

Impact of Watershed Development Programme in Micro Watershed Dari IWMP – 7 of Tikamgarh District of Madhya Pradesh

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Abstract:

The study was carried out in the year 2015 – 16 in micro watershed Dari which was approved under the Integrated Watershed Development Programme (project No. IWMP – 7) in Tikamgarh block of the Tikamgarh district of Madhya Pradesh during 2010 – 11 with the objective of assess the impact of watershed development programme in farming system. It was found that the overall watershed development practices in the study area had positive effect on changes in agricultural area of Urd, Paddy, Till and Soybean in kharif season while wheat, Gram, Mustard and Barley in Rabi season. Productivity of Soybean, Till, Urd and Paddy in kharif season as well as Mustard, Gram, Barley and Wheat, in Rabi season, land use pattern, use of land resources, water resources and livestock productivity due availability of water and use of improved agricultural inputs like improved varieties, recommended doses of fertilizers, required irrigation and plant protection measures, etc in the study area. It was also found that the increase of cultivable land, irrigated area, area under horticultural and vegetables crops. Similarly cattle population was also increased due to sufficient availability of water and fodder in watershed area.

Introduction

In a predominantly agricultural country like India, where droughts and floods cause chronic food scarcity, adequate soil conservation programme, not only increases crop yield, it also prevents further deterioration of land. Methods to control surface runoff and soil associated erosion have been practiced in India from times immemorial. The Micro watershed Dari was approved under the Integrated Watershed Development Programme (project No. IWMP–7) by Rajiv Gandhi Watershed

Material and Methods

The micro watershed Dari IWMP – 7 Watershed project of Tikamgarh district was purposively selected for the present study during 2015 – 16. The project was started at Dari on the year 2010 – 11 hence this year was considered as base year and all the beneficiaries under this project were considered as respondents for the present study. The total beneficiaries were 250 out of

Mission (RGWM) during 2010-11 in Tikamgarh block of Tikamgarh district of Madhya Pradesh having area 1220 hectare. The impact of this micro-watershed on different aspect of agricultural production, structural, operational, and extent of technological adoption needs to be examined. Hence the present study was under taken to the Impacts of Watershed Development Programme in Micro Watershed Dari IWMP – 7 of Tikamgarh District of Madhya Pradesh

which 50 beneficiary farmers were selected randomly as respondents for the study. For the study, pre testing of interview schedule was done and the data were collected from secondary sources viz, revenue dept. zilla panchayat as well as primary data collection was done through direct interview method. The simple percentage distribution was used as statistical tool for analysis of data. The impact

of watershed development programme was studied in terms of change in area under different crops, productivity, land use pattern,

Results and Discussion

Change in area

The data presented in table-1 revealed that total cultivable area under crops have been increased after implementation of watershed development programme in Dari. The positive changes were observed in the cultivable area under Soybean (9.11%), paddy (21.16%), Till (9.15%). The significant improvement was observed in Urd (88.60%) in Kharif season. While in case of Rabi season significant Improvement was recorded in wheat (41.56%) followed by Gram (25.37%), Mustard

use of land resources, Change in water resources and livestock status.

(13.88%), and Barley (13.08%) over the period of implementation. The possible reason of above finding may be due to the sufficient availability of irrigation water, timely availability of agricultural Inputs and training imparted by extension agents, under the watershed development programme^[1].

Thus, the positive changes in cultivable area under different crops clearly indicate the healthy impact of watershed development programme in the study area.

Table 1 Change in area of major crops in micro watershed Dari IWMP-7 after implementation of watershed programme

Major crops(ha)	Pre-project status(ha)	Post-project status(ha)	Absolute change (ha)	Relative change (%)
Kharif crops				
Soybean	119.60	130.50	10.9	9.11
Paddy	24.10	29.20	5.1	21.16
Urd	19.30	36.40	17.1	88.60
Till	17.60	19.21	1.61	9.15
Rabi crops				
Wheat	60.4	85.5	25.1	41.56
Mustard	17.64	20	2.36	13.38
Gram	13.4	16.8	3.4	25.37
Barley	4.51	5.1	0.59	13.08

Change in productivity

The impact of watershed development programme is also studied in terms of crop productivity. It is be evident from the table-2. That the highest increment in productivity was observed in Soybean (66.67%) followed by Till (40.00%), Urd (25.00%) and Paddy (20.00%) in kharif season. While in case of Rabi season the significant Improvement was

carried out in Mustard (40.00%) followed by Gram (25.00%), and wheat (22.22%) while the project implementation period. The possible reason of above finding may be due to the farmers were using modern inputs e.g. High yielding varieties, recommended doges of fertilizers, timely irrigation and use of recommended plant protection measures^[2,3,5].

Table 2 Change in productivity of major crops in micro watershed Dari IWMP–7 after implementation of watershed programme.

Crops	Pre-project status (qt /ha.)	Post-project status (qt /ha.)	Absolute change	Relative change (%)
Kharif crops				
Soybean	12	20	8	66.67
Paddy	25	30	5	20.00
Urd	8	10	2	25.00
Till	3	4.2	1.2	40.00
Rabi crops				
Wheat	30	33	3	10.00
Mustard	10	14	4	40.00
Gram	12	15	3	25.00
Barley	18	22	4	22.22

Change in land use pattern

The impact of watershed development programme in terms of change in land use pattern is presented in table-3. after the implementation of watershed development programme 31.61 % non – arable land brought under cultivation which enhance the total Arable land 5.07 %. The data also revealed that the increase in irrigated area

about (333.33%) and average cropping intensity was 135% as compare to 65% in the base year 2010–11. Therefore, it could be inferred from the table that due to the participation in the watershed management activities farmers were able to gear up their adoption on soil and water conservation practices^[4,6].

Table 3 Change in land use pattern in micro watershed Dari IWMP–7 after implementation of watershed programme

Change in land use pattern	Pre-project status	Post-project status	Absolute change	Relative change (%)
Arable land (ha)	276.19	290.19	14	5.07
Non-arable land (ha)	44.29	30.29	-14	31.61
Change in cropping intensity (%).	65%	135%	70	107.69
Increase in Agriculture Land	180	290.19	110.19	61.22
Change in area under irrigation (ha)	15	65	50	333.33

Change in land resources

Highly positive change was noticed in area of pasture land (233.33%), area under

horticultural crops (100%) and vegetation of the watershed area (100%), due to wasteland

development. Which was nil at the time of benchmark survey in the year 2010 – 11. Thus, the positive change clearly indicates healthy impact by the adoption on horticultural and forestry practices. Forestry programme was observed only on wasteland, panchayat and

government land, very few farmers planted forest plants, bushes and grasses in the study area. This might be due to marginal and small land holdings, where they preferred to grow food grain crops rather than the tree plantation.

Table 4 Change in land resources use activities in micro watershed Dari IWMP – 7 after implementation of watershed programme

Change in land resources use activities (ha)	Pre-project status	Post-project status	Absolute change	Relative change (%)
Increase area under pasture	6	20	14	233.33
Increase in area under horticulture crops	0	3	3	100.00
Increase in vegetation area.	0	22	22	100.00
Status of waste land development.	0	44	44	100.00

Change in water resources

The data presented in Table-5 revealed that no soil and water conservation structures were constructed before implementation of watershed development programme. Whereas, 12 water harvesting structures have been constructed by the watershed development programme. Due to increase in ground water status some new wells and hand pumps were also constructed by other Government

schemes for improvement of drinking water facilities water run-off reduced by small structures resulted in increased agriculture area. Wells and hand pumps, which used to dry up during the summers have been converted into perennial sources of water, the conservation of soil in the farms has resulted in the better productivity of crops in the study area^[7,8].

Table 5 Change in water resources in micro watershed Dari IWMP–7 after implementation of watershed programme

Change in water resources	Pre-project status	Post-project status	Absolute change	Relative change (%)
Number of soil and water conservation structure	0	12	12	1200
Number of Wells	20	30	10	50
Number of Hand pump	6	10	4	66.67

Change in livestock status

The data in table-6 revealed that before project implementation, livestock population was less as compared to after project implementation. The positive change in livestock population was found due to improvement by training which given by the

veterinary doctors and of fodder availability, balanced feeding of animals and vaccination in animals has also increased in the study area. Watershed development programme showed positive impact on farming community.

Table 6 Change in livestock status in micro watershed Dari IWMP-7 after implementation of watershed programme

Live stock	Pre-project status (No.)	Post-project status (No.)	Absolute change (No.)	Relative change (%)
Cow	22	38	16	72.73
Bullock	40	46	6	15
Buffalos	74	102	28	37.84
Goats	90	140	50	55.56
fodder availability (qt.)	150	400	250	166.67

Conclusion

It could be concluded that the overall watershed management practices in the study area have positive and effective changes on agricultural area, crop productivity, land use, use of land resources, water resources, and livestock due to increase in availability of water in the study area. Positive change was also found in agricultural land (61.22%), irrigated area (333.33%), cropping intensity (107.69%), area under horticultural and vegetables crops. Similarly cattle population was also increased due to sufficient availability of water and fodder in watershed

area. The results of the study suggested that appropriate steps needed to be taken by the farmers for rational use of cultivated land, wasteland, forests and other common property resources. The co-ordination of farmers and government functionaries, land development activities were some of the measures for improving the Micro Watershed Dari. Better co-ordination between development agencies and voluntary organizations is also essential for effective implementation of watershed development programme.

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