



Vol. 44, No. 3, pp 327-331, 2016

Indian Journal of Soil Conservation

Online URL: <http://indianjournals.com/ijor.aspx?target=ijor:ijsc&type=home>



## Attitude of farmers towards participation in watershed management programme: A case study

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### ARTICLE INFO

#### Article history :

Received : September, 2014

Revised : January, 2016

Accepted : March, 2016

#### Key words :

Soil and water conservation program,  
Watershed development,  
Women's participation

### ABSTRACT

The study was conducted during 1998-2001 in the Integrated Wasteland Development Project (IWDP), Antisar watershed, located in Kapadwanj Taluka of Kheda district in semi-arid tropics of Gujarat state to assess the attitude of farmers towards participation in soil and water conservation program for watershed development. A data collection schedule was developed regarding attitude of farmers towards participation in watershed program. Statement Intensity Index (SII) was also developed in the study and intensity indices scores towards each attitude statement regarding participation in watershed program were measured. The study revealed that majority (71.83%) of the male farmers had shown moderately favourable attitude towards Soil and Water Conservation (SWC) program, followed by 16.90% of them with low favourable attitude and hardly 11.27% of the male farmers showed high favourable attitude towards participation in SWC program. Similarly, among the female farmers, majority (74.04%) of them had moderately favourable attitude, followed by about 11.89% of the female farmers with low favourable attitude and 12.04% had high favourable attitude towards participation in SWC program for watershed development. Among the overall majority (72.70%) of both male and female farmers, more than two-third exhibited moderately favourable attitude, followed by 16.07% of them had low favourable attitude and only about 10.0% (11.23%) exhibited high favourable attitude towards participation in watershed program.

### 1. INTRODUCTION

Farmers may vary in their attitude towards SWC program for watershed management. Farmers having more favourable attitude towards SWC program may participate more often in planning, implementation and maintenance stages of SWC program. The farmers may like watershed development programs sponsored by government but what about their attitude towards participation or contribution in the watershed development programs. Therefore, it is imperative to study the attitude of farmers towards participation in watershed program by contributing labour or money in implementation and also maintenance of SWC technologies under watershed management program.

Reddy (1987) revealed that majority of the respondents had formed more favourable attitude towards all the three

components viz., (i) SWC (ii) improved dry farming technology and (iii) non-arable land development of Watershed Development Program. Moreover, he revealed that there was highly significant difference between big and small farmers in their overall attitude towards watershed management practices. The big farmers had formed more favourable attitude than small farmers towards all the three components of watershed management.

Patel (1991) found that majority (75.71%) of the respondents had favourable attitude, whereas equal number of them had highly (12.39%) and less favourable attitude (11.90%) towards watershed development program.

Rakholia (1996) showed that the mean score of attitude of Beneficiary Farmers (BFs) and Non Beneficiary Farmers (NBFs) of WDP was 69.52 and

39.75, respectively. The BF's found to have favourable attitude towards watershed development program, than NBF's. He also reported that there was highly significant difference between the level of attitude of BF's and NBF's.

People's participation, at the time of preparing plan for watershed development program, is very much needed to take decisions because the program should be according to the basic needs of local people. The program should meet the basic needs of the majority of the local people like supply of drinking water, fodder for cattle and fuel for kitchen. The watershed development programs are implemented for local people and hence the local people should take interest and participate in implementation of program by contributing labour and money in construction of SWC structures in their field and common land. Participation in maintenance is required because without protection and care by the local people the program will not be successful. The involvement of local people in evaluation of program is also necessary so that it may provide points to be considered for improvement in future program planning. The present research study was framed to assess the attitude of farmers towards participation in SWC program for watershed development.

## 2. MATERIALS AND METHODS

The study was conducted during 1998-2001 in the IWDP, Antisar watershed purposively, because the Antisar watershed development program was sanctioned by the Ministry of Rural Area and Employment, GoI to the ICAR-IISWC, Research Centre, Vasad. The study was taken with the objective to assess the attitude of farmers towards participation in soil and water conservation in the Antisar watershed development program. The Antisar watershed is spread over 812 ha of land and situated in Kapadwanj Taluka of Kheda district in Gujarat of India. The farmers and farm women those possessed land in the Antisar watershed area as well as member of Antisar Watershed Development Society were considered as the respondents for the study (Fig.1). Therefore, 284 farmers and 108 farm-women of Antisar watershed area were considered as the sample for the study.

The attitude scale developed by Bagdi (2004) was used to measure attitude of male and female respondents towards participation in SWC program. The scale consisted of thirteen attitude statements, out of which seven were positive and six were negative. The positive statements are 1, 2, 4, 5, 9, 10 and 11 and negative statements are 3, 6, 7, 8, 12 and 13. The responses were sought on a three-point continuum as agree, neutral and disagree and scores were assigned as 3, 2 and 1, respectively for positive statements and reverse scoring was done for negative statements.

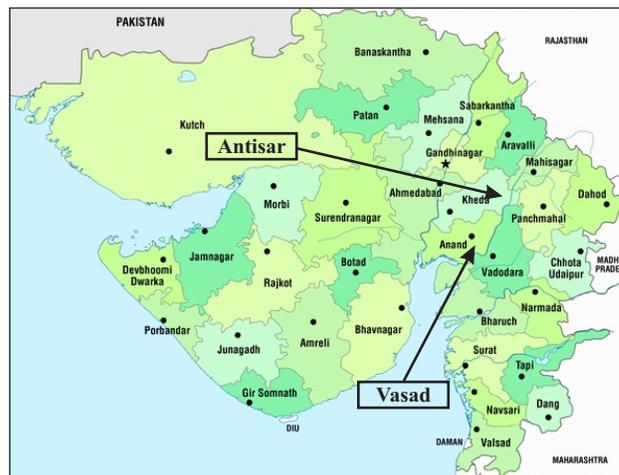


Fig. 1. Location of Antisar watershed in Kheda district of Gujarat state

### Statement Intensity Index (SII)

The SII were calculated for each statement of attitude scale as per the formula given below:

$$SII = \frac{\sum_{i=1}^n X_i}{N} \quad \dots(1)$$

Where, SII = Statement Intensity Index;  $X_i$  = Scores of  $i^{th}$  respondents towards a particular statement; and  $N$  = Total number of respondents.

### Overall Statement Intensity Index (OSII)

The OSII value was calculated for all the positive or negative statements of attitude scale as per the formula given below:

$$OSII = \frac{\sum_{i=1}^n SII}{N} \quad \dots(2)$$

Where,  $\sum_{i=1}^n SII$  = Sum of SII values of all the statements in the scale; and  $N$  = total number of statements.

### Categorization of SII

The statement intensity values of each statement were also categorized into three categories as low favourable, moderate favourable and high favourable with the help of the following criteria based on class interval:

$$CI = \frac{\text{Maximum SII score} - \text{Minimum SII score}}{\text{Number of classes}} \quad \dots(3)$$

Range of SII	Attitude Category
i) $< (\text{Minimum SII Score} + CI)$ (i.e. scores from 1 to 1.66)	Low favourable
ii) $> (\text{Minimum SII Score} + CI)$ to $< (\text{Maximum SII score} - CI)$ (i.e. scores from 1.67 to 2.33)	Moderate favourable
iii) $> (\text{Maximum SII score} - CI)$ (i.e. scores from 2.34 to 3)	High favourable

Where,  $CI$  = Class Interval.

### Individual Attitude Score (IAS)

The IAS of a respondent is equal to sum of scale values obtained by respondent on all responses and divided by total number of responses. The individual attitude score of a respondent was also computed by using the following formula:

$$IAS = \frac{\text{Sum of Scale Values Obtained by Respondents}}{\text{Total Number of Responses}} \quad \dots(4)$$

The Overall Group Attitude Score (OGAS) towards SWC programme in Antisar watershed was also computed with the following formula:

$$OGAS = \frac{\sum_{i=1}^n IAS_i}{N} \quad \dots(5)$$

Where,  $\sum_{i=1}^n IAS_i$  = Sum total of Individual Attitude Score of  $i^{th}$  respondents; and  $N$  = Total number of respondents.

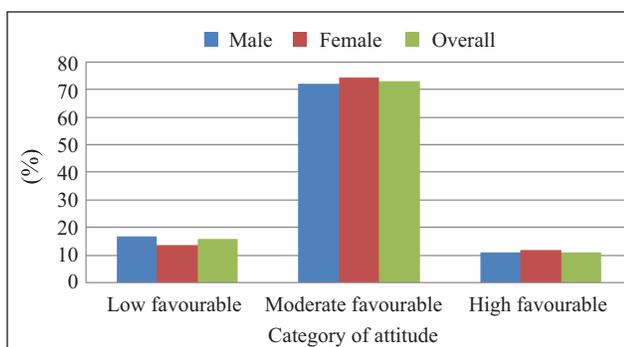
## 3. RESULTS AND DISCUSSION

### Attitude Levels of Respondents

Table 1 and Fig. 2 show that majority of the overall respondents (72.70%) had moderately favourable attitude towards soil and water conservation program followed by

**Table 1**  
Distribution of the male and female respondents according to their attitude levels towards participation in SWC programme  
N = 392

S. No.	Attitude Level	Respondent		Overall (%) N=392
		Male (%) N=284	Female (%) N=108	
1.	Low favourable (<25.01 scores)	16.90	13.89	16.07
2.	Moderate favourable (25.01 to 30.30 scores)	71.83	74.07	72.70
3.	High favourable (>30.30 scores)	11.27	12.04	11.23
	Total	100.00	100.00	100.00
	Mean	27.657		
	SD	2.647		



**Fig. 2.** Distribution of respondents according to attitude

16.07% of them had low favourable attitude and only little more than 10% of the respondents (11.23%) exhibited high favourable attitude.

It further shows that among the male respondents majority of them (71.83%) held moderately favourable attitude towards SWC programme, followed by low favourable attitude (16.90%). Hardly 11.27% of the male respondents showed high favourable attitude towards participation in SWC program. Similarly, among the female respondents, majority of them (74.04%) held moderately favourable attitude, followed by low favourable attitude (13.89%) and high favourable attitude (12.04%) towards participation in SWC program.

Reddy (1987) also revealed that majority of the farmers had favourable attitude towards (i) SWC (ii) improved dry farming technologies and (iii) non-arable land development of watershed development program. He also found that big farmers had more favourable attitude than small farmers towards watershed development program.

### Attitude of the Male Farmers towards SWC program for Watershed Development

Table 2 reveals that not a single positive item on the attitude of the male respondents towards SWC program was found to be having high intensity index. Thus, the male respondents did not show high favourable attitude towards the positive items in SWC program.

Low intensity indices were calculated as per the male farmers' perception towards the following positive items: (i) Farmers should maintain and repair their SWC structures from time to time with their own expenses; (ii) Farmers should contribute materials or equipments in construction of SWC structures; and (iii) Farmers should participate in SWC program planning meetings.

This means that the male respondents showed low favourable attitude towards these items and they showed low favourable attitude towards contribution of materials in construction and maintenance of structures and also participation in planning meetings.

The male respondents showed neutral attitude for the rest of the positive items. It means that they were undecided about their contribution of labour or money towards construction and maintenance of SWC structures. The OSII value was calculated 1.58 for positive statements, which shows overall low favourable attitude of male farmers towards participation as labour or money in SWC program.

It is seen from Table 2 that not a single negative item was found with high intensity index that would reflect on the attitude of the male respondents towards soil and water conservation program. Thus, the male respondents did not show high favourable attitude towards negative items related to the soil and water conservation program.

**Table: 2**  
**Statement wise percentage distribution and intensity indices according to the attitude of male farmers towards participation in SWC programme**

N = 284

S.No.	Items	A (%)	N (%)	DA (%)	Intensity Indices
Positive Items					
1.	Farmers should contribute labour or money towards repair and maintenance of the SWC structures on their land	14.08	67.61	18.31	1.95
2.	Farmers should motivate their fellow farmer's for collective contribution in repair and Maintenance of SWC structures	32.39	20.43	47.18	1.85
3.	Farmers should suggest any point of individual or collective interest in planning of SWC programme	2.82	64.79	32.39	1.70
4.	Farmers should contribute own labour or money in construction of SWC structures	9.86	50.00	40.14	1.69
5.	Farmers should maintain and repair their SWC structures from time to time with their own expenses	15.49	8.45	76.06	1.39
6.	Farmers should contribute materials or equipments in construction of SWC structures	5.63	26.76	67.61	1.38
7.	Farmers should participate in SWC programme planning meetings	2.82	2.11	95.07	1.07
	Overall Mean	11.87	34.31	53.82	1.58
Negative Items					
8.	Farmer's contribution of labour or money in construction of SWC structures is not required	35.91	34.51	29.58	1.93
9.	Farmers should not contribute labour or money to the government body Project Implementation Agency (PIA) for repair of SWC structures	38.73	38.73	22.54	1.83
10.	PIA is totally responsible for construction of SWC structures in farmers' fields	42.25	36.62	21.13	1.78
11.	Women's participation in SWC programme planning meetings is inessential	55.63	12.68	31.69	1.76
12.	Maintenance and repair works should be done through PIA with the government money	40.84	44.37	14.79	1.73
13.	SWC structures should be constructed with the government money through PIA	51.41	31.69	16.90	1.65
	Overall Mean	44.13	33.10	22.77	1.78

Where, A= Agree, N= Neutral and DA= Disagree

Table 2 also shows that the male farmers showed moderate favourable attitude towards almost all the negative items except one item *i.e.*, SWC structures should be constructed with the government money through Project Implementation Agency (PIA) which means they want to contribute money also. The male respondents did not show high favourable attitude towards any negative item regarding SWC. It means that the male farmers were undecided about their contribution of labour or money which is required or not in construction of structures. Similarly, the OSII value was calculated 1.78 for negative statements which also shows overall moderate favourable attitude of male farmers towards participation in SWC program.

#### **Attitude of Female Farmers towards SWC Program for Watershed Development**

Table 3 reveals that not a single positive item was found to be having high intensity index. Thus, the female respondents did not show high favourable attitude towards any positive item regarding the soil and water conservation program. The female respondents had assigned low intensity indices towards the positive attitude items as (i) Farmers should suggest any point of individual or collective interest in the planning of SWC program; (ii) Farmers should maintain and repair their SWC structures from time to time with their own expenses; (iii) Farmers should contribute materials or equipments in construction of SWC structures; and (iv)

Farmers should participate in SWC program planning meetings.

It means that the female respondents disagreed with these positive items and they showed low favourable attitude towards these items regarding participation in planning meetings and contribution of materials towards construction and maintenance of SWC structures. The female respondents showed moderate favourable intensity indices with the rest of the positive items, this indicates that the female respondents showed moderate favourable attitude towards contribution of labour and money in construction and maintenance of SWC structures.

The OSII value was calculated 1.51 for positive statements, which shows overall low favourable attitude of female farmers towards participation as labour or money in implementation and maintenance of SWC program.

Table 3 further shows that not a single negative item was found with high intensity index. It means that the female respondents did not show high favourable attitude towards the any negative item regarding the SWC program.

It is seen from Table 3 that the negative items having low intensity indices were women's participation in SWC program planning meetings is inessential (1.65), PIA is totally responsible for construction of SWC structures on farmers' fields (1.63) and farmers should not contribute labour or money to the government body PIA for repair of SWC structures (1.58). It means that the female

**Table: 3**  
**Statement wise percentage distribution and intensity indices according to the attitude of female farmers towards participation in SWC programme**

		N = 108			
S.No.	Items	A (%)	N (%)	DA (%)	Intensity Indices
Positive Items					
1.	Farmers should contribute labour or money towards repair and maintenance of the SWC structures on their land	11.11	63.89	25.00	1.86
2.	Farmers should motivate their fellow farmers for collectively contribution in repair and maintenance of SWC structures	25.92	20.37	53.71	1.72
3.	Farmers should contribute own labour or money in construction of SWC structures	11.11	49.07	39.82	1.71
4.	Farmers should suggest any point of individual or collective interest in planning of SWC Programme	0.0	51.85	48.15	1.52
5.	Farmers should contribute materials or equipment in construction of SWC structures	12.03	18.52	69.95	1.42
6.	Farmers should maintain and repair their SWC structures from time to time with their own expenses	9.26	3.71	87.03	1.22
7.	Farmers should participate in SWC programme planning meetings	1.85	6.48	91.67	1.10
	Overall Mean	10.18	30.56	59.33	1.51
Negative Items					
8.	SWC structures should be constructed with government money through PIA	37.04	35.18	27.78	1.90
9.	Maintenance and repair works should be done through PIA with the government money	22.22	65.74	12.04	1.89
10.	Farmer's contribution of labour or money in construction of SWC structures is not required	45.37	40.74	13.89	1.68
11.	Women's participation in SWC programme planning meetings is inessential	55.55	23.15	21.30	1.65
12.	PIA is totally responsible for construction of SWC structures on farmers' fields	55.56	25.00	19.44	1.63
13.	Farmers should not contribute labour or money to the government body PIA for repair of SWC structures	52.78	36.11	11.11	1.58
	Overall Mean	44.75	37.65	17.59	1.72

Where, A= Agree, N= Neutral and DA= Disagree

respondents disagreed with the item and they showed low favourable attitude towards these negative items.

The data shows that the female respondents showed moderate favourable attitude towards rest of the negative items. It means that the female respondents were moderate favourable attitude towards the SWC structures implementation as well as their repair and maintenance should be done through PIA with government money. Similarly, the overall SII value was calculated 1.72 for negative statements, which also shows overall moderate favourable attitude of female farmers towards participation in SWC program.

#### 4. CONCLUSIONS

The study revealed that the male respondents showed low favourable attitude towards contribution of materials in construction and maintenance of structures and also participation in planning meetings. They were also showed moderate favourable attitude towards contribution of labour or money towards construction and maintenance of SWC structures. Similarly, female respondents showed low favourable attitude regarding participation in planning meetings and contribution of materials towards construction and maintenance of SWC

structures. They also showed moderate favourable attitude towards contribution of labour and money in construction and maintenance of SWC structures. Therefore, it can be concluded from the study that the farmers should be motivated to have more favourable attitude towards watershed development activities and also they should be encouraged to participate in planning meeting and to contribute labour as well as money in implementation of SWC structures and also in their maintenance for making the watershed program a very successful and sustainable one.

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