

RESEARCH ARTICLE :

Impact of intensive watershed development project

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SUMMARY : The study of impact of Vidarbha intensive watershed development project on its beneficiary farmers was conducted in Yavatmal district of Vidarbha region of Maharashtra state. The sample consisted of 100 beneficiary farmers from 3 different villages of Arni, Digras and Darwha talukas of Yavatmal district were randomly selected. Data were collected on personal, socio-economic, communicational and psychological characteristics related to agriculture with the help of pre structured and pretested interview schedule. The result showed that, in case of characteristics of respondents farmers, majority of respondents (52.00%) belonged to middle age group, nearly half of the respondents (42.00%) were educated upto secondary school, family size of respondents was in medium (46.00%). Majority of the respondents (51.00%) had medium land holding and moderately deep soil type (52.00%). High proportion of respondents (42.00%) had high annual income. Over half of respondents (57.00%) belonged to medium social participation. Majority of the respondents (74.00%) had medium mass media exposure and medium innovativeness (55.00%). The majority of the respondents (63.00%) had high source of irrigation and major source of irrigation of 76 per cent respondents was canal irrigation. The impact of VIWDP on beneficiaries farmers showed that in case of change in cropping pattern over half of the respondents (57.00%) had medium change in cropping pattern and 31.00 per cent had high change. Majority of respondents (57.00%) had medium change in their cropping intensity and 27.00 per cent high change. Over half of the respondents (66.00%) had medium change in crop production. Nearly three fourth of the respondents (73.00%) had medium change in crop productivity and 19.00 per cent respondents observed high change in productivity. In case of income due to VIWDP 65 per cent respondents change income at medium level and 20 per cent respondents at high level. Majority of the respondents (59.00%) said that no change in their agriculture occupation. The overall impact of VIWDP on beneficiary farmers was 78.82 per cent. In case of relational analysis of characteristics of respondents with overall impact of VIWDP, it was observed that education, land holding, soil type, annual income, social participation, mass media exposure, innovativeness and source of irrigation was positively and highly significantly correlated with impact of VIWDP. Whereas, age and family size were non-significantly correlated with overall impact of VIWDP.

KEY WORDS :

Watershed development project, Respondents, VIWDP

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BACKGROUND AND OBJECTIVES

Watershed development aims at conservation, regeneration and judicious use

of all natural resources (soil, water and vegetation) animals and human beings within watershed. Watershed management attempt to bring out the possible balance in

environment between natural resources and living being, as both are interdependent. Thus, socio-economic condition of people in rainfed eco-region can be improved on sustainable basis through watershed programme. The present study was planned and carried out in Yavatmal district in Maharashtra state with specific objective to assess the impact of Vidarbha intensive watershed development project on its beneficiary farmers.

RESOURCES AND METHODS

The investigation was carried out in Yavatmal district of Maharashtra state. In Yavatmal district, three taluka's Arni, Digras and Darwha were selected purposively. From these three selected talukas, three villages having large number of beneficiaries were purposively selected and from selected villages, a sample of 100 respondents was drawn with the help of proportionate random sampling method. Data were collected with the help of schedule specially developed for this purpose in a face to face situation by personally interviewing them.

OBSERVATIONS AND ANALYSIS

A critical look at Table 1 reveals that, over half of the beneficiaries (57.00%) had changed in cropping pattern to a moderate extent. VIWD project had helped the beneficiaries to go for cultivation of new crops rather than growing the traditional crops. Farmer started cultivating new crops like tur, blackgram, greengram in *Kharif* season. Some farmers have started growing the new crops like sunflower and groundnut in *Rabi* season and some farmers have started growing new crop like onion, chilli and other vegetable crops. Some farmers

have started growing the new orchard crop like banana in *Kharif* season. The findings are supported by Bhanwarlal (2001). It was interesting to note that 31.00 per cent of the respondents had low level change in the cropping pattern, although they participated in watershed development project. As the farmers got better yield from previously sown crop eg. cotton, jowar, wheat, gram and onion, they increased the area under cultivation.

The present finding collaborates with the findings of Jugale (2006) who observed that after the introduction of watershed project, the cropping pattern had undergone change to a reasonable extent.

It is revealed from data presented in the Table 1 that majority of respondents (57.00%) had medium change in their cropping intensity after availing benefits from VIWDP followed by over one third of respondents (27.00%) had highly changed their cropping intensity whereas only 18.00 per cent respondents had low change in their cropping intensity.

It is clearly mentioned above that the after taking benefits from VIWDP, it helped to increase the soil moisture and recharged the source of irrigation that could encourage the farmers to take *Rabi* crops, vegetables crops etc. that contributed to increase in cropping intensity. The findings corroborate with findings of Bhople *et al.* (2002) and Mondal *et al.* (2015).

Nearly two third of the beneficiaries appeared in medium level of change in production (66.00%) and productivity (73.00%) over the existing one. Due to adoption of VIWD project, they could apply protective irrigation to the crops during stress period and thus, increased production and productivity of the crops. The findings are supported by Chauhan *et al.* (2009).

Table 1 : The data regard to the various dimensions of impact

Sr. No.	Particulars of impact on beneficiaries	Change in per cent		
		Low (%)	Medium (%)	High (%)
1.	Change in cropping pattern	12	57	31
2.	Change in cropping intensity	18	57	27
3.	Change in production	10	66	24
4.	Change in productivity	08	73	19
5.	Change in income	15	65	20

Table 2 : Distribution of beneficiaries according to their change in occupation

Sr. No.	Change in occupation	(n=100)	
		Frequency	Percentage
1.	No change	59	59.00
2.	Change in occupation	41	41.00
	Total	100	100.00

Similarly, nearly two-third of the beneficiaries (65.00%) had experienced change in their income from farming to a moderate extent. Due to participation in watershed development project, the change in income could be attributed to the increase in change in crop in different season due to availability of irrigation water from the watershed development project. Due to the multiple cropping system raised in different season, it has made possible to harvest more, resulting in higher production and return to the respondents. The findings are similar with that of Mapari *et al.* (2005).

Data in Table 2 further reveal that there was no change in occupation, majority of the respondents (59.00%) as a result of participation in watershed development project while 41.00 per cent of beneficiaries were found in change in occupation. It was assumed that the respondents may like to start any subsidiary

occupation in addition to the farming as a result of more earning by taking benefit from watershed development project on their farm. It clearly shows that, the watershed development project had produced change in occupation of 41.00 per cent respondents and 59.00 per cent of respondents in watershed village. These findings are dissimilar with Tayde (2011).

Impact of VIWDP on cropping pattern, cropping intensity, production, productivity and income :

Impact of VIWDP on various variables of farmers was studied in detail and variable wise impact and overall impact on beneficiaries are presented in Table 3.

The perusal of the data with regards to the impact of VIWDP of major crops furnished in Table 3 stated that cropping pattern of cotton before VIWDP was 9.00 qtl. which was increased to 26.50 qtl. after the four year

Table 3 : Impact of VIWDP on cropping pattern, cropping intensity, production, productivity, income and occupation

Sr. No.	Variables	Mean		% Change
		Before VIWDP	After VIWDP	
1.	Cropping pattern			
	Cotton	9.00	26.50	194.44
	Tur	1.60	2.14	33.75
	Soybean	10.70	11.25	5.14
	Sorghum	0.50	0.74	48.00
	Wheat	3.00	7.33	144.33
	Gram	3.25	9.00	176.92
2.	Cropping intensity (%)	120.64	136.66	13.27
3.	Production (qt/ha)			
	Cotton	9.10	26.36	189.67
	Tur	1.54	2.25	46.10
	Soybean	9.56	12.20	27.61
	Sorghum	0.60	0.66	10.00
	Wheat	3.20	7.84	145.00
	Gram	3.56	9.74	173.59
4.	Productivity (qt/ha.)			
	Cotton	9.84	24.10	144.91
	Tur	3.10	5.20	67.74
	Soybean	10.20	14.25	39.70
	Sorghum	1.12	1.67	57.00
	Wheat	4.57	9.12	99.56
	Gram	4.74	9.84	107.59
5.	Income (Rs.)	63470.47	132604.7	108.92
6	Occupation			
	Member (no.)	2.63	2.92	11.02
	Mandays	205.16	255.08	24.33
	Overall impact	3,041.63	6,340.69	78.82

of implementation of VIWDP, the increased was recorded upto 194.44 per cent over period of time. Regarding the tur crop an cropping pattern of the respondents could change from 1.60 to 2.14 qtl. and it was 33.75 per cent increase. In case of soybean and sorghum only 5.14 and 48.00 per cent increase in cropping pattern was recorded, respectively. Among the *Rabi* crops, an cropping pattern of wheat and gram could have been increased by 144.33 and 176.92 per cent, respectively. Cropping pattern of wheat was increased from 3.00 to 7.33 qtl. and cropping pattern of gram was increased from 3.25 qtl. to 9.00 qtl.

An average cropping intensity before VIWDP was 120.64 per cent, as a effect of soil and water conservation treatments it increased to 136.66 per cent. The change was recorded to 13.27 per cent.

An average production of cotton before VIWDP was 9.10 qtl. which was increased to 26.36 qtl. after the implementation of VIWDP, the increase was recorded upto 189.67 per cent over period of time. Regarding the tur crop an average production of the respondents could change from 1.54 to 2.25 qtl. and it was 46.10 per cent increase. In case of soybean and sorghum only 27.61 and 10.00 per cent increase in production was recorded, respectively. Among the *Rabi* crops, an average production of wheat and gram could have been increased by 145.00 and 173.59 per cent, respectively. Production of wheat was increased from 3.20 to 7.84 qts. and production of gram was increased from 3.56 to 9.74 qtl. over a period of watershed development programme.

Regarding the productivity of major crop studied here, an average productivity of cotton was 9.84 qt/ha to 24.10 qt/ha due to the soil and water conservation treatments in the study area, 144.91 per cent change in productivity was recorded. In tur crop an average productivity was change from 3.10 to 5.20 qt/ha (67.74 % increased). Productivity of soybean was increased from 10.20 to 14.25 qt/ha, the change was recorded upto 41.08 per cent. An average productivity of sorghum before VIWDP was 1.12 qt/ha which was changed to 1.67 qt/ha, 57.00 per cent increase over a period of time. Productivity of wheat and gram was also increased from 4.57 to 9.12 qt/ha and 4.74 to 9.84 qt/ha their per cent change from 99.56 and 107.59 per cent, respectively.

An average income of respondents before VIWDP was Rs. 63470.47, it was increase to 132604.7 after

VIWDP. The change was upto 108.92 per cent. Similarly, an average occupation before VIWDP was 205.16 mandays which was increased to 255.08 mandays, the change recorded was 24.33 per cent. The overall impact of Vidarbha intensive watershed development programme in Yavatmal district was 78.82 per cent on developmental variables of farmers.

Conclusion :

The overall impact of Vidarbha intensive watershed development programme in Yavatmal district was 78.82 per cent on developmental variables of farmers. VIWDP were definitely benefited the farmers both in improving their socio-economic status and helped in increasing irrigation potential in the area. It has made significant impact on the beneficiaries in terms of change in cropping pattern, production, productivity, income and their occupation.

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