



Mid Course Evaluation of WDF-NABARD Watersheds



Thimmapur and Fazulnagar Watersheds



FINAL REPORT



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I. Executive Summary

Two watersheds funded by NABARD under the WDF programme were studied during the course of implementation. These two watersheds are Fazulnagar and Thimmapur located in Vemulawada and Chandurti mandal of Karimnagar district in Andhra Pradesh. The prime objective of the mid course evaluation is to identify issues that require mid course correction and draw lessons for ensuing projects. The evaluation was undertaken by two inter-disciplinary teams from Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad. A multi pronged approach was adopted for conducting the study. Besides records and registers maintained by the Project Facilitating Agency (PFA) and the Watershed Development Committee (WDC), Focus Group Discussions (FGD) were held extensively with the Community Based Organizations (CBOs), User Groups (UGs) and others. Household interviews were held to elicit responses of stakeholders. These data were supplemented and corroborated with field level observations on work sites and interventions.

The salient findings these two watersheds are presented below which is followed by common pooled recommendations and policy implications.

1.1 Thimmapur Watershed

- The watershed covers a single Panchayat, viz., Thimmapur in Chandurti mandal of Karimnagar district in Andhra Pradesh
- The village is nearer to a reserve forest and fairly has a source for biomass and minor forest produce
- The PFA has the prior experience of working in the village
- The average land holding of the sample farmers in the watershed is 2.51 ha
- The average livestock owned in the watershed per household was 2.3 animals
- The ground work for the watershed project was initiated in 2004
- The capacity building phase (CBP) was implemented during June, 2004 till March, 2005
- The Full Implementation Phase (FIP) was started in November, 2006

- In the 3 years of FIP, almost 80% of the grants have been utilized for project implementation
- The *Shramadaan* contribution of villagers resulted in creation of assets like percolation tanks
- All the communities and social groups including women are represented in the WDC
- The project records are maintained mostly by the PFA
- Wages alone accounted for 75% of the total project cost. During the CBP women got 20% of the employment in watershed activities
- The soil and water conservation measures implemented in the watershed are technically sound
- Total irrigated area in the watershed increased by about 29 ha in the 5 years of project implementation
- The number of functional wells (open and bore wells) increased in the watershed implementation period
- The cropping intensity increased by about 10%
- Similarly, the crop productivity increased especially in crops like maize and rice

1.2 Fazulnagar Watershed

- The watershed covers a single Panchayat, viz., Fazulnagar in Vemulawada mandal of Karimnagar district in Andhra Pradesh
- The PFA has the prior experience of working in the village
- The average land holding size of the sample farmers in the watershed is about 2 ha
- Livestock rearing is relatively less important as reflected in the low per household livestock endowment figures.
- Initiated in 2004, the watershed programme is going on and so far the first two phases of the FIP have been completed.
- Out of the total sanction of Rs. 38.5 lakhs, an amount of 16.15 lakhs was released so far. About 82% of the funds received were spent so far.
- All the communities and social groups including women are represented in the WDC

- The project records are maintained mostly by the PFA
- The soil and water conservation measures implemented in the watershed are technically sound
- The implementation of various treatments have had a positive effect on irrigation, ground water availability, cropping intensity and crop productivity. All these impact indicators have improved over time. However, not all this improvement can be attributed to watershed programme alone.

1.3 Impact Indicators: A comparison between watersheds

A comparison of major watershed development indicators between the two watersheds studied is presented below.

1.3.1 Land availability

The per capita land availability in terms of geographical area as well as arable area was higher in Thimmapur watershed compared to Fazalnagar.

Table 1.3.1: Land availability per household (ha)

Particulars	Thimmapur		Fazalnagar	
	Total	Per household	Total	Per household
Total land	1176	3.06	796	1.64
Arable land	618	1.61	546	1.25
Non-arable land	558	1.40	250	0.51

1.3.2 Water availability through *in-situ* conservation measures

The water storage capacity created was significantly higher in Fazalnagar watershed, mainly due to large area under new farm bunds.

Table 1.3.2: Volume of storage created through different structures (m³)

Watershed	Area (ha)	New field bunds	WATs	CCTs	SGP	Storage/ha
Thimmapur	1176	92	4080	5285	8775	15.5
Fazalnagar	796	14950	7590	7164	4812	67.8

1.3.3 Cropping intensity

The cropping intensity has increased by 10% in Thimmapur watershed and by 12% in Fazalnagar watershed.

Table 1.3.3: Level of cropping intensity

Particulars	Thimmapur		Fazalnagar	
	Baseline	Current	Baseline	Current
Cultivable area (ha)	618	626	546	600
Gross cropped area (ha)	612	682	573	720
Cropping intensity (%)	99	109	106	120

1.3.4 Household income

The average household income was higher in Thimmapur compared to Fazalnagar. The annual average increase in household income was higher (15%) in Fazalnagar compared to Thimmapur (11%).

Table 1.3.4 : Average annual household income (Rs/year)

Household category	Thimmapur		Fazalnagar	
	Baseline	Current	Baseline	Current
Landless	18400	34625	8554	19338
Marginal	34425	52987	17038	37856
Small	38925	55875	25500	52662
Medium	58625	94100	44913	80008
Large	116625	174625	77623	115062
Overall	53500	82443	34725	60985

1.3.5 Employment generation

The cumulative employment generation in watershed interventions during the five years of project implementation worked out to 21 and 17 days/ha in Thimmapur and Fazalnagar, respectively.

Table 1.3.5 : Employment generation in watershed activities during 5 years

Particulars	Thimmapur	Fazalnagar
Employment (person days)	24705	13771
Amount spent (Rs.)	1481655	957176
Employment generation (person days/ha)	21	17

1.4 Suggestions and Recommendations

Based on the mid course evaluation of two watersheds studied in Karimnagar district, the following suggestions / recommendations for consideration of NABARD are made.

1.4.1 Technical

- The research results have indicated that bunding increased the crop yields by a mere 6% while a simple inter-terrace management such as contour cultivation that helped in uniform distribution of moisture, raised crop yields by 15-20%, the impact being more pronounced in years of scanty rainfall. Although it is a difficult task to introduce this measure in smaller holdings, there is a need to sensitize and popularize *in situ* moisture conservation practices like contour cultivation, off-season tillage etc..
- It is also important to demonstrate improved technologies, both under rainfed and irrigated situations, such as crop varieties, INM, IPM, supplemental irrigation etc. on a large and intensive scale
- It is too early to make a thorough impact assessment as still a lot of SWC interventions remain uncompleted and whatever the SWC structures put in place are not that older. It is suggested that even for these interventions technical expertise / backstop is needed for the design, grounding and future maintenance for exploitation of resources to the potential. Capacity building and sensitization are also needed for implementation of these interventions.
- In view of reduction in availability of casual labour for agriculture, efforts are needed increased popularization of farm machinery
- There is a scope for utilization of small equipment like rain gauge and GPS in watersheds
- The practice of site specific nutrient management (SSNM) need to be introduced, as there is an increase in consumption of fertilizers by three to five times and some sites are showing medium to high status of P warranting its deleterious effect on availability of other nutrients.
- The age old practice of applying FYM and leaves from forest tree species is coming down which needs to be popularized.
- Desilting and recycling of tank silt in crop fields for enhancing water productivity besides removal of weeds in the tanks is necessary for rehabilitation of tanks. This programme may be converged with the ongoing NREGS and or Indira Kranthi Patham (IKP) programme

- Water budgeting exercise should be promoted by WDC for the watershed in general as an annual exercise, which can be further done in parts for different reaches / zones in the watershed.
- As far as possible it should be seen that all the conservation interventions be completed within the first 2-3 years of initiating the programme so that the PFA will have an opportunity to see their effectiveness through productivity enhancement in the remaining 2-3 years. Accordingly, the phasing of the budget releases may be adjusted.

1.4.2 Training

- By and large, the PFA followed the guidelines in implementing the project. The PFA also seems to enjoy the confidence of the community.
- There is a need of yearly trainings (2 nos.) for the project staff of one-week duration. Out of 52 weeks, 2 weeks may be devoted to Human Resource Development (HRD) for sharpening the skills and knowledge for promoting efficient management of natural resources.
- Centralized training of staff working on watersheds may be planned by NABARD to build the capacity and facilitate cross learning among different PFAs.
- The training programmes on various subjects like water management, crop diversification, dry land horticulture, vegetable cultivation, farm mechanization, value addition, livestock management may be conducted by NABARD by taking the help of related institutions.

1.4.3 Administration

- The WDC and the community are yet to be prepared by the PFA for self-governance. This need to be taken up by the PFA on a priority as only a year and half of the project period is left. In other words, the PFA has to put in place a withdrawal strategy so that the investments made will run through their entire course of life.
- WDC need to be registered and empowered so that they will be in a position to take care of the assets created.

- The staff inadequacy is observed. The PFA need to recruit qualified personnel particularly in the field of agricultural engineering and agriculture.
- The PFA should improve rapport with the line departments say agriculture department or KVK and have demonstrations in the watershed in order to ensure convergence and get the benefit of their technical expertise and funding under various schemes. The PFA can also possibly work with state departments of agriculture, AH, horticulture etc and link the farmers in the watershed with their programmes. They can also have some of the technology demonstrations done in the watershed villages. Similarly, the FTCs can be contacted for training farmers in different aspects.
- It would be appropriate to link the budget release in tune with the technical/ physical work programme. For instance it would be ideal to take up the soil and water conservation within the early phase of the project and therefore the budget to be planned and released accordingly.
- It was reported that some part of the budget released by NABARD was retained by the Government without releasing to the PFA. It was learnt that NABARD released some Rs.9.5 lakhs to GoAP for onward transfer to Fazulnagar watershed in the beginning. But the PFA received only Rs.7 lakhs only. The balance is yet to be reconciled even after four years. This needs to be sorted out.

1.4.4 Policy

- There was a long gap between the end of CBP and commencement of the FIP of almost 18 months in case of Thimmapur watershed, which was found to diminish the enthusiasm and commitment of the PFA and the community. It is to be seen that this gap be minimized.
- Besides delay in commencement of the FIP and the procedural delays in getting the funds to the WDC were found to be important reasons for the slow progress of work.
- Most of the NRM activities related to digging and earth works should be linked to NREGA and the savings can be diverted to maintenance fund as an incentive of

good linkage and convergence. For this to happen, the WDC should work in tandem with PRI so that duplication can be avoided.

- At times the work of NABARD watershed is affected due to lack of labour availability during summer because of NREGS. Therefore use of machines may be allowed wherever required.
- Not many interventions were taken up with specific needs of women in mind. Similarly, more attention is also needed to accommodate livelihood interventions for landless.
- The area under paddy has gone up by several times; therefore there is a need for passing resolution in the beginning of programme in the new watersheds to restrict the area under paddy and encouraging ID crops. If irrigated paddy is inevitable in some cases, attention should be given to water saving paddy cultivation methods like aerobic rice, SRI etc. Social regulation on water use must be inbuilt in the programme.
- No user groups/SHGs were formed as part of watershed programme. The existing SHGs/RMGs were also not involved implementation of works. These groups can be used to the advantage of PFA as well as the community. These groups if involved in execution of works will improve the acceptance and effectiveness of the works. Similarly, some technologies say custom hiring of machinery can be transferred through groups better than individually.
- A functional mechanism is to be developed by formation of an informal committee for the PFA for technical guidance, monitoring and evaluation and truly guiding NABARD programmes. This committee may have the jurisdiction of a district or revenue division within the district with the resource persons from the near by ARS/ZARS of ANGRAU, KVK, ATMA, DAATTC, FTC, state agriculture/horticulture/animal husbandry/watershed departments. This mechanism is for guidance and effective implementation of the NABARD programs. Such a mechanism could serve the purpose better than the RSO. Action on this may be initiated either by DDM, NABARD or DWMA at the district level. The project units that are in the offing as part of WDF may take care of this void.



Stone gully plug for gully reclamation



Farm pond for groundwater recharge



CCT with Pongamia



CCT across the slope in ridge region



CCT across the slope along with Pongamia Plantation





SGP across the gully



A new mango plantation



Land use change from waste land to cultivable land with cotton at the foot hill



Farm pond for GW recharge



Water level in the open well available for irrigation due to CCT and WAT structures in the ridge



A new open well to irrigate 2 acres rice cultivation