A Review and evaluation of Social Approach to people's participation in sustainable management of Watershed plans in Iran, case study: Watershed plans of Urmia Lake

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***Abstract*—** *The degree of popular participation in development programs is a major determinant of success or failure, but the factors which makes participation efforts successful still remain unknown, especially in Iran participation is quite a challenge for country with a long tradition of top-down management. Many studies have developed numerous and sometimes different views concerning to the dimensions of participation. This study was designed to analyze people participation in watershed management programs by using the framework of social Approach theory. An instrument consisting of 41 items was developed to measure the level of participation and social exchange factors. In order to achieve this goal, three WMPs were chosen in Hable-Rud basin in Iran. In these areas 300 respondents were selected randomly and data were gathered through personal interviews by using an administered questionnaire. Descriptive analysis, factor analysis, Pearson product moment correlation, and multiple regressions were employed to analyze the data. Results of study showed that level of people participation in WMP was low, but social participation was relatively higher than economic and environmental participation. Pearson product moment correlation showed that there are significant relationships between exchange factors and level of participation (r =.61.5). Multiple regression analysis discovered that exchange factors explained about 35.41 percent of variation in the level of participation. This study suggests that participation is quite a complex issue and research would benefit from a pluralistic approach that uses multiple levels and perspectives.*

***Keywords*: Social Approach, Participation, Watershed Management, Urmia Lake, Iran.**

I. INTRODUCTION

Rural development in many of developing countries closely linked with water, consequently to bring progress in the rural area requires changes and improvements in the Exploitation of water resources sector. In the other side agriculture is closely linked with land and water resources, without land and water, agriculture are not possible. Moreover, because of rural dependency to agriculture, without developing agriculture the rural development goals for a sustainable livelihood cannot be met.

The term participation has gained a lot of popularity during the last years, particularly in reference to sustainable agricultural and rural development projects. At the World Conference on Agrarian Reform and Rural Development (WCARRD) in 1979, the international community's linked the reason for the failure of rural development initiatives to the lack of active participation of the poor people in the programs supposedly designed to assist them. The WCARRD declared that participation of the poor by rural people was a basic human right, and if rural development was to realize its potential, disadvantaged rural people had to be organized and actively involved in designing policies and programs, and in controlling social and economic institutions (FAO, 1992).

Some of the scientists believe that lack of participation in wider society is one aspect or one definition of poverty (Platt, 2006). Some of social scientists viewed social participation in terms of ''community participation''. People can participate in all sorts of social activities in many different forms of formal and informal social networks (Baum et al., 2000).

II. BACKGROUND OF STUDY

Watershed management has emerged as a new paradigm for planning, development and management of land, water resources in recent years. Governments of Iran have established several policies to watershed management during the last decades. Most of these efforts have taken top down strategy and often unsustainable. In recent year's government developed

participatory approach in watershed management. The degree of popular participation in such programs is a major determinant of success or failure in such programs, but the strategy which makes participation efforts successful still unknown, especially in Iran participation is quite a challenge for country with a long tradition of top-down management.

Land and water resources in Iran have suffered severe degradation in last decades. Governments of Iran have established several policies to protect and manage the natural resources during the last decades. Most of these efforts have taken preservation strategy and often have proven unsustainable and unsuccessful. In recent year's government of Iran has developed new approaches to solve this problem. Along this a people centered program 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.

III. THEORETICAL FRAMEWORK OF STUDY

Theoretical framework of this study is based on social exchange theory. In this study relationships of WMP program and people can be seen as a social exchange, as Wilson (1997) argued, social exchange theory offers a valuable insight into peoples' decision-making behavior. Social exchange theory poses that all human relations are formed by the use of a subjective cost-benefit analysis and the comparison of alternatives. For example, when a person perceives the costs of a relationship as outweighing the perceived benefits, then the theory predicts that the person will choose to leave the relationship. For social exchange theorists, when the costs and benefits are equal in a relationship, then that relationship is defined as equitable. The notion of equity is a core part of social exchange theory. Social exchange theory is tied to rational choice theory and on the other hand to structuralism, and features many of their main assumptions.

Homans (1958) believes that: "Social behavior is an exchange of goods, material goods but also non-material ones, such as the symbols of approval or prestige. Persons that give much to others try to get much from them, and persons that get much from others are under pressure to give much to them. This process of influence tends to work out at equilibrium to a balance in the exchanges. For a person in an exchange, what he gives may be a cost to him, just as what he gets may be a reward, and his behavior changes less as the difference of the two, profit, tends to a maximum."

Blau, (1964) in his book expressed that individuals will enter into and maintain a relationship as long as they can satisfy their self-interests and at the same time ensure that the benefits outweigh the costs. An individual will seek to maximize his or her profits (positive reinforcements, rewards) and minimize losses (negative reinforcements, costs) in interactions with others. In terms of continuing relationships, individuals will try to maintain those exchanges which have proven to be rewarding in the past, to break off those which proved to be more costly than rewarding, and to establish new relations which have a good chance of being more rewarding than costly.

Mark, S. (1990) suggested a model that emerges to explain social exchange theory is comprised of five central elements:

1. Behavior is predicated upon the notion of rationality. That is, the more a behavior results in a reward, the more individuals will behave that way.
2. The relationship is based on reciprocation. That is, each individual in the relationship will provide benefits to the other so long as the exchange is equitable. An exchange between two individuals must be seen as fair by both for the relation to continue, or at least to continue as strongly.
3. Social exchange is based on a justice principle. In each exchange, there should be a norm of fairness governing behavior. That is, the exchange must be viewed as fair when compared in the context of a wider network. This notion of distributive justice goes beyond the equity between the two principals' contribution. It involves each person comparing his or her reward to that of others who have dealt with this individual and what they received for the same or a similar contribution.
4. Individuals will seek to maximize their gains and minimize their costs in the exchange relation. It is important to understand that the notion of costs does not relate exclusively to financial issues; rather, costs can be incurred through the time and energy invested in a relationship.
5. Individuals participate in a relationship out of a sense of mutual benefit rather than coercion. Thus, coercion should be minimized.

Mark Searle believe that this model can be used to understand some of the variance in participation in organized activities that may be due to social-psychological factors.

IV. MATERIAL AND METHOD

Data for this study were collected from 300 respondents through personal interviews using a questionnaire. The respondents were randomly selected from three WMPs in Iran. Specific questions addressing some of the measurements of the independent and dependent variables adopted from previous studies.

Factor analysis was employed to identify latent dimensions underlying the different variables that measured Peoples' participation (Model suggested by Dolisca, 2006) and exchange factor (Model suggested by Mark Searle, 1990)

Level of people participation in WMP was measured by a composite score derived from: 1- Social participation, 2- Economical participation and 3- Environmental participation in WMP (Model suggested by Dolisca, 2006). For measuring participation the respondents were asked a set of 21 questions, which are interpret as indicators of participation in WMP. These indicators were scaled as an integer value in a range of one to five, where one means total disagreement and five means total agreement with one particular aspect of participation item.

Exchange factors were measured by a composite score derived from a set of 21 questions, which are interpreted as indicators of exchange factors. These indicators were scaled as an integer value in a range of one to three, where one means total disagreement and three means total agreement with one particular aspect of exchange.

Factor analysis was employed to identify latent dimensions underlying the different variables that measured Peoples' participation and exchange of WMP. As a rule of thumb, variables with a coefficient in absolute value above 0.5 are said to be dominating in a factor. Another rule of thumb is that all factors with an eigenvalues larger than one should be used in the analysis. In this study for translating a large set of variables into a few independent choice variables we have applied factor analysis to do these factors as interpreted in below.

V. THE STUDY AREA

Urmia Lake is located in northwest of Iran in Azerbaijan province. According to the country divisions of Iran, The Lake is located between East Azerbaijan and West Azerbaijan. The area of the lake measured in 2015 has estimated about 6 thousand square kilometers. The Lake has started to dry approximately from 2000 and now, according to satellite images more than 89 percent of its area has been lost.

FIGURE 1: THE GEOGRAPHICAL LOCATION OF URMIA LAKE

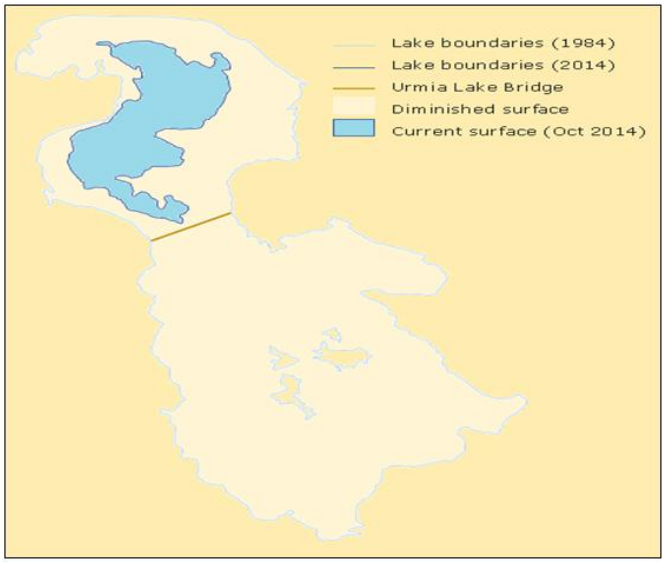

FIGURE 2: LAKE URMIA DROUGHT IN DIFFERENT ERAS

VI. RESULT

From factor analysis, four factor solution based on social exchange theory and based on model suggested by Mark Searle, (1990) termed; (environmental effects, socio economic effects, equality of WMP and fairly of WMP) was adopted. Only factor with eigenvalues of 1 or greater were considered and then corroborated by a scree test. A criterion loading of .42 was

used to determine which scale statements were included in a given factor. The resulting four factor loadings accounted for 68.06 percent of total variance. Kaiser's overall measure of sampling adequacy is 0.845 suggesting that the data are appropriate for factor analysis.

Table 1 shows Varimax rotation factor pattern of exchange factors of WMP. Factor 1 had cross-correlation with environmental effect of WMP; five attributes are (Decreasing of land degradation, increasing agricultural production, increasing agricultural land, increasing water resources, and decreasing of flash floods) then factor 1 was entitled environmental effects and accounted for 30.68% of total variance. Because these variables imply focuses on environmental effectiveness related to conservation of soil and water resources and developing agricultural land and production.

Factor 2 had cross-correlation with the variable fairly of WMP; five attributes of this factor are (Fairly of job opportunity of WMP, Fairly of training opportunity of WMP, Fairly of facilities offered by WMP, Fairly of bank credit opportunity of WMP and fairly of benefit opportunity of WMP. Because these variables imply focuses on fairly of WMP, fairly of job opportunity, fairly of training opportunity, fairly of facilities opportunity, fairly of bank credit opportunity and fairly of benefit opportunity of WMP. Factor 2 was labeled fairly of benefit cost of WMP and accounted 12.5 % of total variance.

TABLE 1
VARIMAX ROTATION FACTOR PATTERN OF WMP EXCHANGE

	WMP exchange factors				
Statements	**Environment effects**	**Fairly of benefits**	**Prior WMP satisfaction**	**Equality of benefits**	**Socioeconomic benefits**
Decreasing of land degradation	.644	.275	.098	.324	.179
Increasing agricultural production	.721	.175	.151	.147	.018
Increasing agricultural land	.746	.141	-.007	.074	.058
Increasing water resources	.655	.080	.321	-.021	-.054
Decreasing of flash floods	.703	-.047	-.035	.174	-.014
Increasing public services	.430	.362	.118	.065	.314
Decreasing unemployment	.209	.310	.301	.241	.551
improving people livelihood status	.236	.321	.145	.418	.520
Increasing social solidarity	.07	.145	.202	.041	.752
Decreasing local conflict	-.123	.008	-.096	-.078	.712
Equality of WMP benefit and time spent	.076	.095	.085	.851	.117
Equality of WMP benefit and energy spent	.145	.064	.064	.845	-.012
Equality of WMP benefit and money spent	.231	.214	.068	.632	.024
Fairly of job opportunity of WMP	.123	.563	.061	.412	-.039
Fairly of training opportunity of WMP	.189	.654	.036	.065	-.117
Fairly of facilities offered by WMP	.075	.567	.111	.147	.300
Fairly of bank credit opportunity of WMP	.165	.846	.065	.098	.184
Fairly of benefit opportunity of WMP	.067	.456	.187	.078	.341
Improving socio economic status of WMP	.087	.075	.876	.084	.050
Improving family livelihood status of WMP	.099	.098	.927	.065	.071
Overall improvement of prior WMP	.175	.132	.843	.070	.211
Eigenvalues	6.44	2.31	2.18	1.60	1.32
Percentage of variance	30.68	12.5	11.20	7.21	6.47

***-Numbers in bold indicate the factor loadings.**
Source: ***Authors' calculations, 2016***

Factor 3 had cross-correlation with the variables equality of WMP; three attributes of this factor are (Equality of WMP benefit and time spent, Equality of WMP benefit and energy spent, and Equality of WMP benefit and money spent. Because these variables imply focuses on equality of benefit and cost of WMP, equality of time, energy and money spent for WMP with benefit received from it. Factor 3 was then labeled equality of WMP and accounted 11.20 % of total variance. Factor 4 had cross-correlation with the satisfaction of prior WMP; three attributes of this factor are (Improving socio economic status of WMP, Improving family livelihood status of WMP, and Overall improvement of prior WMP. Because these variables

imply focuses on socio economic effectiveness related to increasing services in village, decreasing unemployment, increasing livelihood status in village, increasing social solidarity and decreasing local conflict. Factor 4 was then labeled socio economic need satisfaction and accounted 7.21 % of total variance.

Factor 5 had cross-correlation with socio economic effects of WMP; five attributes of this factor are (Increasing public services, decreasing unemployment, improving people livelihood status, increasing social solidarity, and decreasing local conflict. Because these variables imply focuses on socio economic effectiveness related to increasing services in village, decreasing unemployment, increasing livelihood status in village, increasing social solidarity and decreasing local conflict. Factor 5 was labeled socio economic effects of WMP and accounted 6.47 % of total variance.

6.1 Participation

Participation in WMP was measured by a composite scores derived from, 1) social, 2) economic, and 3) environment participation. For this purpose respondents were asked a set of 21 questions, which are interpreted as indicators of participation. These indicators were scaled as an integer value in a range of one to five, where one means total disagreement and five means total agreement with one particular aspect of participation. Individual cumulative assessment score were calculated by adding raw score of all the items. From factor analysis, also three factors solution based on model adopted from Dolisca (2006) termed; (social, environmental and economic) was adopted. Only factor with eigenvalues of 1.5 or greater were considered and then corroborated by a scree test. A criterion loading of .42 was used to determine which scale statements were included in a given factor. The resulting three-factor loadings accounted for 65.7 percent of total variances. Kaiser's overall measure of sampling adequacy is 0.885, suggesting that the data are appropriate for factor analysis. Table 2 shows Varimax rotation factor pattern of participation in WMP. Ten attributes were loaded on factor 1, because these attributes focus on people participation in social activities of WMP. Factor 1 was entitled social participation and accounted 43.88% of total variance. Six attributes were loaded on factor 2. This factor had cross-correlation with the variables of environmental participation. Because these variables focuses on environmental activities related to conservation of soil and water resources and developing activities, this factor was labeled environmental participation and accounted 12.96 % of total variance. Five attributes were loaded in factor 3, and were termed economical participation, because these variables involve with economic aspects of local people. This factor account 7.74 % of total variance.

TABLE 2
VARIMAX ROTATION FACTORS PATTERN OF PEOPLE PARTICIPATION IN WMP

Statements	Participation factors		
	Social	**Environment**	**Economic**
Attendance in group meetings	.547	-.098	.354
Participate in managing group meetings	.601	.238	.354
Influencing group decisions making	.548	.078	.425
Suggesting new idea in group meetings	.795	.089	.321
Making agree new idea in group meetings	.654	.145	.377
Encouraging group members to join in meetings	.726	.211	.205
Discussing on project progress in group meeting	.745	-.009	.098
Discussing on project progress with group members	.751	.321	-.024
Sensitizing people on importance of WMP	.454	.278	-.065
Contributing in project survey conducted for WMP	.542	.364	.241
Benefited from technical assistance of WMP	.124	.298	.635
Benefited from personnel advices of WMP	.354	.087	.452
Benefited from project credit of WMP	.254	.351	.752
Benefited from project subsidize of WMP	.320	.214	.685
Benefited from project facilities of WMP	.075	.355	.752
Contributing in gabion structure activities	.155	.254	.231
Contributing in rangeland preserve activities	.098	.362	.217
Contributing in seed & tree plantation activities	.034	.845	.136
Contributing in road building for WMP	.178	.642	.341
Contributing in pool building for WMP	.148	.762	.134
Contributing in river coverage for WMP	.136	.754	.087
Eigenvalues	7.74	2.87	1.84
Percentage of variance	37.96	14.06	8.22

***-Numbers in bold indicate the factor loadings.**

Source: ***Authors' calculations, 2016***

6.2 Correlation Analysis

Pearson product-moment correlation were employed to examine the relationship between exchange factors as independent variables and participation as dependent variable, a positive correlation coefficient (r) indicate a positive relationship, while a negative coefficient was reflected otherwise. This procedure enable us to answer the objective of study, it allows explaining the relationship among variables in terms of degree, magnitude, strength or size of the correlation or relation.

Table 3 provides the summary from the correlation analysis. Pearson correlation coefficients in this table shows that level of participation has positive relationship with exchange factors; however satisfaction of prior projects had highest relationship (r=.518) with level of participation and socio economic effectiveness is followed as second high correlation (r=.358) with participation. Thus, the five hypotheses of theory were approved for these variables.

TABLE 3
CORRELATION BETWEEN EXCHANGE FACTORS AND PARTICIPATION

Exchange Variables	(r)	*p* (2-tailed)
Environmental effectiveness	0.237	.001**
Socio economic effectiveness	0.358	.000**
Equality benefit cost of WMP	0.340	.000**
Fairly benefit cost of WMP	0.220	.002**
Satisfaction of prior projects	0.518	.000**
Voluntary participation	0.228	.001**

****-correlation is significant at the 0.01 level (2- tailed)**
Source: ***Authors' calculations, 2016***

6.3 Multiple Regression

Multiple regressions analysis was used to determine the contribution of each predictor variables entered in the equation in relation to the dependent variable, (Level of participation). Enter method was used to for this purpose. The selection was based on the notion that it is a simplest method foe estimating a regression equation and all independent variables are added as a group to the equation in a single step. A summary of the multiple regression procedure is presented in Table 5. B value, Beta value t-value and p-value are displayed in the table. In addition R2, adjusted R and R square and f-value also can be seen as footnote below the Table 5.

Multiple regressions also were employed to determine the contribution of exchange factors entered in the model to predict the level of participation. Enter method was selected for this purpose, selection of method was based on usefulness method for estimating a regression equations for testing a theory and all independent variables (exchange factors) are added as a group to the model in a single step. ANOVA Table showed that data are fit to the model (F=16.571, sig-t.000).

Table 4 presents the result of multiple regression analysis of level of participation and the contribution of each of the exchange factors in the model of participation. Based on the model six exchange variables entered in model explained 35.41 percent of variance in predicting level of participation. This means theory of social exchange in this study explained 35.41 percent of rural people behavior variation in participation on WMP. As depicted in Table 4 the exchange variables explained 35.41 percent variation in the dependent variable.

TABLE 4
MULTIPLE REGRESSION OF EXCHANGE VARIABLES ON PARTICIPATION

Variables	B	Beta	*t*	*sig*
Constant	31.54	-	5.652	.000
Satisfaction	2.565	.621	4.418	.000
Socioeconomic	.888	.178	2.692	.004
Equality B/C	.267	.254	1.324	.099
Source of join	-2.324	-.077	-1.324	.132
Fairly of B/C	.241	.035	.452	.426
Environment	.074	.009	.325	.745

R=.577 R^2=.360 R adjusted= .349 F=15.451 sig=.000
Source: ***Authors' calculations, 2016***

VII. CONCLUSION

As mentioned in this article Watershed management has emerged as a new paradigm for planning, development and management of land, water resources in recent years. And now greatly from country to provide comprehensive programs for the saw .In this study five hypotheses which are related to social exchange theory were tested. Data showed that there is significant relationship between level of participation and exchange factors. These hypotheses were; need satisfaction, fairly of benefit cost, equality of benefit cost, voluntarily joint to project and satisfaction with prior projects. Multiple of regression analysis showed that exchange factors explained 35.41 percent of variation in level of participation as dependent variable.

Based on social exchange theory and consistent with model suggested by Mark Searle (1990) about social exchange theory and its hypothesis, data showed that a person whose needs were more satisfied with projects has had more participated in project. In the second hypothesis people whose perceived that benefit cost of project was fairly they were more participate in project, In the third hypothesis people whose perceived that benefit cost of project was equally to all participants, they were more participate in project, In the fourth hypothesis people whose perceived that benefit cost of project was people who's more satisfied with prior projects, were more participate in project. Finally In the fifth hypothesis people who were jointed voluntary to project were more participated in the project activities.

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