

## Relationship Between Attitude Toward Watershed Management Programs and Level of Participation

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**Abstract:** During the last years, natural resources in Iran have suffered severe degradations. For the sustainable and better management of these resources, various policies have been advised, the most promising of which is the management of natural resources through participation of the local people. However, it has proven difficult to involve local people in natural resources management activities. Therefore there is a great need to know the reason for the low level of participation by the local communities. This study was designed to analyze the relationship between attitude toward Watershed Management Programs (WMP) and level of participation in WMP in Iran. In order to achieve this goal, a cross sectional survey was designed. Data for this study was gathered through personal interviews from three villages in Hable-Rud basin in Iran. Findings of this study indicated that level of participation in WMP was moderate to low, however respondents were preferred more involvement in the social activities rather than economic and environmental. The results of this study also showed that the level of the respondent's attitude toward WMP was relatively high. The study also proved that there is a significant relationship between the level of participation and attitude toward WMP ( $r=.489$ - $p=.000$ ).

**Key word:** Attitude • Participation • Watershed Management • Hable-Rud • Iran

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### INRODUCTION

Land and water resources in Iran have suffered severe degradations in the last decades. Governments of Iran have established several policies to protect and manage the natural resources, especially land and water resources during the last decades. Most of these efforts have taken preservation strategies, to prevent local people from accessing and using natural resources. All of these efforts have proven unsustainable and unsuccessful during the last decades. In order to solve this problem, a people centered project for Sustainable Management of Land and Water Resources was initiated, as a joint program of UNDP and the Government of the Islamic Republic of Iran in 1997 in Hable-Rud basin [1]. This area includes the region is characterized by high population density, natural resource degradation and declines in agricultural productivity; posing significant challenges to rural peoples to provide for the growing population while maintaining the productivity of natural resources.

The term participation has gained a lot of popularity during the last years, particularly in reference to

sustainable agriculture and rural development projects. Development agencies introduced concept of participation in projects and programmes in the late 1970s and early 1980s after that the lack of beneficiaries' participation was identified as a reason for failure of many development efforts. Initially, emphasize was on popular participation. In the past years the promotion of participation in development has become more widespread and the focus has widened to include other stakeholders as well [2].

The public participation today is demanding a greater role in decision making processes about the management of natural resource. The new agreement about the necessity of public participation began to emerge with the 1987 World Commission on Environment and Development (WCED), which recognized the alarming rate at which resources were depleting due to economic development. This was followed by the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, Brazil in June 1992 with the adoption of Agenda 21, which states in chapter 23, section III that "one of the fundamental prerequisites for achievement of sustainable development is broad public participation in

decision-making" [3]. There are also several studies which highlighted the importance of participation [4-6]. In point view of Platt, lack of participation in the society is one aspect of poverty. Irvin and Stansbury believe that citizen participation will produce more public preference decision making. According to Ayee, participation is linked to poverty and social exclusion. This is because participation supports efforts at self-help, which are meant to eradicate poverty and encourages the growth of democratic institutions, which creates political space for disadvantaged groups, who were originally excluded from the decision-making process.

In the other side attitude concepts has played a central role in understand human thought and behavior. The relationship between attitudes and behavior has been the topic of considerable debate; the analysis revealed that attitudes significantly predict future behavior [7]. It has usually been assumed that a person's attitude toward an object can be used to predict his behavior with respect to the object [8]. Attitudes are generally viewed as one's relatively enduring affective, cognitive and behavioral dispositions toward various aspects of the world including persons, events and subjects. Many studies have shown relationship between attitude and participation [9-17].

Kraft *et al.*, in their research found that farmers with a negative attitude towards governmental involvement with wetland regulations were less likely to want to participate in the water quality incentives program [10]. According to Rishi, the understanding of attitudes is one of the central concerns in social life and is vital for bringing desired change in the behavior [11]. Social actions of people or program personnel are directed by their attitudes. By knowing the attitudes, it may be possible to do something about the prediction and control of their behavior, which may be ultimately useful for the more successful implementation of program. Rishi, in his research about forestry management in India, says that the program personnel treat people or people behave with program personnel are determined by their beliefs and attitudes about each other and their dispositions to respond to them. These cognitions, feelings/emotions and action tendencies are interrelated to form a system, if forest personnel know the attitudes of people directed towards them or to program; they will be better able to find out the strategies to divert their behavior in a more meaningful way so as to carve the road of success for the program. Similarly, if local people have positive attitude towards watershed staff, they are likely to support them in forest protection. Nepal and Weber studied the complexities and dynamics of local people's perceptions, attitudes and motivations toward wildlife conservation

and found that people disliked restrictions regarding use of park resources in spite of having positive attitude towards wild life conservation [9].

## MATERIALS AND METHODS

The population of this study was head of households of those people who were involved in WMP and residing within the Hable-Rud basin in Iran. Data for this study were collected from 200 respondents through personal interviews using a pre-coded questionnaire in Hable-Rud basin during the August and September 2008. A pilot test was carried out among the 30 respondents before the actual data collection in study area. The Cronbach Alpha that is greater than 0.70 was used to measure the reliability of the instruments. The computed reliability coefficients were 0.84 and 0.90 for attitude toward WMP and participation in WMP respectively. Thus, the reliability coefficients of instruments were above 0.70 and according to George, Mallery and Paul [18] the reliability of instruments was acceptable.

For collecting actual data, respondents were randomly selected from three villages in Hable-Rud basin. Three set of instruments were used for data collection in this study. An instrument including 18 items were used for measuring attitude toward WMP. The Likert scale or summated rating score scales were used for measuring attitude toward WMP. Combination of positive and negative items was constructed in the instrument. The five point Likert scale for positive items were 1-Strongly disagree 2-disagree 3-neutral 4-agree 5-strongly agree. As for negative items the scale was reversed. An individual summated attitude score were computed by adding all the score from items included in the attitude instrument.

The level of participation in WMP was measured by composite scores derived from: 1) social participation, 2) economic participation and 3) environmental participation, based on the model suggested by Dolisca, [19] and Lise, [20]. This instrument was including 21 items (10 items for measuring social participation, 5 items for measuring economic participation and 6 items for measuring environmental participation). The 5 point scale or summated rating score scales also were used for measuring participation in WMP. The five point scale for measuring participation was 1-Never 2-Rarely 3-Occasionally 4-Fairly often and 5-Frequent. Finally 12 items were used for socio demographic profiles of respondents in this study. Socio demographic items were measured depending on their appropriateness. Descriptive analysis, factor analysis and Pearson's product moment correlation were used for analyzing data.

Factor analysis was employed to validate of the main instrument which was participation and identify latent dimensions underlying the variables which measured the level of participation based on model suggested by Dolisca. Prior to interpreting the factor analysis, the researcher first examined the Measure of Sampling Adequacy (MSA) for each of the individual item in the scale. According to Hair *et al.*, [21], if MSA is above 0.50, then factor analysis is an appropriate procedure for this purpose. The Kaiser’s overall measure of sample size for this study was 0.885, suggesting that the data collected for this study are appropriate for factor analysis.

**RESULTS AND DISCUSSION**

**Socio Demographic Characteristics:** The findings of study showed that the majority of the respondents were male (93%) and married (93.5%). The data showed that the average household size in the study area was 5.2 members in a household. The study showed that educational level in the study area was relatively high (18 % diploma and bachelor) and the mean of the respondent’s age was 46 years. The data also showed that 55% of the respondent’s main occupation was farming and the average of their total monthly income was 3.5 Million Rial per month. The findings of study also showed that 58% of the respondents were member at least in one local group. Study also indicated that 47.5% of the respondents were joined to WMP with their self interest.

**Results of factor analysis:** Based on factor analysis, a three factor solution (social, economic and environmental) was adopted for participation variables. In this study only factors with eigenvalues of 1.5 or greater were considered and then corroborated by a scree plot test (Figure 1).

A criteria loading of 0.40 was used to determine which statements were included in a given factor. The resulting three-factor loadings accounted for 61.06 % of total variance (Table 1).

As can be seen in Table 1, factor one had cross-correlation with social participation in WMP and included the ten items: “Attendance in group meetings” (factor loading=0.70); “Involvement in managing group meetings” (factor loading=0.64); “Influencing group decisions making” (factor loading=0.63); “Suggesting new idea in group meetings” (factor loading=0.76); and “confirming the new idea in group meetings” (factor loading=0.71); “ Encouraging group members to join in meetings “(factor loading=0.75); “Discussing on project progress in group meeting “(factor loading=0.78); “Discussing on project progress with group members “(factor loading=0.72); “Sensitizing people on importance of WMP “(factor loading=0.71); and “Contributing in project survey conducted for WMP” (factor loading=0.58). Then factor one was entitled social participation and accounted for 37.40% of total variance.

Factor two had cross-correlation with environmental activities in WMP and included six items: “Contributing in gabion structure” (factor loading=0.74); “Contributing in rangeland preserve” (factor loading=0.81); “Contributing in seed and tree plantation” (factor loading=0.84); “Contributing in road building” (factor loading=0.65); and “Contributing in pool construction” (factor loading=0.78) and “Contributing in river protection” (factor loading=0.84). Then factor two was entitled environmental participation in WMP and accounted for 15.62 % of total variance. Factor three had cross-correlation with economic participation in WMP and included the five items: “Benefited from technical assistance of WMP” (factor loading=0.71); “Benefited from personnel advices of WMP”

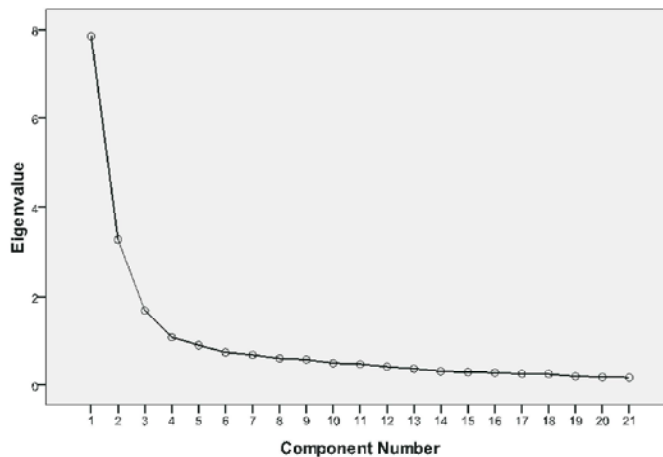


Fig. 1: Scree plot of factors for participation variables

(factor loading=0.51); “Benefited from bank credit of WMP” (factor loading=0.76); “Benefited from material subsidize of WMP” (factor loading=0.76); and “Benefited from general facilities of WMP” (factor loading=0.79). Then factor three was entitled economic participation in WMP and accounted for 8.04 % of total variance.

**Level of Participation in WMP:** Descriptive analysis of data also showed that level of respondent’s participation

in WMP was moderate to low. A summary of the respondent’s participation is presented in Table 2. Based on this table, in the overall, 37.5 % of the respondents obtained low scores while the 57 % of the respondents obtained moderate scores and 5.5 % of the respondents obtained high scored. The mean score of the overall participation were 58.23, which was slightly lower than 63, (the mid-point between lowest possible score (21) and the highest possible score (105)). In the overall the study proved that the level of participation in

Table 1: Varimax rotation factor pattern of people participation in WMP

Statements	Factor 1	Factor 2	Factor 3
Attendance in group meetings of program	0.703	-0.082	0.309
Involvement in managing group meetings	0.642	0.125	0.527
Influencing group decision making	0.634	0.064	0.510
Suggesting new idea in group meetings	0.766	0.040	0.241
Confirming the new idea in group meetings	0.710	0.132	0.395
Encouraging group members to join in meetings	0.753	0.186	0.184
Discussing program progress in group meetings	0.780	-0.005	0.091
Discussing program progress with group members	0.715	0.214	-0.014
Sensitizing people on importance of program	0.713	0.275	-0.095
Contributing in survey conducting for program	0.578	0.318	0.219
Contributing in gabion construction	0.164	0.737	0.242
Contributing in rangeland preservation	0.099	0.808	0.216
Contributing in seed and tree plantation	0.020	0.835	0.135
Contributing in road construction	0.158	0.652	0.361
Contributing in water reservoir construction	0.173	0.776	0.113
Contributing in river protection activities	0.121	0.839	0.093
Benefiting from technical assistance of program	0.029	0.231	0.707
Benefiting from personnel advices of program	0.339	0.082	0.510
Benefiting from bank credit of program	0.220	0.234	0.764
Benefiting from material subsidize of program	0.228	0.167	0.760
Benefiting from general services of program	0.049	0.361	0.789
Eigenvalues	7.85	3.28	1.69
Percentage of variance	37.40	15.62	8.04

\*-Numbers in bold indicate the factor loadings.

Table 2: Level of respondent's participation in WMP (n=200)

Level of Participation	Frequency	Percentage	Mean	SD
Overall participation			58.23	12.89
Low	75	37.5		
Moderate	114	57		
High	11	5.5		
Social participation			29.6	7.02
Low	32	16		
Moderate	138	69		
High	30	15		
Economic participation			11.9	3.99
Low	108	54		
Moderate	75	37.5		
High	17	8.5		
Environmental participation			16.7	5.38
Low	54	27		
Moderate	106	53		
High	40	20		

Table 3: Level of respondents' attitude toward Watershed Management Programs

Level of attitude toward WMP	Frequency n=200	Percentage	Mean	SD
Low	14	7	63.34	9.67
Moderate	175	87.5		
High	11	5.5		

Table 4: Correlations between attitude toward WMP and participation factors

Participation factors	r	P(2-tailed)
Social participation	.315**	.000
Economic participation	.395**	.000
Environmental participation	.468**	.000
Overall Participation	.489**	.000

\*\* Correlation is significant at the 0.01 level (2-tailed)

WMP was moderate to low. However respondent's were preferred more involvement in social activities rather than economic than economic and environmental. As can be seen in Table 2 the mean score of respondent's participation in social activities was 29.6 which was slightly lower than 30 (the mid-point between lowest possible score (10) and the highest possible score (50).

**Level of Attitude Toward WMP:** As mentioned above, a total of 18 items constituted elements in the computation of the respondents' attitude towards WMP. All 18 variables utilized a five point scale. Based on the above formula and scale, the possible composite score for attitude towards WMP was ranged from 18-90. Table 3 shows the level of the respondents' attitude towards WMP. The overall mean score of attitude is 63.34 and standard deviations are 9.67. Hence, the majority of the respondents (87.5%) scored moderate score (52-70) while, 5.5 % of the respondents scored highly. The other 7 % of the respondents obtained low scores. The overall composite mean score was 63.34, which is slightly higher than 54, (the mid-point between lowest possible score (18) and the highest possible score (90). In the overall study indicated that respondents' attitude toward WMP was moderate to high. Table 3 shows the detail of level of the respondents' attitude towards WMP.

**Relationship Between Participation and Attitude Toward WMP:** Table 4 presents the correlation between participation factors and attitude toward WMP. As can be seen in table 3, social participation is positively and significantly correlated with attitude toward WMP ( $r=.315-p=.000$ ) and also economic participation is positively and significantly correlated with attitude toward WMP ( $r=.395, p=.000$ ) and environmental participation is positively and significantly correlated with attitude toward WMP ( $r=.468-p=.000$ ). Moreover overall participation is positively and significantly correlated with

attitude toward WMP ( $r=.489-p=.000$ ). In this regard, data indicates that, as attitude scores increase the level of participation also increases. According to Guilford, [22] the correlation between attitude and participation factors can be categorized in moderate level. This observation indicated that positive relationship existed between the attitude toward WMP and participation variables.

## CONCLUSION

This paper investigated and discussed a survey on people's participation in watershed management programs in Iran. The study has shown that local people in the surveyed region have a positive attitude towards the WMP. In this regard, the findings of this study are somewhat consistent with theory of reason action and existing research literature focused on participation. As for other literature, in this study significant relationship was observed between intensity of people participation in WMP and their attitude toward watershed management programs. The results of this study indicate certain aspects that policy makers should take into account in planning the future WMP policy. Several important conclusions can be drawn from this study. First and consistent with the theory of reason action, people behavioral intentions about participation in WMP are directly related to many direct and indirect attitudinal variables. Second, many studies also have highlighted the importance of attitudinal variables for people participation in development programs. Nonetheless, this paper has highlighted that the study of individual attitudes remain important for understanding the participation behavior of certain group, but much study remains to be done to allow more general conclusion to be drawn. Because, participation is a complex issue and future researches might benefit from pluralistic approach and perspectives to explain the level of participation.

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