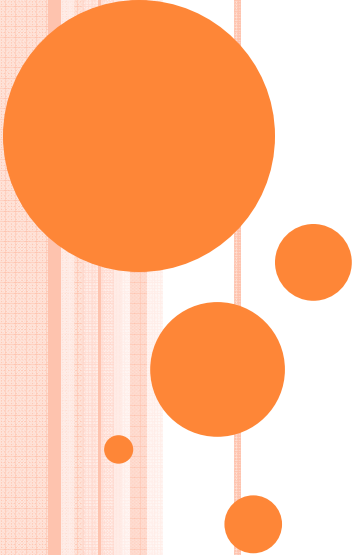




EFFECTIVENESS OF WATERSHED MANAGEMENT IN INDIA: SOME EMPIRICAL EVIDENCES



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BACK GROUND:

Broad Objective:

- The promotion of the overall economic well being and the social improvement of the people in resource poor regions.

Focus

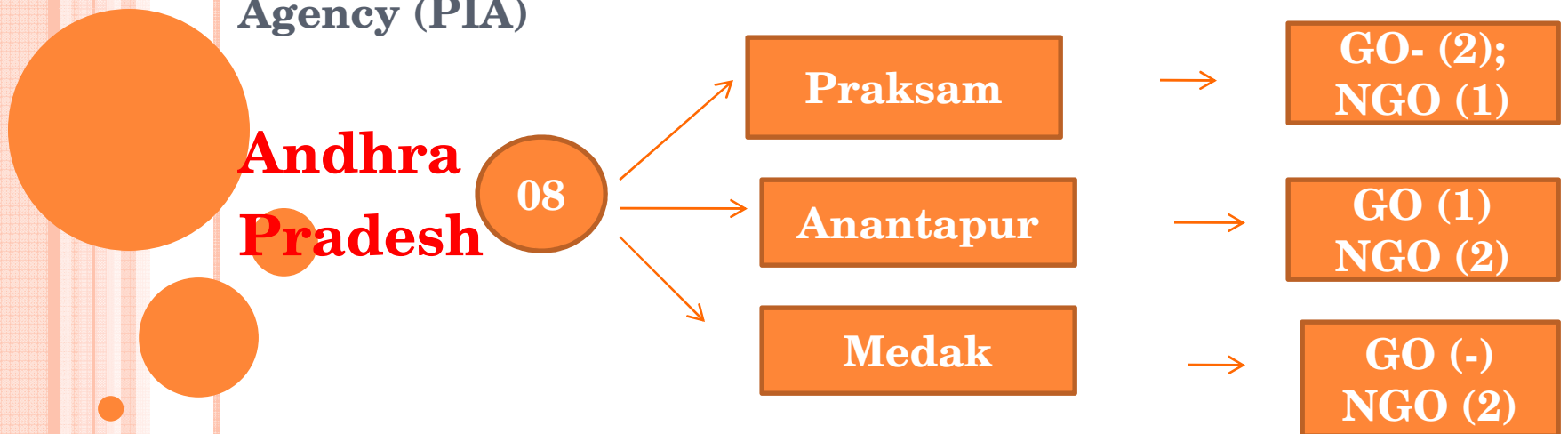
- The enhancement of the viability and quality of rural livelihood support systems.

STUDY-1

PARTICIPATORY WATERSHED DEVELOPMENT AND THE ROLE OF PROJECT IMPLEMENTING AGENCY (2001-2002)

Objective & Methodology:

To understand the various facets of the institutional arrangements with a focus on the Project Implementing Agency (PIA)



Sample Size: 50 Beneficiary HHs and 25 Non-Beneficiary HHs in each watershed were Selected

IMPACT

Impact is found visible in bringing about some positive economic changes in comparison to the Non-watershed (NWS) areas and before, after scenarios.

However, there are variations across the regions and within the region between GO and NGO implemented watersheds.

- Medak district appears to be the poor performer (NGO implemented WS)
- In majority of cases NGO WS are doing better especially in case of Social and Ecological changes in comparison to GO and NGO WS in Prakasam and Anantapur districts.
- Migration has declined in most of the watershed projects in the districts, but not up to the satisfactory (Prakasam and Anantapur)
- Groundwater table-improvement in Anantapur district
- Although the No. of wells has increased but simultaneously the groundwater extraction found more which could not be sustained in the project areas.



Impact Assessment of the Watershed Development in the Sample villages

	Prakasam		Anantapur		Medak		Prakasam		Anantapur		Medak
	GO	NGO	GO	NGO	NGO		GO	NGO	GO	NGO	NGO
	1	2	3	4	5		1	2	3	4	5
Indicator:	% Change in Area					Indicator:	Net Returns (Rs. / Acre)				
Irrigated-WS	27.6	34.4	40.4	17	-1.1	Irrigated-WS	1562	810	140	1018	423
NWS	-0.09		-0.02		-0.07	NWS	105		-59		-463
Un-irrigated WS	-24	-28	-4	3	262	Un-irrigated WS	104	65	179	283	452
NWS	-3.0	3	3		2.1	NWS	-49		-3		178
Indicator:	% Change in Yield Rates (all crops)					Indicator:	% Change in No. of Days Employed (WS)				
Irrigated-WS	16.3	20.3	-13	17.2	2.6	Kharif	18.7	24.3	-	7	9
NWS	-3.6		3		-2.9	Rabi	19.5	26	2.3	10	8.3
Un-irrigated WS	19	15	20	20.4	38	Summer	29	33	-	102	8.5
NWS	-2		0.72		3.7	Total	21	27	1	22	8.9

Continued...

Indicator:	% Change in No. of Wells Rejuvenated (WS)				
Bore wells-No.	32	21	29	12	20
Depth	0.2	9	00	-6.3	00
Open wells-No.	-	-	-	-	-5
Depth	-	-	-	-	10
Indicator:	% Change in Migration (WS)				
No. of persons	48	-35	18	-33	9.4
No. of days	-28 (-20)	-36 (-40)	29(43)	-11 (-9)	34(25)
Distance (km)	-27	-8	-20	29	-21
Indicator:	House Hold Income (WS)				
% Change	14.9	32.4	17.1	13.8	22.1
Avg. Income (Rs.)	22950	21892	19473	23437	20175
	(11182-62344)	(12100-57400)	(9840-66167)	(11136-42988)	(13320-25859)

Note: **Migration: Negative sign indicates positive impact. Figures in brackets indicate No. of days per household,**

Depth: Negative sign indicates positive impact, WS-Watershed, NWS-Non-watershed. Average

Income: Figures in brackets indicate ranges (Minimum and Maximum)

'00': Indicates no change.



PIA :ROLE AND RESPONSIBILITIES

Theme:

- The impact: economic, ecological and social is primarily the sensitivity and appropriateness of implementation activities to the actual village circumstances and needs. It is found occurring mainly where the PIA is prompt in the villages

Logic:

- Bringing entire village into one platform
- Conflict resolutions
- Process of Watershed Management- planning, implementation and post-project arrangements
- Training and exposure visits

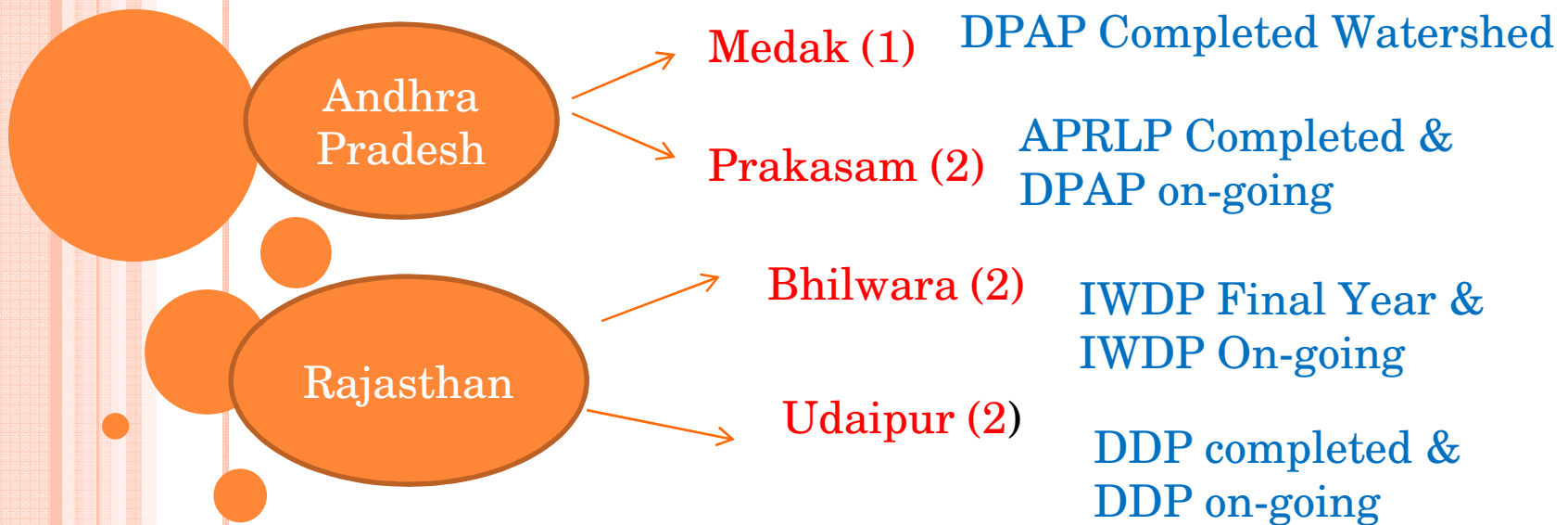


STUDY 2

EMERGING ISSUES IN THE PROCESS OF WATERSHED IMPLEMENTATION: A COMPARATIVE ANALYSIS OF ANDHRA PRADESH AND RAJASTHAN (2004-05)

Objective and Methodology:

To study the role of different stakeholders in the process of watershed implementation and to assess the impact of watersheds on livelihood security.



Sample size: 20 beneficiaries each watershed (Size-class & Social – class)

STAKEHOLDERS' ROLE

Theme

- Stakeholder analysis for improving the quality of inter-institution interaction in planning.
- Adoption of stakeholder approaches in subsequent phases of the watershed processes and corrections at different phases
- Evaluation of watershed projects

Logic & Findings

A. Equity and Rehabilitation:


- Control over CPR: protection of traditional users rights (access to landless and poor)
- Resource flows and productivity
- Nature of Dependency
- Users' Knowledge

B. Equity and Distributional aspects

- Involvement & decision-making
- Opinion and regularity
- Delivery mechanism



IMPACT

- Composition of Watershed Committee/User Groups/SHGs
 - Transparency
 - Arrangements for conflict resolution
 - Selection procedure
 - Priority of Watershed
 - Entry Point Activities
 - Exit protocol
 - Community contributions
 - Time spent & Access to CPRs/restrictions/rules and norms
 - Participation and capacity building
 - Employment: Activities related to horticulture along with non-farm increased substantially
 - Crop Diversification and increase of HHs income: rise in income from agriculture, livestock and SHG mode of sustainable labour activity
 - Availability of Fuel and Fodder
 - Increase of Groundwater and Drinking water status
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STUDY 3

DYNAMICS OF PARTICIPATORY WATERSHED MANAGEMENT: A CASE STUDY OF CHITTOOR DISTRICT WATERSHED IN ANDHRA PRADESH (2006-07)

- *The main objective is to know the participatory watershed approaches adopted by different agencies and to prepare a case study of success/failure of watershed management projects.*
- *The methodology is selecting two watersheds spreads across the district in Chittoor (one is successful implementation and management of watershed -Sanganapally and another one is failure watershed-Jagamarla).*
- *The sample includes the Watershed Committee members, User Groups, Shelf-help Groups, Panchayat Raj Institutions (PRI), Project Implementation Agency (PIA)-Watershed Development Team (WDT), District Officials and*
- *5 households each from size class wise farmers and social class wise villagers, labourers (landless also) and women were interviewed and discussed*
- **These two watersheds were implemented by the Government PIA under DPAP scheme during the year 2000-01.**
- **The area treated under watershed is 500ha.**
- **But in the changing scenario, the introduction of Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS) and other State Government initiations of Comprehensive Land Development programmes (CLDP), additional area brought under cultivation and recharge of groundwater took place to some extent.**
- **The main basic idea is to assess the impact of investments on these watersheds coupled with social and power structures in the villages**



- **Conflict: I**

- Maintenance of Watershed Development Fund:***

- There is no clear cut norm over management and utilization of Watershed Development Fund (WDF). *The withdrawal strategies were very weak* in the watershed.
- Due to inefficiency over maintenance of WDF, this fund is still remain unutilized and Project Director at the district kept without any proper arrangements: (The Project Officials version is different, if the WDF fund lies with Watershed Committee (WC)/PRI, it will be utilized improper way either by construction of road or any other irrelevant to watershed works-until and unless there is no proper assigning norms over WDF,
- It was learnt that there were considerable contributions made by the beneficiaries in the watershed area.

- **Conflict-II**

- Intensive cultivation:***

- Farmers are being cultivated Paddy intensively in the watershed area.
- Some of the farmers in the upper reach area in sangnapalle watershed (due to water logging in the catchment area – where farmers converted their lands for cultivation- due to construction of checkdams, farm ponds and percolation tanks) they in turn damages to the check dams (putting whole) so that excess storage water flow to down reach area. One way it helped the both the farmers in the upper and down reach areas.
- This shows that there is a clear cut positive impact on additional area brought under cultivation due to the watershed initiation and efforts made by the PIA and MDT members.
- But such conflicts were also emerges in the watershed area. *This indicates that there is a need of collective action arrangements and negotiation norms required while implementation of watershed.*

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CONFLICT-III

COMPETITION AMONG WOMEN MEMBERS

- At the time of watershed initiations and formation of Watershed committee (WC), User Group (UG) and Self-help Groups (SHGs) there was a competition among the villagers (Sanganapalle and Burugulapalle) as well as among the women members.
- This cause there was no initial meetings took place for several months. ***Some of the women members dominate the groups and each member wants president post.*** This has one way for creation of awareness building among different stakeholders induced them to stake in watershed activities.
- With stringent efforts were made by the MDT and WDT members they formed the watershed committee. With all women members and it was learnt that there was some sort of equity has followed while formation of Watershed Committee.



Impact Assessment of the Watershed Development in the Sample watersheds

Source: Field Study

Indicator	Sanganapally Watershed			Reasons for Impact	
	Before	After	% Change	Institutional-PIA Level	Other initiations at Watershed Level
Additional Area under Cultivation (Ha.)	340.0	470.0	38.23	Delivery mechanism	Productive enhancement and Rights approach
Cropping Pattern				Institutional mechanism, Markets, Remunerative price, Collective action mechanisms	Productive enhancement
• Paddy	56.0	120.0	114.3		
• Groundnut	240.0	135.0	-43.75		
• Ragi	34	46.0	35.3		
• Samulu	10	-	-		
• Floriculture	0	115.0	-		
• Vegetables	0	54.0	-		
Number of Days Employed (both Kharif and Rabi)	26	97	273.1	Enhancement of livelihoods And Collective action	Productive enhancement
Household Income (Rs.) Annual Average income per HH	24,263 =00 (11,182-37, 344)	45, 728=00 (14,156- 77,300)	88.46	Enhancement of livelihood	Productive enhancement
Migration				Institutions, decision-making and delivery mechanism	Collective action, Social and political considerations
No. of persons	43	05	-88.4		
No. of Days	90	10	-88.9		
Distance (Km) (average)	70	24	-65.7		
Ground Water Depth (ft.)	110	55	-50	Conservation measuresSunken pits, Checkdams, PTs and Form ponds	Productive enhancement

CONCLUSIONS:

- During the initiation of the project some conflicts emerged but the efforts of PIA and WDT members resolved the conflicts.
- Despite the heterogeneity, the villagers have realised the benefits through series of negotiations as well as collective action mechanisms.
- However, it is observed that the withdrawal mechanisms were not addressed properly.



1. The gap between PIA and Watershed Committee at the watershed level appears to be critical in the whole process of implementation and management.

2. In the context of Exit Protocol, maintenance of the infrastructure created was a serious problem prior to people's participation.

3. The nature of contributions was associated with the nature of interaction between the people and the PIA

4. Supervision part of the watershed projects is found neglected due to incohesiveness among the user groups.



5. Establishing capacity and confidence building measures between different stakeholders is missing which needs to be strengthened for the sustenance of the project.

6. Gainful livelihood security is found to be strengthened with the development activities in the project area and vice-versa. The studied projects support that the gainful livelihood found possible with the following changes observed

- a. Waste land converted in to the Arable land**
- b. Changes in crop diversification**
- b. Regeneration of Fodder and Fuel availability in the CPRs**
- c. Rise in Groundwater levels**
- d. Additional Employment Opportunities**
- e. Sustained income Generation Activities through SHGs**

7. Working capacity of WA/WC, PIA, involvement of primary stakeholders and homogeneous groups helped ensure equity and checked systematic corruption

8.. Groundwater exploitation still persists beyond the resilience capacity : some regulatory mechanism like right of extraction needs to be evolved.



THANK YOU