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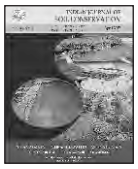

Attitude of the farmers towards watershed development program in Haryana, India

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ABSTRACT

Watershed management is an effective tool for uplifting the socio-economic status of rural community in rainfed areas of the country. Empirical evidences have been supporting that attitude of respondents is very important factor for the success of watershed development program (WDP) in Indian condition. The present study was conducted in Panchkula district of Haryana to find out the level of attitude of respondents about recommended practices in WDP. The attitude towards WDP was measured at planning, implementation and maintenance stages. Data were collected from 240 farmers of eight villages by personal interview with the help of structured interview schedule and focussed group discussion. Majority of the respondents had moderate level of participation in different stages of WDP. Results showed that 80% of the respondents had favourable attitude at planning stage, whereas at implementation stage, and maintenance stage it was 52.50 and 41.66%, respectively. The percentage of farmers having highly favourable attitude increased from zero in planning stage to 18.75 and 29.58% at implementation and maintenance stages, respectively. The independent variables like land holding, material possession and scientific orientation of respondents were having significant contribution in shaping the favourable attitude of farmers towards WDP.

1. INTRODUCTION

With the ever increasing global population, water for food production is becoming an scarce resource. About 60% of total arable land in India is cultivated under rainfed conditions characterized by low productivity, low income, less employment and higher poverty (Joshi *et al.*, 2008). Rainfed areas are the hot spots of several problems *viz.,* poverty, malnutrition, food insecurity, land degradation, water scarcity and poor social and institutional infrastructure (Wani *et al.,* 2007). Effective implementation of WDP in these areas can tackle several such problems and can be a potent tool for growth and development in rainfed conditions. Watershed management is a holistic approach, which aims at optimizing the use of land, water and vegetation in an area, to alleviate drought, moderate floods, prevent soil erosion, improve water availability and increase fuel, fodder and agricultural production on sustained basis. It is aimed at conservation of natural resources and maintaining the ecology of the area by using the simple soil and water conservation techniques. In other words, watershed management is overall development of a particular region including water conservation, maintaining soil fertility, pasture land, agriculture, horticulture, forestry and allied aspects.

For successful implementation of any watershed program, it is necessary to understand people's attitude towards the program. Proper understanding of attitude of intended beneficiaries towards a particular technology, practices, schemes or organization helps in effective implementation of the program. Attitude can be defined as the degree of positive or negative affect associated with some psychological object. Attitude is learned and enduring which means it is acquired as a result of socialisation and not subject to easy change. It is a good predictor of human behaviour. Therefore, it becomes essential to study people's attitude towards WDP as it involves both belief and emotional component of human personality.

Based on this attitude-behaviour relationship, people may develop positive or negative attitude towards implementation of WDP. Keeping this in view, this study was conducted to assess the attitude of the farmers towards participation in WDP.

2. MATERIALS AND METHODS

The present study was conducted in Raipurani block of Panchkula district of Haryana state, as the maximum area of this district was covered under WDP. In Haryana, a part of Shivalik which forms foothills of Himalayan range also lies in the districts Panchkula, Ambala and Yamuna Nagar. This region along with a belt between hills and Indo-Gangetic plains has been identified as one of the eight most degraded rainfed agro-ecosystems of the country. This area (1.92 lakh ha) forms part of five watersheds, namely Sirsa, Ghaggar, Dangri, Markanda and Yamuna. A total of eight villages were purposively selected for the present study since farmers from these villages had active participation in the implementation of WDP. A list of village wise beneficiaries was obtained from district Head office and 30 beneficiary farmers from each village were randomly selected as respondents for the study. Thus, a total of 240 beneficiary farmers constituted the sample of the study. The level of attitude of a person is responsible for measuring his or her favourableness towards a program. For this study, attitude of farmers towards WMP was measured by a scale containing a total of 14 positive and negative statements. It was administered on a three point continuum as agree, disagree and undecided. Data were collected through structured interview schedule. Statistical tools such as frequency, percentage, correlation and regression analysis were used for analysis and interpretation of the collected data.

3. RESULTS AND DISCUSSION

Socio-Economic and Psychological Characteristics of the Farmers

The demographic attributes of respondents is given in Table 1. It is evident that the majority (48%) of the respondents were middle aged ranging from 25 to 50 years age group. A total of 45% of the respondents were having educational background of Intermediate to Graduate level and above. The major source of irrigation was mainly canals and ponds as responded by 54.7% of farmers. Majority (48.57%) of the respondents were having small size of land holding in the range of 1-2 ha. Nearly two third of the farmers were having social participation and they were members of either one or two organizations or office bearer. The data presented in same table also indicated that more than half of the farmers were having an annual income in the range of ₹ 50,000 to 1 lakh.

Table: 1
Distribution of respondents in different categories based on their socio-personal-economic and psychological attributes

Variables	Categories	Frequency	Percentage
Age	Young (up to 25 years)	43	18.00
	Middle (25-50 years)	115	48.00
	Old (more than 50 years)	82	34.00
Education	Illiterate	12	5.00
	Literate	51	21.00
	Primary	32	13.50
	High school	37	15.00
	Intermediate	53	22.00
	Graduate and above	55	23.00
Source of irrigation	Open well and Tube well	56	23.15
	Canal	65	27.21
	Ponds	66	27.56
	Diesel and electric pump set	53	22.08
Land holding	Up to one hectare (marginal)	74	30.95
	1 to 2 ha (small)	117	48.57
	2 to 4 ha (medium)	31	13.00
	Above 4 ha (large)	18	7.48
Family size	Upto 4 members	45	18.55
	4 to 5 members	73	30.50
	More than 5 members	122	50.95
Social participation	No member of any organization	85	35.45
	Membership of one organization	72	30.0
	Membership of two organizations	36	15.0
	Office holder	13	5.41
	Public leader	34	14.1
Annual income	Up to ₹ 25000/-	11	4.76
	₹ 25001 to 50000/-	40	16.66
	₹ 50001 to 75000/-	70	29.07
	₹ 75001 to 100000/-	58	24.28
	Above ₹ 100000/-	61	25.23
Risk orientation	Low (<18 score)	65	27.08
	Medium (19-22 score)	132	55.00
	High (>23 score)	43	17.92
Economic motivation	Low (<19 score)	75	31.42
	Medium (20-21 score)	142	59.06
	High (>22 score)	23	9.52
Scientific orientation	Low (<20 score)	51	21.25
	Medium (21-24 score)	189	78.75
	High (>25 score)	00	00

A majority of the respondents (55-78%) had medium level of risk orientation economic motivation and scientific orientation. It can be seen that farmers from the project area had varied level of socio-economic status.

Attitude of the Beneficiaries towards Different Phases of WDP

Overall attitude of farmers towards WDP

Majority of respondents (>80%) had favourable to more favourable attitude towards WDP, whereas only 18.57% of them had unfavorable attitude (Table 2). This showed that mostly farmers had positive attitude towards the

implementation of WDP. Similar type of results were found by Rai and Singh (2008) who reported that majority of the respondents had favourable attitude regarding Majhgawan watershed program in Satna district of Madhya Pradesh.

Attitude of farmers at different stages of WDP

The involvement of beneficiaries in the planning, implementation and maintenance stage of WDP is presented in Table 3.

Data in Table 3 revealed that majority (80%) of the respondents had a favorable attitude during the planning stage of WDP. No respondents were found to have highly favorable attitude in planning stage. Highly favourable attitude at planning stage might be due to initial awareness of the program and efforts of implementing agencies, official's interaction with beneficiaries through appropriate way like group discussions *etc.* to clear their doubt and create sufficient participation in the program.

However, at the implementation stage, results were more encouraging as 18.75% of the respondents were found to be having highly favourable attitude towards watershed development project and 52.5% farmers had favourable attitude. Nearly one third had unfavourable attitude towards the project in the implementation stage. The guidelines recommended by Ministry of Rural Development (MoRD) regarding National Watershed Development Project for Rainfed Area (NWDPRA) clearly laid down parameters for involving people to the extent of having total control over planning and implementation of activities. However, the outcome of this study is indicative of the fact that the guidelines are not being followed properly.

At the maintenance stage of the project, 41.67% farmers expressed favorable attitude towards WDP followed by 29.58% who had highly favorable attitude. Remaining 28.75% expressed unfavorable attitude towards WDP in the maintenance stage. The favorable attitude at different stages is attributed to the fact that the farmers acquired various roles and responsibilities during implementation of watershed development activities in the area.

An analysis of planning stage indicated that the majority of the beneficiaries were under favorable stage. When we move on to implementation stage there was obvious change in attitude and they started observing WDP and began participating in the program. A number of respondents moved from unfavorable to favorable and favorable to highly favorable. Similar trends were observed during maintenance stage which is highly encouraging.

Correlation of attitude of farmers and selected independent variables

The association between attitude of farmers towards WDP and selected independent variables was estimated and results are presented in Table 4. It can be observed that the age of the respondents was negatively and significantly correlated with their attitude towards WDP. It showed that the positive attitude of respondents towards WDP increased significantly with the decrease in their age.

Further, it is evident that education status, source of irrigation, land holding, annual income, risk orientation, economic motivation and scientific orientation were positively and significantly associated with the attitude of farmers towards WDP. So, it can be said that the attitude of respondents

Table: 2
Distribution of respondents based on overall attitude

N = 240

Categories	Score	Frequency	Percentage
Unfavorable (Mean - SD)	<26.06	45	18.57
Favorable (Mean + SD)	26.70-36.70	150	62.86
More favorable (Mean + SD)	>36.70	45	18.57

Table: 4
Relationship between selected independent variables and attitude of respondents towards WDP

Independent variables	'r' values
Age	-0.653 (**)
Education status	0.674 (**)
Source of irrigation	0.698 (**)
Land holding	0.656 (**)
Family size	0.140 (*)
Social participation	-0.090
Annual income	0.400 (**)
Risk orientation	0.301 (**)
Economic motivation	0.200 (**)
Scientific orientation	0.611 (**)

**Significant at the 0.01 level of probability ; *Significant at the 0.05 level of probability

Table: 3
Distribution of respondents based on degree of attitude towards different stages of WDP

Categories	Planning stage		Implementation stage		Maintenance stage	
	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Unfavorable	48	20.00	69	28.75	69	28.75
Favorable	192	80.00	126	52.50	100	41.67
Highly favorable	0	00.00	45	18.75	71	29.58

towards WDP became more favorable with improvement in education status as well as source of irrigation, land holding, annual income, risk orientation, economic motivation and scientific orientation of the farmers. Social participation had no significant association with attitude of the farmers. These results are in partial confirmation with the findings of Singh *et al.* (2014) who also reported significant positive correlation between attitude of farmers towards improved technology of wheat cultivation and their education status, family size, size of land holding and annual income.

Multiple Regression Equation of Attitude of Farmers with Selected Independent Variables

Correlation can only indicate the existence or non existence of the relationship between two variables. For further analysis, multiple regression technique was used to find out the individual and overall influence of selected independent variables on the dependent variable *i.e.* attitude.

Results given in Table 5 revealed that land holding, material possession and scientific orientation had significantly influenced the attitude of the farmers. The regression coefficient was non significant for variables like age, education, source of irrigation, source of participation, annual income and economic motivation. The R^2 value indicated that there was 50.2% contribution of selected independent variables in determination of attitude of the respondents towards WDP.

Table: 5
Multiple regressions with selected independent variables related to attitude of respondents towards WDP

Variables	Std. Error	ß values	't' values
Age	0.032	-0.617	-5.757
Education	0.114	0.016	0.189
Source of irrigation	0.137	-0.012	-0.242
Land holding	0.405	1.216	11.519**
Material possession	0.187	0.679	7.954**
Social participation	0.016	-0.004	-0.637
Annual income	0.038	-0.014	-1.570
Economic motivation	0.105	-0.045	-3.749
Scientific orientation	0.040	0.065	4.812**

R^2 = 0.502; F value = 34.051; **Significant at the 0.01 level of probability; *Significant at the 0.05 level of probability

4. CONCLUSIONS

It may be concluded from the findings that majority of the respondents were found to have favorable attitude towards WDP. At planning stage, no farmer had highly favourable attitude but during implementation and maintenance stage more and more farmers had highly favourable attitude, although some respondents had unfavorable attitude towards WDP. Several independent variables *viz.,* education, land holding, family size, annual income, risk orientation, economic motivation and scientific orientation had positive and significant association with the attitude of the farmers as evident from correlational analysis. Moreover, independent variables like land holding, material possession and scientific orientation had significantly influenced the attitude of the farmers towards WDP.

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