

# Impact of Participatory Approach in Management of Watershed Practices in Jammu

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## ABSTRACT

Study was conducted in 2 watersheds viz Akhnoor and Bari-Badhori in Jammu district to find out the role of people’s participation in watershed management. To get first hand information 400 respondents were interviewed from both areas. It was observed that participating farmers had higher level of adoption as compared to non-participating farmers. It was found that farmers’ of watershed-1 and watershed-2 adopted soil and water conservation practices up to 36.32 and 65.21 per cent, respectively. A bumper crop was seen in the field of participating farmers which explain the positive impact of people’s participation in the crop production practices. The extent of adoption of horticulture and forestry practices was 46.51 and 62.88 per cent among the farmers of watershed-1 and watershed-2, respectively. Pasture development and vaccination of animals were adopted comparatively higher than other animal practices in the study area. Positive impact of participatory approaches in adoption of watershed practices had been observed.

**Key words:** Watershed; Participation; Adoption; Soil and water conservation; Animal; Crop production

Water, soil and vegetation are the most vital natural resources for the survival of people. Watershed forms an integral component of these natural resources. Watershed conditions influence the productivity of food, fuel, fodder, fiber and fruits. Community participation is necessary for successful implementation of watershed development programmes and maintenance of community assets created under the project. One of the aims of any development programme is to enhance the level of knowledge of target group so that the knowledge gained could be applied to accomplish the activities undertaken by the groups more efficiently for increased net benefit to the society. Hence, an attempt was made to study the impact of participatory research on adoption of watershed management practices.

## METHODOLOGY

The study was conducted in Jammu district. The district has 2 watersheds viz Akhnoor (no involvement of people in planning and management stage) and Bari-Badhori (people participated in each stage of management). Fourteen out of 72 villages under the command area of Akhnoor watershed were selected randomly to represent the whole watershed area. Where as all 6 villages of Bari-Badhori watershed were selected for the present investigation. A preliminary survey was conducted in the selected villages to know the total number of farm families falling under watershed area. From each watershed area, 200 respondents were selected randomly. In total, there were 20 villages and 400 respondents in this study. Here,

Akhnoor (no involvement of people in planning and management stage) and Bari-Badhori (people participated in each stage of management) were treated as watershed -1 and watershed-2, respectively in the entire study.

## RESULTS AND DISCUSSION

*Distribution of respondents according to adoption level :* Table 1 revealed that 59.16 per cent respondents of watershed-2, adopted watershed practices up to medium level. The mean score of the adoption was 59.53. On the other hand, 61.94 per cent of farmers of watershed-1 had the medium level of adoption regarding management practices of watershed as compared to 15.42 per cent in high level and 22.64 per cent in low level, respectively. The mean score of the adoption was 40.22, which was less than half of the maximum possible score.

Table 1. Distribution of respondents based on adoption level

S. No.	Category	Percentage	
		Watershed-1	Watershed-2
1	Low (< 22.42)	22.64	16.28
2	Medium (22.42-38.66)	61.94	59.16
3	High (> 38.66)	15.42	24.56
4	Mean score	40.22	59.53

It could be interpreted that participating farmers had higher level of adoption as compared to non-participating farmers. Participation played a significant role in increasing the adoption of improved technologies. Similar findings were also reported by Yadav and Sharma (2003).

*Extent of adoption of watershed practices :* The collected data were further analyzed to measure the extent

of adoption of each practice related to watershed, four major categories were selected such as; soil and water conservation, crop production, horticulture and forestry practices and animal and pasture development (Table 2):

Table 2. Extent of adoption of soil and water conservation practices

S. No.	Soil and water conservation practice	Extent of adoption (%)	
		Watershed-1	Watershed-2
1.	Developed vegetative barriers	36.32	65.21
2.	Construction of checkdam	43.52	68.68
3.	Deep ploughing for soil and moisture conservation	52.41	64.22
4.	Construction of 'V' ditches for soil conservation	24.87	56.45
5.	Pooled	31.42	63.64

(a) *Soil and water conservation*: Data presented in Table-2 indicated that non-participating and participating farmers had 36.32 and 65.21 per cent adoption related to development of vegetative barriers on field, respectively. Where as, adoption of checkdam construction on the land was 43.52 (watershed-1) and 68.68 per cent (watershed-2), respectively. Similarly deep ploughing for soil and moisture conservation, participating farmers (64.22%) had more adoption as comparison to non-participating farmers (52.41%). The overall adoption of non-participating farmers (watershed-1) was 31.42 per cent whereas participatory (watershed-2) farmers recorded 63.64 per cent adoption on soil and water conservation practices in the study area. Researcher observed that non-participating respondents had poor adoption as comparison to participating farmers. These findings are in the line of findings reported by Mahnot, *et al.* (1992).

Thus, it could be inferred that due to the participation in the watershed management activities farmers were able to gear up their adoption on soil and water conservation practices.

(b) *Crop production practices* : Table 3 revealed that farmers of watershed-2 and watershed-1 adopted up to 63.31 and 50.53 per cent crop production practices, respectively. Participating and non-participating farmers recorded 68.34 and 54.43% adoption of contour farming. While, comparatively less adoption (58.25 and 46.37%) was found in the application of manures and fertilizers.

Table 3. Extent of adoption of crop production practices

S. No.	Crop production practices	Extent of adoption (%)	
		Watershed-1	Watershed-2
1	Seed treatment	52.52	64.26
2	Contour farming/Strip cropping	54.43	68.34
3	Use of improved variety seed	48.82	62.42
4	Manure and fertilizers	46.37	58.25
5	Pooled	50.53	63.31

It could be inferred that participating farmers were more aware about crop production practices in the study area. These findings are conformed by the findings of Reddy and Haffis (1991).

(c) *Horticulture and forestry practices*: The extent of adoption on horticulture and forestry practices was 46.51 and 62.88 per cent among the farmer of watershed-1 and watershed-2, respectively. Further, it was observed from Table 4 that extent of adoption on mixed gardening was 78.33 and 66.66 per cent among the farmers of watershed -2 and watershed-1, respectively. During the data collection it was observed that large farmers concentrated on gardening and having comparatively good adoption than other farmers in the study area. Forestry programme was observed only on wasteland, panchayat and government land, very few farmers planted forestry plants, bushes and grasses in the study area. This might be due to marginal and small land holdings, where they preferred to grow food grain crops rather than the tree plantation.

Table 4. Extent of adoption of horticulture and forestry practices

S. No.	Horticulture and forestry practices	Extent of adoption (%)	
		Watershed-1	Watershed-2
1	Mixed gardening	66.66	78.33
2	Development of kisan nurseries for a forestation	42.45	58.44
3	Cultivation of vegetables.	32.11	46.33
4	Cultivation of fruit and other forest plants	44.84	58.42
5	Pooled	46.51	62.88

Table 5. Extent of adoption of animal and pasture development practices

S. No.	Animal and pasture development	Extent of adoption (%)	
		Watershed-1	Watershed-2
1	Development pasture	41.33	52.66
2	Recommended varieties of fodder	22.26	46.22
3	Balance feeding to the animals	33.66	52.44
4	Vaccination of animals	32.48	41.85
5	Pooled	32.43	48.29

(d) *Animal and pasture development* : Table 5 revealed that farmers had comparatively less adoption on animal and pasture development compared to other watershed practices. It was observed that non-participating farmers were having over all adoption up to the extent of 32.43 per cent. The extent of adoption on pasture development and vaccination of animals was 41.33 and 32.48 per cent, which was little bit higher than over all adoption. Where as very poor adoption (22.26%) was observed in case of recommended varieties of fodder and balanced feeding of animals (33.66%). Similar trend was also observed in

case of watershed managed by people's participation approach.

The overall adoption on animal and pasture development was 48.29 per cent. Poor trend was seen in case of vaccination of animal against contagious disease and fodder varieties i.e. 41.85 and 46.22 per cent, respectively.

To test the significant difference between the adoption score, t-test (two-sample assuming unequal variances) was applied and found that 't' value (2.576) highly significant at one per cent level of probability. The variance ranges from 101.30 to 142.34, which showed great variance among the responses of the farmers in the sampled area. Thus the role of people's participation in the watershed management was showed positive impact on farming community. Hence, in development

programme people's participation must be increased to achieve desired goal and over all development of the farming community. Similar findings were also reported by Chennamaneni (1998).

## CONCLUSION

It could be concluded that the over all adoption of watershed management practices in the area of participating and non-participating watershed areas was 59.33 and 40.22 per cent, respectively. Whereas a poor adoption was observed in case of animal and pasture management particularly in non-participating areas. It is suggested that participation should be increased at each level of operation by formulating SHGs so that role of participation significantly visualized in the management of watersheds.

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