

## **Extent of People's Participation in Soil and Water Conservation Programme**

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### **ABSTRACT**

People's participation in natural resources conservation programme like watershed development is utmost important at different stages such as programme planning, implementation and maintenance. It is a collective effort by the local people for sharing common benefits. The study was conducted during 1998-2001 in the Integrated Wasteland Development Project (IWDP), Antisar Watershed, located in Kapadwanj Taluka of Kheda district in Gujarat state of India to measure the extent of people's participation in watershed development programme. A detailed structured three-point-continuum schedule was developed by the investigators regarding people's participation in soil and water conservation programme for watershed development as well as a people's Participation Index (PPI) was developed under the study to compute the extent of people's participation. The overall extent of people's participation in the Soil and Water Conservation (SWC) programme of Antisar Watershed development was 71.55 per cent. The extent of people's participation in the Antisar watershed development programme was of high level.

People's participation at the time of preparing a watershed development programme is very much needed to take decisions because the programme 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 programmes are made for local people; hence the local people should take interest and participate in implementation of programme by contributing labour and money in construction of soil and water conservation structures on their field and common land. Participation in maintenance is required because without protection and care by the local people the programme will not be successful. The involvement of local people in evaluation of programme is also necessary, so that it may provide points to be considered for improving in future programme planning. The present research study was framed to measure the extent of people's participation in soil and water conservation programme for sustainable production in the watershed.

### **METHODOLOGY**

The study was conducted during 1998-2001 in the Integrated Wasteland Development Project (IWDP), Antisar watershed purposively, because the Antisar development programme was sanctioned by the Ministry of Rural Area and Employment, Govt. of India, to the Central Soil and Water Conservation Research and Training Institute, Research Centre, Vasad. The study was taken with the main objective to find out the extent of people's participation in soil and water conservation in the Antisar watershed development programme. The Antisar watershed farms and 76 hectares is owned by Panchayat community/Government. Antisar watershed is under Kapadwanj Taluka of Kheda district in Gujarat of India.

The population of the study consisted of all the farmers who possessed land in the Antisar Watershed areas. Therefore, all the 284 farmers of Antisar watershed area were considered as the sample for the study. Hence, it was a population study.

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A detailed structured three-point continuum schedule was developed by the investigators to assess the extent of people's participation in soil and water conservation programme. The responses of the respondents were recorded in the especially developed three-point continuum scale i.e. great extent, some extent or never and scores were assigned as 3,2 and 1 respectively.

**Statement Intensity Index:**

Statement Intensity Indices (SII) were calculated for people's participation in planning, implementation and maintenance of soil and water conservation programme suggested by Bagdi (2002):

$$SII = \frac{\sum_{i=1}^N X_i}{N}$$

where,

SII = Statement Intensity Index

$\sum_{i=1}^N X_i$  = Sum of total scores of ith respondents towards a particular statement.

N = Total number of respondents

The level of participation for each activity or statement was decided as following criteria:

Range of SII	Participation level
1.00 to 1.59	Less participation
1.60 to 2.59	Moderate participation
2.60 to 3.00	More participation

**People's Participation Index (PPI):**

The overall extent of people's participation in SWC programme in Antisar watershed was measured by the People's Participation Index (PPI) as given below (Bagdi, 2002):

$$PPI = \frac{\text{Mean Participation Score (P)}}{\text{Maximum Participation Score}} \times 100$$

where,

$$P = \frac{\sum_{i=1}^N P_i}{N}$$

where,

N = Total number of respondents

$$P_i = \sum_{j=1}^K (PP_j + PI_j + PM_j)$$

where,

PP<sub>j</sub> = Total scores of people's participation in programme planning

PI<sub>j</sub> = Total scores of people's participation in programme implementation.

PM<sub>j</sub> = Total scores of people's participation in programme maintenance.

K = Total number of statements on which responses of the respondents were recorded.

**Categorization of PPI**

The overall people's participation index in a particular watershed development programme can also be categorized into three categories as suggested by the authors based on the normal distribution curve values as given below.

Sr. No.	Normal distribution curve range	PPI value range	People's participation category
1.	<Mean - S.D.	0 to 34.13	Low level
2.	Mean ± S.D.	34.14 to 68.26	Moderate level
3.	>Mean + S.D.	68.27 to 100	High level

**RESULTS AND DISCUSSION**

**People's participation in planning stage**

The data in Table 1 reveal that fifty per cent or more of the respondents participated to a great extent in the activities related to the planning of the SWC programme such as suggesting ideas during planning of Check dams (76.76%), participating in planning meetings of the Soil and Water Conservation (SWC) programme (76.05%) and motivating fellow farmers to participate in planning (55.63%). Some fifty per cent or more of the respondents participated in planning of SWC programme to some extent in the matters like planning of fruits plantation (66.20%), giving suggestions to be considered in planning (54.93%) and suggesting ideas in planning of

**Table 1. Statement wise percentage distribution and intensity indices according to the extent of farmer's participation in programme planning stage.**

(N-284)

S. No.	Statements (Activities)	GE* (%)	SE* (%)	LE/N* (%)	SII**
1.	Participate in planning meetings of Soil and Water Conservation (SWC) programme.	76.05	18.31	5.64	2.70
2.	Suggest ideas during planning of Check dams.	76.76	15.49	7.75	2.69
3.	Motivate fellow farmers to participate in planning	55.63	31.69	12.68	2.42
4.	Give suggestions for inclusion in planning	26.05	54.93	19.02	2.07
5.	Suggest ideas in planning of land leveling works.	35.21	36.62	28.17	2.07
6.	Share experience about soil and water conservation with your fellow farmers after participation in planning meetings.	32.39	42.96	24.65	2.07
7.	Suggest ideas in planning of agricultural crop cultivation	25.35	50.71	23.94	2.01
8.	Participate in planning of fruits plantation.	17.60	66.20	16.20	2.01
9.	Suggest information in planning of forest trees plantation.	33.80	31.69	34.51	1.99
10.	Contact the Programme Implementing Agency (PIA) about primary needs fuel, fodder and food to be taken care of in the planning.	34.51	11.97	53.52	1.80

\*GE= Great Extent; \*SE= Some Extent; \*LE/N= Least Extent/No; \*\*SII= Statement Intensity Indices

agricultural crops cultivation (50.71%). Fifty per cent or more of the male respondents participated in planning of SWC programme to the least extent or never in activities such as contacting the Programme Implementing Agency (PIA) about primary needs for food, fodder and fuel to be taken care of in the planning (53.52%).

The data further revealed that the intensity indices of people's participation in the programme and its planning, as the respondents reported, ranged from 1.80 to 2.70. The respondents showed high intensity indices in the soil and water conservation programme planning activities as participating in planning meetings of the SWC programme (2.70) and suggesting idea in planning of check dams in their fields (2.69). The respondents showed moderate intensity indices in the activities of planning of the soil and water conservation programme such as motivating fellow farmers to participate in planning of SWC programme (2.42), suggesting information to be considered in planning of the SWC programme (2.07), suggesting ideas for planning of land leveling works carried out in the different fields of the watershed area (2.07), share information or experience about soil and water conservation with their fellow farmers after participation in planning meetings (2.07),

participating in planning of fruits plantation work (2.01), suggesting ideas in planning of agricultural crops cultivation in the watershed area (2.01), suggesting information in planning of forest trees plantation work (1.99) and contacting the Programme Implementing Agency (PIA) about primary needs such as fuel, fodder and food to be taken care of in the programme planning (1.80).

The overall extent of the people's participation in the programme planning stage, as explained by the respondents was analysed with the help of the People's Participation Index (PPI) and it was found 72.60 per cent, showing high level of participation in SWC technologies.

#### People's participation in implementation stage

Fifty per cent or more of the respondents participated in implementation of SWC programme to a great extent in the activities as allowing Programme Implementing Agency (PIA) to implement soil and water conservation programme works (83.09%) and asking fellow resource users to contribute with labour and money contribution towards construction of structures (62.68%) (Table 2).

**Table 2. Statement wise percentage distribution and intensity indices of the extent of people's participation in the SWC programme implementation stage**

(N=284)

S. No.	Statements (Activities)	GE* (%)	SE* (%)	LE/N* (%)	SII**
1.	Allow Programme Implementing Agency (PIA) to implement soil and water conservation programme works.	83.09	12.68	4.23	2.78
2.	Ask fellow resource users for labour and money contribution towards construction of structures.	62.68	17.60	16.72	2.42
3.	Help during plantation work of forest plants.	40.14	31.69	28.17	2.11
4.	Help in plantation work of forest plants.	40.14	31.69	28.17	2.11
5.	Provide any material to help construction of soil and water conservation structures	17.61	64.79	17.60	2.00
6.	Provide equipment to the PIA during construction of soil and water conservation measures.	42.96	13.38	43.66	1.99
7.	Provide help during purchase of materials.	35.27	28.17	36.62	1.98
8.	Contribute money in construction of SWC structures.	33.10	28.87	38.03	1.95
9.	Contribute labour in construction of SWC structures.	28.87	31.69	39.44	1.89
10.	Participate in training programme on the soil and water conservation programme organized by the PIA.	7.75	65.49	26.76	1.80

\*GE= Great Extent; \*SE= Some Extent; \*LE/N= Least Extent/No; \*\*SII= Statement Intensity Indices

Fifty per cent or more of the respondents participated in implementation of SWC programme to some extent in the matters like participating in training on the soil and water conservation programme organized by the PIA (65.49%) and providing material to help construction of soil and water conservation structures (64.79%).

Forty per cent or more of the respondents participated in implementation of SWC programme to the least or no extent in the activities as helping during plantation work of fruit plants (43.94%) and providing equipment to the PIA during construction of soil and water conservation measures (43.66%).

Table 2 further showed that the intensity indices of participation in the programme at the stage of implementation on the part of the respondents ranged from 1.80 to 2.78. The respondents showed high intensity index for the activity of allowing programme implementing agency to implement SWC programme works (2.78). This indicated that the respondents contributed to this activity of the SWC programme during implementation with high level participation.

The respondents showed moderate level of participation in the activities of the soil and water conservation programme during implementation stage as asking fellow resource users to contribute with labour and money towards construction of SWC structures (2.42), helping during plantation of fruit plants (2.12), providing help in plantation of forest plants (2.11), providing material to help construction of SWC structures (2.00), providing equipment during construction of SWC measures (1.99), providing help during purchase of construction materials (1.98), contributing with money in construction of SWC structures (1.95), contributing with labour in construction of structures (1.89) and participating in training programme on the soil and water conservation technologies organized by PIA (1.80).

The overall extent of the respondents' participation in the programme at the stage of its implementation was calculated also with the help of the PPI and it was found to be 69.29 per cent. It means that level of participation of farmers in the implementation stage was also high.

**People's participation in maintenance stage**

The data in Table 3 revealed that forty per cent respondents participated in maintenance of the SWC programme to a great extent in the activities like protecting the forest plantation done in the watershed area (72.57%), contributing with money towards repair and maintenance of SWC structures (55.63%), protecting the SWC structures from natural calamities (41.55%) and caring of forest plants and fruit plants during summer by providing adequate irrigation (40.84%). Forty per cent or more respondents participated in maintenance of the SWC programme to some extent in the activities such as protecting fruit plants grown in the watershed area (65.49%), motivating fellow farmers to extend contribution with labour to the repair and maintenance of SWC structures in the watershed (44.37%), inform the PIA officers to repair the damage SWC structures (42.25%) and motivating fellow farmers to extend contribution with their money to repair and maintain SWC programme to the least extent or never in the activities like taking care of forest plants and fruit plants during the summer by providing adequate irrigation (39.44%) and consulting the programme implementing

agency to learn about repair and maintenance of conservation structures (35.21%).

The data further showed the intensity indices of participation in programme maintenance stage by the respondents. It ranged from 2.01 to 2.62. The respondents showed high participation level in the activity of protecting forest plantation done in the watershed area from animals (2.62). The respondents showed moderate participation level in the activities of the soil and water conservation programme at the maintenance stage such as contributing with money towards repair and maintenance of SWC structure in their field (2.35), protecting SWC structures from the natural calamities (2.21), informing PIA officers to repair the damaged SWC structures (2.19), motivating fellow farmers to extend contribution with their labour to the repair and maintenance of SWC structures (2.11), contributing with labour to repair and maintenance of SWC structures (2.07), consulting the PIA to learn more about the repair and maintenance of conservation structures (2.02) and take care of the forest and fruit plants during summer by providing irrigation (2.01). It means respondents moderately participated labour and money in repair and

**Table 3. Statement wise percentage distribution and intensity indices of the extent of people's participation in programme at the maintenance stage**

(N=284)

S. No.	Statements (Activities)	GE* (%)	SE* (%)	LE/N* (%)	SII**
1.	Protect the forest plantation done in the watershed areas.	72.54	17.61	9.85	2.62
2.	Contribute money towards repair and maintenance of SWC structures.	55.63	24.65	17.72	2.35
3.	Protect the SWC structures from natural calamities.	41.55	38.73	19.72	2.21
4.	Inform the PIA officers to repair the damaged SWC structures.	38.73	42.25	19.01	2.19
5.	Motivate fellow farmers for labour contribution towards repair and maintenance of SWC structures in the watershed.	35.21	44.37	20.42	2.14
6.	Protect fruit plants grown in the watershed areas.	23.24	65.49	11.27	2.11
7.	Motivate fellow farmers for money contribution towards repair and maintenance of SWC structures in the watershed.	35.21	40.85	23.94	2.11
8.	Contribute own labour towards repair and maintenance of SWC structures.	35.92	35.21	28.87	2.07
9.	Consult with the programme implementing agency to learn about repair and maintenance of conservation structures.				
10.	Take care of the forest and fruit plants during summer by providing irrigation.	40.84	19.72	39.44	2.01

\*GE= Great Extent; \*SE= Some Extent; \*LE/N= Least Extent/No; \*\*SII= Statement Intensity Indices

maintenance of structures in their fields and also protected plantations.

The overall extent of people's participation in the SWC programme maintenance stage was also calculated with the help of the PPI as 72.76 per cent. It showed that farmers exhibited high level of participation during maintenance stage of SWC programme.

The overall extent of people's participation in the Soil and Water Conservation (SWC) programme of Antisar watershed development during planning, implementation and maintenance stages was calculated 71.55 per cent with the help of PPI and it shows that the farmers exhibited high level of participation during Antisar watershed development programme.

### CONCLUSION

It can be concluded that the respondents participated highly in the SWC programme planning meetings and suggested ideas in planning of Check dams in their fields. Respondents had high participation in the activities related to the SWC programme during implementation stage and they contributed material, labour and money in construction of structures, provided help during plantation works in watershed. Respondents also had high level of participation in the soil and water conservation programme maintenance activity of protecting forest plantation done in the watershed area from animals.

The implications drawn from this study are: i) Bottom-up approach should be adopted in soil and water conservation programme on watershed basis. The soil and water conservation programme should be developed by the rural farmers, for the farmers and of the farmers. ii) Local people should be motivated and encouraged to contribute their own labour, money, implements and materials in construction of soil and water conservation structures during implementation and maintenance stage of the SWC programme.

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