality construction of a check dam in Degalapoluru WS, stored water used for irrigating paddy fields.

- Two Open wells and 1 community well used for villager drinking water were also visited. Water level in the open well is almost near to ground surface in 2 open wells and water in the community well was 15 ft deep from surface in village.

Picture 8. Open wells in the farmer's field, water level almost at the ground level.

Impact Assessment Report
GANGUVADA Watershed, DPAP – I batch,
PATHAPATNAM Mandal, SRIKAKULAM district, Andhra Pradesh
Date of Assessment: 14/10/2010

1. Details of watershed:

i. Name of the Scheme:	IWDP – I Batch
ii. Name of the watershed:	Ganguvada
iii. Names of villages in the Watershed:	Ganguvada, Kannaiahpet hamlet
iv. Villages/Mandal/District:	Patapatnam
v. Name and Address of PIA:	Mr. T V Ramana Murthy, Asst. Project Director, DWMA
vi. Total area of the watershed:	425

2. Ownership pattern of land:

i. Geographical Gross Area (ha)	812.5
ii. Forest land (ha)	175
iii. Government/ Community land (ha)	130
iv. Private land (ha)	nil
v. Wasteland cultivable (ha)	80
vi. Wasteland non-areable (ha)	210

3. Verification financial and other Records

i. Total cost:	Approved:	Spent:
ii. Expenditure incurred as per guidelines		
iii. Works executed as per Records	Yes, Check Dams/Check Walls: 12, Percolation Tanks: 5, Silt Protection walls: 6	
iv. Whether watershed committees exits	Yes	
v. if exists, activities of the committees	Not functional as there were no funds and maintenance activities were not taken up.	

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

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5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members:11
	Before	After	Before	After	Male: 6
	---	4	---	2	Female: 3
Describe:					
ii. Records of meetings properly updated	Once in a month WC meets, and WA meets once in six months.				
iii. Liaison with scientific institutions established	Watershed committee members visited ITDC, Ralegaon siddhi, and ICRISAT to get exposure to resource conservation and productivity enhancement.				
iv. Watershed Development Fund collected?, and its utilization	It is entirely a tribal village with 30 households, as per records WDF of Rs.47640 was collected from the watershed beneficiaries.				
v. Self Help Groups	No: 2		Revolving fund: Rs. 22,000		
V.O functioning:	Yes		Savings:		
Utilization of loans:	Draught purpose animals, 25 pairs of animals.				
Bank linkages established:	Rs.1,50,000				
vi. Planned CPRs sustainable & equitable development	250 hectares in the watershed area, 25 to 30 acres of land was developed with Goose berry, Eucalyptus, Bamboo, Soap nuts.				
vii. Benefits to weaker sections (women, dalits and landless)					

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	5-6 feet increased ground water level, field moisture improving during season
ii. Additional area under cultivation/horticulture /afforestation	More than 100 acres of area has been transformed to 45 acres nearly cultivated. Paddy and the second crop of groundnut, pigeon pea sorghum.
iii. Changes in cropping pattern and intensity	Increased paddy area crop intensity increased to 200% with sure second crop of sunflower or groundnut
iv. Changes in agricultural productivity	From a very poor crop of paddy 15 bags/acre to 25 bags/acre
v. Changes in fodder & fuel wood availability	Fodder availability increased as paddy.
vi. Changes in size and character of livestock holdings	Each family maintain two pairs of plough bullocks for bullock drought operations
vii. Status of grazing land & their carrying capacity	

viii. Employment generated due to implementation of project	Additional land was brought under cultivation, double cropping in paddy lands enhanced labour employment in the village.
ix. Change in household category, total, & source-	Income enhanced substantially in all families
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Farm inputs are brought with bank loans but no money lender.
xi. Reduction in out-migration (case studies)	Not change in out migration, but two families which were migrated did not return.
xii. Reduction in drought vulnerability of the watershed	Drought vulnerability reduced as evidenced by experiences during drought of 2003.
xiii. Detailed case studies of specific farmers impacted by the project	Forward caste farmers in the down stream got benefitted due to increased water availability in wells and bore wells.
xiv. Photographs showing work + its impact	Photos attached in the observations section of the each watershed report.

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

8. Observations and Comments by Evaluators:

- A Small check dam structure of 6mx3mx1.5m was constructed with an expenditure of Rs 45000/-; it is effective in serving the purpose. Paddy was cultivated around this check dam (picture 9).

  A Small hole was put to irrigate paddy fields in the downstream when there was no overflow. Three open wells are exists with ground water level increase of 5 feet.

- Masonry check dam of the size of 10mx3mx1m was constructed and present condition is good. It stores about 50m^3 of water as back width is more. A notch was made to the body wall of the check dam for dual purpose either to store water by closing notch or to draw water down stream for irrigation by opening the notch.

Picture 9. A check dam to store water for irrigation to paddy fields around and allow water down stream through a hole to check dam in Ganguvada watershed.

- Silt protection/retaining wall of about 30 m length was constructed to avoid breaching of bunds and protecting paddy fields from flood and sand deposition

Picture 10. Masonry check dam with a notch to the body wall for dual purpose of control water flow for irrigation and storage in Ganguvada watershed.

Picture 11. Silt protection/retention wall to protected bunds from erosion.

Impact Assessment Report
JANTHURU Watershed, IWDP – I batch,
MELIAPUTTI Mandal, SRIKAKULAM district, Andhra Pradesh

Date of Assessment: 14/10/2010

1. Details of watershed:

i. Name of the Scheme:	IWDP – I Batch
ii. Name of the watershed:	Janthuru
iii. Names of villages in the Watershed:	Janthuru, S. Kothuru, R. ch. puram
iv. Villages/Mandal/District:	Janthuru/Meliaputti/Srikakulam
v. Name and Address of PIA:	Sri G Venkata Rao and Mr D Narayana Rao, Asst. Project Director, DWMA
vi. Total area of the watershed: (ha)	550

2. Ownership and Land Use pattern:

i. Geographical Gross Area (ha)	700
ii. Forest land (ha)	222.5
iii. Government/ Community land (ha)	240
iv. Private land (ha)	350
v. Wasteland cultivable (ha)	71
vi. Wasteland non-areable (ha)	218

3. Verification financial and other Records

i. Total cost: Rs. 857869	Approved: Rs. 857869	Spent: Rs. 857190
ii. Expenditure incurred as per guidelines	Yes	
iii. Works executed as per Records	Silt protection walls:3, sunken pits: 2, farm ponds:3, and check dams:24	
iv. Whether watershed committees exits	Yes, Mr. P. Krishna Rao, President, Mr. K. Shanmukha Rao, Chairman; Mr. J. Bairagi, 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)

Self-protection walls constructed with an expenditure of Rs 100000 has become very useful as villager required.

5. Qualitative Parameters of Impacts

<table>
<tr><td rowspan="3">i. Functioning of village level institutions</td><td colspan="2">No. of UGs</td><td colspan="2">No. of SHGs</td><td>WC members: 11</td></tr>
<tr><td>Before</td><td>After</td><td>Before</td><td>After</td><td>Women:3</td></tr>
<tr><td>-</td><td>4</td><td>-</td><td>4</td><td>Men: 8</td></tr>
<tr><td>ii. Records of meetings properly updated</td><td colspan="5">Watershed committee met on 9th of every month, and Watershed Association General body met for every 3 months on 3rd of the month.</td></tr>
<tr><td>iii. Liaison with scientific institutions established</td><td colspan="5">Visited Ralegaon Siddhi, Maharashtra for acquaintance on resource conservation technology.</td></tr>
<tr><td>iv. Watershed Development Fund collected?, and its utilization</td><td colspan="5">Rs. 19612 in the bank account and interest on principal accrued.</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">Eucalyptus, Acacia, Teak and Kithanara plantation were given. But they could not be established as the plant material was given after rainy season</td></tr>
<tr><td>vii. Benefits to weaker sections (women, dalits and landless)</td><td colspan="5">About 15-20 families benefitted with milk production increased from 100 litres/day to 150 litres/day</td></tr>
</table>

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Ground water level increased by 3 to 4 feet in the open wells during the season.
ii. Additional area under cultivation/horticulture/ afforestation	About 150 acres brought under cultivation additionally under paddy and vegetables.
iii. Changes in cropping pattern and intensity	Second season paddy with Kaveri variety, crops like green gram, black gram and vegetables like brinjal, green chillies and tomato are grown
iv. Changes in agricultural productivity	Paddy grain yield of 15 bags $acre^{-1}$ prior to watershed development has increased to 20 bags $acre^{-1}$ after the watershed development.
v. Changes in fodder & fuel wood availability	
vi. Changes in size and character of livestock holdings	Farmers shifted to rearing high milk yielding cross bred cows and stall feeding
vii. Status of grazing land & their carrying capacity	There was no dearth of grazing lands as larger hilly tracks are available for grazing around the village.

viii. Employment generated due to implementation of project	During project implementation, employment was available and after works were completed employment reduced, however farm labor is employed for crop husbandry works.
ix. Change in household category, total, & source-	20 families could increase their income levels from milk production
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	
xi. Reduction in out-migration (case studies)	10 families migrated as watershed works and forest works stopped, and migration increased.
xii. Reduction in drought vulnerability of the watershed	Vegetables and other commercial crops are grown in small areas with well water to withstand vulnerability of crop loss.
xiii. Detailed case studies of specific farmers impacted by the project	
xiv. Photographs showing work + its impact	Photos attached in the observations section of the each watershed report.

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

8 **Observation and comments from Evaluators:**

- Masonry check dam (Rs. 40,000) of about 28 m size and a silt protection wall (Rs 60,000) 2000m^3 size was inspected.
- The check dam with a body wall of about 5 m width and 1.25 m height, and 30m length was raised with mud bund over it and stored almost full level of water (1.5 m depth of water) in it. Check dam is effective in storing water for irrigating paddy fields.
- Silt protection wall of about 50 m length is protecting nearby fields from breaching of bund.
- Farmers in the watersheds realized multipurpose use of check dams and insisted that they need more check dams' constructions to avoid high intensity runoff and erosion. In this watersheds check dam are not only useful to reduce runoff and conserve water but also control soil erosion to a greater extent.

Picture 12. Participating villagers of Janthuru village in the focused group discussion.

Picture 13. Silt protection wall of about 50 m length to protect breaching of field bunds in the nearby fields.

Impact Assessment Report
KODANDARAMAPURAM Watershed, IWDP – I batch,
TEKKALI Mandal, SRIKAKULAM district, Andhra Pradesh

Date of Assessment: 14/10/2010

1. Details of watershed:

i. Name of the Scheme:	IWDP – I Batch
ii. Name of the watershed:	Kodandaramapuram
iii. Names of villages in the Watershed:	Kodandaramapuram
iv. Villages/Mandal/District:	Tekkali mandal
v. Name and Address of PIA:	Mr. P. Appala Suri, Asst. Project Director, DWMA
vi. Total area of the watershed (ha):	810

2. Ownership and land use pattern:

i. Geographical Gross Area (ha)	987
ii. Forest land (ha)	47.5
iii. Government/ Community land (ha)	300
iv. Private land (ha)	nil
v. Wasteland cultivable (ha)	91
vi. Wasteland non-areable (ha)	400

3. Verification financial and other Records

i. Total cost: Rs.1026176	Approved: Rs.1026176	Spent:1,065,655
ii. Expenditure incurred as per guidelines	Yes, a sum of Rs 1065655 was spent include EPA expenditure of Rs.68000	
iii. Works executed as per Records	Check dams=18, Sunken ponds=3, percolation tanks=3, CCT=350 m, staggered trenches= 1800 m^3, RFDs/ Gully plugs: 100 nos	
iv. Whether watershed committees exits	Yes, Chairman: Yalla Rama Rao, Secretary: Nelapu Simhachalam	
v. if exists, activities of the committees	No activities, expressed the interest to repair and maintain the structures if WDF is released.	

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 taken to create awareness and mobilize communities.

5. Qualitative Parameters of Impacts

<table>
<tr><td rowspan="3">i. Functioning of village level institutions</td><td colspan="2">No. of UGs</td><td colspan="2">No. of SHGs</td><td>WC members</td></tr>
<tr><td>Before</td><td>After</td><td>Before</td><td>After</td><td>Men:</td></tr>
<tr><td>-</td><td></td><td>-</td><td>3 (one defunct)</td><td>Women:</td></tr>
<tr><td>ii. Records of meetings properly updated</td><td colspan="5">Yes , meetings were held once in a month for WC and one in 6 months for watershed association members</td></tr>
<tr><td>iii. Liaison with scientific institutions established</td><td colspan="5">Once to Srikakulam and Amudala valasa research station.</td></tr>
<tr><td>iv. Watershed Development Fund collected?, and its utilization</td><td colspan="5">Rs. 89499 was collected from beneficiaries as WDF and Rs 5000/- spent for repairs. Check dams are damaged and they may use the WDF for repairs if permitted.</td></tr>
<tr><td>v. Self Help Groups</td><td colspan="2">No:</td><td colspan="3">Revolving fund:</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">No attempt was made to develop CPRs and horticultural plantation was not provided as reported.</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	14 open well dug with grant from SC corporation, water is available in the wells up to April-May months.
ii. Additional area under cultivation/horticulture/ afforestation	25 ha additional area brought into cultivation.
iii. Changes in cropping pattern and intensity	Paddy, ragi and horse gram are the crops grown before watershed intervention. After watershed intervention besides paddy in rainy season, sunflower, groundnut, Green gram and black gram are grown in rabi season.
iv. Changes in agricultural productivity	Paddy yield 15-18 bags per acre before watershed intervention, 21-26 bags / acre after W/S. 50-60 acres paddy grown in kharif, 25-30 acres of groundnut for an average income of 12000-15000/- per acre and 5-6 acres of sunflower was grown in Rabi with an average yield of 500 kg $acre^{-1}$, 10 acre of green gram and black gram was grown. Yield of

	these crops depend on good rains, otherwise these crops may wilt
v. Changes in fodder & fuel wood availability	Fodder availability increased due to increased paddy area and also fodder from groundnut in rabi season
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	Yes, employment generated directly for the implementation of works and later with increased crop intensity and double cropping during two seasons also increased employment and improved their income.
ix. Change in household category, total, & source-	
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Farmers were getting bank loans for agricultural inputs and dependence on private money lenders reduced considerably.
xi. Reduction in out-migration (case studies)	About 25% migrations still continuing but reduced now from 55% of migration reported earlier.
xii. Reduction in drought vulnerability of the watershed	
xiii. Detailed case studies of specific farmers impacted by the project	
xiv. Photographs showing work + its impact	

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

8. **Observation and comments from Evaluators:**

- SHGs –One women SHG was there but became defunct, however 2 new SHGs are functioning named Saraswathi SHG and Omsai SHG.
- No horticulture plants were given.

Impact Assessment Report

KAPU MUKUNDAPURAM Watershed, IWDP – I batch,
MELIAPUTTI Mandal, SRIKAKULAM district, Andhra Pradesh

Date of Assessment: 14-10-2010

1. Details of watershed:

i. Name of the Scheme:	IWDP – I Batch
ii. Name of the watershed:	Kapumukundapuram
iii. Names of villages in the Watershed:	Kapumukundapuram, Parasurampuram, S. Marripadu, Ling
iv. Villages/Mandal/District:	Kapumukindapuram/ Meliaputti/ Srikakulam
v. Name and Address of PIA:	Sri G. Venkata Rao, Mr D Narayana Rao Asst. Project Director, DWMA,
vi. Total area of the watershed:	550

2. Ownership and Use pattern of land:

i. Geographical Gross Area (ha)	937.5
ii. Forest land (ha)	62.5
iii. Government/ Community land (ha)	250
iv. Private land (ha)	450
v. Wasteland cultivable (ha)	84
vi. Wasteland non-areable (ha)	215

3. Verification financial and other Records

i. Total cost: Rs.699780	Approved: Rs.699780	Spent: Rs.
ii. Expenditure incurred as per guidelines	YES, Rs. 699780 was booked under expenditure for soil conservation and forest works executed.	
iii. Works executed as per Records	Yes, CDs: 21; Farm pond:1; Protection walls: 5;	
iv. Whether watershed committees exits	Yes, Mr. S. Lakshminarayana, President; Mr. A. Tata Rao, Chairman; A. Dandasi, 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)

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5. Qualitative Parameters of Impacts

<table>
<tr><td rowspan="3">i. Functioning of village level institutions</td><td colspan="2">No. of Ugs</td><td colspan="2">No. of SHGs</td><td>WC members: 11</td></tr>
<tr><td>Before</td><td>After</td><td>Before</td><td>After</td><td>Men: 9</td></tr>
<tr><td>-</td><td>3</td><td>-</td><td>1</td><td>Women: 2 (17%)</td></tr>
<tr><td>ii. Records of meetings properly updated</td><td colspan="5">Monthly meetings were held for WC and quarterly meetings were held with WA members regularly.</td></tr>
<tr><td>iii. Liaison with scientific institutions established</td><td colspan="5"></td></tr>
<tr><td>iv. Watershed Development Fund collected?, its utilization</td><td colspan="5">Rs. 35004 was collected as WDF from beneficiaries.</td></tr>
<tr><td>v. Self Help Groups</td><td colspan="2">No: 1</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">No development and horticultural plants distribution</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	Useful for drinking water only. No additional benefit from watershed, some agreed to have observed at least 3 feet water increase in open wells in the village
ii. Additional area under cultivation/horticulture/ afforestation	No horticulture intervention. 20 acres additional area under cultivation mostly under paddy, 250 acres brought under vegetable after paddy harvest.
iii. Changes in cropping pattern and intensity	Chillies, Ragi, Tomato and Brinjal crops are grown after paddy from November to April due to extended period of water availability.
iv. Changes in agricultural productivity	Paddy yields were 10 bags per acre earlier, to 20 bags if the rainfall is good.
v. Changes in fodder & fuel wood availability	Fodder availability increased with production increase in paddy
vi. Changes in size and character of livestock holdings	
vii. Status of grazing land & their carrying capacity	Lot of green fodder available around the hills and cattle population mainly cows are seen.
viii. Employment generated due to implementation of project	Implementation of WS programme helped in increasing employment during the construction phase of the structures.

ix. Change in household category, total, & source-	
x. Freedom from Debt and reduction in degree fo dependence of money lenders (case studies)	Credit available from fellow farmers, and bank linkage were not established.
xi. Reduction in out-migration (case studies)	Out migration is not reduced even due to NREGS as it is not implemented in this watershed.
xii. Reduction in drought vulnerability of the watershed	
xiii. Detailed case studies of specific farmers impacted by the project	
xiv. Photographs showing work + its impact	Photos attached in the observations section of the each watershed report.

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

Observations and comments from Evaluator:

- A percolation tank of the size of 90mx20mx1.5m=2500m3 with surplus veir =5mx1m was renovated by repair of broken bund, which helped in irrigating about 30 acres of paddy fields. Water is available throughout the year that is used mostly for drinking water for cattle during summer season. Fish were grown in it as there was plenty of water stored.
- Masonry check dam 4mx1mx10m^2 = 40m^3storage capacity, without beneficiaries around it was seen. However, it helps in reducing soil erosion and protecting field bunds.
- Three silt protection walls of about 15m each were also seen.
- All the structures were of good quality construction and water availability increased to the satisfaction of the watershed villagers.

Picture 14. Renovated percolation tank with surplus veir in K. Mukundapuram used for fish culture and drinking water for cattle.

Picture 15. A masonry check dam with good storage of water, but no beneficiaries' fields around it.

Impact Assessment Report
PEDURU Watershed, IWDP – I batch,
PATHAPATNAM Mandal, SRIKAKULAM district, Andhra Pradesh
Date of impact assessment: 13-10-2009

1. **Details of watershed:**

i. Name of the Scheme:	IWDP – I Batch
ii. Name of the watershed:	Peduru
iii. Names of villages in the Watershed:	Kannayyapeta, Rankini and Peduru
iv. Villages/Mandal/District:	Peduru/Pathapatnam/ Srikakulam
v. Name and Address of PIA:	Sri G Venkata Rao & Sri T V Ramana Murthy Asst. Project Director, DWMA,
vi. Total area of the watershed:	550

2. **Ownership and Use pattern of land:**

i. Geographical Gross Area (ha)	837.5
ii. Forest land (ha)	29.25
iii. Government/ Community land (ha)	120
iv. Private land (ha)	nil
v. Wasteland cultivable (ha)	64
vi. Wasteland non-areable (ha)	115

3. **Verification financial and other Records**

i. Total cost:	Approved:	Spent:2132966
ii. Expenditure incurred as per guidelines		
iii. Works executed as per Records	Check dams: 15, Silt protection walls: 3, Percolation tanks:8 were executed as per records	
iv. Whether watershed committees exits	Yes, Mr Polaiah, President; Mr Balaiah, Chairman; and Mr.Tataiah as 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)**

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5. Qualitative Parameters of Impacts

i. Functioning of village level institutions	No. of UGs		No. of SHGs		WC members
	Before	After	Before	After	Male:
		3		4	Female:
ii. Records of meetings properly updated	Once in a month				
iii. Liaison with scientific institutions established	Ralegaon siddhi watershed				
iv. Watershed Development Fund collected?, and its utilization	Rs. 49123 plus interest on principle available in the bank				
v. Self Help Groups	No:		Revolving fund: Rs. Nil from WS		
V.O functioning:	In Ganguvada		Savings:		
Utilization of loans:	Draught animals				
Bank linkages established:	Rs. 2 lakhs				
vi. Planned CPRs sustainable & equitable development	200 acres of soap nuts, Bamboo and Goose berry, Acacia sps were developed				
vii. Benefits to weaker sections (women, dalits and landless)	Tamarind tree plantations are good as these were planted on hilly areas and benefits tribals collecting tamarind during the season.				

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	No open wells in the village, check dams are useful for drinking water to animals.
ii. Additional area under cultivation/horticulture/ afforestation	150 acres additionally, no horticultural plantation on own lands
iii. Changes in cropping pattern and intensity	Paddy area developed
iv. Changes in agricultural productivity	20 bags per acre of paddy
v. Changes in fodder & fuel wood availability	Fodder availability increase because of increase in paddy cultivation, and no fodder scarcity
vi. Changes in size and character of livestock holdings	Increased, as sheeps were bought in large number
vii. Status of grazing land & their carrying capacity	
viii. Employment generated due to implementation of project	Increased marginally, and still looking for some development avenues. A Tribal village with 60 families located with in a hilly range.

ix. Change in household category, total, & source-	
x. Freedom from Debt and reduction in degree fo dependence of money lenders (case studies)	Money lenders are still giving loans to the villagers. Those who have D Pattas issued by government are getting Bank loans.
xi. Reduction in out-migration (case studies)	Migration is still continuing as in search of higher income in cities.
xii. Reduction in drought vulnerability of the watershed	Vulnerability is reduced as water is stored behind check dam No open well and no bore well.
xiii. Detailed case studies of specific farmers impacted by the project	Lakshmi Narayana who has dry land of Rs 1.20 acres grown tomoto, chillies, and brinjal, Cabbage and tubes for addition and he also grown down stream
xiv. Photographs showing work + its impact	Photos attached in the observations section of the each watershed report.

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

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

- Farm pond of 6m x 6m x 6m size was observed with water in it 2ft below the ground surface and used for irrigation.
- Masonry check dams namely Appalam Masonry check dam of 20mx 4mx 1 m storage capacity of about 100m^3 benefiting 6 farmers in about 10 acres.
- Lakshminarayana check dam of the size of 20mx6mx1m has water storage capacity of about 150 m^3, enhanced storage by putting sand bags over it to raise water level. Twenty farmers got benefitted on 100 acres of cultivated lands. Water was being used for community purposes like cloth washing and bathing etc for 60 families in the village.
- No open wells or tube wells in the watershed village. Paddy is grown down stream using water from check dams for irrigation.
- Check dam has 1 ft less water from body wall but the second structure is having full water and over-flowing, however conserved more water with sand bags over it.

Picture 16. Appalam masonry check dam of 100m^3 storage capacity benefiting 6 farmers in 10 acres paddy fields.

Picture 17. Lakshmi narayana check dam with 150 m^3 water storage capacity, enhanced storage by putting sand bags over it. 20 farmers benefitted on 100 acres paddy area.

Picture 18. A percolation tank with almost full level of storage water in Peduru.

Impact Assessment Report
PEDDABHIMAPURAM Watershed, IWDP – I batch,
TEKKALI Mandal, SRIKAKULAM district, Andhra Pradesh

Date of Assessment: 14/10/2010

1. Details of watershed:

i. Name of the Scheme:	IWDP – I Batch
ii. Name of the watershed:	Peddabhimapuram
iii. Names of villages in the Watershed:	Peddabhimapuram
iv. Villages/Mandal/District:	Peddabhimapuram/Tekkali/Srikakulam
v. Name and Address of PIA:	Mr. P. Appalasuri, Asst. Project Director, DWMA
vi. Total area of the watershed:	750

2. Ownership and Land use pattern :

i. Geographical Gross Area (ha)	1200
ii. Forest land (ha)	281.5
iii. Government/ Community land (ha)	260
iv. Private land (ha)	nil
v. Wasteland cultivable (ha)	40
vi. Wasteland non-areable (ha)	320

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:6 silt protection walls=2, sunken pits=4 additionally some were completed when forest department monitor the scheme.	
iv. Whether watershed committees exits	YES, Chairman: J. kurma Rao, President: J. Chander Rao, Secretary: G. Simhachalam	
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)

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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: 10
	-	2	-	4	Women: 0
	3 Functioning				
ii. Records of meetings properly updated					
iii. Liaison with scientific institutions established					
iv. Watershed Development Fund collected?, and its utilization	68761/- (5%-STs) was collected from Peddabhimapuram beneficiaries.				
v. Self Help Groups	No:		Revolving fund: Rs. 25000 given		
V.O functioning:			Savings:		
Utilization of loans:					
Bank linkages established:					
vi. Planned CPRs sustainable & equitable development	10 hectares developed with mango, neem, cashewnut are in good condition with proper establishment.				
vii. Benefits to weaker sections (women, dalits and landless)					

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	Water availability increase with check dams as irrigation controlling structures and secondary as storage structures
ii. Additional area under cultivation/horticulture/ afforestation	15 ha Nil horticultural on individual farmer's fields.
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)	Out migration up to 15% is still continuing as construction support labour employment for higher income cities like Visakhapatnam and Hyderabad.
xii. Reduction in drought vulnerability of the watershed	YES
xiii. Detailed case studies of specific farmers impacted by the project	
xiv. Photographs showing work + its impact	Photos attached in the observations section of the each watershed report.

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

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

- Check dams and silt protection walls were in good condition.
- There was enough care and maintenance of these structures as farmers have been deriving benefits from these structures.

Impact Assessment Report
SAVARABONTHU Watershed, IWDP – I batch,
SARAVAKOTA Mandal, SRIKAKULAM district, Andhra Pradesh

Date of Assessment: 14/10/2010

1. Details of watershed:

i. Name of the Scheme:	IWDP – I Batch
ii. Name of the watershed:	Savarabonthu Watershed
iii. Names of villages in the Watershed:	Savarabonthu, Patooru, Kittalapadu
iv. Villages/Mandal/District:	SAVARABONTHU/ SARAVAKOTA/SRIKAKULAM
v. Name and Address of PIA:	Sri G. Venkata Rao and Sri T V Ramana Murthy
vi. Total area of the watershed:	300

2. Ownership pattern of land:

i. Geographical Gross Area (ha)	413
ii. Forest land (ha)	56.25
iii. Government/ Community land (ha)	215
iv. Private land (ha)	105
v. Wasteland cultivable (ha)	93
vi. Wasteland non-areable (ha)	320

3. Verification financial and other Records

i. Total cost: Rs. 480000	Approved: Rs 480000	Spent: Rs. 404703
ii. Expenditure incurred as per guidelines		
iii. Works executed as per Records	Check dams: 9; Farm Ponds: 2	
iv. Whether watershed committees exits	Yes, Chairman: M. Govinda Rao; Secretary: Rayala Linganna	
v. if exists, activities of the committees	No activities in the absence of WDF release for repair works.	

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

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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:12</td></tr>
<tr><td>Before</td><td>After</td><td>Before</td><td>After</td><td>Male: 8</td></tr>
<tr><td>NIL</td><td>35</td><td>NIL</td><td>11</td><td>Female: 4 (33%)</td></tr>
<tr><td colspan="5"></td></tr>
<tr><td>ii. Records of meetings properly updated</td><td colspan="5">2 times in a month or once in a month</td></tr>
<tr><td>iii. Liaison with scientific institutions established</td><td colspan="5">2 people visit Ralegaon siddhi in Maharashtra to understand resource management in watersheds</td></tr>
<tr><td>iv. WatershedDevelopment Fund collected?, and its utilization</td><td colspan="5">WDF Rs 28000/- 5% (STs)</td></tr>
<tr><td>v. Self Help Groups</td><td colspan="2">No: 3</td><td colspan="3">Revolving fund: Rs. Nil</td></tr>
<tr><td>V.O functioning:</td><td colspan="2">Dharma Lakshmi puram</td><td colspan="3">Savings:</td></tr>
<tr><td>Utilization of loans:</td><td colspan="5">Broom sticks manufacturing and marketing, leaf plates manufacturing, sheep raring were some income generating activities</td></tr>
<tr><td>Bank linkages established:</td><td colspan="5">Rs. 50,000</td></tr>
<tr><td>vi. Planned CPRs sustainable & equitable development</td><td colspan="5">Cashew nut, Mango plantation was taken up. Cashew nut is still not bearing crop.</td></tr>
<tr><td>vii. Benefits to weaker sections (women, dalits and landless)</td><td colspan="5">All weaker sections only benefitted as the total beneficiaries are STs.</td></tr>
</table>

6. Quantitative Parameters of Impacts

i. Improvements in water table/water availability	3 feet water level increase during off season and 10 feet water level increase in rainy season. 4 new open wells were dug and 4 old open wells rejuvenated.
ii. Additional area under cultivation/horticulture/ afforestation	10-15acres under each check dam, an additional area of 5 acres increased for each check dam
iii. Changes in cropping pattern and intensity	Irrigated Paddy in the rainy season with seepage water storage at the check dams, and second crop of groundnut from December-March with supplemental irrigation from well water and there is 150% crop intensity observed in the watershed.
iv. Changes in agricultural productivity	Yields of paddy increased from 10-20 bags per acre, a 100% yield increased with irrigation.
v. Changes in fodder & fuel wood availability	Fodder availability increased with increased paddy grain and fodder productivity.

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	Employment generated during the implementation of activities of watershed , and also with increased crop productivity
ix. Change in household category, total, & source-	
x. Freedom from Debt and reduction in degree of dependence of money lenders (case studies)	Bank lending facilitated farmers to avoid approaching money lenders for credit for agricultural input investment.
xi. Reduction in out-migration (case studies)	Migration reduced from 20-30 people earlier to 4 people in recent years.
xii. Reduction in drought vulnerability of the watershed	
xiii. Detailed case studies of specific farmers impacted by the project	Kothuru chandraiah's has percolation tank near by; using water from percolation tank he grows second crop of sunflower or groundnut. His income from second crop was Rs 7000/- he could extract 7x15 litres of edible oil from one acre of sunflower crop
xiv. Photographs showing work + its impact	Photos attached in the observations section of the each watershed report.

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

8. **Observations and comments of Evaluators:**

23 Masonry drop structures were constructed in the watershed with vents. Masonry structure of different sizes based on drain size costing between Rs 45000/ to 75000/. Major crop in this watershed was paddy under irrigation. Plantation crops/Horticulture dry land crops were grown nearby and foot of the hill. Sunflower, green gram and black grown were grown as second crop in paddy fields during post rainy season. These structures were constructed to avoid widening and deepening of channel as well as to irrigate paddy fields. Lots of silt deposition observed in the structures. Not much ponding of

water was seen, and these structures were basically meant for paddy irrigation water management.

Picture 19. Check dam fully silted, however used as irrigation controlling drop structure for irrigating paddy crop.

Picture 20. Check dams fully silted but used for controlling irrigation water to paddy fields in Sarvabonthu watershed.

Picture 21. Tribal men and women in Sarvabonthu attending focused group discussion in the village.

ANALYSIS OF IMPACTS

Verification of Records

Based on the available records, we understand that Divisional Forest Officer (DFO) was the PIA initially from 1998-99 as large wastelands in Pathapatnam and Tekkali ranges was encompassed by reserve forest lands. PIA was responsible in executing works, however involved local Vana Samrakshana Samithis until 2002-03. At the later part of the project period from 2003-04; it was assigned to DWMA staff under the super vision of PD, DWMA, which executed the works with the involvement of Watershed Committees. Hence fetching older records did not materialize due to transition between two agencies. The project execution was completed in an extended period by 31-12-2005.

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 as Vana Samrakshana Samithis have taken up executing works on wastelands within and outside the forest area without community participation. An amount of Rs. 50 lakhs were provided for training and community organization of which Rs. 48.03 lakhs was shown as expenditure. Once the project was implemented by DWMA, there were activities in the project particularly targeted towards weaker sections especially tribal population as there were only tribals in some watersheds. Although there was ample scope and opportunities to address the issues of women by forming self help groups (SHGs) of these sections of the society, this aspect was not actively persuaded as was evidence by poor growth of 90 SHGs formed, very few are existing in the watershed communities. User groups (UGs) were formed and soil and water conservation works were taken up by the successfully WCs. 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 305.1 lakhs covering 12500 ha. A total of 1224 Soil and water conservation works were taken up. These include diversion drains (37), check dams (272), percolation tanks (19), farm ponds (19), and sunken pits (34), renovation of tanks (43) under the project. 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. Due to these SWC structures, farmers in different mandals have reported increased availability of water for irrigation mostly to paddy crop and ground water levels rose where open wells are in use for dry land post rainy season crop supplemental irrigation, which was also verified in our field visits.

Water Availability for Irrigation and drinking purpose

Impact of watershed interventions especially masonry structures has been felt very much by the beneficiary farmers in IWDP developed watershed villages in terms of their utility to control erosion, divert water for irrigation and also to some extent ground water increase and water availability for importantly for drinking purpose. Farmers were very much appreciative of the utility of structures in controlling water flow through seepage from foot hills and storage for longer period to irrigate upland paddy fields. Because of regulating and storing water on upstream, period of water availability in the lower reach for irrigation extend from October-November before the watershed development to end of February after the watershed development. This situation favored for double cropping with one or two supplemental irrigations for second crops between January to March every year. In 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

During the initial period of the project when, PIA was from forest department fruit plantations like mango, Cashew nut, and soap nut, Goose berry and Tamrind were planted in the wastelands besides wood plantations like Bamboo and Acacia sps were distributed covering 2990 ha. Horticultural plantations like goose berry, tamarind and soap nuts have come for bearing and farmers reported good yields of tamarind and cashew nut in the last year.

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, it varied from as low as 20% to more than 50% increase in main crop as well as second crop in some watersheds. Farmers cultivated paddy in two seasons with kaveri variety of paddy in the second season. Yields of paddy in the first season generally increased from 15 to 25 bags per acre and in the second season average yield was up to 25 bags per acre. Farmers were getting a benefit of Rs. 7000 acre from sunflower crop in the second season as they were extracting oil in the village. As reported by farmers yield increase in groundnut, green 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 as second crop also in watersheds for food grains and fodder for animals.

Common Property Resources and Wasteland Development

Srikakulam is having large areas of wastelands and planting of Bamboo, Tamarind, Goose berry and Causurina tree plants was taken up successfully under social forestry of this scheme. The project achieved planting of trees in more than 2990 ha. However, in this project horticulture development with cashew nut and goose berry plantation would have helped most of the tribal

populated watersheds very much as indicated by the beneficiaries. At present, in one watershed only usufruct rights on 0.5 acre of cashew nut was given to tribals.

Employment and Migration

In the entire 10 watersheds under assessment, only in three (30%) watersheds beneficiaries expressed that labor migration is continuing to the extent of 10 to 20% in their watershed. 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, 10-20% 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 only 30% 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 7.96 lakhs towards WDF from some WC at the rates applicable, mostly 5% as watersheds are populated with tribals, 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, or for construction of much needed new 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 does innovative agricultural research and capacity building for sustainable development with a wide array of partners across the globe. ICRISAT's mission is to help empower 644 million poor people to overcome hunger, poverty and a degraded environment in the dry tropics through better agriculture. ICRISAT belongs to the Alliance of Centers of the Consultative Group on International Agricultural Research (CGIAR).

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