Techno-economic Change Transpire in Watershed Area of South Gujarat

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ABSTRACT

The present research was conducted to study the extent of techno-economic change transpired to the farmers in watershed area and to know the significance of watershed development project in occurrence of techno-economic change in watershed area. The results of the study reveal that majority of the respondents had medium extent of techno-economic change. The findings also revealed the significant improvement in housing condition, household possession, clothing pattern and savings and expenditure.

Introduction

National Watershed Development Program as a major plank of new strategy of agricultural production was introduced with assumption that it's wide spread adoption will generate a dynamic spark into the economic revolution among the farming community. In watershed development project, the desirable consequences generate both the protective and productive benefits in terms of direct protection to land as well as enhancement of production from the treated area. Thus, the consequent effects of the watershed development program are reflected in terms of the extent of adoption of watershed management technology generating more income from agriculture, which ultimately improving the overall economic condition of the farmers in watershed area.

The consequences are the changes that occur to an individual or to a social system as a result of adoption or rejection of an innovation. The consequences in this study are resultant changes that occurred to the farmers due to adoption of watershed management technology after the implementation of watershed development project. On the basis of the following objectives, an attempt has been made to find out the extent of techno-economic change (consequences) transpired to the farmers in watershed area.

1. To study the extent of techno-economic change (consequences) transpired to the farmers in watershed area.
2. To know the significance of watershed development project in occurrence of techno-economic change (consequences) in watershed area.

The aspect wise changes have also been computed to know the significance of watershed development project in occurrence of these consequences.

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Methodology

The present study was conducted in two districts namely Valsad and Navsari of South Gujarat. One watershed project from each district was selected randomly by lottery method. By following proportionate random sampling method, 75 farmers from each project were selected. They were classified according to their size of land holding in three categories i.e. marginal, small and big farmers. Thus, the total sample farmers for this study were 150 from seven villages.

The data collected through interview scheduled were coded, classified, tabulated and analyzed in order to make the findings meaningful. Some of the data were subjected to the comparisons in terms frequency and percentage. Paired 't' test was used to find out differences between two mean values of a category of farmers before and after implementation of watershed development project.

Results and Discussion

The results found after the analysis of research data pertaining to the objectives of the study are depicted as below.

(A) Extent of Change

The data presented in Table 1 reveal that the majority (64.71 per cent, 89.33 per cent and 58.54 per cent) of the marginal, small and big farmers were found to have medium extent of techno-economic change, while 36.58 per cent and 29.41 per cent of the big and marginal farmers had high and low extent of techno-economic change, respectively. From the respondents, majority (75.33 per cent) were found to have medium level of techno-economic change, followed by 14.67 per cent and 10.00 per cent had high and low extent of techno-economic change, respectively. It could be concluded that this finding is in line with the findings of Patel *et al.* (1993-94) and Mohod *et al.* (1997).

Table 1: Extent of techno-economic change transpires for the farmers in watershed area.

Sr. No.	Extent of techno-economic change(Score	Category of farmers							
		Marginal (n=34)		Small(n=75)		Big(n=41)		Total Sample (N=150	
		No.	%	No.	%	No.	%	No.	%
1.	Low(Up to 334)	10	29.41	3	4.00	2	4.88	15	10.00
2.	Medium (335 to 653)	22	64.71	67	89.33	24	58.54	113	75.33
3.	High (Above 653)	5	5.88	5	6.67	15	36.58	22	14.67

(B) Aspect wise change transpired

The data presented in Table 2 reveal that the mean differences found in case of use of improved varieties, housing condition and clothing pattern were statistically significant at 0.05 level of probability. It can be inferred that these three aspects were significantly increased or improved after the implementation of the project.

livestock, household possession and, savings and expenditure was highly significant at 0.01 level of probability. This result gives indication that these eight aspects were highly increased or improved after the implementation of the project.

The mean differences found in case of area under irrigation, area under forest tree and food habit were non-significant. The

Table 2 : Aspect wise techno-economic change transpired as a result of watershed development project

Sr. No.	Techno-economic change	Mean score		Mean difference	't' value
		Before Project	After Project		
1.	Change in area under field crops	3.0993	4.1935	1.0942	8.9939**
2.	Change in area under irrigation	1.2533	1.2333	-0.0200	0.2059 NS
3.	Change in use of improved varieties	2.3467	2.5733	0.2266	2.0923*
4.	Change in crop production	3.4120	5.5320	2.1222	21.4857**
5.	Change in use of farm machinery and agricultural implements	3.5867	7.3467	3.7600	8.8412**
6.	Change in area under fruit tree cultivation	4.9200	11.5133	6.5933	11.6782**
7.	Change in area under forest tree cultivation	5.8133	5.9703	0.1570	1.0292 NS
8.	Change in annual income from agriculture	3.5451	4.5651	1.0222	10.8770**
9.	Change in annual income from livestock	1.2146	2.6086	1.3940	12.1216**
10	Change in housing condition	4.3140	5.2467	0.9327	2.1096*
11	Change in household possession	3.3200	11.4533	8.1333	16.8597**
12	Change in food habit	5.6993	5.7267	0.0274	0.4363 NS
13	Change in clothing pattern	1.1952	3.5067	2.3115	2.0763*
14	Change in savings and expenditure	2.0923	5.5400	3.4477	8.3609**
	Overall change	**3.2722**	**6.6297**	**3.3575**	**9.4362****

* = Significant at 0.05 level of probability
** = Significant at 0.01 level of probability
NS = Non-significant

So far as change found in area under field crops, crop production, use of farm machinery and agricultural implements, area under fruit tree cultivation, annual income from agriculture, annual income from

result reveals the fact that these three aspects were not increased or improved after the implementation of the project. The above finding was supported by the earlier studies of Khalache *et al.* (1994) and Mohod *et al.* (1997).

Conclusion

The findings lead to conclude that by and large the techno-economic changes transpire due to watershed development project and its programs were found admirable. Since, it has brought significant change in increase in area under field crops, use of improved varieties, crop production, use of farm machinery, area under fruit tree cultivation and annual income from both agriculture and livestock. The findings also revealed the significant improvement in housing condition, household possession, clothing pattern and savings and expenditure. The watershed project, thus, played an important role in accelerating agricultural productivity and affecting a positive change in daily routine life of the tribal in watershed area.

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